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## THE APPROXIMATE VITAMIN REQUIREMENTS OF HUMAN BEINGS

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Most of the research on vitamins and nutrition is directed ultimately to the solution of problems of human nutrition. In a war situation such as ours it is particularly desirable that we be able to apply whatever we may know or learn to practical ends.

A fully adequate idea of the requirements of human beings for the various vitamins could presumably be obtained only as a result of a series of extended controlled studies using human subjects. Even if it were feasible to plan and carry out experiments of this type just as animal experiments are planned and carried out, individual differences, assuming that small numbers of subjects were used, would doubtless make the results very irregular.

Recently we have developed assay methods for a number of the B vitamins<sup>1</sup> and because of an increased accumulation of information from various sources it becomes possible to state more definitely the vitamin contents of various foods and tissues. It appears now that this information makes it possible to obtain very simply a considerable amount of desired information regarding probable human requirements.

A study of the vitamin contents of (1) a well rounded mixed diet which might be recommended for human beings and (2) a widely used commercial animal food which promotes excellent performance in omnivorous animals shows that these more or less ideal diets when compared on an isocaloric basis, contain a relatively constant amount of the various B vitamins. This comparison is made more striking when the carcass of a mammal (rat) is also compared. Again, on the same caloric basis, the content of B vitamins agrees approximately and never is there disagreement by more than a factor of two. Where there is good agreement between these three independent materials there is a strong presumption that the amounts associated with 2,500 calories represent the approximate human requirement, assuming of course that the substance in question is actually a vitamin for human beings and cannot be synthesized in the body.

The indicated well rounded simplified diet, made up of natural foods, was formulated on the basis of modern

nutritional knowledge but without regard to its content of B vitamins. Presumably any one of a number of other mixed diets would yield results similar in this regard. It is doubtful if any diet could be selected which *a priori* would be known to be superior to the one chosen. It contains "protective foods" but not in obvious excess and is sufficiently diversified so that every nutrient should be amply provided. Enough milk and orange juice were included to insure good supplies of calcium and ascorbic acid respectively, but other considerations regarding specific needs were disregarded. The diet as indicated was completely settled on before any calculations regarding its content of B vitamins were made.

No claim can be made that the assay values are without error or that the total values derived from their consideration are in any sense final. Individual samples of foodstuffs vary in their content of B vitamin, but since the diet is made up of a number of constituents and often a number of samples were averaged, these variations doubtless tend to cancel out. There is no reason to think that the values obtained for any of the vitamins are consistently high. If enzymatic extraction is incomplete in any case, the values, of course, would tend to be low.

The animal food chosen (two samples obtained at different times of year) was a widely used commercial article suitable for rats, mice, dogs, cats and monkeys and which yields most excellent results, at least with the commoner laboratory animals. It is a mixed meat, milk and cereal diet containing various special additions including yeast and vitamin concentrates. Because the diet is the result of a large amount of research and yields excellent results, its general adequacy cannot be questioned. There are economic reasons why it would not be expected to contain the vitamins in excess. Concentrates and special additions are expensive and would naturally be used only on the basis of proved value.

An inspection of table 2 indicates that the following probably represent perfectly "safe" levels for daily intake of B vitamins by human beings, even under conditions of pregnancy and lactation: thiamine 3.2 mg, nicotinic acid 40 mg, riboflavin 3.7 mg, pantothenic acid 11 mg, biotin 0.14 mg, inositol 1,000 mg, pyridoxine 1.5 mg and folic acid 10 mg unit. It is not certain, of course, that all the B vitamins in the last four substances are actually required by human beings. Regardless of this fact, the vitamins actually occur in foods to about the extent indicated.

The National Research Council Committee on Foods and Nutrition has recently given careful study to the vitamin requirements of human beings. On the basis of available information the thiamine requirement, on a 2,500 caloric basis, has been estimated at 1.5 mg daily. During pregnancy and lactation this is raised

I have received valuable assistance from my colleagues. The Williams-Waterman Fund of Research Corporation made a special grant and the Clayton Foundation of Houston, Texas furnished the support which has made our testing program possible.  
<sup>1</sup> Studies on the Vitamin Content of Tissues. I. University of Texas Publication 4137, 1941.

figured on the same calory basis) to 18 mg and 9 mg respectively. The lowest figure is about the content of cow's milk and is higher than the content of human milk and therefore may be high enough. However, on the basis of the figures given in table 2, one might conclude that the values given are too low for absolute safety. Considering the whole rat carcass as a "complete" food, its thiamine content appears low in comparison until the low carbohydrate content is considered.

The National Research Council Committee has estimated the nicotinic acid requirement of man as 15 to 25 mg a day (2,500 calories). Elvehjem has placed it at 25 mg a day. The two diets furnish an adequate supply even on the latter basis. The higher content of the rat carcass may be correlated with the rat's ability to synthesize nicotinic acid.

The human riboflavin requirement has been estimated at 2.2 to 2.5 mg daily (2,500 calories). According to the figures given in table 2 one would conclude that

TABLE 1—Vitamin B Content of Foods

| Constituent         | Per Cent of the Calories | Thiamine, Mg | Nicotinic Acid, Mg | Riboflavin, Mg | Pantothenic Acid, Mg | Biotin, Mg | Inositol, Mg | Pyridoxine, Mg | Folic Acid, Mg Unit |
|---------------------|--------------------------|--------------|--------------------|----------------|----------------------|------------|--------------|----------------|---------------------|
| Whole milk          | 20                       | 0.3          | 0.4                | 1.4            | 2.2                  | 0.06       | 100          | 0.20           | 0.100               |
| Whole wheat cereals | 30                       | 1.0          | 11.5               | 0.34           | 2.4                  | 0.01       | 350          | 0.44           | 0.166               |
| Beef                | 9                        | 0.07         | 10.0               | 0.4            | 1.0                  | 0.01       | 21           | 0.11           | 0.043               |
| Pork                | 9                        | 1.5          | 7.0                | 0.2            | 0.7                  | 0.01       | 8            | 0.11           | 0.025               |
| Liver               | 2                        | 0.07         | 5.0                | 1.0            | 2.4                  | 0.13       | 25           | 0.02           | 0.037               |
| Potatoes            | 10                       | 0.2          | 3.6                | *              | 1.0                  | 0.002      | 87           | 0.66           | 0.190               |
| Butter              | 5                        | *            | *                  | *              | *                    | *          | *            | *              | *                   |
| Eggs                | 6                        | 0.2          | *                  | 0.04           | 0.2                  | 0.002      | 1            | *              | *                   |
| Fresh peas          | 4                        | 0.15         | 2.0                | 0.14           | 0.7                  | 0.014      | 16.2         | 0.63           | 0.124               |
| Fresh carrots       | 4                        | 0.1          | 0.6                | 0.15           | 0.6                  | 0.012      | 235          | 0.16           | 0.285               |
| Orange juice        | 2                        | *            | *                  | *              | *                    | *          | *            | *              | *                   |
| Total               | 100                      | 3.6          | 40.1               | 3.67           | 11.2                 | 0.25       | 987          | 1.77           | 1.70                |

\* The amount of these foods is small enough so that they contribute negligible amount of the B vitamin in question to the diet.

For perfect safety this figure should be increased by about 60 per cent.

No one has, so far as I know, ventured an estimate of the human requirement of pantothenic acid, but it appears safe now to conclude that it cannot be far from 10 mg a day. The validity of this estimate is increased by the fact that cow's milk yielded 10.5 mg per 2,500 calories, and human milk 10.9 mg per 2,500 calories.

The pyridoxine requirement, following the same line of reasoning, appears to be about 1.5 mg a day, that of "folic acid" (assuming it to be required) about 1 mg a day, and that of biotin about 0.15 mg a day.

Inositol is predominantly from vegetable sources, as shown in table 1, and the amount associated with 2,500 calories of food varies tremendously, depending on the source. A good mixed diet yields 1 Gm a day or more.

Assays of various organisms from different portions of the biologic kingdom (mammals, insects, bacteria, yeasts, higher plants) indicate that all eight of the B vitamins considered are always present. They appear, particularly in the case of thiamine, nicotinic acid, riboflavin and pantothenic acid, a definite tendency toward parallelism in the content of whole organisms. Yeasts, for example, are five to ten times as rich as the mixed diet in each of these four vitamins. Insects (cockroaches and termites), on the other hand, are in every case two to four times as rich in these vitamins

as the mixed diet. The other B vitamins tend to be more evenly distributed in the lower and higher forms of life. It thus appears that the tentative human requirements mentioned are parallel to but much lower than the amounts (figured on an isocaloric basis) which insect eating birds or yeast eating insects obtain.

TABLE 2—Vitamin B Content of Various Materials (2,500 Calories)

|             | Thiamine, Mg | Nicotinic Acid, Mg | Riboflavin, Mg | Pantothenic Acid, Mg | Biotin, Mg | Inositol, Mg | Pyridoxine, Mg | Folic Acid, Mg Unit |
|-------------|--------------|--------------------|----------------|----------------------|------------|--------------|----------------|---------------------|
| Mixed diet  | 3.6          | 40.1               | 3.67           | 11.2                 | 0.25       | 987          | 1.77           | 1.70                |
| Dog food    | 2.8-4.4      | 40-24              | 7-6.2          | 10-10.0              | 0.114-0.14 | 1,170-2,909  | 1.86-1.13      | 0.66-0.94           |
| Rat carcass | 1.86         | 63.0               | 4.03           | 14.0                 | 0.124      | 217          | 0.93           | 1.56                |

It is obvious that for various reasons (economic inability, use of decorticated grains, losses in cooking and cooking water, use of refined sugar and other "refined" foods) most people do not get as much of the various B vitamins as they probably should have.

What can be done to supplement this lack? One of the means which has been introduced by some members of the medical profession is the prescription of vitamin B complex preparations, which are usually derived from yeast or liver and often fortified with those synthetic vitamins which are available.

Unfortunately while yeast and liver are rich sources of B vitamins both known and unknown, they do not necessarily yield extracts which are extraordinarily rich. The B vitamins occur in bound form and are freed only by some type of digestion (autolysis or otherwise). When digestion is used to free the vitamins, much other soluble material is formed which contaminates the extract. One commercial brewers' yeast extract (from autolyzed yeast) was assayed for the eight B vitamins considered and found to be a good source of each. A calculation showed however that, in order to get enough of the B vitamins to equal the intake on a good diet one would have to consume

TABLE 3—Constituents of Average Daily Adult Dose of "Vitamin B Complex" as Sold by Six Representative Drug Houses

|   | Thiamine, Mg | Riboflavin, Mg | Nicotinic Acid, Mg | Pantothenic Acid, Mg | Pyridoxine, Mg |
|---|--------------|----------------|--------------------|----------------------|----------------|
| 1   | 2.5          | 0.62           | 5.0                | 0.9                  | 0.330          |
| 2   | 1.0          | 1.0            | 0.15               | 0.225                | 0.05           |
| 3   | 3.0          | 2.0            | 20.0               | 1.0                  | 1.0            |
| 4   | 0.75         | 0.25           |                    |                      | 0.25           |
| 5   | 2.5          | 0.7            | 35.0               |                      | 0.56           |
| 6   | 3.0          | 1.0            | 10.0               | 0.6                  | 0.5            |
| Amounts contained in well rounded diet (2,500 calories) | 3.0          | 3.7            | 40.0               | 11.0                 | 1.5            |

10 per cent of one's calories in the form of this yeast extract (7 to 8 teaspoons of dry powder). In a preparation such as this the physician could hardly expect to find a therapeutic agent of pronounced value. Extracts or preparations which are worthy of consideration should be plainly labeled as to their content of the various B vitamins and enough should be present to allow significant dosage. For correction of a deficiency

it may be desirable in some cases to give several times the ordinary daily intake

A survey of a number of representative vitamin B complex preparations with regard to their content of B vitamins is summarized in table 3. It is apparent that these preparations are in general wholly inadequate as sources of the vitamin B complex. Several of them may be of value because of their fortification with thiamine, nicotinic acid or riboflavin but they fail to contain anything like balanced amounts of the various B vitamins.

My purpose in this article is to point out that the approximate human requirements for various of the B vitamins can now be estimated with some reliability. Many American diets are doubtless low in these essential substances. Attempts to correct these deficiencies must be made intelligently and with full knowledge of what the requirements are and the contents of the proposed remedial agents. The present economic waste involved in the production and sale of preparations of questionable value must be large.

## THE ABSORPTION OF VITAMIN A IN TUBERCULOSIS

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AND

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In studies on man relating to vitamin A, reduced ability to absorb the vitamin was found in 1 patient with old intestinal tuberculosis. This suggested that investigation of patients with intestinal symptoms associated with tuberculosis should be made by means of the vitamin A absorption test.

This vitamin A absorption test is somewhat similar to the dextrose tolerance test. The patient is given a known amount of vitamin A in the form of a concentrated fish liver oil by mouth (7000 U. S. P. units per kilogram of body weight). Blood samples are taken before the oil is given and at four, eight and twenty-four hours after the ingestion of the oil. These blood samples are then analyzed chemically for the vitamin A concentration.<sup>1</sup>

Normally there is a decided rise in the blood concentration of vitamin A which usually reaches a peak at the fourth hour. Since vitamin A is fat soluble this test probably gives an index of the absorption of other fat soluble vitamins as well as fat itself. It has been shown that in several diseases in which fat digestion is disturbed the absorption of vitamin A is poor and the vitamin A absorption curve obtained is "flat." Thus in celiac disease,<sup>2</sup> cystic fibrosis of the pancreas,<sup>3</sup> intes-

tinal obstruction,<sup>4</sup> catarrhal jaundice and other hepatic diseases<sup>5</sup> the vitamin A absorption is abnormal.

The utilization of fat soluble vitamins and the fats themselves is obviously important in tuberculosis. Accordingly 29 patients with active pulmonary tuberculosis and intestinal symptoms were selected for preliminary study. Most of the patients had moderately to far advanced pulmonary tuberculosis and at least some intestinal symptoms.

These patients were divided into two groups: 16 patients with mild or slight intestinal symptoms and 13 patients with moderate to severe intestinal symptoms. On a basis of clinical symptoms (cramps, diarrhea and pain) most of the latter group would be classified as having intestinal tuberculosis. However, 7 of these patients subsequently died and came to autopsy. In only 2 of these 7 were significant pathologic changes found in the intestinal wall and these changes were found as is usual in the large bowel. Because of the difficulty of judging the degree of tuberculous intestinal involvement clinically, and because the patients' condition did not warrant extensive studies, we have divided our patients on this symptomatic rather than a pathologic basis.

No patient had an elevation of temperature at the time of the test.

As controls we used twenty-seven vitamin A absorption tests done on 25 supposedly normal adults.

### RESULTS

The results of the tests are recorded in the accompanying table. It will be noted that the mean maximum rise in vitamin A in the blood of normal persons was approximately twice that of all patients with tuberculosis. Furthermore, the blood of tuberculous patients with mild intestinal symptoms reached, on the average, twice the level of those with moderate or severe symptoms. Although there was considerable variation in individual cases, differences in the means are statistically significant. The maximum rise in concentration of vitamin A occurred at the fourth hour in 72 per cent of the patients with tuberculosis and in 70 per cent of the normal subjects. In the remaining subjects the maximum level was reached at eight hours.

If the degree of weight loss (weight at the time of test compared with standard weight for age and height) is correlated with the ability to absorb vitamin A, one finds that there is a moderate correlation (correlation coefficient is  $0.528 \pm 0.10$  using method of rank-difference correlation). In other words, the more underweight on the average, that the tuberculous patient is, the less able he seems to absorb vitamin A well.

### COMMENT

Our studies do not indicate the reason for lessened absorption of vitamin A in severely sick patients with tuberculosis. Fever, however, played little or no part, since most of the patients were afebrile at the time of the test. Actual tuberculous disease of the intestine, liver or pancreas probably was not a factor, for in the majority of patients who came to autopsy (all except 1 of whom absorbed vitamin A poorly) no gross or microscopic lesions were found in these organs which one would expect to interfere with the function of fat absorption. What functional derangement of absorption occurs, therefore, can only be surmised. In this

Dr. Carl Nielson of the Abbott Laboratories supplied us with the fish liver oil used in these tests.

From the Department of Pediatrics of the University of Rochester School of Medicine and Dentistry and Iola Sanatorium.

Mr. Arthur Kornberg and Miss Lolita Pannell performed the vitamin A absorption tests on 20 of the normal controls used in this study. These tests were done in the Department of Medicine of the University of Rochester School of Medicine and Dentistry.

1. The methods for the determination of vitamin A and of carotene and xanthophyll are given in detail elsewhere (Dann, W. J., and Evelyn, K. A. Method for Vitamin A Determination. *Biochem. J.* **32**: 1009 [June] 1938; Clausen, S. W., and McCoord, Augusta B. Method for Carotene and Xanthophyll. *J. Biol. Chem.* **113**: 89 [Feb.] 1936).

2. Chesney, Jack, and McCoord, Augusta B. *Proc. Soc. Exper. Biol. & Med.* **31**: 887 (April) 1934; Brese and McCoord, *May and McCreary*.

3. May, C. D., and McCreary, J. F. *J. Pediat.* **18**: 200 (Feb.) 1941.

4. Brese, B. B., and McCoord, Augusta B. *J. Pediat.* **15**: 183 (Aug.) 1939.

5. Brese, B. B., and McCoord, Augusta B. *J. Pediat.* **16**: 139 (Feb.) 1940.

connection the recent report of Sheely<sup>6</sup> on prothrombin efficiency in pulmonary tuberculosis is of interest. He showed in a series of 106 cases of tuberculosis that significant deficiency of prothrombin occurred in 51. In general, the more severe the tuberculosis, the more frequent was this deficiency. He felt that the toxemia resulting from the tuberculosis was related to the prothrombin concentration. Since vitamin K is, like vitamin A, fat soluble, this deficiency may result from poor absorption of vitamin K. Thus those factors in tuberculosis which cause poor absorption of vitamin A may also cause poor absorption of vitamin K.

Practically, however, there is some direct experimental basis for the clinical practice of giving large amounts of fat-soluble vitamins to patients with tuberculosis. In order to give adequate amounts of these vital substances to these patients more than the normal requirement should be given, especially if the patient has intestinal symptoms or noticeable loss of weight.

Distribution of Maximum Rise in Blood Level of Vitamin A in Normal and Tuberculous Persons

|  | Evelyn Photoelectric Units of Vitamin A |         |         |         |         |         |         |              |      |                        |                    |  |
|--|---|---------|---------|---------|---------|---------|---------|--------------|------|------------------------|--------------------|--|
|  | Under 100                               | 100-199 | 200-299 | 300-399 | 400-499 | 500-599 | 600-699 | Total Number | Mean | Standard Error of Mean | Standard Deviation |  |
| Normal"                                | 4                                       | 2       | 4       | 4       | 7       | 4       | 2       | 27           | 351  | 36                     | 181                |  |
| 11 patients with tuberculosis          | 11                                      | 8       | 3       | 4       | 2       | 0       | 1       | 29           | 160  | 29                     | 149                |  |
| Mild intestinal symptoms               | 3                                       | 5       | 0       | 2       | 2       | 0       | 1       | 16           | 21   | 42                     | 169                |  |
| Moderate to severe intestinal symptoms | 8                                       | 2       | 1       | 2       | 0       | 0       | 0       | 13           | 127  | 31                     | 117                |  |

SUMMARY

The absorption of vitamin A by 29 patients with severe pulmonary tuberculosis and variable degrees of intestinal symptoms was tested by means of the "vitamin A absorption test." The absorption of vitamin A by these patients was poorer than that by normal persons. Furthermore, the greater the degree of weight loss and the more severe the intestinal symptoms, the poorer, on the average, was their ability to absorb vitamin A. The explanation of this was not found at autopsy.

These facts give some experimental basis for the clinical teaching that the vitamin content of the diet of the patient with tuberculosis should be above the average requirement.

6 Sheely, R. F. Prothrombin Deficiency in Pulmonary Tuberculosis. J. A. M. A. 117: 1603 (Nov. 8) 1941.

**The Linkage of Cause and Effect**—If the gulf seems wide between the scientific method in science and the scientific method applied to social problems, we can be sure that time and rational effort will narrow it. Public health is now not a matter of prayer but of swift action. The public is educated to the need for control of epidemics because cause and effect have become scientifically linked on the level of public understanding. If tariffs, social security measures and unemployment were also educable to similar linkages of simply expressed cause and effect we might have a safer and happier future. In some complex problems, however, the linkage of cause and effect is not simple. It is hard to find proposition number one. Instead of one cause for unemployment there are a half dozen at least—Bowman, Isaiah. Enduring Purpose, *Assn. Am. Coll. Bull.* 6: 194 (May) 1940.

HISTAMINE IN THE TREATMENT OF MÉNIÈRE'S SYNDROME

AN APPRAISAL

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The publication in 1940 by Shelden and Horton<sup>1</sup> from the Mayo Clinic of a paper on the successful treatment of Menière's syndrome with histamine naturally caused a stir in the medical world. When to the value which is always attached to work from that institution was added the dramatic movie demonstration, at the annual meeting of the American Medical Association in the same year, of several acutely dizzy patients who, given an intravenous injection of histamine, immediately rose from their beds and walked, the reputation of histamine for the treatment of this condition was obviously assured, at least for a time. Since then it has been widely used and widely discussed.

Yet even at that time there were grounds for doubt as to whether histamine was really the wonder worker that it seemed to be. These doubts were voiced in a paper<sup>2</sup> which, written at that time (July 1940) and containing the results of some clinical experiments conducted during the previous twelve months on patients with Menière's syndrome, was later published in *THE JOURNAL*. In the year which has followed that writing, experience has accumulated which seems to prove those doubts to have been well founded, and it is to this experience and to some confusion evident in the minds of colleagues that the present communication is due.

Shelden and Horton advocated the use of histamine in all cases of Menière's syndrome without exception and claimed immediately satisfactory results in a large proportion of cases. These results, however, have not always been maintained even for patients who faithfully followed the maintenance regimen laid down by the authors. What proportion of cases has relapsed is not known, but that some have is shown by the fact that I have personal experience of 4 and reliable knowledge of 4 more. Moreover, results with histamine administered by a somewhat different method to patients of the histamine insensitive group have, as will be seen, been far from satisfactory.

In the paper mentioned,<sup>2</sup> reasons were given for believing that cases of Menière's syndrome did not all own the same etiology, but that they could be divided into two groups distinguishable by an intradermal test for histamine sensitivity, which was described. Further experience has only gone to confirm this finding. Unfortunately, to judge by inquiries received, this principle does not seem always to have been understood. So firmly has histamine become incorporated in the mind of the profession with Menière's syndrome that it is still being used in cases for which, if the thesis of two groups is correct, it is not suitable. My purpose in this paper is to show reason why it is believed that the use of histamine for all cases indiscriminately is unwise.

THE TWO GROUPS OF MÉNIÈRE CASES

To recapitulate briefly the principle mentioned, there is one group, and that the smaller one comprising less than a fourth of all cases, which is histamine sensitive.

From the Department of Surgery (Otolaryngology), the New York Hospital, and Cornell University Medical College.  
1 Shelden, C. H., and Horton, B. T. Treatment of Menière's Disease with Histamine Administered Intravenously, *Proc. Staff Meet., Mayo Clin.* 15: 17 (Jan. 10) 1940.  
2 Atkinson, Miles. Observations on the Etiology and Treatment of Menière's Syndrome, *J. A. M. A.* 116: 1753-1760 (April 19) 1941.



to the cutaneous test. As was shown in the original paper, this group can be treated effectively by gradual desensitization to histamine. Further experience has not altered this opinion though it has been found that sometimes a second and even a third short course may be necessary just as it may be necessary to repeat a vaccine. But it must be insisted that if success is to be achieved the criteria laid down for the intradermal test must be rigidly adhered to. To judge an intradermal test with histamine by the criteria for an intradermal test with ordinary allergens is to fall into error, for histamine is an irritant substance and produces even in normal subjects a considerable reaction. As in all departments of medicine a knowledge of the normal is necessary here in order to assess the abnormal. Experience has shown that dermal reactions which are normal are commonly read as abnormal or positive by those without previous experience of the test. But given that the patient shows a true positive cutaneous reaction to histamine the results of desensitization are eminently satisfactory.

The second and much the larger group which shows a normal cutaneous reaction to histamine cannot be treated satisfactorily by histamine at all, except over a short period of time virtually the time of the acute attack. The reason for this is that the attack in the larger group of patients the group insensitive to histamine is due to a vasoconstrictor mechanism. The evidence for this statement also is given in the original paper. Now if vasospasm is accepted as the underlying mechanism of the attack in this the larger group it is easy to understand why histamine acts in the acute phase as Shelden and Horton have shown that it does. Histamine is well

known as a powerful peripheral vasodilator, and because of this effect it overcomes the vasospasm producing the attack and so relieves the patient. But any peripheral vasodilator will do the same thing. I have recorded cases in which acute attacks have been relieved by amyl nitrite and acetylcholine, as also the satisfactory results obtained by using nicotinic acid over prolonged periods in the treatment of this group. Since the publication of that paper, acute attacks in 2 other cases have been immediately relieved, on two occasions by the intravenous use of sodium nitrite (0.1 Gm.) and on one occasion with nicotinic acid 50 mg. given intravenously, that is to say, by two other vasodilator drugs. It would thus seem probable that histamine by intravenous drip as recommended by Shelden and Horton, acts not by reason of any virtue in itself qua histamine but only by virtue of its action as a vasodilator.

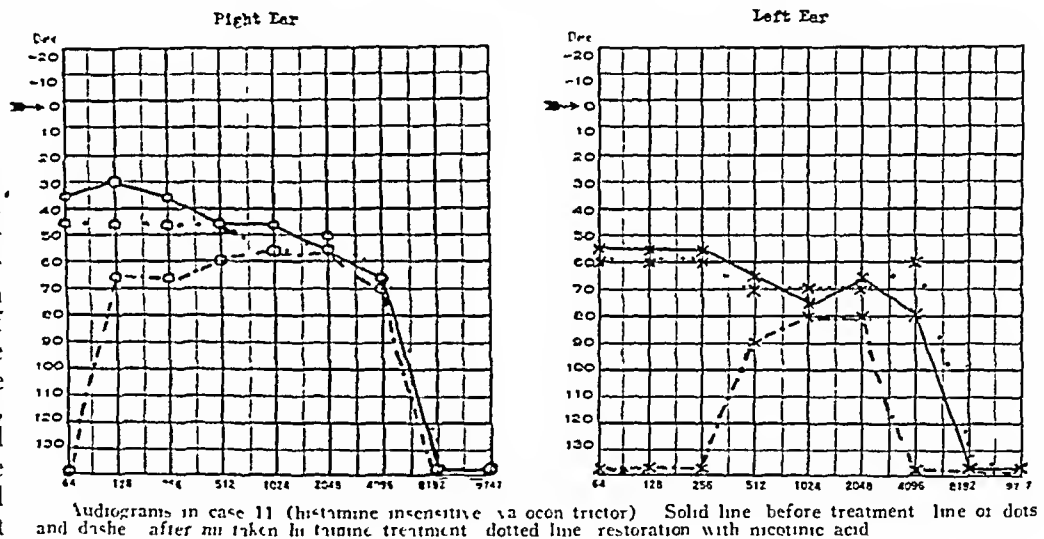
If the objection to histamine were only that it has no specific action other than its vasodilator effect, it would be a small matter. It might serve its turn here, as does ergotamine in migraine headache by relieving the acute attack even though it has no effect in preventing a recurrence. But there is more to it than that. Histamine repeated at regular intervals as a maintenance dose in this group of cases may and often does produce or at least is followed by, an increased frequency and

severity of attacks and sometimes an increase of deafness which can be shown objectively in an audiogram (as illustrated). One patient (V K, 15) said that she had the three most severe attacks in her experience while under treatment with histamine by the rapid method which Horton recommends.

#### RESULT OF HISTAMINE TREATMENT IN THE VASOCONSTRICTOR GROUP

The satisfactory results of histamine treatment in the vasodilator group have already been mentioned.<sup>2</sup> Details have been given in the original paper. In the vasoconstrictor group 15 persons were treated with histamine, 11 by me and 4 elsewhere who have since come under my care. Two of these were treated at the Mayo Clinic, the third in another clinic strictly according to detailed instructions from Dr. Horton and the fourth according to the Horton method as published.

The 11 personal cases came to be treated with histamine in the early days of working out the histamine cutaneous test, when positives were eagerly looked for and doubtful appearances were enthusiastically read as positive which it was later learned should have been



Audiograms in case 11 (histamine insensitive vasoconstrictor). Solid line before treatment line of dots and dashes after treatment with histamine dotted line restoration with nicotinic acid

read as negative. In consequence these wrongly grouped cases were treated with histamine, but by the slow desensitization process that I described, not in the manner described by Shelden and Horton. Actually in the two the principle is the same, though the details differ.

Of the 11 misgrouped cases treated according to the method I described, 2 improved slowly throughout the course until at the end they were free from even minor spells of vertigo. Since then they have been given only nicotinic acid and have remained well. Seven showed immediate improvement for a time (vasodilator action) and then relapsed, 1 after one injection, 4 after two or three injections, 2 after several injections, while 1 patient who relapsed experienced attacks of vertigo of increased frequency and severity. Two were immediately and progressively worse and treatment had to be stopped. In 4 cases tinnitus increased and the audiogram dropped sharply, in 1 quite precipitously and it was many months before hearing again returned to its previous level (shown in the audiograms). In the other 7 cases deafness and tinnitus were unaffected.

Of the 4 patients treated elsewhere, 1 experienced temporary results—or coincidental remission of attacks—then no relief. Two others experienced no remission, in fact attacks increased somewhat in severity without noticeable change in hearing or tinnitus, the

with similarly experienced no remission, but instead increase not only in vertigo but in deafness and tinnitus as well. In contrast to these unsatisfactory results of treatment with histamine in the vasoconstrictor group are the results of treatment with nicotinic acid. All the 15 patients in this series have been subsequently treated with nicotinic acid with the exception of 3: patient 8, who has been lost, patient 10, who improved for a time on nicotinic acid after histamine had made him worse, and patient 15, who has relapsed and has been lost sight of, and patient 15 who has only just come under observation. Two had already been relieved of attacks by histamine and have remained well since on nicotinic acid as already stated (patients 1 and 2). The remaining 10 have all been relieved of attacks over periods varying from three to fifteen months, except patient 12, severely ill, who at the time was having attack after attack. She was rapidly relieved by nicotinic acid, but when a reduction in dose was attempted (in August 1941) she relapsed in three weeks and started to have daily attacks again. Stepping up the dose of nicotinic acid promptly stopped them (illustrative case 1).

Results of Treatment with Histamine in Fifteen Cases of Vasoconstrictor Type

| Patient  | Sex | Age | Method | Vertigo                             | Deafness | Tinnitus | Result with Histamine                      | Result with Nicotinic Acid |
|----------|-----|-----|--------|-------------------------------------|----------|----------|--|----------------------------|
| 1 M F    | ♀   | 47  | Slow   | Abolished by treatment              | N C      | N C      | Improved (maintenance with nicotinic acid) | Improvement maintained     |
| 2 L I    | ♀   | 47  | Slow   | Abolished by treatment              | N C      | N C      | Improved (maintenance with nicotinic acid) | Improvement maintained     |
| 3 A S    | ♂   | 55  | Slow   | Relapsed during treatment           | N C      | N C      | N C  | Recovered                  |
| 4 H S    | ♀   | 62  | Slow   | Relapsed during treatment           | N C      | N C      | N C  | Recovered                  |
| 5 V A    | ♂   | 40  | Slow   | Relapsed during treatment           | N C      | N C      | N C  | Recovered                  |
| 6 L R    | ♀   | 44  | Slow   | Worse                               | Worse    | Worse    | Worse                                      | Recovered                  |
| 7 I M    | ♀   | 69  | Slow   | Worse                               | N C      | N C      | Worse                                      | Recovered                  |
| 8 W C    | ♂   | 27  | Slow   | Worse after preliminary improvement | Worse    | Worse    | Worse                                      | Lost                       |
| 9 J C    | ♂   | 59  | Slow   | Worse after preliminary improvement | Worse    | N C      | Worse                                      | Recovered                  |
| 10 A E B | ♂   | 37  | Slow   | Worse after preliminary improvement | N C      | N C      | Worse                                      | Recovered, relapsed        |
| 11 E S   | ♀   | 35  | Slow   | Worse after preliminary improvement | Worse    | Worse    | Worse                                      | Recovered                  |
| 12 M I P | ♀   | 32  | Rapid  | Worse after preliminary improvement | N C      | N C      | Worse                                      | Recovered, relapsed        |
| 13 B L S | ♂   | 61  | Rapid  | Worse                               | N C      | N C      | Worse                                      | Recovered                  |
| 14 E H A | ♂   | 26  | Rapid  | Worse                               | Worse    | Worse    | Worse                                      | Recovered                  |
| 15 V K   | ♀   | 63  | Rapid  | Worse                               | N C      | N C      | Worse                                      | Too early                  |

Method: Slow, author's; rapid, Horton's. N C, no change.

In addition as control and as further evidence of the effectiveness of nicotinic acid in the treatment of this group, it may be mentioned that, since the original report in which the results of this method in 17 cases were given,<sup>2</sup> a further 79 cases have been seen and treated on the same lines. A detailed report on results will be made shortly. Here it must be sufficient to say that they have been as satisfactory as in the case of the original 17 and have served amply to confirm the previous findings.

COMMENT

Referring only to that group of cases which has been called vasoconstrictor, it is apparent that histamine produces in many cases immediately beneficial results, especially in the treatment of the acute attack, and this is explainable by its vasodilator action. It would seem, however, that in the long run the results are not so satisfactory. This also is understandable. Repeated administration of the drug appears to induce in the body an immunity to its action, perhaps by encouraging

an increased production of histamine esterase, so that ultimately histamine loses its dilator effect. This is the rationale of desensitization in the sensitive group. If, and this is surmise, histamine is in part responsible for the normal balance of vasodilatation-vasoconstriction, if, as may be the case, excess of histamine or a histamine-like substance is the cause of the vasodilator effects seen in allergic subjects, then it stands to reason that neutralization of the vasodilator effect of histamine by increasing resistance to it, while perfectly rational in those cases in which vasodilatation is excessive, is quite irrational in that large majority of patients who are the victims of a primary vasoconstrictor mechanism. In them the normal compensatory process of vasodilatation is already diminished or absent, and the exhibition of histamine once its initial vasodilator effect has passed, will only serve to diminish further an already inadequate process. Indeed, it has been observed in several instances that the response to a vasodilator (nicotinic acid) is slower and for a time less satisfactory than usual in vasoconstrictor cases which have been previously treated with histamine. They become resistant and require higher dosage.

This objection, of producing resistance to the drug, does not apply to nicotinic acid. The body does not appear to acquire an immunity to the vasodilator action of this substance. Nor, since nicotinic acid is a naturally occurring substance, a vitamin, would acquisition of immunity be expected. In practice it has been found that this substance can be given over long periods of time with steady improvement, and often very rapid improvement, as regards diminution in severity of attacks, and with ultimate cessation of them.<sup>2</sup> Indeed, the results are sometimes little short of miraculous. Nicotinic acid may not be the final answer in the treatment of this group, but it is by far the best that I have found as yet.

SUMMARY

It seems not unjust to conclude from the evidence given that histamine is not suitable for universal application in cases of Meniere's syndrome. It is suitable for selected cases only, and only by assigning individual cases to their correct group can effective treatment be assured. It is on a par with typing pneumonia cases for serum treatment. Confusion has crept in—my mail is ample evidence of it and the precipitating cause for this communication—because histamine has two effects, an immediate and a remote, and the two have not been distinguished. The immediate effect is vasodilator, in

3 Since this paper was written, patient 15 has gone steadily ahead on nicotinic acid therapy, needing rather large doses, and has now been free from attacks for three months. Patient 14 on the other hand has relapsed after three months of freedom, perhaps as a result of the excessive doses which he as a doctor gave himself. This effect has been seen on other occasions. He was, unfortunately, impatient of relief and rather than try the effect of reduction, elected to have an eighth nerve section.

consequence of which it often gives immediate and sometimes dramatic relief from a vasoconstrictor attack though no more immediate or dramatic than other peripheral vasodilators. Its remote effect by inducing a resistance to its action in the body in the same way in which a vaccine produces a resistance to the effects of a micro-organism is nil or actually even vasoconstrictor. For this reason its repeated administration while exceedingly effective in the vasodilator group as a desensitizing agent in vasoconstrictor cases not only fails after the initial doses to produce the desired effect but sometimes even makes matters worse. Histamine will not relieve all or even most cases of Meniere's syndrome. Preliminary accurate grouping is essential to success.

#### ILLUSTRATIVE CASES

The following are three illustrative cases.

**CASE 12—***An instance in which histamine failed and nicotine acid succeeded.*

A woman aged 32 had suffered from Meniere attacks of increasing frequency and severity off and on over a period of eleven years. She had tried all the recognized methods of treatment and some others when she heard of histamine. She was treated with this substance at the Mayo Clinic therefore correctly and adequately according to its approved method with coincident improvement but with relapse following immediately on cessation of intensive treatment. Nevertheless she continued conscientiously with the maintenance regimen as advised, which however did not improve matters. When seen in April 1941 she was having three to four minor attacks daily and two or three severe attacks every week. She was almost completely incapacitated. Vigorous treatment with nicotine acid resulted in decided improvement within a week, and she was free from dizziness of any sort for three months (August 1941). Though still not entirely herself again a letter said that she was more active than she had been 'for a very long time' and was improving. Dosage was consequently decreased and in early September she wrote to say that she was experiencing another spell of attacks. Nicotinic acid intravenously stopped them at once, and on continued oral dosage she has been free for six weeks (October 1941).

**CASE 11—***An example of mistaken grouping. Histamine administered in a vasoconstrictor case with marked deterioration.*

A woman aged 35 already severely debilitated had suffered from dizzy spells of increasing frequency for eight and one-half years. When seen (in February 1940) she was having attacks almost daily. An intradermal histamine test was mistakenly adjudged positive and she was started on a course of desensitization. There was the usual immediate improvement while the drug acted as a vasodilator. After three weeks however attacks started again and became increasingly severe. Histamine was stopped and nicotine acid substituted, with immediate improvement. After one month of intensive treatment she ceased to have any severe attacks and after a further two weeks was relieved of attacks of any sort though still occasionally noticing a mild unsteadiness. Later she became pregnant for the first time after eleven years of married life without contraceptives, and her condition improved still more presumably as a result of further vasodilatation. Administration of nicotine acid was maintained throughout pregnancy. Except for a few minor attacks in the last two months the pregnancy was uneventful, and except for a month immediately after the birth of the child when she was having no treatment and had several (six to eight) minor attacks she has had no further trouble. Dosage of nicotine acid is now being gradually diminished without, so far, further attacks (October 1941, six months after delivery).

**CASE 14—***A case in which histamine was used despite a negative intradermal test.*

This case is particularly instructive. A newly qualified doctor aged 26 had started in November 1940, nine months before being seen to have prostrating attacks of dizziness which were diagnosed by himself correctly as Meniere attacks. They occurred

in batches of three or four at intervals at first monthly and then becoming more frequent. He tried, under advice, several accepted methods of treatment without effect. Then he performed on himself a histamine cutaneous test, which he correctly adjudged negative. Nevertheless, because he had read of the use of histamine for this condition and was impressed thereby, he decided to try histamine. This he did, first on his own account according to the method of administering it which I have adopted later under supervision and strictly according to directions received from the Mayo Clinic. It produced no noticeable improvement. On one occasion during an acute attack in the hospital he was given histamine intravenously, but the attack did not cease until eight hours later. The second day it was given again and the third, when it was followed in half an hour by an attack. It was persisted with and his attacks gradually increased in severity and frequency. Eventually he was persuaded to discard histamine and take to nicotinic acid a change which resulted in immediate though slow improvement. Attacks became less severe and less frequent and have now ceased though not for a period long enough to say that the result is permanent. Improvement was much slower than usual which may have been because of the long period of treatment with histamine which preceded the change, an effect which has been observed in other cases.

123 East Sixth-First Street

## CAUSTIC EFFECT OF SODIUM SULFATHIAZOLE SOLUTION ON NASAL MUCOUS MEMBRANES

### RESULTS OF ANIMAL STUDIES

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AND

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LOS ANGELES

It has long been the hope of rhinologists to find a medicament which, when applied in the nose and sinuses, would be bactericidal or at least bacteriostatic to pathogenic organisms yet spare the delicate ciliated membranes. Turnbull's<sup>1</sup> favorable recommendation of a nasal spray of 5 per cent sodium sulfathiazole no doubt raised such hopes. It has been difficult at large for specialists in otolaryngology to accept this recommendation. The complexity of chronic sinusitis is known too well to expect an eradication of infection, degenerative pathologic changes and the constitutional factors involved by the use of one medicament. Chronic sinusitis is not a specific disease, and success cannot be expected when it is so treated. Fletcher<sup>2</sup> has reported on the caustic action of sodium sulfathiazole in the maxillary sinus in 1 case.

The present report describes the effect of solutions of sodium sulfathiazole in 5 and 30 per cent concentrations when applied to the nasal mucous membranes of rabbits.

### METHOD OF STUDY

Approximately 1 cc of 5 per cent aqueous solution of sodium sulfathiazole was instilled into both nostrils of each rabbit three times daily. At intervals of two days 1 animal was killed until at the end of ten days

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Prof. Benton N. Colver of the College of Medical Evangelists gave suggestions, and Dr. Roland H. Osborne, pathologist of the White Memorial Hospital, assisted and cooperated in the preparation of the slides and interpretation of the pathologic findings.

<sup>1</sup> Turnbull F. M. Intranasal Therapy with Sodium Salt of Sulfathiazole in Chronic Sinusitis. J. A. M. A. 116: 1899 (April 26) 1941.

<sup>2</sup> Fletcher Russell. Sodium Sulfathiazole. Its Caustic Action. California & West Med. 55: 94 (Aug.) 1941.

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NATIONAL COLLEGE



animals had been killed. A sixth rabbit was allowed an additional seven days of recovery without further medication before it was studied. An untreated rabbit was used as a control. Death was accomplished by injecting air into the large vein of the ear. Local effects of the drug in powder form could not be determined, since its use in this form was found to be impracticable, a saturated solution of sodium sulfathiazole which represents a 30 per cent concentration of the drug was used instead. One additional rabbit was used for this experiment.

The heads of the animals were fixed in solution of formaldehyde, frozen with solidified carbon dioxide and cut in coronal serial sections about 3 mm thick. The next step was to decalcify the identical sections of each rabbit, after which microscopic sections were made, mounted and stained.

#### FINDINGS

The first slide after two days' instillation showed obvious changes. The mucous blanket was thickened, the cilia were indistinct and the columnar and basal cells showed some vacuolization. The blood vessels of the submucosa were dilated. Slides of the fourth, sixth, eighth and tenth days showed progressive destruction, the mucous blanket became more irregular with breaks in continuity. The ciliary layer after the eighth day was entirely indistinguishable, as were the cells of the columnar and basal cells. The basal cellular layer became progressively thicker, in some places four to five cells in thickness, and these cell walls were not distinct. There was some infiltration of small mononuclear cells and lymphocytes in the submucosa.

The turbinates showed a progressive displacement of the normal epithelium by a transitional type of epithelium several times the thickness of the normal cells.

The mucous membrane from the animal, which was allowed seven days for recuperation after ten days' instillation, showed remarkably little recovery at the end of this time. The mucous blanket was still impeded, and no ciliary or columnar layers were yet distinguishable. The basal cells were observed one to two cells in thickness and showed fused nuclei. Engorgement of the submucosa still existed.

The experiment in which the saturated solution of sodium sulfathiazole was used resulted in a more complete destruction of the membrane with occasional areas of ulceration. Other areas showed flattening out of the surface layer of epithelium six to seven cells in thickness, an apparent metaplasia to the stratified squamous type. This metaplasia as observed was interpreted as a protective reaction.

#### COMMENT

The studies we have presented would seem to indicate that a 5 per cent solution of sulfathiazole sodium squihydrate is injurious to the nasal mucous membrane of rabbits. The cilia and the superficial layers of columnar cells are to a large extent destroyed, and even after one week recovery does not take place. Hydrogen ion concentration determinations revealed that at both the 5 and 30 per cent solutions had a  $pH$  approximately 10. This is in accordance with Fletcher's findings and also the statement of a commercial house distributing the product. It is possible that the high degree of alkalinity of the solution may be a factor in causing the mucosal damage noted in these experiments. This possibility is especially interesting

in view of the recent findings of Fabricant<sup>3</sup> that the normal  $pH$  of human nasal secretions is in the acid range.

Literature advertising the use of 5 per cent sodium sulfathiazole states that this solution is isotonic, which may be somewhat misleading to those interpreting the term isotonic as meaning nonirritant. In the future, soluble combinations of the sulfonamides without caustic properties may be produced. Such solutions might prove useful.

#### CONCLUSIONS

1 Solutions of sodium sulfathiazole exert an early and severe destructive effect on the nasal mucosa of rabbits. This is true when the 5 per cent solution has been used as a nasal instillation.

2 After one week's rest from instillations there was little recovery from this destructive process.

3 Nonirritant chemical combinations of the sulfonamides may be possible and prove useful in the future.

1930 Wilshire Boulevard

## DEATH DURING SULFATHIAZOLE THERAPY

### PATHOLOGIC AND CLINICAL OBSERVATIONS ON FOUR CASES WITH AUTOPSIES

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With the extensive therapeutic use of sulfathiazole, reports of untoward reactions have appeared in the literature. Many of these have been of a transient nature while others have been more serious and have terminated in death. Cases studied at autopsy have not been many and postmortem observations have been few. Therefore it seems timely to report 4 fatal cases in which sulfathiazole appears to have played an important role and in which lesions attributable probably to the action of the drug were found in various organs. Furthermore, certain definite information has been gleaned whereby the toxic action of this valuable drug may be minimized and fatalities from its indiscriminate use averted.

From an experimental point of view, the toxicity of sulfathiazole and its pathologic effects have been studied by Rake, van Dyke, Corwin and their associates,<sup>1</sup> by Long and his associates<sup>2</sup> and by others.<sup>3</sup> These observers found that in acute toxicity experiments on mice sulfathiazole was less toxic than sulfapyridine but

3 Fabricant, N. D. Significant of the  $pH$  of Nasal Secretions in Situ, Arch Otolaryng 34 297 (Aug) 1941

From the Division of Pathology, Department of Laboratories, the Jewish Hospital

1 Rake, Geoffrey, van Dyke, H. B., and Corwin, W. C. Pathologic Changes Following Prolonged Administration of Sulfathiazole and Sulfapyridine, Am J M Sc 200 353 362 (Sept) 1940. Van Dyke, H. B., Greep, R. O., Rake, Geoffrey, and McKee, Clara M. Observations on the Toxicology of Sulfathiazole and Sulfapyridine, Proc Soc Exper Biol & Med 42 410 416 (Nov) 1939. Rake, Geoffrey, Van Dyke, H. B., Corwin, W. C., McKee, Clara M., and Greep, R. O. Pathological Changes Following Prolonged Administration of Sulfathiazole and Sulfapyridine, J Bact 39 45 46 (Jan) 1940.

2 Long, P. H. Thiazole Derivatives of Sulfanilamide, Sulfathiazole and Sulfamethyl Thiazole, J A M A 114 870 871 (March 9) 1940. Long, P. H., Haviland, J. W., and Edwards, L. B. Acute Toxicity, Absorption and Excretion of Sulfathiazole and Certain of Its Derivatives, Proc Soc Exper Biol & Med 43 328 332 (Feb) 1940.

3 Gross, Paul, Cooper, F. B., and Scott, R. E. Urolithiasis Medicamentosa, Urol & Cut Rev 44 205 209 (April) 1940. Lehr, David, Antopol, William, Churg, Jacob and Sprinz, Helmut. Acute Toxicity of Sodium Salts of Sulfapyridine, Sulfathiazole and Sulfamethylthiazole, Proc Soc Exper Biol & Med 45 15 20 (Oct) 1940. Lehr, David, Antopol, William, and Churg, Jacob. Massive "Acute" Precipitation of Free Sulfathiazole in the Urinary Tract, Science 92 434 435 (Nov 8) 1940.

that in chronic toxicity the toxic was the rule. Lesions were limited chiefly to atrophy of the spleen with changes in the malpighian bodies and to the presence of concretions in the renal tubules, pelvis and urinary bladder. In 1 mouse, focal necrosis of the liver was reported. In rats and monkeys sulfathiazole was found to be less toxic than sulfapyridine, and the lesions produced were slight and chiefly in the kidneys. Evidence of renal damage in 1 monkey included the presence of casts in the urine, interstitial necrosis, hyaline nephrosis and "signs of primary renal injury."

The experiments of Gross, Cooper and Scott<sup>3</sup> on rats showed the incidence of urolithiasis caused by sulfathiazole to be less than that caused by sulfapyridine. When associated with secondary infection and pyelonephritis it occasionally caused death. They also showed that the sulfathiazole uroliths, like those caused by sulfapyridine were liable to spontaneous solution and disappearance. The term "urolithiasis medicamentosa" was suggested by them for the condition in which administration of drugs was followed by their deposition in the free or conjugated state as concretions in the kidneys and urinary passages.

In man the toxic effects of sulfapyridine and sulfathiazole on the kidneys are well known. Transient renal manifestations such as nitrogen retention, renal colic, hematuria, oliguria and the presence of sulfathiazole crystals in the urine have been reported by many writers.<sup>4</sup> Pepper and Horack<sup>5</sup> reported a case of bronchopneumonia in which more than transient renal complications were observed following the administration of sulfathiazole. At autopsy concretions were found obstructing the renal tubules, as well as in the pelvis and bladder. Microscopically, there were also small focal areas of subacute and healed pyelonephritis with tubular nephrosis, round cell infiltration and colloid and hyaline casts in the adjacent tubules.

Loewenberg, Sloane and Chodoff<sup>6</sup> reported a case of pneumococcemia treated with sulfathiazole in which autopsy showed concretions in the kidneys, ureters and bladder but in which there were no clinical signs of renal damage. Cutts, Burgess and Chafee<sup>7</sup> in a study of the therapeutic results with sulfathiazole and sulfapyridine in two comparable series of 30 patients reported a mortality rate of 10 per cent in each group. The 3 patients in the sulfathiazole group who died had nitrogen retention. In 1 case hematuria developed and blood sulfathiazole concentrations were 101 mg per hundred cubic centimeters free and 14 mg total. In

the other 2 cases the urinary output diminished greatly, 1 patient becoming completely anuric. In the case presenting total anuria, the renal lesions were described as follows:

The glomeruli are everywhere intact. There is extensive fatty metamorphosis of the convoluted tubular epithelium. Here and there, in an isolated tubule, there is necrosis of the epithelium, sometimes associated with an infiltration by polymorphonuclear cells, lymphocytes and large mononuclear cells. The cellular infiltration occurs both within the tubular lumen and in the surrounding interstitial tissue. The collecting tubules are frequently filled with hyaline casts, occasionally with polymorphonuclear leukocytes, and others are packed with desquamated epithelial cells. There is marked lymphocytic infiltration of the cortex and hyperplasia of the lining epithelium. The epithelium of the tubules at the junction of the cortex and pyramids is frequently packed with granules and aggregates of yellow pigment.

These authors, commenting on the possible influence of sulfathiazole in producing renal damage, suggested that the renal shutdown might have been due to overwhelming infection producing toxic renal damage rather than from direct action of the drug. Nevertheless, they stated that renal function should be watched closely until more was learned about the effects of sulfathiazole on the kidney.

TABLE 1—Determination of Sulfathiazole in the Tissues in Case 1

|                            | Free Sulfathiazole, Mg per 100 Gc | Total Sulfathiazole, Mg per 100 Gc | Acetylation, Percentage |
|----------------------------|-----------------------------------|------------------------------------|-------------------------|
| Blood clot in renal pelvis |                                   |                                    |                         |
| Wet basis                  | 80.0                              |                                    |                         |
| Kidney                     |                                   |                                    |                         |
| Wet basis                  | 23.9                              | 39.1                               | 38.8                    |
| Dry basis                  | 127.0                             | 208.0                              | 38.8                    |
| Liver                      |                                   |                                    |                         |
| Wet basis                  | 17.1                              | 22.8                               | 25.0                    |
| Dry basis                  | 58.8                              | 77.8                               | 26.4                    |

Goodman and Gilman<sup>8</sup> state that information concerning the toxic potentialities of sulfathiazole is incomplete and that its ultimate chemotherapeutic evaluation awaits the result of a sufficient number of reports regarding its pharmacologic, toxicologic and therapeutic indications. So far as the writers know, the literature contains but one record<sup>9</sup> of an autopsy in which death was assumed to be directly or indirectly attributable to the ingestion of sulfathiazole and in which lesions were found in organs other than the kidneys. The pertinent observations were "acute agranulocytosis with membranous and gangrenous pharyngitis and laryngitis, focal membranous tracheitis, focal hemorrhagic bronchopneumonia, edema of the pharynx and larynx, and distinctive cloudy swelling of the myocardium, liver and kidneys."

#### REPORT OF CASES

CASE 1—History—R. N., a white girl aged 15 years, was admitted to the Jewish Hospital May 14, 1941. She had had acne and irregular menses for the past eighteen months. Since February 1940 she had been treated with hypodermic injections of an estrogenic substance in the first half of her menstrual cycle and gonadotropic substance in the second half. For the acne she was given desiccated thyroid, acne vaccine, ferrous sulfate and heliotherapy until April 12, 1941 without relief. On that date she was given 25 tablets of sulfathiazole, each containing 75 grains (0.5 Gm), to be taken one a day. The

4. Reinhold J. G., Flippin H. F. and Schwartz Leon. Observations of the Pharmacology and Toxicology of Sulfathiazole in Man, *Am J M Sc* **199** 393-401 (March) 1940. Knoll, A. F. and Cooper F. B. Clinical Urolithiasis Medicamentosa Due to Sulfathiazole. *Urol & Cut Rev* **44** 292-294 (May) 1940. Arnett J. H. Hematuria from Sulfathiazole Therapy in Pneumonia. *J A M A* **115** 362-363 (Aug. 3) 1940. Garvin, C. F. Renal Complications Due to Sulfathiazole. *ibid.* **116** 300-301 (Jan. 25) 1941. Flippin H. F., Schwartz Leon and Rose S. B. The Comparative Effectiveness and Toxicity of Sulfathiazole and Sulfapyridine in Pneumococcal Pneumonia, *Ann Int Med* **13** 2038-2049 (May) 1940. Finland Maxwell, Lowell I. C. and Strauss Elias. Some Aspects of the Chemotherapy of Pneumococcus Pneumonia. *Ann Int Med* **14** 1024-1031 1940. Garvin C. F. Comparison of Sulfathiazole and Sulfapyridine in the Treatment of Pneumococcal Pneumonia. *Arch Int Med* **66** 1246-1251 (Dec.) 1940. Long P. H. and Haviland J. W. The Problem of Pneumonia with Reference to Chemo- and Sero-Therapy. *Ann Int Med* **14** 1042-1049 (Dec.) 1940. Wagoner S. C. and Hunting W. F. Sulfathiazole and Sulfapyridine in the Treatment of Pneumonia in Infancy and Childhood. *J A M A* **116** 267-270 (Jan. 25) 1941.

5. Pepper D. S. and Horack H. M. Crystalline Concretions in the Renal Tubules Following Sulfathiazole Therapy. *Am J M Sc* **199** 674-679 (May) 1940.

6. Loewenberg S. A., Sloane N. G. and Chodoff Paul. Sulfathiazole Urinary Calculi in the Kidneys, Ureters and Bladder in the Absence of Marked Urinary Changes Following Sulfathiazole Therapy. *J A M A* **115** 2069-2071 (Dec. 14) 1940.

7. Cutts Morgan, Burgess A. M. and Chafee F. H. The Treatment of Lobar Pneumonia with Sulfathiazole and Sulfapyridine. *New England J Med* **223** 762-764 (Nov. 7) 1940.

8. Goodman Louis and Gilman Alfred. *The Pharmacological Basis of Therapeutics*. New York: Macmillan Company, 1941.

9. Hoyne A. L. and Larimore G. W. Sulfathiazole as a Cause of Death. *J A M A* **117** 1354 (Oct. 18) 1941.

terious sulfate was discontinued. Up to May 9 she had taken twenty-two tablets at which time mother series of twenty-five was begun. Three days later, shortly after taking a tablet, she began to complain of "prurpy" generalized itches and pains, chilliness, headache and a burning sensation in her eyes. The next morning her temperature was 104 F. Her physician ordered continuance of the sulfathiazole, increasing the dose

**Liver.** This organ weighed 1,280 Gm. The external and cut surfaces were red-brown mottled with yellow. The markings were indistinct.

**Kidneys.** The right kidney weighed 120 Gm. The capsule stripped easily and cleanly, revealing a smooth, shiny, red-brown bulging surface. In the cut surfaces it was difficult to recognize the corticomedullary distinction. The parenchyma bulged somewhat and was red-brown mottled with yellow. The cortex measured up to 6 mm in thickness. The pelvis was not distended and contained about 15 cc of clotted blood. On the surface of the clot, in places, there were pinpoint orange-yellow specks. A ureteral catheter extended into the pelvis of the kidney. Along the course of the ureter were small submucosal hemorrhagic areas. The ureteral orifices were patent. The left kidney weighed 150 Gm and was similar to the right kidney except for small petechiae beneath the mucosa of the pelvis. The ureteral orifice was patent and about it was a zone, about 5 mm in diameter, made up of tiny orange-yellow incrustations (fig 1) which analysis proved to be sulfathiazole. The urinary bladder was contracted and empty. The mucous membrane was very pale and boggy in places.

**Bone.** The vertebral marrow was red. The bony trabeculae were delicate.

**Spleen.** Culture from the spleen was sterile.

**Microscopic Examination.**—The tissues from all the cases were fixed in solution of formaldehyde and stained with hematoxylin-eosin and also by the Gram-Weigert method for bacteria.

**Lungs.** Scattered throughout the preparation were roughly round foci varying in size, arranged loosely or compactly and made up of a central core of amorphous material in which there could be demonstrated fibrin and nuclear fragments. These were surrounded by varying but small numbers of polymorphonuclear neutrophils, some small and large mononuclear cells and an occasional eosinophil and plasma cell. Remains of alveolar walls and some epithelial cells also were seen (fig 2). The

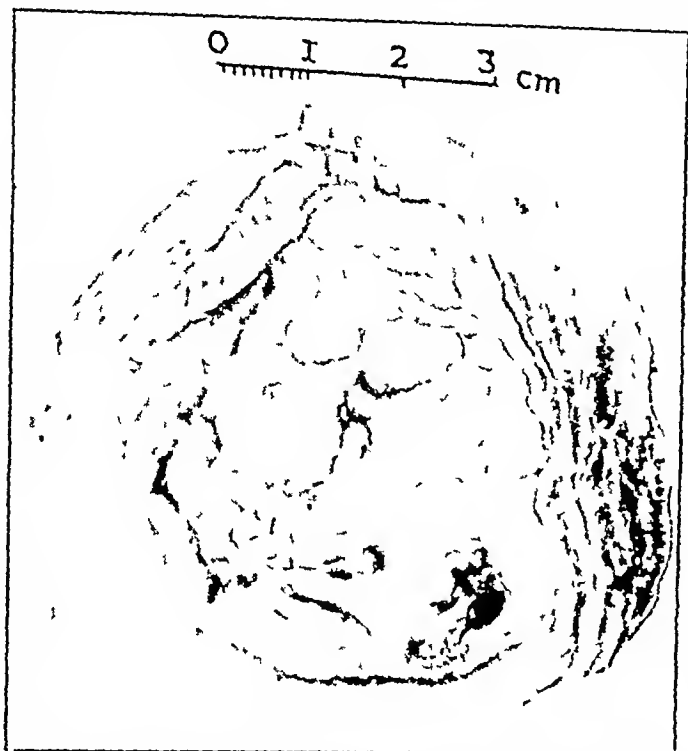


Fig. 1 (case 1).—Drawing of urinary bladder with incrustations of sulfathiazole in lower right (left ureteral orifice). Mucosa is greatly distended. Case 3 showed a similar picture.

to 15 grains (1 Gm) every four hours. She took six doses on May 13 and in addition to her other symptoms became delirious. The next morning she vomited after three attempts to take the tablets. It was then noticed that she had not voided since 4:30 p. m. the previous day despite forcing of fruit juices and fluids. On the way to the hospital in the ambulance she had generalized clonic convulsions.

**Physical Examination.**—The temperature was 105 F, the pulse rate 110 a minute and the respiratory rate 22 a minute. She had a diffuse papulopustular acne on the face, neck and shoulders. There was slight generalized muscular rigidity with hyperreflexia. A diagnosis of anemia due to sulfathiazole was made and she was given intravenous fluids in an attempt to stimulate renal function. Catheterization yielded 10 cc of curdled urine which contained innumerable sulfathiazole crystals, albumin, a moderate number of casts and a few white blood cells. The blood count showed a hemoglobin level of 74 per cent, 3,750,000 erythrocytes and 24,000 leukocytes, with 90 per cent neutrophils, 6 per cent lymphocytes, 2 per cent monocytes and 2 per cent eosinophils. Culture of the blood was sterile. Chemical examination of the blood showed 22 mg of free sulfathiazole per hundred cubic centimeters, 42 mg of urea nitrogen, a carbon dioxide combining power of 56.2 volumes per cent and 135 mg of sugar. After twelve hours cystoscopy was performed in an attempt to lavage the urinary passages. A catheter was easily passed into the pelvis of the right kidney, but several attempts on the left side failed because of an apparent obstruction 12 cm from the bladder. She died May 15 with a diagnosis of uremia due to sulfathiazole.

#### POSTMORTUM EXAMINATION

**Gross Examination.**—A complete postmortem examination was done. The body was well developed and well nourished. There was a papulopustular exanthem over the face and upper part of the chest.

**Lungs.** The external and cut surfaces were pink mottled with dark red-blue at the bases. They were crepitant and buoyant.



Fig. 2 (case 1).—Section of lungs ( $\times 250$ ), confluent foci of necrosis with slight peripheral reaction.

bronchioles were not distended. Their lumens contained pink staining granular material, epithelial cells, round cells and occasional white blood cells and red blood cells.

**Liver.** The capsule was thin. The arrangement of liver cells into cords and lobules was regular and distinct. In the connective tissue of the portal spaces there were some accumulations of mostly small and a few large mononuclear cells. The sinusoids were slightly distended and the Kupffer cells appeared

prominent. Scattered throughout the parenchyma and especially near the periphery of the lobules were various sized foci in which the cells had been destroyed. The remains of hepatic structures could be recognized in places by architectural remnants of cell membranes and connective tissue strands. The amorphous matrix of these areas contained nuclear fragments and debris. In some there were recognized a few small round



Fig 3 (case 1)—Section of liver ( $\times 250$ ) focal necrosis similar lesions found in cases 2 and 3

cells and about them there were a variable number of polymorphonuclear neutrophils and small round cells (fig 3).

**Kidneys** In a preparation from the right kidney within the cortex, the glomeruli were numerous and well distributed. They varied in size, some being larger and more cellular than usual. The capillary tufts were greatly distended. Bowman's capsule was thin. In some of the spaces there was granular pink staining amorphous material with an occasional red blood cell. The convoluted tubules were somewhat distorted. The lining cells were swollen to such a degree that the lumen was completely obliterated and the tubule appeared as a solid mass of structureless granular anuclear material (fig 4). The protoplasm of the surviving cells was granular and no hyaline droplets were seen either in the cells or in the lumens. In other places the cells showed evidences of a mild to moderately severe granular change. The collecting tubules were often tortuous and widely dilated and contained blood as well as granular or blood casts. The epithelium of these structures showed no remarkable change. In this preparation one tubule contained a crystalline object similar to those to be described in case 2. The stroma was not increased in amount or density and occasionally beneath the capsule it contained a few round cells. The peripelvic connective tissue contained some collections of small and large mononuclear cells, plasma cells and occasional polymorphonuclears. Some extravasations of blood also were found. The blood vessels throughout the kidney were congested. The preparation from the left kidney showed a somewhat similar picture. The changes in the convoluted tubules were more severe and extensive. In the cortex was a small focus of necrosis similar to that described in the liver. A preparation stained for fat showed an abundance of droplets in the epithelium of the convoluted and collecting tubules. Double refractile

lipoids were demonstrated in the epithelium of the convoluted tubules. The epithelium of the bladder was fairly well preserved and thrown into broad undulations. The tunica propria was extremely edematous and composed of delicate fibrous tissue which was widely separated by clear spaces, owing to edema. Numerous small and large mononuclear cells were diffusely scattered throughout. The muscularis was also broadened but otherwise not remarkable.

**Spleen** The follicles were numerous, well formed and evenly distributed. In some a few swollen reticulum cells could be seen. The sinusoids were greatly distended and the walls were prominent. In some areas there were extravasations of blood. A few collections of large numbers of polymorphonuclear leukocytes were occasionally seen. In some areas, particularly at the periphery of the malpighian bodies, small foci of necrosis similar to those already described were found (fig 5).

**Lymph Nodes** The cytoarchitecture was obscured by edema. The follicles were swollen and their boundaries merged almost imperceptibly with the pulp. The latter was loosely arranged and contained large numbers of plump reticulum cells. The sinuses were prominent and the vessels were distended.

**Bone Marrow** In the preparation from one of the lumbar vertebrae the bony trabeculae showed no unusual changes. Between them there was an abundance of hemopoietic cells. Scattered throughout were small irregularly shaped foci containing masses of amorphous material in which remnants of erythrocytes and immature leukocytes could be distinguished. These resembled those found in the other organs.

**Summary of Case 1**—A young girl after three weeks of treatment for acne with sulfathiazole had chills, fever and pyrexia. Despite the absence of positive physical manifestations to corroborate an infectious cause of the symptoms, she was given increased doses of the drug. This was followed by anuria and coma. High concentrations of sulfathiazole were found in the blood and

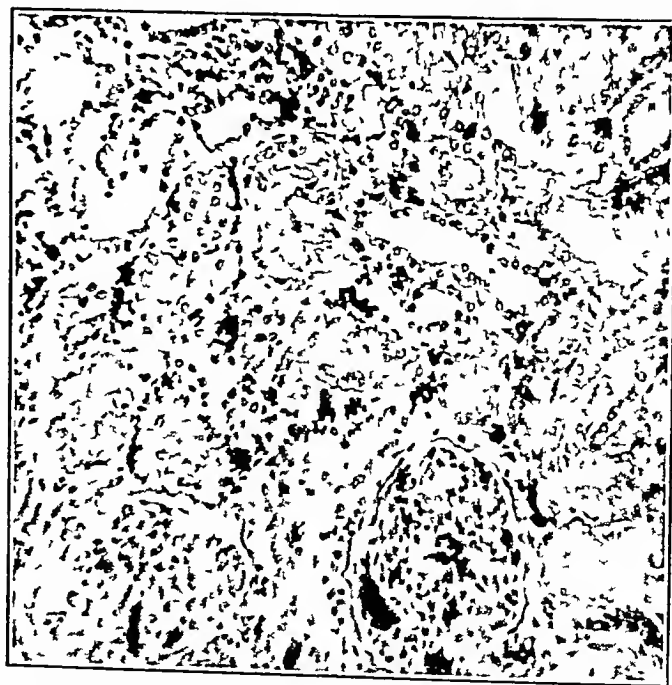


Fig 4 (case 1)—Section of kidney ( $\times 250$ ) focal congestion in glomeruli, few erythrocytes in Bowman's space, degeneration of tubular epithelium, dilatation of some and occlusion of other tubules similar lesions in case 2

crystals of the drug in the urine. In spite of discontinuance of the drug administration of fluids intravenously and ureteral catheterization the patient died fifty hours after onset of the anuria.

The anatomic diagnosis was acne vulgaris, sulfathiazole urolithiasis, petechiae and hemorrhage in the pelvis and ureter, edema in the bladder, focal necroses in



the liver, spleen, lungs, kidney and bone marrow, nephrosis and splenomegaly. The final impression was one vulgaris with sulfathiazole intoxication showing visceral focal necroses and nephrosis.

CASE 2—History—H. K., a white man aged 60, was first admitted to the Jewish Hospital three weeks before the present illness for the repair of a hernia. His course was satisfactory

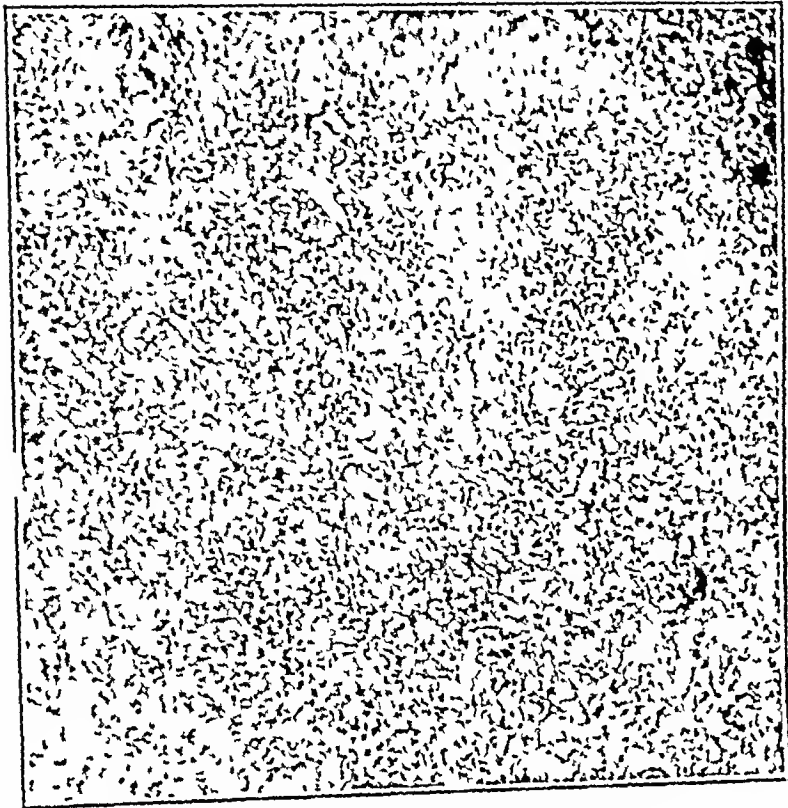


Fig. 5 (case 1)—Section of spleen ( $\times 125$ ), foci of necrosis, similar lesions in cases 2 and 3.

until the tenth postoperative day, at which time his temperature rose to 102 F, and a few rales were heard at the base of the left lung. He was given sulfathiazole and two days later his temperature was 99 F. He was discharged in good condition except for a few residual rales at the base of the left lung. A sulfathiazole determination on his blood before discharge showed a total concentration of 86 mg per hundred cubic centimeters. At home the drug was continued. On August 8 he had a chill and a temperature of 105 F, and a generalized maculopapular erythematous rash developed. The sulfathiazole was continued because it was thought that the rise in temperature indicated an infection. His temperature remained high, and he gradually lapsed into coma, becoming incontinent of urine and feces, and was readmitted to the hospital the following day. Up to this time he had taken 660 grams (44 Gm) of sulfathiazole.

Physical Examination—On readmission the patient was semicomatose. His temperature was 104 F, the pulse rate 120, the respiratory rate 30 a minute and the blood pressure 130 mm of mercury systolic and 70 diastolic. There was a diffuse generalized rash over the body. He was dehydrated and his respirations were labored. The conjunctivas showed congestion with slight chemosis. There were coarse rales at the base of the left lung. The clinical impression was sulfathiazole intoxication, sepsis and pneumonia. He was catheterized and 1 ounce (30 cc) of cloudy urine containing many granular casts and a trace of albumin was obtained (the urine previously had been normal). Examination of the blood showed urea nitrogen of 51.2 mg per hundred cubic centimeters and total sulfathiazole of 118 mg. He continued anuric and cystoscopy was done, yielding about 1/2 ounce (15 cc) of bloody turbid urine. The bladder showed a "sandstorm" appearance which was interpreted as being due to either sulfathiazole crystals or mucofibrin. Despite attempts to stimulate renal function by means of hypertonic dextrose solution and intravenous sodium sulfate, the patient remained anuric. On August 15, decapsulation and right nephrotomy were done. He died two hours later. A blood sulfathiazole determination on August 13 was 13 mg

per hundred cubic centimeters total and 8 mg free. On August 15, the day of his death, the free sulfathiazole was 8 mg per hundred cubic centimeters.

POSTMORTEM EXAMINATION

Gross Examination—A complete autopsy was performed. The conjunctivas were smoky, injected and studded with pinpoint areas of red.

Lungs The trachea and bronchi contained gray-green, tenacious, mucoid material. The lungs were crepitant and buoyant.

Liver This organ weighed 1,830 Gm. The external and cut surfaces were pale brown, interspersed with small yellow areas. The markings were very prominent.

TABLE 2—Determinations of Sulfathiazole in the Tissues in Case 2

|           | Free Sulfathiazole, Mg per 100 Gm | Total Sulfathiazole, Mg per 100 Gm | Acetylation, Percentage |
|-----------|-----------------------------------|------------------------------------|-------------------------|
| Kidney    |                                   |                                    |                         |
| Wet basis | 3.4                               | 4.75                               | 27.2                    |
| Dry basis | 12.8                              | 17.8                               | 28.0                    |
| Liver     |                                   |                                    |                         |
| Wet basis | 5.61                              | 8.75                               | 35.8                    |
| Dry basis | 23.1                              | 36.0                               | 35.8                    |

Kidneys The right kidney weighed 190 Gm and was decapsulated. The nephrotomy wound extended well into the pelvis of the kidney, which was filled with clotted blood. The mucosal lining of the ureter was discolored red-brown in places. The surface of the kidney was pale and showed many pinpoint areas of red. The sectioned surfaces were of similar color and streaked with red-brown. The cortex and medulla were difficult to differentiate. The pelvis was red-purple in places and contained some clotted blood. The left kidney weighed 160 Gm. The capsule stripped easily and revealed a smooth, pale, bulging, brown surface similar to that of the right kidney. The cut surfaces also resembled those of the right kidney. The ureteral



Fig. 6 (case 2)—Crystals in tubules of kidneys ( $\times 1,000$ ), also found in case 1.

orifices were dilated and the bladder mucosa about the orifices was swollen and edematous. The bladder was empty.

Spleen This organ weighed 250 Gm. The external and cut surfaces were purple. On section the fibrous markings and follicles were distinct.

Bone The bone marrow was bright red and abundant.

Microscopic Examination—Liver The capsule was slightly thickened. The arrangement of cells into cords and into lobules was normal. The central veins and sinusoids were

distended. The Kupffer cells were prominent. The connective tissue of the portal spaces contained dense collections of small and large mononuclear cells as well as an occasional polymorphonuclear neutrophil. Scattered throughout the parenchyma were small foci of necrosis which were similar to those described in the previous case (fig 3).

**Kidneys.** In a preparation from the left kidney the capsule was slightly thickened. Beneath it were a few wedge shaped

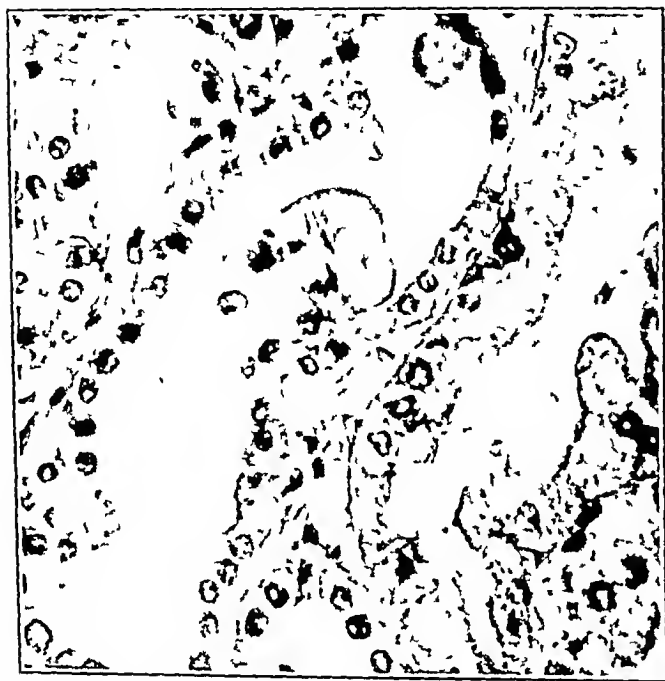


Fig 7 (case 2)—Crystals in tubules of kidney ( $\times 700$ ) also found in case 1.

areas composed of dense fibrous connective tissue surrounding hyalinized glomeruli and containing small and large round cells. Otherwise the glomeruli were numerous, evenly distributed and for the most part, well preserved. The capillary tufts were congested. An occasional Bowman's capsule was thickened and the cells assumed a basophilic appearance. The convoluted tubules presented a variegated picture. The epithelial cells were swollen, the cytoplasm was coarsely granular and the nuclei were pyknotic, fragmented or absent. In some the swollen and degenerated epithelium obstructed the lumen completely. Many lumens harbored lavender or blue staining crystalline deposits which were oval or round. A few appeared homogeneous, others showed lines which radiated out from the center. Many of them appeared split into triangular segments, giving a spoke-wheel appearance (figs 6 and 7). Occasionally they were embedded in casts of amorphous pink staining material. Many of the collecting tubules were noticeably distended. The epithelium in these was intact. In some places, particularly beneath the capsule, were foci of necrosis similar to those seen in the other organs. Occasional small and large round cells were seen scattered sparsely and diffusely in the stroma. The peripelvic connective tissue contained extravasated blood cells, some collections of round cells and occasional polymorphonuclear neutrophils. Examination of the right kidney showed a similar picture.

**Adrenal Glands.** In a preparation from one of the adrenal glands the capsule was delicate and contained distended capillaries. The arrangement of the cell layers was orderly. Scattered throughout were small focal areas of necrosis exactly like those seen in other organs. These were found particularly in the zona fasciculata and zona reticularis. The medullary tissue appeared to be uninvolved.

**Bone Marrow.** In a preparation from a lumbar vertebra, the chondro osseous junction was narrow and even. The bony trabeculae were narrow and enclosed spaces which harbored a good number and variety of hemopoietic cells as well as megakaryocytes. Small focal areas of necrosis were scattered diffusely throughout. These were composed of granular cellular debris similar to those in case 1.

**Summary of Case 2.**—An elderly man who had been operated on for the repair of a hernia had a slight temperature and vague pulmonary signs on the tenth postoperative day for which he was treated with sulfathiazole, the drug being continued after his discharge. Eight days later he had a chill, his temperature rose to 105 F and a maculopapular rash appeared. He lapsed into coma and became rapidly anuric. Catheterization and renal decapsulation with pelvic drainage were resorted to in attempts to stimulate and reestablish kidney function without avail. On discharge from the hospital his blood showed a total sulfathiazole level of 86 mg per hundred cubic centimeters. Two days before death it was 8 mg per hundred cubic centimeters in the free state.

The anatomic diagnosis was nephrosis, focal necroses in the liver, kidneys, adrenal glands and bone marrow, deposits in kidney tubules (sulfathiazole?), splenomegaly, interstitial hepatitis, dermatitis, acute conjunctivitis. The final impression was sulfathiazole intoxication with visceral focal necroses and nephrosis.

**Case 3.**—A white man aged 71 had had hypertension for ten years, albuminuria and pyuria intermittently for the past two years and some frequency and nocturia. Two weeks prior to admission he had an attack of chills and fever with pyuria and was given sulfathiazole. Nine days later his temperature was normal and examination of the urine showed a few clumps of leukocytes and a faint trace of albumin. His prostate gland was moderately enlarged. Intravenous pyelography revealed a picture suggestive of polycystic disease of the kidneys. Cystoscopy showed cystitis and trigonitis. Both ureteral orifices appeared normal. The middle lobe of the prostate gland was definitely enlarged and both lateral lobes were moderately enlarged. One day before admission he complained only of slight frequency of urination but during the night chills and

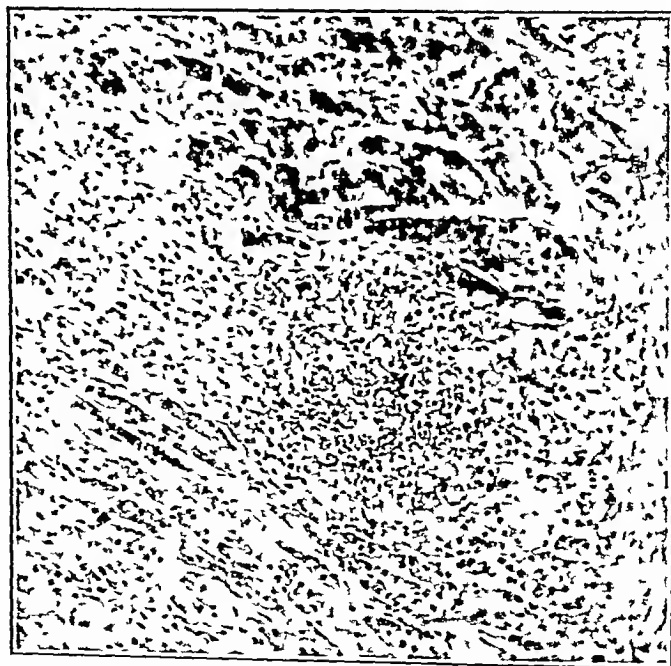


Fig 8 (case 3)—Section of adrenal gland (slightly reduced from a photomicrograph with a magnification of 190 diameters) focal necrosis also seen in case 2.

fever developed. On admission he appeared acutely ill. His temperature was 104.2 F, the pulse rate 96 and the respiratory rate 20 a minute. There were a few rales at the left base but no dulness or bronchial breathing. The clinical impression was polycystic disease of the kidneys with pyelonephritis. Sulfathiazole 15 grains (1 Gm) every four hours was continued and 2,000 cc of 5 per cent dextrose in saline solution was given parenterally. The next day his temperature was 104 F.

and he appeared lethargic. Catheterization yielded 4 ounces (120 cc) of residual urine with a faint trace of albumin and a few leukocytes and erythrocytes. *Escherichia coli* was cultured from the urine. Culture of the blood was sterile. The blood urea nitrogen was 11.5 mg per hundred cubic centimeters. Portable roentgenograms of the chest suggested bronchopneumonia infiltration throughout both lungs. On the second day he was comatose but lumbar puncture the next day yielded no additional information. Sodium sulfathiazole was administered by venoclisis. Neurologic examination indicated definite cerebral involvement which was interpreted as being due to the continued pyrexia. On the fourth hospital day the total blood sulfathiazole was 6.7 mg per hundred cubic centimeters. He died approximately ninety-six hours after admission. During hospitalization he received a total of 240 Gm of sulfathiazole.

#### POSTMORTEM EXAMINATION

**Gross Examination**—The body was well developed and well nourished. The mucosa of the trachea and bronchi was covered with gray-green material. Beneath this exudate the mucosa was studded with slightly elevated firm, gray patches that measured up to 2 mm in diameter. These were especially numerous in the upper part of the trachea and in the right bronchus.

**Lungs** The lungs showed no unusual features.

**Liver** This organ weighed 1715 Gm. The external and cut surfaces were pale brown and contained numerous pinpoint

TABLE 3—Determinations of Sulfathiazole in the Tissues in Case 3

|               | Free<br>Sulfathiazole,<br>Mg. per<br>100 G. | Total<br>Sulfathiazole,<br>Mg. per<br>100 G. | Acetylation<br>Percentage |
|---------------|---|--|---------------------------|
| <b>Spleen</b> |   |  |                           |
| Wet basis     | 7.0   | 7.1  | 14                        |
| Dry basis     | 25.2  | 25.6   | 14                        |
| <b>Liver</b>  |   |  |                           |
| Wet basis     | 11.1  | 11.7   | 42                        |
| Dry basis     | 11.1  | 27.9   | 11                        |
| <b>Kidney</b> |   |  |                           |
| Wet basis     | 9.9   | 10.0   | 10                        |
| Dry basis     | 14.7  | 14.6   | 20                        |

sized gray areas which were most prominent near the portal veins. These were scattered diffusely throughout the cut surface.

**Adrenal Glands** Together they weighed 28 Gm and showed no unusual features.

**Kidneys** The right kidney weighed 580 Gm. The external surface contained numerous thin walled, smooth lined cysts, measuring up to 6 cm in diameter, which were filled with clear amber fluid. They were irregularly scattered throughout. The capsule stripped with difficulty, portions of the cortex adhering to it, revealing a red-brown, fine and coarsely granular surface. The cortex and medulla were well demarcated. In places tiny yellow gray streaks were present. The left kidney weighed 520 Gm and was similar to the right. A nodular black calculus 1.6 cm in diameter filled one of the renal calices. Both pelvis and ureters were not remarkable. The bladder was contracted and thick walled. The mucosa was boggy and in places was a dull to an angry red. Between the ureteral orifices was a firm orange-yellow crystalline mucosal incrustation 3 mm in diameter, which gave the chemical reaction for sulfathiazole.

**Prostate Gland** This organ was moderately firm and enlarged. On section it was pale brown, mottled with areas of gray.

**Spleen** The spleen weighed 325 Gm. The external surface was slate blue, smooth and glistening. The cut surfaces were brick red and dry. The follicles and fibrous markings were distinct.

**Microscopic Examination**—**Heart** In a section of a branch of the coronary artery the walls of the vessel itself showed no unusual features. In the adventitia were focal areas of necrosis with infiltration by round cells and some polymorpho-

nuclear leukocytes. The lesion did not appear to be of an inflammatory nature but rather one with a primary necrosis followed by cellular infiltration.

**Trachea** The mucosa was replaced in places by slightly raised plaques which consisted chiefly of amorphous granular blue-staining debris containing some remnants of nuclei. This process involved only the mucosa and began and ended abruptly. Well preserved tracheal ciliated epithelium could be seen adjacent to the borders. In the submucosa just beneath these lesions there were infiltrations with round cells and polymorphonuclear leukocytes.

**Lungs** In a preparation from the right lung, the pleura was slightly thicker than usual and contained numerous large mononuclear cells filled with black pigment granules. The alveoli were broad and empty, and many were confluent. The interalveolar septums were delicate and in places appeared disrupted. The mucosal lining of the bronchioles was well preserved and the lumens contained desquamated epithelial cells. The walls were thickened and infiltrated with polymorphonuclear leukocytes and small and large round cells. The walls of the larger arteries were slightly thicker than usual and their lumens narrow. A preparation from the left lung was similar except that in one small area the alveoli were filled with varying amounts and proportions of red blood cells, polymorphonuclear leukocytes and small and large mononuclear cells. A bronchiole in this region contained amorphous pink staining material, poorly preserved polymorphonuclear leukocytes, small and large mononuclear cells, desquamated epithelial cells and clumps of blue-staining cocci.

**Liver** The architectural pattern was not altered. In some places the liver cells appeared to be swollen and the protoplasm was granular. The sinusoids and the central veins were distended and the Kupffer cells very distinct. Scattered throughout were small areas in which the liver cells showed various degrees of degeneration to complete destruction. Most of these foci were situated in or near the midzones of the lobules, occasionally being found adjacent to central veins or portal areas. They were composed of the remains of liver cells, nuclear fragments and debris, together with a variable degree of infiltration with small round cells and some polymorphonuclear neutrophils.

**Spleen** The follicles were numerous and well distributed. Occasional germinal centers were seen which were composed of swollen, poorly preserved reticulum cells. The endothelial cells lining the sinuses were swollen and appeared prominent. The pulp was the seat of congestion and hemorrhage. Scattered throughout were varying sized foci of necrosis with little cellular reaction. The sinusoids were distended and contained numbers of polymorphonuclears and large mononuclear cells.

**Adrenal Glands** In preparations from the adrenal glands there were foci of necrosis similar to those in the other organs (fig. 8). These involved the deeper portions of the zona fasciculata and the zona reticularis. None were found in the medulla.

**Kidneys** In a preparation from the right kidney the capsule was thick and composed of dense bands of fibrous tissue containing an occasional round cell. In one place beneath the capsule there was a roughly wedge-shaped area which was made up of a dense fibrous tissue stroma with numerous small and large mononuclear cells and distended capillaries. In the deeper layers of the cortex were several round areas in which no tubules or glomeruli could be distinguished. These contained closely packed, poorly preserved polymorphonuclear leukocytes, nuclear debris, small and large round cells and some fragmented epithelial cells. In other places a few of the glomeruli were replaced by hyalinizing fibrous tissue. The glomeruli were congested. The epithelium of the convoluted tubules was well preserved and the lumens were empty. Scattered throughout were many cysts. The left kidney was similar to the right.

**Urinary Bladder** The surface was corrugated. The membrana propria was edematous and contained an occasional focus of necrosis similar to foci described in other organs.

**Prostate Gland** The acini varied much in size. Some were empty, others contained pink staining material and some leuko-

cytes. Still others were greatly dilated and lined by one or more layers of cuboidal cells. About many of these the stroma was densely infiltrated with large numbers of polymorphonuclear leukocytes and a few round cells.

**Me-enteric Lymph Node.** Preparation showed diffuse edema. The follicles were difficult to identify. Some appeared compact

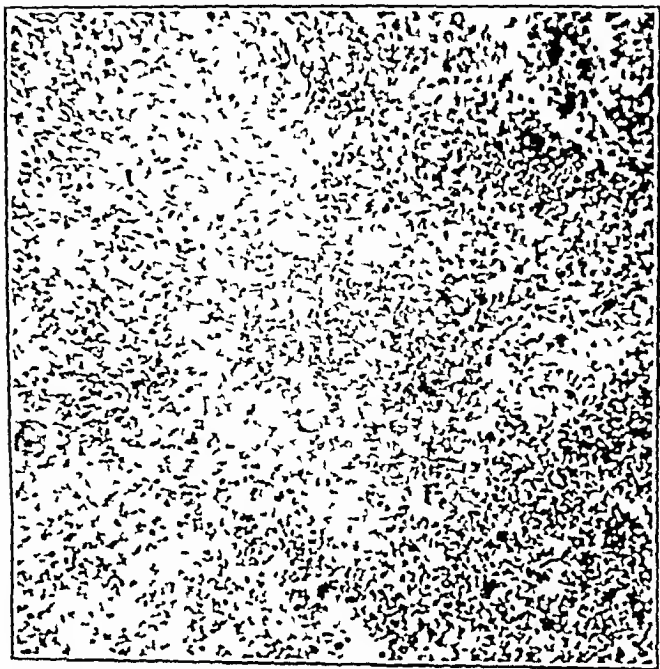


Fig. 9 (case 3)—Section of lymph nodes ( $\times 185$ ), focal necrosis also found in cases 1 and 2.

and occasionally in their centers there were compressed masses of pink and purple staining necrotic debris. Scattered throughout the pulp were many areas of necrosis varying in size and shape, some being extensive and confluent. Poorly preserved leukocytes were scattered throughout. The reticulum cells were swollen and increased in number. An occasional foreign body giant cell could be recognized (fig. 9).

**Bone Marrow.** In preparations from a rib and a lumbar vertebra the bony trabeculae appeared as usual. The marrow was composed of the usual variety of cells and was abundant. However, scattered throughout were a number of irregularly shaped foci which contained red blood cells in various stages of destruction together with amorphous debris and nuclear material (fig. 10).

**Summary of Case 3.**—An elderly man who had intermittent symptoms referable to the prostate gland for about two years two weeks before admission had an attack of chills, fever and pyuria and was treated with sulfathiazole. He apparently responded favorably to the treatment. Five days before admission the abnormal urinary findings were slight. His temperature was normal. However, the drug was continued and on the night before admission chills and fever occurred. In the hospital, the urinary changes were slight with the exception that *Escherichia coli* was cultured from the catheterized specimen. Roentgen examination suggested bronchopneumonia, and because of this diagnosis, together with a possible suppurative nephritis, full doses of sulfathiazole were given. The patient continued feverish and rapidly lapsed into coma. He died fifty hours after admission.

The anatomic diagnosis was focal necroses in the liver, kidneys, spleen, adrenal glands, lymph nodes, urinary bladder, trachea, coronary artery and bone marrow, sulfathiazole urolithiasis, edema in the bladder, abscesses and overgrowth of the prostate gland and kidneys, nephrosclerosis, polycystic kidneys,

nephrolithiasis (left side), splenomegaly, necrotic tracheobronchitis, focal pneumonia (left side). The final impression was urinary infection, tracheobronchitis and terminal pneumonia with sulfathiazole intoxication.

**Case 4—History.**—A white woman aged 32 was admitted to the Jewish Hospital Jan. 27, 1942. In April 1940 she was treated for sinusitis with sulfamylamide. In September 1941 she complained of fatigue and vague symptoms which occurred intermittently. At this time her urine contained a faint trace of albumin and occasional red and white blood cells. Chemical examination of the blood revealed nonprotein nitrogen 50.7 mg. per hundred cubic centimeters and urea 23.5 mg. Six days prior to admission the patient noted a dry, nonproductive cough and three days later malaise and pain low in the back. The night before admission she had a chill and the next morning her temperature was 102 F. Her physician prescribed 15 grains (1 Gm.) of sulfathiazole every three hours. By that evening she had taken 52.5 grains (3.4 Gm.) of the drug and her temperature had risen to 106 F. She now complained of severe headache and pain in the back and was referred to the hospital.

**Physical Examination.**—On admission her temperature was 105.4 F., pulse rate 134, respiratory rate 40 and blood pressure 104 systolic and 54 diastolic. She appeared acutely ill. There was a dry, nonproductive cough. The sclerae were injected. The pharynx was red. Occasional fine rales were heard over the left side of the chest posteriorly. Sulfathiazole therapy was continued together with equal doses of sodium bicarbonate. During the night a generalized papular rash on an erythematous background appeared and the drug was discontinued. She had received a total of 45 grains (3 Gm.) of sulfathiazole in the hospital. The next morning it was noticed that she had not voided since admission. Catheterization yielded 60 cc. of turbid urine which contained albumin and a few casts and white blood cells. The blood count showed 25,000 white blood cells with 92 polymorphonuclear leukocytes. The patient com-



Fig. 10 (case 3)—Section of bone marrow ( $\times 90$ ) area of focal necrosis also found in cases 1 and 2.

plained of nausea, and she vomited several times. Intravenous fluids were given but the temperature remained elevated and she died about twenty-six hours after admission. Laboratory data included a blood urea nitrogen determination of 47.6 mg. per hundred cubic centimeters, a total sulfathiazole concentration in the blood of 13.9 mg. per hundred cubic centimeters and a negative blood culture. The clinical impression was bronchopneumonia complicated by sulfathiazole intoxication.



POSTMORTEM EXAMINATION

**Gross Examination**—The body was well developed and well nourished. There was a papulopustular rash over the face, ears, neck, upper part of the chest and back and the upper arms.

**Lungs** The external and cut surfaces were pink mottled with black. They were crepitant and buoyant.

**Liver** The liver weighed 1,680 Gm. The external and cut surfaces were pale red-brown. The lobular architecture was distinct, and scattered throughout were tiny yellow pinpoint areas.

**Kidneys** The right kidney weighed 170 Gm. The capsule was thick and could be stripped easily but not cleanly, revealing a pale brown surface containing several linear depressed scars. In the cut surfaces cortex and medulla were easily differentiated and measured respectively up to 7 mm and 1.6 cm in the axis of a pyramid. The cortical markings were irregular and scattered throughout the parenchyma were tiny irregular yellow areas. The left kidney weighed 180 Gm and was similar to the right.

**Spleen** The spleen weighed 530 Gm. The external surface was slate blue, smooth and glistening, shining through it were several tiny yellow pinpoint specks. The cut surfaces were red-brown revealing similar yellow areas scattered throughout. The malpighian corpuscles were distinct.

TABLE 4—Determination of Sulfathiazole in the Tissues in Case 1

|                    | Free Sulfathiazole, Mg. per 100 Cc. | Total Sulfathiazole, Mg. per 100 Cc. | Acetylation, Percentage |
|--------------------|-------------------------------------|--------------------------------------|-------------------------|
| Blood (wet basis)  | 8.2                                 | 11.4                                 | 28                      |
| Urine (wet basis)  | 21.9                                | 47.4                                 | 18                      |
| Kidney (wet basis) | 14.1                                | 21.1                                 | 32                      |
| Liver (wet basis)  | 10.4                                | 11.7                                 | 11                      |
| Spleen (wet basis) | 9.1                                 | 11.2                                 | 19                      |

**Microscopic Examination**—**Heart** Within the myocardium of the left atrium were several irregular areas composed of poorly preserved muscle fibers surrounded by partially broken down polymorphonuclear leukocytes, small and large round cells and occasional plasma cells and eosinophils. In other areas the myocardial fibers were swollen and their nuclei were pyknotic or absent and the cytoplasm was granular.

**Lungs** In preparations from both lungs the walls of the bronchioles and bronchi were edematous and infiltrated with small and large round cells as well as occasional polymorphonuclear leukocytes.

**Liver** Scattered throughout the preparation were small foci of necrosis similar to those described in the previous cases.

**Adrenal Glands** In a preparation from one of the glands there was a large rounded area of necrosis within the cortex.

**Kidneys** In a preparation from the right kidney the capsule was thicker than usual and composed of dense bands of fibrous tissue infiltrated with small and large round cells. Within the cortex the glomeruli were fairly well distributed, large and slightly decreased in number. The glomerular capillaries were not prominent. Some of the glomeruli were either wholly or partially replaced by hyalinizing fibrous tissue. The collecting tubules presented a varied appearance and were arranged in irregular fashion. The lumens of many contained pink staining fibrillar or granular pink staining material. Some contained polymorphonuclear leukocytes. In many of the convoluted tubules the cells appeared swollen and the cytoplasm was pink staining and granular. The nuclei were pyknotic and in many instances could not be made out. The interstitial tissue was increased in amount, edematous and extensively infiltrated with small and large round cells as well as polymorphonuclear leukocytes. Scattered throughout the cortex as well as the medulla were small foci composed of necrotic epithelial cells surrounded by polymorphonuclear neutrophils. The loops of Henle and collecting tubules were fairly well preserved but some contained amorphous pink staining material. The urothelium lining a portion of the pelvis was partly desquamated. The underlying tissue was loose, edematous and moderately

infiltrated with small and large round cells. A preparation from the left kidney was similar.

**Spleen** The follicles were numerous and well distributed. No germinal centers were seen. The endothelial cells lining the sinuses were prominent and the channels contained an increased number of polymorphonuclear leukocytes. These cells were distributed in increased numbers throughout the pulp. In places were varying sized foci of necrosis, some with moderate cellular reaction.

**Skin** In a preparation from the skin of the back of the neck the surface was covered by a narrow band of keratinizing stratified squamous epithelium with blunt rete pegs. In places were masses of poorly preserved polymorphonuclear leukocytes (pus). In one area there was a small clear space between the corium and the epidermis which contained a small amount of pink staining homogeneous material and a few polymorphonuclear leukocytes. The corium was loose and edematous and the blood vessels were distended. Collars of round cells and polymorphonuclear leukocytes surrounded the capillaries, and similar cells were seen within the papillary layer of the dermis.

**Summary of Case 4**—A woman who had received sulfanilamide about a year prior to her present illness apparently had had some renal disease, as evidenced by albuminuria, the presence of red and white blood cells in the urine and some nitrogen retention in the blood, six months prior to hospitalization. Her present illness began with signs suggestive of bronchopneumonia, for which she was treated with sulfathiazole. After having taken 52.5 grains (3.4 Gm.) of the drug her temperature rose from 102 to 106 F. She was then hospitalized. Sulfathiazole was continued and she took an additional 45 grains (3 Gm.) of the drug before it was noted that she had a generalized cutaneous rash. Because she had not voided since admission catheterization was performed, yielding 60 cc. of turbid urine containing albumin, casts and white blood cells. She died about nine hours later. Before death a blood sulfathiazole determination showed a total concentration of 13.9 mg. per hundred cubic centimeters.

The anatomic diagnosis was nephrosis, focal necroses in the kidneys, liver, spleen and adrenal gland, acute, focal myocarditis with necrosis, toxic dermatitis with focal necrosis, chronic pyelonephritis, and chronic bronchitis. The final impression was bronchitis and chronic pyelonephritis and death during sulfathiazole therapy.

COMMENT

Clinically and pathologically, the similarities in the 4 cases are striking. In each sulfathiazole was given uninterruptedly. During the therapy a sudden episode of chills and fever, sometimes associated with a rash, conjunctival injection or myalgia and arthralgia occurred. These symptoms were interpreted as being due to infection, and the drug was continued in the original or in increased amounts. However, the fever persisted, coma rapidly developed and in 2 cases anemia became a prominent feature.

Cultural and histologic search failed to demonstrate bacteria in the lesions in all the cases. In one, *Escherichia coli* communis was cultured from the urine during life, but autopsy revealed no evidence of infection in the focal necroses. In this case miliary abscesses were found microscopically in the prostate gland and kidneys, but these were not considered of sufficient severity and extent to explain death. The concomitant finding of widely scattered areas of focal necroses not characteristic of miliary foci of infection confirmed the impression of sulfathiazole intoxication. Terminal tracheobronchitis and a mild bronchopneumonia were also present.

The gross conditions found at necropsy in all cases, except for sulfathiazole miltihrasis, were not significant. The kidneys were pale and swollen. The cortical markings were indistinct and resembled those of nephrosis. The urinary bladders were contracted and the walls edematous. Gross obstructions were not found anywhere in the urinary tract. The spleens were moderately enlarged and firm and the cut surfaces were dry, presenting prominent malpighian corpuscles. Experimentally the spleen in mice has been described as atrophied. This was not found in the cases reported.

Microscopically, however, numerous areas of necrosis were scattered in most of the viscera, with the exception of the central nervous system and the gastrointestinal tract. These were miliary in size and varied greatly in their distribution and number, being most numerous in the liver in all parts of the hepatic lobules, the favorite situations being in the central and peripheral zones. The focal necroses in the spleen were most frequently found within or at the periphery of the malpighian corpuscles and were associated with hyperplastic changes in the reticulum. The lymph nodes showed a similar picture. In the adrenal glands in 3 cases the necrotic foci were found in the deeper portions of the zona fasciculata and zona reticularis. The medulla was not involved. The bone marrow contained necrotic foci in 3 of the 4 cases. These varied in number and size, and extensive areas of uninvolved hemopoietic tissue accounted for the absence of decided changes in the peripheral blood picture. Occasional foci were encountered in the trachea, lungs, wall of a coronary artery, skin, and urinary bladder. In the kidney, in addition to areas of focal necrosis, evidence of severe parenchymal damage was strong. The tubules were primarily affected and showed profound degenerative changes of a nephrotic character. The lumens of many were dilated and many contained cells, casts and blood, some to the degree of complete obstruction. In 2 cases there were found blue-staining crystalline structures, the exact nature of which was not determined. It is possible that they represent precipitated sulfathiazole in some unusual form, since the free or acetylated varieties dissolve in the ordinary processes of fixation and staining. This formation may have been a chemical or physical combination of the drug with calcium.

#### SUMMARY OF PHARMACOLOGIC OBSERVATIONS

Experimentally and clinically it has been found that sulfathiazole is rapidly absorbed from the intestinal tract and that its excretion by the kidneys is rapid if renal function is adequate. The extent of acetylation was found by Sadusk, Blake and Seymour<sup>10</sup> to vary usually from 0 to 30 per cent, the median being approximately 12 per cent. According to Lehr, Antopol and Churg,<sup>3</sup> the extreme rapidity of absorption and excretion of sulfathiazole supports the view that acute precipitation in the urinary tract is due chiefly to the high rate of elimination from the body. Strauss and his co-workers<sup>11</sup> determined that the concentration of sulfathiazole is higher in the kidney than in the blood and other organs. Concentration of the free drug in the liver is higher than the blood concentration and the degree of acetylation lower than the blood concentration.

In only the first case was the blood concentration of sulfathiazole extremely high (22 mg per hundred cubic centimeters free). Unfortunately, the total sulfathiazole was not determined so that the degree of acetylation is not known. However, postmortem determinations revealed higher concentrations of the drug in the kidney than in the liver or blood. The proportion of acetylation in the kidney (38.8 per cent) was also higher than in the liver (25 per cent). The amount of sulfathiazole in the blood clot in the renal pelvis, which probably represented excreted material, was significantly much higher than that within the kidney itself. In the second case the results were similar, albeit at a much lower level. The concentration and degree of acetylation were higher in the kidney than in the liver, spleen and blood. In the third case, however, the blood concentration and degree of acetylation were higher in the blood and the concentration of sulfathiazole was lowest in the kidney. In the fourth case the concentration and degree of acetylation were highest in the urine and next highest in the kidney. The total concentrations of sulfathiazole in the liver, spleen and blood were fairly similar, but the degree of acetylation in the blood approaching that of the kidney was higher than that of the spleen and liver. Because of the limited number of observations no interpretation of these data is submitted at this time.

#### MODE OF TOXIC ACTION

Hypersensitivity to small doses of sulfathiazole has been reported by Stiles,<sup>12</sup> Finland, Peterson and Strauss<sup>13</sup> have emphasized that serious complications such as drug fevers, rashes and granulocytopenia occur with increasing frequency the longer drug therapy is maintained. In all the cases reported, chills and fever occurred during the course of treatment but only in 2 cases was there a rash unless the tracheal lesion in case 3 is interpreted as an enanthematous manifestation. Anuria rapidly developed in 3 cases. As far as is known, the lesion of focal necrosis has hitherto not been described except experimentally by Rake, van Dyke and Corwin.<sup>14</sup> In the course of toxicity determinations, they found areas of focal necrosis in the liver of 1 mouse.

According to Karsner,<sup>14</sup> toxic causes of focal necrosis include certain chemical poisons and the toxins of parasites or saprophytic organisms. He also states that Auer has shown that it is possible to concentrate reacting substances in anaphylaxis so as to produce necrosis. The bacterial nature of the necrotic lesions here apparently has been excluded. The decision of whether they are the result of direct toxic action of sulfathiazole or of an acquired sensitivity to prolonged ingestion of the drug cannot be made at this time. It is possible that a combination of these factors obtained in the production of the lesion.

#### CONCLUSION

Four cases are described in which death attributable to sulfathiazole was associated with necrotic visceral lesions. From these cases, certain clinical conclusions can be drawn.

1 The indiscriminate and uncontrolled use of sulfathiazole is not without danger.

2 Examination of the urine during the course of therapy is important, since crystals of the drug in the

10 Sadusk, J. F. Jr., Blake, F. G. and Seymour, Anne. Observations on the Absorption, Excretion, Diffusion and Acetylation of Sulfathiazole in Man. *Yale J. Biol. & Med.* 12: 681-696 (July) 1940.

11 Strauss, Elias, Lowell, F. C., Taylor, F. H. and Finland, Maxwell. Observations on the Absorption, Excretion and Distribution of Sulfamylamide, Sulfapyridine, Sulfathiazole and Sulfamethylthiazole. *Ann. Int. Med.* 14: 1360-1382 (Feb.) 1941.

12 Stiles, M. H. Hypersensitivity to Small Doses of Sulfathiazole. *Pennsylvania M. J.* 44: 823-824 (April) 1941.

13 Finland, Maxwell, Peterson, O. L. and Strauss, Elias. Some Uses and Abuses of Chemotherapy in Pneumonia. *New England J. Med.* 225: 601-608 (Oct. 16) 1941.

14 Karsner, H. T. Human Pathology, ed. 3 Philadelphia: J. B. Lippincott Company, 1932, p. 79.

urine and hematuria are danger signals. In their presence therapy need not be interrupted so long as the fluid intake and output are adequate. Sodium citrate, sodium bicarbonate or some other alkaline salt may be given.

3 A chill occurring during the administration of sulfathiazole and followed by sustained fever should be regarded as a danger signal and sulfathiazole therapy should be discontinued at once.

4 Diminution and suppression of urinary output should be considered a contraindication to further administration of the drug.

5 Blood concentration of sulfathiazole over 10 mg per hundred cubic centimeters is undesirable unless the aforementioned precautions are observed.

6 Sulfathiazole should be used only when definitely indicated and should not be continued longer than is absolutely necessary.

555 Prospect Place

## ACTIVE IMMUNITY

PREVENTIONS AGAINST SMALLPOX, DIPHTHERIA,  
WHOOPING COUGH, TETANUS AND TYPHOID

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CLEVELAND

The ultimate objective of both general practitioner and public health official is the same. The former must as far as possible bring about perfect protection of his individual patient, while the latter is satisfied with such immunity as will protect the greatest possible number with the least possible effort.

Most active immunizing principles have been described but few have stood the test of time. Perhaps the most successful have to do with smallpox, diphtheria, typhoid, tetanus and whooping cough. These will be described in detail.

A compilation of routine prophylactic procedures against infectious diseases may be found in the report of the Committee on Therapeutic Procedures for Acute Infectious Diseases and on Biologicals of the American Academy of Pediatrics and in the 1940 revised report of a Committee of the American Public Health Association on "The Control of Communicable Diseases" (reprint 1697, Public Health Reports 1940).

### SMALLPOX

*Diagnostic Test*—There is no diagnostic test. The specific neutralizing titer of the blood serum can be determined but this procedure is not practical.

*Active Immunity*—This is accomplished when a susceptible individual is successfully vaccinated with smallpox vaccine.

(a) What is the Vaccinating Material? Smallpox vaccine is obtained from calves.

The seed virus is planted in the abdominal skin of a calf, when ripe, the vaccine is found in the semisolid mass at the base of the lesions and in the surrounding serum exudate.

The vaccinated animal is killed immediately before the vaccine is harvested and a careful autopsy is done

to discover any disease. Freshly harvested vaccine is not sterile. It may contain many types of organisms, but most of these are easily controlled by putting the virus in glycerin. Some firms even add a dye, such as brilliant green. Smallpox vaccine is thoroughly tested to insure that it is free from tetanus spores and other pathogens.

Vaccine is extremely sensitive to temperature changes and it should not be kept in a warm room. It should be placed in the freezing compartment of a refrigerator or actually on ice at a temperature well below 40 F, the colder the better. When vaccine material is shipped, it should be packed in solidified carbon dioxide. It should never be used after the expiration date, which is stamped on the outside of each package. Vaccine is never sold in bulk but only in individual capillary tubes, which once broken, must be used immediately or discarded. The potency of vaccine from various commercial houses may differ.

(b) Who Should Be Vaccinated? Any one who never has had the disease, the individual successfully vaccinated previously who has lost his immunity, and all those recently exposed to smallpox should be vaccinated. When a susceptible person has been exposed to smallpox, it is best to vaccinate him at once with vaccine obtained from different lots if possible in three or four places about an inch apart. This is done in the hope he will develop enough immune antibodies either to ward off an attack of the disease or to modify its character.

(c) How to Release the Virus from the Capillary Tube. Thrust the capillary tube through the middle of the narrow end of the rubber bulb. Cover the exposed end of the tube with sterile gauze and break it off below the vaccine level. Then bend and break the end in the bulb. When the finger tip is placed over the opening of the bulb and pressure exerted, the contents of the capillary tube are evacuated.

(d) Methods of Inoculation. The skin is first gently cleansed with soap and water, dried, wiped clean with some solution like acetone, alcohol or alcohol combined with ether, and the area allowed to dry. Do not rub the skin. The vaccinated area should never be over  $\frac{1}{8}$  inch in diameter and should not be directly exposed to sunlight for a few hours after vaccination.

There have been many methods of inoculation described in the past, scarification, linear incision, the drill method, intradermal, subcutaneous, by threading and so on. The idea was merely to pierce the epidermis and to avoid drawing blood.

The U. S. Public Health Service recommends the multiple acupressure method (multiple pressure method). The left arm is grasped and the skin put on the stretch between the forefinger and the thumb of the left hand. A drop of vaccine material is placed on the skin, and a sharp pointed needle, placed tangential to the tightly stretched skin, is raised up and down quickly, the body of the needle always parallel to the arm, pressing down each time it reaches the taut skin. This makes a small prick in the epidermis. Ten to twenty pressures confined to an area  $\frac{1}{8}$  inch in diameter are enough to get a good take, thirty will usually result in a take even if the vaccine is less potent. All remaining vaccine should be wiped off at once with sterile gauze and the sleeve pulled down. Immediately after vaccination the area appears red. Within six hours all evidence of the punctures will have faded and there will

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be no evidence of bleeding. Shields and other dressings should never be used since they retain moisture and create conditions favorable to secondary infection.

(c) Place of Inoculation. The area over the insertion of the deltoid of the left arm is the best place to vaccinate.

One must be cautious when vaccinating an eczematous patient. In nonepidemic periods it might be well to wait until skin lesions are healed. During epidemics the patient should be vaccinated despite the eczema.

(f) Course of Vaccination. The results of vaccination are a full take, no take, a vaccinoid or accelerated reaction and a reaction of immunity.

If the vaccinated person has no take whatever the vaccine material has become inert and the procedure must be repeated. It does not indicate that the subject is immune but that the vaccine virus used is weak.

A primary vaccinia or take gradually passes through the stages of maculation, papulation, vesiculation and pustulation within three to nine days, with subsequent desiccation and scabbing followed by healing of the lesion by the twenty-first day. The first reaction is a macule. This type of lesion progresses so quickly into the papular lesion as to be sometimes missed. The papule enlarges for three to five days. There may be subjective sensations of burning and itching. By five to seven days a gray pearl colored vesicle appears which soon becomes umbilicated. About the seventh or eighth day the vesicle has become pustular, averaging  $\frac{1}{2}$  to  $\frac{3}{4}$  inch in diameter, surrounded by a red areola. The area about the lesion may itch intensely. The local glands are enlarged. Clinical symptoms now appear such as headache, backache, general malaise, a fever and a leukocytosis, which may last three to four days.

About the eleventh or twelfth day the pustule begins to dry and form a crust. The scab thus formed drops off somewhere between the twentieth and twenty-fifth day, leaving the exposed area red. This gradually changes to pink and then to a dead white appearance—all during the period of about six months to one year.

If a person has some but not sufficient antiviral immunity, he may develop an accelerated take or vaccinoid reaction which passes through the stages mentioned—maculation, papulation, vesiculation and pustulation, quickly, within four to seven days. Sometimes the lesion may not even get to the stage of pustulation. Occasionally the lesion may become hard, elevated and wine colored and subside slowly without going on to the stage of vesiculation.

Some persons successfully vaccinated may retain their immunity and, when revaccinated, will have what is termed a 'reaction to immunity' or an immediate or accelerated reaction of local redness and induration. This may be nothing more than redness and induration or perhaps a glassy vesicle, coming on usually within twenty-four to forty-eight hours after vaccination. This indicates that the person cannot be revaccinated and probably will not get the disease. Sometimes vesicles may appear within twelve hours after vaccination in these immune persons.

The vaccine may be so potent and the patient so lacking in immunity and susceptible to the vaccine that a positive take with a varioloid condition is produced with which one has all the symptoms and signs of mild smallpox. The lesions are typical if they go on to the stage of pustulation, but usually there is a tendency for these lesions to become hard vesicles and to be absorbed at this stage. They may, however, go on to the stage of pustulation. The symptoms will be

the same as those of a mild smallpox infection. This reaction is rare.

(n) Dangers of Vaccination. The chief danger is infection, such as crissipelas, other coccoid infections and tetanus. Postvaccinal encephalitis occurs rarely. The vaccinated individual should be instructed not to touch the lesion as virus may get on the finger tips and be spread by scratching. If the scab is disturbed the underlying lesion may develop a weeping surface. The area should be covered with sterile gauze. If infection occurs sulfonamide drugs are given internally. The latter drugs do not prevent a vaccination take.

(h) When to Vaccinate. It is best to vaccinate as soon after birth as possible, but not before the umbilical cord drops off. Few complications occur at this time; the procedure is well borne and the reactions are inconsequential. The lesion can be easily kept dry and cool and the chances for cross infection with tetanus germs and the like are minimal. To my knowledge no cases of postvaccinal encephalitis have been described during infancy. If the child is not vaccinated in infancy he should be vaccinated at least before the age of 3 and during the cold weather if possible. The Committee on Therapeutic Procedures for Acute Infectious Diseases and on Biologicals of the American Academy of Pediatrics recommends that the child should be vaccinated at any age during an epidemic but routinely at any time between 3 to 12 months. All children should be routinely revaccinated at 6 and 12 years of age. Every one should be vaccinated susceptible and previously successfully vaccinated persons alike immediately after exposure.

(i) Results of Immunization. Vaccination is probably one of the most successful of active artificial immunization procedures, but like all such procedures it may fail to protect. There may be failures because the vaccine is old because it has become attenuated by some physical factor, because it is actually impotent or because the vaccination has not been done properly. Occasional persons may even lose their immunity quickly.

(j) Duration of Protection. The duration of protection which follows a successful take is variable. Usually a good take will protect at least five to seven years. It may even protect for the whole lifetime of the individual. Since a certain percentage of vaccinated persons lose their immunity, it is best during the course of an epidemic to consider all persons as having lost their protection and to revaccinate all exposed persons despite previous successful vaccinations. The individual who has immunity will have a reaction of immunity and no discomfort other than a slight local induration which follows within twenty-four hours after vaccination, while the few who have lost their immunity may have an accelerated reaction or definite take.

#### DIPHTHERIA

*Diagnostic Test*—The Schick test is one of the most accurate of all biologic tests but like other biologic tests is not an infallible measure of immunity. To perform it, inject 0.1 cc of diluted diphtheria toxin intradermally (not subcutaneously) into the skin of the forearm. Some biologic manufacturers make up their material so that 0.2 cc is required for the test. Before proceeding, one should read the literature which accompanies each package of toxin to determine what the dose should be. The diluent is usually physiologic solution of sodium chloride. If properly administered, a small,



white raised wheal-like lesion will immediately appear at the site of injection.

From a public health point of view it is unnecessary to do Schick or control tests on young children before immunization, the tests will nearly all be positive anyway. In private practice, however, it may occasionally be desirable for some reason or other, it is thought best by some not to give another injection unless it is necessary.

Volk now believes that Schick testing as a routine procedure need not be encouraged because antitoxin levels change from time to time. He with Bunney now believe that, when a previously immunized child has been exposed to diphtheria and the status of immunity is unknown the child should be reimmunized with a dose of alum precipitated toxoid. Volk, however, does not rule out the use of the Schick test occasionally to determine immunity.

The test should be read ten or five days after injection. Pseudoinflammatory reactions which appear twelve to forty-eight hours after the injection can be ignored. An area of redness or brownness with desquamation 0.5 cm. or larger in diameter indicates that the test is positive. The size of the reaction is no absolute indication of the amount of antitoxin possessed by the tested individual. An infant may acquire some passive immunity from the mother. Hence he may be a negative reactor for six to eight months after birth. Such immunity is usually lost within the year after birth.

Older children and adults should have a Schick test before being immunized. Many individuals may be sensitized to the materials in which the diphtheria organisms grow and they will have an apparent persistently positive Schick test. A control test becomes necessary to detect such a condition.

To do this, heat the same Schick toxin solution used for the test to 70 to 80 C (158 to 176 F) for ten minutes and inject comparable amounts (0.1 or 0.2 cc., as the case may be) intradermally into the opposite forearm. The bilateral reactions should be comparable if the patient has become sensitized. If both sides respond, but the side getting the Schick material has a larger reaction it is questionable whether the patient is sensitized or immunized.

One-tenth cc. of a 1:20 dilution of toxoid is sometimes used as the control in the Schick test instead of the heated toxin (Moloney reaction). Heated toxin, however, is a better control mixture for the Schick test.

There is only one way inferentially to determine susceptibility, i. e. by testing the blood serum for its antitoxin content. This procedure is too difficult and impractical.

**Active Immunity**—One cannot give all the credit for the recent drop in the diphtheria morbidity rate to active immunization, for a decline in morbidity and mortality rates has occurred in American cities where no programs of immunization have been in progress. Even the decrease in cities which have employed active immunization is much beyond that which might have been expected with any such program of protection. Despite these facts we know that animals can be protected by vaccination against diphtheria and the susceptible human being rendered Schick negative. We know that most persons acquire immunity as they grow older and if we can keep the majority of the childhood population immunized the disease will be controlled (See U. S. P. H. S. opinion later).

(a) **Place of Inoculation** The injection is usually made in the deltoid or triceps area of the arm or in the back between the shoulder blades, but it could be made anywhere. All injections are given subcutaneously.

Diphtheria toxoid has also been injected intradermally. I have compared the differences in reactions between intradermal injections of alum precipitated and the plain fluid toxoids in children in an orphan home and in nurses at Cleveland City Hospital. There are local reactions about both injections, but they are definitely greater about the fluid toxoid. Intradermal immunization is not recommended because it is not always easy to do, and it has no decided advantage over the much easier subcutaneous method of injection.

(b) **Immunization Materials** Three materials are prepared commercially to produce active immunity, they are toxin antitoxin, toxoid and alum precipitated toxoid.

The toxoids are very stable. Aging does not cause them to deteriorate much, freezing does not destroy them, even heat affects them but little. Unlike toxin antitoxin, they never revert and become toxic again.

The present tendency in private practice is to learn how to use one type of material for everybody.

All of these immunizing agents come in vials and before using the stopper is cleaned with alcohol or alcohol ether or acetone, the plunger of a syringe is withdrawn up to the 0.5 or 1 cc. mark, as the dose may be, the needle is thrust through the rubber stopper, the barrel is slowly plunged to the hilt, and the air is expelled into the vial. The fluid is sucked into the syringe to the proper marking desired. The vial is then drawn away from the needle and the syringe barrel is tapped lightly to get rid of air bubbles.

(NOTE—This preliminary procedure is common for all preparations held in vials or bottles with rubber caps. Alum precipitated toxoid preparations must be shaken before use.)

1 **Toxin antitoxin** This is toxin underneutralized by horse, goat or sheep antitoxin. It has been recommended for persons over 10 years of age.

This antigen is a clear fluid. Reject cloudy fluid. Injections are given subcutaneously in doses of 0.5 cc., 1 cc. and 1 cc. at two to four week intervals. The objections to its use are (a) Immunity is produced too slowly, since a year may elapse before the Schick test will become reversed, (b) the individual injected may become sensitized to animal serums.

2 **Diphtheria toxoid (plain toxoid, Ramon's Antitoxine)** This is recommended for children under 10 years of age. It is a clear fluid. Reject cloudy fluid. It is injected subcutaneously in doses of 0.5 cc., 1 cc. and 1 cc. at intervals of at least two weeks. The tendency is to prolong the time interval between doses about one month so that a physician need not be concerned about a strict time interval. Serum sensitization will not occur after these injections.

Adults may be susceptible to the diphtheria bacillus protein. When either toxoid or alum precipitated toxoid is used, it may be advisable to inject 0.1 cc. of the toxoid material intradermally. This indicates the amount of hypersensitivity (Moloney reaction). My practice has been to inject 0.1-0.2 cc. subcutaneously and to consider this as part of the immunization procedure. The amount of reaction determines the amount injected subsequently.

3 **Alum precipitated toxoid** This preparation is gradually supplanting all other diphtheria immunizing

agents. It is more slowly absorbed, more slowly excreted and effects immunization more promptly. It is a milky white substance. The Committee on Therapeutic Procedures for Acute Infectious Diseases and on Biologicals of the American Academy of Pediatrics recommends three doses, 0.5, 1 and 1 cc., to be given subcutaneously at intervals of two to four weeks, although the time interval between doses may be preferably longer, i. e. from two or more months.

To avoid reactions in nurses, doctors and other persons to whom antitoxin has been recommended. It is this very group, however, that occasionally has reactions following the injection of this biologic preparation. It is questionable whether these persons should be immunized thus and possibly sensitized to animal serums. They are the very ones who are continuously exposed to infectious diseases, which require therapeutic treatment with horse serum products and it is most important not to sensitize them. I myself believe that alum precipitated toxoid will supplant the use of both toxoid and toxin antitoxin even for this group. For the past four years I have used it to immunize all of our nurses (City Hospital Cleveland).

The number of injections is important from a practical point of view.

It has been demonstrated that the amount of antigen necessary varies with communities and is probably correlated with the prevalence of diphtheria bacillus infection.

The final conclusions of Volk and Bunney in their recent study for the A. P. H. A. was that the most effective immunizing procedure was two doses of alum precipitated toxoid, their second choice was three injections of fluid toxoid.

It is the opinion of clinicians that one dose of alum precipitated toxoid is not sufficient to immunize a person. It is also their opinion that, although two doses might immunize most persons, three doses would probably be best for more complete protection.

4. Reactions. Each of the three materials may cause reactions. Toxin antitoxin causes few or none in children and some in adults. Toxoid and the alum precipitated toxoid cause local as well as general reactions in both children and adults. The severity is relatively less in children. It is unusual in my experience not to have at least a slight local reaction, such as a faint pink lesion, deep red erythema, some deep induration, nodular formation or a brawny swelling of the arm around the area injected. Any one of these local reactions may be accompanied by all the signs of inflammation—local pain, heat and so on. There may be general reactions also, such as fever, headache, malaise or occasionally some prostration. Urticaria and local allergic responses have been described.

The toxoids always cause some local and often general reactions in an adult. The adult may have some immunity, and less of the toxoid product need be given. One can begin by injecting 0.1 cc. subcutaneously to determine the type of reaction to expect and then 0.2 cc. and 0.5 cc. at intervals of two to four weeks to two months apart. An additional 1 cc. is given a few months later if the reactions have not been too severe.

Within four or five hours after an injection of toxoid, a local reaction may be apparent. The reactions after toxin antitoxin, when present, are about the same as after toxoid. Within twelve to twenty-four hours any

reaction is usually at its height and the fever, malaise, and so on are then most prominent. The localized reaction begins to recede within twenty-four hours, and by forty-eight hours, although the area may still be painful to touch or manipulation, the greater part of the inflammatory response has receded and the generalized reaction has disappeared. It may take a week, however, for the local induration to subside completely and to absorb. In fact, the antigen remains in the body long enough to act as an autostimulus. Occasionally a small nodule is formed at the site of injection and it may be months before this is completely gone. Sometimes a sterile abscess will follow.

(c) Result of Immunization. The Subcommittee of Evaluation of Administrative Practices of the American Public Health Association does not feel that as a public health measure a test is necessary after the routine inoculation of children in infancy although it may be desirable in private practice and under some other conditions of contact exposure. The private practitioner will want to do a Schick test within six months after immunization has been completed. (See opinion of Volk and Bunney stated subsequently.) The patient should be reimmunized if found to be positive.

(d) Age When Injected. It is preferable not to immunize before 9 months of age and not to inject routinely after 10 years of age without some good reason.

One should routinely immunize adults only if they belong to a group which will be definitely and intimately exposed to this infection such as doctors, nurses or teachers. Persons in this group should never be immunized unless first tested and the Schick test found to be positive. Most adults, especially if living in an area of prevalent infection, immunize themselves by subclinical attacks and by the time they reach adult life, they may have become negative reactors to the Schick test.

(e) Duration of Protection. Reports vary. Some say that protection lasts as short as five or six years and as long as ten years after immunization with toxin antitoxin and that about 70 per cent are immunized after three injections.

The toxoids have been introduced too recently to have afforded accurate long term statistics, but the trend is toward the sole use of alum precipitated toxoid.

Two doses of toxoid are said to be 20 to 30 per cent more effective than three of toxin antitoxin. It is stated that about 70 to 90 per cent of those vaccinated will be immunized as soon as two months after two doses of toxoid, but that one third will have lost their immunity within five years.

The alum precipitated toxoid introduced by Glenny and his co-workers and reported in this country in 1933 by Havens and Wells was carefully studied by Volk and Bunney. Volk demonstrated that after one injection there were some 83 to 86 per cent Schick test reversals, depending on the number of 1/2 alum precipitated units injected. It is believed that the increased antigenic efficiency of the alum precipitated toxoid is due to the fact that the molecules are held in the subcutaneous tissue for a long period of time and absorption is slow, as evidenced by the persistence of the nodular masses mentioned previously.

Bundesen, Fishbein and White state that at least 94.9 per cent were Schick negative two years after injection, although only 43.4 per cent of the persons immunized had more than 1/2 unit of antitoxin.

From a public health point of view a single dose of alum precipitated toxoid is preferred to two doses of toxoid or toxin antitoxin. It may be advisable to give another injection of the toxoid just before the child enters school. The reinforcing dose given at school age is recommended to be half the size of the initial dose. This is enough to provide the secondary antigenic stimulation. In private practice it is advisable to repeat the Schick test at 6 and 12 years of age or at the age coinciding with the age group getting clinical diphtheria in that particular community. The United States Public Health Service has directed my attention to the fact that the persistence of Schick negativity is due less to the original antigen than to previous and subsequent experience of an individual with the diphtheria bacillus. They call attention to the fact that one dose of alum precipitated toxoid is at present sufficient for 85 to 95 per cent in Alabama (where carrier prevalence is high), while two doses are necessary in Michigan where the prevalence is low. In addition, children in Michigan need a stimulating dose at about school age.

(1) *Place of Remuculation*—If remuculation is necessary, one should give the vaccine at some place other than where injections were made previously. I have noticed that too many injections of active immune products at any one point cause severe local reactions.

*Lifelines*—Exposed persons may be passively immunized with 1000 units of antitoxin. This passive immunity lasts from ten days to several weeks. It is unnecessary to inject exposees unless the physician practices in an inaccessible place. Should a person get diphtheria, the children in the family should be observed closely. Many of them will not get the disease anyway and do not need passive protection, if they do get the disease, it is seen early enough and can be aborted quickly by the use of antitoxin. Some advise passive protection of children under 3 years of age on the belief that adequate examination of infants is difficult. If one wishes to immunize a child actively after injecting antitoxin, some time should elapse before the injections are given. There are reports, however, where simultaneous administration of prophylactic antitoxin and toxoid were followed by Schick negativity.

If the patient contracts diphtheria during the course of active immunization, he should be treated with antitoxin.

As mentioned previously, in country practice one may wish to give the exposee 1000 or 2,000 units of antitoxin intramuscularly. Never inject the antitoxin subcutaneously; the area about the injection may later become painfully indurated. In some instances the area around the site of injection may become brawny and indurated and a modified Arthus phenomenon observed with local sloughing of the tissues.

*Multiple Vaccination*—Diphtheria toxoid or alum precipitated toxoid has been combined with (a) alum precipitated whooping cough bacilli or (b) tetanus toxoid or alum precipitated tetanus toxoid. Neither of these combinations is said to interfere with the production of diphtheria immunity.

One commercial firm combines an alum precipitated vaccine (*Hemophilus pertussis* bacillus) containing 40 billion killed organisms per cubic centimeter with alum precipitated diphtheria toxoid standardized at 40 Lf units per cubic centimeter and advises the injection of three doses of this combined vaccine subcutaneously in amounts of 0.2, 0.3 and 0.5 cc.

Another firm has standardized this mixed vaccine at 10 billion organisms per cubic centimeter and advises the physician to give 1 cc of the combined mixtures at intervals of one to two months for three to four doses. There are the usual reactions after these injections. The evidence seems promising, but it cannot be finally evaluated at the moment and hence cannot be recommended for routine use.

(a) *Alum Precipitated Diphtheria and Tetanus Toxoids*—The respective toxoids have been combined and used in immunization. They are injected in the same manner (subcutaneously) as are other toxoids. One cc of the combined mixture is given and, about a month later, another dose of 1 cc.

These doses are not fixed entities, the amount is variable. Some persons, especially adults, are sensitive to the diphtheria bacillus protein. Here, as with diphtheria alum precipitated toxoid, 0.2 cc may be injected subcutaneously and the reactions observed (Moloney reaction). If no severe reaction is noted, 0.3 cc and 0.5 cc at intervals of two weeks may be injected and then 1 cc about three months later. If there are severe reactions, smaller amounts may be used—perhaps 0.2 cc at intervals of two weeks until 1 cc is given.

If the immunized susceptible person subsequently receives a deep and contaminated wound, especially about the face, or an extensive wound of the body, a stimulating dose of 0.5 cc of tetanus alum precipitated toxoid must be given. (See Tetanus.)

The reactions are the same as those seen after toxoid injection. These may be an occasional rash, urticaria, or the like. According to Cooke and his co-workers some reactions are allergic in character. They do not seem too important, especially since Peshkin and his co-workers were able to immunize 186 allergic children with two doses of 0.5 cc each of the combined toxoids with excellent results and no severe reactions.

The reports in the literature seem promising, but the U. S. P. H. S. does not approve of the use of combined tetanus and diphtheria toxoids at the present time.

#### PERTUSSIS, OR WHOOPING COUGH

*Diagnostic Test*—Many cutaneous tests have been described, none of which have any proved value.

*Active Immunity*—There are several biologic preparations used to immunize. They are (1) Sauer's vaccine, (2) old fashioned vaccine, (3) Krueger's endoantigen, (4) Topagen, (5) pertussis detoxified antigen and (6) Bell's alum precipitated whooping cough toxoid.

In general, do not inject any of the vaccines into a blood vessel or in areas previously inoculated with toxoid or smallpox vaccine. Do not use frozen vaccine, but keep in a refrigerator at 2 to 10 C.

When the vaccine is contained in vials, go through the preliminary step as described under diphtheria. Stoppers should never be removed, as the vaccine may become contaminated.

(a) *Immunization Materials*—1 Sauer's vaccine (*H. pertussis* organisms grown on human blood agar). This is standardized at 10 billion organisms per cubic centimeter. Eight to 10 cc (80 billion or more organisms) is the total dose injected, 1 cc being injected subcutaneously in the deltoid area of each arm, 0.5 to 2 cc in the biceps area of each arm, and 1.5 to 2 cc in the triceps area of each arm at weekly intervals. Do not inject the same arm twice. Recently Sauer intro-

duced a double strength vaccine standardized at 20 billion organisms per cubic centimeter. The injections consist of three single doses of 1, 2 and 2 cc weekly in two deltoid and one triceps areas.

If the reactions are severe after any injection, decrease the amount given with each succeeding dose and increase the number of injections.

TABLE 1—*Dosage Schedule*

| H. Pertussis<br>Bacillus per Cc | 10 Billion  | 20 Billion                       |
|---------------------------------|---|----------------------------------|
| Dose 1                          | 1 cc upper deltoid<br>left arm<br>1 cc upper deltoid<br>right arm       | 1 cc deltoid region<br>left arm  |
| Dose 2                          | 1 cc biceps region<br>left arm<br>1 cc biceps region<br>right arm       | 2 cc deltoid region<br>right arm |
| Dose 3                          | 1.5 cc triceps region<br>left arm<br>1.5 cc triceps region<br>right arm | 2 cc triceps region<br>left arm  |

2. Old fashioned vaccine (H. pertussis of questionable phase characteristics). This is injected weekly in doses of 1 cc each four to five times.

3. Krueger's endoantigen. This is the clear extract obtained after subjecting the organisms to ball mill grinding. One cc is injected and then 1.5 to 2 cc every other day for six doses. All injections are made subcutaneously. During epidemic periods 2 to 3 cc may be given subcutaneously once weekly for four weeks.

4. Topagen is somewhat similar to Krueger's endoantigen, the endoantigen being chemically separated. This material is put up in a vial. The physician is advised to drop the fluid into the nostril with an eye dropper two or three times daily for a few weeks.

5. Pertussis detoxified antigen utilizes the products of bacterial metabolism and not the bacteria itself. One cc of this material may be given for three doses at intervals of two or three weeks. The inoculations are made subcutaneously in the biceps area of the arm.

6. Alum precipitated whooping cough toxoid contains 10 billion organisms per cubic centimeter. Two doses of 1 cc are given about a month apart. This is not on the market as yet.

(b) Clinical Course of Vaccination. Local and general reactions may follow injections of Sauer's vaccine. The severity depends somewhat on the age. The younger the person the less apt will be the occurrence of reactions. The local ones are redness, induration, pain and swelling. Occasionally there may be slight adenitis.

General reactions such as fever and malaise may occur, but they are not ordinarily severe. Death has been referred to. It is questionable in my mind whether this vaccine has ever caused a fatality. A few patients have had convulsions.

Fewer reactions follow the injection of Krueger's endoantigen and the old fashioned vaccine. Sneezing may follow the local application of topagen.

Pertussis detoxified antigen does not usually cause reactions, but it may. When these occur, they are similar to those seen after Sauer's vaccine.

The local reactions come on shortly after injection, i. e. within six to twenty-four hours. Usually by the end of twenty-four hours these as well as the general reactions, have begun to subside, although the area of inoculation may be indurated for a few weeks.

(c) Results of Vaccination. This has been the subject of debate. Sauer's vaccine is not so effective as is diphtheria toxoid, although no active immune procedure is 100 per cent efficient. It may not prevent the disease in every vaccinated person but there is evidence to show that if the attacks should occur after vaccination they are much milder in character. Both the Committee on Therapeutic Procedures for Acute Infections Diseases and on Biologicals of the American Academy of Pediatrics and that of the American Public Health Association feel that from a public health standpoint this vaccine is still in the experimental stage, although the members of the academy group favor the use of Sauer's vaccine in private practice.

A compilation of the results on Sauer's vaccine appearing in the literature has been made by Wickoff.

These reports, together with the recent experiences of Perkins et al. in Binghamton, N. Y., and despite the adverse findings of Doull, seem to confirm the experience of Kendrick et al., Sauer, Miller and Faber, Mishulow and others. The percentage of established protection in the Binghamton experiment was not so high as in the other reported series. Faber and Miller believe that the percentage of success following the use of vaccine is high enough to include it in the routine program of immunization for infants and young children.

There is no evidence that either Krueger's endoantigen or Topagen is of any proved value. The old fashioned vaccine apparently gave some results in the past (Huenekens). Pertussis detoxified antigen is still being used experimentally. It is said that the immunity lasts from five months to two and one-half years. One author claims 81 per cent protection in 183 exposed. Bell believes that two injections of alum precipitated whooping cough toxoid give as good results as those which follow the injection of Sauer's vaccine.

(d) Where and When Injected. Injections are made subcutaneously. Intradermal injections were tried, but they were discontinued because of severe reactions and the many number of injections necessary. Intranasal injections are of questionable importance at the moment. The vaccine may be injected from two to four weeks apart.

TABLE 2—*Results Appearing in Literature*

| Author            | Year | Dose 1000<br>M per Cc | Test Group |          |                  | Control Group |        |          |                  |
|-------------------|------|-----------------------|------------|----------|------------------|---------------|--------|----------|------------------|
|                   |      |                       | Number     | Exposure | Develop-<br>ment | Per Cent      | Number | Exposure | Develop-<br>ment |
| Silverthorne      | 1938 | 120                   | 747        | 91       | 1                | 1             | 161    | 27       | 23               |
| Kendrick          | 1939 | 80                    | 1,815      | 415      | 52               | 13            | 2,097  | 503      | 248              |
| Miller Faber      | 1939 | 80                    | 211        | 29       | 9                | 31            | 182    | 32       | 29               |
| Sauer             | 1939 | 80                    | 2,453      | 32       | 1                | 1,720         | 26     | 26       | 26               |
| Singer Brooks     | 1939 | 80                    | 272        | 42       | 16               | 256           | 71     | 62       | 87               |
| Doull and others  | 1936 | 80                    | 42         | 61       | 496              | 71            | 71     | 22       | 46               |
| Selgel and others | 1937 | 80                    | 101        | 17       | 9                | 52            | 110    | 47       | 22               |
| MacLean           | 1939 | 16-20                 | 513        | 46       | 0                | 0             | 134    | 115      | 89               |

(e) Duration of Protection. It has been stated that it probably takes four or five months for immunity to develop after injection of Sauer's vaccine. The actual duration of protection is not known definitely although clinical experience of the many workers indicates that this may be at least two years. It is not settled whether it might not be a wise procedure to give a stimulating dose each year after active immunization is complete.

(f) Age of Vaccination. I have seen infants who had contracted whooping cough as early as ten days after birth, yet the total number of cases in the first



six months of life is relatively low and some passive immunity may be present. For this reason it is considered best to vaccinate against pertussis between the ages of 6 and 9 months. Reactions are also less apt to occur at this age.

*Exposures*—Exposures may be given any of the material mentioned under Active Immunity. The results are questionable.

Ten to 20 cc of convalescent serum may be injected intramuscularly. It likewise is of doubtful value.

Ten to 15 cc of hyperimmune serum, i. e. serum of persons who have had whooping cough and who have been repeatedly inoculated with whooping cough vaccine over some period of time, may be injected intramuscularly, especially in infants. The laboratory reports are favorable, and the clinical reports appear to be promising.

*Mixed Vaccines*—See under Diphtheria.

*Addenda*—It may be mentioned that there are those who believe that the matter of whooping cough prevention has not been completely settled. Toxins have been described, whether they are exotoxins or endotoxins is a moot point. A sticky exudate is referred to the exudate which produces the cough in this disease. It has been thought that the bacteria initiate the disease, that the toxins sensitize the patient and cause the typical lymphocytosis and that acquired immunity is formed against the sticky exudate. None of these beliefs, however, have reached the stage of acceptance.

All we know at present is that the bacteria actually initiate the disease and that all the printed evidence favors the use of H. pertussis in the "disease producing" phase of its existence (phase I) or its alum precipitated toxoid to produce active immunity.

#### TYPHOID

*Diagnostic Test*—There is no diagnostic test that determines susceptibility to typhoid. The Widal test is a laboratory test and is found positive only some time after a susceptible person has become infected.

*Active Immunity*—The vaccine has been tried on a large scale in military circles. Its efficiency was demonstrated during the first world war and its continued use justified.

It is unnecessary to vaccinate persons living in large cities where the water supply and sanitary conditions are very good. It should be used for individuals usually above 2 years of age living in those localities where typhoid is endemic, where the water supply is unpurified and the sewerage system primitive, for travelers, for members of the patient's family, for institutional personnel and for persons living in an epidemic area and for the military forces.

Vaccine comes in packages of three vials for individual requirements and also in bulk. It should be shaken before withdrawal.

The usual preliminary procedure should be followed in withdrawing the vaccine from the vials. (See Diphtheria.) Small doses have been recommended for children. This is not felt to be practical, since the child can endure a larger dose than the adult. If the reaction is extremely severe after the first injection, the individual dose should be decreased and the total number of injections increased. The antigen should never be injected in the same area in which other antigens have been recently injected. It is wise to vaccinate only healthy people and in the evening, occasionally it has

been recommended to avoid vaccinating females during the menstrual period.

The antigen vaccines are killed typhoid organisms. These are injected subcutaneously in 0.5, 1 and 1 cc doses every two to four weeks, the doses containing one-half, one and one billion organisms, respectively.

Protection may last a long time, but in many instances it is lost within a year or two and some believe that one reinjection should be made each year in the spring time or at least every two years. It should be stated that reinoculations may be followed by reactions. The amounts recommended for reinoculation have ranged from 0.1 cc to 1.0 cc.

(a) *Site of Injection*—It is recommended that all injections be given subcutaneously. They have also been given intradermally, but the efficacy of this method has not been evaluated. The vaccine has been given by mouth in capsules. Although agglutinins may be produced in the test animals and protection develops against enteric organisms, the agglutinins are never so high as after parenteral injections.

(b) *Clinical Course of Vaccination*—This depends on the type of vaccinating material and the concentration of the injection. Recruits in the first world war were often inoculated with one injection of triple typhoid vaccine in oil which contained the number of organisms present in all three ordinary injections. The reactions, both local and general, were severe. Even after enteric ingestion of capsules of enteric organisms, there may be nausea, some distress, some abdominal pain and fever.

After the subcutaneous injection there will be some local reaction—redness, fever and induration. This comes on within two to twenty-four hours. Nodulation may form or the arm may become intensely swollen and indurated and all the signs of inflammation may appear. In addition there may be severe malaise, backache, general muscle pain and weakness. However, these reactions are not the common ones and, when they do occur, they do not last longer than thirty-six to forty-eight hours after the injection. After inserting the hypodermic needle subcutaneously, one must always withdraw the plunger before injecting the antigen. If there is blood present, the needle must be withdrawn and the injection made elsewhere. Should the vaccine be injected into the blood stream, the patient may have a violent chill from twenty minutes to a few hours after. This may last approximately twenty minutes and the temperature may go up to 106 F. Do not give such patients hydrotherapy for the temperature, but cover them with blankets and surround them with hot water bottles. Occasionally one of these patients may become unconscious, but this occurrence is rare.

*Mixed Vaccines*—Typhoid vaccine is sometimes combined with paratyphoid A and paratyphoid B organisms. They are used extensively. One cc of the vaccine contains one billion *Eberthella typhosa* organisms, one-half billion each of paratyphoid A and B (one biologic house has three-fourths billion each of the latter). The doses are the same as for typhoid, 0.5, 1 and 1 cc given every seven to ten days for three injections. The methods of administration and preparation are the same as those for typhoid vaccine. The reactions are usually more severe and are similar to those following typhoid inoculation. This combination of three organisms causes the same local and general reactions as does the vaccine containing only typhoid vaccine. Within the past few months the Army has started again to use the triple vaccine routinely.

*Exposures*—One may inject typhoid vaccines immediately after known exposures, although even a high agglutinin titer produced by the vaccine at this time may not abort the disease in the well exposed individual

#### TETANUS

*Diagnostic Test*—There is no biologic test for tetanus

*Active Immunity*—Tetanus toxoid is injected subcutaneously in doses of 0.5, 1 and 1 cc every four weeks or at longer intervals of two months

(a) *Clinical Course* The reactions are fairly mild in character, consisting of some redness and soreness about the injection. Occasionally a severe local inflammatory and general response may occur, and the whole arm may become swollen and the patient may have general malaise. All these reactions begin to subside within twenty-four to forty-eight hours. A small nodule may appear under the skin and persist for months. An occasional individual may be sensitized to tetanus and diphtheria toxoid, but this is easily recognized by cutaneous tests

(b) *Site of Injection* All injections are made subcutaneously. Intradermal vaccination against diphtheria or tetanus has some disadvantages and no evident superior advantages over conventional measures

(c) *Results of Inoculation* Tetanus toxoid was introduced so recently that it is impossible to say how long immunity will last, but the unanimous opinion is that it does immunize

(d) *Reinoculation* The protective antibody content of the blood serum possessed by the patient decreases as time goes on. For this reason, a second immunization of 0.5-1.0 cc should be given one year later (Leake). Persons who have been previously vaccinated with tetanus toxoid and who are subsequently wounded so that there is real danger of tetanus infection must get another "stimulating" dose of 0.5-1 cc of tetanus toxoid. This takes the place of the usual antitoxin injection. Because this toxoid might sensitize an occasional individual, it is advisable to make a cutaneous test before injecting the stimulating dose

(e) *The Age of the Patient* The patient should be vaccinated in early childhood when the local and general responses will be minimal and when the danger of tetanus first occurs, i. e. approximately between the ages of 9 months and 3 years. Reinoculation depends on reexposure and occurs at any age

*Exposures*—Persons who have received contaminated wounds and who have not been vaccinated within a month previously should receive from 1,000 to 2,000 units of tetanus antitoxin intramuscularly. This may not always prevent the disease if the lesion has been near the head or if the injury and exposure are massive. In these patients the dose should be repeated in seven to ten days. Most practitioners inject a combination of tetanus and gas gangrene antitoxin. The person who has been previously actively immunized and is injured is treated as in paragraph d

*Special Precautions*—Most physicians who have had some experience in the prophylaxis of tetanus feel that, more important than anything else, even more important than the use of antitoxin, is the physical, free removal of all foreign matter as early as possible by wide incision and excision and an early evacuation of the foreign matter under anesthesia if necessary. Some of the older practitioners (Abt) state that they would rather have such a procedure followed than to have antitoxin

## Clinical Notes, Suggestions and New Instruments

### INFANTILE TYPHOID WITH CONVULSIONS

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A. D.

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Because of the infrequent reports of typhoid in infants and its relatively low mortality rate, we are reporting this case, which terminated in death twenty-nine hours after the onset of symptoms. The severe neurologic manifestations throughout the short clinical course so camouflaged the true condition that, without findings of a postmortem examination, correct diagnosis may not have even been guessed.

Fatal infantile typhoid is rare at the present time. Of 30,000 admissions to the Bellevue Hospital, New York City, covering a period of fifteen years up to 1940, 1 case of typhoid fever was recognized under the age of 2 years.<sup>1</sup> Recent reports indicate that approximately 2 per cent of typhoid cases are in infants<sup>2</sup> and that out of this group a negligible percentage is fatal as compared to a reported 12.5 per cent mortality a few years ago.<sup>3</sup>

Typhoid is essentially a disease or injury of the lymphogenous and hematogenous organs produced by the blood borne *Eberthella typhosa*. Accumulation in the typhoid lesions of large, pale mononuclear cells with strong phagocytic activity has been a constant histologic finding. Whether these are endothelial cells, wandering macrophages or specialized mononuclears produced by the body in response to a specialized stimulus is a question not yet answered.<sup>4</sup> The mechanism by which the organism produces the disease is likewise a much controverted subject. Possibly the virus—V<sub>1</sub> antigen—associated with *Eberthella typhosa* is responsible for the virulence accredited to the organism itself. Apparently this thermolabile filtrable substance, when injected intracerebrally into the rabbit, is capable of producing typhoid with severe terminal diarrhea. This same virus also appears capable of stimulating the common intestinal saprophytes to a degree of pathogenicity.<sup>5</sup>

The pathway of the organism from the mouth to the blood stream is briefly thus:

1. Passage through the upper part of the gastrointestinal tract in food or drink contaminated with feces from a typhoid patient or a healthy carrier
2. Invasion of lymphoid tissue of the small bowel
3. Transport of the bacilli to the regional mesenteric lymph nodes draining the small intestine
4. Multiplication of the bacilli in these nodes
5. Passage up the thoracic duct
6. Liberation of the organisms into the venous blood of the left innominate vein<sup>6</sup>

#### REPORT OF CASE

*Illness*—E. M., a boy aged 21 months, ate his supper Aug. 16, 1941 and played with other children until 8 o'clock. At this time he began hiccuping, fell to the floor unconscious and rolled his eyes directly upward, where they "set" for approximately one minute. The parents gave him a warm enema and plunged him into a tub of hot water—acts which apparently terminated the first attack. An hour later the baby was attacked in a similar manner, having acted normally in the meantime. The

From the Department of Pathology and Bacteriology, Station Hospital, Camp Barkeley, Texas.  
1. Kendig, E. L., Jr. and Kirmse, T. W. Typhoid Fever in Childhood. *Arch. Pediat.* 57: 111 (Jan.) 1940.  
2. Dietrich, H. F. Typhoid Fever of Children. A Study of Sixty Cases. *J. Pediat.* 10: 191-201 (Feb.) 1937.  
3. Griffith, J. P. Crozer. The Diseases of Infants and Children, Philadelphia and London W. B. Saunders Company 1921, vol. 1.  
4. McCallum, W. G. A Textbook of Pathology, ed. 7 Philadelphia and London W. B. Saunders Company 1940, p. 588.  
5. Alleged Typhoid Ultravirus. *editorial J. A. M. A.* 117: 620 (Aug. 23) 1941.  
6. Boyd, William. A Textbook of Pathology, ed. 2 Philadelphia, Lea & Febiger 1934, p. 185.

third attack, seen by the physician at 10 30 p m, resulted in bilateral convulsions of all extremities and stopped spontaneously after approximately thirty seconds. At 1 a m the patient had a convulsion involving the entire left side. After one minute the left side became semiflaccid, and the convulsion became a persistent right-sided one.

*History*—Inquiry into the baby's family history revealed that two cousins were interned in an institution for the epileptic. The mother and grandmother admitted having occasional "fits." A sister had died in infancy of "acute colitis." The mother stated that the child had been passing "worms", but her description of these was hazy and colored with a great deal of imagination. The baby had been well until the present sudden illness.

*Examination*—The boy was well nourished and developed. The right eyelids, right facial muscles, right side of the tongue, right thoracic and abdominal muscles, right cremasteric muscle and right extremities were in clonic convulsions occurring regularly at the rate of 60 per minute. The left extremities were flaccid. The skin was moist clammy and remarkably pale with beads of cold perspiration covering the forehead and neck. The eyes were open. Nystagmus movements were seen to accompany each convulsion the slow movement of the eyeballs carrying the pupils from midposition to the upper left quadrant of the orbits, thence a rapid movement bringing them back to midposition. In addition to the right eyelid convulsions, both lids blinked at approximately normal intervals. Both pupils were regular, dilated—the left larger than the right—and showed no reaction to light. The tympanic membranes were shiny and normal in appearance. The tonsils and pharynx showed no evidence of inflammation.

The heart rate was 180 and regular. The breathing was rapid but not particularly labored. The temperature was 101 F. Auscultation and percussion of the chest revealed nothing of significance. The blood pressure was 150 systolic and 60 diastolic.

The abdomen, somewhat generally distended and tympanic, showed a puffing out of the right midabdominal region. Peristalsis was at no time observed. All the deep reflexes were exaggerated on the right side.

*Course*—At 3 a m the patient was removed to the hospital. Fluoroscopy revealed no foreign body in the trachea, however, it did show a great deal of gas throughout the abdomen. Blood count at this time revealed white blood cells 10,000, red blood cells 4,500,000, blood calcium 10.1 mg per hundred cubic centimeters. The stool showed 4 plus blood and pus but no ova or parasites. Medium was inoculated for the culture of *Eberthella typhosa* and dysentery bacilli.

At 5 a m the white blood count was 6,000 with 28 per cent lymphocytes and 5 per cent mononuclears. Stool examination revealed a great quantity of blood, pus and mucus. The child at this time seemed exhausted. The convulsions continued. There was a spontaneous semiliquid bowel movement.

At 3 p m a spinal puncture was done. The pressure, although not measured, was evidently greater than normal. The cell count was 1 lymphocyte and 2 neutrophils per cubic millimeter. (Culture of spinal fluid showed no growth after three days' incubation.) The sedatives and fluids administered up to this time had apparently little effect. Blood was taken for the Widal examination. (This proved negative.)

At 5 p m August 17 the convulsions ceased, only to begin at 8 o'clock on the left side. The right pupil became larger than the left and the clonic convulsions shifted to the left side with involvement of the same corresponding sets of muscles. The right extremities became flaccid with a complete shift of the neurologic signs from the right to the left. The neck became moderately rigid, the temperature advanced to 107 F. The heart rate increased to 230. The baby became cyanotic and died at 1 45 a m.

*Autopsy*—The mucosa of the entire sigmoid region was seen to be dotted with minute ulcers, each with a yellow center and a red periphery. The largest of these ulcers was  $\frac{1}{3}$  cm in diameter. This area of ulceration and inflammation ended rather abruptly at the upper limit of the sigmoid. The trans-

verse and ascending colon appeared normal. The mesentery was studded with innumerable large purplish lymph nodes, some of which were 2 cm in length. These were larger and more numerous adjacent to the sigmoid and distal part of the ileum.

The lumen of the distal ileum was filled with blood. Its mucosa was remarkably injected and showed longitudinal, raised oval elevations. These elevations—apparently Peyer's patches—were highly inflamed but not ulcerated. In addition to these patches there were small ulcerations similar to those observed in the sigmoid. This ileitis extended 3 feet above the ileocecal junction. Except for a tense splenic capsule, no other gross pathologic condition was encountered in the thorax or the abdomen.

Gross examination of the cranial contents showed the cerebral gyri to be flattened and the sulci between them narrowed. The brain was pallid and on multiple section gave the appearance of mild edema.

*Bacteriologic Examination*—With sterile precautions, fluid was aspirated from the cisterna magna before the autopsy was begun. A small vessel was punctured in the process with resultant contamination of the fluid with blood. Culture of this material on blood agar, cosin-methylene blue and desoxycholate mediums produced numerous round, small, translucent colonies which on gram stain showed slender gram-negative bacilli. On bismuth sulfite medium the colonies were black. These bacilli were highly motile, produced no acid or gas in lactose mediums and agglutinated with Eberthella antiserum diluted to 1:16,000. Autoagglutination or agglutination with Salmonella and Shigella antisera was not observed.

*Microscopic Examination*—Nothing significant could be demonstrated in the spleen or liver. The mucosa of the sigmoid and ileum showed the surface necrosis in the ulcerated areas. The mesenteric lymph nodes and Peyer's patches contained large, pale staining mononuclears in their sinuses. It was noted also that the germinal centers of Peyer's patches were packed with these cells, many of which appeared to be making their way through the germinal center wall of lymphocytes to the cortical lymph sinuses. Some of these large mononuclears had ingested lymphocytes. Typhoid bacilli could not be demonstrated in the lesions. The cerebrum showed greatly dilated perineuronal and perivascular spaces, vessels devoid of blood, a vacuolated cortex and the general picture of cerebral edema.

#### COMMENT

Farrell<sup>7</sup> insists that the incidence of typhoid in infancy and childhood is much more frequent than is generally thought. He suggests that the failure to recognize the possibility of typhoid in differential diagnosis and a consequent failure to make adequate laboratory studies has resulted in diagnostic errors. This in turn has caused a paucity of reported cases. Naturally, this has led to the belief that typhoid in infants is so rare as to be worthy of little consideration in differential diagnosis.

That the lesion of typhoid in this case could be studied in its early stage is a rare opportunity. The fact that the large pale mononuclear cells, so abundant in the germinal centers of Peyer's patches, are seen apparently passing through the germinal center wall of lymphocytes into the lymph node sinuses suggests a possibility as to the origin of these cells. The relative scarcity of these cells in the mesenteric lymph nodes and their absence in the spleen and liver lend further weight to this suggestion as to origin.

The convulsions in this uncomplicated case of typhoid were probably due to the overwhelming toxemia with cerebral inflammation and edema.<sup>8</sup> The family history of epilepsy lent materially to the diagnostic confusion and emphasizes further the necessity of careful laboratory studies, in addition to thorough histories, in these cases of infantile convulsions.

Station Hospital

7 Farrell, M. E. Typhoid Paratyphoid Fever in Children, West Virginia M. J. 35: 227-232 (May) 1939.  
8 Courville, Cyril B. Personal communication to the authors, Oct 16, 1941.

THROMBOSIS OF RENAL ARTERY SIMULATING  
CORONARY THROMBOSIS

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We wish to report this case for the following reasons. The patient presented a diagnostic problem on admission. Few cases of thrombosis of the renal artery have been reported in the literature. The clinical manifestations of renal artery thrombosis are as yet not well recognized and therefore not thought of. Early recognition of the syndrome and proper therapy may prevent extensive renal pathologic changes.

While many cases of renal infarction due to emboli and thrombosis of the small branches of the renal artery secondary to nephritis,<sup>1</sup> trauma<sup>2</sup> and periarteritis<sup>3</sup> have been reported we found in the literature only an incomplete description of the syndrome, reported by one of us<sup>4</sup> and 3 cases of renal thrombosis of the renal artery<sup>5</sup> associated with general vascular disease.

There is no complete description as far as we can find, in any textbook or periodical of the clinical manifestations of thrombosis of the renal artery.

The case we are about to present simulated to some extent coronary thrombosis.

REPORT OF CASE

F. D., a white man aged 58 the manager of a garage was seized with severe pain below the left nipple while walking in the street. He was admitted to Temple University Hospital in a state of shock. The pain was agonizing and only slightly relieved following the administration of  $\frac{1}{2}$  grain (0.032 Gm) of morphine subcutaneously. He perspired profusely and had the desire to defecate.

The pulse was full and 90 a minute, the respiratory rate was 30 and the blood pressure was 190 systolic and 100 diastolic. He had an ashen gray appearance. The peripheral vessels were slightly thickened. The size of the heart was within normal range and the muscle tone of the heart was good. The supracardiac area of dullness was slightly increased. There was a short systolic murmur at the apex which was not transmitted. The second aortic sound was accentuated. There was no evidence of congestive cardiac failure and the lungs were resonant. The left rectus muscle was slightly rigid. There was some left sided abdominal tenderness and increased rigidity of the left lumbar muscles.

Because the patient experienced a slight attack of precordial pain following effort several weeks prior to this episode coronary thrombosis was suspected. An electrocardiogram taken on admission failed to reveal any definite abnormalities.

A few hours later the pain shifted more to the region of the left kidney. Despite the fact that the patient was under the influence of morphine the left lumbar muscles became more rigid and there was definite tenderness of the kidney.

Because of the localization of the pain its severity, well defined shock and prostration, a renal disorder was suspected and a provisional diagnosis of renal calculus or thrombosis of the renal artery was made.

Examination of the urine revealed occult blood and many red blood cells. The pain soon became localized over the region of the left kidney. The abdomen became distended but there was still some precordial pain present. The temperature was elevated for four days ranging between 99 and 100.2 F.

There was definite leukocytosis (19,700) with a polymorphonuclear count of 86 per cent.

After several days the urine cleared up. The patient commenced to feel more comfortable and after four days he was apparently free of pain. The abdominal distention diminished and the blood pressure on the fourth day was 150 systolic and 90 diastolic.

A second electrocardiogram was taken which failed to reveal any abnormalities.

On the sixth day intravenous urography was done which revealed the following. The upper calices on the left side filled out well and were of normal appearance. The middle and the lower calices filled out poorly and suggested an area of infarction. No renal calculus were visualized. We therefore felt by exclusion that the diagnosis of thrombosis of a lower main branch of the left renal artery was justified. An embolic phenomenon was ruled out since there was no evidence of systemic disease to predispose the patient to it.

One of us (J. B. W.) has been studying cases of this type for the past six years and the following remarks are based on observations made on 11 cases.

Renal artery thrombosis is not an uncommon manifestation of generalized atheromatosis. In most of the observed cases there was a fairly typical syndrome which would lead one to suspect the lesion.

The attacks are ushered in with severe pain over the kidney region or in the loin depending on the site of the lesion, and resemble renal colic in many respects.

Frontal headache, backache, nausea, generalized abdominal pain and shock are characteristic symptoms in this vascular catastrophe.

In the majority of cases the blood pressure was elevated, although 4 cases did not show any elevation in pressure. The temperature tended to fluctuate for a few days between 99 and 102 F. In several cases there was frank hematuria. Eight cases showed occult blood in the urine. In 3 cases the urine was not examined until the third and fourth days following the attack. In these specimens of urine blood was not found.

In most cases there was radiation of the pain to the lower part of the abdomen and the back. In 4 cases the pain radiated to the thighs. Six cases showed definite vasovagal disturbances—faintness and dizziness. Five of these cases also showed evidence of a sympathetic paralytic ileus.

On intravenous urography all the cases we studied showed definite filling defects on the affected side. Retrograde pyelography, however, which was done in 5 of these cases, failed to show any abnormalities.

Eight cases, seen immediately following the acute catastrophe, showed definite leukocytosis fluctuating from 19,000 to 34,000 cells with a high polymorphonuclear count averaging 89 per cent.

All these cases showed definite evidence of atheromatous changes particularly involving the proximal portion of the aorta.

In 2 cases the follow-up intravenous urography done six and nine months respectively following occlusion of the renal artery showed normal configuration of the calices.

Intravenous urography in 1 case, done eleven months after the attack revealed an unchanged filling defect in the affected kidney.

One patient, seen in consultation, died in shock due to urinary suppression. Thrombosis of a main branch of the renal artery was found at autopsy. (It is quite possible that the administration of mercurial diuretics and failure to combat shock by available methods might have contributed to the fatal outcome.)

CONCLUSION

A syndrome associated with severe pain over the kidney region, frontal headache, nausea, shock, leukocytosis, hematuria, backache and abdominal tenderness seen in persons who present evidence of atheromatous cardiovascular disease should make one suspect thrombosis of the renal artery.

The prognosis is favorable if the treatment is similar to that used in coronary thrombosis. In all the cases that we observed an uneventful recovery was made, with the exception of the 1 seen in consultation.

It is possible that unrecognized and untreated lesions of this type may be responsible for many cases of hypertension complicating atheromatosis.

Its recognition and proper management may be an important step in the prevention of this complication as well as of extensive renal damage.

1829 Pine Street

Presented at the staff meeting of Temple University School of Medicine Philadelphia Nov. 14, 1941.

<sup>1</sup> McKenna Charles J. *Urol.* 19: 411-420 (April) 1928.

<sup>2</sup> Dalrymple S. C. *New England J. Med.* 203: 160-162 (July 24) 1930.

<sup>3</sup> Von Recklinghausen Friedrich. *Virchow's Arch. f. path. Anat.* 20: 205-207, 1861.

<sup>4</sup> Manger and Baer. *Am. J. M. S.* 152: 182-192.

<sup>5</sup> Wolffe J. B. *Delaware State M. J.* 13: 53-1941.

<sup>6</sup> Pic and Bonnamour. *Lyon med.* 120: 1306-1309, 1913.

<sup>7</sup> Ouden. *Nederl. tijdschr. v. geneesk.* 2: 41-46 (July 4) 1925.



## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION  
OF THE FOLLOWING REPORTS

HOWARD A. CARTER, Secretary

### ABSTRACT OF MINUTES OF MEETING OF COUNCIL ON PHYSICAL THERAPY, DEC 12 AND 13, 1941

The seventeenth annual meeting of the Council on Physical Therapy was held at the headquarters of the American Medical Association, Dec 12-13, 1941. Dr. Harry E. Mock, Chairman, presided. The following members were in attendance: Dr. H. E. Mock, Dr. Eben J. Carey, Dr. Anthony C. Cipollaro, Dr. W. W. Coblentz, Dr. I. S. Conley, Dr. A. U. Desjardins, Dr. W. F. Garvey, Dr. Frank H. Kinsen, Dr. Frank R. Ober, Dr. Ralph Pemberton, Dr. H. B. Williams and Mr. Howard A. Carter, Secretary.

#### GRANTS FOR RESEARCH

After reviewing the report of the Committee on Research, it was the opinion of the Council that the grants had yielded excellent results in basic scientific work. Not only has much work been accomplished by the investigators, who have been assiduous in their application, but the papers which have been published redound to the credit of the Council.

Revisions of the Official Rules of the Council occupied considerable time. The revised rules will be published at an early date.

#### ARTIFICIAL LIMBS

The question of whether the Council was prepared to consider artificial limbs with the object of including them on the list of accepted devices, was discussed. Since making and fitting an artificial limb is a matter of physician-patient-manufacturer relationship and since much depends on the art of fitting by the leg maker, the Council decided not to consider individual makes of artificial limbs but to deal with the subject in a more general way. Since the meeting, the Handbook on Amputations has been published.

#### EDUCATION

Several years ago the Council appointed a group of Consultants on Education. These consultants were asked to encourage local medical societies to reserve at least one program during the year for subjects dealing with physical therapy. Consultants were available for speaking engagements, and they suggested to local program chairmen speakers specialized in physical therapy to appear on programs. Efforts of the consultants are now beginning to bear fruit, the Council surveys with pleasure the activities of these consultants. Many more schools of medicine are making provisions for instruction in physical therapy for the undergraduate student. It is gratifying for the Council to know that articles on internal medicine, surgery, dermatology and in fact all branches of medicine more and more contain references to physical agents and their therapeutic value. It was reiterated by the Council that the important agents employed in physical therapy are heat, massage and therapeutic exercise and that 90 per cent of the therapeutic value was obtained from them, while only 10 per cent was realized from mechanical apparatus.

#### ARTIFICIAL RESPIRATION

Evidence regarding automatic appliances for administering mechanical respiration was considered most carefully. There was evidence to indicate that artificial respiration applied by means of positive and negative pressure was effective in reviving asphyxiated victims, no evidence was presented to indicate that burst lungs and other pathologic conditions were caused by this form of resuscitation. At the same time the Council pointed out that life saving crews should have a complete knowledge of manual artificial respiration and reaffirmed its previous statements on the importance of giving instruction in the Schafer prone pressure method of artificial respiration to the general public. Apparatus for aiding in life saving, whether inhalator or resuscitator, is usually not on the scene of the accident and it might take anywhere from five minutes to one-half hour before the apparatus is applied to the patient.

It is vitally important that artificial respiration be administered immediately. A report was made on the Council's survey of artificial respiration, in which many industrial organizations, police and fire departments and government agencies are cooperating. Data are being received on many forms of artificial respiration, both manual and mechanical. That further laboratory evidence might be made available, the Council voted to ask the Board of Trustees for substantial funds to aid in research in this important field.

#### RESPIRATORS

Activities of the Consultants on Respirators were reported. The Council observed that the term "iron lung" had crept into the literature as a substitute name for respirator. It was felt that this term was scientifically inaccurate and that devices for giving prolonged artificial respiration should not be accepted under this name.

The Council voted to express its appreciation to Mr. M. K. Reynolds for his specifications on how to assemble a simple workable respirator in case of a poliomyelitis epidemic.

#### PHYSICAL THERAPY TECHNICIANS

Medical preparedness as related to physical therapy was discussed at length. It was pointed out that there was a shortage of trained physical therapy technicians to supply any army needs. The present plan in the army during war time calls for three hundred general hospitals of one thousand beds each. This means that two thousand one hundred physical therapy technicians will be needed. Then the question arose as to the proper method of training technicians. It was decided that the Council on Physical Therapy should cooperate with the Council on Medical Education and Hospitals to arrange for streamlining the curriculums in the several accepted schools so that the technicians might be trained in six months instead of nine. This means that technicians will not receive the requisite amount of clinical practice but that this instruction will be obtained in the course of active duty in the army. After the necessary hours have been put in at practical work a diploma will be awarded, provided the student's record is otherwise satisfactory. Between one thousand four hundred and one thousand six hundred registered physical therapy technicians are now available, this is inadequate to supply the demand. Hence the Council concurred with the suggestion of the technicians that a number of physical therapy assistants be trained. The training, however, will be much less—six weeks, for example—than that given to regular technicians. The Council adopted the motion that publicity be given to the fact that there is an extreme need for training physical therapy aids in the army and that those students who have had two years of college work, including courses in physics and biology, be especially approached and encouraged to enter courses of physical therapy in schools approved by the Council on Medical Education and Hospitals.

The Council stands ready to give advice to any physician who is interested in special training in physical therapy in order to head a department in a medical school or army hospital. A new publication of the Council, "Manual on Physical Therapy" which will consist of terse monographs relating to physical therapy, may be used by civilian physicians and army medical officers. It is expected to be published serially in *War Medicine* and later collected for distribution as a small manual.

#### RADIO INTERFERENCE

A report was read before the Council concerning the activities in eliminating radio interference by short wave diathermy equipment. It now appears that the most satisfactory way of avoiding interference will be the selection of three radio bands in harmonic relationship and that the tolerances of the high frequency energy generated be confined to these channels at approximately the same tolerance as that of the broadcasting stations. Those devices not designed to operate on set frequencies will have to be screened. Research and tests on sample apparatus which have been submitted to the Council and to the National Bureau of Standards have proved that diathermy apparatus can be made to meet the requirements, although it appears that the cost will be somewhat more. The Federal Communications Commission, with which the Council is cooperating, has not as yet assigned the frequencies or established the tolerances.

## ULTRAVIOLET LAMPS FOR DISINFECTION

The Council reviewed its activities in connection with the acceptance of ultraviolet lamps for disinfecting purposes. It is the opinion of the Council that the publication of a report on the subject was as far as it cared to go at the present time.

## APPARATUS ACCEPTED

The 1942 edition of "Apparatus Accepted" was presented and announced as now ready for distribution.

## AN APPRECIATION

The Council on Physical Therapy desires to take this opportunity to express its feeling of gratitude and appreciation of the services of the following consultants whose assistance in carrying out the work of the Council has been given so freely.

Drs. Fred L. Adair, Walter M. Boothby, Milton B. Cohen, W. Allen Conroy, Alexander Day, Gertrude Takats, Samuel Feinberg, Hart Fisher, Alexander Hollander, Archibald Hovne, K. K. Jones, Leland McKittick, Harry L. Mock Jr., Stuart Mudd, Tell Nelson, S. L. Osborne, Winthrop Phelps, O. H. Robertson, E. C. Stakman, Lauriston Taylor, Ralph Waters, W. F. Wells and Mr. J. C. Stenberg.

*Audiometers and Hearing Aids*—Drs. C. C. Bunch, George M. Coates, E. P. Fowler, W. E. Grove, Isaac Jones, Douglas Macfarlan, C. Stewart Nash, Horace Newhart, Paul Sabine, B. R. Shurly and W. P. Wherry.

*Educational Work*—Drs. Frances Baker, Benjamin Boynton, Muriel Case Downer, Earl C. Elkins, F. H. Fwerhardt, Richard Kovacs, Fred B. Moor, W. H. Northrup, William Schmidt, Walter M. Solomon, Arthur L. Watkins and Walter J. Zetter.

*Artificial Limbs*—Drs. S. Perry Rogers, Paul Steele and Philip Wilson and Messrs. McCarthy Hanger Sr., W. L. Isle, J. B. Korrad, Joseph Spivak and David E. Stolpe.

*Electrocardiographs*—Drs. A. R. Barnes, George Fahr, Harold L. B. Pardee, W. D. Stroud, Carl J. Wiggers and Frank N. Wilson.

*Respirators*—Drs. W. B. Cannon, Edward L. Compere, Charles McKham and James Wilson.

WESTINGHOUSE CONSTANT INTENSITY  
STERILAMPS

(Operating Room, Hospital Nursery and  
Hospital Ward Models)

## ACCEPTABLE

Manufacturer: Westinghouse X-Ray Company, Long Island City, N. Y.

The Westinghouse Constant Intensity Sterilamp Units, Operating Room, Hospital Nursery and Hospital Ward Models, are designed to provide a more favorable environment for the care of patients by lowering the bacterial contamination level of the air surrounding the patient. These lamps produce essentially monochromatic ultraviolet radiation, wavelength 2,537 angstroms, and are mounted in fittings of various types for installation in operating rooms, nurseries and in isolation and contagious wards.

In appearance the Sterilamp is a slender rod-shaped glass tube flaring slightly at each end where the electrodes are located. The high emission cold electrodes and mercury vapor combined with certain rare gases under very low pressure are contained in the high transmission glass envelop having a radiation cut-off at approximately wavelength 2,200 angstroms. In the table is the energy distribution of a standard Sterilamp operating at 40 milliamperes.

Sterilamp units are self contained and operate on 115 volt, 60 cycle alternating current circuits. Essential parts are the sockets and transformer housings, intensity adjusting control, louvers (where needed) and one or more straight or curved Sterilamps. These parts comprise the chassis, which can be wall or ceiling mounted or attached directly to existing illuminating fixtures.

Nursery-type Sterilamp units, installed over or near bassinets, are equipped with adjustable baffles to prevent exposure of the infants to ultraviolet radiation. The baffles permit arrangement to shade the bassinets the radiation falling on the area above and below them.

Lamps installed in isolation and contagious wards are similar to those used in the nursery, each equipped with baffles to shade the beds. An irradiated field is maintained above and below the beds, the aisles ways used by nurses and attendants are also irradiated. Two Sterilamp units may be used on either side of the ward entrance as a barrier to the passage of pathogenic organisms in or out of the ward.

For use in operating rooms the Sterilamps are arranged to suit varying requirements. A typical arrangement shows a unit attached to the central surgical lighting fixture or mounted on either side of it and four auxiliary Sterilamp units mounted on each of the three walls and one over the entrance.

Sterilamp installation includes a control cabinet containing a compensator for maintaining the radiation intensity of the central unit throughout the life cycle of the tubes and an adjustable regulator equipped with a pointer handle and graduated dial, for varying the intensity. The control cabinet is

## Energy Distribution

| Wavelength in Angstrom Units | Intensity Radiated in Microwatts per Square Centimeter at 1 Meter |
|------------------------------|---|
| 2,537                        | 26.00   |
| 2,552                        | 0.793   |
| 2,804                        | 0.027   |
| 2,891                        | 0.017   |
| 2,967                        | 0.135   |
| 3,022                        | 0.066   |
| 3,129                        | 0.510   |
| 3,654                        | 0.135   |
| 4,047                        | 0.514   |
| 4,359                        | 1.560   |
| 5,461                        | 0.850   |
| 5,780                        | 0.195   |

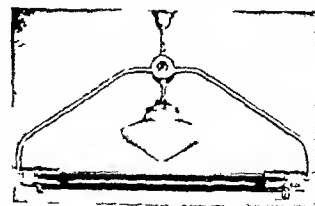
equipped with two mercury switches, one for the central Sterilamp circuit and the other for the auxiliary Sterilamp circuit. The control may be set for the approximate time allotted to the operation and this is designed to vary the intensity of the central unit to that recommended as safe tissue tolerance for the time of the operation.

The term "Constant Intensity" in the name of the unit refers to a plan of contract inspection carried out by the firm. The plan of inspection is carried on in this manner. At the time of installation each unit is calibrated by the firm's representative with an SM-200 Ultraviolet Meter (Council accepted). The unit is inspected at periodic intervals thereafter, and the replacement of the tube is ordered when the compensator will no longer restore the constant intensity. When operated at their rated currents, the Sterilamps lose their output of radiation at 2,537 angstroms with age and reach 50 per cent of their initial output after four thousand to six thousand hours of continuous burning (six to nine months).

In its investigation of the Sterilamp, the Council found that the ultraviolet output of a single tube ranges from 16.5 to 18.2 microwatts per square centimeter, since two tubes are used in a unit, the ultraviolet output is doubled or is 33 to 36 microwatts per square centimeter at 1 meter from the lamp unit. These measurements show that the ultraviolet output of the lamps complies with the Council's requirements of 20 microwatts per square centimeter at 1 meter from the unit. The requirements are set forth in the Council article "Acceptance of Ultraviolet Lamps for Disinfecting Purposes."

The production of ozone is probably not "controlled" intentionally as claimed by the firm, and if it is generated intentionally in an amount sufficient to disinfect or "protect" areas "not directly irradiated" it will be injurious or at least objectionable to the occupants.

The Council on Physical Therapy voted to accept the Westinghouse Constant Intensity Sterilamp Units—Operating Room, Hospital Nursery and Hospital Ward Models—for inclusion on its list of accepted devices.



Westinghouse Constant Intensity Sterilamps (Operating Room, Hospital Nursery and Hospital Ward Models)

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SAURDAY, MAY 2, 1942

## THE ATLANTIC CITY SESSION

Nowhere in this issue (p 37) appears the special information relative to the ninety-third annual session of the American Medical Association, which will be held in Atlantic City, June 8 to 12. The reservations already made by many of the leading hotels in Atlantic City indicate that an excellent attendance may be anticipated. Indeed several of the hotels are already reserved to their capacity. The appreciation of the medical profession should be extended to the Local Committee on Arrangements for its continuous effort to insure the usual smooth running arrangements associated with the conduct of a session in Atlantic City. Many alumni and fraternity organizations have planned special functions, and the Woman's Auxiliary has developed an extensive program with a number of distinguished guests and speakers. Many officials of the federal government associated with the war effort are scheduled to participate in some of the programs.

Attention is called particularly to the program of the general scientific meetings, which appears on page 48. It will be observed that one session is an Inter-American meeting with participants from some of our neighboring countries. Another session is devoted largely to military-medical problems and still another session is designed to bring to the attention of visitors recent advances in medical practice.

The programs of the scientific sections are replete with papers of current interest in the field of public health and the war effort. There are symposiums on the newer methods in the treatment of infections of the sinuses and of poliomyelitis. There are round table discussions and question and answer periods, which proved so popular in previous meetings. Special attention should be called also to the program of the Section on Industrial Medicine and Public Health (p 56) as an example of the contribution of the American medical profession to the war.

The meetings of the Section on Miscellaneous Topics are designed particularly to cover the fields of general practice and legal medicine. Here are two unusual programs which should have great appeal.

Applications for the Scientific Exhibit were well beyond the capacity of the available space. Special lectures and demonstrations have been planned on poliomyelitis, diabetes, the work of the Selective Service and on civilian defense. The motion picture program (pp 78 and 79) is a further indication of the vast progress that has been made in visual education. Certainly few physicians can fail to find in the material thus made available much that will prove of exceeding value.

## FIVE THOUSAND PHYSICIANS NEEDED IMMEDIATELY FOR THE ARMY MEDICAL DEPARTMENT

Under the heading of Medicine and the War in this issue of THE JOURNAL appears an official announcement from the Procurement and Assignment Service indicating that five thousand physicians are needed immediately for the Army Medical Department. The plan under which recruitment will proceed was developed at a meeting held in Washington on April 24. To this meeting all the state chairmen of the Procurement and Assignment Service of the states east of the Mississippi River were invited. A second meeting will be held in Omaha on May 8 for all the state chairmen of the Procurement and Assignment Service and representatives of the Army Medical Department of states west of the Mississippi River.

The enrollment forms and questionnaires have been going steadily into the mails for more than a week. If, therefore, any physician fails to receive his enrollment form and questionnaire before May 9 he should write at once on that date to the National Roster of Scientific and Trained Personnel in Washington, requesting a duplicate form together with the letters of instruction. Reports from Washington indicate that those physicians who have received the enrollment forms have in a tremendous number of cases filled them out immediately and returned them, and the forms are pouring into the Washington headquarters. The complete functioning of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians demands the complete cooperation of the medical profession. Since this organization was created to aid the medical profession in meeting the needs of the Army, the Navy and the civilian population, physicians should accept the responsibility and enroll immediately.

The new form of recruitment does not apply to dentists and to veterinarians, since there does not exist any immediate shortage in these groups. It does apply particularly to the medical profession, since the Army still demands 65 doctors for every thousand men enlisted and since it will require more than eleven thousand physicians by Jan 1, 1943 in addition to the five thousand that must be enlisted immediately.

The outline published under the heading of Medicine and the War gives information as to the rank which

physicians may anticipate in relation to their ages and special qualifications. It will be observed that special clearance will be required on all physicians who are to receive advanced rank. For this purpose the special evaluations and classifications developed by the special committees of the Division of Medical Sciences of the National Research Council, the headquarters of the American Medical Association, the certifying boards and the special societies are being utilized.

The winning of the war is a race against time. Among the agencies involved in the procurement and assignment of medical personnel are the headquarters of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians, the consultant office in the headquarters of the American Medical Association, the personnel divisions of the offices of the Surgeon Generals of the Army and the Navy, the division concerned with the Air Force, the Corps Area Headquarters, the Corps Area offices of the Procurement Service and the state chairmen. There is much interlocking and intercommunication of these various agencies, which have been evolved rapidly to meet the current emergency. The complete cooperation of the individual physician is vital in securing the best results as far as concerns the provision of medical service for the armed forces and the civilian population.

#### SULFANILAMIDE FAST GONOCOCCI

Since the discovery of the phenomenon of artificially acquired serum fastness and arsenic fastness by spirochetes the possibility of the spread of drug resistant strains of pathogenic micro-organisms to the general population has been of epidemiologic interest. About three years ago demonstration was made that the gonococcus readily acquires an *in vitro* resistance to the newly introduced sulfonamides. Boak,<sup>1</sup> Westphal<sup>2</sup> and others, for example, showed that all strains of the gonococcus tested by them readily acquired a tolerance to relatively high concentrations of sulfanilamide or sulfapyridine if cultivated in a medium to which gradually increasing amounts of these drugs were added. The Bangs<sup>3</sup> showed that this acquired drug fastness may be returned for at least a year on subsequent cultivation on mediums free from the drug. Working with experimental gonococcal infection of the chorioallantoic membrane of embryo chicks the Bangs<sup>3</sup> also showed that the minimum dose of sulfanilamide adequate for the cure of routine gonococcal infection of the chick embryo is wholly ineffective when tested against sulfanilamide tolerant strains, approximately ten times the routine concentration of the drug being necessary to effect a cure.

Following laboratory<sup>3</sup> and clinical<sup>4</sup> evidence that sulfathiazole is more effective therapeutically than the earlier sulfonamide compounds, Carpenter, Charles and Allison<sup>5</sup> of the School of Hygiene, Johns Hopkins University, tested the power of the gonococcus to acquire resistance to sulfathiazole. In control tests they found that within fourteen days all strains of gonococci grown on gradually increasing concentrations of sulfanilamide acquired at least a tenfold sulfanilamide tolerance. This acquired tolerance was apparently specific, since the adapted micro-organisms were still fully susceptible to sulfathiazole. Attempts made to grow the same strains in gradually increasing concentrations of sulfathiazole, however, were unsuccessful. After seventy-four days' growth in their minimum concentration of this drug (0.002 per cent), none of the strains had acquired the ability to grow in their next higher concentration.

The failure of the gonococcus to develop resistance to sulfathiazole suggests that sulfathiazole fast strains are not likely to be developed in the clinic or to be spread to the general population. Dissemination of sulfanilamide or sulfapyridine fast strains, however, is a theoretical possibility. Carpenter and his colleagues believe that the inability of the gonococcus to develop a tolerance to sulfathiazole accounts for the relative clinical efficiency of this drug. Titration in the chick embryo convinced the Bangs that sulfathiazole is three times more effective therapeutically than sulfanilamide.

### Current Comment

#### FAMILY NUTRITION

As a part of its contribution to the campaign for improved nutrition the Philadelphia Child Health Society has published a monograph, with the aid of a grant from the Beneficial Industrial Loan Corporation, entitled 'Family Nutrition'. This monograph covers the general subject of nutrition, methods of measurement of nutritional status, the dietary value of common foods, nutritional needs, the relationship of food intake and appetite to the nutritional status and some considerations of balanced diets and balanced budgets. The pamphlet concerns even the child who will not eat what he needs because the dinner table is too often a battleground or an amusement park. Menus for each of five groups of families covering two week periods are provided based on family income. As a war measure the pamphlet is offered for free distribution to those teaching nutrition in formal school classes, those holding nutrition classes or meetings as a part of the war program, Red Cross workers, women's

1 Boak, R. A., Charles, R. L. and Carpenter, C. M. Pub. 11 American Society for the Advancement of Science. Science Press, 1939.

2 Westphal, Louise, Charles, Ruth L. and Carpenter, C. M. *Bact* 39: 47 (Jan.) 1940.

3 Bang, F. B. and Bang, Betsy. *Proc. Soc. Exper. Biol. & Med* 46: 327 (April) 1941.

4 Mahoney, J. F., Wolcott, R. R. and Van Slyke, C. J. Sulfamethylthiazole and Sulfathiazole Therapy of Gonococcal Infections. *Am. J. Syph. Gonorr. & Ven. Dis.* 24: 613 (Sept.) 1940. Burkholder, T. M. and Bang, Frederick. Use of Sulfathiazole and Sulfamethylthiazole in Treatment of Gonorrheal Urethritis. *J. Urol.* 44: 541 (Oct.) 1940.

5 Carpenter, C. M., Charles, R. and Allison, S. D. *Proc. Soc. Exper. Biol. & Med.* 48: 476 (Nov.) 1941.



club leaders and others who may need a monograph of this kind. The monograph is obtained by writing to the Philadelphia Child Health Society, 311 South Juniper Street, Philadelphia.

### THE KILLING OF BACTERIAL SPORES BY AGITATION

Bacterial spores are notoriously resistant to injurious influences. Heat, disinfectants and desiccation, which are fatal to the vegetative forms of bacteria, fail to kill the spores of the same or other species of organisms. The use of the shaking machines in bacteriologic laboratories for the killing of spores has been almost unnoticed although Meltzer apparently observed this phenomenon nearly a half century ago. Last year an observation led Curran and Evans<sup>1</sup> to undertake experiments to demonstrate the effect of agitation on spores. In the presence of abrasives they subjected suspensions of spores of test organisms to agitation in the shaking machine at 430 shakes per minute with a stroke amplitude of 1.8 inches. The samples of spores and vegetative cells were suspended in distilled water or broth in 8 ounce bottles. Among the several abrasives used in the experiments were sand, emery, silicon carbide, pyrex chips, aluminum and small glass beads. The criterion of germicidal activity was the number of spores that survived five hours of shaking. The difference between the number of colonies that developed on glucose extract agar plates before and after prolonged shaking with abrasives was regarded as a measure of the test influence. The sporicidal efficiency of the glass beads was remarkable. The result was that bacterial spores and the vegetative forms were progressively destroyed by long and vigorous shaking. The spores died at a rate which corresponded with the unimolecular law for chemical reactions. The rapidity with which spores were destroyed differed with the nature and quantity of the abrasive used, the size of the particles and the species and density of the spore formation. Sporicidal efficiency was progressively increased as the speed of shaking was increased between 330 and 570 revolutions per minute. Foam producing substances, such as broth in which the organisms were cultivated, reduced the germicidal efficiency of this procedure. The resistance of the spores to shaking was not correlated with their thermal resistance. There may be, however, a danger inherent in the practice, as the organisms agitated may not only be killed but their functions may be changed. Brown, of the U. S. Department of Agriculture, has repeatedly obtained invertase from yeast suspensions shaken with sand. Shaking procedures, therefore, may offer promise in the production of endoenzymes of micro-organisms. This procedure will require further trial. It seems to offer a simpler and more economical method for the killing of bacterial spores.

<sup>1</sup> Curran, Harold R., and Evans, Fred R. The Killing of Bacterial Spores in Fluids by Agitation with Small Inert Particles, *J. Bact.* 43: 125 (Feb.) 1942.

### THE INDEX NUMBER

Last week's issue, *THE JOURNAL* for April 25, was the Index Number. This was in accordance with an action taken by the Board of Trustees of the American Medical Association providing that hereafter *THE JOURNAL* shall be published in three volumes each year, covering the respective periods of four months each. This makes three index numbers annually instead of two, as was formerly the case. The content of *THE JOURNAL* is now so large that binding in two volumes makes a book so bulky that it is difficult to handle under ordinary conditions of work in libraries. Thus volume 118, which ended with the issue for April 25, contained 1,578 pages of reading matter. This incidentally is from two to four times the amount of material made available in any other weekly medical publication.

### PLANTS AND MALARIA CONTROL

The control of malaria involves procedures directed against the parasite or its anopheline vector, as well as measures designed to protect the human host from the bite of infected mosquitoes. Aquatic plants are concerned in this malarial triangle, for they provide food and shelter for the larvae of the vector. Plant scientists may thus aid in the control of malaria by determining the relation of each type of plant to anopheline propagation and by devising methods for holding objectionable species in check. An example of this type of work is described by Penfound<sup>1</sup> in a recent report on plant investigations carried on by the Tennessee Valley Authority during the summers of 1937 to 1940. One object of this study was to minimize the breeding of mosquitoes through proper preparation and maintenance of reservoirs. This involves complete clearing to insure reasonable mosquito control after impoundage and strict curbing of objectionable shoreline vegetation. Herbaceous plants in particular present a definite mosquito problem, the most offensive have been delineated and their life histories investigated. Plant control methods at the present time include removal, recurrent cutting and the application of herbicides. As pointed out by Penfound, the study of obnoxious plants is fundamental to adequate maintenance of reservoirs and permits the subsequent undertaking of an intensive campaign to prevent or limit the colonization of certain critical species. The importance of aquatic and semiaquatic vegetation and of flottage in connection with the problem of malaria control in the Southeastern states has been emphasized.<sup>2</sup> The attention being paid to this aspect of the problem by plant scientists constitutes a significant, albeit inconspicuous, service in the interest of public health.

<sup>1</sup> Penfound, W. T. The Relation of Plants to Malaria Control with Special Reference to Impounded Waters, *Pub. Health Rep.* 57: 261 (Feb. 20) 1942.  
<sup>2</sup> Hinman, E. H. Biological Effects of Fluctuation of Water Level on Anopheline Breeding, *Am. J. Trop. Med.* 18: 483 (Sept.) 1938.

# MEDICINE AND THE WAR

*In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession*

## PROCUREMENT AND ASSIGNMENT SERVICE FOR PHYSICIANS, DENTISTS AND VETERINARIANS

### NEW METHOD FOR IMMEDIATE RECRUITMENT OF MEDICAL OFFICERS

The army has streamlined its method of commissioning medical officers. Five thousand physicians are needed at once. Eleven thousand additional will be needed by Dec 31 1942. Army officers' recruiting boards will proceed at once to the office of each state chairman for physicians of the Procurement and Assignment Service to get in touch with physicians personally and commission them immediately.

#### INSTRUCTIONS FOR PHYSICIANS WISHING TO ENLIST

1 Return the procurement and assignment enrolment form and questionnaire which reached you last week. If you didn't get one, write immediately to the National Roster of Scientific and Specialized Personnel 916 G Street N W, Washington, D C, for your forms.

2 Contact your state chairman of physicians for Procurement and Assignment Service at once, stating that you want to get into the service. Do this regardless of whether or not you have written to the Washington office of the Procurement and Assignment Service or the Surgeon General or have enrolled on the emergency enrolment form of last December. If you applied for commission more than thirty days ago, tell the state chairman you want to see the recruiting board.

3 The Surgeon General will not commission a physician unless he is certified as available by his state chairman of physicians for the Procurement and Assignment Service.

#### HOW COMMISSIONS WILL BE SECURED

1 The Surgeon General and the Adjutant General have named teams of two officers and two clerks, who will procure the names of all available physicians who have volunteered from the state chairman for physicians of the Procurement and Assignment Service in your state.

2 These teams will have the authority to make final decisions on the application forms, to procure and make final decisions on the physical findings and to administer the oath of office immediately to those who qualify physically and professionally who are under the age of 45 and who are to be given the rank of lieutenant or captain.

3 These teams have the authority to initiate the applications and physical examinations and forward the papers with their recommendations direct to the Surgeon General for commission for all physicians under the age of 45 who might apparently be qualified for rank above that of captain.

4 These teams will have the authority to initiate the applications and physical examinations and to forward

to the Surgeon General direct the papers and their recommendations on all physicians 45 to 54 inclusive. The Surgeon General will make the final decisions and commission those for whom there are vacancies in this age group.

#### WHAT RANK MAY BE EXPECTED?

In order that all concerned in the procurement of additional medical department officers may give uniform advice to all applicants the following summary of the policies which broadly govern the recommendations to be made to the Adjutant General are published for your information and guidance.

(a) *Basic Considerations* — (1) Appointments in the Army of the United States (medical department) will be recommended by the Surgeon General to fill authorized position vacancies for which no qualified medical department officers are available. The recommended applicants must possess the special qualifications required for such positions.

(2) Since no training or experience in civil life is analogous to that afforded by active military duty no initial appointments will be recommended in grades above the lowest for assignment to tactical units.

(3) Position vacancies calling for grades above the lowest will, so far as possible, be filled by the promotion of qualified officers on active duty.

(b) *Policy Governing Grades for Various Sections* — (1) Medical Corps. All appointments will be recommended in the grade of first lieutenant with the following exceptions:

(a) *Captain*. 1 Eligible applicants between the ages of 37 and 45 will be appointed in the grade of captain by reason of their age and general unclassified medical training and experience.

2 Below the age of 37 the following recognized training and experience will be considered in recommending initial appointments in the grade of captain: certification by an American specialty board, fellowship, American College of Surgeons or American College of Physicians, membership in other nationally recognized qualifying society or association, or the formal hospital training equivalent to that required by an American specialty board or other recognized training appropriate to the assignment for which recommended.

3 Eligible applicants who previously held commissions in the grade of captain in the Medical Corps (Regular Army, National Guard of the United States, Officers' Reserve Corps) may be appointed in that grade provided they have not passed the age of 45.

(b) *Major* 1 Eligible applicants between the ages of 37 and 55 for whom there exist appropriate position vacancies, who are qualified for appointment as captain as outlined in paragraph (1)(a)2 and whose additional training and experience justify initial assignment as chief of service or section or executive officer in a large military hospital or other appropriate position, may be appointed in the grade of major

2 Applicants previously commissioned as major in the Medical Corps (Regular Army, National Guard of the United States, Officers' Reserve Corps) whose train-

#### Rate of Pay

|                    | With Dependents | Without Dependents |
|--------------------|-----------------|--------------------|
| Lieutenant Colonel | \$5,588         | \$4,676            |
| Major              | 4,848           | 3,936              |
| Captain            | 3,792           | 3,336              |
| First Lieutenant   | 3,152           | 2,696              |
| Second Lieutenant  | 2,196           | 2,196              |

ing and experience qualify them for an appropriate assignment may be appointed in the grade of major, provided they have not passed the age of 55

(c) *Lieutenant Colonel and Colonel* 1 In view of the small number of assignment vacancies in the grades of lieutenant colonel and colonel and the large number of reserve officers of these grades who have not been ordered to active duty, such appointments will be limited to specially qualified applicants required for specific position vacancies which cannot be filled by promotion or by the activation of qualified reserve officers

### DIRECTORS OF AFFILIATED UNITS URGED TO ENCOURAGE IMMEDIATE ACTIVE DUTY ON INDIVIDUAL MEMBERS

The office of the Surgeon General of the Army has just sent the following letter to directors of affiliated units

1 As you are aware appointments made in the Officers' Reserve Corps or in the Army of the United States for the purpose of assignment to a specific affiliated unit may be terminated on the request of the institution or that of the individual officer. Accordingly, these officers are not considered available for active military duty prior to the activation of the unit without their request and the approval of the institution authorities. This policy has resulted in the immobilization of a very large number of highly trained officers at a time when the shortage of medical officers is assuming serious proportions.

2 The Surgeon General requests that you urge officers assigned to your unit to consider seriously extended active duty at this time, for temporary assignment to named general hospitals or to station hospitals in this country, pending the activation of the unit to which they will then be reassigned.

3 It is not possible to anticipate the rate at which affiliated medical department units will be ordered into active military service. The use of unit personnel until such activation will, however, go far to alleviate the situation now existing in the majority of corps areas, the active duty training received by the individual officer will make him of greater value to the unit when it is called on to function.

4 Requests for extended active duty should be addressed to the Surgeon General and should state the date on which available. Each request should be endorsed by you and should show the date and place at which final type physical examination was made and the positions in the unit for which appointed. Your endorsement will be to the Surgeon General, through the surgeon of the corps area in which the officer resides.

5 The need for officers is acute. Your sincere cooperation is desired.

For the Surgeon General

FRANCIS M. FITTS,  
Lieutenant Colonel, Medical Corps, Assistant

NOTE—*a* There are in the age group 24-45 more than a sufficient number of eligible qualified physicians to meet medical department requirements. It is on this age group that the Congress, through the Selective Service Act, has imposed the definite obligation of military service. Applicants beyond this age will be considered for appointment only if they possess the special qualifications required for assignment to positions appropriate for the grade of major or above.

*b* Appointments for assignment to affiliated medical department units are made under special War Department authorization, and in grades authorized by appropriate tables of organization on recommendation of the authorities of the sponsoring institutions.

#### HOW SOON MAY ONE EXPECT TO ENTER SERVICE?

Immediate cooperation with the officers' recruiting boards will result in a commission sooner than it could otherwise be obtained. A slightly longer period of time will obtain in the case of those referred to the Surgeon General for decision. In each case a period of fourteen days is granted between the administration of oath of office and the date of reporting for duty. If an officer desires to report before this fourteen day period has expired, he may do so by appropriate statement to the recruiting board. It is advised that no steps be taken to close one's office until after one has taken the oath of office.

SAM F. SEELEY, M.D.,  
Executive Officer,  
Procurement and Assignment Service

### DISCHARGE RESERVE OFFICERS WHO FAIL TO RECTIFY CORRECTABLE DEFECTS

Any reserve officer, disqualified for active duty with the Army only because of a physical defect which is correctable who fails to correct the defect within a reasonable period of time or states that he does not intend to correct it, will be discharged from the service, the War Department announced on April 17. This policy does not apply to reserve officers who are disqualified because of a physical defect which is not correctable. Such officers may be separated from the service only by resignation. Formerly a reserve officer, declared ineligible for active duty because of disqualifying but correctable defects, continued to hold his commission even though he took no steps to correct the defects and thus fit himself for active duty. Within the past few months all reserve officers have been ordered to take physical examinations to determine their availability for active duty. When correctable physical defects disqualify the officer for active duty a reexamination is held at a set date, based on a reasonable length of time in which the defect might be corrected.

### HOW TO ADDRESS MAIL TO SOLDIERS

In keeping with its policy of prompt and certain delivery of soldier mail, the War Department has announced the following instructions designed to enable families and friends of soldiers to send their letters so that they will be delivered promptly.

#### OUTSIDE CONTINENTAL UNITED STATES

Mail addressed to army personnel serving outside the continental United States should clearly show

Grade, first name in full, middle initial and last name of person addressed, followed by his army serial number, if known.

Letter or number of the company or other similar organization of which the addressee is a member.

Designation of the regiment or separate battalion, if any, to which the company belongs.

Army postoffice number in care of the appropriate postmaster  
The location of the overseas station should not be used  
Name and address of the sender in the upper left corner

#### WITHIN CONTINENTAL UNITED STATES

Mail addressed to army personnel within continental United States should show the same information except that the postoffice address of the post or camp will be used preceded in appropriate cases by the APO number if applicable

Mail addressed to army personnel on maneuvers within the continental United States should show the same information as prescribed for outside continental United States. Prior to beginning of maneuvers the Post Office Department with the concurrence of the Army will designate the postmaster in whose care mail for personnel involved will be addressed

#### CORRECT FORMS

The following are examples of correctly addressed envelopes

1st Lieut Willard J Roe Med Corps U S Army  
167th Evacuation Hospital  
APO 801 c Postmaster  
New York N Y

Lieut (j g) Willard J Roe Med Corps U S Army  
U S S Texas  
% Postmaster  
San Francisco California

### THE ARMY NEEDS BACTERIOLOGISTS, BIOLOGIC CHEMISTS, SANITARY ENGINEERS AND ENTO- MOLOGISTS

The Surgeon General's Office has announced that there are vacancies in the Sanitary Corps of the Army for bacteriologists biologic chemists sanitary engineers and entomologists. Applicants desiring to apply for commissions in the Sanitary Corps should write to the Office of the Surgeon General and state their college training and civilian experience in detail.

Applicants must have had at least four years' actual experience, and in the case of bacteriologists this must be in medical diagnostic and public health bacteriology, in the case of biologic chemists, in diagnostic and public health biologic chemistry including blood urine, food, water and sewage chemistry, and toxicology, in the case of sanitary engineers, experience must include at least two of the following activities: mosquito control, rodent control, water supplies and sewage treatment. Applicants also must have completed a four years course in college during which special emphasis was laid on studies in the field in which they desire to be commissioned in the Sanitary Corps. The receipt of a higher degree, Master of Science or Doctor of Philosophy may be substituted for a part of the four years actual experience required. A professional examination is not required. Additional details concerning the qualifications of applicants for commissions in the Sanitary Corps may be obtained on request to the Surgeon General's Office, U S Army Washington, D C.

### RUSH MOBILE MEDICAL UNITS TO BURMA

To protect United Nations troops on the Burma front from malaria and cholera which are endemic in the spring, the Chinese Red Cross has sent nine mobile medical units to serve as close to the fighting front as possible. Each unit has a surgeon, two assistants, several dressers, eight or more stretcher bearers and two chauffeur-mechanics. The medical supplies are carried in trucks given by the American Red Cross, other equipment was furnished by the American Bureau for Medical Aid to China an agency of United China Relief. Dr Robert K S Lim of the Chinese Red Cross and Dr Chi-Teh-Loo, director of the Army Medical Corps, have flown from Chungking to Burma to supervise the inauguration of the antiepidemic program. Already on the Burma front are six ambulances and a surgical team manned by British and American Friends under the leadership of Dr Robert B McClure of Canada. A second group of six ambulances is on its way from the headquarters of the Friends Ambulance Unit.

### FUNCTION OF MEDICAL ADVISORY BOARDS

It has been brought to the attention of the National Headquarters of the Selective Service System, Washington D C that in some corps areas registrants are being referred back to local boards and medical advisory boards by the examining and induction stations for additional examinations, including laboratory and x-ray tests to determine their physical qualifications for induction.

The medical advisory board is an element of the Selective Service System. There is no objection to the use by the Army of the specialists on such boards provided the cost is borne by the Army and it is distinctly understood that such services are rendered to and for the Army. In no event should a registrant be referred back to local boards for an additional examination prior to a final action by the examining and induction stations.

A problem arises not infrequently at the examining and induction stations where the registrant declares that he suffers from epilepsy asthma or other conditions and yet presents no proof other than his bare statement. Because of lack of acquaintance with the registrant the examiner naturally is uncertain as to the truth or falsity of the statement. If such cases are rejected and returned to the local board a statement will be made by the examining and induction stations under Remarks on the 'Report of Physical Examination and Induction' (form 221) giving the basis for the cause of rejection. If the local board or its examining physician has reason to believe that the registrant has falsified such a statement, it may accumulate evidence to justify its belief and return the registrant at a subsequent date accompanied by such evidence.

LEWIS B HERSHEY, Director

### ST LOUIS PREPARES

More than a hundred thousand persons in St Louis are in training or have been assigned to duty in the community services of civilian defense and other protective functions, according to the *Star-Times*. By April 9 about three thousand members of the protective organization had already completed their training, however, the national Office of Civilian Defense recently increased their period of training from ten to twenty hours, making it necessary for these members to resume their studies. Of the total number mentioned, 58,871 were enrolled in Red Cross work and the community services. Among the others enrolled were 4,000 in the drivers corps, 450 in the rescue squads, 461 fire watchers, 2,438 auxiliary firemen, 5,350 air raid wardens, 3,160 in the emergency medical services, 213 nurses aides and 3,705 in the food and housing corps.

### BUREAU TO HANDLE PERSONAL PROPERTY LEFT BY UNITS GOING OVERSEAS

An Effects Bureau to handle storage and disposal of personal property left at camps and stations or on trains by military personnel on departure for overseas duty has been established by the War Department. The new bureau has begun operations at the Quartermaster Depot Kansas City, Mo. Units are sometimes required to leave home stations for duty abroad on short notice. Personnel of these units often leave personal effects behind. All such property, other than automobiles and household effects, will be shipped by station and camp commanders to the Effects Quartermaster at the Kansas City Depot. Station and camp commanders will have all containers or packages opened and examined in the presence of a commissioned officer, and all government property found thereon will be turned over to the appropriate local supply officer. Property of individuals will then be repacked, each in a separate container, for shipment to the depot.

The Effects Bureau is also charged with disposition of effects of personnel who may die overseas. The 112th Article of War provides that the Quartermaster Corps shall transmit the effects of deceased persons to the next of kin or beneficiary. When it is impossible to determine ownership of any property left, the property will be inventoried and shipped to the Depot, where it will be held until ownership can be determined.

### REQUEST FOR INCREASE IN RED CROSS BLOOD RESERVE

An additional 350,000 pints of blood from American volunteer donors has been requested by the Army and Navy, Chairman Norman H. Davis of the American Red Cross announced on April 22.

The blood, which will be collected by the Red Cross at its blood donor centers, is to be delivered during the year ending June 30, 1943. A total of 1,280,000 pints now has been requested by the Army and Navy, of which 380,000 is to be delivered by July 1. More than 250,000 pints already has been delivered and total donations are running around 17,000 a week. On this basis the Red Cross expects to exceed the amount requested for delivery by July.

It should be remembered, Chairman Davis stated, that our ability to make steady deliveries as requested by the Army and Navy depends on the willingness of those living near the eighteen Red Cross blood donor centers to volunteer as blood donors. Only with their continued cooperation shall we be able to supply the blood so badly needed by America's armed forces.

Red Cross blood donor centers are located in New York, Philadelphia, Baltimore, Buffalo, Rochester, N. Y., Indianapolis, Detroit, Pittsburgh, St. Louis, Boston, Cleveland, San Francisco, Milwaukee, Los Angeles, Chicago, Cincinnati, Brooklyn and Washington, D. C. Blood collected by these centers is shipped daily in refrigerated containers to laboratories designated by the Army, where it is processed into dried plasma to be used by the Army and Navy for emergency transfusions. Arrangements also have been made whereby limited amounts of dried plasma are being allocated to the Red Cross by the Army to be held for use in event of civilian disaster caused by enemy action in this country.

### THE GOVERNMENT NEEDS NURSING CONSULTANTS

The U. S. Civil Service Commission, Washington, D. C., announces that, while applications have been accepted for some time for public health nursing consultants in the lower grades, now the commission is seeking also consultants in the three higher grades with salaries of \$3,800, \$4,600 and \$5,600 a year. No age limits have been set.

Positions exist both in the United States and in foreign countries. The war service appointments will be made to extend generally for the duration of the war and not more than six months after. The duties are to plan and carry out nursing or nursing education programs and to act in an advisory capacity to federal agencies or to state, county or municipal organizations. There will be no written test. Applicants must have completed a four year course in a recognized college, with one year's special program of study in public health nursing, must have graduated from an accredited school of nursing, be registered nurses in some state and have had appropriate general public health nursing supervisory experience. Some positions are in the Children's Bureau and in the U. S. Public Health Service. Forms for applying may be obtained at post offices or from the commission in Washington.

### DR. BAEHR ADDRESSES DISTRICT SOCIETY

Dr. George Baehr, chief medical officer of the Office of Civilian Defense, addressed the District of Columbia Medical Society on April 1. Dr. Baehr is reported to have said that already three hundred hospitals throughout the country have banks for liquid plasma for emergencies, and that depots for dried blood plasma are being set up in strategic points for civilian use. Dr. Oscar B. Hunter, assistant chief medical officer of the District of Columbia, said that questionnaires had been sent out to medical technicians to determine how many are capable of typing and matching blood for transfusions and that nearly a thousand physicians in the District had already been classified and assigned to duties in cases of emergency.

### WANT STUDENT NURSES FOR ST. ELIZABETHS HOSPITAL

The U. S. Civil Service Commission has announced that fifty student nurses will be enrolled for training at St. Elizabeths Hospital School of Nursing, Washington, D. C., about Sept. 15, 1942 and March 15, 1943. Forms for applying may be obtained at post offices throughout the country or from the commission in Washington. Applications must be filed before May 13, 1942. The age limits are from 18 to 30 years, graduation from high school is required, although applications will be accepted from senior high school students who will complete the course not later than Jan. 31, 1943. They must be in good health and capable of performing arduous duties. St. Elizabeths Hospital is a government institution for the treatment of mental disorders. The training period will cover a three year course, including a probationary term of six months. Graduates of the course will be eligible for promotion to higher positions on the nursing staff.

### ILLINOIS MEDICAL ADVISORY COMMITTEE

Governor Green of Illinois appointed on March 29 a medical advisory committee to the committee on public health of the Illinois State Council of Defense. The members appointed were Drs. Charles H. Phifer of Chicago, president of the Illinois Medical Society, chairman, Edward H. Weld, Rockford, president-elect of the Illinois Medical Society, vice chairman, Roland R. Cross, director of public health, H. L. Pettitt, Morrison, Arlington Ailes, LaSalle, Robert S. Berghoff, Chicago, Harold M. Camp, Monmouth, E. S. Hamilton, Kankakee, James H. Hutton, Chicago, Raymond W. McNealy, Chicago, Paul L. Schroeder, Chicago, Bertha Shafer, Chicago, Herman M. Soloway, Springfield, Conrad Sommer, Springfield, Walter D. Stevenson, Quincy, Bert W. Caldwell, Chicago, Thomas G. Hull, Ph.D., Chicago, and Rodney Brandon, director state department of public welfare.

### MOBILE EMERGENCY UNITS IN WISCONSIN

Public health officials and physicians representing sixteen counties in southern Wisconsin have planned to establish county mobile medical units which will operate out of wartime casualty stations to be established at key points. One of the complete units was shown at a meeting in Madison, April 6. The unit was equipped with bandages, tourniquets, flashlights, medicines, a stove and other equipment for emergency first aid treatment.

### TRAINING NURSES' AIDES IN NEW YORK

Eight hundred and ten women had completed training as volunteer nurses' aides in New York City as of April 13, 1,031 were in training and 295 were waiting for class instruction. According to the *New York Times*, a campaign is under way to train 10,000 women as volunteer nurses' aides. Bellevue Hospital, which alone can use more than 300, is one of eighty-four hospitals needing nurses' aides. A survey conducted at Bellevue by the director of volunteer service, Miss Lois Mills, disclosed that women from 30 to 50 years of age are best equipped to fill these posts. In the campaign to obtain nurses' aides, 400 women were interviewed and accepted for service the second week in April.

### VIRGINIA ORGANIZES EVACUATION HOSPITAL

Arrangements are practically complete for Evacuation Hospital No. 8, being organized by the University of Virginia Department of Medicine, Charlottesville, under the direction of Dr. Staige D. Blackford of the faculty of medicine. A unit is being organized for foreign service, according to the *Richmond Times Dispatch*. In the first world war the University of Virginia Unit, Base Hospital No. 41, served in France.



# ORGANIZATION SECTION

## THE ATLANTIC CITY SESSION

AMERICAN MEDICAL ASSOCIATION, NINETY-THIRD ANNUAL SESSION

ATLANTIC CITY, JUNE 8 12, 1942

### OFFICIAL CALL

#### TO THE OFFICERS, FELLOWS AND MEMBERS OF THE AMERICAN MEDICAL ASSOCIATION

The ninety-third annual session of the American Medical Association will be held in Atlantic City, June 8-12, 1942

The House of Delegates will convene at 10 a m Monday, June 8 In the House the representation of the various constituent associations for 1941, 1942 and 1943 is as follows

|                      |   |                     |    |
|----------------------|---|---------------------|----|
| Alabama              | 2 | New Hampshire       | 1  |
| Arizona              | 1 | New Jersey          | 5  |
| Arkansas             | 2 | New Mexico          | 1  |
| California           | 8 | New York            | 19 |
| Colorado             | 2 | North Carolina      | 3  |
| Connecticut          | 2 | North Dakota        | 1  |
| Delaware             | 1 | Ohio                | 7  |
| District of Columbia | 1 | Oklahoma            | 2  |
| Florida              | 2 | Oregon              | 1  |
| Georgia              | 3 | Pennsylvania        | 11 |
| Idaho                | 1 | Rhode Island        | 1  |
| Illinois             | 9 | South Carolina      | 2  |
| Indiana              | 4 | South Dakota        | 1  |
| Iowa                 | 3 | Tennessee           | 2  |
| Kansas               | 2 | Texas               | 5  |
| Kentucky             | 3 | Utah                | 1  |
| Louisiana            | 2 | Vermont             | 1  |
| Maine                | 1 | Virginia            | 2  |
| Maryland             | 2 | Washington          | 2  |
| Massachusetts        | 6 | West Virginia       | 2  |
| Michigan             | 5 | Wisconsin           | 3  |
| Minnesota            | 4 | Wyoming             | 1  |
| Mississippi          | 2 | Alaska              | 1  |
| Missouri             | 4 | Hawaii              | 1  |
| Montana              | 1 | Isthmian Canal Zone | 1  |
| Nebraska             | 2 | Philippine Islands  | 2  |
| Nevada               | 1 | Puerto Rico         | 1  |

The sixteen scientific sections of the American Medical Association, the Medical Corps of the Army, the Medical Corps of the Navy and the Public Health Service are entitled to one delegate each

The Scientific Assembly of the Association will open with the general meeting, to be held at 8 p m Tuesday, June 9 The sections will meet Wednesday, Thursday and Friday, June 10, 11 and 12, as follows

| CONVENING AT 9 A M THE SECTIONS ON     |                                  |
|--|----------------------------------|
| Surgery, General and Abdominal         | Dermatology and Syphilology      |
| Ophthalmology                          | Gastro-Enterology and Proctology |
| Pediatrics                             | Radiology                        |
| Experimental Medicine and Therapeutics | Miscellaneous Business           |
| Nervous and Mental Diseases            | Sessions on General Practice     |
|  | Session on Legal Medicine        |
| CONVENING AT 2 P M THE SECTIONS ON     |                                  |
| Practice of Medicine                   | Preventive and Industrial        |
| Obstetrics and Gynecology              | Medicine and Public Health       |
| Laryngology, Otology and Rhinology     | Urology                          |
| Pathology and Physiology               | Orthopedic Surgery               |
|  | Anesthesiology                   |

The Registration Department will be open from 8 30 a m until 5 30 p m Monday, Tuesday, Wednesday and Thursday, June 8, 9, 10 and 11, and from 8 30 a m to 12 noon Friday, June 12

FRANK H LAHEY, President  
H H SHOULDERS, Speaker, House of Delegates  
OLIV WEST, Secretary

#### MEMBERS OF THE HOUSE OF DELEGATES

A Preliminary Roster of the Legislative Body of the American Medical Association

The list of members of the House of Delegates for the session is incomplete, as a number of the state associations are yet to hold their meetings at which delegates will be elected The following is a list of the holdover members of the House of Delegates and of the newly elected members who have been reported to the Secretary in time to be included

#### STATE DELEGATES

| ALABAMA                          |  | INDIANA                        |  |
|----------------------------------|--|--------------------------------|--|
| A A Waller, Birmingham           |  | H G Hamer Indianapolis         |  |
| Lloyd Noland Fairfield           |  | George R Dillinger French Lick |  |
|                                  |  | Don F Cameron, Fort Wayne      |  |
|                                  |  | F S Crockett La Fayette        |  |
| ARIZONA                          |  | IOWA                           |  |
| Harold W Kohl, Tucson            |  | Ransom D Bernard Clarion       |  |
| ARKANSAS                         |  | KANSAS                         |  |
| William R Brooksher Fort Smith   |  | Forrest L Loveland Topeka      |  |
|                                  |  | J F Hassig, Kansas City        |  |
| CALIFORNIA                       |  | KENTUCKY                       |  |
| Edward N Ever, Oakland           |  | J Duffy Hancock Louisville     |  |
| Edward M Palette Sr Los Angeles  |  | Arthur T McCormack Louisville  |  |
| Robert A Peers Colfax            |  | Virgil E Simpson, Louisville   |  |
| William R Molony Sr, Los Angeles |  | LOUISIANA                      |  |
| Lyell C Kinney San Diego         |  | Leon J Menville New Orleans    |  |
| Harry H Wilson, Los Angeles      |  | James Q Graves Monroe          |  |
| Henry S Rogers Petaluma          |  | MAINE                          |  |
| COLORADO                         |  | Thomas A Foster, Portland      |  |
| Walter W King Denver             |  | MARYLAND                       |  |
| John Andrew, Longmont            |  | Alfred T Gundry Baltimore      |  |
| CONNECTICUT                      |  | MASSACHUSETTS                  |  |
| James R Miller Hartford          |  | John M Birnie Springfield      |  |
| George Blumer, New Haven         |  | Richard H Miller Boston        |  |
| DELAWARE                         |  | David D Scannell Boston        |  |
| Laurence L Fitchett, Milford     |  | Dwight O Hara Boston           |  |
| DISTRICT OF COLUMBIA             |  | Charles E Mongan Somerville    |  |
| Henry C Macatee Washington       |  | Walter G Phippen, Salem        |  |
| FLORIDA                          |  | MICHIGAN                       |  |
| Edward Jells Jacksonville        |  | Henry A Luce Detroit           |  |
| Meredith Mallory Orlando         |  | T K Gruber Elyse               |  |
| GEORGIA                          |  | Claude R Keyport Graveling     |  |
| Marion C Pruitt Atlanta          |  | Leo G Christian Lansing        |  |
| William A Mulhern Augusta        |  | Frank E Reeder Flint           |  |
| Ohn H Weaver Macon               |  | MINNESOTA                      |  |
| IDAHO                            |  | A W Adson Rochester            |  |
| Edward N Roberts Pocatello       |  | James M Hayes Minneapolis      |  |
| ILLINOIS                         |  | W A Coventry Duluth            |  |
| Robert H Hayes Chicago           |  | Francis J Savage St Paul       |  |
| Lee O French Decatur             |  | MISSISSIPPI                    |  |
| C E Wilkerson Danville           |  | J P Wall Jackson               |  |
| W E Kittler Rochelle             |  |                                |  |



## ATLANTIC CITY

## INFORMATION ABOUT THE CONVENTION PLANS AND THE CONVENTION CITY

The thousands of doctors and their wives who have attended previous sessions in Atlantic City need little encouragement to make them want to visit Atlantic City again.

The city's convention facilities are the best in the country. Past performances show that Atlantic City presents the finest convention facilities both from business and from entertainment points of view.

THE JOURNAL has carried many previous stories telling of the resort's natural attractions and its many made diversions. With the country at war this year it is necessary to throw a somewhat different light on the picture. Here are answers to some of the questions which have probably come to mind as plans have been made to attend the session.

It any of the thousands who are making arrangements to go to Atlantic City expect to find war's excitements they will be disappointed. There is plenty of excitement but not of the war variety. The only evidence of the military is in the uniforms of the men with their wives on week end furloughs.

A close inspection of the beach for evidence of barbed wire entanglements, guns or trenches reveals only a wide smooth strand, 8 miles long on which sun seekers rest in the beach chairs or on the beach itself. There will also be found the usual bathers out to get a coat of tan.

The Boardwalk lights are somewhat dimmer. Like other cities Atlantic City has a well organized civilian defense army.

Atlantic City would like to be able to boast that it has a host of defense industries turning out war materials for the armed forces but there just aren't any there. The resort makes its contribution by providing health and entertainment for those who are closely allied with the all out effort.

There are no priorities on sunshine or recreation and even if there were this greatest of all resorts is well supplied. Consequently, Atlantic City its hotels, large and small its many theaters, its auditoriums, its Boardwalk, its beach, its ocean, its golf courses, its cottages and rooming houses and all its hundred and one other features are combining to make a contribution toward national defense. They've signed a pledge to do everything possible to make an estimated fifteen million visitors hale Americans during 1942.

The great Municipal Convention Hall, world's largest, which in the past has provided such a fine setting for the convention sessions will again be the center of activities. The many exhibits will be seen in the huge main arena and in the lower hall, the larger meetings will be held in the ball room seating five thousand three hundred with many committee rooms set aside for smaller meetings.

Fine highways lead into the resort from Philadelphia and New York for those who plan to motor in, while fast trains and busses are available for others. Transportation is no problem once one arrives in Atlantic City as all the hotels are within walking distance of the convention hall. Those who prefer to ride will find the taxi rates reasonable with jitneys running along Pacific Avenue and trolley cars on Atlantic Avenue the city's two principal streets.

There are also some two thousand rolling chairs ready to carry sightseers along the Boardwalk at a leisurely pace. Special rates will be granted those wearing convention badges. This is just one of the many things that are being done to make the visit to Atlantic City more enjoyable. Those who go there for the first time will be glad to add their voices to those of the others in singing the praises of the famous seashore metropolis as the nation's number 1 convention city.

## SOMEWHAT HISTORICAL

Atlantic City, ninety-third meeting place of the American Medical Association, is situated on Absecon Island between Great Egg Harbor and Absecon inlets on the New Jersey coast.

The name Absecon is a corruption of the real Algonquian Indian name Absconum which designated the bay which lies between Atlantic City and the mainland. Absc is the common Algonquian word for 'small' or 'little'. Kitchi in the Indian tongue, means 'great' and Lake Superior for instance, was known to the Indians as Kitchi gami—the 'great water'. The true Indian etymology of Absecon Island therefore is Absc gami meaning 'little water' and refers to the smooth salt water lake inside the sand bar on which Atlantic City is built. Present day Absecon is merely a more euphonious corruption of the original Indian 'little water'—Absconum.

## THE CONVENTION HALL

Modern Atlantic City is America's greatest resort investment. It is also the prototype convention city. Beautiful hotels, bizarre in color and form stand at the very edge of the surf their loftiness sharply accented against the clear, smokeless sky. The Atlantic City skyline is one of America's dramatic architectural spectacles as it rises majestically from the ocean's edge. To its distinction as the world's greatest health and pleasure resort Atlantic City has also added the honor of possessing the largest convention hall.

The Atlantic City convention hall is literally colossal in its proportions covering an area of 7 acres. It is 350 feet wide by 650 feet deep, and the main auditorium has a seating capacity of forty-one thousand. The floor of the main auditorium is 168,000 square feet in area, while an additional space of 96,000 square feet is provided on the ground floor. Adjacent to the main auditorium and fronting the Boardwalk is another large hall with a seating capacity of five thousand three hundred. The main auditorium houses the world's largest pipe organ, and some idea of the immensity of this auditorium may be gained from the fact that a fourteen story building could be erected within its walls. In season football is played regularly in this mammoth hall on a regulation playing field.

Physicians who attended the 1935 and 1937 Atlantic City sessions of the Association will recall the convenient arrangement of all meetings and exhibits in Convention Hall. This year, however, the facilities of this splendid building will be used to even better advantage. Three large new meeting rooms each well lighted and ventilated, will make it possible for all of the nine sections to meet simultaneously in Convention Hall. In addition, a much enlarged area will this year be occupied exclusively by the Scientific Exhibit. The Technical Exhibit will be located on the arena floor and all meetings, including the general sessions, will be held in rooms immediately adjacent to the Scientific and Technical exhibits.

In view of prevailing conditions, it is likely that many doctors will avail themselves of the opportunity to combine a family holiday with their attendance at the annual meeting. Atlantic City's hotels are comfortable and from every standpoint are recognized as among the best. Hotel rooms are large and most of them overlook the sea. Lobbies and sun decks are spacious and colorful. All hotels are convenient to Convention Hall.

## DIVERSION

Apart from the many reunions and other social gatherings that are a delightful perennial feature of every A. M. A. convention Atlantic City itself offers a variety of wholesome diversion. The rolling chair, for instance is indigenous to the Boardwalk. Patrons of this unique form of transportation experience a decided "lift" as they move noiselessly along the miles of surf girded walk. The deep sea net haul and the amusement piers are also distinctly Atlantic City. But the quality that "types" Atlantic City and makes it attractive to fifteen million visitors each year is the all pervading atmosphere of seaside serenity and calm that prevails on the Boardwalk and in the hotels, theaters and restaurants. This desirable quality is achieved largely through the complete absence of automobiles on the Boardwalk—no traffic noises or gasoline fumes. Likewise there is no smoke nor dirt—there are no industries.



PANORAMA OF THE BOARDWALK IN ATLANTIC CITY SHOWING BOARDWALK HOTEL

Certain facts about Atlantic City will be of special interest to the physician. Its water supply, for instance comes mainly from artesian wells. In fact each large hotel has its own wells supplying pure cold fresh water drawn from a stream 1200 feet below the salty sea.

Another fact of more than passing interest is Atlantic City's geographic location. It is below the Mason and Dixon line

and, although it fronts on the Atlantic Ocean, it faces almost directly south. Its main axis, the Boardwalk, parallels the ocean yet runs almost due east and west. The prevailing breeze is southwest—clean, fresh and ozone laden from the sea.

Atlantic City is different. Although many have tried to define this difference, Atlantic City must be experienced to be fully appreciated.

## REGISTRATION

The Bureau of Registration will be located at the north end of Technical Exhibition Hall in Convention Hall, Boardwalk between Georgia and Mississippi avenues. Members of the Subcommittee on Registration of the Local Committee on Arrangements will be on hand to assist those who desire to register. A branch postoffice in charge of government post-office officials will be available for visitors, and an information bureau will be operated in connection with the Bureau of Registration.

### Who May Register

Only Fellows Affiliate, Associate and Honorary Fellows and Invited Guests may register and take part in the work of the sections. Fellows of the Scientific Assembly are those who have, on the prescribed form, applied for Fellowship, subscribed to *THE JOURNAL* and paid their Fellowship dues for the current year. Fellowship dues and subscription to *THE JOURNAL* are included in the one annual payment of \$8, which is the regular subscription price of *THE JOURNAL*. Fellowship cards are sent to all Fellows after payment of annual dues and these cards should be presented at the registration window. Any who have not received cards for 1942 should secure them at once by writing to the American Medical Association, 535 North Dearborn Street, Chicago.

### Members in Good Standing Eligible to Apply for Fellowship in the Association

Members in good standing in the American Medical Association are those members of component county medical societies and of constituent state and territorial medical associations whose names are officially reported for enrolment to the Secretary of the American Medical Association by the secretaries of the constituent medical associations. All members in good standing may apply for Fellowship in the Scientific Assembly and are urged to qualify as Fellows before leaving home in order that pocket cards may be secured and brought to Atlantic City so that registration can be more easily and more promptly effected.

Application forms may be had on request.

Those subscribers to *THE JOURNAL* who have not received pocket cards for 1942 should write to the American Medical

Association in order to obtain application blanks and information as to further requirements.

### Register Early

Fellows living in Atlantic City, as well as all other Fellows who are in Atlantic City on Monday and Tuesday, should register as early as possible.

The names and local addresses of those who register will be included in the issue of the *Daily Bulletin* appearing the next day, and this will enable visiting physicians to find friends who have registered.

### Suggestions That Will Facilitate Registration

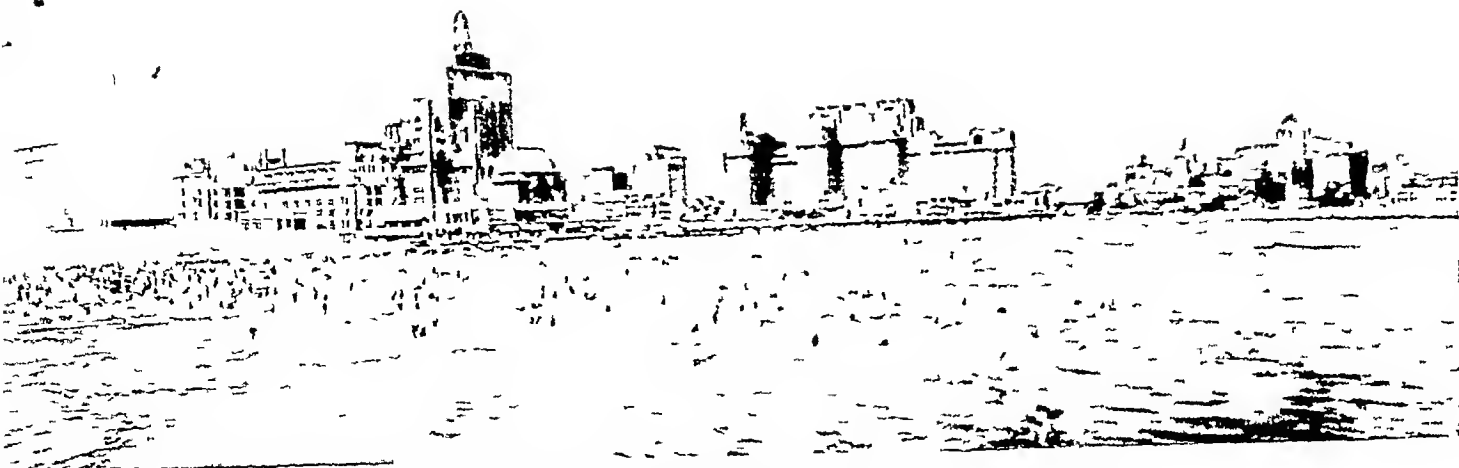
Fellows should fill out completely the spaces on both sections of the front of the *white* registration card, which will be found on the tables in front of the Registration Bureau.

Physicians who desire to qualify as Fellows should fill out completely the spaces on both sections of the front of the *blue* registration card and sign the application on the back. These cards will be found on the tables.

Entries on the registration card should be written plainly, or printed, as the cards are given to the printer to use as "copy" for the *Daily Bulletin*, which appears on Tuesday, Wednesday, Thursday and Friday mornings during the week of the session.

Fellows who have their pocket cards with them can be registered with little or no delay. They should present the filled out *white* registration card, together with the pocket card, at one of the windows marked "Registration by Pocket Card." There the clerk will compare the two cards, stamp the pocket card and return it and supply the Fellow with a badge, a copy of the official program and other printed matter of interest to those attending the annual session.

As previously stated, it will assist in registering if those who desire to qualify as Fellows will file their application and qualify as Fellows by writing directly to the American Medical Association, 535 North Dearborn Street, Chicago so that their Fellowship may be entered not later than May 10. Any applications that are received later than May 10 will be given prompt attention, but the Fellowship pocket card may



CONVENTION AUDITORIUM IS LOCATED AT A CONVENIENT DISTANCE FROM MOST OF THE LARGE HOTELS

not reach the applicant in time for him to register at the Atlantic City session

It will be possible for members of the organization to qualify as Fellows at Atlantic City. In order to do this applicants for Fellowship will be required to fill out both sections of the front of the blue registration card and to sign the formal application that is printed on the reverse side of the card. It is suggested that those members who apply for Fellowship at Atlantic City bring with them their state membership cards for the year 1942. The state membership card should be presented along with the filled in blue registration card at the window in the booth marked "Applicants for Fellowship and Invited Guests"

As already stated registration can be effected more easily and more promptly if members will qualify as Fellows before leaving home

### Registration for General Officers and Delegates at Hotel Traymore

General Officers of the American Medical Association and members of the House of Delegates may register for the Scientific Assembly outside the American Room of the Hotel Traymore. This arrangement is made for the convenience of the members of the House of Delegates which will convene on Monday morning at 10 o'clock in the American Room of the Hotel Traymore. Delegates are requested to register for the Scientific Assembly before presenting credentials to the Reference Committee on Credentials of the House of Delegates. Registration of delegates for the Scientific Assembly will begin at 8 o'clock Monday morning June 8 and delegates are urged to register early so that all members of the House of Delegates may be seated in time for the opening session of the House.

## TRANSPORTATION

### Railroad Rates to Atlantic City

Because of the reduction in one way fares effective June 1, 1936 the use of convention fares has been discontinued in the territories of railway passenger associations.

In the territory of the Central Passenger Association and in that of the Trunk Line Association the fares vary for travel in sleeping or parlor cars and in coaches. The suggestion is offered that members of the Association traveling to Atlantic City from the territories of the Central Passenger and Trunk Line associations consult their ticket agents a week or so in advance of the time at which they expect to start to Atlantic City for the exact rates that will be in effect then, not only for individuals but also for parties that may be traveling together.

In the territory of the Southern Passenger Association low round trip fares are in effect to Atlantic City for travel in sleeping or parlor cars on payment of usual charges for space occupied with return limit of thirty days in addition to date of sale. If a longer limit than thirty days is desired, tickets with six months limit may be obtained at reduced fares on a slightly higher basis. Moreover, reduced fares are in effect on a slightly lower basis from all points in the Southern Passenger Association territory to Atlantic City for tickets which are good for transportation in coaches and which bear a limit of fifteen days in addition to the date of sale. Local ticket agents will be able to furnish more complete information at the time tickets are purchased.

In the territory of the Southwestern Passenger Association daily round trip fares are in effect to Atlantic City on the basis of fare and one half of the one way fare to its gateways added to the reduced fares of Southern Passenger, Central Passenger and Trunk Line associations tickets at these fares

offering limit of sixty days in addition to date of sale. Six month limit tickets may also be obtained at slightly higher fares the usual charges being made for space occupied in sleeping and parlor cars. Lower fares are available to those desiring to travel in coaches. The suggestion is offered that members of the Association traveling from points in the territory of the Southwestern Passenger Association consult their local ticket agents for details of arrangements that apply from starting points.

In the territory of the Trans-Continental and Western Passenger associations low round trip fares will be in effect daily for travel in sleeping and parlor cars on the payment of the usual charges for the space which is occupied. In a part of these territories low intermediate class fares, good for transportation in tourist sleeping cars, will also be available on the payment of charges for the space occupied.

In the territory of the Canadian Passenger Association in addition to one way tickets round trip tickets may be purchased which are computed on the basis of a rate 10 per cent less than double the rate for one way fares, which bear a limit of six months from the date of sale and which are available for stop over privileges. Moreover, summer or other reduced fares are in effect during certain parts of the year, details of which are available on application to any railway agent.

For information regarding specific fares and the most advantageous arrangements from starting points, all members who expect to attend the annual session in Atlantic City are urged to consult their local ticket agents.

### Air Travel

Your nearest Airline Ticket Office, Travel Bureau or Hotel Transportation Desk will gladly give information regarding air travel and arrange your itinerary.



## Local Transportation

Trolley cars operate the entire length of the Island on Atlantic Avenue, which parallels the Boardwalk, and the fare is 7 cents.

Taxicabs operate the entire length of Pacific Avenue, which parallels the Boardwalk, and the fare is 10 cents.

Taxis operate at the rate of 50 cents for one person, 75 cents for two persons and 10 cents for each additional person.

Persons with convention badges will be entitled to a special rate for the rolling chairs on the Boardwalk. Between the Seaside Hotel and Convention Hall or between the Chelsea Hotel and Convention Hall in either direction, the charge will be 50 cents for one, two or three passengers. This rate is for a direct trip to or from the Convention Hall only.

It is suggested that prospective attendants to the Atlantic City session secure transportation prior to May 15.

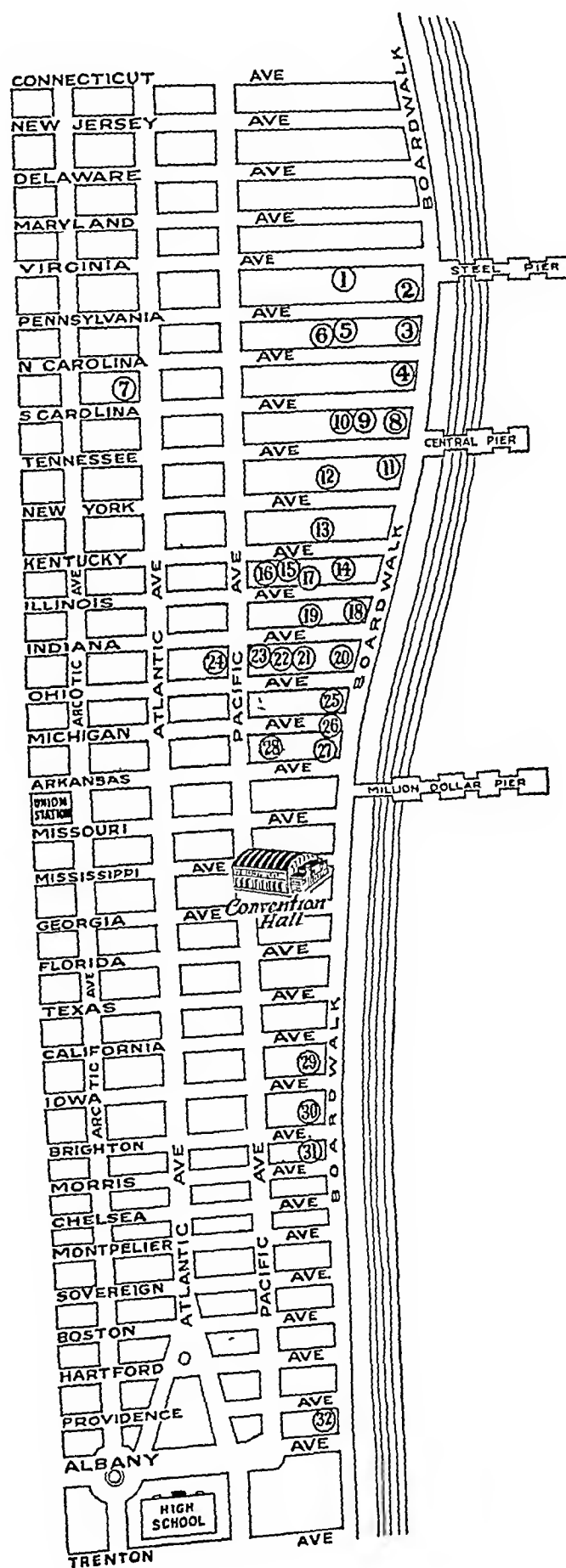
## ATLANTIC CITY HOTELS AND MAP

A list of Atlantic City hotels is presented for the benefit of those who expect to attend the annual session of the American Medical Association, June 8-12. Dr. V. Earl Johnson is chairman of the Subcommittee on Hotels of the Local Committee on Arrangements and may be addressed at 16 Central Pier, Atlantic City, N. J. The advertising announcement and a coupon to be used for making reservations appear on advertising page 108 of this issue.

Since reservations are cleared through the subcommittee on hotels, it will greatly expedite matters if requests for reservations are addressed directly to Dr. Johnson, who, as stated, may be reached at 16 Central Pier, Atlantic City, N. J.

## Schedule of Rates

| BOARDWALK HOTELS |  | European Plan |                |
|------------------|--|---------------|----------------|
| Number on Map    |  | For 1 Person  | For 2 Persons  |
| 30               | AMBASSADOR<br>Bdwl at Brighton Ave               | \$5.00 \$6.00 | \$5.00 \$10.00 |
| 19               | BRIGHTON<br>Bdwl at Indiana Ave                  | 3.00 5.00     | 5.00 8.00      |
| 13               | CHAIRONTE HADDOX HALL<br>Bdwl at N. Carolina Ave | 4.00 8.00     | 6.00 12.00     |
| 31               | CHELSEA<br>Bdwl at Morris Ave                    | 3.00 6.00     | 5.00 10.00     |
| 20               | CLARIDGE<br>Bdwl at Park Pl                      | 4.00 9.00     | 6.00 12.00     |
| 26               | DENNIS<br>Bdwl at Michigan Ave                   | 3.50 6.00     | 6.00 10.00     |
| 11               | KNICKBOCKER<br>Bdwl at Tennessee Ave             | 3.00 5.00     | 5.00 7.00      |
| 25               | MARLBOROUGH BLENHEIM<br>Bdwl at Ohio Ave         | 3.50 6.00     | 6.00 11.00     |
| 8                | NEW BRIMONT<br>Bdwl at Ocean Ave                 | 2.50 3.00     | 4.00 7.00      |
| 32               | PRESIDENT<br>Bdwl at Albany Ave                  | 3.00 5.00     | 5.00 10.00     |
| 29               | RITZ CARLTON<br>Bdwl at Iowa Ave                 | 3.00 5.00     | 5.00 10.00     |
| 2                | SEASIDE<br>Bdwl at Pennsylvania Ave              | 3.00 4.00     | 5.00 7.00      |
| 27               | SHELBURN<br>Bdwl at Michigan Ave                 | 4.00 10.00    | 6.00 12.00     |
| 18               | TRAYMORI<br>Bdwl at Illinois Ave                 | 3.50 7.00     | 6.00 10.00     |
| AVENUE HOTELS    |  |               |                |
| 28               | ARLINGTON<br>116 S. Michigan Ave                 | 2.50 3.50     | 4.00 5.00      |
| 16               | BYRON<br>120 S. Kentucky Ave                     |               | 4.50 6.00      |
| 5                | COLTON MANOR<br>110 S. Pennsylvania Ave          | 3.00 5.00     | 5.00 9.00      |
| 23               | CRILLON<br>Pacific and Indiana Aves              |               | 5.00 6.00      |
| 24               | EASTBOURN<br>1807 Pacific Ave                    |               | 4.50 6.00      |
| 12               | FLANDERS<br>127 St. James Place                  | 3.00 4.00     | 5.00           |
| 21               | GLASLYN CHATHAM<br>Park Place                    |               | 5.00           |
| 14               | JEFFERSON<br>136 S. Kentucky Ave                 | 3.00 4.00     | 5.00 7.00      |
| 15               | KENTUCKY<br>126 S. Kentucky Ave                  | 2.50          | 4.00           |
| 6                | LAFAYETTE<br>109 S. No. Carolina Ave             | 3.00 4.00     | 5.00 7.00      |
| 17               | MADISON<br>123 S. Illinois Ave                   | 3.00 5.00     | 5.00 8.00      |
| 13               | MONTICELLO<br>131 S. Kentucky Ave                |               | 5.00 6.00      |
| 1                | MORTON<br>150 S. Virginia Ave                    | 3.00 4.00     | 5.00 7.00      |
| 7                | PENNY ATLANTIC<br>1219 Bachelard Blvd            | 2.50 3.00     | 4.00 6.00      |
| 10               | PRINCES<br>144 S. So. Carolina Ave               | 2.50          | 4.00           |
| 22               | RUNNYMEDE<br>Park Place                          | 2.50 4.00     | 4.00 7.00      |
| 9                | SENATOR<br>166 S. So. Carolina Ave               | 3.00 4.00     | 5.00 7.00      |



## MEETING PLACES

HOUSE OF DELEGATES American Room Hotel Travmore,  
Boardwalk at Illinois Avenue  
OPENING GENERAL MEETING Ball Room Second Floor,  
Convention Hall  
GENERAL SCIENTIFIC MEETINGS Ball Room Second Floor  
Convention Hall  
GENERAL HEADQUARTERS SCIENTIFIC EXHIBIT REGISTRATION  
BUREAU, TECHNICAL EXHIBITS INFORMATION BUREAU AND  
BRANCH POSTOFFICE Convention Hall

### SECTIONS OF SCIENTIFIC ASSEMBLY

PRACTICE OF MEDICINE Ball Room Second Floor Conven-  
tion Hall  
SURGERY, GENERAL AND ABDOMINAL Section Room C, First  
Floor, Convention Hall  
OBSTETRICS AND GYNECOLOGY Section Room C, First Floor  
Convention Hall  
OPHTHALMOLOGY Section Room G, First Floor Convention  
Hall  
LARYNGOLOGY, OTOTOLOGY AND RHINOLOGY Section Room G,  
First Floor, Convention Hall  
PEDIATRICS Ball Room Second Floor Convention Hall  
EXPERIMENTAL MEDICINE AND THERAPEUTICS Section Room  
E, First Floor Convention Hall

PATHOLOGY AND PHYSIOLOGY Section Room E, First Floor  
Convention Hall  
NERVOUS AND MENTAL DISEASES Section Room D, First  
Floor Convention Hall  
DERMATOLOGY AND SYPHILIGOLOGY Section Room 12 Third  
Floor Convention Hall  
PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH  
Section Room B First Floor, Convention Hall  
UROLOGY Section Room 12 Third Floor, Convention Hall  
ORTHOPEDIC SURGERY Section Room D, First Floor, Con-  
vention Hall  
GASTRO-ENTEROLOGY AND PROCTOLOGY Section Room B  
First Floor Wednesday and Thursday June 10 and 11 Sec-  
tion Room F, First Floor, Friday, June 12 Convention Hall  
RADIOLOGY Section Room A, First Floor Convention Hall  
ANESTHESIOLOGY Section Room A First Floor, Convention  
Hall  
MISCELLANEOUS TOPICS Sessions on General Practice, Sec-  
tion Room F First Floor Convention Hall Session on Legal  
Medicine, Section Room B, First Floor Convention Hall  
Convention Hall is located on the Boardwalk between  
Georgia and Mississippi avenues



BOARD WALK HOTELS AND THE CONVENTION AUDITORIUM

## LOCAL COMMITTEE ON ARRANGEMENTS

WILLIAM JOHN CARRINGTON Chairman  
CLARENCE LADELLE ANDREWS Vice Chairman  
HAROLD STERN DAVIDSON, Secretary  
JAMES HENRY MASON III, Treasurer

### Advisory Committee

Hilton Shreve Read, Chairman  
Thomas Krapfel Lewis  
Elias Joseph Marsh  
Ralph King Hollinshead  
Joseph Francis Londrigan

### Subcommittees

Subcommittee on Sections and Section Work John Shepherd  
Irwin, Chairman  
Practice of Medicine David Ward Scanlan and Theophilus  
Henry Boysen  
Surgery General and Abdominal Harry Subin and Roscoe  
Rostin White  
Obstetrics and Gynecology George Alec Poland and Jonn  
Carlisle Brown  
Ophthalmology Halvor Larson Harley and George Charles  
Schwarzkopf

Laryngology Otolology and Rhinology Charles David Sin-  
kinson and Simon Eugene Dalton  
Pediatrics Walter Blair Stewart and Emanuel Harrison  
Nickman  
Experimental Medicine and Therapeutics Matthew Molitch  
and Lawrence Addison Wilson  
Pathology and Physiology Robert Brannan Durham and  
Isaac Shenfeld  
Nervous and Mental Diseases William Cole Davis and  
Samuel Gorson  
Dermatology and Syphilology William O Roop and Her-  
man Kline  
Preventive and Industrial Medicine and Public Health  
Samuel Leon Salasin and Robert Martin Grier  
Urology Charles Henry de Turck Shivers and Leland Stan-  
ford Madden  
Orthopedic Surgery Richard Conrad Bew and Edward Zell  
Holt  
Gastro-Enterology and Proctology Homer Isaac Silvers and  
Mahlon Browne Holoman  
Radiology Charles Butcher Kaighn and Robert Aloysius  
Bradley



LOCAL COMMITTEE ON ARRANGEMENTS READING FROM LEFT TO RIGHT FRONT ROW, SEATED DR HAROLD S DAVIDSON DR DAVID B ALLMAN MRS DAVID B ALLMAN DR WILLIAM J CARRINGTON (CHAIRMAN) DR SARAH MORRIS DR SAMUEL BARBASH, DR DANIEL C REYNER, DR JOHN S IRVIN UPPER ROW, STANDING DR JAMES H MASON III DR ISAAC E LEONARD SR DR ROBERT A KILDUFFE DR LOUIS FEINSTEIN DR LEVI M WALKER, DR HARRY SUBIN D STANLEY M MCGEEHAN DR BAXTER H TIMBERLAKE DR JEAN ALBERT GRUHLER DR CLYDE L CUMMER (CLEVELAND), DR CLARENCE L ANDREWS DR CHARLES HYMAN DR CLIFFORD K MURRAY

Anesthesiology and Miscellaneous Topics Isaac Edward Leonard Jr and Allan Rick

Subcommittee on Registration Charles Hyman, Chairman

Subcommittee on Scientific Exhibit Robert Anthony Kilduffe Chairman

Subcommittee on Technical Exhibits Isaac Edward Leonard Sr, Chairman

Subcommittee on Hotels V Earl Johnson, Chairman

Subcommittee on Publicity Samuel Barbash, Chairman

Subcommittee on Finance Alfred Washington Westney, Chairman

Subcommittee on Information Edward Guion, Chairman

Subcommittee on Liaison Cooperation Clarence Bernard Whims, Chairman

Subcommittee on Motion Pictures Stanley Marton McGeelian, Chairman

Subcommittee on Publications Sloan Giffin Stewart, Chairman

Subcommittee on Printing and Badges Louis Feinstein, Chairman

Subcommittee on Transportation Clifford Kinnaird Murray, Chairman

Subcommittee on Women Physicians Sarah I Morris, Philadelphia, Chairman

Subcommittee on Entertainment

Opening General Meeting William Wellington Fox, Chairman

House of Delegates David Bacharach Allman, Chairman  
President's Reception and Ball Baxter Hall Timberlake Chairman

Distinguished Guests C Coulter Charlton, Chairman

Service Clubs Edward Foy Uzzell, Chairman

Golf Walt Ponder Conaway, Chairman

Alumni Reunions Daniel Cooper Reyner, Chairman

Fraternity Luncheons and Dinners Jean Albert Gruhler Chairman

Beach Activities Carl A Surran, Chairman

Women's Entertainment Mrs Katherine Allman, Chairman

## ENTERTAINMENT

### Dinner for Delegates

A dinner is being arranged for Monday, June 8, for members of the House of Delegates and officers of the American Medical Association. Complete information concerning the dinner and entertainment will be available at the first meeting of the House of Delegates on Monday morning, June 8.

### Luncheon for Delegates

A luncheon for the members of the House of Delegates and the officers of the American Medical Association is being planned for Tuesday noon, June 9, between the morning and afternoon sessions of the House of Delegates at the Hotel Traymore.

### Opening General Meeting

The Opening General Meeting will be held on Tuesday evening, June 9, in the Ball Room Second Floor, Convention Hall. The program will begin at 8 o'clock.

### President's Reception and Ball

The President of the American Medical Association will be honored with a reception and ball to be held Thursday evening June 11, at 9 o'clock, Hotel Traymore.

### Alumni and Board Reunions

Notice has been received of the following alumni and board dinners and luncheons to be held during the time of the session:  
AMERICAN BOARD OF ANESTHESIOLOGY, Dinner, Wednesday June 10

COLUMBIA UNIVERSITY COLLEGE OF PHYSICIANS AND SURGEONS, Dinner, Wednesday, June 10, 9 p m, Hotel Claridge

DUKE UNIVERSITY MEDICAL ALUMNI ASSOCIATION, Dinner Wednesday, June 10, 7 30 p m, at Hackneys

GEORGETOWN MEDICAL ALUMNI CLUB, Luncheon, Wednesday June 10, 1 p m, Hotel Dennis

HARVARD MEDICAL ALUMNI ASSOCIATION, Dinner, Wednesday, June 10, Hotel Claridge



ON THE STAGE AT THE ATLANTIC CITY SESSION IN 1937 IN THE BACK ROW READING LEFT TO RIGHT DRS RALPH A FENTON CHARLES B WRIGHT ROGER I LEE HERMAN L KRETSCHMER, FREDERIC E SONOERN AND AT THE EXTREME RIGHT DRS ARTHUR W BOOTH ALLEN H BUNCE THOMAS S CULLEN FRONT ROW DRS HILTON S READ WILLIAM G HERRMAN J H J UPHAM ROCK SLESTER WILLIAM J CARRINGTON JAMES S McLESTER EDWARD H GARY WALTER L BIERING WILLIAM D HAGGARD HUBERT WORK GEORGE H SIMMONS AND STANDING DR CHARLES GORDON HEYD

JEFFERSON MEDICAL ALUMNI ASSOCIATION, Dinner, Wednesday, June 10 6 30 p m, Hotel Traymore

JOHNS HOPKINS MEDICAL ALUMNI ASSOCIATION Dinner, Wednesday, June 10 7 p m Hotel Claridge

LOUISIANA STATE UNIVERSITY MEDICAL ALUMNI ASSOCIATION, Smoker, Wednesday, June 10, 8 p m, Hotel Ambassador

LOYOLA UNIVERSITY MEDICAL ALUMNI ASSOCIATION, Luncheon, June 10, 12 30 p m, Hotel Chalfonte-Haddon Hall

NATIONAL BOARD OF MEDICAL EXAMINERS, Luncheon Sunday June 7 12 m, Hotel Marlborough-Blenheim

NEW YORK UNIVERSITY ALUMNI FEDERATION Luncheon Thursday June 11, 12 m

NORTHWESTERN UNIVERSITY MEDICAL ALUMNI ASSOCIATION Dinner, Wednesday, June 10

RUSH MEDICAL COLLEGE ALUMNI ASSOCIATION Luncheon June 10, 12 30 p m, Hotel Chalfonte-Haddon Hall

SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY, Banquet, Wednesday, June 10 6 30 p m, Hotel Claridge Dr Anton J Carlson will talk on "Is Modern Man Losing His Appetite?" Tickets at \$3.50 each may be obtained in advance from Dr Walter L Palmer 950 E 59th Street, Chicago

ST LOUIS MEDICAL ALUMNI ASSOCIATION Luncheon Wednesday, June 10

TUFTS MEDICAL ALUMNI ASSOCIATION Luncheon June 10

UNIVERSITY OF COLORADO MEDICAL ALUMNI ASSOCIATION, Dinner, Wednesday June 10

UNIVERSITY OF LOUISVILLE ALUMNI Reunion, Wednesday, June 10, 6 30 p m, Solarium, Hotel Jefferson

UNIVERSITY OF PENNSYLVANIA MEDICAL ALUMNI ASSOCIATION, Smoker and Banquet, Wednesday June 10 9 p m, Hotel Madison

WOMEN MEMBERS OF AMERICAN MEDICAL ASSOCIATION, Dinner Wednesday, June 10, 7 p m, Hotel Ambassador

#### Fraternity Functions

ALPHA KAPPA KAPPA, Luncheon Wednesday, June 10, 12 20 p m, Hotel Ambassador

ALPHA OMEGA ALPHA, Dinner, Thursday, June 11  
NU SIGMA NU, Luncheon, June 11, 1 p m, Hotel Claridge  
OMEGA UPSILON PHI Luncheon Wednesday June 10, 12 30 p m, Hotel Dennis

PHI ALPHA SIGMA, Luncheon, Thursday, June 11  
PHI BETA PI, Luncheon, June 10, 12 30 p m, Hotel Dennis  
PHI DELTA EPSILON, Luncheon, Wednesday, June 10, 12 30 p m Hotel Ritz-Carlton

PHI LAMBDA KAPPA Luncheon Wednesday, June 10, 1 p m, Hotel Ritz-Carlton

PHI RHO SIGMA Luncheon, June 10, Hotel Ambassador  
THETA KAPPA PSI, Luncheon, Wednesday, June 10 12 15 p m Hotel Madison

## WOMAN'S AUXILIARY

The Chairman of the Committee on Local Arrangements of the Woman's Auxiliary, Mrs David B Allman, and the hostesses the Woman's Auxiliary to the County Medical Society and the Woman's Auxiliary to the Medical Society of New Jersey extend a most cordial invitation to all women who are auxiliary members or guests of physicians attending the annual session to participate in all social functions and to attend the general sessions. Whether auxiliary members or not wives of doctors will be most welcome.

Auxiliary headquarters will be on the Lounge Floor of Haddon Hall. All meetings and functions will be held at Haddon Hall unless otherwise stated in the program. Please register early and obtain your badge and program of the sessions and social functions.

All tickets should be purchased soon after arrival. Members of the Hospitality and the Information Committees will be at the hotels and at the guests' registration desk at Convention Hall. Committee members will gladly help plan for an interesting visit in Atlantic City. Tickets will be sold only at auxiliary headquarters in Haddon Hall. All meetings and social affairs will begin at the time scheduled. Please be prompt.

Registration hours are from 11 a m to 4 p m Sunday, June 7 and 8 30 a m to 4 p m Monday, June 8 through Friday, June 12. Auxiliary members may register only at headquarters in Haddon Hall. Guests may register at headquarters or at the woman's registration desk in Convention Hall.

## THE ATLANTIC CITY SESSION

JOUR. A. M. A.  
MAY 2, 1942

## Preconvention Meetings

SUNDAY, JUNE 7

2 p m to 4 p m The members of the Hospitality Committee, Mrs Joseph Poland, chairman, will welcome members and guests of the Woman's Auxiliary

7 p m Meeting of Finance Committee, Mrs Harold F Wahlquist chairman

MONDAY, JUNE 8

9 a m to 12 noon Meeting of Board of Directors, Mrs R E Mosiman presiding Committee Room D, Lounge Floor

12 30 p m Luncheon in honor of President-Elect Mrs Frank Haggard Guests will be the past presidents and the members of the Advisory Council Mrs R E Mosiman, hostess

4 p m to 6 p m Tea honoring Mrs R E Mosiman and Mrs Frank Haggard will be given for members of the national Board of Directors and guests at Haddon Hall, Garden Room Lounge Floor

## Reports of Officers

Recording Secretary, Mrs S H Flowers

Corresponding Secretary, Mrs R E Ahlquist

Treasurer, Mrs D W Thomas

Auditor, report to be read by the Recording Secretary

Reports of Chairmen of Standing Committees

Archives, Mrs Charles E Sears

Exhibits, Mrs Ily R Beir

Finance, Mrs Harold F Wahlquist

Hygiene, Mrs George R Dillinger

Legislation, Mrs Jesse D Hamer

Organization, Mrs John L Bauer

Press and Publicity, Mrs George H Ewell

Program, Mrs William Hibbitts

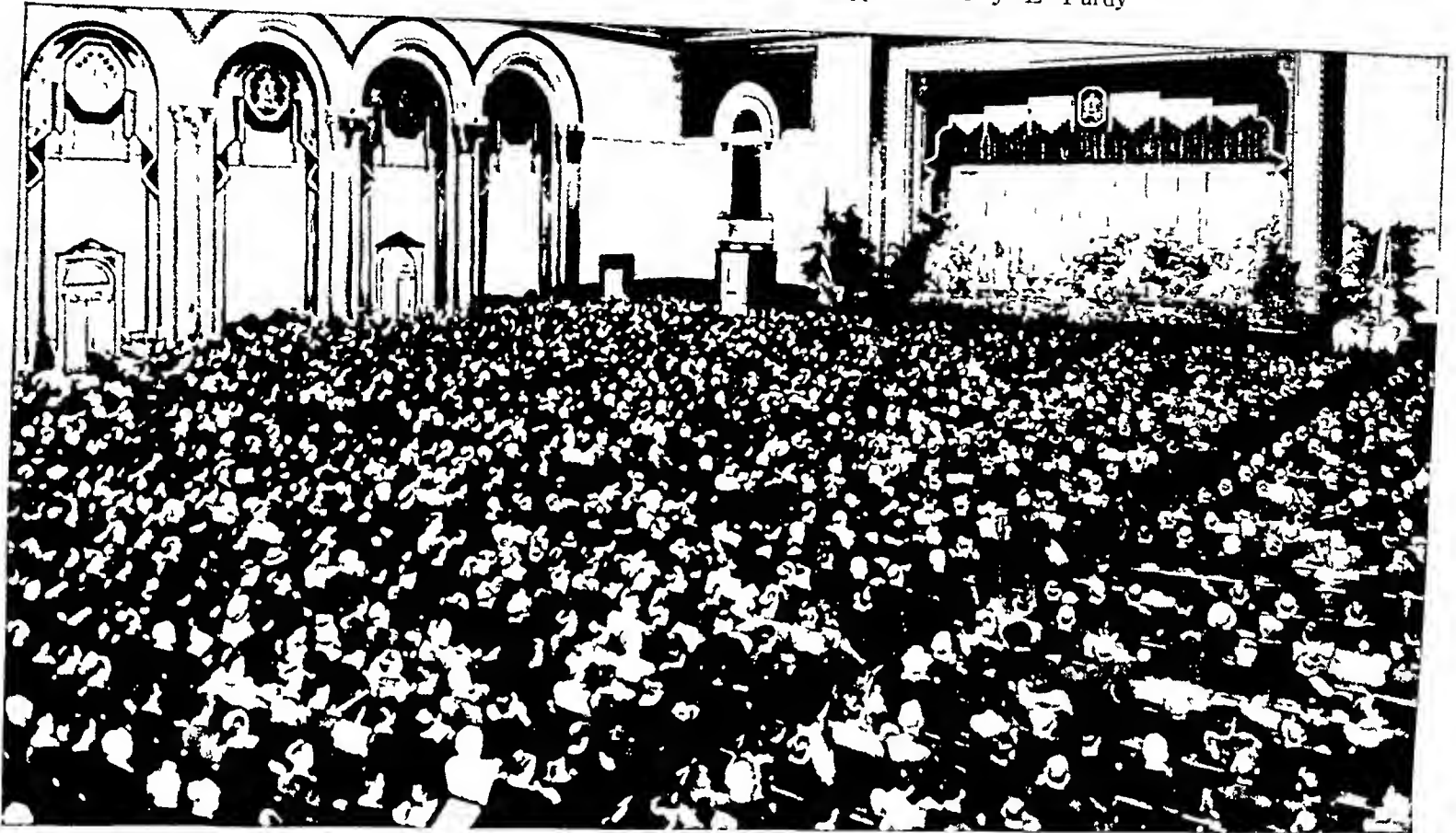
Public Relations, Mrs Frank P Dwyer

Revisions, Mrs Eustace A Allen

Reports of Chairmen of Special Committees

Circulation of the Bulletin, Mrs Charles H Werner

Supplies Mrs J E Purdy



OPENING GENERAL MEETING ATLANTIC CITY SESSION, 1937, ATTENDED BY THOUSANDS OF VISITORS, WHO HEARD THE PROGRAM AND THE MAGNIFICENT CHOIR UNDER THE FINEST SURROUNDINGS IN ANY CONVENTION HALL IN AMERICA

## General Meetings

TUESDAY, JUNE 9

9 a m Formal Opening of the Convention of the Woman's Auxiliary to the American Medical Association at Haddon Hall Vernon Room, Lounge Floor, Mrs R E Mosiman, presiding

Invocation Rev Warren W Way, D D, St James Episcopal Church, Atlantic City

Address of Welcome Mrs J H Hornberger

Response Mrs William J Butler

In Memoriam Mrs Joseph E Wier

Introduction of Mrs David B Allman, Chairman of the Committee on Local Arrangements

Greetings Dr William J Carrington

Minutes of Nineteenth Annual Meeting Mrs S H Flowers

Roll Call Mrs S H Flowers

Reports of Chairmen of Convention Committee

Credentials and Registration, Mrs R J McDonald

Convention Rules, Mrs E Latane Flanagan

Resolutions, Mrs Arthur A Heiold

President's Message Mrs R E Mosiman

Presentation of President-Elect, Mrs Frank Haggard

Report of Historian, Mrs John J Ryan

Report of Parliamentarian, Mrs R E Fitzgerald

12 30 p m Luncheon in honor of past presidents of the Woman's Auxiliary to the American Medical Association in Rutland Room, Haddon Hall Tickets \$2

Guest Speakers Dr Frank H Lahey, President, American Medical Association, Dr W W Bauer, Director Bureau of Health Education, American Medical Association, Mrs Augustus S Kech, Director of Health Education, Department of Health, Commonwealth of Pennsylvania

2 30 p m Conference for presidents and chairmen of standing committees of state auxiliaries, Mrs John L Bauer and Mrs Frank Haggard presiding

8 p m Opening General Meeting of the American Medical Association, Ball Room, Convention Hall Members of the Woman's Auxiliary and guests are welcome

WEDNESDAY, JUNE 10

9 a m General Session, Woman's Auxiliary to the American Medical Association, Vernon Room, Lounge Floor, Mrs R E Mosiman presiding

Minutes Mrs S H Flowers

Announcements



Reports of the Convention Committees  
General Chairman, Mrs David B Allman  
Credentials and Registration, Mrs R J McDonald  
Resolutions Mrs Arthur A Herold  
Courtesy Resolutions Mrs Oswald R Carlander  
Reports of State Presidents  
Report of the Nominating Committee  
Election of Officers  
Installation of Officers Mrs J Newton Hunsberger  
Presentation of President's Pin  
Inaugural Address Mrs Frank Haggard  
Minutes Mrs S H Flowers  
12 30 p m Annual Luncheon Rutland Room Mrs R E  
Mosiman presiding Tickets \$2  
Greetings Dr Arthur W Booth  
Guest Speakers Dr Fred W Rankin President-Elect of  
the American Medical Association Dr Morris Fishbein  
Editor of THE JOURNAL OF THE AMERICAN MEDICAL  
ASSOCIATION Dr Charles Gordon Head member of the  
Council on Medical Education and Hospitals of the Amer-  
ican Medical Association

#### THURSDAY JUNE 11

9 30 a m Executive Committee Meeting, Solarium, Lounge  
Floor Haddon Hall Mrs Frank Haggard presiding  
10 a m Board of Directors Meeting, Mrs Frank Haggard  
presiding  
6 30 p m Annual Dinner for members, husbands and  
guests Rutland Room, Haddon Hall Dr Ramundo de Castro,  
Havana, Cuba, Guest Speaker Tickets \$3  
9 p m Reception and Ball in honor of the President of  
the American Medical Association, Hotel Travmore

#### FRIDAY, JUNE 12

Shopping and sightseeing under the direction of the Hos-  
pitality Committee



CHARACTERISTIC OF ATLANTIC CITY THE CHAIRS WHICH  
ROLL COMFORTABLY ON THE BOARD WALK PROPELLED—  
SOMETIMES—BY MAN POWER SPECIAL FEES HAVE BEEN  
MADE FOR VISITORS TO THE AMERICAN MEDICAL ASSOCIA-  
TION MEETING

### RADIO PROGRAM

Radio broadcasts of the Atlantic City session of the Ameri-  
can Medical Association will be arranged as usual The

detailed schedule of radio broadcasts will be published daily  
at Atlantic City in the *Daily Bulletin*

### GOLF TOURNAMENT

The American Medical Golfing Association will hold its  
twenty-eighth annual tournament at Seaview Country Club  
Atlantic City, on Monday, June 8

#### FORTY TROPHIES AND PRIZES

Thirty-six holes of golf will be played in competition for the  
forty trophies and prizes in the eight events Trophies will be  
awarded for the Association Championship thirty-six holes

State Trophy, Eighteen Hole Handicap Championship, the Ben  
Thomas Trophy and the Atlantic City Trophy, Maturity Event,  
limited to Fellows over 60 years of age, the Minneapolis  
Trophy, and the Oldguard Championship, limited to competition  
of past presidents, the Wendell Phillips Trophy Thirty other  
prizes will be awarded for the various flights

#### TWO CHAMPIONSHIP COURSES

The Seaview Country Club at Absecon, N J, has two eighteen  
hole championship courses, as well as another course through  
the woods After the tournament, the annual golf banquet will  
be held at 7 p m at the clubhouse, which is one of the most  
elaborate in the country, having two hundred and fifty bedrooms  
for guests which will be available to American Medical Golfing  
Association Fellows, and a large indoor salt water pool Golfing  
Fellows who desire rooms reserved in the clubhouse may write  
to Dr Conaway, chairman of the committee

#### ATLANTIC CITY GOLF COMMITTEE

The Atlantic City Golf Committee is under the chairmanship  
of Dr Walt P Conaway, 1723 Pacific Avenue, Atlantic City,  
assisted by Drs John Pennington and Karl M Scott

#### APPLICATION FOR MEMBERSHIP

All male Fellows of the American Medical Association are  
cordially invited to become members of the American Medical  
Golfing Association Write Executive Secretary Bill Burns,  
2020 Olds Tower, Lansing, Mich, for an application blank  
Participants in the tournament are required to present their  
home club handicap signed by the club secretary No handicap  
over thirty is allowed No trophy is awarded a Fellow who is  
absent from the annual dinner



SEAVIEW COUNTRY CLUB THIS COURSE HAS A BUNKER IN THE  
MIDDLE OF THE FIRST GREEN

gross, the Will Walter Trophy, the Association Handicap  
Championship, thirty-six holes net, the Detroit Trophy, Cham-  
pionship Flight, First Gross, thirty-six holes, the St Louis  
Trophy, Championship Flight, First Net, thirty-six holes, the  
President's Trophy, Eighteen Hole Championship, the Golden

## PRELIMINARY PROGRAM OF THE SCIENTIFIC ASSEMBLY

## GENERAL SCIENTIFIC MEETINGS

- Monday, June 8, 2 p m, Ball Room, Convention Hall
- 2 00 p m The Influence of Anoxemia on Hepatopoietic Activity *AMIRIO HURTADO, Lima, Peru*
- 2 30 p m Manson's Schistosomiasis  
*ENRIQUE KOPPISCH, San Juan, Puerto Rico*
- 3 00 p m Lymphoid Myocarditis Its General Conception and Treatment  
*ENRIQUE SALADRIAS ZAYAS Havana, Cuba*
- 3 30 p m Aviation Medicine in the Royal Canadian Air Force  
*G F HALL, Ottawa, Canada*
- 4 00 p m Address *IGNACIO CHAVEZ Mexico City, Mexico*
- 4 30 p m The Clinical Consideration of the Chemical Mechanisms Underlying the Formation of Urinary Calculi  
*JOHN MCINTOSH, Montreal, Canada*

## Tuesday, June 9, 9 30 a m, Ball Room, Convention Hall

- 9 30 a m Selective Service and the Medical Profession in Total War  
*LEWIS B. HIRSHEY, Washington, D C*
- 10 00 a m The Venereal Disease Problem  
*C S STEPHENSON, Washington D C*
- 10 30 a m Progress in the Army's Fight Against Malaria  
*JAMES S. SIMMONS, Washington, D C*
- 11 00 a m Sylvatic Plague of Today and Tomorrow  
*KARI F MEYER San Francisco*
- 11 30 a m The Present Status of the Influenza Problem  
*FRANK L. HORSFALL, New York*
- 12 00 m The Effects of the Sulfonamide Drugs on the Blood  
*ROY R. KRACAR, Emory University, Ga*

## Tuesday, June 9, 2 p m, Ball Room, Convention Hall

- 2 00 p m The Role of Physical Therapy in the Rehabilitation of Disabled Soldiers  
*RALPH PIMBERTON, Philadelphia*
- 2 30 p m Studies in Hypertension  
*IRVING H. PAGE, Indianapolis*
- 3 00 p m Newer Knowledge of Epilepsy  
*WILLIAM GORDON LENNON, Boston*
- 3 30 p m Painful Backs The Diagnosis and Treatment  
*PHILIP LEWIN, Chicago*
- 4 00 p m An Evaluation of the Kenny Treatment of Polio-myelitis  
*W H COLE, St Paul*

## THE OPENING GENERAL MEETING

Ball Room, Second Floor, Convention Hall

Tuesday, June 9—8 p m

- Music *MISS LOIS MILLER at the Console*
- Introduction of the President, *FRANK H LAHEY* *ROBERT A BRADLEY, President, Atlantic County Medical Society*
- Call to Order by the President, *FRANK H LAHEY*
- Presentation of Colors
- Our National Anthem
- Invocation *REV GEORGE W LAWRENCE*
- Welcome from Medical Profession of New Jersey *ELIAS J MARSH, President, Medical Society of New Jersey*
- Welcome to Atlantic City  
*HON THOMAS D TAGGART JR, Mayor of Atlantic City*  
*HON CHARLES EDISON, Governor of New Jersey*
- Music

Announcements *WILLIAM J CARRINGTON, Chairman, Local Committee on Arrangements*

Introduction of Distinguished guests

Introduction and Installation of President-Elect *FRED W RANKIN, Lexington, Ky*

Address *FRED W RANKIN, President*

Presentation of Medal to Retiring President *FRANK H LAHEY*  
*ARTHUR W BOOTH, Chairman of the Board of Trustees*

Presentation of Distinguished Service Medal *FRED W RANKIN, President*

Benediction *RT REV MONSIGNOR MAURICE R SPILLANE*

## THE PROGRAMS OF THE SECTIONS

Outline of the Scientific Proceedings—The Preliminary Program and the Official Program

The following papers are announced to be read before the various sections. The order here is not necessarily the order that will be followed in the Official Program, nor is the list complete. The Official Program will be similar to the programs issued in previous years and will contain the final program of each section with abstracts of the papers, as well as lists of committees, program of the Opening General Meeting, list of entertainments, map of Atlantic City and other information. To prevent misunderstandings and protect the interest of advertisers, it is here announced that this Official Program will contain no advertisements. It is copyrighted by the American Medical Association and will not be distributed before the session. A copy will be given to each Fellow on registration.

## SECTION ON PRACTICE OF MEDICINE

MEETS IN BALL ROOM, SECOND FLOOR, CONVENTION HALL

## OFFICERS OF SECTION

- Chairman—*ROY W SCOTT, Cleveland*
- Vice Chairman—*G K FENN, Chicago*
- Secretary—*W D STROUD, Philadelphia*
- Executive Committee—*WILLIAM S McCANN, Rochester, N Y*  
*FRED M SMITH, Iowa City, ROY W SCOTT, Cleveland*

## Wednesday, June 10—2 p m

The Effect of Meat and Meat Fractions on the Fatty Liver of Denervated and Pancreatic Duct Ligated Dogs (Lantern Demonstration)

*ELAINE P RALLI and SAUL H RUBIN, New York*

Insulin Resistance in Diabetes Mellitus in Man (Lantern Demonstration) *JAMES A GREENE, Iowa City*

Bilhings Lecture Advances in the Diagnosis and Treatment of Pancreatic Disease (Lantern Demonstration)  
*JOSEPH H PRATT, Boston*

The Role of Estrogenic Substances in the Management of Diabetes (Lantern Demonstration)  
*JOSEPH T BEARDWOOD JR, Philadelphia*

Etiology of Peptic Ulcer *RUSSELL S BOLFS, Philadelphia*

## Thursday, June 11—2 p m

## Election of Officers

Modern Treatment of Pneumococcal Pneumonia (Lantern Demonstration)

*HARRISON F FLIPPIN, LEON SCHWARTZ and ALBERT H DOMM, Philadelphia*

Discussion to be opened by *ADOLPH S RUMRICH, Chicago*

Chairman's Address (Lantern Demonstration)  
*ROY W SCOTT, Cleveland*

- Sulfonamide Toxicity as a Cause of Death in New York City in 1941 (Lantern Demonstration)  
W D SUTLIFF and MILTON HILPERN New York  
Discussion to be opened by PERRIN H LONG Baltimore and RUSSELL L CECIL New York
- Psychosomatic Studies in Hypertension (Lantern Demonstration)  
EDWARD WEISS Philadelphia
- Intrathoracic Tumors (Lantern Demonstration)  
FRANK S DORLEY Los Angeles

Friday, June 12—9 a m

JOINT MEETING WITH SECTION ON EXPERIMENTAL MEDICINE  
AND THERAPEUTICS IN SECTION ROOM 1 FIRST  
FLOOR CONVENTION HALL

- Dicoumarin [3,3'-Methylene-Bis-(4-Hydroxycoumarin)] Its Pharmacologic and Therapeutic Action in Man (Lantern Demonstration)  
IRVING S WRIGHT and ANDREW G PRANDONI New York
- Dicoumarin [3,3'-Methylene-Bis-(4-Hydroxycoumarin)] Experimental Studies (Lantern Demonstration)  
JESSE L BOLLMAN and F W PRESTON Rochester Minn
- Dicoumarin [3,3'-Methylene-Bis-(4-Hydroxycoumarin)] Clinical Studies (Lantern Demonstration)  
EDGAR A ALLEN NELSON W BARKER and JOHN M WALGH, Rochester, Minn  
Discussion on papers of DRS WRIGHT and PRANDONI DRS BOLLMAN and PRESTON and DRS ALLEN, BARKER and WALGH to be opened by SHEPARD SHIMIZU, New York, and K K CHEN, Indianapolis
- Address (Lantern Demonstration)  
IGNACIO CHAVEZ Mexico City Mexico
- The Response of Experimental and Clinical Gallbladder Infections to Sulfonamide Compounds (Lantern Demonstration)  
LESTER M MORRISON WILLIAM A SWALM, W EMERY BLUNETT, FRANK W KONZELMANN and EARLE H SPAULDING, Philadelphia
- An Analysis of the Operative Treatment of Patent Ductus Arteriosus (Lantern Demonstration)  
M J SHAPIRO and ANCEL B KEYS Minneapolis
- Discussion of Electrocardiograms (Lantern Demonstration)  
HOWARD B SPRAGLE Newport R I, and HAROLD E B PARDEE New York

## SECTION ON SURGERY, GENERAL AND ABDOMINAL

MEETS IN SECTION ROOM C, FIRST FLOOR CONVENTION HALL

### OFFICERS OF SECTION

- Chairman—ARTHUR W ALLEN Boston  
Vice Chairman—WILLIAM L ESTES JR, Bethlehem Pa  
Secretary—ALTON OCHSNER New Orleans  
Executive Committee—THOMAS M JOYCE Portland Ore, LLOYD NOLAN Fairfield, Ala ARTHUR W ALLEN Boston

Wednesday, June 10—9 a m

- Succinyl Sulfathiazole as an Adjuvant in Surgery of the Large Bowel (Lantern Demonstration)  
EDGAR J POTH Baltimore  
Discussion to be opened by SAMUEL C HARVEY New Haven Conn, and JOHN S LOCKWOOD Wynnewood, Pa
- Lesions of the Right Colon Involving Right Colectomy  
FRANK H LAHEY Boston
- Resection and Immediate Anastomosis for Carcinoma of the Colon (Lantern Demonstration)  
HARVEY B STONE and SAMUEL McLANAHAN Baltimore  
Discussion on papers of DR LAHEY and DRS STONE and McLANAHAN to be opened by C W MAYO Rochester Minn HENRY W CAVE New York and ARTHUR W ALLEN Boston

- Complications of the Combined Abdominoperineal Operation Based on Over Five Hundred Cases (Lantern Demonstration)  
THOMAS E JONES Cleveland  
Discussion to be opened by FRIDRICK A COFFEY Ann Arbor, Mich and I PARKER HAYDEN Boston

- Experimental and Clinical Studies of Intestinal Motility and Postoperative Distention (Lantern and Motion Picture Demonstration)  
CHARLES B PLESTOW, Chicago  
Discussion to be opened by J PAUL NORTH Philadelphia and C G JOHNSTON Detroit

- The Prevention of Liver Damage and the Facilitation of Repair in the Liver by Diet (Lantern Demonstration)  
I S RADIN Philadelphia  
Discussion to be opened by ALLEN O WHITTE, New York and WALTER L LEE, Philadelphia

Thursday, June 11—9 a m

- The Prevention of Pulmonary Complications Following Thigh Amputations by High Ligation of the Femoral Vein (Lantern Demonstration)  
I ROSS VEA, Washington, D C

- Pulmonary Embolism A Clinical and Experimental Study (Lantern Demonstration)  
W J POTTS, Oak Park, Ill  
Discussion on papers of DR VEA and DR POTTS to be opened by GIZA M TAKATS Chicago and FRANK THIELS, Chicago and E A ALLEN, Rochester, Minn

- Chairman's Address Subtotal Gastrectomy for Stenosing Duodenal Ulcer (Lantern and Motion Picture Demonstration)  
ARTHUR W ALLEN, Boston

- Management of Skull Fractures and Brain Injuries (Lantern Demonstration)  
HARRY E MOCK and HARRY E MOCK JR, Chicago

- Discussion to be opened by MAX M PEFT Ann Arbor, Mich and FRED M DOUGLASS Toledo, Ohio

- Pulsating Exophthalmos (Lantern Demonstration)  
J D MARTIN JR, Atlanta Ga

- Discussion to be opened by HARRY H KERR, Washington D C and MICHAEL E DEBAKEY, New Orleans

- Blast Injuries to the Lungs (Lantern Demonstration)  
GEORGE M CURTIS, Columbus Ohio

- Discussion to be opened by CASPER F HEGNER Denver

- Panhysterectomy A Consideration of a New Operative Technique (Lantern Demonstration)  
HAROLD L FOSS, Danville Pa

- Discussion to be opened by JAMES C MASSON, Rochester, Minn, and CONRAD G COLLINS New Orleans

Friday, June 12—9 a m

### Election of Officers

- Classification of Primary Cases of Cancer of the Breast (Lantern Demonstration)  
U V PORTMANN, Cleveland
- The Role of Surgery and Radiation in Cancer of the Breast (Lantern Demonstration)  
FRANK E ADAIR New York

- Discussion on papers of DR PORTMANN and DR ADAIR to be opened by SHIELDS WARREN, Boston and C D HAACENSEN and WILLIAM C WHITE New York

- Acute Protein Deficiency in Shock, Burns, Intestinal Obstruction and Peritonitis (Lantern Demonstration)  
ROBERT ELMAN, St Louis

- Discussion to be opened by ALEXANDER BRUNSCHWIG Chicago and H N HARKINS, Detroit

- Acute Cholecystitis (Lantern Demonstration)  
ELLIOTT C CUTLER and ROBERT ZOLLINGER, Boston

- Discussion to be opened by FRANK GLEN, New York, and HENRY F GRAHAM Brooklyn

- Is the Asthmatic Patient a Good Surgical Risk (Lantern Demonstration)  
F W GAARDE L E PRICKMAN and H J RASZKOWSKI Rochester, Minn

- Discussion to be opened by L N GAY Baltimore

- Intraspinal Administration of Ammonium Sulfate  
WILLIAM BATES, Philadelphia

- Discussion to be opened by ROBERT A GROFF, Philadelphia and JACOB GOFFLER Irvington N J

Nicotine Excretion in Breast Milk and Urine from Cigaret Smoking, Its Effect on Nursing (Lantern Demonstration)

A. M. DANNENBERG and H. HARRIS PRIMAN, Philadelphia

Management of Male Pubescence (Lantern Demonstration)

WILLIAM A. SCHONITZ, New York

Friday, June 12—9 a m

JOINT MEETING WITH SECTION ON LARYNGOLOGY,  
OTOLOGY AND RHINOLOGY

Bronchiectasis and Sinusitis in Children Their Interrelationship and Treatment (Lantern Demonstration)

D. F. STANTON WISHART, Toronto, Canada

A Survey of Two Thousand Cases of Otitis Media and Mastoiditis in Children (Lantern Demonstration)

ADOLPH G. DI SANCTIS, New York

Atypical Laryngeal and Vocal Changes in Adolescence

JAMES SONNITT GREENE, New York

Fractures and Dislocations of the Outer and Inner Nasal Framework in Infants and Young Children and Orthopedic Methods for Their Correction (Lantern Demonstration)

MYRON I. MITZENBAUM, Cleveland

## SECTION ON EXPERIMENTAL MEDICINE AND THERAPEUTICS

MEETS IN SECTION ROOM F, FIRST FLOOR,  
CONVENTION HALL

### OFFICERS OF SECTION

Chairman—WALLACE M. YATER, Washington, D. C.

Vice Chairman—JESSIE R. HARRISON, Winston-Salem, N. C.

Secretary—FRED A. ALLEN, Rochester, Minn.

Executive Committee—IRVING S. WRIGHT, New York, C. M. GILBER, Philadelphia, WALLACE M. YATER, Washington, D. C.

Wednesday, June 10—9 a m

Prognosis in Hypertension

ROBERT M. DAVIS and HARRY E. UNGERLIDER, New York, and RICHARD S. GILNER, Brooklyn

The Causes and Prevention of Sudden Death in Coronary Disease (Lantern Demonstration) O. P. J. FAIR, St. Louis

Therapeutics of Pneumonia on a Statewide Basis (Lantern Demonstration) EDWARD L. BORTZ, Philadelphia

Effect of Gastric Resection on Gastric Acidity (Lantern Demonstration)

MORRIS T. FRIEDLI and C. M. SHAAR, Philadelphia

Observations on Renal Blood Flow and Glomerular Filtration Rate as Influenced by Environmental Temperature Changes (Lantern Demonstration)

GEORGE V. BAYFIELD and ROBERT W. KEETON, Chicago

Clinical Use of Amino Acids for the Maintenance of Nitrogen Equilibrium (Lantern Demonstration)

SAMUEL S. ALTSHULER, Detroit

Thursday, June 11—9 a m

### Election of Officers

Chairman's Address What's Wrong with Modern Therapeutics? WALLACE M. YATER, Washington, D. C.

Treatment of Asthma A Survey of the Value of Treatment During Twenty Years (Lantern Demonstration)

LEON UNGER and A. ALVIN WOLF, Chicago

Treatment of Anemia Associated with Uncorrected Vitamin Deficiency Beneficial Effects of Iron (Lantern Demonstration)

CARL V. MOORE, St. Louis, and RICHARD W. VILTER and TOM D. SPIES, Cincinnati

Discussion to be opened by M. M. WINTROBE, Baltimore

Treatment of Pain and Disability of Shoulder and Arm by Intramuscular Injection of Procaine Hydrochloride (Lantern and Motion Picture Demonstration)

JANET G. TRAVELL and SEYMOUR H. RINZLER, New York

Treatment of Syphilis with Clorarsen (Lantern Demonstration)

R. H. KAMPMEIER and H. B. HENNING, Nashville, Tenn.

Treatment of Arthritis with Vitamin and Endocrine Preparations Emphasis of Their Limited Value (Lantern Demonstration)

R. H. FREYBERG, Ann Arbor, Mich.

The Treatment of Portal Cirrhosis Physiologic Considerations (Lantern Demonstration) CARL H. GREENE, New York

Discussion to be opened by WILLIAM S. McCANN, Rochester, N. Y., and SEYMOUR J. GRAY, Chicago

Friday, June 12—9 a m

JOINT MEETING WITH SECTION ON PRACTICE OF MEDICINE

Dicoumarin [3,3'-Methylene-Bis-(4-Hydroxycoumarin)] Its Pharmacologic and Therapeutic Action in Man (Lantern Demonstration)

IRVING S. WRIGHT and ANDREW G. PRANDONI, New York

Dicoumarin [3,3'-Methylene-Bis-(4-Hydroxycoumarin)] Experimental Studies (Lantern Demonstration)

JESSIE L. BOITMAN and F. W. PRESTON, Rochester, Minn.

Dicoumarin [3,3'-Methylene-Bis-(4-Hydroxycoumarin)] Clinical Studies (Lantern Demonstration)

EDGAR V. ALLEN, NELSON W. BARKER and JOHN M. WALGH, Rochester, Minn.

Discussion on papers of DRS. WRIGHT and PRANDONI, DRS. BOITMAN and PRESTON and DRS. ALLEN, BARKER and WALGH to be opened by SHEPARD SHAPIRO, New York, and K. K. CHEN, Indianapolis

Address (Lantern Demonstration)

IGNACIO CHAVEZ, Mexico City, Mexico

The Response of Experimental and Clinical Gallbladder Infections to Sulfonamide Compounds (Lantern Demonstration)

LISTER M. MORRISON, WILLIAM A. SWALM, W. EMERY BURNETT, FRANK W. KONZELMANN and EARLE H. SPALDING, Philadelphia

An Analysis of the Operative Treatment of Patent Ductus Arteriosus (Lantern Demonstration)

M. J. SHAPIRO and ANCEL B. KEYS, Minneapolis

Discussion of Electrocardiograms

HOWARD B. SPRAGUE, Newport, R. I., and HAROLD E. B. PAROFF, New York

## SECTION ON PATHOLOGY AND PHYSIOLOGY

MEETS IN SECTION ROOM E, FIRST FLOOR,  
CONVENTION HALL

### OFFICERS OF SECTION

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Vice Chairman—FRANK C. MANN, Rochester, Minn.

Secretary—J. J. MOORE, Chicago

Executive Committee—FRANK W. HARTMAN, Detroit, CARL J. WIGGERS, Cleveland, J. P. SIMONDS, Chicago

Wednesday, June 10—2 p m

Chairman's Address Clinical Interpretation of Renal Pathology in Hypertension and Glomerulonephritis (Lantern Demonstration) J. P. SIMONDS, Chicago

Treatment of Experimental Renal Hypertension with Renin (Lantern Demonstration)

GEORGE E. WAKERLIN, Chicago

Effect of Splanchicectomy on Renal Blood Flow in Arterial Hypertension (Lantern Demonstration)

PIERO PIO FOA, WARD W. WOODS and MAX M. PEET, Ann Arbor, Mich.

Chronic Altitude Sickness ALBERTO HURTADO, Lima, Peru

Characteristics of Food Poisoning Outbreaks of Bacterial Origin GAIL M. DACK, Chicago

Irregular Isoagglutinins (Lantern Demonstration)

ISRAEL DAVIDSOHN, Chicago

Thursday, June 11—2 p m

### Election of Officers

Clinical Experiences with 3,3'-Methylene-Bis-(4-Hydroxycoumarin) (Lantern Demonstration)

WINFIELD L. BUTSCH, Buffalo

Experimental Studies Concerning Heparin (Lantern Demonstration)

DAVID I. MACHT, Baltimore

The Evaluation of Antiseptics

ALBERT C. HUNTER, Washington, D. C.

The Effects of Sulfonamide Drugs on the Blood (Lantern Demonstration)

ROY R. KRACKE, Emory University, Ga., and ELFVOR W. TOWNSEND, Atlanta, Ga.

Address

OLYMPIO DA FONSECA, Rio de Janeiro, Brazil

The Presence of Avirulent Tubercle Bacilli in Pulmonary Tuberculosis in Man (Lantern Demonstration)

HARRY J. CORFF, Denver

Pectin Intravenously (Lantern Demonstration)

FRANK W. HARTMAN, Detroit

Friday, June 12—9 a m

JOINT MEETING WITH SECTION ON GASTROENTEROLOGY  
AND PROCTOLOGY IN SECTION ROOM F FIRST  
FLOOR CONVENTION HALL

SIMPOSIUM ON LIVER

J P SIMONDS Chicago, Conducting

The Gastrointestinal Tract and the Liver  
FRANK C MANN Rochester Minn  
Liver Function Tests (Lantern Demonstration)

JOHN G MATTER Detroit  
The Significance of Mild Hyperbilirubinemia in Gastrointestinal  
Patients (Lantern Demonstration)  
THOMAS A JOHNSON and HENRY L BOCKUS Philadel-  
phia

The Clinical Prevention and Diagnosis of Liver Dysfunction  
(Lantern Demonstration) SIDNEY A PORTIS Chicago  
Cirrhosis of Liver (Lantern Demonstration)

ARCH H MOON Philadelphia  
Primary Carcinoma of the Liver (Lantern Demonstration)  
DWIGHT L WILBUR, DAVID A WOOD and FORREST M  
WILLETT, San Francisco

The Concept of Liver Deaths (Lantern Demonstration)  
CHARLES GORDON HEID New York  
Discussion on papers of DR MANN, DR MATTER, DR  
JOHNSON and BOCKUS, DR PORTIS, DR MOON, DR  
WILBUR, WOOD and WILLETT and DR HEID to be  
opened by CHESTER M JONES Boston and HOWARD T  
KARNER Cleveland

SIMPOSIUM ON GASTRITIS

WALTER L PALMER Chicago Conducting

Correlation of Gastroscopic and Pathologic Findings in Gastritis  
(Lantern Demonstration)

EDWARD B BENEDICT and TRACY B MALLORY Boston  
The Significance of Hemorrhagic or Pigment Spots as Observed  
by Gastroscopy (Lantern Demonstration)

JULIAN M RUFFIN Durham N C  
The Early Diagnosis of Carcinoma of the Stomach (Lantern  
Demonstration) C WILMER WIRTS Philadelphia  
Relation of Atrophic Gastric Mucosa to Carcinoma of the  
Stomach (Lantern Demonstration)

I R JANKELSON and C W MCCLURE Boston, and  
HARRY FREEDBERG Salem, Mass

Gastroscopic Observation in Duodenal Ulcer (Lantern Demon-  
stration)

J B CAREY and R S YLISAKER Minneapolis  
Discussion on papers of DRs BENEDICT and MALLORY,  
DR RUFFIN, DR WIRTS, DRs JANKELSON, MCCLURE  
and FREEDBERG and DRs CAREY and YLISAKER to be  
opened by SHIELDS WARREN, Boston and RUDOLF  
SCHINDLER, LEONIDAS H BERRY and LEO L J HARDT,  
Chicago

## SECTION ON NERVOUS AND MENTAL DISEASES

MEETS IN SECTION ROOM D, FIRST FLOOR,  
CONVENTION HALL

### OFFICERS OF SECTION

Chairman—STANLEY COBB Boston

Vice Chairman—A R VONDERAHE Cincinnati

Secretary—J M NIELSEN, Los Angeles

Executive Committee—PAUL C BLEY, Chicago TOM B  
THROCKMORTON, Des Moines, Iowa, STANLEY COBB Boston

Wednesday, June 10—9 a m

Chairman's Address (Motion Picture Demonstration)

STANLEY COBB, Boston

Critical Review of Shock Therapies (Lantern Demonstration)  
FRANKLIN G EBAUGH and CHARLES A RYMER Denver  
Discussion to be opened by HANS H REESE, Madison  
Wis and A E BENNETT Omaha

Conditioned Reflex Treatment of Chronic Alcoholism (Motion  
Picture Demonstration)

WALTER L VOEGTLIN, FREDERICK LEMERE WILLIAM R  
BROZ and PAUL F O'HOLLAREN, Seattle

Discussion to be opened by W E ASH Council Bluffs,  
Iowa and JAMES P KING, Radford Va

Personality Changes and Behavior Disorders of Children Due  
to Pertussis A Report Based on the Study of Five  
Hundred Problem Children LOUIS A LURIE Cincinnati  
Discussion to be opened by A R VONDERAHE, Cincinnati  
and S SPAFFORD ACKERLY Louisville Ky

Mesencephalic Tricotomy A Method for the Relief of Uni-  
lateral Intractable Pain (Motion Picture Demonstration)

A LARL WALKER Chicago

Discussion to be opened by FRANCIS C GRANT, Philadel-  
phia, and MAX M PIET, Ann Arbor Mich

Location of the Superior Longitudinal Sinus (Lantern and  
Motion Picture Demonstration)

J RUDOLPH JAEGER Denver

Discussion to be opened by JAMES L POLLEN, Boston  
and I W WATTS, Washington D C

Thursday, June 11—9 a m

### Election of Officers

Massive Hemorrhage into Brain Tumor Its Significance and  
Probable Relationship to Rapidly Fatal Termination and  
Antecedent Trauma

JOSEPH H GIBBS New York and MITTON R SAPER  
STEIN Bellerose N Y

Discussion to be opened by ELICH OLBIECH Chicago

Epidemiologic Studies of Encephalitis Eastern and Western  
Equine and St Louis Types, in Several Western States  
(Lantern Demonstration)

W MCD HANCOCK, San Francisco, and FREDERICK B  
BANC Princeton N J

Epidemic of Encephalitis of 1941

JAMES P IFAKE, Bethesda Md

Discussion on papers of DRs HANCOCK and BANC and  
DR LIANG to be opened by CARL TILBROECK Princeton  
N J

Physiologic and Pathologic Amoeboid Motions of Motor End  
Plates (Lantern and Motion Picture Demonstration)

ELLEN I CAREY, Milwaukee

Discussion to be opened by ARTHUR STEINDLER, Iowa  
City, and FRANK R OBER, Boston

Nontraumatic Effusions (Hygromas) of the Subdural Space as  
a Cause of Obscure Cerebral Symptoms (Lantern Demon-  
stration)

MICHAEL SCOTT, Philadelphia

Discussion to be opened by ERNEST A SPIEGEL Phila-  
delphia

Meniere's Syndrome and Migraine Observations on a Common  
Causal Relationship ERIC MILLS ATKINSON New York

Discussion to be opened by BAYARD T HORTON Roches-  
ter, Minn, and MARY ELIZABETH O'SULLIVAN New  
York

Friday, June 12—9 a m

JOINT MEETING WITH SECTION ON ORTHOPEDIC SURGERY

PANEL DISCUSSION ON POLIOMYELITIS

STANLEY COBB Boston, Moderator

Experimental Work on Muscular Atrophy (Lantern Demon-  
stration)

D Y SOLANDT, Toronto Canada

Pathology and Pathogenesis of Human Poliomyelitis (Lantern  
Demonstration)

ALBERT B SABIN, Cincinnati

Effects of Immobilization and Activity on Neuromuscular  
Regeneration (Lantern Demonstration)

H M HINES, Iowa City

The Role of Physical Therapy in the Early Treatment of Polio-  
myelitis (Lantern Demonstration)

H R MCCARROLL, St Louis

Pain and Tenderness During Acute Stage of Poliomyelitis,  
with Comments on Kenny Treatment

FRANK R OBER Boston

## SECTION ON DERMATOLOGY AND SYPHILOLOGY

MEETS IN SECTION ROOM 12 THIRD FLOOR CONVENTION HALL

### OFFICERS OF SECTION

Chairman—C F LEHMANN San Antonio, Texas

Vice Chairman—Paul E BECHET New York

Secretary—NELSON PAUL ANDERSON Los Angeles

Executive Committee—JOHN G DOWNING, Boston, J GARD-  
NER HOPKINS New York, C F LEHMANN, San Antonio,  
Texas

Wednesday, June 10—9 a m

Chairman's Address C F LEHMANN, San Antonio, Texas

Leprosy The Correlation of Its Clinical Immunologic, Patho-  
logic and Bacteriologic Aspects (Lantern Demonstra-  
tion)

V PARDO CASTELLO and FRANCISCO R TRIANT, Havana,  
Cuba

Discussion to be opened by HOWARD FOX New York



The Place of Dermatology in the Armed Forces of the United States  
WILLIAM H. GUY, Pittsburgh  
Discussion to be opened by MARION B. SUZZURGER, New York

Cutaneous Changes in the Spine Syndrome (Lantern Demonstration)  
WILLIAM H. KAUFMAN and DUBOIS C. SMITH, Charlottesville, Va.  
Discussion to be opened by J. LAMAR CATTAWAY, Durham, N. C.

Sarcoid Disease (Lantern Demonstration)  
CARMIN C. THOMAS, Philadelphia  
Discussion to be opened by CHATLAND J. WHITE, Chicago

Scrofula (Lantern Demonstration)  
ADOLPH H. CONRAD and ADOLPH H. CONRAD JR. and RICHARD S. WEISS, St. Louis  
Discussion to be opened by FRED D. WHIMMAN, Philadelphia and FRANCIS A. ELLIS, Baltimore

Primary Relapsing Eczematous Nodular Panniculitis (Lantern Demonstration)  
J. LOWRY MILLER, New York  
Discussion to be opened by STUART C. WAX, San Francisco and LORRY J. CUMMINS, Boston

Thursday, June 11—9 a. m.

The Complement Fixation Test for Lymphogranuloma Venereum (Lantern Demonstration)  
ARTHUR W. GRACE, Brooklyn, and GREGORY W. RAKI, New Brunswick, N. J.  
Discussion to be opened by DAVID BLOOM and HELEN O. CLETH, New York

Reporting Serologic Tests for Syphilis (Lantern Demonstration)  
WILLIAM A. CLARK, Houston, Texas  
Discussion to be opened by JOHN H. STOKES, Philadelphia and BENJAMIN S. KLINE, Cleveland

Biologic False Positives in Serologic Tests of Syphilis (Lantern Demonstration)  
RICHARD L. KAHN, Ann Arbor, Mich.  
Discussion to be opened by CHARLES R. REIN, New York

Bismuth in the Treatment of Syphilis: A Review of Fourteen Years' Experience  
HERMAN BIERMAN and BERTRAM SHAFER, Philadelphia, and CLARENCE S. LIVINGOON, Indianopolis, Pa.  
Discussion to be opened by ARTHUR G. SCHUCH, Dallas, Texas

The Use of Bismuth Compounds in Syphilotherapy: II Results of Treatment of Latent Syphilis by Bismuth Compounds Combined in Part with Arsenicals (Lantern Demonstration)  
DAVID KAHN and S. WILLIAM BECKER, Chicago  
Discussion to be opened by C. J. LUNSFORD, Oakland, Calif., and HARRY C. SAUNDERS, New York

Bismuth Hepatitis: A Survey of 121 Cases (Lantern Demonstration)  
GEORGE V. KUCHAR, San Francisco, and WILLIAM J. RYLANDS, San Anselmo, Calif.  
Discussion to be opened by JOHN E. DALTON, Indianapolis, and BERNARD APPL, Lynn, Mass.

Mapharsen in the Treatment of Congenital Syphilis (Lantern Demonstration)  
GERSCH D. ASTRACHAN and VAN ALSTYNE H. CORNELL, New York  
Discussion to be opened by NORMAN R. INGRAHAM, Philadelphia, and JOHN E. RAUSCHKOLB, Cleveland

Friday, June 12—9 a. m.

#### Election of Officers

The Treatment of Cutaneous Melanomas (Lantern Demonstration)  
JAMES R. DRIVER, Cleveland  
Discussion to be opened by H. FORD ANDERSON, Washington, D. C., and EUGENE F. TRAUB, New York

Shock Proof X-Ray Apparatus in Dermatology (Lantern Demonstration)  
ANTHONY C. CIPOLIARO and ARTHUR MUTSCHELLER, New York  
Discussion to be opened by C. GUY LANE, Boston, and GEORGE C. ANDREWS, New York

Microaerophilic Streptococcus Infection Causing Destruction of the Nose  
MAURICE J. COSTELLO, New York  
Discussion to be opened by FRANK L. MELLNEY, New York

Phenomenon of Black Dermographism (Lantern Demonstration)  
ERICH URBACH and DONALD M. PILLSBURY, Philadelphia  
Discussion to be opened by SAMUEL M. PECK, New York

Hydroa Estivale: A Successful Treatment  
FRANCIS M. THURMON, Boston  
Discussion to be opened by JOHN H. LAMB, Oklahoma City

Thrombocyte Deficit (Lantern Demonstration)  
MERLIN T.-R. MAYNARD, San Jose, Calif.  
Discussion to be opened by THEODORE CORNBLEET, Chicago

### SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

MEETS IN SECTION ROOM B, FIRST FLOOR, CONVENTION HALL

#### OFFICERS OF SECTION

Chairman—HAVEN EMERSON, New York  
Vice Chairman—JOSEPH W. MOUNTIN, Washington, D. C.  
Secretary—W. A. SAWYER, Rochester, N. Y.  
Executive Committee—HAROLD S. DIEHL, Minneapolis, Minn.; LANCE D. SELBY, Detroit; HAVEN EMERSON, New York

Wednesday, June 10—2 p. m.

Gastrointestinal Disease Among Industrial Workers (Lantern Demonstration)  
LEMUEL C. MCGEE, Wilmington, Del.  
The Berkeley Plan for Industrial Health Service  
ROBERT T. LEGGE, Berkeley, Calif.

Postgraduate Education in Industrial Health  
WALTER L. BIERRING, Des Moines, Iowa  
Results of Use of Multiple Vitamins for Prevention of Colds  
HAROLD S. DIEHL, Minneapolis

Rehabilitation in Selective Service System  
L. G. ROWNTREE, Washington, D. C.

Thursday, June 11—2 p. m.

Chairman's Address  
HAVEN EMERSON, New York  
Yellow Fever  
WILBUR A. SAWYER, New York  
Health Problems in Connection with War Housing Projects  
DONALD K. FREEDMAN, Washington, D. C.  
Civilian Measures for the Control of the Venereal Diseases in World War II  
A. J. ASELMAYER, Washington, D. C.  
The Problem of Transfusion Syphilis (Lantern Demonstration)  
WILLIAM W. FRIE, Nashville, Tenn.

Friday, June 12—2 p. m.

Election of Officers  
Dietary Conditions Among Industrial Workers  
R. S. GOODHART, Forest Hills, N. Y.  
Dietary Conditions in the Army  
PAUL E. HOWE, Washington, D. C.  
Dietary Conditions in the Navy  
CHARLES S. STEPHENSON, Washington, D. C.  
Results of a Medical and Nutritional Survey of Air Craft Workers  
HENRY BORSOOK, Pasadena, Calif.

### SECTION ON UROLOGY

MEETS IN SECTION ROOM 12 THIRD FLOOR CONVENTION HALL  
OFFICERS OF SECTION

Chairman—VINCENT J. O'CONOR, Chicago  
Vice Chairman—GERSHOM J. THOMPSON, Rochester, Minn.  
Secretary—GRAYSON L. CARROLL, St. Louis  
Executive Committee—Frederic E. B. FOLEY, St. Paul; MEREDITH F. CAMPBELL, New York; VINCENT J. O'CONOR, Chicago

Wednesday, June 10—2 p. m.

The Urethrogram as an Aid in Diagnosis of Prostatic Abscess (Lantern Demonstration)  
W. E. FORSYTHE JR., New York

Pathologic Conditions Encountered in Horseshoe Kidney (Lantern Demonstration)  
A. E. GOLDSTEIN, Baltimore

Resection of Kidney (Lantern and Motion Picture Demonstration)  
W. CALHOUN STIRLING, Washington, D. C.

Discussion on papers of DR. FORSYTHE, DR. GOLDSTEIN and DR. STIRLING to be opened by GEORGE C. PRATIER, Boston, and JOSEPH F. MCCARTHY, New York

Life After Nephrectomy (Lantern Demonstration)  
HERMAN L. KRETSCHMER, Chicago

Does Vitamin A Deficiency Exist in Clinical Urolithiasis? Studies Based on Clinical and Pathologic Material (Lantern Demonstration)  
HUGH J. JEWETT, Baltimore

Pancreatic Tissue Extract in Ureterspasm

HENRY W. E. WALTHER New Orleans  
Discussion on papers of DR. KRETSCHMER, DR. HWEFTT  
and DR. WALTHER to be opened by ALBERT F. OCKEN-  
BLAD, Kansas City, Mo.

Thursday, June 11—2 p m

Chairman's Address (Lantern Demonstration)  
VINCENT J. O'CONNOR Chicago  
Address JORGE CAVALIER, Bogota, Colombia, South America  
Aneurysm of the Renal Artery (Lantern Demonstration)  
OSWALD S. LOWSLEY and EDWARD M. CANNON New  
York

Five Year Results of Carcinoma of the Bladder Treated by  
Radium (Lantern Demonstration)  
B. S. BARRINGER New York

The Retrograde Solution of Phosphatic Urinary Calculi (Lan-  
tern Demonstration) HOWARD I. SURY, Boston

Scientific Dietotherapy of Renal Vascular Disease (Lantern and  
Motion Picture Demonstration)

F. M. ALLEN and O. M. COFF New York  
Discussion to be opened by CARL E. BURFORD St. Louis  
GEORGE G. SMITH, Boston, and WILLIAM F. BRAUNSCHE  
Rochester, Minn.

Friday, June 12—2 p m

Election of Officers

SYMPOSIUM ON TREATMENT OF CARCINOMA  
OF THE PROSTATE GLAND

Carcinoma of the Prostate Gland Clinical Data Concerning  
253 Cases Treated by Transurethral Resection (Lantern  
Demonstration)

GERSHON J. THOMPSON Rochester, Minn.  
A Preliminary Report of Biochemical Therapeutics in Carcinoma  
of the Prostate Gland (Lantern Demonstration)

WILLIAM P. HERBST Washington, D. C.  
Clinical Observation of Treatment of Advanced Carcinoma of  
the Prostate Gland with Metastasis (Lantern Demonstra-  
tion) EDWIN P. ALYEA, Durham, N. C.

The Recognition and Treatment of the Incipient Carcinoma of  
the Prostate Gland (Lantern Demonstration)

CHARLES D. CREEV, Minneapolis  
Orchiectomy in Treatment of Prostatic Carcinoma A Report  
of 75 Cases Followed Six Months or More After Opera-  
tion (Lantern Demonstration)

REED M. NESBIT and ROBERT H. CUMMINGS, Ann Arbor,  
Mich.  
Discussion to be opened by H. C. BLUMPS JR., Pasadena  
Calif., ARBOR D. MUNGER Lincoln, Neb., and PARKE  
G. SMITH, Cincinnati

SECTION ON ORTHOPEDIC SURGERY

MEETS IN SECTION ROOM D, FIRST FLOOR,  
CONVENTION HALL

OFFICERS OF SECTION

Chairman—JAMES A. DICKSON, Cleveland  
Vice Chairman—GUY A. CALDWELL New Orleans  
Secretary—FRANCIS M. McKEEVER Los Angeles  
Executive Committee—ROBERT V. FURSTEN, Charlottesville,  
Va. J. ALBERT KEY, St. Louis, JAMES A. DICKSON, Cleve-  
land

Wednesday, June 10—2 p m

Congenital Flat Foot (Lantern Demonstration)  
JOHN G. KUHNS, Boston  
Osteochondrosis Deformans Tibiae A Type of Developing Non-  
rachitic Bowlegs in Children (Lantern Demonstration)  
C. GLEN BARBER Cleveland  
Odor in the Orr Treatment of Osteomyelitis and Its Preven-  
tion by Lactose ALLAN D. WALLIS, Philadelphia  
The Combined Operation in Low Back and Sciatic Pain  
(Lantern Demonstration)  
RALPH K. GHORMLEY, J. GRAFTON LOVE and HENRY  
HERMAN YOUNG, Rochester, Minn.  
Plated Osteoperiosteal Graft (Lantern Demonstration)  
EARL D. McBRIDE Oklahoma City  
Suggestions for Improvements in the Program for the Public  
Care of the Crippled Child  
ABRUCE GILL Philadelphia

Thursday, June 11—2 p m

Election of Officers

Genu Recurvatum Following Poliomylitis A Controlled  
Method of Operative Correction (Lantern Demonstra-  
tion) C. F. IRWIN, Warm Springs, Ga.

Chairman's Address JAMES A. DICKSON Cleveland  
Localized Fibrous Lesions of the Long Bones (Lantern Demon-  
stration) C. HOWARD HATCHER, Chicago

Systemic and Local Sulfonamide Therapy of War Wounds  
(Lantern Demonstration) PERRIN H. LONG, Baltimore

Amputations in War (Lantern Demonstration)  
NORMAN T. KIRK Washington, D. C.  
Shelf Operation for Dislocated Hips Especially Useful in  
Younger Children (Lantern Demonstration)

FOWLER B. ROBERTS, Akron, Ohio

Friday, June 12—9 a m

JOINT MEETING WITH SECTION ON NERVOUS  
AND MENTAL DISEASES

PANEL DISCUSSION ON POLIOMYELITIS

STANLEY COBB, Boston Moderator  
Experimental Work on Muscular Atrophy (Lantern Demon-  
stration) D. Y. SOJAARDT Toronto, Canada  
Pathology and Pathogenesis of Human Poliomylitis (Lantern  
Demonstration) ALBERT B. SABIN Cincinnati  
Effects of Immobilization and Activity on Neuromuscular  
Regeneration (Lantern Demonstration)

H. M. HINES Iowa City  
The Role of Physical Therapy in the Early Treatment of  
Poliomyelitis (Lantern Demonstration)

H. R. MCCARROLL, St. Louis  
Pain and Tenderness During Acute Stage of Poliomylitis  
with Comments on Kennel Treatment  
FRANK R. OBER, Boston

SECTION ON GASTRO-ENTEROLOGY  
AND PROCTOLOGY

MEETS IN SECTION ROOM D, FIRST FLOOR,  
CONVENTION HALL

OFFICERS OF SECTION

Chairman—WALTER L. PALMER, Chicago  
Vice Chairman—EMMETT H. TERRELL, Richmond, Va.  
Secretary—SARA M. JORDAN, Boston  
Executive Committee—A. H. AARON, Buffalo, FRANK C.  
YEOMANS, New York, WALTER L. PALMER, Chicago  
The annual banquet of the section will be held on Wednesday,  
June 10, 6:30 p m, at the Hotel Claridge. Tickets, \$3.50 a  
plate may be obtained in advance from Walter L. Palmer,  
950 E. 59th St., Chicago.

Wednesday, June 10—9 a m

Motility of the Human Colon The Normal Pattern, Dyskinesia  
and Effect of Drugs (Lantern Demonstration)

A. J. ATKINSON, H. F. ADLER and A. C. ILL, Chicago  
Discussion to be opened by WALTER C. ALVAREZ, Roches-  
ter, Minn., and JOHN P. QUIGLEY, Cleveland

The Role of Anal Glands in the Pathogenesis of Anorectal  
Disease (Lantern Demonstration)  
MALCOLM R. HILL, Los Angeles, E. HAROLD SHRYOCK,  
Loma Linda, Calif., and F. GEORGE REBELL, Los  
Angeles

Discussion to be opened by ROBERT A. SCARBOROUGH,  
San Francisco

Primary Lymphoid Tumors of the Rectum Resembling Internal  
Hemorrhoids THOMAS E. SMITH, Dallas, Texas  
Discussion to be opened by CURTICE ROSSER, Dallas,  
Texas

Anesthetics Used in Proctologic Surgery (Lantern Demonstra-  
tion) C. C. MECHLING, Pittsburgh

Discussion to be opened by WALTER A. FANSLER, Minne-  
apolis and LOUIS J. HIRSCHMAN, Detroit

Operative Treatment of Cancer of the Rectum and Sigmoid  
Without Colostomy (Lantern and Motion Picture Demon-  
stration)

W. WAYNE BARCOCK and HARRY E. BACON, Philadelphia  
Inflammatory Stricture of the Colon (Lantern Demonstration)

E. PARKER HAYDEN, Boston  
Discussion on papers of DRS. BARCOCK and BACON and  
DR. HAYDEN to be opened by FRANK H. LAHEY,  
Boston, and THOMAS E. JONES, Cleveland

The Infectious Diarrheas, Enteritis and Colitis (Lantern  
Demonstration) JOSEPH FELSEN New York

Metabolic Studies in Chronic Ulcerative Colitis (Lantern Demonstration)

Z. BIRCOVITZ and R. C. PAGE, New York  
Discussion on papers of Dr. FLEISCH and Drs. BIRCOVITZ and PAGE to be opened by I. A. BARGIN, Rochester, Minn., MAXIMILIAN KRAMER, Newark, N. J., and A. TRASSON, Philadelphia

Nonspecific Types of Ulcerative Proctitis Treatment and Prognosis (Lantern Demonstration)

PHILIP W. BROWN and LOUIS A. BUN, Rochester, Minn.  
Discussion to be opened by ARTHUR W. GRACE, Brooklyn, BURRILL B. CROHN, New York, and M. PAULSON, Baltimore

Diverticula of the Colon Proctoscopic Findings as an Aid in the Diagnosis (Lantern and Motion Picture Demonstration)

R. I. JACKMAN, Rochester, Minn.  
Discussion to be opened by HENRY L. ROCKES, Philadelphia and JOHN C. M. BRUCE, Syracuse, N. Y.

Thursday, June 11—9 a m

#### Election of Officers

Chairman's Address: The Stomach and Military Service

WALTER L. PALMER, Chicago

Digestive Disease and Military Service, with Special Reference to the Medical Department of the United States Army (Lantern Demonstration)

JOHN I. KANTON, New York  
Discussion to be opened by C. R. RYAN, Harrisburg, Pa. and DONALD I. CHAMBERLIN, Atlanta, Ga.

#### Panel Discussion on Ulcer

A. H. AXON, Buffalo, Conducting

Ulcerating Lesions of the Stomach (Lantern Demonstration)

B. R. KIRKIN, Rochester, Minn.

Gastric Secretion BORIS P. BABIKIN, Montreal, Canada

Psychosomatic Correlations of Duodenal Ulcer

SAMUEL MORRISON and MARICE FIDMAN, Baltimore

The Physiologic Basis for the Dietotherapy in Duodenal Ulcer (Lantern Demonstration)

HARRY SHAY, J. GERSHON-COHEN and SAMUEL S. FINE, Philadelphia

An Evaluation of the Continuous Intragastric Drip Therapy of Peptic Ulcer After Ten Years of Experience (Lantern Demonstration)

ASHER WINKELSTEIN, ALBERT CORNELL and FRANKLIN HOLLANDER, New York

Fatal Hemorrhage from Peptic Ulcer (Lantern Demonstration)

JOHN M. BLACKFORD, Seattle

A Critical Evaluation of the Factor of Age in the Conservative and Surgical Treatment of Bleeding Peptic Ulcer (Lantern Demonstration)

JACOB MIXER and HENRICH NECHETS, Chicago

Treatment of Obstructive Juxtapyloric Ulcer Combined Use of Aluminum Hydroxide Drip and Wangenstein Aspiration

V. C. ROWLAND, Cleveland

The Selection of Operation in Patients with Gastric and Duodenal Ulcer (Lantern Demonstration)

J. WILLIAM HINTON, New York

Jejunal Ulcers and Recurrent Hemorrhages After Partial and Subtotal Gastrectomy for Peptic Ulcer (Lantern Demonstration)

EVERETT D. KILFER, Boston

Friday, June 12—9 a m

JOINT MEETING WITH SECTION ON PATHOLOGY AND PHYSIOLOGY IN SECTION ROOM F, FIRST FLOOR, CONVENTION HALL

#### SYMPOSIUM ON LIVER

J. P. SIMONDS, Chicago, Conducting

The Gastrointestinal Tract and Liver

FRANK C. MANN, Rochester, Minn.

Liver Function Tests (Lantern Demonstration)

JOHN G. MATLER, Detroit

The Significance of Mild Hyperbilirubinemia in Gastrointestinal Patients (Lantern Demonstration)

THOMAS A. JOHNSON and HENRY L. BOCKUS, Philadelphia

The Clinical Prevention and Diagnosis of Liver Dysfunction (Lantern Demonstration)

SIDNEY A. PORTIS, Chicago

Cirrhosis of Liver (Lantern Demonstration)

VIRGIL H. MOON, Philadelphia

Primary Carcinoma of the Liver (Lantern Demonstration)

DWIGHT L. WILBUR, DAVID A. WOOD and FORREST M. WHITT, San Francisco

The Concept of Liver Deaths (Lantern Demonstration)

CHARLES GORDON HEYD, New York

Discussion on papers of Dr. MANN, Dr. MATEER, Drs. JOHNSON and BOCKUS, Dr. PORTIS, Dr. MOON, Drs. WILBUR, WOOD and WILJETT and Dr. HEYD to be opened by CHESTER M. JONES, Boston, and HOWARD T. KARSNER, Cleveland

#### SYMPOSIUM ON GASTRITIS

WALTER L. PALMER, Chicago, Conducting

Correlation of Gastroscopic and Pathologic Findings in Gastritis (Lantern Demonstration)

EDWARD B. BENEDICT and TRACY B. MALLORY, Boston

The Significance of Hemorrhagic or Pigment Spots as Observed by Gastroscopy (Lantern Demonstration)

JULIAN M. RUFFIN, Durham, N. C.

The Early Diagnosis of Carcinoma of the Stomach (Lantern Demonstration)

C. WILMER WIRTS, Philadelphia

Relation of Atrophic Gastric Mucosa to Carcinoma of the Stomach (Lantern Demonstration)

I. R. JANKELSON and C. W. McCLURE, Boston, and HARRY FRIEDBERG, Salem, Mass.

Gastroscopic Observation in Duodenal Ulcer (Lantern Demonstration)

J. B. CAREY and R. S. YLVIKAKER, Minneapolis

Discussion on papers of Drs. BENEDICT and MALLORY, Dr. RUFFIN, Dr. WIRTS, Drs. JANKELSON, McCLURE and FRIEDBERG, and Drs. CAREY and YLVIKAKER to be opened by SHIELDS WARREN, Boston, and RUDOLF SCHINDLER, LEONIDAS H. BERRY and LEO L. J. HARDT, Chicago

#### SECTION ON RADIOLOGY

MEETS IN SECTION ROOM A, FIRST FLOOR, CONVENTION HALL

#### OFFICERS OF SECTION

Chairman—RALPH S. BROMER, Bryn Mawr, Pa.

Vice Chairman—LYELL C. KINNEY, San Diego, Calif.

Secretary—JOHN T. MURPHY, Toledo, Ohio

Executive Committee—MERRILL C. SOSMAN, Boston, RAYMOND C. BRITTON, Indianapolis, RALPH S. BROMER, Bryn Mawr, Pa.

Wednesday, June 10—9 a m

Diagnosis of Mediastinal Tumor, Aneurysm and Abnormalities of the Superior Vena Cava: The Value of Contrast Cardiovascular Visualization (Lantern Demonstration)

ISRAEL STEINBERG, New York

Arteriography for Renoabdominal Diagnosis (Lantern Demonstration)

O. A. NELSON, Seattle

Evaluation of Angiocardiography (Lantern Demonstration)

HENRY K. TAYLOR and TERESA MCGOVERN, New York

Chairman's Address: The Role of the Roentgenologist in the Diagnosis of Congenital Cardiac Lesions (Lantern Demonstration)

RALPH S. BROMER, Bryn Mawr, Pa.

Factors Concerned in the Abnormal Distribution of Barium in the Small Bowel (Lantern Demonstration)

MARCY L. SUSSMAN and EMANUEL WACHTEL, New York

Thursday, June 11—9 a m

#### Election of Officers

A Plea for the Prevention of Bronchiectasis (Lantern Demonstration)

KARL KORNBLUM, Philadelphia

Bronchial Obstruction in Pulmonary Embolism (Lantern Demonstration)

GEZA DE TAKATS, G. K. FENN and EDWARD L. JENKINSON, Chicago

Carcinoma of the Cervix Treated by Initial External Roentgen Irradiation and Radium (Lantern Demonstration)

ROSCOE W. TEAHAN, HOKE WAMMOCK and JAMES L. WEATHERMAN, Philadelphia

Insertion of Radium into the Uterus and Vagina (Lantern Demonstration)

MILTON FRIEDMAN, New York

Experimental Studies of the Mechanism of Action of Roentgen Therapy on Infection (Lantern Demonstration)

J. DEWEY BISGARD, HOWARD B. HUNT and ORVIS A. NEELY, Omaha

Discussion to be opened by JAMES F. KELLY, Omaha

Friday, June 12—9 a m

JOINT MEETING WITH SECTION ON OBSTETRICS AND GYNECOLOGY

Excessive Menstrual Bleeding in Adolescence (Lantern Demonstration)

WILLARD M. ATEN, St. Louis

Irradiation Control of Irregular Bleeding in Young Girls (Lantern Demonstration) IRA I KAPLAN New York  
The Effect of Radiation on Germ Plasma (Lantern Demonstration) CHARLES COOK LITTLE Bar Harbor Maine  
Excessive Bleeding at the Menopause or Associated with Myoma (Lantern Demonstration) CONRAD G COLLINS New Orleans  
Discussion on papers of DR ALLEN, DR KAPLAN DR LITTLE and DR COLLINS to be opened by RAMSAY SPIGGMAN New York VIRGIN S COLANINNI Rochester Minn LEWIS C SCHIEFFEL Philadelphia GEORGE H GARDNER Chicago WILLIAM F COSTLOW Los Angeles RICHARD W TELFORD Baltimore and GEORGE F PFANNKUCH Philadelphia

## SECTION ON ANESTHESIOLOGY

MEETS IN SECTION ROOM A FIRST FLOOR CONVENTION HALL

### OFFICERS OF SECTION

Chairman—THOMAS I COLLIER, Atlanta Ga  
Vice Chairman—F E HUBBARD Montclair N J  
Secretary—JOHN S LUNDY Rochester Minn  
Executive Committee—H S RUTH Merion Pa, RALPH M WATERS Madison Wis THOMAS J COLLIER Atlanta Ga  
The Ritz-Carlton Hotel will be the headquarters for the anesthetists

Wednesday, June 10—2 p m

Circulatory Changes During Spinal Anesthesia (Lantern Demonstration) E M PAPPER New York  
Discussion to be opened by SIDNEY C WIGGIN Boston and STUART C CULLEN Iowa City  
Spinal Anesthesia Factors Influencing Its Success (Lantern Demonstration) LEO V HAND Boston  
Discussion to be opened by ROLLAND J WHITTACE East Cleveland Ohio and VIRGINIA APGAR New York  
Rectal Anesthesia in Surgical and Obstetric Procedures (Lantern Demonstration) PAUL M WOOD, New York  
Discussion to be opened by WESLEY BOURNE Westmount Quebec Canada, and H BOYD STEWART Tulsa Okla  
Morphine in Obstetric Analgesia (Lantern Demonstration) FRANKLIN F SNYDER, Chicago  
Discussion to be opened by DOUGLAS P MURPHY and NEWLIN F PAXSON Philadelphia

Thursday, June 11—2 p m

Chairman's Address Crawford W Long 1815-1878 (Lantern Demonstration) THOMAS J COLLIER Atlanta Ga  
Interdependence of Function in Anesthesia WESLEY BOURNE Westmount Quebec Canada  
Discussion to be opened by RALPH M WATERS Madison Wis and RALPH M TOWELL Hartford Conn  
Intravenous Anesthesia (Lantern and Motion Picture Demonstration) FRED F RUDDER Atlanta, Ga and H T BISHOP Washington, D C  
Discussion to be opened by J ROY FULTON, Philadelphia and ROBERT A HINGSON Stapleton, Staten Island, N Y  
The Prevention and Treatment of Shock During Surgical Procedures (Lantern Demonstration) DOUGLAS B KENDRICK JR Washington, D C  
Discussion to be opened by HENRY K BEECHER, Boston and ALFRED BLACKLOCK Baltimore  
The Teaching of Anesthesiology in the Army (Lantern Demonstration) STEVENS J MARTIN, Fort Dix, N J  
Discussion to be opened by HENRY S RUTH, Merion Station Pa and E A ROVENSTINE, New York  
Casualty Anesthesia in England (Lantern Demonstration) K C MCCARTHY Toledo, Ohio  
Discussion to be opened by A L TAYLOR Washington, D C and S LEROY SAHLER Rochester, N Y

Friday, June 12—2 p m

Election of Officers  
Laboratory and Clinical Studies with Paraldehyde C L BURSTEIN, New York  
Discussion to be opened by HENRY G BARBOUR New Haven Conn and RALPH T KNIGHT, Minneapolis

The Balance Between Central and Reflex Control of Respiration (Lantern Demonstration) ROBERT D DEPPES JR, Philadelphia  
Discussion to be opened by CARL F SCHMIDT Philadelphia and F TIMOTHY HUBBARD Montclair, N J  
Postoperative Bronchoscopy (Lantern Demonstration) HENRIET W SCHMIDT Lloyd H MOUSSE and S W HARRINGTON Rochester Minn  
Discussion to be opened by PORTER P VINSON Richmond Va, and PHILIP D WOODBRIDGE, New Haven Conn  
Effect of Anesthetics on Bronchial Fissures (Lantern Demonstration) JOHN ABRILANT, New Orleans  
Discussion to be opened by DONALD E BRACK Woodside N Y and DOUGLASS H BATTEN Brooklyn  
Surface Temperature Under Anesthesia (Lantern Demonstration) RICHARD VON LORICER JR, Madison, Wis  
Discussion to be opened by BAYARD T HORTON Rochester, Minn, and PERRY P VOLITTO Augusta, Ga

## SECTION ON MISCELLANEOUS TOPICS

### Sessions on General Practice

MEETS IN SECTION ROOM F, FIRST FLOOR, CONVENTION HALL

### OFFICERS OF SESSIONS

Chairman—LUCILEN STARR Norfolk Neb  
Secretary—WINGATE M JOHNSON, Winston-Salem, N C  
Wednesday, June 10—9 a m  
Chairman's Address LUCILEN STARR, Norfolk, Neb  
Cardiology in General Practice GEORGE M COOK, Hammond Ind  
Some Puzzling Aspects of Pain in the Chest (Lantern Demonstration) TINSLEY R HARRISON, Winston-Salem, N C  
Clinical Features and Prognosis in Myocardial Disease (Lantern Demonstration) H W RATHF, Waverly, Iowa  
Hypertension HUGH P GREELEY Madison Wis  
Vitamins in Dermatology J J ELLER, New York

Thursday, June 11—9 a m

Menopausal Symptoms and Their Treatment (Lantern Demonstration) ARCH WALLS, Detroit  
The Management of Patients with Anxiety ELLIOTT B EDIE, Uniontown, Pa  
What Causes Gas? WALTER C ALVAREZ, Rochester, Minn  
The So Called Mucous Colitis (Lantern and Motion Picture Demonstration) C W MCGAVRAN, Columbus, Ohio  
The Care of the Aged M W THEWLIS, Wakefield, R I  
The Modern Treatment of Pneumonia C T STONE, Galveston, Texas

### Session on Legal Medicine

MEETS IN SECTION ROOM B, FIRST FLOOR, CONVENTION HALL

### OFFICERS OF SESSION

Chairman—WILLIAM C WOODWARD, Washington D C  
Secretary—ALAN R MORITZ, Boston  
Friday, June 12—9 a m  
Privileged Communications Law versus Ethics EDMUND M MORGAN, Cambridge, Mass  
Legal Responsibility for Negligent Diagnosis HUBERT W SMITH, Cambridge Mass  
Human Postmortem Changes in the Tropics and Their Medical-legal Significance (Lantern Demonstration) RAYMUNDO DE CASTRO, Havana Cuba  
The Importance of Performing Autopsies on the Bodies of Persons Apparently Dead by Suicide (Lantern Demonstration) HARRISON S MARTLAND, Newark, N J  
Deaths by Violence in Which the Causative Injury is Likely to Escape Clinical Recognition (Lantern Demonstration) THOMAS A GONZALES, New York  
The Advantage of the Coroner System Over That of the Medical Examiner SAMUEL R GERBER, Cleveland  
The Advantage of the Medical Examiner System Over That of the Coroner TIMOTHY LEARY Boston

## THE SCIENTIFIC EXHIBIT

The Scientific Exhibit will occupy the lower level of the Atlantic City Auditorium with entrances down the stairs from the registration desks and the Technical Exhibit.

Chief among the features of interest will be the Pan American participation with exhibits from various countries dealing with tropical medicine. Special exhibits will be presented again on fractures and backache under provisions made by the Board of Trustees. The Army, the Navy, the Public Health Service, the Selective Service System and the Office of Civilian Defense will be represented with exhibits pertaining to the activities of each of those branches of the federal government. An exhibit symposium on cardiovascular disease has been arranged under the guidance of the Section on Practice of Medicine. Lectures with demonstrations will be given throughout the week on poliomyelitis and diabetes. Each section of the Scientific Assembly has sponsored groups of exhibits dealing with the various specialties, but emphasis is placed on the fact that the Scientific Exhibit is primarily for the physician in general practice.

Motion pictures will be shown each day continuously and simultaneously in four theaters adjacent to the exhibits.

Admission to the Scientific Exhibit will be limited to persons wearing Fellowship or other badges of the convention and to guests to whom special cards of admission have been issued. The public will not be admitted to the Scientific Exhibit.

## SPECIAL EXHIBITS

At the request of the Committee on Scientific Exhibit of the Board of Trustees there will be two special exhibits this year. (These exhibits are not open to awards.)

## Special Exhibit on Fractures

The special exhibit on fractures is presented under the auspices of the fracture exhibit committee composed of

Kellogg Speed, Chicago, chairman  
Frank D. Dickson, Kansas City, Mo.  
Walter Estell Lee, Philadelphia

The following subjects will be considered with continuous demonstrations throughout the week:

1. How to Make and Store Plaster of Paris Bandages
2. Fracture of the Neck of the Femur (nonoperative treatment)
3. Compression Fracture of the Os Calcis
4. Compression Fracture of the Spine
5. Supracondylar Fracture of the Humerus
6. Emergency Treatment of Fractures of the Extremities

A pamphlet giving the essential points of the exhibit has been prepared for distribution.

The local representative for the fracture committee is James H. Mason III, Atlantic City, N. J.

A large corps of demonstrators will assist the committee in the presentation of the exhibit, including

|                                   |  |
|-----------------------------------|--|
| John D. Adams, Boston             | Thomas C. McAuliffe, Philadelphia      |
| A. P. Antkin, Boston              | Arthur Metz, Chicago                   |
| C. Glenn Barber, Cleveland        | John R. Nilsson, Omaha                 |
| William A. Boyd, Columbia, S. C.  | E. Payne Palmer, Phoenix, Ariz.        |
| Henry Briggs, East Orange, N. J.  | Garrett Pipkin, Kansas City, Mo.       |
| Newton C. Browder, Boston         | Sheppard Remington, Chicago            |
| Ralph G. Carothers, Cincinnati    | Henry H. Ritter, New York              |
| Barton Chance Jr., Philadelphia   | Samuel L. Robbins, Cleveland           |
| Dwight I. Clark, Evanston, Ill.   | L. D. Smith, Milwaukee                 |
| George J. Curry, Flint, Mich.     | Robert R. Stoner Jr., Philadelphia     |
| P. C. Doran, Akron, Ohio          | Russell F. Sullivan, Brookline, Mass.  |
| John D. Ellis, Chicago            | Thomas J. Summey, Moorestown, N. J.    |
| Philip S. Foisie, Boston          | James R. Tillotson, Lima, Ohio         |
| Roland Hammond, Providence, R. I. | Herbert W. Virgin Jr., Pensacola, Fla. |
| C. Howard Hitcher, Chicago        | Judson D. Wilson, Columbus, Ohio       |
| Stanley Lawton, Chicago           | Milton J. Wilson, New York             |
| J. R. Lincoln, New York           | Harry Winkler, Charlotte, N. C.        |
| Walter D. Ludlum Jr., New York    |  |
| James W. Martin, Omaha            |  |

## Special Exhibit on Backache

The special exhibit on backache is presented under the auspices of an exhibit committee composed of

|                                   |                             |
|-----------------------------------|-----------------------------|
| Frank R. Ober, Boston, chairman   | Arthur Steindler, Iowa City |
| Carl E. Badgley, Ann Arbor, Mich. | Philip D. Wilson, New York  |
| J. Archer O'Reilly, St. Louis     |                             |

with the collaboration of

|                                   |                               |
|-----------------------------------|-------------------------------|
| Iben J. Carey, Milwaukee          | K. G. Hansson, New York       |
| Albert Ferguson, Brookline, Mass. | Theodore A. Willis, Cleveland |
| H. Close Hesselstine, Chicago     | Walter Zeit, Milwaukee        |

and an advisory committee consisting of

|                              |                                  |
|------------------------------|----------------------------------|
| Iremont A. Chandler, Chicago | Robert D. Schrock, Omaha         |
| H. Larle Conwell, Birmingham | E. Harlan Wilson, Columbus, Ohio |
| John S. Coulter, Chicago     | Walter J. Zeiter, Cleveland      |
| Philip Lewin, Chicago        |                                  |

The exhibit deals with the following factors:

1. Anatomy: Eben J. Carey and Walter Zeit. Specimens and demonstrations illustrating anatomy of the spine.
2. Pathology: Theodore A. Willis. Specimens and demonstrations illustrating common pathologic disturbances which are concerned in backache.
3. Physical Examinations: Frank R. Ober. Diagrams and demonstrations illustrating methods of physical diagnosis.
4. Roentgen Ray Technique: Albert Ferguson. Diagrams and roentgenograms in atlas form.
5. Neurologic Examinations: Carl E. Badgley. Illustrations and demonstrations covering the neurologic aspects of backache.
6. Visceral Disturbances: H. Close Hesselstine. Illustrations and demonstrations dealing with visceral disturbances as found in internal medicine, obstetrics, gynecology and urology.
7. Physical Therapy: K. G. Hansson. Illustrations and demonstrations presenting physical therapy aids in the treatment of backache.
8. General Treatment: Frank R. Ober. Apparatus and operative treatment for backache, with demonstrations at 10:30 and 3:30 each day, followed by general discussions concerning the use of corsets, braces and the like.

A pamphlet has been prepared for distribution which gives the essential points of the exhibit.

In addition to the physicians in charge of each booth, a competent corps of demonstrators will be present continuously throughout the week.

|   |                                   |
|---|-----------------------------------|
| R. L. Anderson, Charleston, W. Va.      | H. Worley Kendell, Dayton, Ohio   |
| Joseph L. Baer, Chicago                 | Samuel Kleinberg, New York        |
| Samuel W. Banks, Chicago                | Mihrad E. Knapp, Minneapolis      |
| C. Glenn Barber, Cleveland              | Richard Kovacs, New York          |
| Hans J. A. Behrend, New York            | Frank Krusen, Rochester, Minn.    |
| E. J. Berkeiser, Chicago                | R. M. LeComte, Washington, D. C.  |
| Albert L. Bershon, Toledo, Ohio         | Raymond E. Lenhard, Baltimore     |
| Walter P. Blount, Milwaukee             | Albert A. Martucci, Philadelphia  |
| A. Leo Brett, Boston                    | Madge C. L. Guinness, New York    |
| A. H. Brewster, Boston                  | Alexander Miller, Fort Dix, N. J. |
| Lloyd T. Brown, Boston                  | James Raglin Miller, Hartford     |
| Herbert L. Brumbaugh, Dayton, Ohio      | John B. Montgomery, Philadelphia  |
| B. Franklin Buzby, Camden, N. J.        | John Royal Moore, Philadelphia    |
| John Coulter, Chicago                   | I. William Nicholas, Baltimore    |
| James A. Dickson, Cleveland             | Josef B. Nylm, Philadelphia       |
| Joseph A. Freiberg, Cincinnati          | Walter L. Palmer, Chicago         |
| Robert V. Funsten, Charlottesville, Va. | Louis E. Papurt, Cleveland        |
| Ralph K. Ghormley, Rochester, Minn.     | Kenneth Phillips, Miami, Fla.     |
| Elmer Hess, Erie, Pa.                   | Maurice M. Pike, Hartford, Conn.  |
| Louis G. Howard, Boston                 | S. L. Raines, Memphis, Tenn.      |
| M. Beckett Howorth, New York            | Fowler B. Roberts, Akron, Ohio    |
| Lyman H. Hoyt, Boston                   | Lewis C. Scheffey, Philadelphia   |
| S. Leon Israel, Philadelphia            | William H. Schmidt, Philadelphia  |
| Joseph W. Kelso, Oklahoma City          | William Snow, New York            |
|   | Bror S. Troedsson, New York       |
|   | C. G. Weller, Aurora, Ill.        |
|   | Walter J. Zeiter, Cleveland       |



## LECTURES AND DEMONSTRATIONS

Lectures with demonstrations will be presented continuously throughout the week in two theaters adjoining the exhibits

## Polomyelitis

Lectures and demonstrations will be presented under the auspices of the National Foundation for Infantile Paralysis and the University of Minnesota School of Medicine. The method of examining patients with acute polomyelitis for muscle tenderness, muscle spasm, and other major symptoms will be presented. The method of treatment of these symptoms as advocated by the Australian nurse Miss Elizabeth Kenny will be demonstrated on living models. Each demonstration will be accompanied by a discussion of the symptoms and their treatment together with a discussion of the pathologic and physiologic backgrounds for such. Charts, diagrams and photographs will be used to supplement the demonstration and discussion.

Lectures will be given daily from Monday noon to Friday noon at the following hours

|           |          |
|-----------|----------|
| 9 30 a m  | 2 30 p m |
| 11 15 a m | 4 15 p m |

Don W. Gudakunst, New York, will be in charge assisted by the following

|                             |                             |
|-----------------------------|-----------------------------|
| Philip M. Stimson New York  | John F. Pohl Minneapolis    |
| Wallace H. Cole Minneapolis | Miland E. Knapp Minneapolis |

## Diabetes

Lectures and demonstrations on the physiology, pathology, chemistry, diagnosis and treatment of diabetes will be given daily from Monday afternoon to Friday noon at the following hours

|         |       |
|---------|-------|
| 10 a m  | 2 p m |
| 11 a m  | 3 p m |
| 12 noon | 4 p m |

After each lecture, time will be allowed for discussion, questions and personal interviews. The following will contribute to the program

|                              |                                |
|------------------------------|--------------------------------|
| C. C. Bailey Boston          | Howard F. Root Boston          |
| Thorne M. Carpenter Boston   | William C. Stadie Philadelphia |
| F. C. Dohan Philadelphia     | Shields Warren Boston          |
| Elliott P. Joslin Boston     | Priscilla White Boston         |
| F. D. W. Lukens Philadelphia |                                |

## Selective Service and Civilian Defense

Opportunities for conference and consultation will be given physicians concerning these two important phases of the war effort

LEONARD G. ROWNTREE and ROBERT A. BIER, National Headquarters Selective Service System, Washington, D. C.

*The Medical Division National Headquarters Selective Service System* Exhibit of charts, pictures and drawings depicting the medical work of Selective Service in all its aspects, with the analysis of the results of the physical examination of registrants

GEORGE BAEHR, W. PALMER DEARING, HENRY VAN ZILE, HYDE JOHN S. COULTER and DUDLEY A. REEKIE, Office of Civilian Defense, Medical Division Washington, D. C.

*Emergency Medical Service for Civilian Defense* Exhibit of charts showing organization of civilian defense for a community and progress of organization of Emergency Medical Service, a transparent poster entitled "When the Bombs Drop," illustrating the operation of the Emergency Medical Service, equipment for medical field units, chart of chemical warfare agents, model of gas decontamination station, model with gas mask and gas-proof clothing

## Section on Practice of Medicine

The representative to the Scientific Exhibit from the Section on Practice of Medicine is Louis B. LaPlace, Philadelphia. The Section is cooperating with the American Heart Association in presenting an exhibit symposium on cardiovascular disease

LEFRET S. LIWOOD, National Board of Medical Examiners, Philadelphia

*National Board of Medical Examiners* Exhibit of charts describing the work and progress of the National Board of Medical Examiners and the results of its examinations

ELLIOTT P. JOSLIN, HOWARD F. ROOT and PRISCILLA WHITE, George F. Baker Clinic, New England Deaconess Hospital Boston

*Fundamental Concepts in Diabetes as a Basis for Treatment* Exhibit presenting an interpretation of the recent studies of fat metabolism and diabetes experimentally produced presentation of new data obtained from study and treatment of pregnancy in diabetes of childhood diabetes of long duration analyses of statistics on coma, gangrene and the incidence of diabetes, observation on the use of newer types of insulin vitamin deficiency in diabetic animals

NATHAN SCHAEFFER and IRVING L. APPELBAUM, American College of Chest Physicians, Orange, N. J.

*Role of Fungi in Disease of the Chest* Exhibit of cultures of fungi, photomicrographs of the fungi and tissue sections, charts of clinical cases and roentgenograms of lung conditions, models of lungs

E. J. KEPLER, M. H. POWER and F. J. ROBINSON, Mayo Clinic, Rochester, Minn.

*Diagnosis and Treatment of Addison's Disease* Exhibit illustrating methods adapted to the diagnosis of Addison's disease with special attention paid to the "water test" by the exhibitor

PALL TITUS, Advisory Board for Medical Specialties, Pittsburgh

*Advisory Board for Medical Specialties* Exhibit of posters showing the nineteen member organizations, members of specialty boards requirements, statistical data certificates and literature

H. G. WEISNOTTEN, F. H. ARESTAD, J. R. HARRIS, HOMER F. SANGER and M. G. WESTMORELAND, Council on Medical Education and Hospitals, American Medical Association, Chicago

*Progress of Medical Education* Exhibit showing output of medical and technical graduates related to war needs including medical school graduates, interns, residents, clinical laboratory technicians, physical therapists and occupational therapists revised data on medical education and medical licensure, annual census of hospitals for the year 1941, revised lists of approved medical colleges, hospitals approved for internships and residencies and approved technical schools

GEORGE L. WALDBOTT, Detroit

*Wheezing That Is Not Asthma* Exhibit of roentgenograms which had been wrongly diagnosed as "asthma," including (1) simulating asthma, such as Monilia infection, substernal goiter, tuberculosis, Pancoast tumor, (2) resulting from asthma pneumonia, saccular bronchiectasis, spontaneous pneumothorax, chronic atelectasis of a pulmonary lobe, pulmonary blebs as a result of emphysema, spontaneous rib fractures, (3) initiating asthma allergic pulmonary edema, pneumonia, and Loeffler's syndrome (4) coincident with asthma tuberculosis, dextrocardia, mycosis of lungs and like conditions

HENRY R. CARSTENS and J. D. LALAN, Michigan Medical Service, Detroit

*Michigan Medical Service* Exhibit of display material, charts and posters presenting the experiences as to frequency of services costs and payments to physicians and featuring the actual results of the operation of the prepayment medical service under the sponsorship of a medical society

FIMIR H. LOUGHIN, RICHARD H. BINNETT, SAMUEL H. SPITZ, WILLIAM W. CARTY with the assistance of MARY E. FRANKLIN, Long Island College Hospital, Brooklyn

**Pneumonia** Exhibit of charts, drawings, photographs, photomicrographs and roentgenograms presenting (1) diagnosis, (2) pathology, (3) treatment, discussing the pharmacology and use of the sulfonamide drugs, including the results of original studies in absorption, excretion and acetylation of these compounds, as well as results obtained with chemotherapy in our own as well as other series of cases, brief summary for indications for administration of serum (4) complications of pneumonia with recommended methods of treatment

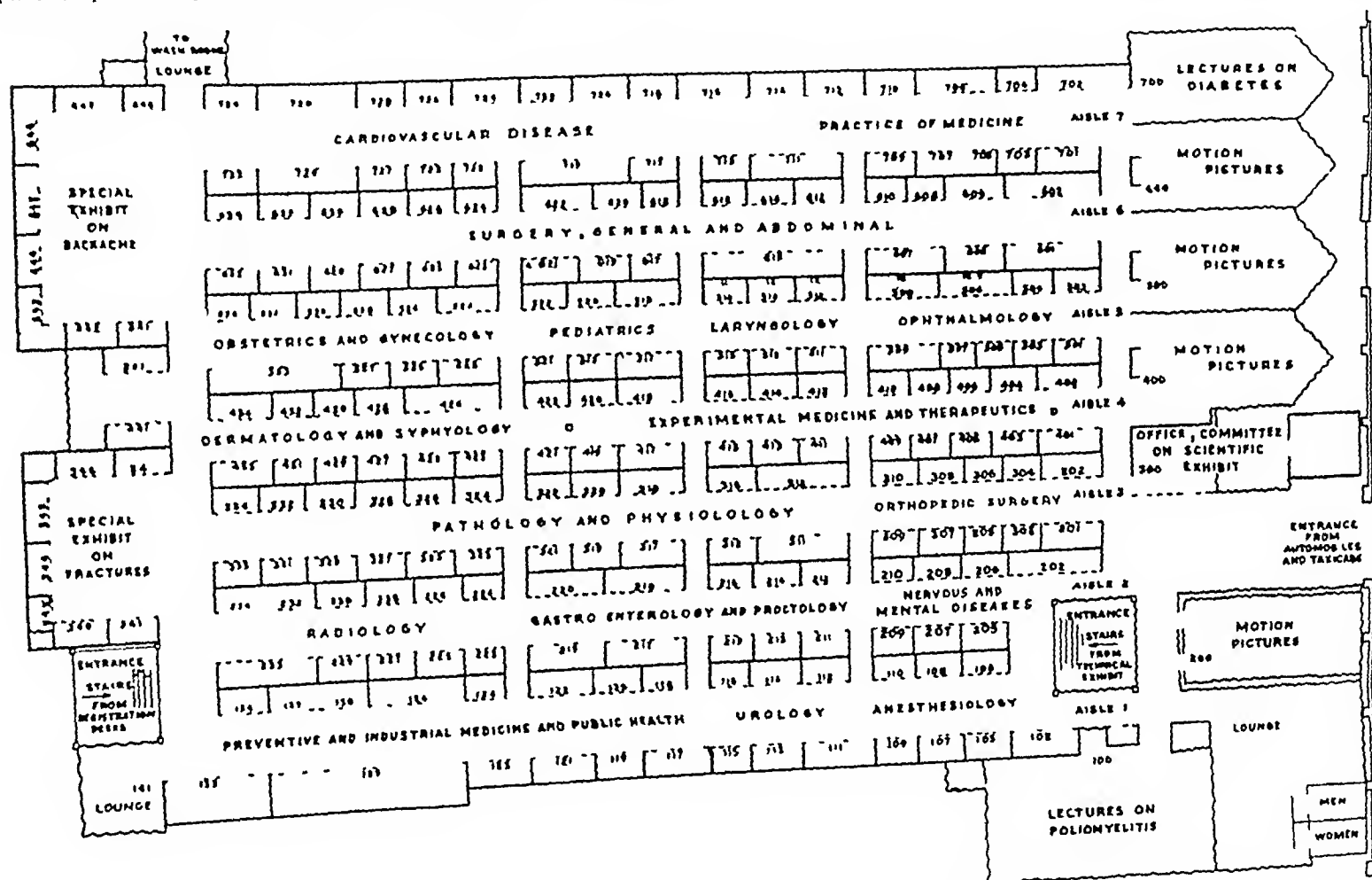
WILLIAM DAMUSHEK, THOR J. GREENWALT, RUSSELL J. LAT and CAMILLA DREYER, J. H. Pratt Diagnostic Hospital and Boston Dispensary, Boston

**The Hemolytic Syndromes Hemoglobinurias Hereditary and Acquired Hemolytic Anemias** Exhibit of charts, drawings, photographs and photomicrographs showing that the hemolytic

of the nephron, (2) the standard procedures now in use, including the range of normal and abnormal values, (3) a pictorial description of the technic employing solution of posterior pituitary, (4) diagrammatic representation of the physiologic effects of solution of posterior pituitary on diuresis, normal standards included, (5) diagrammatic comparison of the present procedure with other techniques, (6) results of the test in patients with renal diseases, (7) contraindications to the test, (8) results and advantages of the procedure

T. H. MCGAVACK and F. D. SPEER, New York Medical College, Lower and Fifth Avenue Hospitals, New York

**Size of the Heart as a Guide to the Treatment of Addison's Disease with Desoxycorticosterone Acetate** Exhibit of graphs, charts and roentgenograms showing that the size of the heart is an accurate and reliable index to the condition of the patient with Addison's disease who is receiving desoxycorticosterone acetate, roentgenograms of the chest of patients with Addison's disease showing various states of cortical activity, cardiac



Floor plan of Scientific Exhibit, on lower level of Convention Hall

syndromes may be classified as (1) the hemoglobinurias (paroxysmal cold, march, nocturnal, favism) indicating sudden and violent hemolysis, (2) the hereditary hemolytic anemias, which may be classified according to type of cell seen as (a) spherocytic (b) target cell and (c) sickle cell in type, (3) the acquired hemolytic anemias, due to "hypersplenism," those associated with hemolysins of agglutinins and those which are "symptomatic" of some more serious underlying condition. In the diagnosis and follow-up of cases of hemolytic jaundice, studies of the bone marrow, the blood serum and particularly of the fecal urobilinogen output are important. Cases of familial non-hemolytic jaundice must be discriminated. The management of the hemolytic crisis and of acute hemolytic anemia involves careful judgment regarding such considerations as isohemolysins, isoagglutinins, autoagglutinins, compatibility tests, transfusions and, above all, splenectomy

W. A. SODRMAN and H. T. ENGELHARDT, Tulane University of Louisiana School of Medicine, New Orleans

**A Renal Concentration Test Employing Posterior Pituitary Extract** Exhibit of charts demonstrating (1) the physiology

measurements will be brought into relationship with daily intake of sodium and daily dose of desoxycorticosterone acetate used. Measurements of the heart in crisis, cardiac insufficiency and full stabilization will be compared with those seen in normal persons

F. LOWELL DUNN, University of Nebraska College of Medicine, Omaha, and WALTER E. RAHM, JR., New York

**Cathode Ray Visualization of Normal and Pathologic Chest and Pathologic Chest Sounds** The exhibit will consist of equipment used and charts and photographs of vocal fremitus recordings in normal and various pulmonary diseases. In addition there will be a preliminary analysis of normal and abnormal heart tones. The visualization and photography of chest sounds utilizing a piezo-electric microphone, a linear amplifier and a cathode ray tube offers definite refinements in analysis as compared with auditory methods

GUILLAUME A. BOSCO, University of Buenos Aires Medical School, Buenos Aires, Argentina

**Anatomic Revision of the System of Coronary Arteries, Vena Nomenclature of Myocardial Infarct and Clinical and Sympto**

*anatomic Basis for an Anatomocardiographic Diagnosis of Coronary Arterial Obstruction* Exhibit of radiograms and electrocardiograms demonstrating the distribution of the coronary arterial system. The division of the cardiac muscle in well delimited anatomic territories, which are tributary of the coronary arterial system, and Boscos new nomenclature of myocardial infarct are based on the foregoing conceptions. The demonstration constitutes a categorical evidence of the fact that myocardial infarct originates from the left ventricle in 80 per cent of the cases and from the posterior wall of the right ventricle in 20 per cent of the cases, depending on the type, either normal or abnormal, of the distribution of the left circumflex coronary system.

J. Q. GRIFFITH JR. and M. A. LINDAUER, Medical Clinic of the Hospital and Robinnette Foundation, University of Pennsylvania, Philadelphia

*Hypertension—Especially Its Classification and Medical Treatment* Exhibit demonstrating the tests and procedures which have been reported, apparatus for observing the capillaries of the forearm in man and measuring the minute vessel pressure, photographs and plastic materials demonstrating the method for measuring cutaneous lymphatic flow in man, for testing for antidiuretic substance in the blood, and a microtest for thiocyanate in the blood, the kind of case apt to respond well to thiocyanate therapy or irradiation of the pituitary.

EDGAR DURBIN, Denver

*A Pictorial Study of Heart Disease* Exhibit of enlarged Kodachrome pictures of various pathologic hearts and accompanying clinical signs, case histories, roentgenograms and electrocardiograms correlated with the clinical and the pathologic aspects of heart disease.

GERALD H. PRATT and JOSEPH KOVACS, Vascular Clinic, New York Post-Graduate Hospital and Medical School, Columbia University, New York

*Diagnosis and Treatment of Leg Ulcers* Exhibit of pictures and charts differentiating ulcers following arteriosclerosis, diabetes, varicose veins, syphilis and idiopathic causes, medical and surgical treatment of various types of ulcers are described.

EDWARD ALLEN EDWARDS, Boston City Hospital, and JESSE E. EDWARDS, Mallory Institute of Pathology, Boston

*Pathology of the Venous Valves* Exhibit of drawings and photomicrographs dealing with the pathology of the venous valves. The valves in thrombophlebitis show destruction, or stenosis and incompetence in varicose veins, relative incompetence and distortion by reparative tissue, and in thromboangitis obliterans, involvement in inflammation, and in thrombosis, as well as postobstructive changes similar to the lesions in varicose veins.

S. S. LICHTMAN, Mount Sinai Hospital, New York

*Present Status of the Treatment of Subacute Bacterial Endocarditis* Exhibit of charts summarizing results of treatment by current methods, illustrative case.

JACOB POMERANTZ, Temple University, Philadelphia

*Cardiac Pain and Its Pathways* Exhibit of a model of the heart and its associated plexuses, sympathetic pathways and connections with the peripheral nervous system, a demonstration of possible pathways transmitting pain of cardiac origin.

EDWARD F. McLAUGHLIN, Germantown Dispensary and Hospital, Philadelphia

*Practical Points in Peripheral Vascular Disease* Exhibit of charts and transparencies dealing with the practical points of varicose veins, Buerger's disease, arteriosclerosis, emboli and like conditions.

SAMUEL BELLET and HERMAN W. OSTRUM, Philadelphia General Hospital and University of Pennsylvania, Philadelphia

*Röntgenology of Heart and Great Vessels* Exhibit of cardiac silhouettes, including both common and rare heart lesions,

accompanied by explanatory notes of the history, clinical examination and salient roentgenographic features, pathologic specimens are included.

DON CARLOS PIRTI, University of Kansas Medical School, Kansas City, Kan.

*Acute Rheumatic Fever and Its Complications* Exhibit describing the etiologic factors, clinical diagnosis and differential diagnosis of acute rheumatic fever. The complications of acute rheumatic fever are presented as well as a description of the physical manifestations of rheumatic heart disease, including roentgenograms and electrocardiograms of the types of mitral and aortic stenosis along with photomicrographs showing the pathologic changes in rheumatic myocarditis and pericarditis. The physical aspects of subacute bacterial endocarditis are demonstrated with photographs that include petechial hemorrhage of the conjunctiva. There is also shown a rabbit's heart in which experimental bacterial endocarditis has been produced. There will also be displayed charts showing the results of a dietary survey made on patients with acute rheumatic heart disease. This survey demonstrates that these patients have a pronounced dietary deficiency.

J. I. F. RISEMAN and FREDOT L. SAGAN, Beth Israel Hospital, Boston

*Treatment of Ingua Pectus* Exhibit of charts and posters showing objective measurements of sixty-five different methods of therapy studied during the past nine years.

ARTHUR S. W. TOLROFF, Beth Israel Hospital and Mount Sinai Hospital, New York

*Surgical Treatment of Subacute Streptococcus Viridans Endarteritis Superimposed on Patent Ductus Arteriosus* Exhibit presenting (1) the anatomy of patent ductus arteriosus, (2) the pathology of superimposed subacute Streptococcus viridans endarteritis, (3) a discussion of the rationale of operation for the cure of infection, (4) indications and contraindications to such an operation, and (5) a report of the cases in which an operation was done by the author during the past two and a half years, illustrated by clinical charts and other data.

ISAAC STARR and A. J. RAWSON, University of Pennsylvania, Philadelphia

*The Ballistocardiograph, with Records Obtained in the Common Diseases of the Heart and Circulation* Exhibit showing a ballistocardiograph arranged so that one can stand on it and see the impacts arising from the movements of the circulation projected on a screen, records obtained in patients with coronary disease, auricular fibrillation, hypertension and other diseases of the heart and circulation, records showing the effects of exercise, drug action, fever, transfusion and other acute experiments.

MARCY L. SUSSMAN, M. A. STEINBERG and ARTHUR GRISHMAN, Mount Sinai Hospital, New York

*Angiocardiography in Congenital and Rheumatic Heart Disease* Exhibit of roentgenograms presenting a systematic investigation of various types of congenital and rheumatic heart disease has been made by angiocardiography with the aid of a multiple exposure technic. The complete clinical and laboratory data will be shown in each case in correlation with the angiocardiograms.

EMANUEL LIBMAN, New York

*Endocarditis and 'Libman-Sack Disease'* Exhibit of drawings and photomicrographs showing pathology of various kinds of endocarditis and especially of the form associated with Libman-Sack disease, summary of our knowledge of this disease.

LOUIS B. LAPLACE and CHARLES W. SEMISCH, Jefferson Medical College, Philadelphia

*Graphic Registration of Heart Sounds* Exhibit of graphic records of heart sounds with photographic enlargements obtained from normal subjects and patients having the commoner types of heart disease. The sound records are correlated with the

electrocardiogram and records of precordial movements and vascular pulses to facilitate interpretation. The contribution of stethocardiography to the accuracy of auscultation is illustrated and an evaluation is made of the usefulness of stethocardiography in clinical practice.

ANNA S. WRIGHT, American Heart Association, New York

*American Heart Association* Exhibit of charts and photographs showing educational material relating to heart disease

### Section on Surgery, General and Abdominal

The representative to the Scientific Exhibit from the Section on Surgery, General and Abdominal, is GROVER C. PENBERTH, Detroit

ARNOLD S. JACKSON, JAMES A. JACKSON and RUSSELL JACKSON, The Jackson Clinic, Madison, Wis.

*Cancer of the Breast* Exhibit of moulages and transilluminated colored drawings showing the anatomy of the normal breast. Moulages, roentgenograms and colored photographs depicting the diagnosis for carcinoma of the breast. Colored drawings and photographs illustrating the surgical treatment. Moulages and photomicrographs demonstrating the pathology of different types of cancer. Charts showing the end results from statistical studies.

HAROLD I. FOSS and HENRY F. HUNT, Geisinger Memorial Hospital, Danville, Pa.

*Diagnosis and Treatment of Toxic Goiter* Exhibit of (1) transparencies and slides showing methods of examination in hyperthyroidism with photographs touching on differential diagnosis between toxic goiter and nervous states often confused with true hyperthyroidism, (2) the heart in toxic goiter, (3) photographs illustrating the technic of bilateral resection and multistage operations in the treatment of hyperthyroidism, (4) transparencies illustrating the pathologic states associated with acute crisis and in death from advanced hyperthyroidism.

HAROLD NATHAN and GABRIEL P. SITTA, Mount Sinai Hospital, New York

*Lesion of Main Venous Trunks for Suppurative Phlebitis* Exhibit of charts, diagrams and microscopic pathology illustrating the pathogenesis, course, treatment and prognosis of suppurative phlebitis.

ARTHUR F. HIRTZLER, Halstead Hospital, Halstead, Kan.

*Goiter* Exhibit of models, specimens, drawings, photographs, photomicrographs and transparencies showing the clinical character of goiter in its different forms, as evidenced by gross and microscopic pathology, chemical changes, patient's appearance and like conditions and emphasizing the life history and evolution of the diseased thyroid gland from the earliest stage to terminal cardiotoxic goiter. Treatment confined to basic features of operative technic.

FREDERICK TICE, RICHARD DAVISON and KARL J. HENRICHSEN, Municipal Tuberculosis Sanitarium, Chicago

*Tuberculosis and Other Diseases of the Lungs* Exhibit of roentgenograms and pathologic specimens illustrating diseases of the lungs—tuberculosis and associated diseases, tumors and others—with results of surgical treatment.

MINTON S. LLOYD and JOSEPH A. BURTTI, New York Municipal Sanatorium, Otisville, N. Y.

*Bronchoscopy in the Therapy of Pulmonary Tuberculosis* Exhibit of drawings of endobronchial lesions with contemporaneous roentgenograms of the chest, showing the value of bronchoscopy for the guidance of the collapse therapist.

WOLFF K. BARROW, Lexington, Ky.

*Tuberculous Peritonitis* Exhibit presenting the incidence, symptoms and physical findings of approximately 100 patients with tuberculous peritonitis, careful and complete follow-up studies and results of treatment are analyzed in detail and presented with the aid of photographs and charts.

HORACIO ZALCE, Mexico City, Mexico, with the assistance of Bradley L. Coley, Memorial Hospital, New York

*Bone Tumors* Exhibit of photographs, photomicrographs, roentgenograms and specimens dealing with bone tumors.

B. GUZMAN-BLANCO, Caracas, Venezuela, with the assistance of FRANK E. ADAIR, Memorial Hospital, New York

*Cancer of the Male Breast* Exhibit of photographs, photomicrographs, charts and specimens dealing with cancer of the male breast.

ENRIQUE VIACAVA, Buenos Aires, Argentina, with the assistance of HAYES E. MARTIN, Memorial Hospital, New York

*Cancer of the Lip* Exhibit of photographs, photomicrographs, charts and specimens dealing with cancer of the lip.

F. H. LAHEY and ASSOCIATES, Lahey Clinic, Boston

*Diseases of the Biliary Tract* Exhibit of photographs, drawings, roentgenograms and other descriptive matter covering certain aspects of the diagnosis and pathology of disease of the biliary tract, the technic of cholecystectomy and choledochostomy and the management of common duct strictures and of obstructions due to carcinoma of the head of the pancreas.

IRWIN SCHULZ, Milwaukee Children's Hospital, Milwaukee

*Winger Injury* Exhibit of photographs depicting experience in treating children with injuries serious enough to require hospital care. The following points are stressed: wringer injury is a clinical entity, the degree of injury may vary from slight contusion to necrosis and sloughing of skin, fat, fascia, nerve, vessels, muscle and even bone, many cases require skin grafting, damage to the hand may be permanent crippling, the degree and depth of damage are difficult to evaluate immediately after injury, progressive, serious tissue loss may be prevented by certain procedures applied early.

JOHN FALLON, JAMES T. BROSNAN and WILLIAM G. MORAN, Fallon Clinic, Worcester, Mass.

*Surgical Photography* Exhibit dealing with color still photography of lesions, operative fields and specimens, methods, apparatus, results.

J. ROSS VEAL and ROY G. KLEPNER, Gallinger Municipal Hospital, Washington, D. C.

*Treatment of Frostbite of the Extremities* Exhibit demonstrating the tissue and vascular changes in the various stages of freezing of the extremities in man, supplemented by experimental studies on animals, photomicrographs illustrating pathology of the tissue and vascular system, colored photographs of the three degrees of frostbite, arteriographs illustrating the vascular changes, a comparative study of the effects of exposure to cold in the normal, in the alcoholic and in those persons with preexisting vascular damage, outline of treatment for the various stages.

WILLIAM L. WATSON, Memorial Hospital, New York

*Cancer of the Thyroid* Exhibit of transparencies illustrating problems in diagnosis and treatment of cancer of the thyroid. The purpose of the exhibit is to correlate the diagnosis and treatment by radiation and surgery and a combination of the two.

RALPH M. WATKINS, Academy of Medicine, Cleveland

*Appendicitis in Cleveland* Exhibit showing a complete survey of all the cases of acute appendicitis, ruptured appendicitis with peritonitis and also with abscess which have occurred in the sixteen major hospitals of greater Cleveland in the past twelve years. Special emphasis is placed on the effects of delay in operation, economic status of the patient, the use of the sulfonamide drugs, the type of incision and the type of anesthetic. The analysis covers about 19,000 cases.

C. L. STRAITH, Detroit, E. H. DEKLEINE, Buffalo, and W. B. SLAUGHTER, Chicago

*Technic for Minimizing Scar Tissue Formation* Exhibit of photographs and drawings of methods used for minimizing scar.

formation in cases of prominent "stitch marks," "trap door scars," depressed scars with emphasis on utilization of Langer's lines, colored slides showing various types of scars

JOHN O BOWER, A E PEARCE, J C BURAN, H B TRACHTENBERG, J H CLARK, J G REINHOLD, I A TEPFIAN and G R KINGSLEY, Philadelphia General Hospital, Philadelphia

*Subclinical and Clinical Shock Accompanying Spreading Peritonitis—Its Recognition and Management* Exhibit dealing with 1 Clinical background prelethal shock is an accompaniment of death from spreading peritonitis, 94 per cent of so called appendicitis deaths are due to spreading peritonitis of 4,915 patients with spreading peritonitis, admitted to one hundred and eighty-one hospitals in Pennsylvania, 1,302, or 26 per cent died 2 Research background spreading peritonitis induced in dogs with results of therapeutic means, similarity of reaction of dog and man to spreading peritonitis is observed, description of the technic of induction and the laboratory recognition of subclinical and clinical shock accompanying spreading peritonitis The chemical changes in the blood and the composition of the peritoneal exudate in both man and dog shown by means of graphs Demonstration of a simple pump for the continuous administration of plasma or other fluids Chemical methods and apparatus employed to measure plasma and fluid deficiency and replacement, hematocrit, serum chloride, and the Kingsley direct buret method for rapid determination of plasma protein will be illustrated Hospital management—when and when not to operate The administration of parenteral fluids, plasma, saline and dextrose solution based on blood studies are graphically demonstrated

SAMUEL A THOMPSON and MILTON J RAISBECK, New York Medical College, New York

*Cardiopericardiopercy—The Surgical Treatment of Coronary Disease by the Establishment of Adhesive Pericarditis* Exhibit of charts, photographs, drawings and roentgenograms dealing with 1 Experimental work showing the possibility of producing adhesive pericarditis and methods used, mortality statistics of method when used in animals 2 Clinical work showing results of methods used in patients 3 Preoperative and postoperative care showing selection of patients, methods of diagnosis, postoperative findings, postoperative care and follow-up examinations

BOWMAN C CROWELL and FRED BOSSELMAN, American College of Surgeons, Chicago

*Organization and Growth of Cancer Clinics in General Hospitals* Exhibit showing the organization of cancer clinics in general hospitals, their growth and distribution in the United States

LEO M ZIMMERMAN, BARRY J ANSON and HAROLD LAUFMAN, Northwestern University Medical School, Chicago

*Anatomy and Surgery of Inguinal Hernia* Exhibit showing a study of the anatomy of the inguofemoral region, based on actual dissection of a large number of cadavers, with layer by layer drawings in the various abdominal types, as well as in the different forms of hernia The surgical therapy of hernia is approached from the standpoint of analysis of the actual lesion present in each type of hernia and the operative repair planned to meet the problems thus presented Sliding hernia is included in this study, as is also the medicolegal aspect of hernia, as interpreted in terms of the anatomy and etiology of the various types of hernia

ALFRED H IASON, Brooklyn

*Repair of Difficult Hernias* Exhibit of photographs, drawings, charts and pictures illustrating new technic and new instruments used in pedicled fascia lata transplant for difficult abdominal hernias the results are compared with other methods, an analysis of 60 cases is presented

CHARLES S WHITE, J LLOYD COLLINS and JACOB J WEINSTEIN, George Washington University School of Medicine and Gallinger Municipal Hospital, Washington, D C

*Clinical Analysis of Blood Plasma* Exhibit of charts summarizing studies in plasma and nitrogen balance in several sur-

gical conditions, notably shock, shock with hemorrhage, burns and hypoproteinemia also the effect of plasma transfusions, in hospital experience on the protein content hematocrit estimations blood count and blood pressures, the use of plasma and what may be expected from its use, the preparation, preservation and administration of plasma

JAMES C MASSON, Mayo Clinic, Rochester, Minn

*Use of Fascia Lata in Repair of Hernias* Exhibit of models transparencies photographs and instruments showing the technic of obtaining the preparation and the use of living sutures (fascia lata) in the repair of various types of hernias, such as inguinal hernias postoperative abdominal hernias, diaphragmatic, umbilical and vaginal hernias

GREGORY L ROBILIARD and ALFRED L SHAPIRO, Brooklyn Cancer Institute Brooklyn

*Operative Care of the Cancer Patient* Exhibit of charts, tables and photographs illustrating the special problems of preoperative and postoperative care in the cancer age group Incidence significance and management of concomitant degenerative diseases of middle age, i e, vascular and pulmonary in relation to radical resections Problems of increased susceptibility to shock, wound infection, fluid and nutritional imbalance Hypoproteinemia hypochloremia avitaminosis and anemia are correlated with mortality and morbidity in cancer surgery Preoperative lymphography by vital stains as an adjunct to demonstration and successful extirpation of drainage fields

DERYL HART and SAMUEL E UPCHURCH, Duke University School of Medicine and Duke Hospital, Durham, N C

*Air Disinfection with Bactericidal Radiant Energy* Exhibit of charts and photographs illustrating the degree of air contamination present in air conditioned and non-air conditioned operating room units the correlation of various intensity distributions of bactericidal radiant energy with the bactericidal effect throughout the operating room, and a comparison of the infection rates before the institution of bactericidal radiation with those obtained after the institution of bactericidal radiation in a variety of operative procedures, such as thoracoplasties, radical mastectomies, orthopedic operations, neurosurgical operations, hemorrhaphies and thyroidectomies

WILLIAM BATES, BERNARD D JUDOVICH and WINIFRED STEWART, Graduate Hospital, Philadelphia

*Relief of Pain* Exhibit of charts, graphs and case reports illustrating (1) a new form of therapy to aid in the control of intractable pain, the use of ammonium salts intraspinally and by local infiltration, relief of pain in a series of patients, including those with malignant conditions, tabes dorsalis, alcoholic neuritis, osteoarthritis and various forms of segmental and peripheral neuralgias, (2) the action of the ammonium ion on the nerve impulse, demonstrating the effect of optimal concentrations of the ammonium salts on the action current of sensory nerves, as shown by the cathode ray oscillograph, the correlation of clinical and laboratory results

R H ALDRICH, Boston

*The Triple Day Treatment of Burns* Exhibit of photographs and transparencies of various burns, charts showing mortality figures of burned patients from the Boston City Hospital, charts showing plasma loss with crust forming and non-crust forming substances, a study of the morbidity and complications in more than 3,000 burns will be shown in chart and diagram form

JAMES F KELLY and D ARNOLD DOWELL, Creighton University School of Medicine, Omaha

*Roentgen Rays in Prevention and Treatment of Infections* Exhibit of data bearing on the clinical and the scientific basis for the use of roentgen therapy in infections and the changes in the clinical signs and symptoms of infectious diseases when roentgen therapy is used, cases illustrating these changes are selected from those of gas gangrene and acute peritonitis, and the prevention of infection in recent injuries such as compound fractures and gunshot wounds



## Section on Obstetrics and Gynecology

The representative to the Scientific Exhibit from the Section on Obstetrics and Gynecology is Charles F. Galloway, Evans-ton, Ill.

I. H. FARRIS and C. S. HOIT, Department of Public Health, State of Illinois, and University of Illinois College of Medicine, Chicago

*Abortion* Exhibit of drawings, charts, transparencies and models together with blood agar plates of the more common organisms associated with septic abortion, the material covers (1) etiology, (2) therapeutic abortion, (3) pathology, (4) criminal abortion and (5) treatment of abortion. Statistical data, operative technique and the inhibiting action of corpus luteum extracts on the human uterine contractions are shown, dangers, complications and medicolegal aspects of criminal abortion are illustrated.

ARTHUR H. CURTIS, BARRY J. ANSON and TOM JONES, assisted by I. L. ASHLEY, I. F. BLYSON and C. B. McVAY, Northwestern University Medical School and University of Illinois College of Medicine, Chicago

*Gross Pelvic Anatomy in Relation to Gynecologic Surgery* Exhibit of drawings and models prepared from original dissections which were carried out in a planned serial succession, supplemented by a correlated set of drawings depicting certain surgical procedures in gynecology which are dependent on a knowledge of the anatomy illustrated.

WILLIAM BICKERS, Medical College of Virginia, Richmond

*Dysmenorrhea* Exhibit showing uterine contractions recorded by means of the intrauterine balloon during normal menstruation and during dysmenorrhea, the effects of certain drugs and hormones on the contractions, the pathologic physiology of dysmenorrhea and the rational approach to therapy.

R. A. WOODBURY, W. F. HAMILTON, RICHARD TORPIN, P. P. VOITTO, H. M. CHICKERY and B. E. ARRELL, University of Georgia School of Medicine, Augusta

*Effects of Pituitary Preparations, Ergonovine and Consultants on the Arterial Pressure* Exhibit showing that therapeutic doses of pituitary preparations which contain the oxytocic principle produce transient falls of 30 to 50 mm. of mercury in men and women, a similar fall occurs in the rabbit and chicken and to a slight extent in the turtle and cat, but not in the dog; the fall in blood pressure appears to be of cardiac origin, although there is no coronary constriction. When pituitary preparations are administered during parturition, the balance between the increased intrauterine and the arterial pressure is such that the placenta is dangerously deprived of maternal blood. Similar studies are presented with the drug ergonovine. Records are shown which allow an appraisal of the mechanisms contributing to the changes in arterial pressure during convulsions produced by metrazol, electric shock and strychnine.

ANNEFR I. WEISMAN, Department of Gynecology, Jewish Memorial Hospital, and CHRISTOPHER W. COATES, New York Zoological Society, New York

*A New Test for Pregnancy (the Xenopus "Frog" Test)* Exhibit presenting an explanation and description of the Xenopus (frog) test for pregnancy, together with the technique of extraction of urine and methods of injection of the Xenopus, and an actual demonstration of the pregnancy test. A positive reaction is denoted by the simple extrusion of eggs by the frog within six to eighteen hours after the injection of suspected urine. The extruded eggs are easily visualized by the naked eye, in the bottom of the test tank. From a series of tests performed in the last three years, this test has proved to be not only as accurate as the Aschheim-Zondek or Friedman test but more rapid, economical and simple to perform.

ROBERT L. DICKINSON and S. EMIEN STOKES, Sterilization League of New Jersey, Princeton

*Selective Sterilization for Human Betterment* Exhibit of sculptured panels showing normal anatomy and steps of operative procedure in vasectomy, and four methods of sterilizing the female.

CLARENCE J. GAMBLE, Milton, Mass.

*Contraceptive Technics Used in Public Health* Exhibit of posters showing histories and progress of the three state board of health pregnancy spacing programs in North Carolina, South Carolina and Alabama, reprints for distribution describing the development of these programs, contraceptive devices used in these programs, including the relatively new foam, powder and sponge method chosen by physicians for the majority of subjects in North Carolina and South Carolina, the method used by all subjects in the Alabama program will be shown.

ROSCOR W. TFAHAN, HOKE WAMMOCK and JAMES L. WLATHIRWAN, Jeanes Hospital, Philadelphia

*Treatment of Carcinoma of the Cervix by Interstitial Radiation* Exhibit showing that an important cause of failure to cure the patient with cancer of the cervix is believed to be related to the inadequacy and inconstancy of the dose of radiation reaching the outermost parts of the diseased area. In an attempt to overcome this, the authors have supplemented external roentgen radiation with radium placed interstitially in and about the cervix and in the broad ligaments. To place such radium needles more accurately, the abdomen has been opened in each instance. Stereoscopic roentgenograms of the area taken after implantation make it possible to determine with some accuracy the amount of radiation reaching various points in the diseased area. Experience gained in such distribution has made it possible to arrange the needles in such a manner that a greater amount of radiation reaches the lymph nodes at the pelvic wall. The results obtained from such treatment are encouraging.

L. M. RANDALL, M. C. PIPER, L. A. BRUNSTING and M. B. DOCKERTY, Mayo Clinic, Rochester, Minn.

*Kraurosis and Allied Lesions of the Vulva and Certain Neoplasms of the Ovary* Exhibit consists of (1) wax models, colored photographs, photomicrographs and short histories and findings demonstrating kraurosis and allied lesions of the vulva and (2) certain types of ovarian neoplasms demonstrated with the aid of colored wax models of selected specimens accompanied by description of the outstanding characteristics of each, together with photomicrographs.

JACOB HOFFMAN, Jefferson Medical College and Hospital, Philadelphia

*Operation of a Female Sex Endocrine Clinic* Exhibit of photographs of endocrinopathies and constitutional types, photomicrographs illustrating the human endometrial cycle and abnormalities thereof, schematic presentation of the endocrine factors concerned in menstrual and reproductive function, charts presenting hormone tests and their application, and accredited sex hormone preparations with their indications and evaluation.

## Section on Ophthalmology

The section exhibit committee of the Section on Ophthalmology consists of Georgiana Dvorak Theobald, Oak Park, Ill., chairman, Derrick Vail, Cincinnati, and W. Ivan Lillie, Philadelphia.

DONALD J. LYLE, Cincinnati

*Neuro-Ophthalmology* Exhibit showing anatomic, clinical and pathologic relationships in the field of neuro-ophthalmology, correlation of anatomic sections and specimens with clinical aspects including case history, field studies and retinal photographs, surgeon's report and specimen removed at operation or postmortem specimen and pathologist's report, photographs of sections and specimens of brain, retinal photographs and fields, gross and microscopic sections and specimens of brain.

T. L. TERRY, Massachusetts Eye and Ear Infirmary, Boston

*Fibroblastic Overgrowth of Persistent Tunica Vasculosa Lentis in Infants Born Prematurely* Exhibit of retrolental fibroplasia as found in 5 infants born prematurely. Colored illustrations show condition in various stages. Data relative to occurrence and treatment are included. Normal development and regression of the hyaloid artery and tunica vasculosa lentis are illustrated by reconstructions and drawings which include

the ophthalmoscopic appearance of eyes of normal premature infants. Other anomalies are shown related to the persistence of this vascular system.

G. A. SIETTER, BERNARD SAMUELS, CONRAD BERTAS, BRITTAIN PAYNE and E. B. BURCHELL, New York Eye and Ear Infirmary, New York.

*Macroscopic and Microscopic Ocular Pathology*. Exhibit showing gross pathology consisting of mounted hemisections of globes, photomicrographs of unusual slides and differential staining.

DAVID J. MORGENSTERN, New York Post Graduate Medical School and Hospital, Columbia University, New York.

*Intranasal Drainage for Cure of Chronic Tear Sac Infection*. Exhibit of diagrammatic illustrations of stages of procedure, instruments and demonstration on skull showing suitability of this technique, which is accurately guided by finger palpation at the inner canthus for difficult cases as in (1) narrow or fractured noses, (2) small thick-walled, granulation-filled, adhesion-bound sacs, (3) acutely inflamed sacs with threatening complications securing immediate drainage with the least possible surgical intervention and almost simultaneous sealing of vascular channels, adaptability in reestablishing intranasal drainage in previously excised tear sacs, summary of the advantages of this technique.

MARTIN COHEN, New York Post Graduate Medical School and Hospital, Columbia University, New York.

*Chorioretinal Arteriolar Necrosis in Malignant Hypertension*. Exhibit of colored drawings of the fundus and reproductions from photomicrographs of the retina, choroid and kidney, with brief legends and an abstract of the case report.

HENRI MINSKY, Mount Sinai Hospital, New York.

*The Zonular Chamber of the Eye*. Exhibit showing the lens-vitreous system isolated from fresh eyes by removing in saline solution the overlying structures. The vitreous hangs from the suspended lens by means of the zonular membrane's insertion into the vitreous at the hyaloretinal line. Pathologic slides are shown as presumptive evidence of a space being present in life. Final proof is offered of the existence of the zonular chamber by showing its being injected with carmine in fresh human eyes. From one single point of injection a posterior sinus beyond the processes fills up. This communicates by linear channels in the valleys of the ciliary body with the circumferential space. The anterior chamber fills at the same moment, showing that there exists a free opening of the zonular chamber into the posterior chamber. The role of the zonular membrane in accommodation, cataract extraction, detachment of the retina and glaucoma is suggested.

ISOBEL JANOWICH and ELEANOR BROWN MERRILL, National Society for the Prevention of Blindness, New York.

*Eye Problems in National Defense*. Exhibit of charts indicating industrial and civilian eye problems: (1) danger to eyes in air raids, (2) danger to glaucoma patients because of the unusual emotional stress, (3) illustrative material on eye hazards in industry.

L. VON SALLMANN, JAMES BOYD, EDWARD GALLARDO and PHILLIPS THYGESON, College of Physicians and Surgeons, New York.

*Sulfonamide Therapy in Ocular Infections*. Exhibit dealing with clinical studies on the treatment of ocular infections with sulfonamide compounds, emphasizing the local use of these compounds in ointment, emulsion and powder form and by iontophoresis. Experimental studies on ocular infections in laboratory animals are summarized.

JACOB GOLDSMITH, Mount Sinai Hospital, New York.

*Experimental Intracapsular Cataract Extraction, Suspensory Ligament and Hannover's Canal*. Exhibit dealing with further studies into the dynamics of the intracapsular cataract extraction, such as tumbling of the lens, external application of hook

inferiorly, separation of lens from vitreous (zonular fibers severed previously) and so forth. Further investigations into Hannover's canal, its contents, structure of its walls and so on. Serial microscopic sections from a normal adult eye and also from a normal adult eye which had undergone an intracapsular extraction (sagittal, transverse and coronal cuts). These sections take up the complete zonule of Zinn and all its closely related structures (lens, vitreous, ciliary body).

### Section on Laryngology, Otology and Rhinology

The representative to the Scientific Exhibit from the Section on Laryngology, Otology and Rhinology is Fred W. Dixon, Cleveland.

THOMAS J. COOK, Hospital of the University of Pennsylvania, Philadelphia.

*Oral Lesions*. Photographs of oral lesions, local in character, such as Vincent's infection and the oral manifestations of such systemic diseases as diabetes, syphilis, lichen planus, tuberculosis, leukemia and vitamin deficiencies.

CHUBBIE L. JACKSON, JOHN V. BRADY and CHARLES M. NORRIS, Temple University Hospital, Philadelphia.

*Criteria for Selection of Treatment in Cancer of the Larynx*. Exhibit presenting the results obtained in the treatment of a series of cases of cancer of the larynx by surgery and by irradiation since 1930. Demonstration of the criteria by which the particular method of treatment was selected in each of the surgical cases. The following criteria of selection are discussed and evaluated: (1) metastasis, (2) location and extent of lesion, (3) mobility of laryngeal structures, (4) histology and (5) general physical condition of patient. In instances in which recurrence took place an attempt is made to show the reasons for the recurrence and to correlate these data with our present concept of the criteria for the selection of a method of treatment.

ADA M. HILL, American Society for the Hard of Hearing, Washington, D. C.

*Information for the Hard of Hearing*. Exhibit giving information on hearing tests for children and adults, lip reading instruction, hearing aids, vocational and rehabilitation problems, conservation of hearing program in schools, individual problems of hard of hearing persons and local organizations for persons with impaired hearing.

RAPHAEL SCHILLINGER, Beth Israel Hospital, New York.

*The Nasal Sinuses in Allergy*. Exhibit of sinus roentgenograms of cases of known allergy, depicting the roentgen signs, the ability of the sinuses to accept contrast medium, the various types of filling characteristics and the ability or inability of the sinuses to empty themselves of the opaque fluid.

PAUL H. HOLINGER, University of Illinois College of Medicine, Chicago.

*Photography of Larynx, Tracheobronchial Tree and Esophagus*. Exhibit showing the photographic equipment devised to take motion pictures and still pictures of the larynx, tracheobronchial tree and esophagus; transparencies illustrate the normal appearance of the lower air and food passages and certain of their pathologic states; charts illustrate the technique of photography through the laryngoscope, bronchoscope and esophagoscope.

MAX CUTLER, LOUIS M. ROSENTHAL, E. VALENCIA and JAMES B. IRWIN, Chicago Tumor Institute, Chicago.

*Concentration Radiotherapy for Cancer of the Mouth, Pharynx and Larynx*. Exhibit presenting a new principle of radiotherapy known as the "concentration method," which has proved to be more effective in the radioresistant forms of cancer of the mouth, pharynx and larynx than the methods of external radiation now generally used; the clinical material on which the studies are based consists of some 850 cases of cancer of the mouth, pharynx and larynx from the Chicago Tumor Institute and the Veterans Administration Facility at Hines, Ill.; the principles, technique and results are illustrated by typical cases.

## Section on Pediatrics

The representative to the Scientific Exhibit from the Section on Pediatrics is Arthur F. Abt, Chicago

KATHERINE BAIN, Children's Bureau, United States Department of Labor, Washington, D. C.

*Maternal and Neonatal Mortality United States 1930-1940* Exhibit of charts and pictographs showing rates, trends and causes of maternal and neonatal mortality in the United States

RALPH BOWEN, Houston, Texas

*The Story of the Asthmatic Child* Exhibit presenting the allergic child and his experiences from infancy to juvenile life, stressing diagnosis and differentiation of asthma, something specific about foods, complete discussion as to therapy, environmental factors, role of infection and psychologic situations

JOHN H. BARNHART, DAVID GREENE, WALTER LEVY and NATHAN GREENSTEIN, Morrisania City Hospital, New York

*Prevention of Contagion in Pediatric Wards with the Use of Human Serum or Plasma* Exhibit presenting (1) the technique of our procedure and (2) the results obtained in our hospital compared with those obtained in other hospitals in a series of studies over a period of seven years on the subject of prophylaxis against contagious disease in pediatric wards by means of human serum or plasma

MARTIN M. MAJNER and HENRY BOKOW, Post Graduate Hospital, New York

*Congenital Heart Defects—Simplifying the Clinical Differential Diagnosis of the Most Common Types* Exhibit of clay models showing development of the fetal heart with defects as they occur, including two types of cyanotic (pulmonary stenosis and large septal lesion) and two types of acyanotic (patent ductus arteriosus and patent septum), charts show the pathologic changes and physiology of the different lesions, posters give simple differential data, electrocardiograms and stethograms of the lesions with recordings of common type murmurs and photographs of congenital conductive disturbances (complete heart block, right bundle-branch block, left bundle-branch block)

JOSEPH FLEISCH and WILLIAM WOLARSKY, the Bronx Hospital, New York

*Prevention and Treatment of Infectious Diarrhea of the Newborn with Lyophilic Plasma and Sulfathiazole* Exhibit of charts dealing with studies made of an outbreak among 108 newborn infants in which 19 infants were affected, chiefly premature infants weighing from 3 pounds 11 ounces to 6 pounds (1,672 to 2,722 Gm). None of those receiving prophylactic therapy contracted the disease. No mortality occurred among the babies who had contracted infectious diarrhea of the newborn and were treated with plasma-sulfathiazole. Limited but significant controls are shown. Epidemiologic, bacteriologic, serologic and experimental studies are presented.

J. HARRY MURPHY, Creighton University School of Medicine, Omaha

*Tuberculosis in Children* Exhibit of charts and graphs showing epidemiology of tuberculosis among children. Graphs dealing with survey in Omaha on the incidence of tuberculosis to the extent of approximately one tenth of the population, incidence of bovine tuberculosis found in Omaha packing plants, gross pathologic specimens of various tuberculous lesions found in children representing both primary and reinfection types, charts demonstrating extrathoracic lesions based on objective findings, operative or autopsy evidence.

## Section on Experimental Medicine and Therapeutics

The representative to the Scientific Exhibit from the Section on Experimental Medicine and Therapeutics is Dwight L. Wilbur, San Francisco

MILTON G. SCHMITT, Northwestern University Medical School, Chicago

*Treatment of the Pathology of Inflammation by Electromagnetic Induction* Exhibit of roentgenograms and photographs presenting representative cases comprising inflammatory conditions of traumatic and infectious origin treated by electromagnetic induction, including carbuncle, cellulitis of the face, infected hand with lymphangitis, nonunion of tibia and fibula (nine months' standing), osteomyelitis of tibia (postoperative treatment) and pneumonitis. The principles on which the technique is based are portrayed and explained by charts and diagrammatic illustrations, presenting a new concept of treatment whereby conditions heretofore considered contraindications may be safely and successfully treated.

WILLARD O. THOMPSON, NORRIS J. HECKEL and RICHARD F. MORRIS, University of Illinois College of Medicine, and Presbyterian Hospital, Chicago

*Endocrine Regulation of Growth* Exhibit showing variations from the normal in growth associated with hypofunction and hyperfunction of glands of internal secretion, with special emphasis on stimulation of growth with chorionic gonadotropin and sex hormones. Except for thyroid in patients with childhood myxedema, chorionic gonadotropin and male sex hormone are the most potent stimulators of growth available at present; they stimulate not only the growth of the skeleton but also the growth of every tissue in the body, in particular the musculature; they are general growth stimulators.

JOSEPH F. ROSS and MILAN A. CHAPIN, Evans Memorial and Massachusetts Memorial hospitals, Boston

*Application of Radioactive Isotopes to Medical Investigation* Exhibit illustrating the nuclear reactions occurring in the formation of radioactive isotopes and the principles of their production in the cyclotron, demonstrated with photographs and diagrams. Radioactive isotopes will be made artificially in the exhibit and the methods of detection of such "tagged" material will be demonstrated with a Geiger-Müller tube and counter. Application of the radioactive tracer technique to medical problems will be illustrated, particularly in reference to iron metabolism in human subjects. The path of radioactive iron in the body will be traced from ingestion until incorporation in the hemoglobin molecule.

WILLIAM DRESSLER, Israel Zion Hospital, Brooklyn, and the Brooklyn Hospital, New York

*Cardiac Topography and Physical Diagnosis of the Heart* Exhibit of drawings and photographs demonstrating (1) the anterior wall of the heart, which is the chief object of physical examination, and its topographic relationship to the anterior chest wall in various pathologic conditions, (2) a simple method of percussion aimed at finding abnormal areas of dullness rather than percussing the outlines of the heart, and the results of percussion in relation to cardiac topography, (3) significant palpatory findings in relationship to cardiac topography, (4) the diagnostic value of observation of the venous pulse with the unaided senses.

L. EMMETT HOLT, JR. and VICTOR A. NAJJAR, Johns Hopkins Hospital, Baltimore

*Simple Methods for the Determination of Early Deficiencies of Thiamine, Riboflavin and Nicotinic Acid* Exhibit consisting of a rotating display chart giving the background and advantages of the new procedure for assaying early vitamin B deficiencies, fluorocomparator designed by the exhibitors, which permits the average doctor with simple laboratory facilities to make assays of these vitamins by fluorescent methods without the aid of expensive electrical apparatus. Charts will describe the advantages of this instrument.

J. H. WEATHERBY and H. B. HAAG, Medical College of Virginia, Richmond

*Factors Influencing Skin Temperature* Exhibit of graphs illustrating changes in skin temperature of the fingers and toes as affected by various pharmacologic and physiologic influences such as smoking, reading, talking, drinking (cold be-

crages) and sleeping. Many of these factors induce changes in temperature of considerable magnitude. Such factors must be taken into account in the proper clinical evaluation of skin temperature changes. The experiments were done on a total of 24 healthy male and female subjects under controlled conditions, a suitable thermopile being used for recording the skin temperature.

HENRY R. KREIDER, Chemical Laboratory, American Medical Association, Chicago

*Recent Advances in the Chemistry of Synthetic Hormones, Gastric Antacids and Vitamin K.* Exhibit of charts and posters presenting a description of the chemical relationship and properties of the synthetic hormones, the natural and synthetic vitamin K active compounds, the substances which are used to counteract excessive gastric acidity in treatment of ulcers.

C. C. LITTLE, SAMUEL BINKLEY and H. D. FISHER, American Society for the Control of Cancer, New York

*Value of Cancer Research with Vit.* Exhibit of artificial stone, bas-relief plaques and color drawings emphasizing two main points: (1) the nature of the cancer process, illustrating the basic nature of growth in normal and cancerous tissue and means of control and propagation, (2) the nature of the material showing the advantages of uniform strains, ability to fix characteristics and provide in quantities, speed of reproduction and resemblance to human beings, furnishing a comparative basis for the extension of results.

A. G. DE SANCTIS, VINCENT DE PAUL LARSEN, MARTIN GREEN and PALL DI ST. AGNESE, New York Post Graduate Hospital, New York

*A Survey of 2000 Cases of Otitis Media and Mastoiditis in Children.* Exhibit presenting the changing picture of otitis media and mastoiditis over a ten year period, with special reference to the amazing results of chemotherapy in the past four years. A year by year breakdown of the important symptoms and physical signs as well as the pertinent laboratory data and complications of the last 1,000 cases of otitis media and mastoiditis is presented to show that there has been no significant change in the virulence of the disease but that modern methods of therapy are responsible. The normal yearly variation in the incidence of these two conditions is presented. Roentgenograms show the changes in mastoiditis under the influence of chemotherapy.

ASHER CHAPMAN and S. F. HAINES, Mayo Foundation, Rochester, Minn.

*Some Relationships of the Thyroid and Pituitary Glands to Iodine Metabolism.* Exhibit demonstrating results obtained in a study of certain thyroid-pituitary relationships in experimental animals, data showing that iodine in the thyroidless animal has a significant effect on growth and basal metabolic rate, evidence indicating that the thyroid may respond to the stimulus of low iodine in the absence of the pituitary gland, photomicrographs of pituitary glands demonstrate that different iodine levels in the body may effect the hypophyseal cytology in the absence of the thyroid gland.

HARRY KOSTER and BRUNO KISCH, Crown Heights Hospital, Brooklyn

*Some Physiologic Aspects of Spinal Anesthesia.* Exhibit showing the mechanism and the factors which govern the spread of the anesthetic in the subarachnoid space, the immediate absorption into the blood stream of the anesthetic is demonstrated, as is also its powerful depressor effect on cardiac muscle, the enzymatic changes that procaine hydrochloride undergoes in the blood stream with its conversion into innocuous substances are followed and the quantitative recovery in the urine is demonstrated, evidence which properly places the responsibility for the fall in blood pressure is presented, and the mechanism by which death may be produced or avoided is described.

GEORGE M. HICKEY and RAY D. WILLIAMS, Mayo Foundation, Rochester, Minn., and ARTHUR GATZ, Carleton College, Northfield, Minn.

*Reactions in Young Rats Fed Human Diets Low in the Vitamin B Complex.* Exhibit showing results of study in young rats fed human diets low in vitamin B complex. Recent surveys of food purchases by populations of the United States as well as other investigations of American diets showed that many families were consuming poor diets. Owing to their content of highly milled white flour and refined sugar, these diets failed to supply a satisfactory allowance of thiamine, riboflavin and nicotinic acid. Human diets composed of foods commonly appearing on American tables were prepared. They were adequate in vitamins A, C and D but were made to contain thiamine, riboflavin and nicotinic acid in amounts approximating those found in the 'poor' diets of human beings in the surveys. The B fractions were added to the patent flour, from which the breads of the various diets were made. These diets were fed to young rats.

E. FULLERTON COOK, JOHN N. McDONNELL, ADOLF B. NICHOLS and HARVEY P. FRANK, U. S. Pharmacopoeial Convention, Philadelphia

*United States Pharmacopoeia, Twelfth Revision.* Exhibit of charts and specimens presenting the items now official in the new Twelfth Revision of the Pharmacopoeia.

WILLIS C. BEASLEY, United States Public Health Service, National Institute of Health, Bethesda, Md.

*Evaluation of Technical Factors in Fluorography.* Exhibit of materials and instruments developed for this investigation illustrating procedures employed and quantitative results obtained from an intensive clinical and technical study of the relative diagnostic value of 35 mm and 4 inch by 5 inch fluorograms, and ones of intermediate size. Influences of the following technical factors on the diagnostic quality of miniature fluorograms are demonstrated: nature of roentgen ray generator, fluorescent screen, photographic lens, film size, image size, film emulsion, processing of films, methods of optical systems for viewing films, anode-screen distance and roentgen ray exposure factors. Special attention is given to the advantages of correct stereoscopic procedures over single films in diagnostic reading of miniature fluorograms.

ERICH KRUEGER and KLAUS LUNA, Post Graduate Medical School, New York, and Merck's Institute, Rahway, N. J.

*Comparative Studies on the Toxic Effects of Digitoxin and Ouabain.* Exhibit presenting experiments on cats which furnish evidence of qualitative differences between ouabain and digitoxin in their effect on heart rate and cardiac rhythm at different percentages of their total lethal doses. Ouabain was found to exert a stronger effect on the vagus. After ingestion of atropine a significant difference between the two drugs was not present. In these experiments use was made of the newly developed heart beat counter, which permits continuous recording of the heart rate and also observations on the electrocardiogram.

E. F. KELLY, American Pharmaceutical Association, Washington, D. C.

*National Formulary Preparations.* Exhibit of National Formulary Preparations of interest to prescribing physicians, examples of preparation of therapeutic importance representing convenient and satisfactory dosage forms, of vehicles designed to aid the physician in prescribing attractive and palatable prescriptions and of materials and preparations for use in the clinical laboratory.

DAVID ADLERSBERG, Mount Sinai Hospital, New York

*Fat and Vitamin A Absorption in Sprue and Sprue-like Conditions.* Exhibit showing that the rat tolerance test represents a reliable gauge of the absorptive capacity of the intestinal tract. Case histories, roentgenograms and graphs illustrate the relationship between the severity of the case, the clinical course, results of therapy and the behavior of the rat absorption test.



The test permits in some cases the differentiation between sprue and jejunoileitis. The absorption of vitamin A usually parallels fat absorption.

JOHN F. LEACH and JOSEPH H. FARROW, Memorial Hospital, New York

*Effect of Roentgen Rays on the Heart and Lungs* Exhibit presenting an experimental and clinical study of the effects of high voltage roentgen rays on the heart and lungs. The experimental studies include diagrams and photomicrographs of the early and late results of irradiating rat hearts. The clinical study shows the anatomic and physiologic disturbances occurring in the cardiopulmonary system when different types of extrinsic and intrinsic neoplastic diseases of the thorax are treated by high voltage roentgen rays. This study particularly emphasizes changes in the blood pressure, cardiac arrhythmia, respiratory physiology and electrocardiograms.

DAVID B. LISWACK, Jewish Hospital, Philadelphia

*A New Objective Circulation Time Test (Fluorescent Method)* Exhibit showing the method demonstrated in rabbits by injection of 10 per cent sodium fluorescein intravenously. A portable ultraviolet lamp with a Wood filter is directed toward the rabbit's eye, the time from injection of the dye until the appearance of a brilliant yellow in the iris and the lower palpebral conjunctiva denotes the circulation time, the average time in rabbits is five to six seconds. The effect of certain drugs on the circulation time of the rabbit will be shown on charts. Since the test of this circulation time is objective, it is of particular advantage in comatose, anesthetized, mentally ill and moribund patients. 3 cc. of 20 per cent sodium fluorescein being injected intravenously. This test has been done in several hundred human cases in normal cases and in compensated cardiac disease seven to fifteen seconds and in cardiac decompensation sixteen to forty-five seconds.

CHARLES I. SINGER, Long Beach Hospital, Long Beach, N. Y.

*Thalassotherapy* Exhibit of drawings, graphs and charts depicting the biologic effects of seashore climate in the human being and the rationale of its therapeutic indications and contraindications.

ASHER WINKELSTEIN, FRANKLIN HOLIANDER and ALBERT CORNELL, Mount Sinai Hospital, New York

*Drip Therapy of Peptic Ulcer* Exhibit showing the physiologic and psychologic bases of the various drip therapies, curves of neutralization of gastric acidity by the milk-soda drip and by alumina gel drips, a new apparatus used for the more usual alumina drips. Therapeutic results, modes of therapy and instructions for drip therapy will be presented, with a summary of ten years' experience with this new form of ulcer therapy.

DONALD SLAUGHTER and F. T. WRIGHT, Baylor University College of Medicine, Dallas, Texas

*A Quantitative Pain Threshold Machine* Exhibit showing how the original Wolff-Hardy Goodell machine has been modified to the extent that measurements of pain threshold in man are recorded as the degrees of centigrade temperature necessary to cause pain. This arrangement prevents any changes in the air currents circulating in or around the machine from altering the final reading at any one time. Such a precaution enables the operator of the machine to record the temperature the instant that pain is experienced by the subject and obviates the necessity of moving the subject away from the machine in order to make a thermocouple reading. It also corrects the problem of filament blackening of the lamp that is used as a source of heat pain, since the pyrometer readings are calibrated so that they represent certain degrees of centigrade temperature. The experiments performed on this machine consist of comparing various doses of opiates with and without 0.5 mg. of prostigmine methylsulfate.

## Section on Pathology and Physiology

The representative to the Scientific Exhibit from the Section on Pathology and Physiology is Frank W. Konzelmann, Philadelphia.

FRANK W. HARTMAN, VICTOR SCHELLING, HENRY N. HARKINS, BROCK BRUSH and KENNETH W. WARREN, Henry Ford Hospital, Detroit

*Relative Value of Pectin Solution in Shock* Exhibit showing a comparative study of blood substitutes, including pectin solution, in the prevention and treatment of shock. Data obtained from the treatment of experimental shock in animals with pectin solution and the use of the solution in prevention and treatment of shock in about 100 clinical cases are presented. The physical and chemical characteristics of pectin, along with the method of preparation of the solutions and tests for their safety in intravenous therapy, are illustrated.

MAX M. STRUMIA and JOHN J. MCGRAW, Bryn Mawr Hospital, Bryn Mawr, Pa.

*Preparation and Preservation of Human Blood Plasma* Exhibit showing all steps from bleeding of donors to final product, particularly the preservation in the frozen state, shell freezing and drying from the frozen state. The latter is accomplished with a new type of condenser which employs relatively high temperatures such as are readily obtained with standard small commercial refrigerating apparatus.

JOSEPH M. HILL, E. E. MUIRHEAD and LEWIS WATERS, Baylor University Hospital, Dallas, Texas

*Shock Therapy* Exhibit showing the rationale of hypertonic plasma protein therapy by demonstration of increased blood volume under various experimental conditions in dogs and human beings. Special emphasis is placed on water partition in shock and its shift to more normal distribution after hypertonic plasma therapy.

ISRAEL DAVIDSOHN, Mount Sinai Hospital, Chicago

*Blood Groups: Application in Clinical Medicine and in Medical Jurisprudence* Exhibit of a model demonstrating the blood grouping reactions, which visitors may work and observe for themselves, demonstration of the microscopic hemagglutination phenomenon, charts presenting the present status of knowledge of blood groups and their practical applications.

ERNEST E. AEGERTER and HENRY W. ZWERLING, Temple University School of Medicine and Hospital, Philadelphia

*Hodgkin's Disease* Exhibit presenting the essential features of the theories of etiology, symptomatology, clinical course, roentgen therapy and histopathology of the various types of Hodgkin's disease. These types include Hodgkin's disease of the mediastinum, retroperitoneum, lungs, gastrointestinal tract, skin, bone and brain.

ROBERT B. GREENBLATT, University of Georgia School of Medicine, Augusta, Ga.

*Testosterone Propionate Pellet Implantation in Gynecic Disorders* Exhibit of drawings illustrating the technic of implanting pellets of testosterone propionate subcutaneously in patients with (a) menorrhagia (b) dysmenorrhea (c) menopausal syndrome (d) fibromyomata uteri (e) nocturnal frequency or (f) sexual frigidity, charts showing the doses required in various gynecic disorders, graphs showing the rate of pellet absorption, photomicrographs of microscopic studies of the endometrium and the vaginal smear before and after implantation as well as the histopathology of tissue changes about the pellets, photomicrographs of sections of the vagina taken for biopsies and stained especially for glycogen illustrate that implantation of pellets in a moderate dose does not interfere with glycogen deposition.

GONZALO ESGUERRA GOMEZ, Clinica de Marly, Bogota, Colombia

*Bone Changes in Leprosy* Exhibit of roentgenograms showing bone changes in leprosy.



ANNE SHIRAS and ALBERT LEVIN, Biological Photographic Association, Pittsburgh

**Medical Photography** Exhibit of prints and transparencies illustrating the use of photography in various branches of medicine. Complete descriptions of technique are available. A scientific photographer qualified to discuss problems of medical photography will be in attendance at all times. The pictures shown were submitted by a number of photographers, members of the National Biological Photographic Association.

ELAINE P. RALIK, KARL PALFY and STYMOUR RINZLER, New York University College of Medicine, New York

**Human Liver Lipids in Health and Disease—In Analysis of 120 Human Livers** Exhibit of charts showing graphically the distribution of fat in the human liver in health and disease. Analysis of 25 normal livers and 95 livers of patients dying from cirrhosis of the liver, acute and chronic infections, heart disease, diseases of metabolism and malignant diseases, also cases in which the plasma lipids were analyzed before death and the liver lipids were analyzed after death, photomicrographs of the pathologic livers.

NORBERT LAZER, ERNST SIMONSON and SIMONE BLOKSTEIN, Mount Sinai Hospital, Milwaukee

**Investigations of Sensory and Motor Centers in Fatigue and Disease** Exhibit showing that because the fusion frequency of flicker is a fundamental visual function and is an indicator of the excitability of visual centers, it was used to study some of the central nervous system factors in fatigue and general disease. Charts show that the fusion is diminished in normal fatigue of the central nervous system, patients with cardiac disorders and hypothyroidism were found to have depressions of the fusion; the fusion was found to rise as fatigue was relieved, amphetamine, desoxyephedrine, vitamin B complex surplus raised the fusion in normal states, methyltestosterone achieved the same results in hypogonadism. Charts demonstrate fatigue of the motor centers in normal states and in disease and the effect of amphetamine and desoxyephedrine.

EMMERICH VON HAAS, A. F. PREBUS and MARY SCHULZ, Ohio State University, Columbus, Ohio

**Supramicroscopy** Exhibit demonstrating studies of cytologic details in the electron microscope, survey over the possible uses of this instrument in medicine: photomicrographs of thrombocytes, mitochondria, chromosomes, bacteria, viruses and biologic colloids.

S. E. GOULD, Eloise Hospital, Eloise, Mich.

**Sublethal Trichinosis** Exhibit of photographs and drawings illustrating diagnostic tests for trichinosis during life and methods of recovery of *Trichinella spiralis* at autopsy. The results of cutaneous tests and precipitation tests with one or more trichina antigens and of blood counts for eosinophilia are correlated with the finding of *Trichinella* larvae at autopsy in several hundred persons.

W. J. MACNEAL, MARTHA JANE SPENCE and ARTHUR C. ALLEN, New York Post Graduate Medical School and Hospital, New York

**Comparative Study of the Lesions of Clinical and Experimental Endocarditis** Exhibit of gross specimens and photographs and photomicrographs of the lesions in the heart and in other organs in human viridans endocarditis and in the experimental infection produced by inoculation in rabbits.

WILLIS S. KNIGHTON and MARK J. SCHÖENBERG, Glaucoma Committee of the National Society for the Prevention of Blindness, New York

**Glaucoma** Exhibit of charts, photographs, drawings and specimens presenting the subject of glaucoma for the general practitioner and the ophthalmologist.

CARLOS MONTE, Faculty of Medicine, University of San Marcos, Lima, Peru

Exhibit dealing with research work in the university.

O. IVANISSEVICH, University of Buenos Aires, Buenos Aires, Argentina

**Hydatid Cysts** Exhibit indicating the importance of the disease in the province of Buenos Aires.

JOHN A. SAXTON, Cornell University Medical College, New York, and C. M. MCCAY, GRADY A. SIMON and LEROY L. BARNES, Laboratory of Animal Nutrition, Cornell University, Ithaca, N. Y.

**Relation of Chronic Nephrosis, Chronic Pneumonia and Neoplastic Diseases of Albino Rats to Age and Modification of Diet** Exhibit showing experiments on the relation of diet and growth rate to the life span and to common spontaneous diseases of albino rats. The exhibit demonstrates the pathology and, so far as possible, the pathogenesis of chronic nephrosis, chronic pneumonia and neoplasms of rats. The frequency of these diseases in relation to age and to the diets employed is shown in tabular form. The analyses lead to the conclusion that modifications of diet and growth rate may modify the development of spontaneous diseases in the rat and in this way affect the average life span.

LALI G. MONTGOMERY, CARITA R. SWANSON, American Society of Clinical Pathologists, Ball Memorial Hospital, Muncie, Ind., and GRANT LAVORITE, Philadelphia

**The Pathologist Contributions to American Medicine** Exhibit illustrating the many ways in which the pathologist takes his place in the community in which he works, the many contributions that he makes to national medicine as an individual and through the American Society of Clinical Pathologists, and how important a role he plays in the maintenance and advancement of the high standards of American medicine.

CARLOS CHACAS, Faculty of Medicine, University of Rio de Janeiro, Rio de Janeiro, Brazil

**Epidemiologic Studies on Malaria and Chagas Disease in Brazil** Exhibit showing work carried out by the Service de Estudo das Grandes Endemias (Division for Studies of Endemic Diseases) of the Instituto Oswaldo Cruz, Rio de Janeiro, malaria survey of the Amazon Valley, the survey of Chagas disease in several states, parasitologic studies on *Schizotrypanum cruzi*.

**Research Studies of the Biophysics Laboratory of the Faculdade Nacional de Medicina Rio de Janeiro** Exhibit showing (1) rhythmic properties of tissue culture—technic, results and oscillograms, (2) parasitologic studies in tissue culture—culture of *Schizotrypanum cruzi*, culture of toxoplasma and micropreparations, (3) qualitative aspects of the electric discharge of the electric eel—oscillograms.

MILTON MENDLOWITZ and ALAN LESLIE, Mount Sinai Hospital, New York

**Clubbed Fingers and Hypertrophic Osteoarthropathy** Exhibit of transparencies describing the production of experimental cyanosis and hypertrophic osteoarthropathy in the dog by anastomosis of the pulmonary artery to the left auricle, and also studies of blood flow and blood pressure in human clubbed fingers.

J. W. CUTLER and FELIX R. PARK, Phipps Institute and Graduate Hospital, Philadelphia

**New Technic for Sedimentation Rate** Evidence showing that lack of a universally accepted technic for recording sedimentation rate has been a serious block to a more widespread adoption of this simple test in general practice, a technic based on the fundamental fact that it is the size of the rouleaux that determines the rate of settling is described, this technic is precise, simple and time saving and embodies principles applicable to all tubes, the results are expressed in simple figures, are easy to interpret and need no correction for anemia, evidence is presented that the 1 cc. Cutler tube is a practical tube for sedimentation rate determination, giving reliable and accurate results under average conditions.

## Section on Nervous and Mental Diseases

The representative to the Scientific Exhibit from the Section on Nervous and Mental Diseases is F. P. Moersch, Rochester, Minn.

IRMA J. CARY and LEO C. MASSOPUST, Marquette University Medical School, Milwaukee

*Experimental Imbored Motion of Motion of Motor Nerve Plates* Exhibit of specimens, charts and photomicrographs showing that the pleomorphism of the motor nerve plates and muscle striations are experimentally related to physiologic and pathologic functions. By excitation and depression of the nervous system there is demonstrated a correlation between the morphologic structure and the capillary chemistry of muscle and nerve. Periodic bands analogous to cross striations in muscle are experimentally produced by capillary chemical activity in glass tubes. The morphologic evidence of periodic expansion and retraction of motor nerve plates in striped muscle supports the chemical theory for the transmission of the impulse from nerve endings to muscle. Acute stricture results in "mautition block" of nerve impulse with great expansion of axons outside of muscle fiber and retraction and uprooting of nerve branches in motor end plate.

HENRY R. VINTS and ROBERT S. SCHWAB, Massachusetts General Hospital, Boston

*Myasthenia Gravis* Exhibit of charts, photographs, tracings of ergographic and electromyographic records, statistics, the prostigmine test, postmortem studies of thymic gland and endocrine investigations, medical and surgical treatment showing recent progress in the diagnosis and treatment of the disease. The material is brought up to date based on the records from the Myasthenia Gravis Clinic of the Massachusetts General Hospital.

KNOX H. LINTY and C. MACH CAMMILL, Harvard Medical School and Boston Psychopathic Hospital, Boston

*Electroencephalographic Studies in Neuropsychiatric Disorders* Exhibit showing electroencephalographic tracings compiled from records obtained on more than 4,000 neuropsychiatric patients. Charts show a variety of samples from different neuropsychiatric conditions: schizophrenia, manic depressive disorders, involutional psychoses, behavior problems in childhood and adolescence, neurosyphilis, epilepsy, narcolepsy and other conditions. The charts include samples of tracings followed during the course of a psychosis, including tracings obtained on patients with neurosyphilis before, during and after treatment. Samples of electroencephalographic tracings from experimental studies on animals including the influence of stimulation of the hypothalamus on the electrical cortical pattern are illustrated.

ROBERT V. STIGER, Johns Hopkins Hospital, Baltimore and MERRILL MOORE, Washington Hospital, Boston

*Treatment of Alcoholism* Exhibit outlining the method of treatment of alcoholism in a modern hospital in which the alcoholic is considered a sick person and is treated accordingly, methods of examination and procedures of therapy, special techniques of approaching the alcoholic patient and aiding him in dealing with his problems, psychologic and psychiatric studies and social service methods, special method of handling an alcoholic patient on a farm.

SAMUEL RICHARD ROSIN, Blythewood, Greenwich, Conn., KARL A. FORKERS, Plainfield, N. J., and KLAUS UNNA, Mountside, N. J.

*Beta-Erythroidine Hydrochloride, Its Pharmacology and Clinical Application to the Control of Metrazol Seizures* Exhibit of botanical and chemical material illustrating the development of the investigation of the Erythrina alkaloids as a background to the pharmacologic and clinical investigations of beta-erythroidine hydrochloride, the clinical use of the drug in the control and mitigation of the seizure induced by metrazol is discussed.

JAMES R. LISA and SIDNEY W. GROSS, City Hospital, Welfare Island, New York

*Brain Tumors in General Postmortem Examinations* Exhibit of brain tumors including many of unusual pathologic interest from the point of view of clinical history, location and histology, during the past several years many brain tumors, silent or unrecognized clinically, have been found during routine general postmortem examinations.

HAROLD C. VORIS and HERBERT LANDES, Mercy Hospital and Loyola University Clinics, Chicago

*Management of the Neurogenic Bladder* Exhibit of cystometrograms and electrocystometrograms that demonstrate the normal and pathologic physiology of the urinary bladder are portrayed with diagrams and actual demonstrations.

## Section on Dermatology and Syphilology

The representative to the Scientific Exhibit from the Section on Dermatology and Syphilology is Hamilton Montgomery, Rochester, Minn.

C. GUY LANE and IRVIN H. BLANK, Harvard Medical School, Boston

*Cutaneous Detergents* Exhibit showing classification of cutaneous detergents now available according to their chemical composition, chemical composition of soap, how detergents remove soil from the surface of the skin, the action of detergents (principally soap) on the skin.

ORLANDO CANIZARES, New York

*History, Development and Achievements of Dermatology in Latin America* Exhibit presenting a brief summary of the history, development and present status of dermatology and syphilology in Latin America, each country being studied separately, their most outstanding achievements, textbooks, dermatologic journals and monographs on different subjects of the specialty, pictures, moulages and brief descriptions of the cutaneous tropical diseases and their treatment, pictures of hospitals and medical institutes related to dermatology.

RHODA W. BENHAM and JANE CRAIGHEAD, College of Physicians and Surgeons, Columbia University, New York

*Cultural Characteristics of the Dermatophytes as Influenced by the Culture Medium* Exhibit showing that the composition of culture mediums influences the production of pigment and the development of the characteristic structures by which species of Dermatophytes are identified, there seems no one medium best for identification of all species, a comparison of gross and microscopic characteristics of several important species is demonstrated on various mediums which seem of value in identification.

F. M. DOUGLASS and T. L. RAMSEY, St. Vincent's Hospital, Toledo, Ohio

*Magnesium Silicate Granulomas* Exhibit of photomicrographs of lesions produced by crystals of magnesium silicate (talcum powder), lesions as seen in color by ordinary illumination and the use of polarized light, brief clinical abstracts of case histories.

G. H. FAGET, United States Marine Hospital, Carville, La.

*Leprosy—Clinical Types and Roentgenograms Showing Bone Changes* Exhibit of (1) photographs showing all types of leprosy in their various stages: maculoanesthetic, neural, tuberculous, lepromatous and mixed, (2) serial photographs showing progress of the disease during the course of years, (3) photomicrographs showing pathology and bacteriology, (4) roentgenograms of hands and feet showing neurotrophic bone absorption occurring in leprosy in different stages of the process.

H. J. TEMPLETON, C. J. LUNSFORD and H. V. ALLINGTON, Oakland, Calif.

*Dermatologic Oddities* Exhibit of photographs of the oddities of the skin—the bizarre rather than the rare dermatoses—such as photographs of "India rubber skin men" rather than a rarity such as lichen ruber moniliformis.

S WILLIAM BECKER, Department of Medicine, University of Chicago, Chicago

*Cutaneous Melanoblasts as Studied by the Paraffin Dopa Technique* Exhibit of a chart giving directions for performance of the paraffin dopa technic, photographs and photomicrographs of tissue previously treated by levorotatory 3,4-dihydroxyphenylalanine for demonstration of pigment-forming cells of the skin, various dermatoses are illustrated

GEOFFREY WILLIAM RAKE, MORRIS F SHAFTER CLARA M MCKEE and HELEN JONES Squibb Institute for Medical Research, New Brunswick, N J

*Lymphogranuloma Venereum* Exhibit showing the present knowledge of the agent of lymphogranuloma venereum including its morphology, developmental cycle, tinctorial characteristics and antigenic structure, the relationship of the agent to viruses and bacteria and more particularly its relationship to the agents of psittacosis, meningopneumonitis and allied diseases, recent developments in knowledge of the epidemiology of the disease as revealed by new and more sensitive diagnostic tests, with particular bearing on its persistent and latent character, recent observations on the chemotherapy of the disease under experimental conditions

V PARDO-CASTELLO and FRANCISCO R TIANI, University of Havana Medical School, Havana, Cuba

*Leprosy The Correlation of Its Clinical, Immunologic, Pathologic and Bacteriologic Aspects* Exhibit of photographs of lepromatous, tuberculoid and nonspecific types of leprosy affecting the skin and peripheral nervous system, photomicrographs of cutaneous and nerve lesions of the three pathologic types, photographs and photomicrographs of "lepromin" tests on the skin, posters explaining the correlation between the clinical skin and nerve lesions, the pathologic types, the results of the lepromin test and bacteriologic examinations, special stress is laid on early lesions of leprosy and their diagnosis, with reference also to the histamine test

R A VONDERLEHR and LIDA J USILTON, Division of Venereal Diseases, United States Public Health Service, Washington, D C

*Prevalence of Syphilis Among Selectees* Exhibit of a map showing the prevalence of syphilis among selectees by states and counties

CHARLES WALTER CLARKE, FRANK C COMBES, HELEN O CURTH, ARTHUR GRACE, BORRIS A KORNBLITH, MURRAY SANDERS and GUSTAV I STEFFEN, American Social Hygiene Association, New York

*The Minor Venereal Diseases—Lymphogranuloma Venereum, Chancroid and Granuloma Inguinale* Exhibit of charts, photographs and methods used in diagnosis and treatment of lymphogranuloma venereum, chancroid and granuloma inguinale, presenting the latest information with regard to the prevalence, epidemiology, diagnosis and treatment of these three diseases, diseases being especially prevalent in the tropics and subtropics are of considerable importance at the present time by the Army and Navy

#### Section on Preventive and Industrial Medicine and Public Health

The representative to the Scientific Exhibit from the Section on Preventive and Industrial Medicine and Public Health is Paul A Davis, Akron, Ohio

RAUL F VACCAREZZA, ALVARO E BENICE, ALFREDO LANARI, FRANCISCO LABOURT and R GONZALEZ SEGURA, Catedra de Patologia y Clinica de la Tuberculosis, Buenos Aires, Argentina

*Results Obtained from the Examination of Separate Lungs* Exhibit showing that (1) bronchospireometry of separate lungs, by means of Gebauer's catheter and following the method of Jacobaeus, is an advisable procedure in patients who are submitted to surgical collapse therapy, (2) residual air has the same chemical composition as alveolar air, provided the extraction is done simultaneously, (3) aspiration of 100 cc of residual air

of a lung produces an atelectatic picture which disappears immediately after reventilation of the lung, (4) the recording of cardiopneumatic movements of separate lungs shows a record closely related to those of auricular activity with a few accidents of ventricular origin, on both sides

RAUL F VACCAREZZA and JUAN R PASO, Catedra de Patologia y Clinica de la Tuberculosis, Buenos Aires, Argentina

*Epidemiology of Tuberculosis in Argentina—Its Influence on the Human Economic Value* Exhibit of charts on tuberculosis mortality in Argentina for the last twenty-five years, according to age and sex groups and to political divisions of the country, comparative values of population, mortality as a whole and tuberculosis mortality during the years 1914 and 1936, ranking of tuberculosis among the principal causes of death in various years and different age groups, the tuberculin average for driftees from different provinces and territories, vital statistics charts on tuberculosis mortality in the city of Buenos Aires for the years 1914 and 1936 (census years), curve showing the human economic value in Argentina and incidence of tuberculosis and cancer on the same

WHILDARD MACHIE, E W SCOTT and E J LARGENT, Kettering Laboratory, College of Medicine, Cincinnati

*Fluoride Metabolism* Exhibit showing results of balance study of the normal fluoride intake and of high amounts added to the diet of the human subject, summarized in charts and graphs, accompanied by related information showing sources and distribution of fluoride, results of an animal feeding study presented in roentgenograms, photographs and photomicrographs

BERTRAM P BROWN and KARL F MEYER, State Department of Public Health, San Francisco

*Bubonic Plague—Field Work and Control* Exhibit showing that plague is endemic on the Pacific slope, where it is demonstrated chiefly in ground squirrels and their fleas. Human outbreaks, bubonic and pneumonic, have occurred in California in 1900, 1907-1908, 1919 and 1924-1925, sporadic cases have occurred during intervening years. Incidence, distribution, field and laboratory activities, specimens of ground squirrels and other rodents that are involved in the distribution of the disease, pathologic specimens, slides and the like are shown

REGINALD FITZ and ANNA C HOLT, Harvard Medical School Library, Boston

*"Something Curious in the Medical Line"—History of Smallpox Vaccination* Exhibit portraying certain curious features of the introduction of vaccination into America, showing that the beginning of a task so vital to our national health as the prevention of smallpox depended largely on the friendship between two doctors who never met

NATIONAL DEPARTMENT OF HEALTH OF BRAZIL, Service of Studies and Investigations of Yellow Fever, Rio de Janeiro, Brazil

*Yellow Fever in Brazil* Exhibit of maps showing known occurrence of yellow fever, 1930-1941, places in which epidemiologic studies on yellow fever have been made, areas in which mass vaccination against yellow fever has been done, studies of distribution of immunity to yellow fever for determination of past epidemics, localities with a representative authorized to collect liver specimens, places in which antimosquito services operated during 1941, original distribution of *Aedes aegypti*, known distribution of *Aedes aegypti*, last quarter 1941

NATIONAL DEPARTMENT OF HEALTH OF BRAZIL, Malaria Service for the Northeast, Rio de Janeiro, Brazil

*The Story of the Eradication of Anopheles (Myzomyia) Gambiae from Brazil* Exhibit of maps showing the spread and retraction of *Anopheles gambiae* and of the area surveyed for its possible extension, photographs of the terrain, breeding places, technic employed and the like, charts showing the number of adults and larvae found each month, indicating that in some divisions these mosquitoes have not been found for more than two years, while in the last division cleaned, they have not

been found for more than one year, chart showing the number of persons treated for malaria, by months, chart showing the personnel employed, by months and by divisions

CARL M. PETERSON, Council on Industrial Health, American Medical Association, Chicago

*Physical Examinations in Industry* Exhibit of charts, posters and other illustrative material designed to acquaint the private practitioner with the scope, techniques and results of preemployment and periodic health services in industry

CARL F. JORDAN and IRVING H. BORIS, Iowa State Department of Health, Des Moines, Iowa

*Brucellosis or Undulant (Malta) Fever* Exhibit showing photographs of farm animals in a rural setting, charts to indicate distribution of reported cases according to occupation, month of onset and sex, reported incidence in Iowa as compared with other states, study of Bang's disease and a minor milk-borne outbreak caused by *Brucella* of porcine type, consideration of symptomatology, laboratory diagnostic procedures, pathology and therapeutic and control measures

JOHN C. BUCHHE and MANUEL ROCA-GARCIA, Section of Special Studies, National Department of Health, Bogota, Colombia

*Epidemiology of Jungle Yellow Fever* Exhibit of charts, photographs and mounted specimens of animals showing the essential characteristics of jungle yellow fever and the mechanism by which it is spread among the animals of the jungle. The means by which the virus may be conveyed to man and the clinical characters of the disease are demonstrated

HUGO I. D'AMATO, National Department of Health of the Argentine Republic, Buenos Aires, Argentina

*Activities of the National Department of Health of the Argentine Republic* Exhibit showing health activities in Argentina as follows: (a) General Malaria Service—maps showing infected zones and percentage of infected persons and treatments, designs and photographs of automatic siphon with intermittent discharge, educational poster (b) Division of Maternal and Infant Welfare—graphs showing maternal and infant mortality and morbidity, functional sketch of a child health center (c) Bacteriologic Institute—diagnosis of diphtheria (d) Section of Hygiene—chart with clinical classification of congenital heart lesions (e) Leprosy—photographs of sanatorium colonies in operation

JAMES S. McLISTER, NORMAN JOHNSON, T. D. SPILL, R. M. WILDER and F. C. BING, Council on Foods and Nutrition, American Medical Association, Chicago, and Food and Nutrition Board, National Research Council, Washington, D. C.

*Dietary Deficiency Diseases* Exhibit of charts and pictures, together with informal discussion, of signs, symptoms and treatment of dietary deficiencies

HUGH S. CUMMING, Pan American Sanitary Bureau, Washington, D. C.

*Public Health in Latin America* Exhibit of drawings, maps and photographic montages representing (1) extent of library of Pan American Sanitary Bureau and medical journalistic production of Latin America, (2) field services of the Bureau, (3) some Latin American hospitals and institutions, (4) present status of plague in Latin American ports and its almost complete eradication, (5) increase in recent years of national funds allotted for public health work in Latin America, (6) the international reporting of communicable diseases to and from the Pan American Sanitary Bureau, (7) the drop in smallpox and general death rates in Latin America, (8) outstanding medical contributions of Latin America

HAROLD W. SMITH, Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

*The Medical Department of the United States Navy* Exhibits of charts, posters, photographs and moulages pre-

sented various aspects of the activities of the Medical Department of the Navy. Photofluorographs will be shown with a photofluorography machine in operation

### Section on Urology

The representative to the Scientific Exhibit from the Section on Urology is John H. Morrissey, New York

EDWARD O. FINISTONI, Harlem Hospital, New York

*A New Concept of Urinary Extravasation* Exhibit of charts, posters and photographs showing a new concept of the pathogenesis and treatment of urinary extravasation. As a result of this new concept the mortality was definitely diminished and the operative results were accomplished without mutilation. Experiments consisted of the controlled injection of Colles' pouch with radiopaque colored fluids followed by serial roentgen rays and dissection. Clinical studies were based on an intimate analysis of 32 cases observed during the past ten years

ROGER W. BARNES, Los Angeles

*Endoscopic Prostatic Surgery—Some Details of Technique* Exhibit of drawings of sagittal sections and cystoscopic views of numerous details of the technique of endoscopic prostatic surgery

FREDERICK M. ALLEN, OTIS M. COPE and WILLIAM E. YOUNG, New York Medical College, New York

*Renal-Vascular Studies* Exhibit showing new blood pressure methods, influence of diet on blood pressure, size of the kidney and body weight, acute and chronic hypertension with kidney ligations and other procedures, kidneys explanted under skin and outside skin, other functional and morphologic observations

R. H. RIGDON, University of Tennessee, Memphis, Tenn.

*Renal Lesions Following the Intravenous Injection of Hypertonic Solutions of Sucrose and Dextrose—Clinical and Experimental Observations* Exhibit of charts and photomicrographs of the kidneys from a group of clinical cases given hypertonic solutions of sucrose with intake and output of fluid on 1 patient, renal lesions produced by the intravenous injection of hypertonic sucrose in the rabbit and showing retention of nonprotein nitrogen in the blood. These experimental lesions are similar to those observed in man. Observations on the effect of hypertonic solutions of dextrose on the retention of nonprotein nitrogen and on the kidney of the rabbit are included

LOWRAIN E. MCCREA, Temple University Medical School, Philadelphia

*Cystoscopic Photography—Its Application in the Practice of Urology* Exhibit of photographs showing many normal and pathologic lesions of the bladder, models showing normal and pathologic lesions observed through the view finder of the original camera, transparencies in color of sagittal sections of the human body, showing the introduction of the cystoscope and the application of the cystoscopic camera

NICANDRO CHAVEZ, Faculty of Medicine, National University of Mexico, Mexico City, Mexico

*Venereal Disease Control in Mexico* Exhibit of photographs, charts, posters and lantern slides depicting methods of treatment and control of venereal diseases in Mexico

EUGENE R. WHITMORE, Georgetown University Medical School, Washington, D. C.

*Tumors of the Kidney* Exhibit of photographs and photomicrographs of tumors of the kidney in children and in adults, tumors of the renal pelvis and calices and cortical tumors, discussion of the nature of the different types of kidney tumors, whole organ microsections of the kidney, showing the relation of the tumor to the neighboring kidney tissue, the extension of the tumor and the nature of different portions of the tumor

### Section on Orthopedic Surgery

The representative to the Scientific Exhibit from the Section on Orthopedic Surgery is Jesse T. Nicholson, Philadelphia

DONALD GUTHRIE and PAUL H. HARMON, Robert Packer Hospital, Sayre, Pa.

*Arthroplasty of Hip with Nonmetallic Foreign Body Cup* Exhibit of photographs, transparencies and roentgenograms illustrating case histories and operative procedures employed in arthroplasty of the hip.

HOWARD A. CARTER and S. PERRY ROGERS, Council on Physical Therapy, American Medical Association, Chicago.

*Amputations* Exhibit displaying the work of the consultants on artificial limbs of the Council on Physical Therapy. Preferred sites of election for amputations, the best stump for the most useful prosthesis and acceptable methods for treatment of the stump are considered. Manikins are displayed illustrating satisfactory stumps. A pamphlet will be distributed, dealing with the important aspects of the exhibit.

WILLIAM J. TORIN, Station Hospital, Fort Benning, Georgia.

*Parachute Injuries* Exhibit showing the types of fractures that have been sustained in the training of the paratroops, accurate statistics of the number of jumps, injuries—both minor (contusions, sprains, lacerations and like injuries) and major—fractures and other serious injuries. Conclusions drawn from a survey of the injuries will be included in the exhibit.

BRADLEY L. COLEY and NORMAN L. HIGGINS, Memorial Hospital and Hospital for Special Surgery, New York.

*Skeletal Manifestations of Caisson Disease* Exhibit of charts and photographs presenting the etiology, roentgenology, pathology and differential diagnosis illustrating the features of the skeletal manifestations of caisson disease.

HENRY BRIGGS, New Jersey Orthopaedic Hospital, East Orange, N. J.

*Chip Fusion Following Exploration of the Spinal Canal (Low Lumbar)* Exhibit of anatomic specimens showing method of chip fusion following low lumbar exploration of the spinal canal, roentgenograms preoperative and postoperative in a number of cases, charts of statistics following removal of a ruptured nucleus pulposus, spondylolisthesis and other conditions of the low back.

CHARLES GILFILLAN, KENNETH TOWNSEND, ALONZO NEUFELD and G. MOSSER TAYLOR, College of Medical Evangelists, Los Angeles.

*Recent Advances in Internal Fixation of Fractures* Exhibit showing a new type of bone plate and bone screws, the technique for its application and various uses and advantages illustrated by photographs, drawings and skeletal specimens. A new type of self-tapping screw with the plates and a recently developed form of internal fixation for intertrochanteric and subtrochanteric fractures (Neufeld nail). A series of more than 150 cases in which these forms of internal fixation were used are analyzed by means of charts and diagrams.

EARL D. MCBRIDE and WILLIAM K. ISHMAEL, Bone and Joint Hospital, McBride Clinic, Oklahoma City.

*Plated Osteoperiosteal Bone Graft* Exhibit of roentgenograms and demonstration of technique of a method of applying a vitallium plate directly over the osteoperiosteal graft across the ununited fracture. The advantages are security, the fact that graft heals firmly to fragments, promotes osteogenesis, can be done in recently infected tissues, often affords graft from same leg; there is no necessity of freshening partially healed fracture and it saves time.

R. K. GHORMLEY and M. B. COVENTRY, Mayo Clinic, Rochester, Minn.

*Degenerative and Pathologic Changes in Lumbosacral Intervertebral Disks* Exhibit of lumbosacral disks through the

various decades of life showing degenerative changes and pathologic specimens of disks which have been removed at post-mortem examination.

J. S. STEED and HAROLD B. BOYD, Willis C. Campbell Clinic, Memphis, Tenn.

*Treatment of Bone Defects with Dual Bone Grafts and Fibular Transplants* Exhibit of roentgen ray prints and photographs illustrating the treatment of severe nonunions, especially those near joints, by means of the dual bone graft. The use of the dual bone graft in the treatment of congenital pseudarthrosis, bridging of defects in bone with fibular grafts following loss of bone substance due to gunshot wounds and compound fractures.

M. B. HOWORTH, New York Orthopaedic Hospital, New York.

*Evolution of the Spine Fusion* Exhibit of wax models, photographs, roentgen transparencies, specimens, instruments, braces and microscopic slides illustrating the original Hibbs operation with modifications in technique to date, including present technique and application together with postoperative care. The method is used for Pott's disease, scoliosis, fracture, lumbar sacral anomalies and spondylolisthesis, and cases of rupture of nucleus pulposus.

#### Section on Gastro-Enterology and Proctology

The representative to the Scientific Exhibit from the Section on Gastro-Enterology and Proctology is GRANT H. LAING, Chicago.

FREDERICK STEIGMANN, HANS POPPER and KARI A. MEYER, Cook County Hospital, University of Illinois College of Medicine and Cook County Graduate School of Medicine, Chicago.

*Liver Function in Clinical Medicine* Exhibit showing that a knowledge of the functional status of the liver is of increasing importance for diagnosis and treatment of various conditions. Pathology and physiology of the liver are demonstrated by charts, photomicrographs and fluorescence microscopy from the point of view of their clinical application. The present role of liver function tests in diagnosis, prognosis and indication for surgical intervention is illustrated and evaluated on the basis of liver biopsies. The indications and the significance of the liver function tests in various clinical conditions are discussed. An attempt is made to show the influence of therapeutic procedures on the liver function.

J. MENENDEZ FEROS, Service of Pedro A. Castillo, University of Havana, Havana, Cuba.

*The Electrocardiogastragram* Exhibit of the electrocardiogastragram, a new method used to explore the stomach by means of a thin rubber tube which has two electrodes. This is introduced into the stomach and the stomach filled with 400 cc of a conductor and buffer solution and the electrodes connected to an electrocardiograph. The graphs that are registered vary with the voltage in relation to the pathologic condition of the gastric mucosa, it is low in inflammatory processes and high in normal or pure carcinomatous involvements. This work has been checked up with gastroscopic, radiographic and pathologic examinations.

J. RUSSELL VERBRYCKE, JR., Washington, D. C.

*Treatment of Cardiospasm* Exhibit of charts, posters, roentgenograms and lantern slides showing the results of studies based on 654 cases of spasmodic obstruction at the cardia, indications for technique of hydrostatic dilation, with results.

THOMAS N. HOBAN and C. GRAHAM EDDY, Eloise Hospital and Harper Hospital, Detroit.

*Laparoscopy Intra-Abdominal Photography in Color* Exhibit consisting of (1) historical review of the development of the instrument and a demonstration of the Swedish model, (2)



demonstration of a newly designed trochar, lamp-housing and spring arrangement for the purpose of taking photographs in color within the abdomen, special high intensity lamps are shown, (3) wash-off relief prints of intra-abdominal photographs in color and Kodachrome enlargements showing technic of intra-abdominal photography, direct aspiration of bile from the gallbladder, liver biopsy and photomicrographs of biopsy specimens, evaluation of laparoscopic photography as an aid in diagnosis.

MALCOLM R. HILL, F. HAROLD SHRYOCK and F. GEORGE RIBBITT, College of Medical Evangelists, Loma Linda and Los Angeles

*Role of the Anal Glands in the Pathogenesis of Anorectal Disease.* Exhibit consisting of models and photomicrographs representing a study of the development and structure of the anal glands in various age groups with emphasis on their relationship to anorectal disease.

HENRY A. RASKY, Lenox Hill and Beth Israel hospitals, New York

*Intraoperative Photography in Conjunction with Gastrosocopy.* Exhibit of gastrophotographic studies made in a series of patients who presented diagnostic and therapeutic problems. The studies were made in conjunction with the use of the flexible gastroscope. The gastroscope was inserted and the area that was the site of interest was noted. The distance or the depth of the instrument was outlined on the flexible tube to which the camera was attached. The latter was then inserted into this depth. The endoscopic and photographic studies, which were taken mostly in natural colors, were compared to the operative findings as well as the subsequent clinical course. These facts are illustrated by transparencies describing the case reports, the method employed in taking the gastrophotographs is also illustrated.

HAROLD LINCOLN THOMSON, Los Angeles

*Gastrosocopy in Surgery—Results in 250 Cases.* Exhibit of charts, photographs, roentgenograms and drawings collected from 250 cases wherein gastrosocopy was used in surgical conditions of the stomach.

W. WAYNE BABCOCK and HARRY E. BACON, Temple University Medical School, Philadelphia

*Surgical Treatment of Cancer of the Colon, Rectum and Anus Without Colostomy.* Exhibit presenting illustrations, apparatus, mouldages, colored slides and photographs and tables illustrating the diagnosis and surgical removal of cancer of the colon and rectum with retention of a perineal anus. The techniques of four operations are shown: (1) perineal proctosigmoidectomy, (2) abdominoperineal proctosigmoidectomy, (3) Mikulicz-Paul sigmoidectomy, (4) one clamp end to end method of single stage resection of colon. Preoperative and postoperative treatment. Premalignant and malignant lesions on mechanized turntable viewed through the sigmoidoscope. Indications for and advantages of aspiration. Illustration of advantages of metallic ligatures and sutures.

LOUIS H. CIERF and C. WILMER WIRTS, Jefferson Medical College and Hospital, Philadelphia

*Flexible Tube Gastrosocopy.* Exhibit of (1) an apparatus containing a Wolf-Schindler flexible gastroscope with a dial that may be turned to give the viewer a picture of the stomach as actually viewed through this instrument, (2) slides of correlated gastrosocopic and roentgen studies of a group of patients, (3) a series of drawings made at the time of the original examination through the gastroscope, (4) a series of charts

illustrating the findings from the examination of more than 1,500 patients—particularly emphasizing the problem of gastric carcinoma.

Z. BIRCOVITZ, R. C. PAGE, H. K. RUSSELL and C. C. FULLER, New York Post-Graduate Medical School and Hospital, New York, and St. Agnes Hospital, White Plains, New York

*Metabolic Studies in Chronic Ulcerative Colitis.* Exhibit of charts and graphs showing the results of studies on patients with chronic ulcerative colitis, oral and intravenous dextrose tolerance tests and basal metabolism and respiratory quotient determinations being made simultaneously on some patients. Comparative studies were made with oral dextrose and oral dextrin tolerance tests. Prothrombin clotting time determinations were made with the Russell viper venom modification of Quick's method. Vitamin A and carotinoid blood plasma studies and vitamin C plasma level studies were carried out. Capillary fragility determinations were made in cases of chronic ulcerative colitis and the relationship to vitamin C plasma level and rectal bleeding were studied.

### Section on Radiology

The representative to the Scientific Exhibit from the Section on Radiology is S. W. Donaldson, Ann Arbor, Mich.

H. E. KLEINSCHMIDT, National Tuberculosis Association, New York, and S. REID WARREN JR., Moore School of Electrical Engineering, University of Pennsylvania, Philadelphia

*Chest Roentgenograms—Common Technical Errors and Their Correction.* Exhibit showing a series of roentgenograms, all of the same chest, illustrating mistakes in technic commonly made, how these faults may lead to error in diagnosis and how to correct them, a pair of stereo films as nearly perfect as can be made with ordinary apparatus.

WILLIAM BAILEY, Medical School of the University of Southern California, Los Angeles

*Methods of Treating Hemangiomas.* Exhibit comparing the different methods of treating hemangiomas, results from the use of sclerosing solutions, carbon dioxide snow, roentgen rays and beta and gamma rays of radium with special reference to unsatisfactory results, the importance of the depth effect in treating the deeper type of hemangiomas and the usual dosages for all the different methods of treatment are given.

P. L. FARINAS, University Hospital, Havana, Cuba

*Mucosography of the Organs of the Respiratory Tract.* Exhibit of roentgenograms demonstrating the internal surface of the mucosa of the respiratory organs after the pulverization of an opaque substance.

LEE A. HADLEY and THEODORE SNOOK, Syracuse University College of Medicine, Syracuse, N. Y.

*Intervertebral Foramina.* Exhibit showing wet and dry specimens of the intervertebral foramina, together with roentgen studies and stained sections illustrating both normal and abnormal conditions.

RAPHAEL POMERANZ, Newark, N. J.

*Osteomyelitis of Skull.* Exhibit of charts discussing the etiology, types and spread of the disease, transparencies showing serial roentgenographic study of bone changes in osteomyelitis of skull, correlation of the roentgen examination with the clinical course and blood serum findings, differential diagnosis from other infectious diseases of the skull, such as tuberculosis, syphilis and blastomycosis, results of operative and conservative therapy (sulfathiazole) in some of these cases, pictures of specimens with summary and conclusions.

O. V. BATSON, Graduate School of Medicine, University of Pennsylvania, Philadelphia

*The Vertebral Venous System as a Mechanism for the Spread of Metastases.* Exhibit of anatomic specimens, serial radiographs, photographs and drawings demonstrating injection

experiments as well as the anatomic extent of the vertebral venous system. Injecting the prostatic vein plexuses in the cadaver or in the living monkey, fills the vertebral veins and simulates the pattern of spread found in prostatic carcinoma so that without entering the heart or lungs the cervical vertebrae and the brain have been injected in the cadaver. Injections of other anatomic regions show that the vertebral veins with the veins of the trunk wall and the veins of the head and neck, form a large venous system the so-called vertebral vein system which while joining the other venous systems also form a by-pass around them.

FRANK S. DOLLEY and LYMAN A. BREWER, Los Angeles

*Intrathoracic Tumors* Exhibit of neoplasms including those originating from the chest wall, lung and mediastinum, showing the preoperative roentgenogram, preoperative symptoms and history, together with a colored transparency of the neoplasm itself after surgical removal. These tumors include dermoid, teratoma, fibrosarcoma, neuroganglioma, fibromyxosarcoma, mediastinal lipomatosis, osteochondroma, osteochondrosarcoma, isolated pulmonary carcinoma undifferentiated diagnosis diaphragmatic hernia, coccidioidal abscess and pyogenic abscess.

J. DE CARIJAL-FOPERO, Warner Institute for Therapeutic Research, and JAMES L. MCCARTNEY, New York

*Radiography of Soft Tissues by Monochromatic X-Radiation* Exhibit of roentgenograms demonstrating soft tissues in proportion to their different densities without sacrificing bone detail and density. Bone structures, such as in the pelvis, where the depth is not uniform, are brought out clearly with equal or almost equal density throughout and yet the soft tissue structures are visualized. Early pregnancies, fibroids and placentas (in pregnancy) are shown. Complete differentiation of skin, subcutaneous tissue, muscular layers, tendinous attachments, vascular and pulmonary structures and bones is possible by this method. Pathologic conditions such as varicose veins, ruptured tendons and subcutaneous tumors can be demonstrated. The method includes darkroom processing in color-forming developers in which the amount of dye deposited on the emulsion is proportional to the actinic activation of the silver at that point.

HENRY K. TAYLOR and TERESA MCGOVERN, Welfare Hospital, Welfare Island, New York

*Angiocardiography* Exhibit showing roentgenographic visualization of the chambers and large vessels of the heart with the aid of contrast substance: the anatomy of the heart and large vessels, location of the heart chambers, variations in the pulmonary circulation, obstructions in the superior vena cava, and collateral circulation, kymographic studies with the differentiation of mediastinal lesions.

CHARLES S. CAPP and MARTHA MOTTRAM, University of California Hospital, San Francisco

*Bone Lesions Involving the Sacrum* Exhibit of roentgenograms coupled with a short history and important clinical manifestations of more than forty conditions, anomalies, metabolic lesions, primary neoplastic and metastatic neoplastic conditions and unusual fractures.

#### Section on Anesthesiology

The representative to the Scientific Exhibit from the Section on Anesthesiology is Paul M. Wood, New York.

GEORGE W. JONES, United States Bureau of Mines, and GEORGE I. THOMAS, St. Francis Hospital, Pittsburgh

*Noninflammable General Anesthesiology—Partial Replacement of Oxygen with Helium in Anesthetic Mixtures* Exhibit illustrating the results of the cooperative investigation by the Bureau of Mines, United States Department of the Interior, the St.

Francis Hospital of Pittsburgh, the University of Pittsburgh and certain manufacturers of anesthetic equipment for eliminating inflammable mixtures of agents used in anesthesiology by replacing with helium part of the oxygen. Noninflammable anesthetic mixtures containing helium have been routinely administered with highly satisfactory results at the St. Francis Hospital for the past two years. This exhibit is built around the technical work of the Bureau of Mines and practical applications at the St. Francis Hospital.

E. A. ROSENSTINE, HOMER W. SMITH, E. M. PAPPER and S. E. BRADLEY, New York University College of Medicine, New York

*Circulatory Changes During Spinal Anesthesia* Exhibit of charts, drawings and diagrams demonstrating the effects of spinal anesthesia on the circulation. Results of studies on normal man not operated on and studies conducted during clinical anesthesia. Measurements on the nonsurgical series were completed with the ballistocardiograph, the arterial manometer and the electrocardiograph. Certain studies were directed toward the renal circulation with the use of the diodrast and the inulin clearance method.

RICHARD FOREGGER, Wisconsin General Hospital, Madison, Wis.

*Surface Temperature Studies Under Anesthesia* Exhibit of graphs showing the use of skin temperature changes as a means of measuring the increase of peripheral blood flow during anesthesia, normal subjects under pentothal, spinal and inhalation anesthesia, with the resultant skin temperature rise, skin temperature recordings under pentothal, spinal, inhalation and lumbar sympathetic block anesthesia on patients with vascular disease.

PALL M. WOOD, American Society of Anesthetists, New York

*History of Carbon Dioxide Absorption* Exhibit of models, apparatus, letters and literature showing the history of the development of carbon dioxide absorption for respiratory purposes in anesthesia.

L. H. MOUSEL, H. W. SCHMIDT and A. H. BULBULIAN, Mayo Clinic, Rochester, Minn.

*Causes, Prevention and Treatment of Postoperative Atelectasis* The most frequent pulmonary complications are the result of aspiration or secretions from the nasopharynx during operation. A thorough understanding of the anatomic features and physiologic factors of the larynx and tracheobronchial tree is essential to prevent such complications. Important precautions to be taken preoperatively are emphasized as preventative measures. Treatment should be directed toward securing an adequate endobronchial drainage by means of hyperventilation or bronchoscopy.

HAROLD F. BISHOP, Walter Reed General Hospital, Washington, D. C., and FRED F. RUDDER, Emory University Medical School, Atlanta, Ga.

*Intravenous Anesthesia—Management of Administration* Exhibit of charts and posters showing types of cases, total number of cases, length of operations and amount of drug given (smallest dose, largest dose and average dose to each group of cases), complications: (a) time of operation and (b) post-operatively, contraindications, results of anesthesia (pentothal sodium). Photographs and drawings of an apparatus so devised that one anesthetist, without assistance, has absolute control over the drug at all times. The drug may be given drop by drop only as needed. Advantages are that (1) the capacity of a 50 cc. syringe allows completion of the majority of operations without its being necessary to refill the syringe, (2) no back flow into the needle is possible thereby preventing occlusion of the needle by clotting, (3) it allows saline solution

dextrose solution, plasma and citrated blood to be given through the same needle without disturbing the anesthetic, (4) the apparatus is adjustable in any position

JOHN ADRIANI, Louisiana State University School of Medicine, New Orleans

*Effect of Anesthetic Drugs on Bronchial Tissue* Exhibit of photomicrographs showing the reactions of excised bronchial tissue of rat dog and man to anesthetic drugs and the modification of these responses by autonomic stimulating and depressing drugs such as atropine, scopolamine, epinephrine and ephedrine. The drugs used are ethylene, cyclopropane, nitrous oxide, ether, vinyl ether, chloroform, ethyl chloride, tribromethanol, paraldehyde, evipal, pentothal, pentobarbital sodium and other barbiturates, and amylene hydrate

### MOTION PICTURES

Motion pictures will be shown continuously throughout the week in four motion picture theaters adjoining the exhibits. Each picture will be shown once each day.

#### Practice of Medicine

A. WILBUR DUKAKI and GERALD H. PRATT, New York Post-Graduate Hospital, New York

*Large Popliteal Aneurysm—Surgical Repair*

CLAYTON J. LUNDY, Rush Medical College, Chicago

*Heart Beat Mechanism in Health and Disease Part 9 The Common Distal Effects on the Electrocardiograms Part 10 Axis Deviation*

J. F. F. RISMAN, Beth Israel Hospital, New York

*Diagnosis and Treatment of Inguinal Hernia*

NORMAN PLUMMER and CHARLES WHEELER, New York Hospital, New York

*Sulfonamide Therapy*

GORDON B. MYERS, FRED MARGOLIS and MEL CLAPPER, Wayne University College of Medicine, Detroit

*Physical Diagnosis*

#### Surgery

HUGH A. GAMBER, Gambel Brothers and Archer Clinic, Greenville, Miss

*Radical Amputation of the Biceps with Improved Cantery Technique*

ARABEL M. VAUGHN, Mercy Hospital, Loyola University School of Medicine, Chicago

*High Saphenous Vein Ligation with Retrograde Injection*

GEORGE CRUE JR., Cleveland Clinic, Cleveland

*Thyroidectomy for Diffuse Goiter with Hyperthyroidism*

SAM S. SAMUELS, Bellevue Hospital, New York

*Treatment of Diabetic Gangrene*

HAROLD L. FOSS, Geisinger Memorial Hospital, Danville, Pa

*Resection of Right Colon with Primary End to End Anastomosis in One Stage for Carcinoma of the Cecum*

*Thyroidectomy in Treatment of Diffuse Goiter with Hyperthyroidism*

*Total Hysterectomy*

ALFRED H. IASON, Brooklyn

*Cholecystectomy and Appendectomy for Gangrenous Cholecystitis and Chronic Appendicitis*

*Pedicled Fascia Lata Transplant for a Large Postoperative Incisional Hernia in the Right Upper Part of the Abdomen*

*Story of Bile Demonstrating in Animation the Histology and Physiology of the Liver, Gallbladder, Biliary Ducts and Duodenum*

JAMES L. MUDD, St. Louis University Medical School, St. Louis

*Ligation of the Persistent Ductus Arteriosus Complicated by Streptococcus Viridans Endarteritis with Recovery*

FRANK S. DOILEY, Los Angeles

*Surgical Technique in Pericardiotomy for Adhesive Pericarditis*

*Ligation of Patent Ductus Arteriosus*

*Preoperative and Operative Technique in the Care of Lung Abscesses*

#### Symposium on Surgical Technique

FRANK H. LAHEY and ASSOCIATES, Boston

*Excision of Thyroglossal Cyst*

*Esophageal Diverticulum—Lahey Two Stage Operation for Diverticula of the Pulsion Type*

*Subtotal Thyroidectomy for Primary Hyperthyroidism*

*Excision of Adenomatous Thyroid*

*Cholecystectomy and Choledochostomy for Chronic Cholecystitis and Cholelithiasis*

*Subtotal Gastrectomy for Chronic, Intractable Peptic Ulcer*

*Modified Mikulicz's Resection of the Right Colon for Carcinoma, Two Stage Operation*

*Abdominoperineal Resection for Carcinoma of the Rectum, One Stage, Miles*

*Abdominoperineal Resection of the Rectum for Carcinoma—Two Stage Operation*

*Posterior or Perineal Resection of the Rectum for Carcinoma*  
*The Removal of an Intrathoracic Goiter*

#### Orthopedic Surgery

J. E. M. THOMSON and C. FRED FERCIOT, Lincoln, Neb

*Transportation in Back Injuries*

M. B. HOWORTH, New York Orthopedic Hospital, New York

*Technique of Spine Fusion*

HAROLD B. BOYD, Willis C. Campbell Clinic, Memphis, Tenn

*Treatment of Bone Defects with Dual Bone Grafts and Fibular Transplants*

DONALD GUTHRIE, Guthrie Clinic, Robert Packer Hospital, Sayre, Pa

*Arthroplasty of Hip with Nonmetallic Foreign Body Cup*

WILLIAM J. TOBIN, Washington, D. C., and Station Hospital, Fort Benning, Georgia

*Parachute Injuries*

HENRY BRIGGS, New Jersey Orthopaedic Hospital, East Orange, N. J.

*Hemiation of a Low Lumbar Nucleus Pulposus, Diagnosis and Treatment by Laminectomy and Chip Fusion*

DEAN H. ECHOLS and GUY CALDWELL, Tulane University of Louisiana School of Medicine, New Orleans

*Sciatic Pain Caused by Ruptured Intervertebral Disk*

#### Nervous and Mental Diseases

J. RUDOLPH JAEGER, Denver

*Intervertebral Disk (Hemiated Nucleus Pulposus)*

*Abscess of Brain*

*Subdural Hematoma*

FREDERICK LEMERE, Shadel Sanitarium, Seattle

*Conditioned Reflex Treatment of Chronic Alcoholism*

A. E. BENNETT, University of Nebraska, Omaha

*Curare as a Diagnostic Test of Myasthenia Gravis*

*Horse Serum Nephritis*

S P GOODHART, B H BAISER and TRACY J PUTNAM, New York

*Unusual Types of Extrapyramidal Syndromes Including Sigulae of Epidemic Encephalitis*

HAROLD C VORIS, Loyola University Medical School and the Cook County Hospital, Chicago

*Operative Treatment of Head Injuries*

DAVID J IMPASTATO and RENATO AIMASSI, New York University Medical School, New York

*Technic and Clinical Manifestations of Electrofit Therapy*

SAMUEL RICHARD ROSEN, Blithewood, Greenwich Conn  
*Erythrina Paralysis*

#### Miscellaneous Motion Pictures with Sound

R A VONDERLEHR, Division of Venereal Diseases, United States Health Service, Washington, D C

*Syphilis Part I Diagnosis of Early Syphilis*

*Part II Diagnosis of Late and Latent Syphilis*

*Part III The Management of Syphilis*

DAVID N W GRANT, Office Chief of Air Corps, United States Army, Washington, D C

*The Physical Examination for Flying*

CHARLES S WHITE, Washington, D C

*The Story of Plasma*

RAPHAEL SCHILLINGER, Beth Israel Hospital, New York  
*Nasal Sinusitis*

MALARIA SERVICE FOR THE NORTHEAST, National Department of Health of Brazil, Rio de Janeiro, Brazil

*The Anti-Gambio Campaign in Northeastern Brazil*

JOHN C BUGHEN, Section of Special Studies, National Department of Health, Bogota, Colombia

*Study and Control of Jungle Yellow Fever*

CARLOS CHAGAS, National Faculty of Medicine, Rio de Janeiro, Brazil

*Tissue Culture*

MALCOLM T MACEachern, American College of Surgeons, Chicago

*White Battalions—Serving All Mankind*

GEORGE BAEHR, Office of Civilian Defense, Medical Division, Washington

*Emergency Medical Service for Civilian Defense (Film slides with sound)*

#### Miscellaneous Motion Pictures—Silent

HARRY A TOWSLEY, University of Michigan Medical School, Ann Arbor

*Immunization Against Infectious Diseases*

J HARRY MURPHY, Creighton University School of Medicine, Omaha

*Tuberculosis in Children*

R R PARKER, Rocky Mountain Laboratory, Hamilton, Mont.  
*St Louis Encephalitis in Horses*

THEODORE ROSENTHAL, Bureau of Social Hygiene, Department of Health, New York

*Diagnosis of Gonorrhea in the Male*

FRANCIS PASCHER, Skin and Cancer Unit, Post-Graduate Hospital, Brooklyn

*Dermatologic Illness*

HAROLD W SMITH, Bureau of Medicine and Surgery, Navy Department, Washington, D C

*The Naval Dental Corps*

*The Naval Medical Officer*

ABRAHAM WEISMAN, Jewish Memorial Hospital, and CHRISTOPHER W COVATIS, New York Zoological Society, New York

*A New Test for Piquancy (The Xenopus "Frog" Test)*

FRANK E SIMMONS, The Simpson Radium Institute, Chicago  
*Radon Treatment of Cancer of the Cervix Uteri*

CHARLES J GANNON, Milton, Mass

*The Biology of Conception*

*Technics of Contraception*

PAUL H HOLMES, University of Illinois College of Medicine, Chicago

*Color Cinematography Through the Laryngoscope, Bronchoscope and Esophagoscope*

SAMUEL ICHNER, College of Medicine, University of Cincinnati, Cincinnati

*Approaches to the Surgical Spaces of the Neck*

HENRY MINSKY, Mount Sinai Hospital, New York

*The Zonular Chamber of the Eye*

JACOB GOLDSMITH, Mount Sinai Hospital, New York

*Continued Studies on Experimental Intracapsular Cataract Extraction and Hanner's Canal The Complete Suspensory Ligament from Serial Sections (Microscopic)*

THOMAS N HORAN, Eloise Hospital, Detroit

*Laparoscopy*

DAVID MILLER, College of Medical Evangelists, Los Angeles

*Motion Picture Photography of the Rectum and Rectosigmoid*

ROBERT TURELL, Mount Sinai Hospital, New York

*Tattooing with Mercuric Sulfide for Intractable Pruritus Ulvae and Ani*

W WAYNE BABCOCK and HARRY E BACON, Temple University Hospital, Philadelphia

*Surgical Treatment of Rectal Cancer*

WILLIS C BEASLEY, National Institute of Health, Bethesda, Md

*Thoracic Cine Fluorography*

#### Awards

There will be two groups of awards in the Scientific Exhibit consisting each of (a) gold medal, (b) silver medal, (c) bronze medal, (d) certificates of merit and (e) honorable mention

[NOTE—The special subsidized exhibits (fractures and backache) and the exhibits of the headquarters of the American Medical Association are not open to awards]

#### GROUP I

Awards in group I are made for exhibits of individual investigations, which are judged on basis of originality and excellence of presentation

#### GROUP II

Awards in group II are made for exhibits that do not exemplify purely experimental studies but which are judged on basis of the excellence of correlating facts and excellence of presentation

# THE TECHNICAL EXPOSITION



★

*One of the  
Outstanding  
Features  
of the  
Atlantic City  
Session . . . .*

★

TO the visiting physician as well as to the participating exhibitor, the Technical Exposition this year may well bring a deep feeling of pride. For here will be displayed the newer and more important products of an industry which is as vitally necessary in war as in peace—an industry which goes hand in hand with the physician in maintaining the health of 130,000,000 Americans whether in the home, in the factory, or in the armed forces.

Physicians will, therefore, find it advisable to spend the maximum amount of time in visiting and studying the many interesting exhibits which will make up the Exposition. Practically every single exhibit will offer to the visitor something of immediate interest—a new product, an improvement over an old product, a new technique, or new scientific information—presented by charts, mechanical displays or by skilled technicians and researchers.

Altogether more than 200 firms will participate in the Technical Exposition. Leading medical publishers will have at hand a full showing of their newest books as well as the standard works. Virtually every pharmaceutical manufacturer will have new products or new information to present. Instrument, apparatus, and supply houses will show vast arrays of new and standard items, and producers of foods for infant feeding and other special purposes will show how closely they are following the newest developments in nutrition.

Because the Technical Exposition, the Scientific Exhibits, General Sessions and Section Meetings will all be held within the Atlantic City Auditorium, physicians will find it convenient to visit exhibits before and after meetings. The Technical Exposition is really one of the practical, educational features of the Annual Session and time given to it every day will prove a splendid investment.

Exhibits will be open each day from 8:30 A. M. to 6:00 P. M., closing at 4 P. M. Friday. On the following pages are brief descriptive items giving a preview of most of the exhibits.

WILL C. BRAUN, *Director of Exhibits*

## APPARATUS AND INSTRUMENTS

**A. B. STOVES, INC.**  
Booth 10 H

An ambulance folded away in the trunk of a doctor's car, ready at a minute's notice, is a novel, new device to be exhibited by A-B Stoves. Perfected for the war emergency, the Swift First-Aider ambulance unit has been hailed by medical men as the long-sought answer to quick, safe handling. See it demonstrated.

**A. S. ALOE COMPANY**  
Booths 16, 17, 18-H

A. S. Aloe Company cordially invites you to visit their display, which will include a complete line of American-made stainless steel surgical instruments, surgical supplies, laboratory apparatus, and physical therapy equipment. Many new and exclusive items of interest to the profession will be shown here.

**AMERICAN SAFETY RAZOR CORPORATION**  
Booth 8 P

For complete information on A. S. R. Surgeon's Blades visit the booth. Meet the company representatives, who can answer questions about these surgeon's blades. They will gladly explain the various uses of the blades—9 types in all.

**AMERICAN STERILIZER COMPANY**  
Booth 14-J

A display of typical modern office types of sterilizers will appear in this exhibit. Attendants will be on hand to welcome you and discuss the equipment with you.

**AUSTENAL LABORATORIES, INC.**  
Booth 11 O

A complete line of Vitallium appliances for internal fixation of fractures, arthroplasty, and replacement of bony and soft tissue will be displayed. Vitallium has been found to be the only alloy which is completely inert in vivo, does not irritate the tissues, and is unaffected by body fluids.

**C. R. BARD, INC.**  
Booth 5 S

C. R. Bard, since 1907 the leading importer of French catheters and bougies, will show the new line of American-made instruments. These will include not only rubber catheters and drains, but also for the first time the new Bard-User line of woven catheters and bougies, both urethral and ureteral. A visit to this display will demonstrate that American doctors are no longer dependent on foreign-made urological instruments.

**BARD-PARKER COMPANY, INC.**  
Booth 9 S

Bard-Parker will exhibit its new No. 9 knife handle, especially designed for general office use. Other products to be shown are Rib-Back surgical blades, long knife handles for deep surgery, renewable edge scissors, transfer forceps, hematological case for obtaining bedside blood samples, orthostat for obtaining accurate dental radiographs.



**BECTION DICKINSON & COMPANY**

Booths 11 and 12 Q

A display of syringes, needles, diagnostic instruments, Ace bandages, elastic adhesive bandage and thermometers will be presented. Doctors are invited to stop in and discuss methods of conserving the available supply of these items. Trained personnel will be in attendance for the convenience of visitors.

**CAMERON SURGICAL SPECIALTY COMPANY**

Booths 11 and 12 L

See the new Cameron Omniangle flexible Gastroscope, Binocular Prism Loupe, Color-Finish Clinical Camera, the Mirrolite and latest developments in electrically lighted diagnostic and operating instruments for all parts of the body. Of special interest are the new spark gap and tube electro-surgical units for cutting, coagulating, desiccation, and fulguration.

**WILMOT CASTLE COMPANY**

Booth 3 D

The war-busy physician today needs all the mechanical help he can get to make his tasks go easier and more quickly. Good sterilizing and lighting equipment is a material help in these circumstances. Modern aids in the way of new sterilizers and new lighting for the physician clinic, surgeon, and hospital will be shown.

**CLAY ADAMS COMPANY INC**

Booth 1 DD

The Clay-Adams Co. will show new orthopedic devices, the Herzmark-Adams traction reel, bone saw and drill, plastic splints, stone fistula obturator, Einhorn gastroduodenal tubes, Land-u-Adams micro-sedimentation apparatus, Crooprene (synthetic rubber) catheters, drains and tubes, obstetrical manikins, skeletons, anatomical charts, new first aid skeleton chart.

**CONTINENTAL SCALE CORPORATION**

Booth 6 R

Continental Scale Corporation will show a complete line of the latest models of personal weighing scales for home use, hospitals, schools, and physicians' offices.

**CRESCENT SURGICAL SALES CO**

Booth 1 R

In the complete setting of the "little operating room," visitors may watch the pretty nurse give the Master Blade Crescent to the surgeon. Every item—operating table, lights, instruments, nurses and nurses are made to accurate scale. It promises to be dramatic, interesting, instructive. Surgeons will also be interested in inspecting the new Plaster knife and the X-acto Pocket knife.

**DEVILBISS COMPANY**

Booth 13 K

A complete line of atomizers for the scientific treatment of nose and throat infections will be on display. The latest addition to the line is an all-glass atomizer having four outstanding features important in home application of nose and throat solutions. The Devilbiss representative will demonstrate this all-glass atomizer as well as many other instruments.

**J H EMERSON COMPANY**

Booth 11 H

J H Emerson Company will exhibit apparatus for artificial respiration.

**FOREGGER COMPANY INC**

Booth 8 T

Foregger Company will show new anesthesia apparatus, new developments in CO<sub>2</sub> absorbers including a twin canister model for indicator soda time, complete intratracheal equipment and oxygen therapy and resuscitation apparatus, and Alexander's mouth to mouth insufflator. Physicians are invited to stop in and hear representatives' explanations of any of the above equipment.

**GOMCO SURGICAL MFG CORPORATION**

Booth 15 R

The Gomco Corporation will exhibit their complete line of explosion-proof suction and ether pumps, their electric breast pumps, nose and throat treatment units, thermocirc drainage pumps, and centrifuges. The bloodless circumcision clamp will also be demonstrated.

**V MUELLER & COMPANY**

Booths 12 and 13 AA

Despite unprecedented demands of the war effort on the facilities of this company, a complete exhibit of modern American made instruments and surgical equipment will be shown. Among a number of new developments, the improved Herb Mueller anesthetics unit will be on display with a representative line of other fine Mueller equipment.

**OHIO CHEMICAL & MFG CO**

Booth 9 P

Among other well-known equipment, Ohio Chemical & Mfg Co. will exhibit two newly accepted resuscitators, the Heidbrink Resuscitator and the Heidbrink Adult Resuscitator, both Krebsman models. Physicians are invited to inspect this equipment.

**OXYGEN EQUIPMENT MFG COMPANY**

Booth 5 N

Manufacturers of the Barich-Thurston oxygen tents will show their O 1 M meter mask and their new positive pressure meter mask. These units are of great interest to hospitals, particularly at this time.

**PELTON & CRANE COMPANY**

Booth 1 S

The Pelton and Crane Company will display sterilizers, operating lights and cuspidors for physicians' offices and clinics. Featured will be the self-contained Pelton Automatic Autoclave, increasingly popular with industrial first aid clinics. The representative in charge will welcome your inquiries.

**GEORGE P. PILLING & SON COMPANY**

Booth 5 O

To see a number of important recent developments, physicians are invited to visit this exhibit. Important items to be shown include the Lemmon equipment for continuous spinal anesthesia, Tocantini needles for transfusion through the bone marrow, Miller-Abbott tubes for small intestine intubation, and Chevalier Jackson Bronchoscopic instruments.

**PROMETHEUS ELECTRIC CORPORATION**

Booth 17-J

The latest designs in emergency operating lights, sterilizing equipment and therapeutic lamps will be on display. The emergency lights should be of distinct value in assuring light for physicians during lacerations. Prometheus lighting engineers will be glad to go into various hospital problems with interested visitors.

**BITTER COMPANY INC**

Booths 5 and 6 I

This company will display its entire line of medical equipment, including the recently announced Model MB ear, nose and throat unit which has spray bottles, medicaments, the electrical and air appliances on one side and the vacuum, waste and water on its new surgical cuspidor on the other. Other products to be shown include motor chairs, bone surgery engine, sterilizers, compressors, fluorescent lights and stools.

**SAFETY GAS MACHINE CO., INC**

Booth 2 O

The latest approved anesthetic apparatus by this manufacturer will be displayed.

**EXHIBITORS**

A B Stoves Inc 10 H  
Abbott Laboratories North Chicago Ill 2-T  
Agfa Ansco Binghamton N Y 6 P  
Alba Pharmaceutical Co Inc N Y C 10 K  
Allergia Products Co Newton Mass 5 T  
Allison Co W D Indianapolis 3 V  
Almay Inc N Y C 16 R  
Aloe Co A S St Louis 6 ft 16 H 17-18 H  
American Bottlers of Carbonated Beverages Washington D C 7-P  
Amer Can Co N Y C 15 S  
Amer Hospital Supply Corp Chicago 8 U  
Amer Institute of Baking N Y C 4 U  
American Nurses Association 1-O  
Amer Optical Co Southbridge Mass 4 5 6 7-K  
Amer Physicians Art Assn San Francisco  
Adjoining Section Meeting Room C (North)

played. The exhibit will be in charge of an experienced anesthetist who will be glad to discuss problems of this field with you.

**SCANLAN MORRIS COMPANY**

Booth 2 H

Representatives will demonstrate the safety and service features of explosion-proof Underwriters approved operating room lights and portable emergency battery-equipped surgical lights so essential in present-day hospital work. The new St. Mary's-Balfour general operating table is another outstanding item which will be available for inspection. Typical Scanlan sutures for specific surgery uses also will be demonstrated.

**SINGER SEWING MACHINE COMPANY**

Booth 6 Q and 13 P

The newly announced Surgical Stitching Instrument will be displayed by the Singer Company. Developed in close cooperation with the surgical profession, this instrument is the result of extensive research, and is constructed with the same craftsmanship that has marked Singer Sewing Machines for almost a century. Clinical trials have shown its success and practicability under difficult operating conditions. Doctors are cordially invited to see this new contribution to surgery.

**J SKLAR MANUFACTURING CO**

Booth 18 L

Visitors will find here a comprehensive exhibit of new suction and pressure apparatus, also a display of Sklar's American made stainless steel surgical instruments. Dr. Ernest P. Civo, orthopedic surgeon of San Antonio, Texas, will be present to discuss with interested surgeons the new Civo Orthopedic Instruments which are to be manufactured by the Sklar Company.

**C M SORESENSEN COMPANY**

Booth 4 R

Physicians are invited to discuss their problems of office equipment in connection with ear, nose and throat work. Many new models of suction and pressure apparatus will be on display for demonstration.

**UNION CARBIDE COMPANY**

Booth 15 N

On display are Linde Oxygen U S P, the Linde R-50 Oxygen Therapy Regulator, and the Linde L-14 Oxygen Therapy Station Flow-meter, also various types of small portable oxygen administering apparatus. Representatives will discuss the latest developments in oxygen therapy and provide information on the mechanical and management aspects of administering oxygen in the hospital or the home.

**VISCHER PRODUCTS COMPANY**

Booth 12 R

Two highly practical types of Flex-Seal Pressure Sterilizers will be offered in this exhibit. One—electrically operated, compact in size, rapid in action, equipped with automatic controls—is for office use. The other the Flex-Seal Midget is a small portable sterilizer which also provides pressure sterilization. It can be used on a gas hot plate or any other convenient source of heat.

**MAX WOCHER & SON COMPANY**

Booth 12 O

This 105-year-old house will display hundreds of its finest surgical instruments and a complete line of supplies. Physicians will be cordially welcomed and demonstrations given.

Amer Safety Razor Corp Brooklyn 8-P  
Amer Seal Kap Corp, L I C N Y 12 H  
Amer Sterilizer Co Erie Pa 14-J  
Appleton Century Co D N Y C No 2 AA  
Arlington Chemical Co Yonkers N Y 1-L  
Armour Labs Chicago 19-20-21-H  
Army Medical Corps East End of Aisles U V & W  
Artra Cosmetics Inc Bloomfield N J 8 V  
Assn of Limb Mfrs of America Chicago 1-I  
Aurex Corporation Chicago Ill 6-T  
Austenal Labs Inc N Y C 11-O  
Aznoe & Woodward Med Pers Bur Chicago 5 Q  
Bard Inc C R N Y C 5-S  
Bard Parker Co Inc Danbury Conn 9 S  
Baum Co Inc W A N Y C 4-Q  
Bausch & Lomb Op Co Rochester N Y 11-J

**ZIMMER MANUFACTURING COMPANY**  
Booth 4-M

A very complete line of fracture equipment will be exhibited by this manufacturer. Among the new items on display will be the improved screw driver, the east enter rib splint, Red Cross type of Thomas iron and leg splints, Canine's wire twisted screw and plate container, bone plate holders and the improved Inletto-chantelle bone plate.

**DIAGNOSTIC EQUIPMENT****AMERICAN OPTICAL COMPANY**  
Booths 4, 5, 6 7 K

Scientific eye-diagnostic instruments and equipment will be exhibited by American Optical Company. In addition Spencer Lens Company, scientific instrument division of AO, will show microscopes and other instruments used by doctors.

**W A BAUM COMPANY, INC**  
Booth 4 Q

This exhibit will be devoted exclusively blood pressure apparatus as have the efforts of the manufacturer for more than twenty-five years. The new Standby, a practical floor model will be featured and visitors may also view all other models plus a complete line of genuine latex replacement parts.

**BECK-LEE CORPORATION**  
Booth 14 N

Due to the unusual burdens placed upon every practice under today's conditions, physicians are expected to be especially interested in the exhibit of the Beck-Lee Quartz-Shling Electrocardiographs. This equipment designed by Charles L. Huddle, incorporates all those principles necessary for accurate dependable electrocardiography.

**WARREN E COLLINS INC**  
Booth 16 Q

The latest Drinker-Collins Duplex respirator which treats two children in the same machine will be shown here. The new streamlined combination infant respirator and incubator will also be of interest. Latest models of both the Benedict-Bell metabolism apparatus and Lottus Oxflow oxygen tent will also be on display. Physicians are invited to see demonstrations of this equipment.

**GASTRO PHOTOLABORATORIES**  
Booth 5 R

This display will be of interest to physicians interested in complete and accurate diagnosis of gastric pathology. The new automatic stomach camera for color photography, a recent development in modern diagnostic equipment will be exhibited, together with a large number of normal and pathological gastrophotographs in natural color and black and white.

**JONES METABOLISM EQUIPMENT COMPANY**  
Booth 7 I

A visit here will reveal new and original devices added to the Jones Motor-Basal metabolism unit to insure accuracy of the basal metabolism test. Physicians are invited to call and have representatives explain these distinctive features.

**KEYSTONE VIEW COMPANY**  
Booth 10 L

The ever increasing interest in visual screening tests and in the rehabilitation of men who fail to pass the visual tests for entrance into Army and Navy will make a visit to this booth of unusual importance. Widely used screening tests and conservative orthoptic procedures will be featured.

**LAMOTTE CHEMICAL PRODUCTS COMPANY**  
Booth 17 L

This exhibit will include some of the latest developments of the Lamotte research department, among them the office model of the Lamotte Falling Drop Densitometer, the new Lamotte sulfonamide outfit, the new Lamotte unit for vitamin C determinations, and others. Information on the operation of these units will be given to visiting physicians.

**SANBORN COMPANY**  
Booth 16 P

At the Sanborn Company booth visitors will find a display of cardiac diagnostic apparatus for both clinical and research use. Clinical needs are provided for in the Cardiette for electrocardiography alone, the Stetho-Cardiette, also for phonocardiography, the Cardioscope for visual cardiac recording, and the 1912 Waterless for modern metabolism testing. Designed primarily for research is the new 11-Beam Stetho-Cardiette which combines electrocardiography, phonocardiography and electrical auscultation.

**SPENCER LENS COMPANY**  
Booth 7 K

See American Optical Company

**TAYLOR INSTRUMENT COMPANIES**  
Booth 13 M

Physicians are invited to stop at the Taylor booth and see the new Tycoos Hook-Type cuff, which saves time and increases accuracy. Made from reinforced army cloth and metal ribs, it gives uniform compression over the entire width of the cuff—and many veins of navel service. Visitors here may see the Tycoos Aneroid Sphygmomanometer, and the "Lag Error" demonstration.

**U M A INC**  
Booth 11 R

A complete line of vascular equipment will be exhibited. Visitors can see and use the Collins Sphygmo-Oscillometer, a blood pressure machine and oscillometer combined, recognized as an important diagnostic aid in vascular disease. Continued demonstrations will be given with the Collwell Intermittent Venous Occlusion Apparatus and the U M A Thermocouple.

**DIETETIC PRODUCTS****AMERICAN INSTITUTE OF BAKING**  
Booth 4 U

Facts about Enriched Bread (enriched with vitamins and minerals), of direct significance to every physician, will be available at this exhibit. Enriched Bread complies with the almost universal preference for a white loaf, yet approximates the

nutritive values of whole wheat. Its use is encouraged by the A M A Council on Foods and Nutrition, and other medical and scientific authorities.

**AMERICAN SEAL KAP CORPORATION**  
Booth 12 H

You are invited to stop here for a cool drink of Enviae Milk. This fresh milk of low acid tension, fine flavor and easy digestibility will be served throughout the convention. Reprints from the literature covering over five years of laboratory and clinical experience in this field will be mailed upon request of visiting physicians.

**BEECH NUT PACKING COMPANY**  
Booth 6 M

Twenty-two different foods for babies will be the Beech-Nut Packing Company's exhibit. These will include their Strained Foods and Chopped Foods, packed in glass jars with reseal covers which make the glass jars ideal for refrigerator storage. A new product which will probably interest physicians is strained squash, a good beginning vegetable, used in the diet much as are carrots.

**BEST FOODS, INC**  
Booth 14-K

The manufacture of Nueor, the modern vegetable margarine, will be dramatized. The display will feature the testing carried on to maintain the uniform quality of Nueor and its consistent vitamin A potency of 9,000 USP units per pound. Highlighted also will be the fine flavor and texture of Nueor and the increasingly important place of fortified margarine in the national nutrition program.

**BIRDS EYE FOODS (GENERAL FOODS)**  
Booth 18 N

This exhibit will feature the nutritional angle of Birds Eye Foods, their excellent food value, ease of preparation, freedom from waste and appetite appeal.

**BORDEN COMPANY**  
Booths 1, 2 and 3 Lobby

A cordial reception awaits physicians and their friends here. The complete display of Borden's scientifically designed Council accepted infant foods includes such new products as Biolac, New Improved Drisco, and Mull-Soy. As in the past, a wide variety of Borden's delicious cheeses will be served every afternoon at the Borden Cheese Bar adjacent to the professional exhibit.

**CARNATION COMPANY**  
Booth 3 V

In this exhibit you may see a complete and dramatic presentation of the story of Irradiated Carnation Milk. Every operation in the processing—from farm to finished product—will be performed in miniature before the eyes of visitors. You are invited to enjoy this personally conducted tour through a Carnation expounding plant.

**CEROPHYL LABORATORIES, INC**  
Booth 8 N

Cerophyl Laboratories will have on display photographic records of timely and interesting vitamin experiments. Now that the nation's attention is centered on proper nutrition and corrective diets, you will not want to miss this exhibit. A cordial invitation is extended to visit here.

**CORN PRODUCTS REFINING COMPANY**  
Booth 6 Lobby

Increasing recognition of Mavola Corn Oil as a rich source of linoleic acid has inspired many requests from physicians for information on the use of Mavola in palatable high-fat diets. The helpful booklet which has been prepared shows the chemical composition of Mavola, a qualitative analysis, specific disturbances in which Mavola has proved clinically effective, and a dietary regime with actual recipes. Ask for your copy of this booklet.

**DIETENE COMPANY**  
Booth 11 K

Physicians are invited to become acquainted with two new products in this exhibit: Dietene's Supplement for use in reduction diets and Dietene's Accessory Feeding, a high protein, high vitamin, high mineral complement, for use in other restricted diets. They may furnish the answer to many feeding problems.

**EXHIBITORS**

Beatty Counselors, Grosse Pointe, Mich 7 M  
Bayer, Inc, Rudolph, Waltham, Mass 17-P  
Beck-Lee Corp, Chicago 14-N  
Beeton, Dickinson & Co, Rutherford, N J 11, 12 Q  
Bedford Surgical Co, Inc, Brooklyn 7 R  
Beech-Nut Packing Co, Canajoharie, N Y 6 M  
Best Foods, Inc, N Y C 14-K  
Billhuber-Knoll Corp, Orange, N J 16-M  
Blakston Co, Philadelphia 5 J  
Borden Company, The, N Y C 1 2-3 Lobby  
Breon & Co, George A, Kansas City, Mo 11-I  
Burdick Corporation, Milton, Wis 18-S  
Burroughs-Wellcome & Co, N Y C 6 V  
Cambridge Instrument Co, Inc, N Y C 12-K  
Camel Cigarettes, New York, N Y 9 Q & 10-P  
Cameron Surg Spec Co, Chicago 11, 12-L  
Camp & Co, S H, Jackson, Mich 4-AA  
Canad Radium & Uranium Corp, N Y C 14-P

Carnation Company, Milwaukee 3-V  
Cash, Inc, J & J, So Norwalk, Conn 8 L  
Castro Co, Wilmet, Rochester, N Y 3 O  
Cerophyl Laboratories, Kansas City, Mo 8-N  
Chayes Dental Instrument Corp, N Y C 19-I  
Church & Dwight Co, Inc, N Y C 14-S  
Ciba Pharmaceutical Prods, Summit, N J 13-I  
Citrus Concentrates Inc, Dunedin, Fla 11 N  
Clay-Adams Company, Inc, N Y C 1-DD  
Coca-Cola Company Atlanta, Ga 12P and 7-Q  
Cushman & Shuttell Inc, Boston Mass 10-R  
Collins, Inc, Warren E, Boston 16 Q  
Cowell Publishing Co, Champaign, Ill 17-N  
Conformal Footwear Company, St Louis 1-N  
Continental Seal Corp, Chicago 6-R  
Continental X-Ray Corporation, Chicago 8-R  
Corn Products Refining Co, N Y C 6 Lobby  
Crescent Surgical Sales Co, Inc 1-R  
Curville Prods, Inc, Port Chester, N Y 8-Q  
Cutter Laboratories, Berkeley, Calif 15 I

**FLORIDA CITRUS COMMISSION**  
Booth 10 R

Visiting members are cordially invited to stop here for a generous sampling of orange or grapefruit juice. These juices are made from Sunfilled Pure Concentrated Citrus Juices. While visiting the exhibit you may hear a little of the history and development of these interesting products and the part they are playing in our war effort.

**GENERAL MILLS INC**  
Booth 15 P

Make a "must see" stop on your Convention tour at the Better Nutrition exhibit sponsored by the special commodities and grocery products divisions of General Mills. Featured here will be Gold Medal Kitchen Tested Enriched Flour Bisquick Wheaties Cheerios and six all nutritionally improved products and folic acid and Vitamin D. The latter two representing the special commodities division.

**GERBER PRODUCTS COMPANY**  
Booth 16 L

Tables showing vitamin mineral and other nutritive values of the thirty Gerber Foods will be conveniently arranged for ready reference by visiting physicians on Gerber's Professional Filing Cards. Inspection of the complete line of foods and up-to-date literature is invited.

**CHRIS HANSEN'S LABORATORIES INC**  
Booth 16 N

The "Junket Folks" will present enlarged photos showing the action of the rennet enzyme in forming softer finer milk curds, also a display of "Junket" brand food products. Literature describing dietary uses of rennet-curdled in infant child convalescent or postoperative feeding will be available and a well informed attendant will be on duty at all times.

**HAWAIIAN PINEAPPLE COMPANY LTD**  
Booth 10 J

Despite troubled conditions in the Pacific Dole Pineapple Juice from Hawaii will appear again at this year's convention. You will find this refreshing beverage at the Dole booth along with new information as to availability, nutritional benefits and other data concerning all Dole pineapple products.

**H. J. HEINZ COMPANY**  
Booths 2 and 3 S

The Heinz exhibit featuring Strained and Junior Foods will merit your thoughtful attention if you prescribe for infant feeding or adults on soft diets. While you are visiting the exhibit, be sure to register for the tenth edition of the popular Nutritional Charts and Nutritional Observations—a quarterly journal edited by the staff of the Heinz Nutritional Research Division in the Mellon Institute.

**IRRADIATED EVAPORATED MILK INSTITUTE**  
Booth 9 N

You are cordially invited to register for a free copy of our new manual for physicians Infant Feeding with Irradiated Evaporated Milk. Included in this comprehensive booklet are discussions of the feeding of newborns complementary feeding supplementary foods and other phases of the dietary management of infants. Other material on the uses of evaporated milk in the dietary is available.

**LIBBY McNEIL & LIBBY**  
Booth 2 V

Libby's Homogenized Baby Foods and Evaporated Milk will be featured. Spectators will see the story of these products in a slide film while they listen in on an interesting dialogue which can be heard only over telephones installed at the booth. Advantages of the exclusive Libby process of preparing baby foods will be described.

**M & R DIETETIC LABORATORIES**  
Booth 8 t

Physicians are cordially invited to visit this booth where competent representatives will be pleased to discuss the merits of Similac a food for infants deprived of breast milk and to suggest its application for both the normal and special feeding case.

**MEAD JOHNSON & COMPANY**  
Booths 9 10 DD 8 K 1 2 AA

The war has not yet seriously affected the normal production of Mead Johnson products. The display this year will include Nutramigen known during its experimental stage as Amigen Compound. This product offers a new approach to the dietetic control of allergy.

**MELLIN'S FOOD COMPANY**  
Booth 3 L

That you may be fully informed regarding the wide usefulness of Mellin's Food you are invited to meet our representatives at the convention. They will present for your consideration details of the composition of Mellin's Food and its application in preparing nourishment for infants, children and adults.

**NATIONAL LIVE STOCK AND MEAT BOARD**  
Booth 7 V

This exhibit will portray the role of meat as a source of protein calories minerals and vitamins in the adequate diet. Literature showing the food value of meat and the place of meat in the national nutrition program will be available.

**NESTLE'S MILK PRODUCTS**  
Booth 10 O

Nestle's will feature Lactogen which has behind it the firm's experience of more than three-quarters of a century in the manufacture of baby foods and other milk products. Representatives will be glad to discuss Lactogen with physicians interested in infant feeding.

**PENICK & FORD LTD INC**  
Booth 4 N

The makers of Brer Rabbit Molasses invite your consideration of new findings on this rich and inexpensive source of iron. Results of research will be on exhibit at the booth. Significant is the conclusive demonstration of high availability (over 80%) of molasses-iron, which establishes New Orleans Molasses as second only to beef liver as a food source of absorbable iron.

**PET MILK COMPANY**  
Booths 6 and 7 U

An actual miniature working model of a milk condensing plant will be exhibited. This display will offer an opportunity to obtain information about the production of Irradiated Pet Milk and its uses in infant feeding and general dietary practice. Miniature Pet Milk cans will be given to each physician who visits the booth.

**POSTUM (GENERAL FOODS)**  
Booth 18 N

Visitors are invited to have a refreshing drink of Iced Postum at the booth. This wholesome cereal beverage is made from whole wheat and bran roasted and slightly sweetened. It is available in two forms—Postum Cereal made like coffee and Instant Postum made instantly in the cup or pot. Postum-made-with-milk is an easy way to keep milk interesting whether served iced or hot.

**S M A CORPORATION**  
Booths 7 and 8 O

New and rare nutritional biochemicals will be on display at the S M A booth. Wax mouldages demonstrating nutritional deficiencies in humans and experimental

animals exhibiting various deficiency diseases will be of interest. Trained members of the field and research staff will be in attendance.

**SANKA (GENERAL FOODS)**  
Booth 12 N

A cup of delicious Sanka Coffee will be served to visitors at the booth. This choice blend of Central and South American coffees has 97% of the caffeine removed.

**SCIENTIFIC SUGARS COMPANY**  
Booth 15 O

Scientific Sugars Company will have on display Carlose Hides and the Kinex line of nutritional products. Competent representatives will be on hand to give any possible help to physicians, who are cordially invited to stop.

**STANDARD BRANDS INCORPORATED**  
Booth 4 K

Enriched White Bread and the part it is playing in the drive for better nutrition will highlight the Standard Brands exhibit. Attending physicians will have an opportunity to discuss with nutrition authorities the part played by proper food in the war effort. Visitors are urged to see the motion picture "The Modest Miracle" which will be shown by the Medical Film Guild. Booth 11-AA Technical Exhibition Hall.

**SUN RAYO COMPANY**  
Booth 16 J

Doctors are invited to stop for a refreshing drink of Kemp's Sun-Rayed Tomato Juice. This juice is made from prize-winning tomatoes of the 1911 Indiana tomato champion and runner-up champion and crops of hundreds of other Kemp growers who won gold and silver medals for their high quality tomatoes.

**UNITED FRUIT COMPANY**  
Booth 1 H

The latest authentic information on the nutritive and therapeutic values of the banana will be available at this exhibit. The display will present some of the important clinical and nutritional studies which have been undertaken the past few years and reports of these which have recently been published.

**VEGEX CORPORATION**  
Booth 3 P

The makers of Vegex vegetable extract invite physicians to call at their exhibit and make the acquaintance of their product. Derived from fresh brewers yeast and vegetables the American Vegex has been improved especially in flavor.

**HEARING AIDS**

**AUREX CORPORATION**  
Booth 6 T

Visitors are invited to inspect the Aurex Hearing Aid display. The newest Aurex Model C Vacuum Tube Hearing Aid is said to be worthy of careful investigation. The regular air conduction receiver and the new Aurex crystal bone conduction receiver will also be shown. The Aurex method of fitting hearing aids to individuals' hearing needs will be explained in detail to visitors.

**EXHIBITORS**

|   |                     |  |             |
|---|---------------------|--|-------------|
| Darby Rose & Co Ltd Boston                      | 1-O                 | Emerson Company J H Cambridge Mass     | 11-H        |
| Davis Co F A Philadelphia                       | 15 M                | Eado Products Inc Richmond Hill N Y    | 9 AA        |
| Darts & Ceck Inc Brooklyn                       |                     | Fischer & Co H G Chicago               | 4 O         |
|   | West Entrance Lobby | Fisher Stevens Service Inc N Y C       | 2-P         |
| Days Ideal Baby Shoe Co Danvers Mass            | 8-S                 | Flat Eaton & Co, Decatur Ill           | 5-DD        |
| Denver Chemical Mfg Co N Y C                    | 10 L                | Florida Citrus Commission Lakeland Fla | 10-R        |
| DePuy Manufacturing Co Warsaw Ind               | 13 R                | Foley Mfg Co Minneapolis               | 17-I        |
| Derereux Foundation Devon Pa                    | 3-M                 | Foregger Co Inc N Y C                  | 8 T         |
| DeVittiss Company Toledo Ohio                   | 13 K                | Fougere & Co Inc E N Y C               | 4 S         |
| Dictograph Sales Corp New York N Y              | 5-U                 | Gaea's Chemical Works Inc New York     |             |
| Dietene Company Minneapolis                     | 11-K                |  | N Y         |
| Drug Products Co Inc L I City N Y               | 2 I                 | Gastro Photolabs N Y C                 | 9 R         |
| Duke Laboratories Inc Stamford Conn             | 9 K                 | General Elec X Ray Corp Chicago        | 3 4 5 H     |
| E I Du Pont de Nemours & Co Wilmington Delaware | 4 I                 | General Foods N Y N Y                  | 18-N & 13 P |
| E & J Company Philadelphia                      | 5-P                 | General Mills Inc Minneapolis          | 15 P        |
| Earnshaw Knitting Co Newton Mass                | 2 Q                 | Cerber Products Co Fremont Mich        | 16 L        |
| Eastman Kodak Company Rochester N Y             | 7-H                 | Glittland Laboratories Inc Marietta Pa | 1-P         |
| Edison Thomas A Inc Bloomfield N J              | 9 R                 | Gomco Surgical Mfg Corp Buffalo N Y    | 15 R        |

**DICTOGRAPH SALES CORPORATION**  
Booth 5-U

Acousticon will exhibit a practical answer to the National Health Survey's finding of 9,000 deaf persons. From the official conclusions, Acousticon engineers have perfected a new and advanced instrument the radio-amplified Symphonic Acousticon, the performance of which will be demonstrated at this convention booth.

**MAICO COMPANY, INC**  
Booth 3 U

Precision hearing instruments will be demonstrated against the background of the Maleson-ton-color organ on which visitors can check their own hearing acuity and study the operation of the Maico audiometer. This audiometer is used for hearing tests by the Army Navy civil aviation and many physicians. Attractive souvenirs will be presented to visiting physicians and their wives.

**OTARION, INC**  
Booth 2 K

Otarion Incorporated has prepared an attractive portfolio of facts on its vacuum hearing aid. This material should be of special interest to physicians having otological cases in which physical therapy is indicated. The same data is available to physicians not attending the Convention. Requests may be addressed to Otarion, Inc. 445 North Wells St. Chicago, Illinois.

**MEDICAL BOOKS****D APPLETON CENTURY COMPANY**  
INC

Booth 2 AA

Here the Appleton-Century representatives are featuring important new books on First Aid, Child Psychiatry, Psychologic Care During Infancy and Childhood, Symptom Diagnosis, Practice of Medicine and Operative Surgery. These and other recent revisions of standard titles may be examined at leisure. Also available will be advance data on the new Clinical Diagnosis by Laboratory Methods by John Kolmer and Frank Konzeimann.

**BLAKISTON COMPANY**  
Booth 5 J

This company will exhibit its complete line of medical books among them the new sixteenth edition of Hughes' Practice of Medicine, a favorite of general practitioners, the new Sixth Diagnosis, Prevention and Treatment of Tropical Diseases, sixth edition rewritten by Strong, the new Functional Neuroanatomy by King and the new tenth edition of Morris' Human Anatomy, Gould Medical Dictionary, fifth edition.

**COLWELL PUBLISHING COMPANY**  
Booth 17 N

The firm will present the Daily Log for Physicians, fifteenth edition of a book-keeping system which provides a display of important income and expense items, all in loose leaf form, well bound. Figures that are essential for income tax returns, budgets, and legal aid are simply systematized. Easily maintained and complete, the Log is edited annually, keeping it abreast of all possible improvements.

**F A DAVIS COMPANY**  
Booth 15 M

Here the teacher, the specialist, the general practitioner, the intern and medical student will find many new and interesting books, including Digestive Diseases in General Practice, Willard, Therapeutics of Infancy and Childhood, Hethcote and Demba, Vaginal Hysterectomy, Kennedy-Campbell, Medical Diagnosis, Loewenberg, Tan, Nose and Throat, Federer, Internal Diseases of the Eye, Francoso, Cardiovascular Disease, Straud, and the book of the day—The Development of Medicine, Surgery and Specialties.

**PAUL B HOEBER, INC**  
Booth 14 I

An invitation is extended to look over the new Haeber books, including Preventive Medicine in Modern Practice and Dressler's Clinical Cardiology and such recent books as Alvarez, Gastro-Intestology, Hertzler's Thyroid Gland, Ferguson's Roentgen Diagnosis of the Extremities and Spine, Nielsen's Neurology, and those by Pardee and Eisberg. Find out about Berliner's forthcoming Blomicroscopy of the Living Eye.

**LEA & FEBIGER**  
Booth 14 H

Among their new works Lea and Febiger will exhibit Wintrobe's Clinical Hematology, Craig's Manual on Protozoan Diseases, Katz' Electrocardiography and Exercises in Electrocardiographic Interpretation, Howes' Illumination Diets and Krimes' Therapy of the Neuroses and Psychoses. New editions will be shown of Kovacs' Electrotherapy and Light Therapy, Werner's Endocrinology, Gifford's Ocular Therapeutics, Bridges' Diets for the Child, Connors on Arthritis, Kuntz' Neuro-Anatomy, Lewin on The Foot and Ankle and Kessler's Accidental Injuries. Specimens of forthcoming publications will also be on exhibition.

**J B LIPPINCOTT COMPANY**  
Booths 4 and 5 Lobby

A number of new Lippincott books of interest to physicians will be on display. Visitors are invited to stop and browse through the numerous titles in this exhibit.

**MACMILLAN COMPANY**  
Booth 9 I

Interest at the Macmillan booth this year will center on the much discussed Disease and Injuries of the Larynx, by the Dr. Jackson. Other books of special interest will be Physical Chemistry for Students of Biochemistry and Medicine, by West, with its reference and review text for workers in biology and medicine, Webster's Rabies, Modern Bread from the Viewpoint of Nutrition by Sheiman and Peterson.

**C V MOSBY COMPANY**  
Booth 1-T

New publications and new editions to be displayed will include Kilduffe-DeBakey, The Blood Bank, Ken-Conwell, Fractures, Dislocations and Sprains, Tassman, Eye Manifestations of Internal Diseases, Porter-Carter, Management of the Sick Infant and Child, and Davison, Synopsis of Materia Medica, Toxicology and Pharmacology. An invitation is extended to visit this booth and examine these and other recent titles.

**OXFORD UNIVERSITY PRESS**  
Booth 15 J

On display in this booth will be many works of interest to physicians. Among them are new titles such as Blood Disorders in Children by Dr. Kugelmass, Workmen's Compensation and the Physician by Dr. Jordan, Gynecological Operations by Dr. Cameron, Text-Book of the Practice of Medicine edited by Dr. F. W. Pilee, and Oxford Medical Outline Series.

**W F PRIOR COMPANY, INC**  
Booth 13 J

Four practical solutions to the problem of keeping up to date will be offered for the examination of physicians. They are four loose-leaf reference books published by Prior, and periodically brought up-to-date on all proven clinical changes. Visitors are invited to see the current forms of Tlee's Medicine, Lewis' Surgery, Brennen's Pediatrics and Davis' Gynecology and Obstetrics.

**W B SAUNDERS COMPANY**  
Booths 15 and 16 H

An unusually attractive exhibit of many new books and new editions will include the six Official Military Surgical Manuals, the new 1912 Mayo Clinic Volume, Lundy's Anesthesia, Walters, Gray and Priestley's Canceroma of the Stomach, Dunbar's Metabolic Diseases, Johnstone's Occupational Diseases, Surgical Practice of the Larynx, Clinie, Kolmer and Tuft's Clinical Immunology, Brotherton and Chemotherapy, Cutler's Diseases of the Hand, Weiss and English Psychosomatic Medicine, Wharton's Gynecology.

**SURGICAL PUBLISHING COMPANY**  
Booth 17 R

Convention visitors interested in surgical literature will enjoy the exhibit of Surgery, Gynecology and Obstetrics. Pages of this journal will be reproduced with special lighting to illuminate contents and bring out the fine typography and beautiful illustrations. An attendant will be present to point out unusual features of the journal, including the International Abstract of Surgery.

**CHARLES C THOMAS PUBLISHER**  
Booth 12 J

New titles available for inspection at the Convention will include Syphilis by Moore, Intestinal Obstructions by Wangersteen, Blood Substitutes by Mudd and Thallmer, Burns by Harkins, Sterility by Hamblen, Wounds and Fractures by Orr, Skin Grafting by Padgett, Parasitology by Pearce, Nutrition by Maey, Epilepsy by Penfield and Erickson, Occupational Diseases by Reed and Hareourt, Surgical Physiology by Nash, and many others.

**UNIVERSITY OF CHICAGO PRESS**  
Booth 1-R

Recent medical publications of the following University Presses are on exhibit in this booth: Yale, Minnesota, Harvard, Chicago, Columbia, Stanford, Princeton, Pennsylvania, Wisconsin, Duke, and Iowa State College. Convention visitors are invited to examine important journals, reports of research and general publications in the field, on display here.

**WILLIAMS & WILKINS COMPANY**  
Booth 9 V

Williams and Wilkins and William Wood books will include many suitable for military and civilian practitioners under war conditions. Titles: Surgery of Modern Warfare, Hurst, Medical Diseases of War, Fletcher, War Wounds and Injuries, Orkes, Bandaging and First Aid, Armstrong, Aviation Medicine, Bidgood, Urology in War, Brittain, Arthrodesis, Robotham, Acute Injuries of Head, Ross, War Neuroses, and others.

**YEAR BOOK PUBLISHERS, INC**  
Booth 8 J

Kelly and Dowell's Roentgen Treatment of Infections, Bons' Treatment of the Patient Past Fifty, Schnauffer's Pediatric Gynecology, and a completely revised second edition of Sulzberger and Wolf's Dermatologic Therapy in General Practice are recent titles to be exhibited by the Year Book Publishers. Spink's Sulfanilamide Book, Publishers' Spink's Sulfanilamide and Related Compounds in General Practice, Gordon and Seyringhaus' Vitamin Therapy in General Practice, and other

**EXHIBITORS**

Hamilton Mfg. Co., Two Rivers, Wis. 13, 14 O  
Hansons Chem. & Mfg. Co., Newark, N. J. 6 O  
Hansen's Lab., Inc. Chr., Little Falls, N. Y. 16 N  
Hawalian Pinnacle Co., San Fran., Cal. 10 I  
Hilaz Co., Ill. J., Pittsburgh 2, 3-S  
Hoebler, Inc., Paul B., N. Y. C. 14 I  
Hoffmann LaRoche, Inc., Nutley, N. J. 6 J  
Holland Rantos Company, Inc. N. Y. C. 14 M  
Hollister Sitr Labs., Spokane Wash. 3-I  
Hospital Liquids Inc., Chicago Ill. 1-P  
Hanson Westcott & Dunaling, Baltimore 7-J  
International Nutrition Laboratory Mt. Vernon Ohio 5 EE  
International Vitamin Sales Corp., N. Y. C. 2 N  
Irradiated Evaporated Milk Inst., Chicago 9 N  
Johnson & Johnson, New Brunswick, N. J. 15-AA  
Jones Metabolism Equipment Co., Chicago 7-I

Kelley-Kott Mfg. Co., Covington Ky. 8, 9 H  
Keystone View Company, Meadville, Pa. 10 L  
Lakeside Labs., Milwaukee 8-DD  
LaMotte Chem. Prods., Baltimore 17-L  
Lea & Febiger, Philadelphia, Pa. 14-H  
Ledeite Laboratories, Inc., N. Y. C. 10, 11-S  
Lepel High Frequency Labs., N. Y. C. 1-K  
Lewis Mfg. Co.—Bauer & Black, Chicago 6 S  
Libby, McNeill & Libby, Chicago 2-V  
Liebel-Flarsheim Co., Cincinnati 7-T  
Lilly & Co., Eli, Indianapolis 3, 4-T  
Lilly Tulip Cup Corp., N. Y. C. 3 Q  
Linde Air Products Co., N. Y. C. 15-N  
Lippincott Co., J. B. Philadelphia 4, 5 Lobby  
Luziers, Inc., Kansas City, Mo. 4 V  
M & R Dietelle Labs., Columbus, Ohio 8-I  
Machlett Labs., Inc., Springfield, Conn. 6-L  
Macmillan Company, N. Y. C. 9-I



manuals together with the Year Books will complete a varied display which visiting physicians are invited to inspect

## OFFICE FURNITURE

W D ALLISON COMPANY  
Booth 3 N

Manufacturers since 1881 of physicians fine examining room equipment this firm will again show a comprehensive line at the Convention. Come in and see the many special features incorporated for your convenience. Allison factory representatives will be glad to discuss the entire line with you.

MCCASKEY REGISTER COMPANY  
Booth 1 M

With many physicians in the armed forces, intensive demands of practice at home are being aided by the visible and accessible records possible in McCaskey One Writing Systems. Instantly available active patient unpaid account and case history records will be shown in the McCaskey booth. How to meet collection needs under present emergency conditions will be demonstrated.

SHAMPAINE COMPANY  
Booth 7 S

This exhibit will present the new de luxe model Steeles Examining Table the Martin All-Purpose Examining and Rectal Table the new hydraulic nose and throat chair-table, and other equipment for use in the physician's examination room.

## PHARMACEUTICALS

ABBOTT LABORATORIES  
Booth 2 T

An extensive line of Council accepted anesthetics antiseptics chemotherapeutic agents hypnotics and vitamin products including several new research items will be exhibited. A staff of well-informed specialists will be on hand to answer inquiries. Your visit will be most welcome.

ALBA PHARMACEUTICAL CO INC  
Booth 10 K

The keystone of the Alba Pharmaceutical Company's exhibit is medical defense. Such well known products as Creamarin and Sulfathiazole Alba will be shown. Present investigations are centered around such war needs as anti-malarials analgesics, hypnotics. Clinical samples and literature will be available to all physicians.

AMERICAN HOSPITAL SUPPLY CORPORATION  
Booth 8 U

Visitors to this exhibit will see interesting demonstrations of the ease, rapidity and economy of plasma preparation with Baxter equipment by both centrifugation and sedimentation methods. You will also have an opportunity to discuss the latest transfusion methods.

ARLINGTON CHEMICAL COMPANY  
Booth 1 L

The growing interest in allergy and recent figures indicating that a surprising percentage of our population is allergic in some degree, promise considerable interest in this exhibit. The Arlington Chemical Company will show their pollen and protein extracts for cutaneous and intradermal testing, also for hypersensitization.

ARMOUR LABORATORIES  
Booths 19 20 21 H

A cordial invitation is extended to physicians to visit the Armour chemical display depicting cases of thyroid deficiencies by means of wax models. Physicians interested in endocrinology will find this very informative. Presented also will be a graphic exhibit showing how the extrinsic factor combined with the intrinsic factor produces the hemopoietic principle stored in the liver.

BILHUBER KNOLL CORPORATION  
Booth 16 M

Increased production is meeting the wartime needs of the civilian population the Army Navy and other governmental

agencies for such important drugs as Metrizol Theoclole and Dilauid hydrochloride. For up to the minute information on these drugs stop by for a visit at the Bilhuber-Knoll booth.

GEORGE A BREON & COMPANY  
Booth 11 I

An exhibit of newer Council accepted preparations has been arranged for you. Well informed representatives will be on hand prepared to answer questions of physicians interested in these Breon products.

BURROUGHS WELLCOME & COMPANY  
Booth 6 V

An institutional exhibit outlining the firm's scientific research and technical activities in the fields of pharmacy chemistry and medicine will be prepared for visitors to the Burroughs-Wellcome booth.

CHURCH & DWIGHT CO INC  
Booth 14 S

Church & Dwight will exhibit Arm & Hammer Bicarbonate of Soda. Three years before the first meeting of the American Medical Association this company pioneered in producing bicarbonate of soda in the Western Hemisphere. This year besides exhibiting various uses of this product in medical practice the attendants will demonstrate its value as a powder for cleaning the teeth.

CIBA PHARMACEUTICAL PRODUCTS  
Booth 13 I

Physicians are cordially invited to see the Council accepted specialties displayed here. These will include Diol Digifolin Isrol Nupercaline and Viormin. Three representatives and an executive of the firm will be in attendance and will gladly discuss Ciba specialties.

CUTTER LABORATORIES  
Booth 15 I

Be sure to visit this exhibit and see a demonstration of the Cutter technique for preparing blood plasma. In the hospital a complete line of the Cutter intravenous solutions will also be displayed.

DAVIES ROSE & COMPANY LTD  
Booth 1 O

Representatives will be on hand to welcome doctors who visit the booth. They will explain to visitors how the company's resources place them in a position to continue unrestricted to meet the demands for their products and to assure physicians of undiminished dependability and uninterrupted uniformity.

DENVER CHEMICAL MANUFACTURING COMPANY  
Booth 10 L

Galatest the dry reagent for the instantaneous detection of diabetic sugar, will be demonstrated. Physicians will surely find this demonstration very interesting. Basically Galatest is a modification of Alexander's reagent. It is a distinct advance over liquid tests on account of its speed simplicity and economy and the fact that diabetic patients are easily taught to make the test.

DRUG PRODUCTS COMPANY INC  
Booth 2 I

Council accepted Pulvoids and Hyposols will be exhibited. These include Pulvoids Digallols Colium which are standardized by both the Hatcher-Brady Cat Method and U S P XI Trog Method. Pulvoids Sulfanilamide 5 grains Hyposols Liver Solution Purified U S P and Solution of Ethylamine Hydrochloride Crystals. Representatives will be glad to discuss pulvoids with visitors.

THOMAS A EDISON INC  
Booth 9 R

A non-caustic carbon dioxide absorbent is now available for use with rebreathing devices such as anesthesia machines oxygen therapy and basal metabolism tests. Baralyme is not only more efficient but presents no hazard of caustic burns to the face or mucous membranes of the respiratory passages. In constant widespread clinical use for almost two years Baralyme is being exhibited for the first time at a national medical convention.

ENDO PRODUCTS INC  
Booth 9 AA

Convention visitors who look behind the finished product will find the manufacture of ampul drugs by today's methods of great interest. Skilled technicians of the Endo Laboratories will demonstrate the filling and sealing of several official and N N R preparations with the latest automatic filling and sealing apparatus. The numerous Endo preparations listed in N N R will be on exhibit. Trained representatives will be on hand and souvenirs will be available.

FLINT EATON AND COMPANY  
Booth 5 DD

An entirely new display featuring a murkin which shows the importance of certain elements in the human body, will be the center of attraction here. Specially trained men will be on hand to discuss calcium therapy with visitors. Calcium-Gluconate-Effervescent and several other important products will be on display.

GANES CHEMICAL WORKS INC  
Booth 9 R

Two successes of chemical science will be featured at the Gane booth. Nicotinamide N N R and Pentothartrial Sodium N N R. Both substances are playing a significant role in modern therapeutics. Competent representatives will be in attendance to discuss the many uses of these products.

GILLILAND LABORATORIES INC  
Booth 1-P

At this booth will be exhibited the antitoxins sera and vaccines which this firm produces exclusively. Since its founding in 1882 the firm has specialized in biologics for the medical profession. You are cordially invited to visit this exhibit and become acquainted with their newer products.

HOFFMANN LA ROCHE INC  
Booth 6 J

You are invited to make the Roche booth your headquarters during the Convention. Members of the medical and field staffs will be available to discuss the many new interesting developments on Prostigmin Syntropin and other Roche preparations.

## EXHIBITORS

|                                     |                    |  |          |
|-------------------------------------|--------------------|--|----------|
| Maleo Co Inc Minneapolis            | 3-U                | Meyer Co Wm Chicago                    | 9 M      |
| Mallinckrodt Chem Works St Louis    | 10 N               | Mooradian High Freq Labs Bogota N J    | 8 M      |
| Maltine Co N Y C                    | 16 L               | Mosby Co C V St Louis                  | 1-F      |
| Marcelle Cosmetics Chicago          | 4-P                | Mueller & Co V Chicago                 | 12 13-AA |
| Mattern Mfg Co F Chicago            | 5 6 7 8 AA         | Multit Inc New York N Y                | 1 J      |
| Mccaskey Register Co Alliance Ohio  | 1 M                | National Drug Co Philadelphia          | 18 M     |
| Mcintosh Electrical Corp Chicago    | 2-M                | Natl Live Stock and Meat Board Chicago | 7-V      |
| McKesson Appliance Co Toledo Ohio   | 4 L                | Natl Oil Prods Co Harrison N J         | 16 AA    |
| McKesson & Robbins Inc N Y C        | 3 W                | Nestle's Milk Prods N Y C              | 10 O     |
| McNeil Labs Inc Philadelphia        | 12 L               | New York Medical Exchange N Y C        | 5-M      |
| Mead Johnson & Co Evansville Ind    | 9 10 DD 8-K 1 2 AA | O'Leary Inc Lydia N Y C                | 4 J      |
| Medical Bureau Chicago              | 4 T                | Otarion Inc Chicago Ill                | 2-K      |
| Medical Case History Bureau N Y C   | 3-AA               | Oxford Univ Press N Y C                | 15 J     |
| Medical Film Guild N Y C            | 14-AA              | Oxygen Equipment Mfg Co N Y C          | 5-N      |
| Medical Mailing Service Inc Chicago | 14 Q               | Parke Davis & Co Detroit               | 2 3 DD   |
| Mellin's Food Co Boston             | 3 L                | Patch Co The E L Boston                | 10 I     |
| Menueen Co Newark N J               | 10-M               | Patterson Screen Co Towanda Pa         | 17 Q     |
| Merek & Co Rahway N J               | 18 19 20 K         | Pelton & Crane Co Detroit              | 1 S      |
| Merrill Company Wm. S Cincinnati    | 9 J                | Penick & Ford Ltd Inc N Y C            | 4-N      |



**HOLLISTER-STIER LABORATORIES**

Booth 3-J

Physicians are cordially invited to call and acquaint themselves with this firm's personalized allergy service of nation-wide scope. Information will be available on the various Hollister-Stier allergenic products, all of which are Council accepted.

**HOSPITAL LIQUIDS, INC.**

Booth 1-P

The Liltah Compilizer using cellulose tubing was introduced to the medical profession at last year's convention, and scored an instant success. Liltah representatives will be glad to demonstrate its simplicity and added safety. In addition a convenient and economical method whereby every hospital can dry plasma from the frozen state will be demonstrated.

**HYNSON WESTCOTT & DUNNING**

Booth 7-J

Mercurochrome and other pharmaceutical specialties of this manufacturer will be exhibited. There will also be a display of diagnostic apparatus and impale solutions which have been developed in the firm's laboratories in cooperation with physicians. Competent representatives will be in attendance to demonstrate these products, and literature and samples will be available to physicians.

**INTERNATIONAL VITAMIN SALES CORP.**

Booth 2-N

This House of Vitamins will feature a complete line of their Council accepted vitamin preparations. Physicians visiting the booth will find recent developments in vitamin advances of particular interest. The director of research and members of the staff will be present for consultation.

**LAKE SIDE LABORATORIES**

Booth 8-DD

The growing list of Lakeside medications accepted by the Council on Pharmacy and Chemistry attests to the emphasis placed upon high standards in research and control. Members of the scientific staff in attendance at this exhibit will be glad to discuss the pharmacological and chemical aspects of their work.

**LEDERLE LABORATORIES, INC.**

Booths 10 and 11-S

Sulfadiazine will be the focal point of attention in Lederle's exhibit. Animated charts will dramatize speed of recovery and other advantages under the Sulfadiazine therapy in pneumonia. In section 1 of the exhibit liver therapy in pernicious anemia will be illustrated. In section 2, an animated chart will show the most common causes of low fever in the six zones of the United States.

**ELI LILLY & COMPANY**

Booths 3 and 4-T

Eli Lilly and Company again will present a scientific demonstration. Due to the war, typhus has come into greater prominence and the typhus agglutination test to be demonstrated will be of particular interest to physicians. An agglutination test which indicates protection against pellagra also will be shown. The entire display is new and of interesting design.

**McKESSON AND ROBBINS, INC.**

Booth 3-W

Two distinct features will comprise this exhibit: a display of Council accepted vitamin products, and a laboratory demonstration showing the methods of instrumental and biological assay of the various vitamin concentrates and mixtures. The technical part of this display in particular should prove extremely interesting to the physician.

**McNEIL LABORATORIES, INC.**

Booth 12-I

With a specially designed exhibit this year, McNeil Laboratories will show some of their Council accepted products. Of particular interest will be the illuminated phototaphis tracing Digitalis Duo-test "from plant to patient." Trained members of the staff will be present to discuss with physicians the preparation of this product and other specialties.

**MALLINGKRODT CHEMICAL WORKS**

Booth 10-N

Members of the medical profession and their friends are invited to visit the Mallinkrodt exhibit where those USP and NF preparations most frequently used and prescribed by the physician will be displayed. Certain specialty products will also be shown. The attendants in charge will be glad to be of service in answering questions regarding these items.

**MALTINE COMPANY**

Booth 16-I

An up-to-the-minute display featuring time-honored Maltine with Cod Liver Oil will be offered here. This product is the result of sixty-seven years' continuous research and experience, embodying latest scientific developments.

**MERCK & COMPANY**

Booths 18, 19, 20-K

A prominent display of drugs and chemicals will be found at the Merck exhibit. Highlights will be the sulfonamides and zinc peroxide-spectral medicaments for the treatment of infected wounds, Viochrome, inhalation anesthetic for short surgical procedures, the vitamins, useful drugs, and Methylol Chloride, an effective parasympathetic stimulant. A special feature will be a mechanized model reproducing the Merck research laboratories in authentic detail.

**WM. S. MERRELL COMPANY**

Booth 9-J

The Merrell exhibit will show a wide range of Council accepted products, with emphasis on the fields of vitamin therapy, chemotherapeutics, and local anesthesia. Featured will be Dioxine Hydrochloride, a Merrell local anesthetic of profound and unusually long-continued action. All physicians are invited to stop by the Merrell booth for a visit with representatives of "Pioneer American Pharmaceutical House."

**NATIONAL DRUG COMPANY**

Booth 18-M

Biological products for the prophylaxis and treatment of injuries in industrial accidents, and for protecting preschool and school children against preventable diseases of childhood will be featured at this exhibit, together with a comprehensive line of biochemical pharmaceutical products.

**PARKE, DAVIS & COMPANY**

Booths 2 and 3-DD

Featured in the Parke-Davis exhibit will be the sex hormones, Theelin and Theelol, antispasmodic agents, such as Mapharsen and Thio-Bismol, posterior lobe preparations, including Pituitrin, Pitocin and Pitressin, and various adrenalin chloride preparations.

**PETROGALAR LABORATORIES**

Booth 13-N

A new and enlightening story on Petrogalin, an aqueous suspension of mineral oil, will be related at the Convention. Beautifully colored anatomical drawings and new literature may be had from our professional representatives. Physicians are cordially invited to visit the exhibit.

**RARE CHEMICALS, INC.**

Booth 13-H

This exhibit will feature Gitalin Amorphous, a rapid, dependable glucoside fraction of digitalis purpurea, Salysal, Rare Chemicals, the salicylic ester of salicylic acid designed to provide improved salicylate therapy by reducing local gastric irritation to a minimum, and Optochin Hydrochloride, Rare Chemicals brand of ethylhydrocupreine hydrochloride, for pneumococcal infections of the eye.

**RIEDEL de HAEN, INC.**

Booth 3-K

Physicians who visit the Riedel-de Haen booth will be welcomed by representatives well posted on the latest developments of bile acid therapy, and ready to discuss specific problems. You are invited to register for your copies of informative literature on the use of this manufacturer's chemical pure bile acids.

**SANDOZ CHEMICAL WORKS, INC.**

Booth 15-Q

Sandoz products on display will include Gynogen, ergotamine tartrate, the pure principal alkaloid of ergot used as a specific for migraine and as a hemostatic in obstetrics, and Sandoz pure endocrine glycosides—Digilaud, the crystallized natural glycosides of digitalis lanata, Scillaren and Scillaren-B, the pure cardiodiuretic principles of squill, all standardized gravimetrically and biologically.

**SCHERING CORPORATION**

Booth 7-L

Schering will exhibit two of their products—Thyroid USP and Neo-Iopix. Thyroid USP exemplifies precision standardization on a chemical basis, Neo-Iopix is the safe intravenous urographic medium for visualization of the urinary tract, uterus and tubes, the great vessels, and other regions by the technique of introducing a radio-opaque complex organic iodide which can be rapidly eliminated from the body, unabsorbed.

**SCHERING AND GLATZ, INC.**

Booth 6-N

Professional service representatives of this firm will welcome visitors to the exhibit and will be pleased to demonstrate Sterisol ampoules, showing the ease and simplicity with which intravenous infusions of dextrose and saline solutions may be administered in the home as well as the hospital. The advantages of this container-dispenser for intravenous fluids will be shown.

**G. D. SEARLE & COMPANY**

Booths 16 and 17-S

The research activities of G. D. Searle and Co. will again be emphasized in this year's exhibit. Several members of the research staff will be present in addition to the usual complement of sales department representatives. All will be prepared to discuss with physicians any question in reference to Searle research products.

**SHARP & DOHME, INC.**

Booths 16, 17, 18-O

This modern display will feature Lyovac Normal Human Plasma, other accepted Lyovac and liquid biologicals, and accepted pharmaceutical products. Special representatives from the firm's export department will be on hand to greet Pan-American physicians. A cordial welcome will await all visitors.

**EXHIBITORS**

Personal Products Corp., Milltown, N. J. 1-Q  
Pet Milk Co., St. Louis 6, 7-U  
Petrogalar Labs., Chicago 13-N  
Phillip Morris & Co., Ltd., N. Y. C. 11, 12-M  
Phillips Metallix Corp., N. Y. C. 18-I  
Plecker X-Ray Corp., N. Y. C. 6, 7-DD  
Pilling & Son Co., Geo. P., Philadelphia 5-O  
Pioneer Rubber Co., Willard, Ohio 18-I  
Prior Co., W. F., Hagerstown, Md. 13-J  
Procter & Gamble Co., Ivorydale, Ohio 17-M  
Professional Equipment Co., Chicago 18-Q  
Prometheus Electric Corp., N. Y. C. 17-J  
Pronto Address and Mail Serv., N. Y. C. 2-J  
Pyramid Rubber Co., Ravenna, Ohio 13-Q  
Radium Chemical Co., N. Y. C. 11-P  
Radium Emanation Corp., N. Y. C. 5-L  
Rare Chemicals, Inc., Flemington, N. J. 13-H  
Registration for Technical Exhibitors 5-W  
Riedel de Haen, Inc., N. Y. C. 3-K

Ritter Co., Inc., Rochester, N. Y. 5, 6-I  
Rose Mfg. Co., Inc., E. J., Los Angeles 20-I  
SMA Corporation, Chicago 7, 8-O  
Safety Gas Machine Co., Inc., Chicago 2-O  
Sanborn Co., Cambridge, Mass. 16-P  
Sandoz Chem. Works, N. Y. C. 15-Q  
Saunders Co., W. B., Philadelphia 15, 16-H  
Scanlan Morris Co., Madison, Wis. 2-H  
Schering Corp., Bloomfield, N. J. 7-L  
Schering & Glatz, Inc., N. Y. C. 6-N  
Scientific Sugars Co., Columbus, Ind. 15-O  
Searle & Co., G. D., Chicago 16, 17-S  
Shampalno Co., St. Louis 7-S  
Sharp & Dohme Inc., Philadelphia 16, 17, 18-O  
Siebrandt Mfg. Co., J. R., Kansas City, Mo. 7-N  
Singer Sewing Machine Co., New York 6-Q and 13-P  
Sklar Mfg. Co., J. L. I. C., N. Y. 18-L  
Smith Dorsey Co., Lincoln, Neb. 2-R  
Smith, Kline & French Labs., Phila. 10, 11-AA

**SMITH KLINE & FRENCH LABORATORIES**  
Booths 10 and 11 AA

One hundred and nine years of service to the medical profession is commemorated by this firm's exhibit. Council accepted specialties are on display and trained representatives as well as members of the Research Department, are on hand to answer questions.

**SMITH DORSEY COMPANY**  
Booth 2 R

Physicians are cordially invited to visit the Smith-Dorsey Company exhibit where they will find chocolate flavored Emulsion of Liquid Petroleum displayed. There will also be a showing of Liver Extract and Thiamin Hydrochloride, both Council accepted. Representatives from the laboratory will be in charge and will have full information regarding products shown.

**E R SQUIBB & SONS**  
Booths 13 14 15 L

Striking visual methods will be utilized to portray recent studies in the fields of nutrition, endocrinology, biological therapy and chemotherapy. By means of numerous photographs and charts the latest contributions of the Squibb research laboratories will be graphically demonstrated. Well informed representatives will be on hand to welcome visitors and furnish any information desired on the products displayed.

**FREDERICK STEARNS & COMPANY**  
Booth 18 R

Professional representatives at the Stearns booth have information for physicians on the use of their Council accepted products. You are invited to discuss them on your visit to this exhibit.

**WALLACE & TIERNAN PRODUCTS INC**  
Booth 18 P

Members of the Pharmaceutical Division staff will be on hand to greet you and discuss the Council accepted product Azochloramid employed in the prevention and control of wound infection.

**WHITE LABORATORIES**  
Booth 12 S

An exposition of the typical deficiency manifestations of two accessory food factors has been prepared for the Convention by the research staff of the laboratories. Qualified representatives will demonstrate the special features of the exhibit and present the experimental and clinical background of White's Council accepted vitamin preparations.

**WINTHROP CHEMICAL COMPANY INC**  
Booths 21 22 K 6 EE

Winthrop is giving recognition to this Pan-American Medical meeting by erecting a most unusual exhibit. The theme is South American. Come to the patio and see the refreshing scene and unique planting. Glance up at the array of flags proclaiming Western Hemisphere solidarity. Make yourself at home in this attractive atmosphere and do not hesitate to call upon Winthrop representatives for whatever aid they may be able to give you.

**WISCONSIN ALUMNI RESEARCH FOUNDATION**  
Booth 3 R

An attractive exhibit demonstrating not only the need for Vitamin D but also its important functions is presented by the Wisconsin Alumni Research Foundation. Members of the Foundation staff will be glad to provide physicians with authoritative information regarding Viosterol and Viosterol-fortified medicinals bottled Vitamin D Milk distributed by dairies and irradiated Evaporated Milk.

**JOHN WYETH & BROTHER**  
Booths 15 16 17 K

John Wyeth and Brother will exhibit for the first time Dean Cornwall's new canvas depicting Dr. Ephraim McDowell considered the father of abdominal surgery, preparing to perform the first successful ovariectomy on Jane Crawford. The painting will be shown together with the earlier canvases in the "Pioneers of American Medicine" series. Beaumont and St. Martin Osier at Old Blockley and The Conquerors of Yellow Fever.

**PHYSICAL THERAPY AND X-RAY****BEDFORD SURGICAL COMPANY**  
Booth 7 R

This exhibit will show the full line of Continental x-ray and fluoroscope equipment also the Continental Council accepted short wave diathermies, and the 1913 lines of medical office equipment.

**BURDICK CORPORATION**  
Booth 18 S

The Burdick Corporation will exhibit their line of physical therapy equipment. This includes Council accepted short wave diathermy units, infra-red and ultraviolet lamps and the Rhythmic Constrictor for the treatment of peripheral vascular conditions.

**CONTINENTAL X RAY CORPORATION**  
Booth 8 R

The item of main interest to be viewed at this display is the latest 'Pinelmaie Wall Control' available up to 500 milliamperes. It is completely automatic and incorporates many new and novel features.

**H G FISCHER & COMPANY**  
Booth 4 O

The best way to look at an x-ray apparatus is with an x-ray. You must get under the finish to see the real difference. To every visitor at the Convention, accordingly, Fischer gives this special invitation. Look under the finish of the new Fischer models of apparatus shown, including Fischer shockproof x-ray apparatus short wave units ultraviolet and other generators.

**E FOUGERA & COMPANY INC**  
Booth 4 S

The many diagnostic uses of Lipiodol will be featured at the Fougere exhibit. Roentgenograms illustrating the applicability of Lipiodol in visualizing sinus and fistula tracts, the bronchial tree, the accessory nasal sinuses, the spinal subarachnoid space and other radiolucent structures will be available for inspection. A cordial invitation is extended to all physicians.

**GENERAL ELECTRIC X RAY CORPORATION**  
Booths 3 4 and 5 H

Features of the General Electric x-ray exhibit this year will be x-ray and electro-medical units together with accessory items and supplies selected for their particular interest to the medical profession in a nation at war. A full staff of representatives will be glad to show new products and explain changes that have come about as a result of the war production program.

**HANOVIA CHEMICAL & MFG COMPANY**  
Booth 6 O

A new and more modern type of self-lighting ultraviolet quartz lamp will be on display, as well as Sollux Radiant Heat Lamps and short and ultra short wave apparatus. Physicians are encouraged to

ask for a demonstration with the new local therapy ultraviolet quartz lamp cooled by air instead of water.

**LEPEL HIGH FREQUENCY LABORATORIES**  
Booth 1 K

Physicians are cordially invited to visit the Lepel booth, where various tube and spark gap model short wave generators will be shown also the well-known induction type mercury quartz ultraviolet lamp. The medical profession is assured of continued cooperation and service on all Lepel machines as far as war priorities will permit this service.

**LIEBEL FLARSHEIM COMPANY**  
Booth 7 T

A new more efficient type of short wave applicator, the L-1 Hinged Drum, will be on demonstration here. This is used for treating any area from a small wrist to a large flat area such as the chest, and can be applied in only nine seconds. A complete line of Boyle electrosurgical units will also be on display plus other new and interesting physical therapy equipment.

**McINTOSH ELECTRICAL CORPORATION**  
Booth 2 M

Customers and friends will be cordially welcomed. The latest model of Hogan Brachytherm short wave diathermy apparatus galvanic current equipment and the Biotite Infra-Red Lamps will be displayed. Representatives will be glad to answer any questions on physical therapy technique and to demonstrate this equipment.

**F MATTEN MANUFACTURING COMPANY**  
Booths 5 6 7 8 AA

Some new and interesting developments in x-ray apparatus can be seen at the Matten booths. These will include a x-ray mobile portable unit supplied to the U.S. Navy, and a complete line of shockproof x-ray units such as Matten units with Aeromax tubes, with air circulator with Dynamax tubes with rotating anode and with water cooled Thermax tubes including radiographic and fluoroscopic units of 15 MA, 20 MA, 60 MA, 100 MA and 200 MA capacity.

**WILLIAM MEYER COMPANY**  
Booth 9 M

A special self-contained shock-proof x-ray unit for the head specialist will be exhibited also a combination dental and medical x-ray unit for clinics and hospitals or for the joint use of dentist and physician. Another feature of the Meyer exhibit will be a new portable-mobile unit with carrying cases.

**MOORADIAN HIGH FREQUENCY LABORATORIES**  
Booth 8 M

Physicians are invited to see demonstrations of the latest combination short wave diathermy and electrosurgical apparatus. This unit provides current for regular short wave therapy, and there are also available currents, under absolute control for orificial electrodes (vaginal and prostatic) and for electro-surgery. Representatives will be happy to discuss technical problems on high frequency medical and surgical apparatus.

(continued on advertising page 86)

**EXHIBITORS**

|                                       |            |   |              |
|---------------------------------------|------------|---|--------------|
| Smith & Nephew Inc New York N Y       | 10 Q       | Vegex Corp N Y C                          | 3 P          |
| Sorensen Co C M N Y C                 | 4 R        | Vischer Prods Co Chicago Ill              | 12 R         |
| Spencer Corset Co New Haven Conn      | 6 H        | Walker Vitamin Prods Inc Mt Vernon N Y    | 4-EE         |
| Spencer Lens Co Buffalo N Y           | 7-K        | Wallace & Tiernan Prods Belleville N J    | 18 P         |
| Sprella Co Niagara Falls N Y          | 13 S       | Weck & Co Edward Inc Brooklyn             | 14-R         |
| Squibb & Sons E R N Y C               | 13 14 15 L | Weco Products Co Chicago                  | 10 Q         |
| Standard Brands Inc N Y C             | 4 K        | Westinghouse (X Ray) L I C N Y 1, 2, 3-EE |              |
| Standard X Ray Co Chicago             | 9 T        | White Labs Newark N J                     | 12 S         |
| Stearns & Co Frederick Detroit        | 18 R       | Williams & Wilkins Co Baltimore           | 9-V          |
| Sun Rayed Co Frankfort Ind            | 16 J       | Wilson Rubber Company Canton Ohio         | 2-L          |
| Surgical Publishing Co Chicago        | 17-R       | Winthrop Chem Co N Y C                    | 21 22-K 6 EE |
| Tampax Inc N Y C                      | 4-DD       | Wis Alumni Res ch Found Madison Wis       | 3-R          |
| Taylor Instr Companies Rochester N Y  | 13-M       | Woehner & Son Co Max Cincinnati           | 12-O         |
| Thomas Publ Charles C Springfield Ill | 12-J       | Wolf X-Ray Prods Inc New York N Y         | 19 J         |
| Tower Company Inc Seattle             | 3-I        | Wyeth & Brother John Phila                | 15 16 17-K   |
| U.M.A. Inc N Y C                      | 11-R       | Year Book Publishers Inc Chicago          | 8 J          |
| Union Carbide Co N Y C                | 15-A       | Zimmer Mfg Co Warsaw Ind.                 | 4-M          |
| United Fruit Co N Y C                 | 1-H        |   |              |
| University of Chicago Press           | 1-R        |   |              |

## ACCESS TO HOSPITAL RECORDS

## SOME LEGAL ASPECTS

T. V. McDANIEL

FROM THE BUREAU OF LEGAL MEDICINE AND LEGISLATION,  
AMERICAN MEDICAL ASSOCIATION  
CHICAGO

A perplexing problem which confronts hospital administrators is the determination of a proper policy with respect to access to hospital records. What about permitting inspection of or furnishing or permitting the making of copies of hospital records of a patient? What should be commonly recognized as the ethical obligations of the hospital to its patients? The hospital occupies a confidential position with respect to its patients analogous to that occupied by the attending physician. It would be illogical for the physician to be bound professionally to keep accurate information required in his professional capacity and yet to permit the same information reduced to the case record of the patient to be disseminated indiscriminately. The proper approach it would seem is not to determine the question in the light of what liability it may be assumed by the hospital in permitting access to the records of a particular patient but rather to view the matter in the light of what duty, if any—legal, ethical or moral—there is on the hospital to permit access in any particular case. Few decisions, of courts of appellate jurisdiction—usually the only courts whose decisions are available in the published reports—can be found that are squarely in point for the purpose of the present discussion. General principles, then, seem to be the only basis from which to carry on the discussion.

On principle, it would seem that a hospital retains case records for a twofold purpose. (1) It retains them as a trustee, or in some other confidential capacity, for the patient and the attending physician and (2) it retains them as evidence of the care and attention its own servants rendered in the case. If, then, a hospital retains case records as a trustee or in some other confidential capacity for the patient and his attending physician, in theory it can make no use of those records except, of course, in defending itself from charges of negligence inconsistent with the rights and interest of the patient and the attending physician. Strictly from the patient's point of view he is entitled to privacy, that is, he has the right that the nature and incidents of his illness be not subjected to public view but only to the view of those who are acting for him and in his interest.

This general rule may be altered possibly in any particular instance by the presence of (1) some specific local law or ordinance on the matter, (2) some express contract between the hospital and the other interested parties or (3) some express hospital regulation or possibly local custom on the subject, concerning which the patient and the attending physician had actual or implied knowledge.

There must necessarily be excepted from any extended discussion instances in which any of the qualifying factors just noted are present. Obviously a general statement with respect to such situations is impossible because of unpredictable factual setups. For instance, we cannot anticipate the exact wording of a state statute or a local ordinance with respect to a governmental hospital that would permit general access to the records concerned. Nor can we hypothesize a discussion on conceivable hospital regulations or local customs with respect to the matter, furthermore, if there is an express contract entered into between the hospital, the patient and the attending physician with respect to the future use of the records concerned, the terms of that agreement, of course, will govern.

Of the qualifying factors mentioned, the most common will be instances in which some state statutes or local ordinance in specific language denominates the records of a governmental hospital as public records. The very concept of a public record implies generally a right on the part of the public to inspect on

demand. Even if there is such a statute or enactment relating to a particular governmental hospital, however, it must not be assumed that any person is legally entitled to access to the complete records of that hospital. There may be reason to draw some distinction between the right of the public to view the records maintained for or relating to administrative purposes and the public right to view that portion of the record maintained for pathologic purposes, the clinical records. Furthermore, even if there is an enactment of this type, if there is also a statute prohibiting physicians from disclosing in court information acquired in attending a patient, it is quite generally held that a governmental hospital cannot be compelled to grant access to its records to a third person (*Massachusetts Mutual Life Ins Co v Board of Trustees of Michigan Asylum for the Insane* (Mich.) 144 N W 538) and that such records if subpoenaed in court are not admissible in evidence over the patient's objection (*Davis v Knights of Honor* (N Y), 58 N E 891, *Sovereign Camp v Grandon* (Neb.) 89 N W 448, *Smart v Kansas City* (Mo.), 105 S W 709).

Coming then to the more common situation in which there is no law or enactment requiring a hospital to grant access to its records, nor any express contract relating to the matter, nor any hospital regulation or local custom that might govern the matter of access. Under such circumstances there seem to be no legal grounds on which it might be contended that any person, except possibly the patient or his attending physician, has a right of access to the records, unless by virtue of a subpoena where those records are presented in court or before some administrative tribunal. The only persons, it would seem, who can be said to have any legal right of access to a particular case record are the patient, his attending physician or son or one designated by the patient to act in his interest. It is not altogether clear that even the patient has a legal right to such access, but in view of the fact that the hospital in its compilation and custody of the record of a particular patient is acting as a trustee, in part, for the patient, the patient's interest should govern the hospital's conduct, and the primary question should not be Has the patient an enforceable legal right to inspect the records? but rather What good reason is there for denying him access? The patient may have an immediate interest in such records, either with a view to litigation or with a view to subsequent treatment to that extent he may be harmed by a refusal to permit him or his representatives to inspect or copy the records. On the other hand, if the records have been properly kept and the case properly treated, neither the hospital nor the attending physician has any real interest in denying access. In any event, if litigation occurs, the production of the records in court or before some tribunal can be compelled.

In many instances an attending physician may desire access to records with respect to a previous hospitalization of his patient during which the patient had another attending physician. In such an instance it would seem that access should be granted to the present attending physician, clearly so when the patient authorizes the hospital to do so. Even in the absence of such express authorization by the patient, access should be granted on the theory that when a patient places himself under the care of a physician he authorizes that physician to use such measures as are necessary to diagnose his condition and to determine and pursue the proper course of treatment, and obviously the records with respect to a previous hospitalization may often be of material aid to the attending physician. If a patient specifically objects to his attending physician viewing the record, the safest course for the hospital would seem to be to act in accordance with the patient's wishes.

Thus far I have discussed what seems to be the proper policy when the patient or some one acting in his interest seeks access to the records. What then should be done when access is requested or demanded by persons other than the patient or his representatives? A hospital is under no obligation to permit any one, save possibly the patient, his representatives and the attending physician, to examine or copy records of a given patient unless such examination is required by a valid statute, ordinance, regulation or an appropriate court order. For the

protection of the hospital evidence of proper authority from the patient should be required of every one other than the patient and the attending physician who desires access to the records in a given case before permitting an examination of such records. Claim agents, attorneys and representatives of insurance companies unless accompanied by the patient should be required to present written authority from the patient before access is allowed.

Probably the most frequent request or demand for access to hospital records comes from representatives of insurance companies. An insurance company is not entitled to such access even though it has insured the life, limb or health of a patient. This is true even though the insurance policy involved requires the patient to furnish the information the insurer seeks for even then the insurer should seek such information from the patient and not from the hospital. Although a contract of insurance contains express or implied authority for a hospital to give out such information, the hospital is not a party to the contract and cannot safely accede to what appears in the policy to be the patient's consent to access. It is a safer practice to require as a condition precedent to access, the written consent of the patient dated as nearly as possible to the date access is desired. If the patient refuses to sign a consent at that time or refuses to obtain the desired information for the insurance company, certainly the hospital has no right to do so on its own account.

Cases may arise that require a hospital to deviate from the rules that have been stated and to assume the responsibility of giving information without the consent of the patient, as where the patient is unconscious, delirious or seriously ill so that he himself cannot supply the information but the information is essential to the procuring of some immediate benefit to the patient or to those dependent on him. The proper officer of the hospital may then assume the responsibility, recognizing it as a responsibility, but, generally speaking, in such a case the law would presume the consent of the patient as to what is definitely for his benefit.

Finally, the question often arises as to the right of a hospital either to lend its hospital charts for research work or to use them in staff conferences or other clinical study. Whether the patient's right to privacy should yield to some extent to the cause of medical science, I am not prepared to say, as no legal authority can be found that would permit a hospital to make such use of its case records. The universality of the custom among hospitals in permitting such use of its case records may or may not have a bearing on the question. In any event the least the hospital can do is to require the consent of the attending physician and to insist that the case records be used and presented in such a way as not to reveal the identity of the patient or of the attending physician.

Of course, nothing that has been said here has reference to the making of reports required by law. Where the law requires a report to be made of a birth, of a communicable or industrial disease, of a crime or of a death that report must be made, and the law will protect the maker. Such a legal requirement would also doubtlessly protect a hospital in the making of most, if not all, of the reports required by workmen's compensation acts.

This discussion, as noted earlier, has dealt with the right of a demandant to secure access to the hospital records of a

particular patient and no discussion has been given to the liability of a hospital for making an improper, unauthorized disclosure. Conceivably such a liability could be imposed on a hospital though no case is known in which a court has held a hospital liable for damages for the unauthorized disclosure of hospital records.

In conclusion the procedure followed in permitting access to a patient's record should conform to the standards of conduct which physicians have prescribed for themselves with respect to the sanctity of confidential communications. A patient cannot well be denied the privilege of access to his own records nor may this privilege be denied his attending physician, his attorney or any other person acting with his authorization and in his interest. Furthermore such access should not also be dependent on the written consent of the attending physician. No other person should be accorded access to the records however without the patient's written permission and this rule should be rigidly enforced as against claim agents, insurance adjusters and attorneys. Any other policy would certainly serve no useful purpose for the hospital.

The accompanying form to evidence the patient's consent to access to the hospital records by a particular person is submitted for consideration. Certainly, if the execution of such a consent is required before access is permitted and if the executed form is presented by the hospital, the hospital is in a formidable position as against any potential liability to its patient and in following the procedure just suggested could also rest secure in the knowledge that its actions had been in accord with the highest medical ethics.

#### CONSENT TO ACCESS TO HOSPITAL RECORDS

To \_\_\_\_\_ [insert name of hospital superintendent]  
hospital

I ) hereby authorize and request you to furnish a copy of the hos-  
We) pital records of \_\_\_\_\_ [insert name of patient] or to allow  
those records to be inspected by \_\_\_\_\_ [insert name of grantee]  
I ) hereby release \_\_\_\_\_ hospital and you personally  
We) from all legal responsibility or liability that may arise from the act I )  
have authorized above \_\_\_\_\_ We)

Signature of patient  
Other signatures

Date \_\_\_\_\_  
Witness \_\_\_\_\_

**NOTE**—The signature of the patient alone should be sufficient in all cases except when the patient is a minor or is incompetent in which cases, in addition to the patient's signature, the signature of the parents or surviving parent or guardian respectively, should be obtained.

**Explanation**—This form when duly executed should be attached to the hospital records of the patient, with a notation as to the date on which the records were viewed or copy was furnished.

No particular form is suggested for a patient's request to be furnished a copy of or to be allowed to inspect his own records. Such a request, however, should be in writing and should be attached to the records with the notations indicated just above.

## MEDICAL LEGISLATION

### STATE MEDICAL LEGISLATION

#### Arizona

**Bills Passed**—The following bills have passed the house and senate. S 27-X, to authorize the common council of any town to own, operate and control hospitals, and H 28-X to amend the laws relating to the state hospital for the insane by providing that the superintendent of such hospital and the members of the medical staff engaged as psychiatrists need not be residents of the state.

#### Rhode Island

**Bill Passed**—S 171 has passed the house and senate, proposing to create a cash sickness compensation fund from which eligible employees will be paid weekly benefits of up to \$18 for approximately twenty weeks for such periods as, because of physical or mental disabilities they are unable to perform any services for wages. To create this fund employers of eligible workers are required to deduct 1 per cent from the first \$3,000 of each employee's wages.



## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS CLINICAL INTEREST SUCH AS RELATIVE TO SOCIETY ACTIVITY, THIS NEW HOSPITALS EDUCATION AND PUBLIC HEALTH)

### CALIFORNIA

**Southern California Physicians' Meeting**—The Southern California Medical Association held its one hundred and sixth semiannual meeting at the Mission Inn, Riverside, April 10-11. Dr. Edwin F. Osgood, associate professor of medicine, University of Oregon Medical School, Portland, discussed "The General Principles of Chemotherapy." Included among the California physicians on the program were:

Dr. Harvey I. Bilby, Jr., lieutenant M. C. U. S. N. R., Los Angeles, A New Physiologic Approach to Muscle Rejuvenation

Dr. Edmund L. Cain, Anaheim, Krukenberg Tumor of Ovary with Endocrine Manifestation

Dr. Frederick A. Bennett, Los Angeles, Endocrine Therapy in the Management of Prostatic Carcinoma

One morning session was given over to a symposium on the emergency treatment of traumatic injuries.

### CONNECTICUT

**Personal**—Dr. George B. Davis, Milford, has been appointed the first full time health officer of Milford according to *Connecticut Health Bulletin*.—Dr. Louis H. Cohen, Norwich, has been appointed assistant clinical professor of psychiatry and mental hygiene at Yale University School of Medicine, New Haven.

**County Secretaries Resign**—Dr. James H. Burke, Rockville, has resigned as secretary of the Tolland County Medical Association to go into active service. Dr. Frank J. Oberg, Hartford, for five years secretary of the Hartford County Medical Association, resigned to become a member of the medical staff of Colt's Patent Fire Arms Manufacturing Company. Dr. Austin Kilbourn, Hartford, has been named to fill Dr. Oberg's unexpired term.

**Council for Expectant Fathers Observes Fifth Anniversary**—The New Haven Fathers' Council, sponsored by the local health department, marked its fifth anniversary, March 28, with the opening of its eleventh series of meetings for expectant fathers. More than four hundred men have attended these lectures during the past five years. The maternal health problem and the available means for further reducing maternal and infant mortality constituted the theme of the discussions. On May 4 a joint meeting for fathers and mothers will be held as part of the observance of National Child Health Week. Dr. Arnold Gesell, professor of child hygiene and director of the Clinic of Child Development at Yale University School of Medicine, New Haven, will be the speaker.

### DISTRICT OF COLUMBIA

**The Kober Lecture**—Dr. Charles Armstrong, senior surgeon, U. S. Public Health Service, Washington, gave the Kober lecture, March 28, at Georgetown University School of Medicine on "Recent Studies on Neurotropic Virus Diseases." This lectureship was inaugurated by the late Dr. George M. Kober, once dean of Georgetown, in commemoration of his fiftieth anniversary of graduation from medical school. The lecture is always given on his birthday.

**Aleš Hrdlička Retires as Curator**—Dr. Aleš Hrdlička on March 31 retired as curator of the division of physical anthropology in the U. S. National Museum, Washington, according to *Science*. He had held the position since 1910. He has been appointed an associate in anthropology and will continue his scientific research and serve in an advisory capacity. Dr. Thomas Dale Stewart, since 1931 assistant curator, has been named curator and administrative head of the division of physical anthropology. Dr. Hrdlička was born in Humpolec, Bohemia, on March 29, 1869. He graduated at the Eclectic Medical College of the City of New York in 1892 and the New York Homeopathic Medical College and Hospital in 1894. Subsequently he carried on surveys among the insane and other classes served as associate in anthropology at the New York State Pathological Institute and made anthropologic expeditions to many countries. He was assistant curator in charge of the division of physical anthropology from 1903 to 1910, when he

became curator. Dr. Hrdlička was founder of the *American Journal of Physical Anthropology*. He was also founder of the American Association of Physical Anthropology, of which he is now a life member; he served as president from 1928 to 1932. He has held various offices in many scientific societies and has contributed much to the literature on his specialty.

### FLORIDA

**Personal**—Dr. Shaler A. Richardson, Jacksonville, has resigned as a member of the state board of health to devote his full time to private practice and to his duties of secretary-treasurer of the Florida Medical Association.—Dr. Leland H. Dame, Sebring, formerly health officer for Highlands and Glades counties, has been named director of the Seminole County health unit.

**Malaria Control Activities**—Florida has been designated a proving ground for the Southeastern states in a national defense plan for malaria mosquito control activities, newspapers reported on March 18. Leon County has been selected for the trial defense malaria unit and U. S. Public Health officials in Atlanta, Ga., will collaborate. Dr. John E. Elmendorf Jr., Pensacola, director of the bureau of malaria control, Florida State Board of Health, will supervise the program.

### LOUISIANA

**Director of Industrial Hygiene**—Dr. Sherman S. Pinto, until recently associated with the Massachusetts State Division of Occupational Hygiene, Boston, has recently been named supervisor of industrial hygiene of the state department of health, New Orleans. Dr. Pinto graduated at the University of Nebraska College of Medicine, Omaha, in 1932.

**Personal**—Dr. Rudolph Matas, New Orleans, was recently presented with the Medal of Havana, the highest distinction conferred by that city, in commemoration of the anniversary of the birth of Dr. Carlos J. Finlay, Havana, Cuba, according to the state medical journal.—Dr. Walter J. Otis, New Orleans, was elected president of the New Orleans Society for Neurology and Psychiatry at a recent meeting. Dr. Clarence P. May, New Orleans, is the secretary-treasurer.—Dr. Rosecoe P. Kandle, Monroe, has been appointed director of the Calcasieu parish health unit.

**New Health Buildings**—Plans have been approved for the construction of a \$348,000 office building in Baton Rouge to house the state board of health. The new structure will contain the central laboratories of the state board and provide office space for all the division and section heads and for their departments. It is expected to be ready for occupancy in about a year. Plans have also been approved for new health centers in Alexandria and Shreveport to cost about \$100,000. Smaller units have been approved for Leesville, De Ridder, Lake Charles and Lafayette, Crowley, Natchitoches, Winnfield, Marksville, Ville Platte, Glenmora, Lecompte, Colfax, Bunkie, Oakdale, Jena, Filmore, Plain Dealing and Elm Grove. All these proposed centers are in defense areas and will provide accommodations for offices, small laboratories and clinics of the parish health units.

### MARYLAND

**Personal**—Dr. John Collinson Jr., Baltimore, has been appointed health officer of Cecil County to fill the unexpired term of the late Dr. Clinton A. Kane, Perryville.

**Society News**—The Baltimore City Medical Society was addressed among others by Dr. Maxwell M. Wintrobe, Baltimore, March 6, on "Current Views on the Diagnosis and Treatment of Nutritional Deficiencies."—The Upper Eastern Shore Medical Association was recently addressed in Denton by Dr. Charles W. Mason on activities of the Procurement and Assignment Service and Dr. William S. Love Jr., "Management of Cardiac Emergencies." Both are from Baltimore.

**New Director of Industrial Health**—Dr. Starling D. Steiner, Baltimore, has been appointed chief of the recently organized division of industrial health of the Maryland State Department of Health. Dr. Steiner was detailed to the state department by the U. S. Public Health Service in July 1941 for advisory services on occupational diseases and other health hazards in defense and other industries in the state. According to the bulletin of the state department of health, official organization of the division was completed on January 1. Preliminary services effected last year will be expanded and developed under Dr. Steiner's direction, with particular reference to the defense industries.



## MICHIGAN

**Communicable Disease Control**—Dr Henry Allen Moyer Lansing, state health commissioner has appointed a committee to study the needs for the control of communicable disease which have arisen as the result of the sudden influx of defense workers in certain areas of the state particularly where no organized health department exists. Members of the committee are

Dr Frank Van Schoick Jackson representing the state medical society  
Dr Eldred A. Thiehof Lansing representing the state department of health

Dr Edgar E. Martner Detroit representing the Michigan branch of the American Academy of Pediatrics

Mrs. Lena Sehermann R. A. Mason representing the Michigan State Nurses Association

Mr. C. Robert Koopman Lansing representing the Michigan Department of Public Instruction

The appointment of the committee was made on the recommendation of the child welfare committee of the state medical society with the approval of the society's council.

**Meeting on Industrial Health**—The Michigan Association of Industrial Physicians and Surgeons held its annual meeting in Flint April 1. One session was devoted to the theme "What's Going on in Industrial Medicine" covering a discussion of industrial medicolegal services, official state agencies available for industrial hygiene guidance, relationship between the physicians and the general medical profession, industrial toxicology and absenteeism in industry. The speakers on the program included Drs. Grover C. Penberthy, Detroit "Burns," John B. Hartzell, Detroit "Wound Healing," Nathan K. Jensen, captain Medical Reserve Corps, U. S. Army, Camp Crowder, Missouri "Use of Sulfanilamide in Wounds" and Jackson E. Livezey, Flint "Osteogenesis and Osteoporosis." The annual banquet was addressed by Dr. Clay Ray Murray, New York, on "The Operative Treatment of Fractures."

**Alumni Clinic Day**—Wayne University College of Medicine, Detroit, will observe its annual alumni clinic day May 6 with the following program:

Dr. Elmer L. Seyringhaus, Madison, Wis., "Proved Preparations in Endocrine Therapy and Their Application."

Dr. Alfred W. Adson, Rochester, Minn., "Present Status of the Surgical Treatment of Hypertension."

Dr. John T. Murphy, Toledo, Ohio, "X-Ray Treatment of Lesions of the Face."

Dr. George M. Curtis, Columbus, Ohio, "Recognition and Management of Acute Injuries to the Chest."

Dr. Plinn F. Morse, Detroit, "Diagnosis of Splenic Enlargement."

In the evening presentation of the annual alumni prize will be made by Dr. Louis J. Morand, Detroit, and Preston W. Slosson, Ph.D., professor of history, University of Michigan, Ann Arbor, will give an address entitled "Making the World Safe for Democracy: Can We Do It This Time?" Dr. Henry A. Luce, Detroit, will be the toastmaster.

## MINNESOTA

**The Christian Lecture**—Howard B. Anderson, Sc.D., principal biologist of the National Cancer Institute, National Institute of Health, Bethesda, Md., delivered the annual George Chase Christian lecture at the University of Minnesota Medical School, Minneapolis, April 15. His subject was "Recent Trends in Cancer Research."

**Abortionist Must Serve Sentence**—Mrs. Georgiann Tenneyson, 53 years of age, recently lost her appeal from a conviction for criminal abortion in the supreme court of Minnesota. Mrs. Tenneyson, who resided in St. Paul, was convicted by a jury in the district court of Ramsey County May 23, 1941 and was sentenced by Hon. Hugo O. Hanft, judge of the district court for a term of not less than two and not more than eight years at hard labor in the Women's Reformatory at Shakopee. Her sentence was doubled because of a previous conviction in 1928 on a similar charge. At that time she was known as Ann Herbert. Mrs. Tenneyson was taken to Shakopee March 6 to commence serving her sentence, according to the state board of medical examiners.

**Heart Program for Children**—A program for patients under 21 years of age with heart disease has been launched in Minnesota as a function of the bureau for crippled children of the state division of social welfare. Because of limited funds only patients from rural sections of Hennepin and Ramsey counties and Scott-Carver, McLeod and Dakota counties

will be accepted for care. Children needing convalescent care or acute cases needing hospital care will be hospitalized at the Children's Hospital, St. Paul. Emphasis will be placed on children with rheumatic heart disease who are in need of convalescent care. The state medical journal reports that Dr. Paul F. Dwan, Minneapolis, will be in charge of the clinical work. Dr. Malvin J. Nadel, Minneapolis, is head of the bureau of crippled children.

## NEW HAMPSHIRE

**State Medical Meeting**—The one hundred and fifty-first annual session of the New Hampshire Medical Society will be held at the Hotel Carpenter, Manchester, under the presidency of Dr. Charles H. Dolloff, Concord, May 12-13. A symposium on heart disease will be conducted by Drs. Paul D. White, Boston; Ashton Graybiel, Boston; Richard Schatzki, Boston; and Beatrice M. Keston, New York. Round table conferences will make up the following program:

Dr. William F. Putnam, Lane, "Rational Drug Therapy."  
Dr. John H. Kennard, Manchester, "Diagnosis and Treatment of Vaginal Bleeding."

Dr. Andrew I. MacMillan, Jr., Concord, "Methods and Problems of Vision Testing in School Children for Screening Purposes."

Dr. Louise M. Paul, Wakefield, "Anesthesia and Analgesia in Obstetrics."

Dr. Farret H. Folley, Hanover, "The Medical Management of Intestinal Obstruction with Special Reference to the Use of the Miller Abbott Tube."

Dr. Donald G. McIvor, Concord, "Acute Conditions of the Gallbladder."

Dr. Albert I. Winograd, Nashua, "Allergy in Children."

Dr. Raymond H. Marcotte, Nashua, "Meniere's Syndrome."

Dr. Ernest F. Irons, Chicago, "Aspiration Pneumonia."

Dr. Fred I. Ashur, Chicago, "Recent Treatment of Gonorrheal Infections in the Female."

Dr. William Halcyon Parker, Baltimore, "Recent Development in Therapy with Sulfonamide Drugs."

Fifty-year membership gold medals will be presented to Drs. Zatae L. Straw, Manchester, and Edwin P. Hodgdon, Lakeport. Dr. Herbert S. Hutchinson, Milford, who has been a member of the society for sixty consecutive years, will be introduced at the session. At the banquet speakers will include Governor Robert O. Blood, Concord, and Dr. Irons on "The Last Illness of Sir Joshua Reynolds."

## NEW YORK

**Society News**—The Dutchess County Medical Society was addressed on March 13 in Poughkeepsie by Dr. John J. Moorhead, lieutenant colonel, medical reserve corps, U. S. Army, New York, on "Surgical Experiences at Pearl Harbor." The Medical Society of the County of Westchester was addressed, March 17, by Drs. Wallace H. Cole, St. Paul, Minn., and Philip M. Stimson, New York, on "The Kenny Treatment of Infantile Paralysis." Dr. Reginald Fitz, Boston, spoke on "Clinical Aspects of Jaundice" at a meeting of the Broome County Medical Society on March 10 at Binghamton.

## New York City

**The Christian A. Herter Lectures**—Conrad A. Elvehjem, Ph.D., professor of biochemistry, University of Wisconsin, Madison, delivered the annual Christian A. Herter lectures at the New York University College of Medicine, April 6-7. His subjects were "Recent Advances in Our Knowledge of the Components of the Vitamin B Complex" and "The Relation of the B Vitamins to Intermediate Metabolism."

**War Time Housing**—The Museum of Modern Art opened an exhibition of war time housing, April 22, in collaboration with the National Committee on the Housing Emergency. The exhibition, which will continue to July 19, aims to show that war materials can be produced in volume to assure victory; only if workers are available to man the plants, making housing an essential to the war production program, and to show that the huge expenditures for war housing can to a large extent be conserved for the future use of the communities in the housing is planned with intelligence and foresight. The massing of workers at plants, the rapid construction of housing and the integration of such units into a community are scenes depicted in the exhibition.

**Medal Awarded to Dr. MacInnes**—The William H. Nichols Medal, which is awarded by the New York section of the American Chemical Society to stimulate original research in chemistry, was presented to Duncan A. MacInnes, Ph.D., of the Rockefeller Institute for Medical Research, at a dinner March 6. According to the *New York Times*, Dr. MacInnes was honored for "distinguished contributions to electrochem-

istry." A native of Salt Lake City, Dr MacInnes received his Ph.D. at the University of Illinois in 1911. He subsequently served on the staff there and at the Massachusetts Institute of Technology, joining the Rockefeller Institute as associate member in 1926. He was president of the Electrochemical Society from 1935 to 1937.

## NORTH CAROLINA

**State Medical Meeting in Charlotte**—The eighty-ninth annual session of the Medical Society of the State of North Carolina will be held at the Hotel Charlotte, Charlotte, May 11-13 under the presidency of Dr Franklin Webb Griffith, Asheville. Among the speakers will be Dr Paul Dudley White, Boston, on "Recent Advances in the Diagnosis and Treatment of Cardiovascular Disease" and Dr Fred W. Rankin, Lexington, Ky., President Elect of the American Medical Association who will deliver the McBrayer Memorial Lecture on "The Doctor in Washington." Other speakers will include:

Dr Henry C. Coburn, Jr., brigadier general, U. S. Army, Fort Bragg. The responsibility of the Civilian Physician in the War Emergency.  
Dr Edwin P. Meyer, Durham. Illustration for Carcinoma of the Prostate Gland.

Dr Max A. Gert, Asheville. The Treatment of Chronic Alcoholism.  
Dr W. J. Donnelly and Russell L. Holman, Chapel Hill. The Study of the Intestine of the Guinea Pig on Cellular Repair in the Kidney Tissue by Urinary Nitrate.

Dr Jesse Lee McCall, Greensboro. Morphine in Gelatin for Addiction.

Dr A. Caldwell A. Butler, Charlotte. Experience and Treatment of Central Nervous System Disorder by Prefrontal Lobotomy.

Dr J. M. A. A. Durham. The Use of Sulfonamide Derivatives in Syphilis: A Critical Review.

Dr J. L. K. Lee, Winston-Salem. Bleeding Associated with Intracerebral Drains of the Temples.

There will be a symposium on psychotherapy. The banquet will be addressed by James J. Glick, New York, on "Circumstances of the Occasion with Dr Owen Moore, Charlotte as toastmaster. Dr Walter R. Johnson, Asheville, will be presented with the Moore County Medal for the best paper read at the 1941 session for his paper on "Is Diverticulitis of the Colon a Surgical Disease." The twenty-second annual meeting of the North Carolina Public Health Association will be held at the Hotel Charlotte, May 14 and 15.

## OHIO

**Personal**—Dr Dwight I. King, Findlay, has been appointed a member of the state medical board.—Dr Elizabeth Campbell, who has practiced in Cincinnati since 1895, was recently given an honorary life membership in the American Social Hygiene Association. Dr Campbell, who recently observed her eightieth birthday, founded the Cincinnati Social Hygiene Society and is now chairman of the Cincinnati Committee on Maternal Health.

**Graduate Course in Ear, Nose and Throat**—The sixth annual graduate course in otology, rhinology and laryngology will be held at the University of Cincinnati College of Medicine, May 11-16, with members of the departments of otolaryngology and anatomy presenting the instruction. The course will include refresher work in regional anatomy and cadaver surgery in the field of otolaryngology. The work will include a course on cadavers.

**Ophthalmologist Honored**—Dr William E. Bruner, professor emeritus of ophthalmology, Western Reserve University School of Medicine, Cleveland, was honored during a recent meeting of the Cleveland Medical Library Association. His portrait was presented to the association, and an alcove in the library was named for him. The room was made possible by contributions from the Cleveland Ophthalmological Club. Dr Bruner was a charter member of the association and had served it as president, secretary, treasurer, chairman of the finance committee and member of the board of trustees.

## PENNSYLVANIA

**Society News**—Dr Luther C. Peter, Philadelphia, addressed the Reading Eye, Ear, Nose and Throat Society, April 15, on "Problems in the Management of Concomitant Squint." Dr Solon L. Rhode, Reading, was chosen president of the society at this meeting, and Dr Paul C. Craig was reelected secretary.

### Pittsburgh

**The Mellon Lecture**—Dr Herbert M. Evans, Morris Herzstein professor of biology and director of the Institute of Experimental Biology, University of California Medical School, San Francisco, delivered the Mellon Lecture, April 23, on "Unsolved Problems in Anterior Pituitary Physiology." The lecture is sponsored annually by the Society for Biologic Research of the University of Pittsburgh School of Medicine.

## RHODE ISLAND

**Society News**—The Rhode Island Society of Pathologists was addressed at its first scientific meeting at the Woonsocket Hospital, Woonsocket, March 10, by Drs Benjamin Earl Clarke, Providence, on "The Blood Bank—A General Discussion" and Louis Goodman, Howard, "Chronic Hypertensive Encephalopathy—A Report on Six Cases." Dr James T. Fallon, Providence, gave a lantern slide demonstration of the "Beriberi Heart and Nonhypertensive Cerebral Hemorrhage." This society was just recently organized.

## SOUTH CAROLINA

**County Society Opposes State Controlled Selection of Health Officer**—At a recent meeting the Medical Society of South Carolina adopted a resolution expressing "unqualified condemnation of the recently passed state law requiring the health officer of Charleston County to be elected in the primary rather than appointed by the county board of health." The resolution called on the people of the county to seek the repeal of the act in order to prevent lowering the quality of public health services administered. According to a newspaper report, the Charleston County Board of Health earlier in the day had issued a "scathing statement" pertinent to the means taken to insure this action.

## TEXAS

**New Professor of Anesthesiology**—Dr Harvey C. Slocum, for two years instructor in anesthesia at the University of Wisconsin Medical School, Madison, has been appointed professor of anesthesiology at the University of Texas School of Medicine, Galveston, and director of the department of anesthesia, the John Sealy Hospital, Galveston. Dr Slocum graduated at the University of Buffalo School of Medicine, New York, in 1932.

**Sugar Beet Workers Examined for Tuberculosis**—A new center for the examination of prospective Mexican sugar beet field workers for tuberculosis has been opened at Dallas under the auspices of the Michigan Beet Growers Association, the Texas State Health Department, the health departments of Dallas and San Antonio and the Michigan Department of Health. The first examining center was established in San Antonio. The *Journal of the Michigan State Medical Society* reports that out of 17,600 Mexicans who went through the examining center in San Antonio 400 were rejected because they had tuberculosis. The *Journal* further reports that these examinations were begun in 1937 when it was found that there were many more Mexicans receiving sanatorium care for tuberculosis at public expense than would have been expected from their numbers in the population.

## PHILIPPINE ISLANDS

**Physician Interned by Japanese**—Dr Harry D. Kneedler, retired physician of Manila, is among the persons who have been interned by the Japanese in Manila, according to recent newspaper reports. Dr Kneedler graduated at the Beaumont Hospital Medical College, St. Louis, in 1892. He left his native city of Collinsville, Ill., and in 1900 entered the army medical corps for service during the Boxer Rebellion. He later established private residence in Manila. Dr Kneedler is 71 years old.

## PUERTO RICO

**Personal**—Dr Ezequiel Martinez-Rivera, San Juan, secretary of the Puerto Rico Medical Association, was elected president of the alumni of the Puerto Rico chapter of the Alumni of Maryland. Dr Martinez-Rivera graduated at the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, in 1921.

**Society News**—A symposium on "Consideration of Injuries and Disabilities in Connection with Hostile Aircraft Attacks on Civilian Population" was conducted at a meeting of the Medical Society of Humacao County, March 1. Among the speakers were Drs Luis Manuel Morales y Garcia, Jose Noya Benitez, Rafael Lopez Nussa, Peter E. Sabatelle, Juan A. Pons, Federico Hernandez Morales, Jacob Smith and Ramon M. Suarez, all of San Juan.—Drs Jose Forasteri and Juan J. Nogueras of Caguas were elected president and secretary respectively of the Guayama Medical Society, April 5. The meeting was addressed by Drs Oscar G. Costa-Mandry, Ramon Fernandez Marchante, Guillermo Ruiz-Cestero and Rafael A. Vilari Isern, San Juan.

## GENERAL

**Goiter Specialists Cancel Meeting**—The Council of the American Association for the Study of Goiter has announced that the annual meeting scheduled for Atlanta Ga June 1 will not be held this year on account of the present emergency.

**Directory Late**—Because of the great difficulties occasioned by the unusual and large number of changes of address of physicians and because of the difficulty of maintaining necessary office personnel there will be an unavoidable delay in the issuance of the 1942 American Medical Directory. The new edition will appear about the first of September rather than in June or July as in previous years.

**Special Meeting for Women Members at A M A Session**—A general meeting has been arranged for all medical women in attendance at the annual session of the American Medical Association in Atlantic City. The meeting will be in the form of a subscription dinner June 10 at the Ambassador Hotel at which "Service in War Time" will be the theme of discussion. The speakers will include Mr Stuart Rand, Boston attorney, and Col George Bachr, Washington D C.

**American Diabetes Association**—The annual session of the American Diabetes Association will be held at the Chalfonte-Haddon Hall, Atlantic City N J June 7 under the presidency of Dr Herman O Mosenthal, New York. Speakers will include:

Dr Franklin B Peck Indianapolis Action of Insulin  
Dr Joseph T Beardwood Jr Philadelphia The Diabetes in the Defense Program  
Dr Cyril N H Long New Haven Conn Endocrine Control of Carbohydrate Metabolism in Relation to Human Diabetes  
Dr Samuel Sothin Chicago The Storage and Significance of Tissue Glycogen in Health and Disease  
Dr Eaton M MacKay La Jolla Calif Acidosis  
Dr Harold E Hummel Albany N Y Hypoglycemic Reactions

Dr William Muhlbarg Cincinnati, will deliver the Banting Memorial Lecture at the dinner session in the evening on "An Analysis of Statistics Bearing on Diabetes Mellitus."

**Association of Cereal Chemists**—The American Association of Cereal Chemists will be held at the Edgewater Beach Hotel, Chicago, May 18-21. Sessions have been arranged under the following headings: Agronomy and Milling Technology, Laboratory Baking Methods, Malting and Brewing, Protein Symposium, Bread Baking Technology, General Analytical Methods, Symposium on Flour and Bread Nutritional Supplements. A statistical clinic will be held jointly with the biometric section of the American Statistical Association. Among the speakers on the general program will be Thorfin R Hogness, Ph D, Chicago, on "Respiratory Enzymes and Their Relationship to Some of the Vitamins", Conrad A Elvehjem, Ph D, Madison, Wis, "The Water Soluble Vitamins" and Ross A Gortner, Ph D, University of Minnesota, Minneapolis, who will give the Osborne Medal Award address on the "Plant Proteins".

**Meeting of Eye and Ear Specialists**—The thirtieth annual session of the Pacific Coast Oto-Ophthalmological Society will be held at the Benson Hotel, Portland, Ore, May 11-13 under the presidency of Dr Ralph A Fenton, Portland, whose address will be entitled "War and Peace." Among the speakers will be the following:

Dr Gordon B New Rochester Minn, Immediate and Later Care of Facial Injuries  
Dr Augustus G Pohlman Los Angeles Hearing Aids  
Dr Phillips Thygeson New York The Sulfanilamide Group  
Dr John E Raaf Portland Perimetric Diagnosis of Intracranial Lesions

A special motion picture program has been planned as well as the following instruction courses: manifest refraction eye surgery treatment of acute and chronic sinusitis endaural surgery, recent advances in ophthalmology, ophthalmic injuries in war, audiometric interpretation, sulfa-therapy, sinus surgery, and lesions of the larynx.

**Examinations in Urology**—The American Board of Urology Inc announces that if a sufficient number of applications are received from urologists fulfilling all the requirements of applicants a meeting for the purpose of examining candidates for certification will be held in some eastern city at the same time or shortly following one of the national medical meetings, the place and time to be published later. This decision is a response to the many urgent requests for a second examination from urologists who are now in the medical corps of the army or navy services and from others who expect to be called for active duty before the usual time of the board's yearly examination which is in February. Application blanks may be obtained from the secretary, Dr Gilbert J Thomas, 1409

Willow Street Minneapolis. These should be completed and returned to the secretary without delay. Candidates who wish to be examined at this proposed meeting should start the preparation of fifty case histories at once.

**Special Society Elections**—Dr Paul D White, Boston, was recently elected president of the American Heart Association at its meeting in New York. Other officers include Drs Roy W Scott, Cleveland, vice president, T Homer Coffin Portland Ore treasurer, and Howard B Sprague Boston secretary. Dr Elmer L Henderson, Louisville was named president-elect of the Southeastern Surgical Congress at the recent session in Atlanta and Dr Edward W Alton Ochsner New Orleans was inducted into the presidency. Dr Frederick J Wias, Jacksonville was chosen vice president and Dr Benjamin T Berslev, Atlanta, was reelected secretary-treasurer. The 1943 session will be in Louisville. Dr Paul R Cannon Chicago, was chosen president of the American Association of Pathologists and Bacteriologists at its annual meeting April 2-3 in St Louis. Other officers include Drs Wiley D Forbes, Durham, N C vice president, Howard T Karsner Cleveland secretary, and Alan R Moritz, Boston, treasurer. The gold headed cane of the association was presented to Dr James Ewing, New York.

**Society for Clinical Investigation**—The thirty-fourth annual meeting of the American Society for Clinical Investigation will be held at the Chalfonte-Haddon Hall Atlantic City May 4, under the presidency of Dr William Dock, New York. The program includes the following speakers:

Dr William W Beckman and Kendall Emerson Jr, New York A Study of Cerebral Metabolism in Nephrosis  
Dr Jacob Lerman Boston Insulin Resistance  
Dr Robert H Williams and Enrique Egrna Boston Alterations in Biologic Oxidations in Thyrotoxicosis  
Dr Willis F Evans and Harold J Stewart New York The Effect of Cigarette Smoking on the Peripheral Blood Flow  
Dr Byron E Hall Horton C Hinshaw Rochester Minn and Karl H Pfeulze Cannon Falls Minn The Effect of Promin on the Blood of Tuberculosis Patients  
Dr Lawrence H Beizer and Charles H Watkins Rochester Sternal Marrow in Aplastic Anemia  
Dr Robert A Goodwin Jr and Maxwell Finland Boston Studies on the Persistence of Pneumococci in Patients with Pneumonia Treated with Sulfonamide Drugs  
Drs Robert F Parker Cleveland and Robert H Green New York The Effect of Separate Inoculation of Vaccine Virus and Immune Serum on the Protection Test  
Dr Joseph E Smadel New York Aseptic Meningitis of Known and Unknown Etiology

**National Gastroenterological Association**—The seventh annual convention of the National Gastroenterological Association will be held at the Hotel Astor, New York, June 3-4, under the presidency of Dr Anthony Bassler New York. The preliminary program lists the following speakers, among others:

Dr Marvin H Smith Miami, Fla The Role of the Gram Positive Diplococcus and Other Pathogens in the Stagnant Colon  
Drs George P Wiley Philadelphia and Elmer W Rebbeck Pittsburgh The Knott Technique of Ultraviolet Blood Irradiation as a Control of Infection in Peritonitis  
Drs Edward W Alton Ochsner and Michael E DeBakey New Orleans Amebic Hepatitis and Amebic Hepatic Abscess  
Dr George T Pack New York Surgery of Gastric Carcinoma  
Drs Frank E Hamilton and George M Curtis Columbus The Action of Drugs on the Motility of the Human Stomach  
Dr John F Erdmann New York Surgical Treatment of Gallbladder Disease

A round table conference will be held the first day on "The Action of Drugs on the Gastrointestinal Tract." Col John J Moorhead, M C, U S Army, New York, will address a military luncheon Thursday on "Treatment of Casualties at Pearl Harbor."

**Annual Report of Mellon Institute**—A total of \$1,378,752 to carry on the various science projects was expended by the Mellon Institute of Industrial Research, Pittsburgh, during the fiscal year ended March 1, according to its twenty-ninth annual report. The industrial research staff was expanded during the year to 205 fellows from 187 and to 150 fellowship assistants from 114. Nine new industrial fellowships started their researches during the year. The report discusses the studies of modified cinchona alkaloids and related synthetics carried on by the department of research in pure chemistry. In the results to date there has been no beneficial action of quinine which cannot be accomplished equally well by hydroxyethylapocuprene. In studies for the twelfth revision of the U S Pharmacopeia different assay procedures for new synthetic organic chemicals have been evaluated. The projects subsidized by the Mellon Institute at the Institute of Pathology of the Western Pennsylvania Hospital have related to chemotherapeutic and bacteriologic researches largely pertaining to the effects of the sulfonamides. Industrial Hygiene Foundation which maintains its headquarters at the institute has been

studying sick absenteeism in the industries and a project on fatigue is under way. The multiple fellowship on food varieties at the institute has begun a survey of food flavors. The present emergency has caused an expansion in the activities of certain fellowships, however, the range of the programs of most fellowships has regard for postwar economic problems.

**Accidental Deaths Increase in 1941**—A total of 101,500 persons were killed in accidents in 1941 as against 96,885 killed in 1940, according to an annual report from the National Safety Council. Motor vehicles were responsible for 40,000 deaths during 1941 as compared with 34,501 in 1940. Accidents in the home aggregated 32,000 as against 33,000 reported during the previous year. Occupational accidents accounted for 18,000 deaths in the latter year and 17,000 in 1940. The report pointed out that the traffic deaths of 40,000 was an all-time high. Traffic deaths went up 16 per cent and travel increased 11 per cent giving a mileage death rate increase of 4 per cent. In industry the 6 per cent increase in deaths was far less than the 17 per cent rise in employment in the manufacturing industry and the 9 per cent gain in total nonagricultural employment. A total of 9,300,000 persons were injured during 1941 and an estimated cost for both injuries and accidents was \$1,750,000,000. This cost covers both fatal and nonfatal accidents and includes wage losses, medical expense, the overhead costs of insurance, and property damage from motor vehicle accidents and fires. There were other large but less tangible losses, such as interruption of industrial production. Persons 65 years and older were the only group with a better accident record in 1941 than in 1940. The school child group (5 to 14 years) had a 10 per cent increase with deaths totaling 7,100. This increase was exceeded only by the 12 per cent rise shown for the 15-24 year group in which deaths totaled 14,250. The 25-64 year group accounted for 45,350 fatalities—a 5 per cent rise. There were 7,150 deaths of children under 5 years of age, a 4 per cent increase. Deaths from falls were about the same in 1941 as in 1940—about 26,000 each year. Falls are second only to motor vehicle accidents as a cause of accidental death. Deaths from burns were about 6,900 in 1941, a 5 per cent drop from 1940. Drownings increased about 2 per cent to 7,000. Last year was the first one in the last decade in which no catastrophe took as many as 100 lives. Forty-one cities of 10,000 or more completed 1941 without a fatal motor vehicle traffic accident. The largest was Chelsea, Mass., with a population of 41,260. The second and third largest perfect cities were University City, Mo., and Hagerstown, Md. About 13,900 pedestrians were injured fatally in motor accidents in 1941, an 11 per cent increase over 1940. Nonpedestrian deaths increased 19 per cent to 26,100. Fatal falls accounted for almost 16,300 home accident deaths in 1941, 2 per cent fewer than in 1940. Home falls accounted for slightly more than half the home death total. Burns and fires in homes killed about 5,500 persons, a 4 per cent decrease over the previous year. Falls on stairs and steps are the most important specific type of serious home accident. Railroad accidents caused 4,647 deaths in the first eleven months of 1941, 11 per cent more than the comparable 1940 total of 4,188. There were four fatal aviation crashes during 1941 in the domestic operations of scheduled air carriers resulting in the death of thirty-five passengers and nine members of the crews. Passenger miles flown totaled about 1,480,000,000, indicating a passenger death rate of 2.4 per hundred million miles.

#### Deaths in Other Countries

**Kenneth Mackenzie**, Auckland, New Zealand, graduated at Edinburgh University in 1911, fellow of the Royal College of Surgeons, since 1914 an honorary surgeon to the Auckland Hospital, examiner in physiology to the University of Otago, 1914-1916, founder of the Auckland Clinical Society, serving as president in 1923, at one time president of the Auckland division of the British Medical Association, died on January 15, aged 57. Mr. Mackenzie served in the New Zealand Medical Corps from 1917 to 1918 with the rank of captain.

#### CORRECTION

**Dr. J. McKen Cattell**, Founder of Psychology Laboratory—In THE JOURNAL, March 28, page 1151, Dr. McKen Cattell, associate professor of pharmacology in charge of the department at Cornell University Medical College, New York, was erroneously reported to be the founder of the laboratory of psychology at Columbia University. The founder of the laboratory was James McKen Cattell, Ph.D., the father of Dr. McKen Cattell, pharmacologist.

## Government Services

### Medical Director Creel Retires

Medical Director Richard H. Creel, San Francisco, director of activities of the U. S. Public Health Service of Western States, Alaska and Hawaii, has retired from the service after more than forty years' service. He has been succeeded by Dr. Walter T. Harrison, senior surgeon and liaison officer between the U. S. Public Health Service and the war department, San Francisco. Dr. Creel was born in Missouri in 1878 and graduated at the University Medical College, Kansas City, in 1900. He has been with the U. S. Public Health Service since July 27, 1902. His research activities have covered plague, cholera and typhoid dissemination.

### Annual Report of Food and Drug Administration

A report has been issued for the Food and Drug Administration for the fiscal year ended June 30, 1941, the first in which the administration was operated as a unit of the Federal Security Agency. This year was also the first in which all provisions of the Food, Drug and Cosmetic Act of 1938 became fully effective. During the year, a dangerously contaminated drug product and a poisonous permanent wave solution, both widely distributed, were removed from the market. In March 1941 a fatality occurred from the permanent wave solution, and during April and May 17,061 units in possession of some 500 beauty shops licensed by the manufacturer to administer it were seized in 1,906 actions. Eyelash dyes containing toluidine diamine were the object of six seizures, and prosecution proceedings were instituted against the firm responsible for their shipment in interstate commerce.

On March 21, 1941 the administration started an investigation to remove from commercial channels thousands of sulfathiazole tablets contaminated with as much as 60 per cent phenobarbital. This task involved 3,205 man days of work, 12,187 visits to distributors, physicians and druggists, excluding an additional 25,000 known visits by cooperating agencies and necessitated the examination of about 1,593,000 invoices and 592,000 prescriptions. At the start of the investigation some 122,600 contaminated tablets were still outstanding and unrecovered. There were 23,324 tablets, including sixty-six separate lots of contaminated tablets, recovered finally. It is presumed that the 99,300 tablets which remained outstanding at the conclusion of the investigation may be presumed to have been consumed, or voluntarily destroyed, or taken up as samples by state and local health departments. The task of discovery was complicated by reason of the failure of all those handling the tablets to provide a system for recording control numbers.

Actions directed against dangerous drug preparations resulted in sixty-seven seizures and twelve prosecutions as compared with twenty-five seizures and one prosecution in 1940. On July 1, 1940 the requirement of the U. S. Pharmacopoeia that absorbent cotton must be sterile became effective. Twelve lots were found to be not sterile. A total of 1,145 official samples of proprietary medicine for human use was examined. Seizures increased from forty-six to seventy-eight and the number of shippers against whom criminal prosecution proceedings were instituted from eleven to thirty-five. There were only six seizures of deceptively packaged drugs made as compared with twenty-three of the previous year.

During the year, 1,376 new drug applications were received, making the total since June 25, 1938, when the new drug section of the act became effective, 4,128.

A total of 470 official samples of vitamin products was assayed for vitamin control. Of these 391 were from interstate shipments and 79 were imports. Seventy-nine interstate shipments, or about one sixth of the total examined, were found to be deficient in one or more of the vitamins.

Terminated criminal actions during the fiscal year based on violations of the Food, Drug and Cosmetic Act numbered 183 and resulted in the imposition of fines totaling \$35,262, ten jail sentences were imposed, one of which was actually served and the remainder were suspended and the defendants placed on probation. There were 142 pleas of guilty, 32 pleas of not guilty and 9 contested cases. Of the last group, 2 defendants were acquitted.



## Foreign Letters

### LONDON

(From Our Regular Correspondent)

March 14, 1942

#### Children Have Stood Air Raids Well

Inquiries about the effect of air raids on London school children have been made by the physicians working daily in school rest centers and in examining those registered for evacuation. The unanimous response is that there is no evidence of nervous disorder or shock arising from air raid experience but that the children are standing up to the raids as well as or better than adults. This statement is contained in the interim report for 1940 of Dr. W. Allen Daily, medical officer and school medical officer for London. He also states that air raid casualties generally in London did not reach the number anticipated and for which hospital preparation had been made. His report also shows that in spite of the difficulties produced by the war the health of London has not been unsatisfactory and that the vast and complex organization of the public health department has continued to provide not only for the sick who apply to its hospitals but also to carry on its preventive work. No case of smallpox was notified during the year, London has been free from the disease since 1934. There was no serious epidemic of infectious disease.

#### Women's Help in Civil Defense

A tribute to the women of Britain for civil defense work was paid by the home secretary, Mr. Herbert Morrison, at a conference held by the Women's Voluntary Services. Two things had impressed him: the enormous voluntary effort mobilized in the service of British homes after the enemy air attacks and the ability of women in large scale organization. The movement had organized the part time and whole time voluntary services of over a million women. They would play a part in the building of a better and wiser society after the war. Among their services were the organization of rest centers after air raids, loading canteens and driving them off in convoy at night, sometimes into the heart of an air raid, collecting salvage, collecting and distributing emergency clothing for the bombed out, helping British restaurants and school canteens, getting evacuated children settled down, running clubs for mothers and distributing overseas gifts.

#### The Destruction of the Museum of the Royal College of Surgeons

The destruction wrought by German bombs in the greatest anatomic and pathologic museum in the world has been described in previous letters. Much of what was destroyed is irreplaceable. The report of the Royal College of Surgeons for 1940-1941 enables a more detailed account to be given. The total loss of specimens was 39,259 out of 65,827. Before the bombs fell, most of the specimens had been removed to the basements, which had been reinforced. But unfortunately on May 10, 1941 a heavy bomb struck the museum and store rooms, and incendiaries increased the damage. Fallen girders broke open the basements below, and on the following days there was a heavy rainfall which drenched the exposed specimens. In the anatomic series 1,207 specimens survived out of 2,569. The famous collection of John Hunter is the basis of the museum and had historical as well as scientific value. The loss of his specimens is therefore irreplaceable. In the osteologic series only 94 out of 1,655 hunterian specimens survive and 6,209 out of 15,545 other specimens, but the whole odontologic series, which includes hunterian specimens, remains. In the physiologic series nearly half of the 5,400 hunterian specimens remain, but

only 2,026 of the others which numbered 14,850. In the human and comparative teratologic series only 23 out of 170 hunterian specimens survive, but the other specimens have largely escaped damage. The greater part of the hunterian pathologic series remains, but the others have been reduced to a fifth. The Army Medical War Collection (formed after the previous war) has been reduced from 3,000 to 100. The replacing of this collection by specimens from the present war has already begun. All the mummy specimens and the historical collection are lost. The instrument collection of 2,500 has been reduced to 2,000. The salvaged specimens have been transferred to seventeen widely separated places. For this work the American Ambulance Service, now working in Britain, has provided the transport.

#### The Mode of Action of Chemotherapeutic Agents

At a meeting of the Biochemical Society a discussion took place on the mode of action of chemotherapeutic agents. Dr. G. M. Findlay classified chemotherapeutic action as direct and indirect. Except for intestinal parasites it was necessary that the drug should be absorbed into the body, penetrate to the site of the parasites and not be excreted or converted too rapidly into an inert form. When the drug had been brought to the parasite, three stages might be distinguished: adsorption, interference with metabolism and death of or such injury to the parasite that it was destroyed by phagocytes. When adsorbed the drug might prevent an essential food factor from being absorbed by the parasite or cause a breakdown in metabolism by combining with a specific substrate or competing with an essential cell metabolite for an enzyme or coenzyme. Specific immune serum and sulfapyridine did not compete for the same receptor group in the pneumococcus and might therefore enhance each other. Indirect action might produce such changes in the environment that parasites could no longer grow.

Sir Henry Dale said that one of Ehrlich's notable contributions to the subject was a theory which, though it probably would not survive unmodified, had given a tremendous stimulus to research. His explanation of the action of certain dyes on trypanosome infection as confined to injury of the reproductive power of the parasite seemed at the time artificial and unconvincing. But when Dobell and Laidlaw were able to grow *Endameba histolytica* in permanent culture it was found that the action of emetine was just of this type. Effective chemotherapy was usually, if not always, a war of attrition. Sulfaguanidine seemed to owe its effectiveness in bacterial dysentery to low solubility, enabling it to keep up a steady low concentration in contact with the infected mucous membrane. Aromatic diamidines might owe part of their superiority to limited solubility. He suggested as a means of advancing chemotherapy the keeping alive and reproduction indefinitely of trypanosomes in artificial culture and the discovery of a method of treating a strain of trypanosomes which had acquired drug resistance so as to restore the normal susceptibility.

#### Cupboards for the Nation's Food

One thing the government has succeeded in is ensuring that the people, though rationed, have sufficient food. Ample precautions have been taken against destruction of food supplies by enemy action. The hundredth "store cupboard"—single storied buildings each covering an area of 25,000 square feet—has been completed, and forty more, the beginning of a new program of one hundred and twenty-seven, have been put in hand. The store cupboards are camouflaged buildings of prefabricated steel with concrete floors, brick walls, steel and corrugated asbestos roofs. They are dotted about the country. The hundred completed take something like 1,000,000 tons of the nation's reserve food and raw supplies. They were completed in eight months and each cost \$50,000.



## RIO DE JANEIRO

(From Our Regular Correspondent)

March 26, 1942

## Vital Statistics of Rio de Janeiro

The vital statistics returns for the city of Rio de Janeiro for 1941 have just been published. The population of the city as of July 1, 1941 was 1,813,730. The total number of deaths from all causes was 32,440, giving an annual crude death rate of 17.89 per thousand of population, which makes 1941 a bad year, as there is no reduction of the death rate compared to the five year period 1936-1940, for which the mean annual crude death rate was 17.43 per thousand. The number of live births registered was 34,096, giving a birth rate of 19.28 per thousand of population. The vital index was 108, a rather low figure to express the vitality of the population. The number of deaths for the age group 0-1 year was 6,706, which corresponds to the high figure of 180 infant deaths per thousand live births. First is a cause of death are "all forms of tuberculosis" with the total of 5,731 deaths (5,588 from tuberculosis of the respiratory apparatus), or 17.07 per cent of the total of deaths from all causes—a crude specific death rate of 316 per hundred thousand of population. The rest of the "infectious and parasitic diseases" caused 1,291 deaths which, with the deaths from tuberculosis gives a total of 10,022 deaths from infectious and parasitic diseases (30.89 per cent of the deaths from all causes). Of this total 130 were from typhoid (7.17 per hundred thousand of population). The other principal infections were dysentery mainly bacillary, measles 218, or 12.02 per hundred thousand, whooping cough 283, or 15.60 per hundred thousand, diphtheria 192, or 10.59 per hundred thousand, malaria 219, or 12.07 per hundred thousand, and leprosy 57, or 3.14 per hundred thousand. Cancer has caused 1,205 deaths, or 66.44 per hundred thousand, thus being on a continuous increase since 1903-1907, when the mean annual crude death rate was 34.75. The second most important single group of causes of death is that of the diseases of the circulatory system, represented by a total of 5,593 deaths, or 17.24 per cent of the deaths from all causes, which corresponds to the rate of 308 per hundred thousand. Out of this total 3,927 deaths have been reported as due to diseases of the heart, which corresponds to the rate of 217 per hundred thousand. This represents a great increase in the number of deaths from diseases of the circulatory apparatus. The crude specific death rate from diseases of the cardiovascular system is on the increase in Rio de Janeiro, as clearly shown by these figures: 173 in 1926-1930, 174 in 1931-1935, 212 in 1936-1940 and 308 in 1941. The third leading group of causes of death is the diseases of the digestive apparatus, represented by 4,986 deaths, or 15.37 per cent of the deaths from all causes, which corresponds to 275 deaths per hundred thousand of population. The bulk of these deaths is reported under the title of "diarrhea and enteritis under 2 years" (3,416 deaths), which is the largest contribution to the infant mortality, an average of 38 per cent of the infant deaths, in Rio de Janeiro, is classified as due to diarrheal diseases. The diseases of the respiratory apparatus caused 3,893 deaths, or 12 per cent of the total from all causes, and to a death rate of 215 per hundred thousand. Puerperal septicemia and infection was the cause of 124 deaths, or 43.05 per cent of the maternal deaths (one death in 282 live births). Violent deaths were 1,205, or 3.71 per cent of the total of deaths from all causes, which corresponds to the rate of 66.44 per hundred thousand of population.

## A New University School of Nursing

The International Health Division of the Rockefeller Foundation has decided to cooperate with the University of São Paulo to found a school of nursing of a high standard. Miss Mary E. Tennant, staff member of the International Health

Division, has arrived in São Paulo to study local conditions. The first school of nursing of high standing in Brazil, the Ana Neri School of Nursing, is now in operation at the University of Rio de Janeiro. This pioneer school was founded in 1923 at the Brazilian Federal Health Service soon after the visit of Dr. Carlos Chagas to the United States as a guest of the Rockefeller Foundation. The school a few years ago was transferred to the university. It trained the first registered nurses to operate the nursing division of the Rio de Janeiro city health department under the supervision of Mrs. Ethel Parsons, then a member of the staff of the Rockefeller Foundation. The work of Mrs. Parsons has been highly praised for the introduction of Public Health Nursing in Brazil. The School for Nurses of São Paulo is the second institution of this kind to be operated in connection with a University in Brazil.

## BCG Immunization

The high incidence of tuberculosis in Rio de Janeiro makes the steps taken against this disease one of the most important public health problems. Among the measures that the city health department is putting into practice, BCG immunization is carried out in cooperation with the Ataulfo de Paiva Foundation under the supervision of Dr. Arlindo de Assis, a skilled bacteriologist who is now studying special phases of the anti-tuberculosis work. To be able to ascertain exactly the results of this immunization, Dr. de Assis is carefully recording every detail in connection with the present work. The high prevalence of tuberculosis in the city enables Dr. de Assis to give BCG vaccine to every newborn infant without taking into consideration whether the child lives in a tuberculous environment or not. As a routine the immunization is done on the third, the fifth and the seventh day after birth, but occasionally it may begin even on the second day or as late as the tenth day. In the families known to be free from tuberculosis the immunization is done even on the fifteenth and the twentieth day. After that time, however, the immunization is always postponed to six months later, when the child will be tuberculin tested, and always if the result of this test is negative. After the immediate postnatal period, all persons may be immunized, regardless of age, provided they will not react to raw tuberculin.

## Brief Items

Dr. A. Lemos Torres, director of the Paulista School of Medicine in São Paulo, died recently in that city. Prof. Lemos Torres was an able internist, known also in England, France, Germany and the United States, where he visited in 1919, 1921 and 1923.

A new course of hygiene and public health has been founded in connection with the Hygienic Institute of the University of São Paulo to train sanitarians for the positions of health officers in the departments of health in Brazil. There is another course of the same kind, run in connection with the Oswaldo Cruz Institute, founded in 1926 in the University of Rio de Janeiro and recently transferred to the institute in this city.

A Brazilian academy of military medicine has been founded in Rio de Janeiro to study the special subjects of military medicine. The members of the academy are elected from the staff physicians of the army, the navy and the air service. Dr. Florencio de Abreu, colonel of the medical corps of the army, has been elected president of the academy.

Dr. Oscar Silva Araujo, noted dermatologist and leprologist, who assisted Prof. Eduardo Rabello in 1920 in the establishment of the Division of Venereal Diseases in the Brazilian Public Health Service, died recently in Rio de Janeiro. Dr. Silva Araujo succeeded Professor Rabello as chief of the division of venereal diseases and was well known in his specialty abroad. He has published many contributions on dermatology, syphilology and leprosy.

## Deaths

**I Seth Hirsch** @ New York, Columbia University College of Physicians and Surgeons, New York, 1902, professor of radiology at the New York University College of Medicine, professor of roentgenology at the New York Post-Graduate Medical School from 1914 to 1917, served during World War I, member and formerly vice president of the Radiological Society of North America, Inc., fellow of the American College of Physicians, director of the x-ray departments of the Bellevue and Allied Hospitals from 1910 to 1926, for many years director of the x-ray department of the Beth Israel Hospital, x-ray consultant to the New York State Compensation Commission, author of "Principles and Practice of Roentgenological Technique" published in 1920 and "Principles and Practices of Roentgen Therapy" published in 1925, aged 61, died, March 24, in the Mount Sinai Hospital of cardiovascular disease.

**Rome Haward Walker** @ Charleston W Va., College of Physicians and Surgeons, Baltimore, 1914, member of the House of Delegates of the American Medical Association in 1932, member of the Southeastern Surgical Congress, fellow of the American College of Surgeons, past president of the West Virginia State Medical Association and the Kanawha Medical Society, served during World War I, in 1921 was appointed medical examiner to the Workmen's Compensation Department and served in that capacity until 1929, chairman of the state committee on medical preparedness and medical chairman of the Procurement and Assignment Service of West Virginia, aged 53, on the staff of the Mountain State Hospital, where he died, February 19, of sarcoma.

**Louis Gustavus Nolte**, Milwaukee, College of Physicians and Surgeons, medical department of Columbia College, New York, 1886, member of the State Medical Society of Wisconsin, past president of the Medical Society of Milwaukee County, fellow of the American College of Surgeons, professor of surgery at the Milwaukee Medical College, 1911-1912, police surgeon from 1890 to 1896, surgeon, Evangelical Deaconess, Trinity, Misericordia and Johnston Emergency hospitals, consulting surgeon, Milwaukee County Hospital, Wauwatosa, aged 79, died, February 15, of coronary occlusion.

**Henry Flanagan Pipes** @ Colonel, M C, U S Army, Washington, D C, Columbian University Medical Department, Washington, 1902, entered the army in July 1903 and rose through the various grades to that of colonel in July 1929, fellow of the American College of Surgeons, at one time instructor in operative surgery and x-ray work in the Army Medical School, at one time in the office of the Surgeon General, on the staff of the U S Soldiers' Home Hospital, aged 63, died, February 19, at the Walter Reed General Hospital of coronary thrombosis.

**William Joseph Ryan** @ Pomona, N Y, Albany Medical College, 1915, fellow of the American College of Physicians, secretary and past president of the Rockland County Medical Society, served during World War I, consultant in diseases of the chest, Nyack (N Y) Hospital, Good Samaritan Hospital, Suffern, Rockland State Hospital, Orangeburg, Tuxedo Memorial Hospital, Tuxedo Park and the Letchworth Village, Thells superintendent and medical director of the Summit Park Sanatorium, where he died, February 20, of coronary thrombosis, aged 52.

**Ross A Woolsey** @ St Louis, St Louis University School of Medicine, 1904, member of the House of Delegates of the American Medical Association in 1923, past president of the Missouri State Medical Association, member of the Western Surgical Association, Southern Surgical Association and the American Association for the Surgery of Trauma, fellow of the American College of Surgeons, medical director and superintendent of the Frisco Employees' Hospital, aged 64, was killed February 23, in an automobile accident.

**Albert Keidel**, Baltimore, Johns Hopkins University School of Medicine, Baltimore, 1903, at various times assistant, instructor, associate, associate professor and associate professor emeritus of medicine at his alma mater, member of the American Clinical and Climatological Association, served in various capacities on the staff of the Johns Hopkins Hospital, aged 64, died, February 8, in the Sheppard and Enoch Pratt Hospital, Towson, Md, of meningitis following a skull fracture.

**Joseph Harold St John** @ Lieutenant Colonel, M C, U S Army, retired Washington, D C, Vanderbilt University School of Medicine, Nashville, Tenn, 1915, entered the medical corps of the U S Army as a first lieutenant in 1918, rose through the various grades to that of lieutenant colonel in 1937, retired,

Oct 31 1940, for many years instructor of parasitology at the Army Medical School, and from 1928 to 1930 a member of the Medical Department Research Board of the United States Army, aged 50, died, February 17, of coronary occlusion.

**Alphonse Francis Pirnie**, Little Rock, Ark., Columbia University College of Physicians and Surgeons, New York, 1927, member of the Arkansas Medical Society, assistant professor of pathology at the University of Arkansas School of Medicine, served as a lieutenant with the Chemical Warfare Division of the French army during World War I, on the staff of the Baptist State, St Vincent's, University and Arkansas Children's Home hospitals, aged 49, died, February 2, of carcinoma of the pancreas.

**Frank Dyckman Scudder** @ Montclair, N J, Columbia University College of Physicians and Surgeons, New York, 1914, fellow of the American College of Surgeons, served during World War I, attending surgeon, Mountside Hospital, Montclair, Essex County Hospital for Contagious Diseases, Belleville, and consulting surgeon, Newton Memorial Hospital, Newton, aged 54, died, February 7, of coronary thrombosis.

**James Aloysius Walsh** @ Pittsburgh, Jefferson Medical College of Philadelphia 1925, assistant demonstrator of pathology at his alma mater, 1926-1927, fellow of the American College of Surgeons, served during World War I, on the courtesy staff of the Woman's Hospital, on the staffs of St Joseph's Hospital and the Rosalia Maternity Hospital, aged 43, died, February 22, of coronary occlusion.

**Herbert Ralph Stockwell** @ Ann Arbor, Mich., Ohio State University College of Medicine, Columbus, 1928, member of the Ohio State Medical Association, instructor of orthopedic surgery at the University of Michigan Medical School, 1941-1942, formerly on the staff of the Miami Valley Hospital, Dayton, aged 40, died February 25, in the University Hospital of coronary thrombosis.

**Wallace Fahnestock Grosvenor** @ Chicago, Chicago Homopathic Medical College, 1895, Rush Medical College, Chicago, 1900, fellow of the American College of Surgeons, formerly associate in obstetrics and gynecology at the Rush Medical College, attending obstetrician and gynecologist, St Joseph Hospital and the Ravenswood Hospital, aged 72, died, March 3.

**Jack Gossett Hutton** @ Denver, Western Reserve University School of Medicine, Cleveland, 1921, assistant professor of dermatology and syphilology at the University of Colorado School of Medicine, member of the American Academy of Dermatology and Syphilology, aged 47, died, February 28, in St Louis following an operation for bronchoesophageal fistula.

**Dan Hiter Witt** @ New York, University of Virginia Department of Medicine, Charlottesville, 1914, instructor of medicine at the Cornell University Medical College, served during World War I, aged 51, on the staffs of the Manhattan Eye, Ear and Throat Hospital and the New York Hospital, where he died, February 15, of subdural hematoma.

**Harry Osro Taylor**, Anna, Ill., National University of Arts and Sciences Medical Department, St Louis, 1918, member of the Illinois State Medical Society, in 1941 president of the Union County Medical Society, county coroner, aged 61, died, February 13, in the Holden Hospital, Carbondale, of cirrhosis of the liver.

**Arthur Paul Wakefield**, Belmont, Mass., Rush Medical College, Chicago, 1904, for twenty-two years medical missionary in China, supervisor of clinics for crippled children for the state department of health, formerly superintendent of the Central Maine Sanatorium, Fairfield, aged 63, died, February 6, of cerebral hemorrhage.

**Hugh Willis Williams** @ Pontiac, Mich., Detroit College of Medicine and Surgery, 1932, medical superintendent of the Oakland County Infirmary, formerly assistant superintendent of the Oakland County Tuberculosis Sanatorium, aged 37, died, February 12, in the Pontiac General Hospital of self-inflicted bullet wounds.

**Barnard John Rothberg**, Hayward, Wis., Universität Basel Medizinische Fakultät, Switzerland, 1937, field physician for the Great Lakes Indian Agency on the Lac Courte Oreilles Reservation, aged 34, died, February 19, in the Hayward Indian Hospital of injuries received in an automobile accident.

**Robert Almon Brehm**, St John's, Newfoundland, Dalhousie University Faculty of Medicine, Halifax, N S, 1898, L R C P London, and M R C S, England, 1900, served during World War I, for many years medical officer of health of St. John's, aged 71, died, February 7, of endocarditis.

**Richard Clyde Sebern**, Fort Dodge, Iowa, State University of Iowa College of Medicine, Iowa City, 1904, member of the Iowa State Medical Society, aged 60, on the staffs of St. Joseph Mercy Hospital and the Lutheran Hospital, where he died, February 18, of coronary thrombosis.

**James Henry Williams**, McKenzie, Tenn., Memphis Hospital Medical College, 1912, member of the Tennessee State Medical Association, chairman of the board of education, aged 59, died, February 1, in the Baptist Memorial Hospital, Memphis, of carcinoma of the adrenal glands.

**Roland A. Willett** & Elmore, Ohio, Bellevue Hospital Medical College, New York, 1888, president of the county board of health for many years, member and president of the board of education of Elmore, at one time mayor, aged 75, died in February of a malignant tumor of the rectum.

**Will Turpin Dowdall**, Paducah, Ky., College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898, served during World War I, aged 69, on the staff of the Illinois Central Hospital, where he died, February 27, of arteriosclerotic heart disease.

**Richard R. Worthington**, Indianapolis, Ill., Medical College of Ohio, Cincinnati, 1874, member of the Illinois State Medical Society, also a dentist, aged 90, died February 23, in the Lake View Hospital, Danville, of tracheobronchitis and prostatic hypertrophy.

**Elam Eugene Lashbrook** & Estherville, Iowa, State University of Iowa College of Medicine, Iowa City, 1906, formerly secretary of the Emmet County Medical Society, on the staff of the Coleman Hospital, aged 60, died February 26, of cerebral aneurysm.

**Reuben Pennington** & Minneapolis, University of Minnesota Medical School, Minneapolis, 1930, also a dentist, aged 48, on the staff of the Swedish Hospital, where he died, February 25, of coronary thrombosis due to coronary arteriosclerosis.

**Harry Philson Mason**, Wilton Junction, Iowa, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900, for many years a member of the county board of education, aged 67, died, February 8, of heart disease.

**Blair Cantrell Hale** & Chattanooga, Tenn., Chattanooga Medical College, 1909, member of the Medical Association of Georgia, past president of the Walker County (Ga.) Medical Society, aged 55, died, February 25, of coronary thrombosis.

**Frank Oscar Ringnell**, Gilman, Hot Springs, Calif., University of Minnesota College of Medicine and Surgery, Minneapolis, 1895, served during World War I, aged 75, died, February 23, in San Jacinto of bronchial asthma.

**George Whitfield Knipe**, Vancouver, B. C., Canada, National University of Ireland, 1906, L.R.C.P., L.R.C.S., Edinburgh, and L.F.P.S., Glasgow, Scotland, 1906, aged 66, died, February 6, of coronary thrombosis.

**Philip Ulmer Reeves**, Birmingham, Ala., University of Georgia Medical Department, Augusta, 1901, member of the Medical Association of the State of Alabama, aged 68, died, February 11, of coronary thrombosis.

**Henry Austin Wood** & Waltham, Mass., Harvard Medical School, Boston, 1883, fellow of the American College of Surgeons, on the staff of the Waltham Hospital, aged 86, died, February 22, of bronchopneumonia.

**Longworth Shuttleworth Anderson**, Irvington, Calif., Cooper Medical College, San Francisco, 1898, aged 63, died, January 13, of hypostatic pneumonia, hypertension, arteriosclerosis and chronic nephritis.

**Charles Sylvester O'Toole**, Anaheim, Calif., Barnes Medical College, St. Louis, 1901, for twenty years physician for St. Catherine Military Academy, aged 72, died, February 5, of heart disease.

**Obadiah Fremont Higbee**, Fowler, Colo., State University of Iowa College of Medicine, Iowa City, 1890, member of the Colorado State Medical Society, aged 81, died, February 21, of chronic bronchitis.

**Sergey Nikolaevich Chernyh**, San Francisco, University of Tomsk Faculty of Medicine, Russia, 1895, aged 71, died, January 16, in the University of California Hospital of carcinoma of the pancreas.

**Mark D. Hill**, Topeka, Kan., Kansas City (Mo.) Hahnemann Medical College, 1910, member of the Kansas Medical Society, aged 56, died, February 24, of coronary occlusion and diabetes mellitus.

**James Emri Pierce**, Bogalusa, La., Memphis (Tenn.) Hospital Medical College, 1902, aged 74, died, February 21, in the Elizabeth Sullivan Memorial Hospital of intestinal obstruction.

**James Emmet Robins**, Buffalo, Ohio, Starling Medical College, Columbus, 1895, formerly county coroner, aged 71, died, February 14, in St. Francis Hospital, Cambridge, of carcinoma.

**John Franklin Sutton**, Bellaire, Ohio, University of Cincinnati College of Medicine, 1920, member of the Ohio State Medical Association, aged 58, died, February 9, of coronary occlusion.

**Asa Earnest Dillman**, Stenben, Wis., Medical University of Ohio, Cincinnati, 1890, member of the State Medical Society of Wisconsin, aged 83, died, February 26, of cardiovascular disease.

**Ernest E. Miller**, David City, Neb., John A. Creighton Medical College, Omaha, 1900, member of the Nebraska State Medical Association, aged 72, died, February 24, of coronary disease.

**Thomas Junior Nunnery**, Granite, Okla., University of Nashville (Tenn.) Medical Department, 1908, aged 55, died, February 20, at Oklahoma City of acute dilatation of the heart.

**John W. Obrist** & Portsmouth, Ohio, Medical College of Ohio, Cincinnati, 1889, on the staff of the Portsmouth General Hospital, aged 78, died, February 26, of hypostatic pneumonia.

**Francis W. Pease**, Keokuk, Iowa, Homeopathic Medical College of Missouri, St. Louis, 1883, aged 83, died, February 9, in the Graham Protestant Hospital of hypostatic pneumonia.

**Joseph Morgan Maurer**, Washington, Pa., Hahnemann Medical College of Philadelphia, 1875, aged 93, died, February 28, in the Allentown (Pa.) State Hospital of arteriosclerosis.

**Thomas H. Wright**, Charlotte, N. C., University of Virginia Department of Medicine, Charlottesville, 1902, aged 61, died, February 26, of myocarditis and cerebral hemorrhage.

**Charles A. Wilson**, Du Bois, Pa., Kentucky School of Medicine, Louisville, 1881, aged 84, died, February 7, in the Maple Avenue Hospital of injuries received in a fall.

**Herman Anthony Glatzmayer**, San Antonio, Texas, Long Island College Hospital, Brooklyn, 1895, aged 79, died, January 31, of arteriosclerosis and heart disease.

**Thomas Tito**, Staten Island, N. Y., Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1903, aged 72, died, February 26, of cardiac decompensation.

**Charles A. Lyman**, Encinitas, Calif., Lincoln (Neb.) Medical College of Cotner University, 1906, aged 69, died, January 16, in Oceanside of carcinoma of the larynx.

**John Wheeler Clark**, Cartersville, Mo., Barnes Medical College, St. Louis, 1895, aged 68, died, February 22, of acute follicular tonsillitis and chronic myocarditis.

**Cornelius Hood Williams**, Middletown, Ohio, Kentucky School of Medicine, Louisville, 1889, aged 82, died, January 30, of cerebral hemorrhage.

**John E. Bayliff**, Umopoli, Ohio, Pulte Medical College, Cincinnati, 1887, aged 80, died, February 28, of arteriosclerosis and heart disease.

#### DIED IN MILITARY SERVICE

**Collum Anthony Miles**, Wilmerding, Pa., Hahnemann Medical College and Hospital of Philadelphia, 1937, member of the Medical Society of the State of Pennsylvania, was called to active duty as a first lieutenant in the medical reserve corps of the U. S. Army, March 3, 1941, aged 30, was shot and killed while aboard ship in Hawaii, March 12, when a sentry accidentally discharged his gun.

**Frederick Page Boswell** & Montgomery, Ala., University of Alabama School of Medicine, 1913, member of the Radiological Society of North America, Inc., and the American College of Radiology, lieutenant in the medical corps of the Alabama National Guard from 1913 to 1915, served in the U. S. Navy during World War I, reported to active duty on Dec. 29, 1941, with the rank of lieutenant commander, medical corps, voluntary specialist, U. S. Naval Reserve, roentgenologist to St. Margaret's Hospital, aged 53, died, March 10, in the U. S. Naval Hospital, Corpus Christi, Texas.

## Bureau of Investigation

### SOME MISCELLANEOUS MEDICAL FRAUDS

#### A Variety of Schemes Debarred from the Mails

Fraud orders issued by the Post Office Department have frequently been the subject of extensive articles by the Bureau of Investigation in these pages of THE JOURNAL. Following are brief abstracts of some fraud orders not dealt with previously.

**Frederick P. Walker Company**—This was the trade style used by Frederick P. Walker of Yonkers, N. Y., in selling his Sanocrin or Sanocrin Pomade as an alleged cure for dandruff, eczema or itching of the scalp and falling hair and also as a hair grower and hair color restorer. Originally Walker had operated under the names Sincrin Products Company and Sanocrin Hair Products Company and when the Post Office Department first indicated that it would commence action against him for operating a mail order fraud he signed an affidavit on April 2, 1940 in which he promised the Department that he would abandon the scheme. Instead it developed that he continued in business but adopted the new name Frederick P. Walker Company. When the Post Office again notified him to show cause on March 20, 1941 why a fraud order should not finally be issued against him he replied that he was no longer in business because of his inability to obtain his preparation from Sweden and had been returning his customers' remittances. He asked permission to file a new affidavit this time to authorize the postmaster at Yonkers to return to the senders all mail addressed to him and stamp it "Out of Business." Because his previous affidavit had proved false his request was refused. When his case came to the hearing Walker neither appeared nor sent a representative. Testimony for the government was however presented by the Post Office inspectors who had investigated the business under its two names and also by an expert medical witness and a government chemist. The chemist testified that his analysis of the product revealed that it consisted of 51 per cent of unsaponifiable material such as mineral oil and wax, 40 per cent of fats, 18 per cent by weight of volatile oils and 0.14 per cent of sulfur. The expert medical witness testified that such a mixture would have a mild irritant and antiseptic action when applied but that aside from a temporary effect in cases of dandruff and itching scalp the product would have no therapeutic value and would not cause hair to grow on the heads of bald persons as represented nor would it restore gray hair to its original color. In fact it was pointed out that Frederick P. Walker, when interviewed by one of the Post Office inspectors in September 1939, was himself observed to be a person whose hair consisted of a few strands which were combed straight back over the head. His explanation was that he had used his preparation at one time but had received no benefit because he had not continued using it. All things considered his business was declared by the Post Office to be a scheme for obtaining money unlawfully and on April 14, 1941 a fraud order was issued against the Frederick P. Walker Company and its officers and agents.

**Gold Band Eye Balm Company**—This concern did business from Jacksonville, Fla., selling through the mails its Gold Band Eye Balm by representations which the Post Office declared to be false and fraudulent. Among these were that when used as directed the preparation would enable the blind to see, would restore to normal the eyesight of persons suffering from sight deficiencies and enable persons wearing eye glasses for eyesight defects to discard the further use of such glasses in from 4 to 8 weeks that it would accomplish these results regardless of what ever treatments had previously been employed and would produce for any user the same or similar results as were described in testimonials played up in the advertisements. The Post Office investigation revealed that the concern had been incorporated for \$15,000 in June 1932 and that the stock was owned by an A. I. G. Richardson of Monticello, Fla., and an Edward J. W. Day of Jacksonville, Fla. Day was found to be the manager and sole operator of the enterprise. To inquire he sent a small pamphlet entitled "The World's Greatest Relief for Eye Trouble Cold Band Eye Balm." On the front cover of this were these claims: "Clears and Strengthens eyes from 5 to 8 months. You may lay aside your glasses from 4 to 8 weeks by following directions. Inside it was stated: 'People who were nearly blind have had their sight brought back by Gold Band Eye Balm and alleged testimonials given therein contained such statements as: 'It made the blind to see and many prescriptions from the best oculists proved inefficient to bring relief but the eye balm prescribed by the G. B. E. B. Co. has done more to remove the inflammation and give a clear vision than any I have used.' According to the Post Office inspector who investigated this case Mr. Day informed him that he began to market this product as a result of a vision which came to him in his sleep from God and that the balm was made from a root. Government chemists reported that the preparation consisted of water with the usual amount of minerals ordinarily found in drinking water. At the hearing of the case an expert medical witness for the government testified that eyesight defects are due to many causes including anatomical changes in the eyeball and that certain diseases have a deleterious effect on the sight. He further pointed out that cataracts frequently are present in deficiencies of sight that many other factors enter into the impairment of vision that in ordinary cases the wearing of properly fitted eye glasses usually affords proper vision to the wearers and that certain kinds of eye troubles are incurable by any known medicinal treatment including the one in question. It was further brought out that cataracts require the intervention of surgery. The evidence showed also that Day's nostrum would have no more effect than the use

of ordinary drinking water in the eye and that it certainly would not enable persons who wear glasses to discard them in from 4 to 8 weeks as claimed or prove effective in the restoration of eyesight deficiencies when all other treatments and measures failed. Mr. Day put up no defense in this case and sent no one to represent him although previously his attorney had filed a general denial of the charges with the Post Office Department. On Jan. 7, 1941 a fraud order was issued against the Gold Band Eye Balm Company and its officers and agents.

**Schmedding Laboratories**—This Los Angeles concern run by a Joseph Schmedding and an M. E. Anderson sold by mail Schmedding's Home Treatment, Schmedding's Mouth Wash and Schmedding's Tooth Powder making representations that the Post Office Department declared to be false and fraudulent. Among these were that the products were a truly amazing discovery which would prevent and overcome pyorrhea, trench mouth and similar conditions and that persons using them at home would obtain the same beneficial results in these disorders as are offered by dentists in their offices. To those who answered the advertisements the concern sent the three products mentioned. The 'Home Treatment' government chemists reported was a light brown liquid which contained 0.5 Gm. of phenol per hundred cubic centimeters, the remainder being essentially glycerin and water with a small amount of tannic acid. It was to be swabbed on the affected areas with cotton several times daily. The Concentrated Mouth Wash the government chemists testified was an olive green liquid containing 0.122 Gm. of iodine per hundred cubic centimeters, 26.7 Gm. of nonvolatile matter chiefly glycerin, 0.2 per cent of volatile oils (wintergreen and peppermint) water and a small amount of tannic acid. This mixture was to be used as a gargle or mouth wash after each meal and at bedtime. The tooth powder according to the government chemist contained 46 per cent of common salt with 26 per cent of calcium carbonate, 13 per cent each of sodium perborate and soap and unnamed amounts of saccharin, methyl salicylate and oil of peppermint. At the hearing of this case an expert medical witness for the government testified regarding the cures and scientific treatment of pyorrhea and showed that the Schmedding products would have practically no remedial effect on this condition. The defendants sent no representative to the hearing. On March 7, 1941 a fraud order was issued against the Schmedding Laboratories, Joseph Schmedding, M. E. Anderson and their officers and agents.

**Vita Lux Company Technical Equipment Company Nu Vita Company and D. F. Starkweather**—Under these names one Irving Schumaker and a person named Nelson sold through the mails a device called the Nu Vita (also known as the Vita Lux) for prostatic disorders and some other conditions. It was represented that the Nu Vita device was a perfect method for massaging the prostate gland and achieved complete emptying thereof in a manner superior to and more effective than digital massage technique employed by physicians that it would remove the cause of and permanently cure hemorrhoid and pelvic disorders including those affecting the rectum, bladder, uterus, ovaries, tubes and other organs of the pelvic cavity that it would overcome constipation and soon establish regular and normal bowel action and could be used with absolute safety by persons afflicted with any of the disorders named. The device which sold for \$15 was represented by the Post Office to consist simply of a hard round rubber rod or dilator 5½ inches long for insertion in the rectum or pelvic cavity. The dilator was provided with an electric cord to be plugged into the house current together with a switch for turning the electricity on and off. In September 1940 the Post Office Department notified Schumaker and Nelson to show cause on October 21 why a fraud order should not be issued against them and the trade style they were using but they neither put in an appearance at the hearing nor sent any representative. For the government there appeared an expert medical witness who testified that scientific experiments made on the device disclosed that after fifteen minutes of heating the Nu Vita attained a temperature of 109 degrees Fahrenheit, much too hot to be tolerated by the tissues being treated and further that there was no way to regulate the temperature of this mechanism except by turning off the electric current completely. He further testified that some prostatic disorders are based on causes which a device of this kind could not possibly affect nor would it be a safe means of self treatment particularly since certain serious conditions such as cancer frequently accompany prostatic disorder. It is worth noting that the defendants had published a testimonial alleged to come from a purported physician whom the Post Office was unable to identify as a Doctor of Medicine. Also there apparently was no such person as D. F. Starkweather who was represented as president of the Nu Vita Company. On Nov. 25, 1940 the Post Office Department issued a fraud order against the names Vita Lux Company, Technical Equipment Company, Nu Vita Company, D. F. Starkweather, president and their officers and agents.

**You and I Trading Shop Dunbar Company Ltd. The Heather Journal The Scotch Heather Journal The Scotch Heather Herb Company and Indian Mailing Service**—These were names used by a John Dunbar and a Mrs. Mary W. Titus of Bradford, Pa., in selling Grey Eagle Pile Ointment through the mails as a remedy for various rectal disorders including even tumors, cancers and ulcers. Neither of the defendants appeared at the hearing which the Post Office Department held on Nov. 13, 1940. At that time a government chemist testified that the nostrum consisted of echinacea, wild alum and indigo in a petrolatum base. An expert medical witness testified for the government that these ingredients are ordinary drugs whose actions and limitations are well known to the medical profession and that although the mixture in question might offer some slight temporary relief in painful symptoms it would have no other effect on the condition named. Further it was brought out that on the previous May 6 Mrs. Titus had signed an affidavit with the Post Office agreeing to discontinue the sale of Grey Eagle Pile Ointment and some other nostrums but had not kept her promise. Accordingly on Nov. 26, 1940 a fraud order was issued against all the company names in question.



## Correspondence

### THE DOCTOR'S PART IN BUILDING MORALE SEEN AS STEP TO TOTAL VICTORY

To the Editor.—In *THE JOURNAL*, February 21, page 624, an editorial on national morale contains the statement "A nation with good morale is one with enthusiasm, confidence, teamwork and endurance. Many people like to think that morale is just common sense. However, the building of morale involves psychologic principles and studies of public opinion far beyond anything we have yet attempted in this country. The process of morale building is closely allied to the processes of education. That morale is best built which is built from thousands of small centers in a nation rather than that based on the prestige and power of a few national figures. The chief danger points in the home front are obviously the bickering and arguments which tend to split a nation into small groups, many organized specifically to question national decisions."

The American doctor, with his insight into human nature and knowing the confidence and trust of the average American, has a unique opportunity in thousands of centers throughout the nation to create sound national morale. A star columnist of the national press in blitzed Britain has said that "morale is the secret weapon that will win the war." Particularly in time of war the creation of sound national morale is essential for sound health and for the success of the national effort. On morale depends the efficiency, enthusiasm and staying power of the soldiers on the production lines. And we are well aware of the psychologic effect that a high civilian morale has on the soldiers on the firing lines.

In this situation every doctor has the opportunity to be a statesman. A statesman is a citizen who sees the effect of bickering and division in home and community on national welfare and prescribes the answer. Every day we are entering homes where disputes and bickerings, "the main point of danger in the home front," characterize the life of the family and undermine the spirit which is fundamental to the health and morale of a nation at war. Friction in homes produces leaky valves in the fighting heart of the nation. It creates waste of energy, money, time, emotion and brainpower.

In a time of total war it becomes necessary to write a corollary to the Hippocratic Oath that not only will we "do no evil on entering a home" but we will leave the cure for the evil of division and bitterness we may find there. As we create homes which have learned how to meet division and to pull together, the family will carry this spirit into the life of the community and build the foundation necessary for sound health and hysteria proof, greed proof morale.

Every doctor can work out his own method for achieving morale in the homes he reaches. But there are two simple principles which can be left on a prescription pad to be filled by the family. They always work.

- 1 The power of honest apology, which is a specific for division and bitterness and is the road to honest peace.
- 2 The settlement of differences in the life of the family and community on the basis of what's right, not who's right.

This is not only good therapy as a background to treatment of the patient's ills but in war time is an essential national service in creating a united, purposeful, confident and enthusiastic people. It will save human energy for peak production. True loyalty to medicine takes us beyond our personal relationship to it. It takes our thought and energy and devotion to the profession as a whole and to its destiny in this country.

Already in many areas of American life the prescription of honest apology has reduced individual tensions, created industrial cooperation, helped unite the nation and so sustain general morale.

Failure of the medical profession to render this service to the nation makes easier the carrying out of the enemy's announced strategy for this continent to divide and conquer.

As we accept responsibility for the morale of the nation we become statesman-doctors, sources of unity and strength for the nation producing the physical, mental and moral fitness necessary for an all out effort.

By now it is obvious that, if medicine is to have the air of freedom in which alone it can thrive and maintain its advances, we must create now in this nation the superforce of an unconquerable spirit which will not only win the war but secure the peace and build a new world.

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### FALLING DROP TECHNICS

To the Editor.—In *THE JOURNAL*, January 17, page 248, there appears a communication from H. G. Barbour and S. F. Hamilton criticizing falling drop technic other than the one which they developed.

My calculations and procedure (*J. Clin. Investigation* 17:369, 373 [July] 1938, *J. Lab. & Clin. Med.* 26:1681 [July] 1941) were based on Stokes's law for the fall of a sphere through a viscous medium, which was proved in 1851, though no author until I myself applied Stokes's great contribution, many contributed to the evolution of this determination.

The application of Stokes's law eliminated Barbour and Hamilton's "vagaries" of oils "under different conditions of temperature." It also greatly simplified the calculations and eliminated the complex logarithmic expression and the admittedly unsatisfactory nomogram required in their technic. Barbour and Hamilton themselves point out (*J. Biol. Chem.* 69:639 [Aug.] 1926) that expansion and contraction of the paper due to atmospheric changes are "a real drawback" to the accurate use of nomograms.

After correspondence with the Eastman Kodak Company, Barbour and Hamilton decided on a xylene-bromobenzene medium. Later Guthrie and Kruse found that methyl salicylate and liquid petrolatum could be used. Since the latter has a much higher boiling point and evaporation is minimal, the necessity for the constant use of standards is eliminated. Such a mixture prepared four years ago and tested repeatedly has shown no detectable change. Furthermore it is obvious that this oily preparation will maintain its physical properties much longer than the aqueous solutions of potassium sulfate used by Barbour and Hamilton for standards, no matter how well these aqueous solutions are protected by layers of oil.

These critics offer no proof for their statement that decrease in the length of fall of the drop significantly affects sensitivity. On the other hand, Hochberg and La Mer recently increased the sensitivity of Barbour and Hamilton's method by various changes, one of which was shortening the length of fall.

For reasons stated clearly by Moore and Van Slyke (*J. Clin. Investigation* 8:341 [April] 1930), few people used the method of Barbour and Hamilton from 1924, when it was first described, until the last several years. Moore and Van Slyke found that in this method the precautions required for maintaining standards and reading the nomogram made the chances of error greater than in the older pycnometric method.

Barbour and Hamilton claim that they first pointed out the chief clinical applications of the falling drop principle. Today one of its most widespread and useful clinical applications is for the estimation of serum protein concentration. They do not describe the usefulness of their method for this purpose in any of their writings. In 1930, three years after their last publication on this subject, the linear relationship which exists between specific gravity and plasma protein concentration was



first demonstrated by Moore and Van Slyke, who used the older pycnometric method for reasons already stated

In June 1937 I submitted for publication the first report of a falling drop technique for the determination of serum protein concentration which is rapid, accurate and simple enough for routine clinical purposes. The method I described has been proved by satisfactory performance in laboratories all over the country, and the results have been verified in detail by Shumrin and Jeghers (*New England J Med* 222:335 [Feb 29] 1940)

B M KAGAN, M D

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#### ADVANTAGES OF BENZOYL PEROXIDE OVER ZINC PEROXIDE OR SULFONAMIDES IN TREATING WOUNDS OR BURNS

To the Editors —Editorial comment recently appeared (*THE JOURNAL*, March 21, p 981) on zinc peroxide and sulfonamide derivatives in the treatment of gas gangrene. This called attention to the work of F L Melency (*Ann Surg* 101:997 [April] 1935, 109:881 [June] 1939, *U S Nav M Bull* 40:53 [Jan] 1942) in showing the effectiveness of a 40 per cent watery suspension of zinc peroxide in preventing gas gangrene when applied to wounds infected with gas producing organisms. This has been confirmed by G B Reed and J H Orr (*War Med* 2:79 [Jan] 1942) and has been extended by them to include the use of sulfathiazole. They state that sulfathiazole is superior to other sulfonamide derivatives for this purpose. The latter opinion is at variance with the experience of surgeons at Pearl Harbor, who feel that there is less foreign body reaction in the wound when dusted with sulfanilamide than when sulfathiazole is used.

With regard to the recommendation for the use of zinc peroxide, it may be recalled that long ago A S Loevenhart (*Therap Monatsh* 12:426, 1905) suggested benzoyl peroxide as an effective nonirritating oxidizing antiseptic. R A Lyon and T E Reynolds (*Proc Soc Exper Biol & Med* 27:122 [Nov] 1929) demonstrated the relative effectiveness of benzoyl peroxide over other agents in promoting wound healing.

There is evidence that the sulfonamides inhibit wound healing and irritate tissue (Taylor, F W. *The Misuse of Sulfonamide Compounds*, *THE JOURNAL*, March 21, p 959). This is to be expected if the mechanism of action of these chemotherapeutic agents is to inhibit growth. This inhibition may occur by interfering with such growth promoting substances as para-aminobenzoic acid, as proposed by D D Woods (*Brit J Exper Path* 21:74 [April] 1940) and abundantly confirmed (McIlwain, H, *ibid* 22:148 [June] 1941; Harris, J S, and Kolm, H I. *J Pharmacol & Exper Therap* 73:343 [Dec] 1941; Rantz, L A. *Proc Soc Exper Biol & Med* 49:137 [Feb] 1942). Sulfonamides, on the other hand, may block at certain concentrations enzyme systems necessary for growth, as proposed by F H Johnson (*Science* 95:104 [Jan 23] 1942). In either case, clinical experience seems to substantiate the expectation that sulfonamides delay wound healing. However, many clinicians who cannot resist the notion that the sulfonamide drugs are miracle mongers tend to protest, sometimes with undue emphasis, that they have found no evidence that the sulfonamides actually do interfere with wound healing. Of course, anything that reduces infection in a wound will help the wound to heal. But the sulfonamides in a sterile wound may reduce the rate of healing.

Benzoyl peroxide has advantages over the sulfonamides for direct dusting into wounds to inhibit gas forming organisms in that there is evidence to show that it promotes wound

healing, in addition to exerting an effective antiseptic action without local irritation or injury. It has an advantage over zinc peroxide in that it is locally anesthetic. Benzoyl peroxide may be dusted directly into the wounds or be applied in a water suspension in an appropriate concentration or in petrolatum at a concentration of 10 per cent. In a concentration of 5 to 10 per cent it might be incorporated in liquid petrolatum or molten paraffin wax (as proposed by Dr Ralph Pendleton) for spraying on burned areas. The advantages of benzoyl peroxide for local application to wounds, abrasions or burns are (1) effective long lasting, oxidizing antiseptics, particularly against gas producing organisms, (2) lack of local injurious or irritating effects, (3) lack of penetration into tissue with no protein precipitation and thus with no tendency to interfere with healing, (4) tendency as shown by direct experimentation to promote healing and (5) local anesthetic action to relieve pain, local irritation, itching and other local discomfort.

These properties of benzoyl peroxide suggest its effectiveness for use in handling war gas injuries, with particular reference to lesions of the skin or mucous membranes developing from mustard gas or lewisite.

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San Francisco

#### PRESERVATION OF LIQUID PLASMA BY SULFONAMIDE DERIVATIVES

To the Editor —In the February 14 issue of *THE JOURNAL* I published a paper on the preservation of liquid plasma by the use of sulfonamide derivatives. The report was based on hundreds of experiments employing numerous species of bacteria encountered as contaminants in stored plasma. In no instance did I demonstrate growth of bacteria in plasma containing 200 mg per hundred cubic centimeters (0.2 per cent) of sodium sulfathiazole, nor did plasma containing the compound become grossly contaminated when exposed to air contamination for long periods of time.

In *THE JOURNAL* of March 28, Heath and Province published their results on a small series of experiments carried out under unusual conditions in that they do not represent actual working conditions and made broad conclusions which do not discredit my own but tend to cast doubt on the efficacy of the sulfonamide method. In their experiments they used only five species of bacteria, none of which are commonly found in contaminated plasma. They completely ignored the common contaminants such as the aerobic spore formers.

The experimental temperature of storage was 5 C and 37 C. At the former temperature no growth was obtained in any tubes including the controls because of the improper choice of bacteria. No explanation is made as to why 37 C was chosen as an experimental temperature, since plasma is obviously not stored in an incubator. However, in spite of these conditions their results show complete bacteriostasis with some of the drugs used in a 0.2 per cent concentration, together with a bactericidal action which confirms my results in part.

Since their conclusions are based on these limited observations, under conditions not applicable from a practical standpoint and in spite of evidence to the contrary in their own data, I feel that their statements which tend to cast doubt on the value of the compounds as bacteriostatic agents in plasma are not justified.

I have concluded on the basis of much more extensive laboratory investigations and observations on actual routine clinical use in outstanding hospitals that the sulfonamide derivatives as preservatives in plasma are the answer to the vexing problem of bacterial contamination.

MILAN NOVAK, M D, Chicago

## Medical Examinations and Licensure

### COMING EXAMINATIONS AND MEETINGS

#### BOARDS OF MEDICAL EXAMINERS

##### BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in *The Jour.* at April 25, page 1-15.

##### NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS. Parts I and II. Various centers. June 22-24. Part III. Various centers. June or July. Exec. Sec. Mr. Everett S. Elwood, 228 S. 4th St., Philadelphia.

##### EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY. Oral. Part II. Atlantic City. June 6-7. Sec. Dr. Paul M. Wood, 715 Fifth Ave., New York.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY. Oral. Group I. June 6. Cleveland. Jan. 1941-1942. Final date for filing application is Dec. 31. Group II. Various centers. Nov. 11. Final date for filing application is Oct. 5. Sec. Dr. C. Guy Lane, 116 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE. June. Philadelphia. in charge of the board is the American Medical Association. Application 1 month in advance of the date of oral examination. Application 1 month in advance of the date of oral examination. Sec. Dr. Walter S. Miller, 101 University Ave., Madison, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY. Oral. New York. June 10-11. Sec. Dr. J. H. Brown, 1010 Louisville Ky.

AMERICAN BOARD OF OBSTETRICS. Oral. Baltimore. June 6 and 7. Sec. Dr. J. A. C. Smith, 1010 Waterman Ave., S. I. S.

AMERICAN BOARD OF OPERATIVE SURGERY. Oral and Written. June 10-11. Sec. Dr. J. A. C. Smith, 1010 Waterman Ave., S. I. S.

AMERICAN BOARD OF PATHOLOGY. Oral and Written. Richmond. Nov. 11-12. Sec. Dr. J. A. C. Smith, 1010 Waterman Ave., S. I. S.

AMERICAN BOARD OF PEDIATRICS. Locally. Sept. 18. Oral. Sec. Dr. J. A. C. Smith, 1010 Waterman Ave., S. I. S.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY. New York. June 10-11. Sec. Dr. J. A. C. Smith, 1010 Waterman Ave., S. I. S.

AMERICAN BOARD OF UROLOGY. If a sufficient number of applications are received an examination will be held in the east at the same time as the other one of the national meetings. Sec. Dr. Gilbert L. H. Smith, 1102 Wilbur St., Minneapolis.

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Paternity Compulsory Blood Grouping Tests Violative of Right of Privacy**—The plaintiff filed a bill for divorce against his wife on the ground of adultery, alleging that he was not the father of a child then recently born to her. A New Jersey law provides, among other things, that whenever it shall be relevant in a civil action to determine the parentage of any child the courts may direct that any party to the action and the person whose parentage or identity is involved submit to one or more blood grouping tests. The plaintiff sought to invoke the provisions of this law and asked the court to order that blood grouping tests be made of him, his wife and the child in order to determine the child's parentage. The wife contested the application, contending on behalf of herself and for the child, that an order for the making of blood grouping tests would constitute an invasion of "then natural and constitutional privileges."

Whether a compulsory order for the taking of blood grouping tests is in violation of the privilege against self incrimination, pointed out the court of chancery of New Jersey, has been debated without any unanimity of opinion. The subject has been discussed in law review articles on the basis of analogic reasoning, but not one of these articles has referred to any controlling decisions. The court then discussed in detail cases from other jurisdictions in which this issue has been involved, including the case of *State v. Height*, 117 Iowa 650, 91 N. W. 935, 59 L. R. A. 437, 94 Am. St. Rep. 323. In that case, characterized by the court as "the leading case" the defendant was accused of statutory rape of a child aged 10 years. In order to

prove his guilt the state offered in evidence the testimony of a physician who had made a physical examination of the accused against his will to determine whether he was afflicted with a venereal disease similar to that with which the prosecutrix had been infected. The court in the Iowa case held that such an examination by a physician under the direction of the prosecutor constituted an unlawful search and seizure, a denial of the privilege against self incrimination and a violation of due process. The court in the present case also referred to a number of discussions in legal periodicals in which the view has been taken that blood tests and physical examinations constitute real evidence not within the scope of the immunity against self incrimination. On historical precedent these articles argue that the privilege against self incrimination applies only to testimonial evidence. While leaning to the general philosophy underlying the decision in the *Height* case the court here based its determination on another New Jersey law which expressly exempts a husband and wife in an action for divorce on the grounds of adultery from being compelled to give evidence for the other, except to prove the fact of marriage. The comprehensive word "evidence," the court pointed out, was used in this law, and is a broad, embracing term including all classes of proof, testimonial or otherwise. As definitive of the term "evidence," the court quoted from 22 C. J. 66 as follows:

While the term "testimony" is frequently employed as equivalent, in legal effect to "evidence" such use is inaccurate, for the terms are not synonymous. "Evidence" is the broader term and includes all testimony but "testimony" is accurately used to designate only a particular kind or species of evidence, namely, that which comes to the tribunal through living witnesses speaking, under oath in the presence of the tribunal.

The provisions of the law exempting a husband and wife from being compelled to give evidence for the other, under the circumstances indicated, was in effect, the court said a reenactment in comprehensive language of the common law immunity against self incrimination as it applies particularly to suits for divorce on the ground of adultery. Furthermore, the court pointed out, it could not reasonably be held that the legislature, in authorizing the court to order the making of blood grouping tests, intended to repeal by implication a statute of such long standing, expressive of such an ancient and universally approved personal privilege.

To the court it seems strange that in none of the reported cases involving the issue here presented has the constitutional right to personal privacy and security been raised and debated. The right of privacy, the court said has its foundation in the instincts of nature. It is recognized intuitively, consciousness being the witness to prove its existence. Any person of normal intellect recognizes at once that as to each individual member of society there are matters private and matters public. Each individual instinctively resents an encroachment by the public on his private rights. The right of privacy in matters purely private is derived from natural law. To subject a person against his will to a blood test the court said, is an assault and battery and clearly an invasion of his personal privacy. It involves the sticking of a surgical needle into his body. Perhaps the operation is harmless in the great majority of cases, although the risk of infection is always present. But if it is admitted that such an encroachment on the personal immunity of an individual is authorized, where, the court questioned, in principle can we stop? If medical discovery in the future evolves a technique whereby the truth may infallibly be secured from a witness by trepanning his skull and testing the functions of the brain beneath, no one in the opinion of the court, would, contend that the witness could be forced against his will to undergo such a major operation at the imminent risk of his life, in order to secure evidence in a suit between private parties. How then can he be forced to undergo a less dangerous operation, and at what point shall the line be drawn? In the opinion of the court, it is not the degree of risk to life, health or happiness which is the determinative factor but the fact of the invasion of the constitutional right to personal privacy. This was not a case, the court continued, in which the public interest required the making of the tests. Possibly there may be civil cases in which it could be argued that the

tests could be justified under the police power for example a proceeding for custody where a substitution has inadvertently been made in a maternity hospital. But public policy does not favor divorce. It regards the family as a social unit and does not encourage the annulment or dissolution of that relationship. It recognizes, with the strongest presumption, the legitimacy of every child born in wedlock.

The granting of the application made in this case concluded the court would constitute an unconstitutional invasion of the right of personal privacy of the defendant and of the child. The application was therefore denied.—*Bednarik v. Bednarik* 16 1 (2d) 80 (N. J., 1940)

**Malpractice Roentgen Treatments, Accrual of Right of Action**—In January 1935 the plaintiff consulted the defendant physician about a tumorous growth in her abdomen from which she was then suffering. The defendant advised the plaintiff, according to the allegations of her complaint, that he specialized in roentgenology and that he could guarantee to cure her with ten roentgen treatments. The plaintiff's complaint then alleged that she received her first roentgen treatment on Jan. 12, 1935 and the last one on Feb. 18, 1936, by which time she had taken ninety treatments instead of ten as originally contemplated. The defendant then gave her other types of treatment until May 1939. In a subsequent suit for malpractice against the defendant filed on Nov. 16, 1939 the plaintiff claimed serious injury due to the excessive number of roentgen treatments. The defendant's demurrer to the complaint was sustained and the plaintiff appealed to the Supreme Court of Kansas.

The chief ground for sustaining the defendant's demurrer was that the action was barred by the two year statute of limitations. Although the basis for the plaintiff's cause of action was that the defendant had been guilty of negligence in giving her ninety roentgen treatments instead of ten as he "had promised, advised and agreed," she argued that the rendering of other professional services until May 1939, within two years of which the suit was filed, stayed the running of the statute until that time. The Supreme Court held that the two years allowed by the statute of limitations in which to commence an action for damages for malpractice begins to run from the time the wrongful act is committed. Since the roentgen treatments ceased in February 1936 the court held that an action for damages based thereon should have been commenced within two years of that date and was barred since not filed until November 1939. The judgment of the trial court, sustaining the demurrer to the complaint, was therefore affirmed.—*Becker v. Floersch* 110 P. (2d) 752 (Kan., 1941)

**Dental Practice Act, Validity of Disciplinary Procedure**—Written complaints were filed against the plaintiff dentists charging them with professional misconduct. Prior to a hearing, the plaintiffs filed suits for injunctions to restrain the Department of Registration and Education of the State of Illinois and its dental examining committee from proceeding on the written charges. The trial court refused to grant the injunctions and the plaintiffs appealed to the Supreme Court of Illinois.

The plaintiffs contended that the procedure in the dental practice act for the institution and hearing of complaints against licensed dentists was wanting in due process of law. The act authorizes the director of the Department of Registration and Education to revoke the license of a dentist on the written order of the dental examination committee. If the director disagrees with the conclusions or recommendations of the committee he may remand the case to the same committee or to a new one. The complaint in these cases were filed by a paid employee of the department at the request of the director. Therefore, the plaintiffs argued, the director can resubmit his own case to one committee after another until a recommendation satisfactory to himself has been returned and the director thereby becomes the accuser, prosecutor and judge. The Supreme Court held, however, that there was nothing in the plaintiffs' cases which indicated the least degree of prejudice by the dental examining committee even though the charges were made by an employee of the department. The plaintiffs also argued that the act

deprived them of due process of law because the director's order of revocation was self-executing and no stay order could be issued pending an appeal except on ten days' notice and a hearing. They said that dentists would be caused irreparable damage and injury by not being able to practice their profession for ten days. The Supreme Court refused to pass on the contention, however, because that provision of the act had not been invoked against the plaintiffs and they were consequently not injured thereby. The court saying: "This court will not consider the constitutionality of a statutory provision where the party complaining has not been affected thereby nor in any way aggrieved by its operation." Finally, the plaintiffs argued that the proceedings were violative of due process because the written charges were not sufficiently definite and specific. The Supreme Court said that the charges in a proceeding of this nature are not required to be drawn with the "refinements, niceties and subtleties of pleadings in courts of record." It is sufficient if the plaintiffs were fairly and reasonably apprised of the acts with which they were charged so that they could properly prepare their defense. The charges against the plaintiffs alleged specific acts of misconduct in violation of the dental practice act. The dates of the acts, the place they occurred and the manner in which the act was violated were also stated. The court concluded that a mere reading of the complaints demonstrated that they were sufficient to inform the plaintiffs of the nature of their unlawful acts. The injunctions were therefore properly denied. Judgments for the defendants were affirmed.—*Tarr v. Hallahan et al. Marshack v. Same* 30 N. L. (2d) 421 (Ill., 1940)

**Malpractice Injury Attributed to Radium Treatment of Facial Blemish, Suit Delayed Twelve Years**—In 1922, when the plaintiff was 4 years old a pinkish area developed on her forehead which was diagnosed as a birthmark. The defendant, a dermatologist, attempted to remove the blemish with radium. At the time that treatment was instituted the pink mark started on the lower part of the forehead just above the nose and extended upward about 1 inch. It was about 1½ inch wide. During the next year or year and a half the condition spread upward, causing a strip of the patient's hair to fall out, so that there was left a bald path about an inch wide, extending back to the crown of her head. The frontal bones were affected, causing a depression in her forehead. Twelve years later in 1934, the patient sued the defendant. At the close of the plaintiff's case the trial court, on motion of the defendant, withdrew the case from the jury and gave judgment for the defendant. On appeal to the Supreme Court of Ohio, the judgment for the defendant was reversed and the cause remanded for a new trial. (12 N. E. (2d) 283, J. A. M. A. 111 652 (Aug. 13) 1938.) On a second trial, a judgment was entered for the plaintiff in the amount of \$10,000, and the defendant appealed to the court of appeals of Ohio, Cuyahoga County.

The plaintiff first contended that the defendant was negligent in improperly diagnosing her condition as a birthmark when in fact it was scleroderma, which apparently was the final diagnosis. The evidence showed, however, that before the plaintiff was taken to the defendant she had been examined by two other physicians, each of whom had likewise diagnosed her condition as a birthmark. Furthermore, the court pointed out, the evidence was overwhelming, if not uncontradicted, that a birthmark and a discoloration resulting from scleroderma are indistinguishable in appearance, or by any other known test, and differ only in the manner of their development. The court of appeals was of the opinion that the record disclosed no evidence of negligence in diagnosis. In addition, the record was clear that no harm resulted to the plaintiff because of the initial diagnosis, for there was no evidence that the application of radium to either a birthmark or scleroderma would have had any harmful results unless the treatments were excessive or too frequent.

The plaintiff next contended that the second treatment given to her was in fact applied too soon after the first. At the second trial the plaintiff's father, mother and grandmother stated that the first time the defendant saw the plaintiff was in the fall of 1922 and that the second visit was two weeks later. The evidence showed, however, that the father and the grandmother

had prior to the second trial, sworn that the first visit occurred in the spring of 1922. The court of appeals felt that the explanation given by the witnesses to justify this variance in their testimony was unsatisfactory. The defendant, on the other hand, testified that the two visits occurred on July 21, 1922, and Oct. 20, 1922, almost three months apart, his recollection being refreshed by the diary record which he kept. Furthermore, there was considerable evidence to the effect that applications of radium at the dosage used, two weeks apart, would have been in accordance with the standards of good practice in treating both scleroderma and a birthmark. Whether it would have effected a cure was dependent on circumstances, continued the court but it was clear that no harm would result to a birthmark and that if the condition was scleroderma it would progress just as the condition of the plaintiff did with the appearance manifested in her case.

The plaintiff's mother testified that she concluded in 1923 that the defendant had burned her daughter and accused him of it. This testimony evoked the following comment from the court:

While the time of limitations would not run against the plaintiff during her minority we are nevertheless of the opinion that a just appraisal of the testimony of her custodians requires the court to consider the fact that with full knowledge of the facts they delayed filing this action for twelve years. Her custodians were adults. They had the power to institute this action during all those years. They knew the facts. Why such delay? Appraised persons ordinarily do not postpone asserting rights so long. We consider that in reaching our conclusion.

The court concluded that the judgment was manifestly against the weight of the evidence. Too, counsel for the plaintiff in the opinion of the court, was guilty of such prejudicial conduct as would invalidate any trial. By reference to medical textbooks not in evidence, the court said, and by unfounded assertions that large sums of money had been spent in the defense and by other unfounded inferences, an atmosphere must have been created in which it was impossible for the jury to have distinguished between actual evidence submitted to them for analysis and these non-evidential assertions and innuendoes. Accordingly the judgment for the plaintiff was reversed and the cause again remanded to the trial court for further proceedings according to law.—*Hibach v. Cole*, 31 N. L. (2d) 736 (Ohio, 1930).

## Society Proceedings

### COMING MEETINGS

American Medical Association, Atlantic City, N. J., June 8-12 Dr. Ohn West, 535 North Dearborn Street, Chicago, Secretary

American Association for the Study of Allergy, Atlantic City, N. J., June 8-9 Dr. J. Harvey Black, 1405 Medical Arts Bldg., Dallas, Texas, Secretary

American Association for the Study of Goiter, Atlantic City, N. J., June 13 Dr. Thomas C. Davison, 478 Peachtree St. N.E., Atlanta, Ga., Secretary

American Association for the Surgery of Trauma, Boston, June 4-6 Dr. Gordon M. Morrison, 520 Commonwealth Ave., Boston, Secretary

American Association of Genito-Urinary Surgeons, Hershey, Pa., May 27-29 Dr. Charles C. Higgins, 2020 East 93d St., Cleveland, Secretary

American Association of Oral and Plastic Surgeons, New York, May 28-30 Dr. Frederick A. Igo, 102 Second Avenue S.W., Rochester, Minn., Secretary

American Association of the History of Medicine, Atlantic City, N. J., May 3-5 Dr. Henry E. Sigerist, 1900 East Monument St., Baltimore, Secretary

American Association on Mental Deficiency, Boston, May 13-16 Dr. Neil A. Dryton, 100 Nashua St., Boston, Secretary

American Broncho-Esophagological Association, Atlantic City, N. J., June 8-9 Dr. Paul H. Holinger, 700 North Michigan Blvd., Chicago, Secretary

American College of Chest Physicians, Atlantic City, N. J., June 6-8 Dr. Paul H. Holinger, 500 North Dearborn St., Chicago, Secretary

American College of Radiology, Atlantic City, N. J., June 10 Mr. Mac F. Cahill, 540 N. Michigan Avenue, Chicago, Executive Secretary

American Dermatological Association, Hot Springs, Va., May 31-June 4 Dr. Harry R. Foerster, 208 East Wisconsin Ave., Milwaukee, Secretary

American Diabetes Association, Atlantic City, N. J., June 7 Dr. Cecil Stricker, 630 Vine Street, Cincinnati, Secretary

American Gastro-Enterological Association, Atlantic City, N. J., June 8-9 Dr. J. Arnold Bargen, 102 Second Ave. S.W., Rochester, Minn., Secretary

American Gynecological Society, Skytop, Pa., June 15-17 Dr. Howard C. Taylor Jr., 812 Park Ave., New York, Secretary

American Heart Association, Atlantic City, N. J., June 5-6 Dr. Howard B. Sprague, 50 West 50th St., New York, Secretary

American Human Serum Association, Atlantic City, N. J., June 8 Dr. Maurice Hurdprose, 3321 North Maryland Ave., Milwaukee, Secretary

American Laryngological Association, Atlantic City, N. J., May 25-27 Dr. Charles J. Imperatori, 108 East 38th St., New York, Secretary

American Laryngological, Rhinological and Otolaryngological Society, Atlantic City, N. J., June 13 Dr. C. Stewart Nash, 277 Alexander St., Rochester, N. Y., Secretary

American Medical Women's Association, Atlantic City, N. J., June 6-7 Dr. Ada Chree Reid, 102 East 22d St., New York, Secretary

American Neurological Association, Chicago, June 4-6 Dr. Henry A. Riley, 117 East 72d St., New York, Secretary

American Ophthalmological Society, Hot Springs, Va., June 13 Dr. Eugene M. Blake, 303 Whitney Ave., New Haven, Conn., Secretary

American Orthopedic Association, Baltimore, June 3-6 Dr. Charles W. Parboly, 474 Fisher Bldg., Detroit, Secretary

American Otolaryngological Society, Atlantic City, N. J., May 28-29 Dr. Isidore Friesner, 101 East 73d St., New York, Secretary

American Proctologic Society, Atlantic City, N. J., June 7 Dr. William H. Daniel, 1930 Wilshire Blvd., Los Angeles, Secretary

American Psychiatric Association, Boston, May 18-22 Dr. Winifred Overholser, St. Elizabeth's Hospital, Washington, D. C., Secretary

American Radium Society, Atlantic City, N. J., June 8-9 Dr. Axel N. Arnison, 4952 Maryland Ave., St. Louis, Secretary

American Society for Clinical Investigation, Atlantic City, N. J., May 4-6 Dr. Eugene M. Landis, University of Virginia Hospital, Charlottesville, Va., Secretary

American Society of Clinical Pathologists, Philadelphia, June 5-7 Dr. Alfred S. Giordano, 551 North Main St., South Bend, Ind., Secretary

American Therapeutic Society, Atlantic City, N. J., June 5-6 Dr. Oscar B. Hunter, 1535 Eye St. N.W., Washington, D. C., Secretary

American Urological Association, New York, June 14 Dr. Clyde L. Denning, 789 Howard Ave., New Haven, Conn., Secretary

Arizona State Medical Association, Prescott, May 25-30 Dr. W. Warner Watkins, 15 East Monroe St., Phoenix, Secretary

Association for the Study of Internal Secretions, Atlantic City, N. J., June 8-9 Dr. Henry H. Turner, 1200 North Walker St., Oklahoma City, Secretary

Association of American Physicians, Atlantic City, N. J., May 5-6 Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary

California Medical Association, Del Monte, May 4-7 Dr. George H. Kress, 450 Sutter St., San Francisco, Secretary

Connecticut State Medical Society, Middletown, June 3-4 Dr. Creighton Barker, 258 Church St., New Haven, Secretary

Illinois State Medical Society, Springfield, May 19-21 Dr. Harold M. Camp, 224 South Main St., Monmouth, Secretary

Kansas Medical Society, Wichita, May 11-14 Mr. C. G. Munns, 112 West Sixth St., Topeka, Executive Secretary

Maine Medical Association, Portland, June 21-23 Dr. Frederick R. Carter, 142 High Street, Portland, Secretary

Massachusetts Medical Society, Boston, May 26-27 Dr. Michael A. Tighe, 8 Fenway, Boston, Secretary

Medical Library Association, New Orleans, May 7-9 Miss Anna C. Holt, 25 Shattuck St., Boston, Secretary

Mississippi State Medical Association, Jackson, May 12-14 Dr. T. M. Dye, P. O. Box 295, Clarksdale, Secretary

National Gastroenterological Association, New York, June 3-5 Dr. G. Randolph Manning, 1819 Broadway, New York, Secretary

National Tuberculosis Association, Philadelphia, May 6-9 Dr. Charles J. Hatfield, 1790 Broadway, New York, Secretary

Nebraska State Medical Association, Omaha, May 4-7 Dr. R. B. Adams, 416 Federal Securities Bldg., Lincoln, Secretary

New Hampshire Medical Society, Manchester, May 12-13 Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary

New Mexico Medical Society, Santa Fe, June 25-28 Dr. L. B. Cohenour, 221 W. Central Avenue, Albuquerque, Secretary

New York State Association of Public Health Laboratories, Cooperstown, May 18 Miss Mary B. Kirkbride, New Scotland Ave., Albany, Secretary

North Carolina Medical Society of the State of, Charlotte, May 11-13 Dr. Roscoe D. McMillan, P. O. Box 232, Red Springs, Secretary

North Dakota State Medical Association, Jamestown, May 18-20 Dr. L. W. Larson, 221 Fifth St., Bismarck, Secretary

Pacific Coast Ophthalmological Society, Portland, Ore., May 11-14 Dr. C. Allen Diekey, 450 Sutter St., San Francisco, Secretary

Pacific Northwest Medical Association, Portland, Ore., June 17-20 Dr. C. W. Countryman, 407 Riverside Ave., Spokane, Secretary

Rhode Island Medical Society, Providence, June 3-4 Dr. William F. Buffum, 122 Waterman St., Providence, Secretary

Society of Surgeons of New Jersey, Montclair, May 27 Dr. Walter E. Mount, 21 Plymouth Street, Montclair, Secretary

South Carolina Medical Association, Myrtle Beach, May 19-21 Dr. Julian P. Price, 105 West Cheves St., Florence, Secretary

South Dakota State Medical Association, Sioux Falls, May 13-15 Dr. Clarence E. Sherwood, 107½ Egan Avenue South, Madison, Secretary

Texas State Medical Association of, Houston, May 11-14 Dr. Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary



## Current Medical Literature

### AMERICAN

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- Rate of Emptying of Rat's Stomach Following Intragastric Administration of Glucose Solutions H B Pierce Lorraine F Haegge and P T Fenton—p 526
- Changes in Balance of Respiratory Drives Resulting from Open Pneumothorax R Geell and C Moyer Ann Arbor, Mich—p 539
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- Relation of Heat Production to Water Metabolism During Administration of Synthetic Thyroxine J M Bruhn, University Ala—p 572
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- Increased Dextrose Appetite of Normal Rats Treated with Insulin C P Richter, Baltimore—p 781

### American Journal of Public Health, New York

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- Adaptation of Public Health Programs to Defense Needs J W Mountain, Washington D C—p 1
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- Developing Comprehensive Health Service in Puerto Rico E G Morales San Juan Puerto Rico—p 59
- \*Field Study of Prophylactic Value of Pertussis Vaccine J E Perkins Albany N Y E L Stebbins New York Hilda Freeman Silverman Albany N Y P A Lemhcke Rochester, N Y and B M Blum New York—p 63
- Private Public Health Nursing Agency in Defense Program Katharine Faville New York—p 73
- Is There Need for the Fortification of Milk? E V McCollum Baltimore—p 80

**Prophylactic Value of Pertussis Vaccine**—According to Perkins and his associates, a controlled study of the prophylactic value of phase 1 pertussis vaccine was conducted in Binghamton, N Y, from January 1939 to November 1940, 587 children were given the complete series of injections and

699 acted as controls. The ages of the children varied from 6 months through 4 years. Reactions to the vaccine were negligible. Every family studied was visited once a month by a nurse who did not know which children had been vaccinated and which were controls. During the period of observation the attack rate of pertussis was more than twice as high in the control group as in the vaccinated group, and the pertussis when it did occur among the vaccinated group was distinctly less severe. The secondary household attack rate among the vaccinated group was 34 per cent as compared with 79 per cent among the controls.

### Archives of Otolaryngology, Chicago

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- Chronic Progressive Deafness, Including Otosclerosis and Diseases of Inner Ear G E Shamhaugh Jr and W S Roberts, Chicago—p 291

### Archives of Surgery, Chicago

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- \*Clinical Use of Succinylsulfathiazole E J Poth and I L Knotts, Baltimore—p 208
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- Effect of Asphyxia Caused by Bowel Distention on Concentration of Blood W D Gate and J S Battersby Indianapolis—p 319
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- Role of Abdominal Distention in Leukocyte Exhaustion J Van Duyn 2d Syracuse N Y—p 339
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- Use of Extract of Mammalian Skeletal Muscle P L Getzoff, G C Treatment of Ureteral Spasm: Observations with Special Reference to Tomskey and H D Ogden Jr New Orleans—p 370
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**Succinylsulfathiazole and Bacteriostasis**—In an endeavor to find a drug that would not be absorbed from the gastrointestinal tract in sufficient quantities to cause toxic manifestations and that would be effective in the presence of ulcerating intestinal lesions, Poth and his colleagues studied the bacteriostatic activity of eighteen sulfonamide combinations on the gastrointestinal mucosa of dogs. Succinylsulfanilamide and succinylsulfathiazole exerted a decided bacteriostatic activity on the coliform organisms. They possess relatively strong acid properties, liberating carbon dioxide from aqueous solutions of inorganic carbonates and bicarbonates. Succinylsulfathiazole is relatively resistant to chemical hydrolysis and is split by bacteria to yield sulfathiazole. In vitro its bacteriostatic activity against *Escherichia coli* in synthetic mediums is slight, it is poorly absorbed from the gastrointestinal tract and therefore a high concentration can be maintained there without causing untoward toxic reactions. Measured by its inhibition of the coliform flora of the intestine it apparently



has a high bacteriostatic action in the gastrointestinal tract of man. Succinylsulfathiazole causes the stools to become semi-fluid and renders them relatively odorless. The drug is rapidly excreted by the kidneys and its concentration in the blood remains low when it is administered orally. It has not caused severe toxic reactions in man. It is excreted by the liver, in which hydrolysis occurs. The administration of succinylsulfathiazole is suggested preoperatively for patients to be subjected to gastrointestinal operations and for patients with acute intestinal infections, such as typhoid and dysentery. The action of the drug is limited to its local effect on the contents of the gastrointestinal tract.

**Clinical Use of Succinylsulfathiazole**—Poth and Knotts gave succinylsulfathiazole to 100 patients to alter the contents of the gastrointestinal tract. The patients either were convalescents with a normal intestinal mucosa or had typhoid, dysentery, diarrhea, carcinoma or fistula of the colon or the small intestine, ulcerative colitis or diverticulitis. In 5 the count of coliform bacilli was not lowered, in 2 there was severe, uncontrollable diarrhea, in 2 there were blind loops of intestine into which the drug did not enter, and in 1 there was intestinal indigestion, so that the stools did not become semi-fluid during chemotherapy. Because of the profound changes in the count of *Escherichia coli* in the feces, it is likely that various other organisms are affected. While conclusions cannot be drawn from this limited clinical study, the smooth convalescence experienced by the patient given succinylsulfathiazole preoperatively and postoperatively is impressive. One patient in whom anemia developed after a Miles operation for rectal carcinoma died.

**Chemotherapy for Osteomyelitis**—Wilensky reviews the clinical effects of the sulfonamide drugs in the treatment of osteomyelitis. For primary osteomyelitis local, and later, if necessary, general, chemotherapy is indicated. In extension osteomyelitis, particularly that of the cranial bones, chemotherapy has not prevented the disease from spreading and complications from occurring. However, chemotherapy has shown some wonderful results in preventing complications, but even here all local areas of infection must be removed. For acute hematogenic osteomyelitis, chemotherapy is especially indicated in the stage of general infection, the danger of a progressive hidden pathologic process must be kept in mind. In actual practice the treatment of osteomyelitis with one of the sulfonamide derivatives has not produced the startling results obtained in some other conditions, notably pneumonia. Sometimes the proper interpretation of a good result in osteomyelitis is difficult because of the possibility that the beneficial change occurred spontaneously, as often happened before the advent of chemotherapy.

**The Undescended Testis**—Data recorded in the literature suggest that the undescended testis is more liable to malignant change than the normally placed testis. The abdominal testis is more liable to malignant change than the inguinal. Campbell lists six reasons which have contributed to a lack of appreciation of these facts: 1. The medical profession has neglected the science of statistics by trying to draw conclusions from figures without knowing how to manage them. 2. Authors have committed almost incredible errors of misquotation. 3. Differing definitions of the words "cryptorchism," "cryptorchid," "ectopy," "anorchism" and "monorchism" have led to false conclusions. 4. Statistics have been published from hospital practice but not from private practice. 5. Early figures, in which a disproportion between the occurrence of malignant growth in the inguinal and the abdominal testis occurred, have been quoted. This disproportion no longer exists, probably because the abdomen is much more frequently explored. 6. The incidence of malignant change in the undescended testis has not been computed on the number of testes but on the number of patients, thus the true incidence of malignant change in bilateral undescended testes has not been determined. From the literature since 1900 a group of about 1,413 cases of undescended testis with a known incidence of malignant change has been collected, as well as 2,119 cases of undescended testis in which the relative incidence of abdominal and inguinal nondescent is known and 672 cases of malignant growth in the testis in which the

relative frequency of abdominal and inguinal nondescent is known. One in about twenty abdominal testes shows a malignant change, as against one in about eighty inguinal testes. Combined hospital figures reveal about equal numbers of abdominal and inguinal malignant growths. This is because the proportion of inguinal to abdominal testes is about 4:1 and the proportion of cancerous inguinal to cancerous abdominal testes is about 1:4.

### Bulletin of Johns Hopkins Hospital, Baltimore 70 1-100 (Jan) 1942

- Distribution of Certain Oxidative Enzymes in Choroid Plexus J S Friedenwald, H Herrmann and R Buka, Baltimore—p 1
- Choline Esterase Content of Choroid Plexus and Ciliary Processes H Herrmann and J S Friedenwald, Baltimore—p 14
- p*-Aminobenzoic Acid as Metabolite Essential for Bacterial Growth C R Park and W B Wood Jr, Baltimore—p 19
- Study of Mechanical Factors in Circulation, with Special Reference to Problem of Acute Circulatory Failure P B Price, H E Sloan Jr and I T LaRoche, Baltimore—p 26
- Reaction of Subcutaneous Tissues to Acetone Insoluble Lipids from Beef Brains Ldua H Tompkins, Nashville, Tenn—p 55
- Demonstration of Basilar Artery and Its Branches with Thorotrast A B King, Baltimore—p 81
- Anterior Commissure Tendon of Larynx Its Significance in Laryngofissure Operation Preliminary Note L N Broyles, Baltimore—p 90

***p*-Aminobenzoic Acid and Bacterial Growth**—Park and Wood have shown experimentally that *p*-aminobenzoic acid, though ineffectual by itself, is extremely active as a bacterial growth factor when traces of biotin are present. Therefore they conclude that *p*-aminobenzoic acid is essential to bacterial metabolism and that it may well be involved in the antibacterial action of the sulfonamide drugs.

### Illinois Medical Journal, Chicago

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- Senile Ectasy Clinical Study of Aging Human Heart (Observations on 400 Patients) R S Berghoff, A S Geraci and D A Hirsch, Chicago—p 97
- Surgical Treatment of Deafness G E Shambaugh Jr, Chicago—p 104
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### Indiana State Medical Assn Journal, Indianapolis

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- Anesthetic Agents and Anesthetic Failures J M Whitehead, Indianapolis—p 74
- Simple Device for Administering Intravenous Barbiturate Lillian B Mueller, Indianapolis—p 77
- Practice of Ophthalmology F M Ruby, Union City—p 78

**Inhibition of Sulfapyridine by Local Anesthetics**—Powell and his co-workers state that their experiments on mice have demonstrated that local anesthetics derived from *p*-aminobenzoic acid inhibit the antipneumococcal action of sulfapyridine. Local anesthetics not derived from *p*-aminobenzoic acid did not exert this effect.

## Journal of Infectious Diseases, Chicago

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—p 710
- Use of High Fat and High Purine Diets in Diagnosis of Gout C.  
McEwen, New York—p 834
- Putrid Empyema Without Fetid Sputum (Surprise Empyema) H.  
Neuhof New York—p 892
- Inoculation Malaria and Drug Addiction E. B. Schoenbach and C. L.  
Spingarn New York—p 998
- Transient Ventricular Fibrillation Study of Fibrillary Process and Its  
Development in Man S. P. Schwartz New York—p 1005
- Thromboangitis Obliterans and Polycythemia Vera S. Silbert New  
York—p 1021
- Blood Iodine in Period After Thyroidectomy Preliminary Report  
S. Silver and B. Magasanik New York—p 1027
- Methylation of Hydroxyl Groups in Triazines Studies in Triazines  
III H. Sobotta and Edith Bloch New York—p 1032
- Syphilitic Aortitis with Aortic Regurgitation Electrocardiographic and  
Autopsy Survey at Massachusetts General Hospital H. B. Sprague,  
Boston—p 1034
- Comparison of Simultaneous Indirect (Auscultatory) and Direct (Intra-  
Arterial) Measurements of Arterial Pressure in Man J. M. Steele,  
New York—p 1042
- Self Observations and Psychologic Reactions of Medical Student A. S. R.  
to Onset and Symptoms of Subacute Bacterial Endocarditis S.  
Weiss Boston—p 1079

**Paroxysmal Tachycardia in Infancy**—Bass discusses the occurrence of extreme paroxysmal tachycardia in 2 infants at 3 weeks of age and in 1 at 4 months. One infant recovered, 2 died. No known cause has been discovered for the syndrome. All 3 patients vomited, had extreme pallor and refused to take food. A striking feature was a decided enlargement of the liver. In 2 patients the tachycardia responded to medi-

cation. The patient who lived was definitely saved by digitalization. However, even after the drug had been administered and the heart rate had fallen and a sinus rhythm had been reestablished the tachycardia would reassert itself and continue for many hours, but after three days the heart rate became normal and remained so. In 1 of these 2 patients injections of calcium gluconate reduced the rate for several hours, but the flutter waves returned. The injection of isotonic solution of sodium chloride accomplished the same effect, although sinus rhythm continued for only a few minutes. Large doses of digitalis failed to save this infant. The third patient's attack was so violent that death ensued in three days. Permission for a necropsy of this infant was not obtained. It is possible that some preexisting cardiac anomaly may have been present (congenital hypertrophy?). This patient received digitalis as soon as the author saw her, but as she was already moribund neither giving digitalis nor giving a 25 per cent solution of nikethamide nor immediate administration of oxygen was of any avail. Pressure on the eyeballs or on the neck over the carotid sinus was valueless.

**Ligation of Splenic Artery**—Berg and Rosenthal ligated the splenic artery of 2 patients with thrombocytopenic purpura, of 3 with cirrhosis of the liver with splenomegaly and fascial constriction of the artery and of 1 with osteosclerotic anemia (myelofibrosis), or nonleukemic myelosis. Only a transitory good effect was experienced by the first 2 patients, the decided recurrence of the condition necessitated secondary splenectomy. Ligation was followed by a definite diminution in the size of the spleen of the 3 patients with congestive splenomegaly, 2 of them survived for one year and 1 for three years. The ascites of the latter 1 subsided for two years. The patient with osteosclerotic anemia had slight improvement for only a short period after the ligation. The spleen had apparently diminished in size and again attained its former size about six weeks after operation. The "drosselung," or constriction of the artery, did not influence the progressive weakness, anemia and general condition of the patient. Except in some instances of congestive splenomegaly the results do not warrant the continuance of such a procedure as a substitute for splenectomy. Splenectomy is superior, and it at least removes the element of uncertainty which accompanies ligation of the splenic artery.

**Kidneys in Subacute Endocarditis**—Christian describes pathologic lesions observed in the kidneys of 61 patients who died of subacute endocarditis caused by Streptococcus viridans. Macroscopically the kidneys are slightly swollen and edematous and there are areas of infarction, usually of the anemic variety, and focal hemorrhages, which cause the "flea bitten" appearance described by Horder. In 42 the infarct was observed on gross inspection, in 14 it was observed only under the microscope. Surface focal hemorrhage was present in the kidneys of 8 patients. Microscopically a variety of glomerular lesions, both diffuse and focal in distribution, were observed: acute intracapillary proliferative glomerulonephritis in 80.32 per cent and diffusely distributed, hyaline thickening of the walls of the glomerular capillaries in 16.39 per cent. Five types of focal glomerular lesions were seen: proliferation of the capsular epithelium in 36.06, focal fibrous lesions in 26.23, occasionally complete disorganization of glomeruli, hyaline fibrinoid thrombi in glomerular vessels in 40.98 and masses of bacteria in glomerular capillaries in 6.55 per cent. The focal lesions were present in varying frequency in sections from different kidneys, they rarely dominated the microscopic picture. Albuminuria was present in 78.69 per cent of the patients, and cylindruria was not prominent. Hematuria was found in 75 per cent of the patients. The presence of numerous blood cells in the sediment of the urine suggests a diffuse or focal, proliferative, glomerular lesion rather than infarction or fibrinoid glomerular thrombi. Decreased renal function, indicated by a decreased excretion of phenolsulfonphthalein or an elevation of blood urea nitrogen, was observed in one fourth of the patients, but in none of them did it result in symptoms of uremia.

**Nephrotic Crisis**—Emerson and Van Slyke include all acute febrile episodes with symptoms of peritonitis under the term nephrotic crisis. The symptoms occur and recur in nephrotic children, with or without demonstrable bacteremia. Farr, MacFadyen, MacLeod and their collaborators show that the attack

is preceded by a loss of body nitrogen and a dramatic fall in the amino acid of the plasma. Recovery is regularly accompanied by a rise in the amino acid of the plasma. The intravenous administration of amino acid appears to reduce the mortality rate. Prior to the administration of amino acid the mortality rate was 69 per cent, whereas there were no deaths among 11 patients less than 10 years of age who had thirty-two crises and were given amino acid intravenously. Only 1 patient so treated died. This was an older patient who in addition to the nephrotic crisis had an infection that was resistant to sulfapyridine.

**Pleural Mesothelioma**—Klemperer and Tedeschi report a case of diffuse neoplasm of the pleura which arose from the cells lining the mesothelium. The complex structure of the tumor, composed chiefly of lipofragile reticulum cell-like elements and of cells which resembled lymphocytes in different phases of development, is explained by the multiple developmental potentiality of the mesoderm which comprises the coelomic "mesothelium." Throughout the entire illness there was no suggestion of a neoplasm in any other part of the body, and at necropsy no other primary growth was found. The following microscopic observations supported this view. There were strands of dense connective tissue growing inward from the thickened pleura and often lined by a noncontinuous layer of mesothelial cells in atypical proliferation. The capillaries, with severe fibrous thickening of their walls resulting in the formation of large hyaline bodies, were numerous. There were masses of peculiar cells within the lough formed by the intersecting fibrous trabeculae.

### Journal of Nutrition, Philadelphia

23 101-204 (Feb) 1942 Partial Index

\*Effect of Controlled Ascorbic Acid Ingestion on Urinary Excretion and Plasma Concentration of Ascorbic Acid in Normal Adults. Chert A. Storvik and Harel M. Harel, Illinois. N. Y.—p. 111

Interrelationship of Magnesium, Phosphatase and Vitamin D in Bone Development. G. I. Combs, I. C. Norris and G. I. Heuser, Illinois, N. Y.—p. 131

Local Rat Parathyroids as Affected by Changes in Maternal Serum Calcium and Phosphorus Through Parathyroidectomy and Dietary Control. T. G. Smollett, Galveston. Texas—p. 141

Bottom in Child Nutrition. D. M. Hegsted, R. C. Mills, G. M. Briggs, C. A. Flyvbjerg and I. B. Hart, Madison. Wis.—p. 175

Iron Requirement of Children of Early School Age. Frances A. Johnston and Lydia T. Roberts, Chicago—p. 181

\*Ascorbic Acid Requirements of Children. O. A. Bessey and Ruth L. White, Boston—p. 195

**Vitamin C Metabolism in Adults**—Storvik and Hauck determined the daily urinary excretion of ascorbic acid and the fasting levels of ascorbic acid for twenty-one twenty-eight day periods in the plasma of 2 normal men and 4 women on controlled intakes of ascorbic acid. From the response to the test dose at the end of each period, supplements of 65 to 150 mg of ascorbic acid, in addition to approximately 10 mg in the basal diet, were required by the subjects for maintaining tissue saturation.

**Iron Requirement of Children**—To determine the requirement of iron by preschool children, Johnston and Roberts selected 12 boys and 8 girls from 8 to 11 years of age who for several years had lived in an institution whose standards of nutrition and physical care are high. The children's hemoglobin levels at the start of the investigation were considered a product of their diet. Matched groups of 3 children were given graded amounts of iron for seven months, after which the hemoglobin level was again determined. The data indicate that a good hemoglobin level can be maintained on a daily intake of 114 mg, or 0.35 mg per kilogram of body weight, when the rest of the diet is adequate. A higher intake is not needed, as the hemoglobin level of children given 2 or 4 mg of supplementary iron daily for seven months did not rise. It is possible that a lower intake might have been adequate.

**Ascorbic Acid Requirements**—Bessey and White estimated the requirement of ascorbic acid by determining the level of the acid in the blood plasma of 93 healthy city children receiving variable amounts of ascorbic acid in their food. The data indicate that 3 ounces (90 cc) of orange juice a day, or its equivalent in other citrus fruit juice, or 6 ounces (180 cc) of tomato or tangerine juice, plus the small amount of the acid that obtains in other foods, which probably totals not more than 10 mg a day, is sufficient to produce an optimal postabsorptive

concentration of ascorbic acid in the plasma of the average child 5 to 13 years of age. Orange juice is assumed to contain 15 mg of ascorbic acid per ounce, therefore the daily requirement may be placed at 40 to 50 mg. The amount of ascorbic acid obtained from food other than citrus fruits and tomatoes was insufficient to influence the level of ascorbic acid in the blood plasma. This emphasizes the necessity of a regular consumption of citrus fruits or tomatoes if an optimal postabsorptive value is to be maintained.

### Journal of Pharmacology & Exper. Therap., Baltimore

74 99-238 (Feb) 1942 Partial Index

In Vitro Action of Sulfonamides on Lymphogranuloma Venereum Virus. J. C. Holder, Sonnia Levine and J. G. M. Bullowa, New York.—p. 99

Study of Toxic Properties of Tung Nuts. J. L. E. Erickson and J. H. Brown Jr., Baton Rouge, La.—p. 114

Delay in Onset of Action of Intravenously Injected Anesthetics. T. C. Butler, Nashville, Tenn.—p. 118

Intravenous Injections of Soluble Bismuth Compounds: Their Toxicity and Their Sojourn in Blood and Organs. T. Sollmann and J. Seifter, with technical assistance of G. H. Mangun, E. S. Rambousek and J. A. O'Hare, Cleveland—p. 134

Inte. of Certain Symptothymetic Amines in Body. K. H. Bejer and W. V. Lee, Madison, Wis.—p. 155

Action of Certain Sulfonamides, Sulfones and Related Phosphorus Compounds in Experimental Tuberculosis. M. I. Smith, E. W. Emmart and B. B. Westfall, Bethesda, Md.—p. 163

Studies on Sulfonamide Resistant Organisms. I. Development of Sulfapyridine Resistance by Pneumococci. L. H. Schmidt, Clara Sesler and H. A. Dettwiler, Cincinnati—p. 175

Effect of Multiple Substituents on Toxicity and Treponemoidal Activity of Phenylarsenoxide. H. Eagle, R. B. Hogan, Baltimore, G. O. Deak and H. G. Steinmann—p. 210

\*Study of Antidotes for Fluorine. S. Marcovitch and W. W. Stanley, Knoxville, Tenn.—p. 235

**Antidotes for Fluorine**—According to Marcovitch and Stanley, the fluoborates when fed in powdered form were non-toxic to rats and insects. In solution, enough fluorine was liberated to produce toxic effects. Aluminum sulfate and hydrated lime protect animals from a lethal dose of sodium fluoride when mixed with the latter. Boric acid, through the formation of a fluoborate, also has some value as an antidote. Aluminum sulfate mixed with the sodium fluoride and used as a roach powder produces a lower kill than is obtained with sodium fluoride alone. To prevent the mistaking of sodium fluoride for flour, sugar or baking powder, some manufacturers are now coloring it a dull blue. As a further precaution the National Pest Control Association suggests that more be known about its antidotes.

### Kentucky Medical Journal, Bowling Green

40 1-40 (Jan) 1942

Hemorrhagic Diathesis. M. F. Beard, Louisville—p. 4

The General Practitioner and the State Hospital. I. Kimbell, Lake land—p. 7

Suppurative Diseases of Lung. L. W. Nehl, Louisville—p. 11

Pulmonary Tuberculosis Simulating Nontuberculous Lesions. E. R. Gernert, Louisville—p. 16

Pneumonia. R. A. Bate Jr., Louisville—p. 19

Common Lesions of Larynx. J. S. Bumgardner, Louisville—p. 22

Diagnosis and Management of Lesions of Stomach, Duodenum and Jejunum. F. H. Lahey, Boston—p. 26

Obstetric Observation. C. W. Reynolds, Covington—p. 33

### Military Surgeon, Washington, D. C.

90 1-112 (Jan) 1942 Partial Index

Resume of Recent Activities. H. D. Corbuser—p. 1

Investigations Concerned with Problems of High Altitude Flying and Deep Diving. Application of Certain Findings Pertaining to Physical Fitness to General Military Service. A. R. Behnke Jr.—p. 9

Psychoneuroses as They Pertain to Military Service. F. P. Pignataro—p. 29

Evaluation of Heart Signs in Navy Recruiting. E. F. Lowry—p. 37

\*Sulfapyridine "8776" Treatment of Acute Gonorrheal Urethritis in Male. Report on Sixty Eight Cases Followed for Eight Months. Supplemented by General Discussion. J. P. Pappas—p. 45

Medical Care at Reception Center. M. S. Saslaw and E. B. Oliver—p. 57

Note on Performance of Mass Urinalysis. J. C. Bock and C. R. Neterval—p. 60

Plasma Protein, Its Physiology Relative to Normal and Failing Peripheral Circulation. F. B. Marsh—p. 76

**Sulfapyridine Treatment of Acute Gonorrheal Urethritis**—Pappas used the four day intensive course of sulfapyridine for the treatment of 59 soldiers with acute previously untreated gonorrhea and 9 who had previously failed to be cured.

with sulfanilamide. The method employed was that suggested by Winter in 1940 the '8-7-7-6' plan or the administration of 8, 7, 7 and 6 Gm of sulfapyridine on the respective four days of treatment. Fifty-three, or 90 per cent, of the 59 patients were apparently cured and were returned to duty after an average of fourteen and four-tenths days of hospitalization. The 6 patients not cured had a definite amelioration of symptoms, but evidence of drug failure was demonstrable either during or soon after the completion of chemotherapy. The 53 patients could have been returned to duty in an average period of five and three-tenths days if irrigations and provocative tests had been omitted. The 9 patients who were resistant to sulfanilamide responded to sulfapyridine treatment. Their average stay in the hospital was seventeen and one-tenth days, but they could have been returned to duty in about eight and three-tenths days if provocative tests had not been done. Eight patients were followed up for an average of three and five-tenths months and 54 for an average of eight months. There were no relapses of infection even though many immediately indulged in alcoholic and venereal excesses. Practically all of them were subjected to the physical stress and strain incident to marches and maneuvers in the jungle during March 1941. The author believes that the institution of inadequate drainage early during chemotherapy and small oral doses with the erratic individual absorption rates are the primary factors responsible for sulfapyridine resistant infections, asymptomatic carrier states and consequent late relapses.

### New England Journal of Medicine, Boston

226 173-212 (Jan 29) 1942

- Cancer of Breast. Results of Surgical Treatment at Collis P. Huntington Memorial Hospital. C. C. Simmons. Boston—p 173.  
\*Psychiatric Aspects of Ulcerative Colitis. G. E. Daniels. New York—p 178.  
\*Chemotherapy in Gonococcal Infections. O. I. Cox. Boston—p 184.  
Recent Advances with Chemotherapy in Treatment of Infections of Urinary Tract. E. N. Cook. Rochester, Minn.—p 187.  
Traumatic Obstruction of Main Bronchus. Report of Case. M. D. Tyson and J. S. Lyle. Hanover, N. H.—p 192.  
Protein of Cerebrospinal Fluid in Patients with Chronic Alcoholism. E. H. Trowbridge Jr. and L. Secunda. Boston—p 195.  
Renal Function Tests. J. H. Talbot. Boston—p 197.

**Ulcerative Colitis.**—During the last ten years Daniels has seen 25 persons with ulcerative colitis, most of them were referred by physicians for psychiatric consultation and treatment. Of 14 followed for five to eight years, 8 showed a pathologic attachment to a relative (in 6 the death of this relative had been of paramount importance), indecision about marriage was definite in 2 unmarried members, in 2 engagement and marriage were the precipitating causes of the first attack and in 2 the onset of symptoms was associated with childbirth. Financial difficulties had a special significance in 4. As a group the patients were not well adjusted sexually, although generally this was not the presenting problem. Except for the basic factors relating emotions to disturbances of the large intestine, the psychophysiologic mechanism of ulcerative colitis is not understood. Observations in mucous and spastic colitis may eventually aid in elucidating the mechanism. Much can be said of the relation of personality to disease of the colon. The author's impression is that the difference lies in the more narcissistic organization of the personality in ulcerative colitis, with the underlying reaction more a psychotic than a psychoneurotic one. At times the symptoms mask a severe depression. The recurrent character of the disorder may be significant in this regard. In several instances the disease seemed definitely a type of organic suicide. In many instances there is a direct relation between the severity of the physical reaction and the underlying psychopathologic condition. Psychoneurosis rarely causes death, psychosis frequently does.

**Gonococcal Infections.**—Cox points out that of 440 men with gonococcal infection treated at the Boston Dispensary with sulfathiazole only 265 entered the clinic during the first week of infection with no previous treatment and were under observation long enough for a series of cultural studies to be done. Of the 265, 41 had clinically active gonococcal infection at the end of the second week, and in addition 26 became asymptomatic within two weeks but one or more cultures were positive between the first and eighth weeks after the patients were free from symptoms. The remaining 198 patients represent the cure rate

that can definitely be attributed to sulfathiazole. There was no significant difference in the cure rate of those men who had and those who did not have local treatment. There were few toxic symptoms, and none were serious enough to necessitate withdrawal of the drug. However, sulfathiazole is not entirely without toxic possibilities, drug fever, rash, nausea, headache and renal complications have been reported.

226 213-250 (Feb 5) 1942

- Use and Abuse of Electrocardiogram in Medical Practice. H. M. Marvin. New Haven, Conn.—p 213.  
\*Right Upper Quadrant Pain on Effort. Early Symptom of Failure of Right Ventricle. N. H. Boyer and P. D. White. Boston—p 217.  
Congenital Hydronephrosis in Lower Half of Double Kidney. Report of Case. S. Leyder and C. L. Deming. New Haven, Conn.—p 220.  
Pulmonary Tuberculosis and Pregnancy. R. H. Baker and A. D. Ward. Worcester, Mass.—p 224.  
Heterogeneous Renal Disorders. J. H. Talbot. Boston—p 228.

**Pain on Effort.**—Boyer and White encountered 4 persons in whom pain of the upper right quadrant precipitated by exertion and relieved by rest was the presenting symptom of early failure of the right side of the heart. It is evidently due to acute hepatic congestion and is comparable to dyspnea on effort in early failure of the left side of the heart. Direct questioning of a group of 40 patients who had clinical evidence of failure of the right side of the heart or who were likely subjects revealed that 45 per cent had such pain at some time. The pain is a symptom to which the patient rarely attaches much significance, as it is overshadowed by other, more severe, symptoms. The symptom, if sought diligently, may prove to be a common and reliable warning of early weakness of the right ventricle.

### New York State Journal of Medicine, New York

42 193-288 (Feb 1) 1942

- Effectiveness of Sulfonamides on Bacteria Encountered in Infections of Upper Part of Urinary Tract. R. C. Borst. Utica—p 217.  
Chronic Pyelonephritis. R. M. Nesbit and K. B. Conger. Ann Arbor, Mich.—p 225.  
Follow Up Study of So-Called Pyelitis in Children. E. Slotkin. Buffalo—p 233.  
Some Common Problems in Management and Diagnosis of Contact Dermatitis. A. R. McFarland. Rochester—p 239.  
Diverticulum of Female Urethra. M. Rashbaum and G. P. Seley. New York—p 243.  
Chronic Hypertrophic Osteoarthritis in Cervical Spine with Radiculitis. Report of Forty Cases with Review of Literature Together with Some Notes on Effective Methods of Treatment—Part II. L. C. Kelly, New York—p 246.  
Medicine Marches On. B. L. Shientag. New York—p 252.

42 289-384 (Feb 15) 1942

- Surgical Interruption of Pallidofugal Fibers. Its Effect on Syndrome of Paralysis Agitans and Technical Considerations in Its Application. R. Meyers. Brooklyn—p 317.  
\*Value of Helium in Prevention of Explosions of Anesthetic Mixtures. Experimental Data. G. J. Thomas and G. W. Jones. Pittsburgh—p 326.  
Results of Treatment with Bacillus Coli Metabolin in Allergic Rhinitis. H. H. Shilkret. New York—p 332.  
Chronic Hypertrophic Osteoarthritis in Cervical Spine with Radiculitis. Report of Forty Cases with Review of Literature Together with Some Notes on Effective Methods of Treatment—Part III. L. C. Kelly, New York—p 336.

**Helium in Anesthetic Mixtures.**—Thomas and Jones outline a method for preventing the explosion of combustible anesthetic mixtures. The method is based on the fact that not every combustible gas, vapor or dust will burn or explode when its oxygen content, different for each combustible, is reduced below certain definite values. In the case of combustible anesthetics, their concentration cannot be altered to any great extent because definite amounts are required for the desired degree of anesthesia. Nonexplosibility must therefore be brought about by replacing part of the oxygen with a flame quenching medium and one that is not objectionable to the patient breathing the mixture. The relative explosibility of cyclopropane-oxygen-helium, ether-oxygen-helium and ethylene-oxygen-helium mixtures is given, and it is shown that ether requires the lowest range of oxygen concentration, ethylene assumes an intermediate position and cyclopropane permits a high concentration of oxy-



can to be present while nonexplosive conditions are maintained. Therefore helium can be used to the best advantage in cyclopropane-oxygen mixtures for the prevention of explosions and to a slight advantage with ethylene or ether-oxygen mixtures.

## Review of Gastroenterology, New York

9 1-90 (Jan-Feb) 1942

- \*Importance of Gastrosocopy in Differentiating Gastric Ulcer and Carcinoma. I. H. Cleri and C. W. Wirts Jr., Philadelphia—p. 1
- Evaluation of Gastric Disease Since Advent of Flexible Gastroscope. Report of 100 Cases. H. I. Segal, Rochester, N. Y.—p. 7
- Use of Pentothal Sodium Intravenous Anesthesia for Gastrosocopic Examination. I. S. Heimken, Bloomfield, N. J., and H. I. Roseman, Montclair, N. J.—p. 11
- Treatment of Generalized Peritonitis Following Ruptured Appendix. Report of a Surgeon and Gastroenterologist. Report of Sixty Five consecutive Cases. A. I. Levin, J. T. Nix and J. I. Nix Jr., New Orleans—p. 15
- Surgical Management in Treatment of Peptic Ulcer. I. I. Boyd, W. R. Koss and H. Barowsky, New York—p. 20
- Gastrointestinal Allergy. I. Urbach, Philadelphia—p. 26
- Chronic Gastritis. C. P. Pritchett and P. I. Knies, Columbus, Ohio—p. 2
- Influence of Intestines on Gastrointestinal Symptomatology. J. I. Cox, Memphis, Tenn.—p. 10
- Causes of Vitamin Deficient States. M. G. Wohl and J. T. Freeman, Philadelphia—p. 46
- Influence of Nutrition on Occurrence of Peptic Ulcer. R. R. Lohmann, New York—p. 52
- Fatal Diaphragmatic Hernia. W. Heumann, New York—p. 54
- Chronic Atrophic Gastritis. I. C. Sanders, Memphis, Tenn.—p. 62
- Malignancies of Rectum and Anus. I. Conlin, Pittsford, Pa.—p. 66
- Indications for Gastric Surgery. I. A. Marshall, Cleveland—p. 71
- Diagnostic Problems in Urinary Bladder Disease. J. N. Rich, Philadelphia—p. 76

**Gastrosocopy in Differentiating Gastric Ulcer and Carcinoma**—The experience of Cleri and Wirts with 14 cases of gastric ulcer and 20 of gastric cancer emphasizes the importance of gastrosocopic examination. Roentgen study suggested that in 9 of 11 cases of gastric ulcer the ulcer was probably malignant and that in 2 it was probably benign. In each of these 11 cases a diagnosis of benign ulcer was made gastrosocopically. In 8 improvement followed medical management and the lesion disappeared completely and in 3 the benignity of the lesion was proved at operation. In 3 of the remaining cases of gastric ulcer, roentgen study failed to reveal a lesion but an ulcer was seen gastrosocopically. In 2 of these, medical treatment caused the lesion to disappear, and in the third the ulcer, because of its size and thickened edges, was considered malignant at the first gastrosocopic examination but later was proved to be benign. The roentgenologist described the lesion in 11 of the cases of cancer of the stomach as "possibly" or "probably" malignant, whereas at gastrosocopic examination a definite diagnosis of a malignant growth was made in each case. The diagnosis in 9 was proved at operation and in 2 by peritonoscopy, both of the latter showed metastasis. Roentgen examination failed to show a gastric lesion in the 9 remaining cases, in which gastrosocopy revealed carcinoma. In 7 of these cases operation confirmed the diagnosis, in 1 operation was refused and 1 was considered a poor surgical risk because of advanced diabetes mellitus.

## Union Médicale du Canada, Montreal

71 113-222 (Feb) 1942 Partial Index

- \*Clinical Study of Epidemic of Poliomyelitis and Encephalitis Superimposed in 1941 in the West of the United States and Canada. W. J. McCormick, Toronto—p. 127
- Remarks on Acute Meningitis. Roma Amyot, Montreal—p. 140
- Cancer of Pincers. Presentation of Two Cases with Necropsy, One of Them with Diabetes and Icterus. J. LeSage and J. Olivier, Montreal—p. 152
- Volulus of Cecum. Postoperative Complication. C. Lefrançois, Montreal—p. 159
- Surgical Treatment of Convergent Strabismus. A. Panneton, Trois Rivières, Que.—p. 168

**Epidemic of Poliomyelitis and Encephalitis**—McCormick investigated in Winnipeg hospitals the alimentary habits and the excessive physical exertion of patients in the course of a simultaneous epidemic of poliomyelitis and encephalitis. He reviews the clinical histories of a certain number of patients of each group. All the patients who were questioned had had a diet extremely poor in vitamin B. The majority had been physically overworked before the onset of the disease. In some cases the disease itself had been preceded by certain forerunning

signs which lasted for weeks, months or years. This premonitory period suggests a predisposition or the existence of certain factors which, when associated, at a given moment give rise to the acute phase of the disease. This conception all accords with the role classically attributed to contagion but harmonizes well with the author's theory of avitaminosis. In support of this theory he cites a certain number of observations concerning the age and sex of the patients and the seasonal variations of the frequency of poliomyelitis and encephalitis. He also discusses the role which avitaminosis may play in equine encephalomyelitis. In connection with the virus the author proposes a new theory which considers the biochemical by-products of avitaminosis, explaining by this fact the failure of preventive and therapeutic measures commonly employed. A laboratory technique remains to be found which will detect the avitaminosis in the victims of these disorders. It is also necessary to try vitamin B therapy in the acute and the convalescent periods of these epidemic diseases. Since the present treatment of poliomyelitis and encephalitis is ineffective and since B avitaminosis is almost general, the author suggests that double the quantity of vitamin B<sub>1</sub> that is normally necessary be given as a prophylactic measure to children during the summer vacation period and to laborers who work in an overheated atmosphere.

## Wisconsin Medical Journal, Madison

41 1-100 (Jan) 1942

- Parental Test Differentiation of "Functional" Fever from That of Infectious Origin. M. J. Fox, Milwaukee—p. 19
- \*Laryngotracheobronchitis. W. J. Troup and D. F. Weaver, Green Bay—p. 21
- Pneumoencephalogram in Children. M. G. Peterman, Milwaukee—p. 26
- \*Pneumonia in Children Treated with Sulfapyridine. J. A. Bigler, Chicago—p. 29
- Irradiation Treatment of Carcinoma of Cervix. H. D. Kerr, Iowa City—p. 34
- Adequacy of Iodized Salt for Goiter Prevention. E. L. Sevringhaus and J. H. Barbour, Madison—p. 40
- Evaluation of Medical Treatment in Rheumatoid Arthritis. G. W. Carlson, Appleton—p. 42

**Laryngotracheobronchitis**—Troup and Weaver discuss the salient features of laryngotracheobronchitis and stress the importance of cooperation by all persons concerned in its treatment. Laryngotracheobronchitis is characterized by intense inflammation of the larynx, trachea and bronchi. The product of inflammation forms a sticky, gumlike exudate in the air passages and obstructs them. The disease in its typical fulminating form occurs most often in children less than 2, and it is in them that the mortality rate is so high. It does attack older children, but in them it is not so severe or fulminating. The mucosa and submucosa of the trachea and bronchi are involved by the inflammation from the larynx. The result of treatment depends on an early diagnosis, and hence internists and pediatricians should acquaint themselves with all the clinical, bronchoscopic and pathologic phases of the disease. The mild form of the disease responds to adequate fluid intake, steam inhalations and oxygen therapy. For the fulminating form tracheotomy, the prevention of plugs and crusts in the tract and bronchi by keeping the air in the room hypersaturated with moisture, keeping up the fluid and food intake and the bronchoscopic removal of plugs or crusts if they form despite the measures mentioned are indicated.

**Sulfapyridine for Pneumonia in Children**—Bigler states that during the last eighteen months sulfapyridine has been used for the treatment of 244 children with pneumonia. From the clinical and the roentgen examination a diagnosis of lobar pneumonia was made in 197 and of bronchopneumonia in 47. The temperature of the patients with lobar pneumonia returned to normal and they were clinically improved within an average of one and one-tenth days, as compared to an average of five and two-tenths days for a group not receiving chemotherapy. The period of hospitalization averaged three and six-tenths days longer for the patients not receiving sulfapyridine. Sulfapyridine did not seem to influence the frequency or the course of complicating empyema. The drug was also moderately successful in the treatment of bronchopneumonia. The mortality was 16 for both series of patients. Minor toxic manifestations due to sulfapyridine were common.



FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, Bristol

29 165-284 (Oct.) 1941

- Filgree Operation for Inguinal Hernia P. P. Cole—p. 168  
Bone and Cartilage Transplants: Their Use and Behavior R. Mowlem—p. 182  
Elephantiasis of Penis I. C. Ross—p. 194  
Cleft Palate and Mechanism of Speech M. C. Oldfield—p. 197  
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- \*Analysis of Vasomotor Phenomena (Faints) Occurring in Blood Donors: Helen Brown and P. McCormick—p. 1  
Local Effectiveness of Sodium Sulfacetamide (Albucid Soluble) in Treatment of Experimental Ulcers of Cornea J. M. Robson and G. I. Scott—p. 5  
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Vasomotor Phenomena Occurring in Blood Donors—

Brown and McCormick discuss the vasomotor phenomena observed in 48 or 5 per cent of a group of blood donors. The phenomena are commonly called "faints," although loss of consciousness is not common. When a donor faints the head is immediately lowered, and the donor remains on the bleeding couch until well enough to walk to the recovery room. Half of the donors who fainted had a history of previous fainting, either associated with or independent of bleeding and nervousness. About as many faint after the full amount of blood has been taken as faint during the actual donation. It is sometimes reported that donors have fainted after their return to work, and probably the incidence of fainting is higher after than during venesection. The most common symptoms and signs are flushing, pallor, sweating, slowing of the venous stream, convulsions, a lowering of the blood pressure and pulse rate, faintness, dizziness and giddiness. Nausea or an uneasy feeling in the epigastrium and a feeling of heat, if they occur, are usually the first indication that something is wrong. Other, less common, symptoms are a sensation of tingling, general numbness, yawning, a desire to defecate, blurred vision and ringing in the ears. Donors often sleep after a severe faint. Faints may be (1) mild with a transitory pallor, clamminess, faintness and a lowering of the pulse and blood pressure, (2) severe with great pallor, drenching perspiration and an extreme fall in pulse rate and blood pressure, (3) mild or severe with vomiting, (4) mild or severe with convulsions and (5) mild or severe with vomiting and convulsions. The recovery period may vary from a few minutes to an hour or more. It is not uncommon for donors to improve temporarily and then to relapse. The donors are not alarmed by their experience. The vasomotor phenomena of the faints have many points in common with those of the 'effort syndrome' in soldiers. The fact that the faints of most donors take place in the recumbent position may account for the fact that consciousness is not lost as it is in the effort syndrome of soldiers. The venesection may also possibly be a modifying factor. The author believes that the faints are brought about by the same efferent pathways as those in the carotid sinus syndrome.

**Sulfathiazole Ointment for Impetigo**—Steigman compared the relative value of two ointments by treating one side of 20 impetigo patients with ammoniated mercury and the other

side with a 5 per cent sulfathiazole ointment. The latter ointment was prepared by incorporating 5 per cent by weight of powdered sulfathiazole in a base of soft petrolatum. After the second day of treatment (the ointments were applied three times a day) it was possible to state which preparation had been used on each side. Impetigo treated with the ammoniated mercury healed rather slowly though steadily, requiring an average of eight days. Impetigo treated with the 5 per cent sulfathiazole ointment showed improvement in forty-eight hours and was healed by the fourth or fifth day. In addition to the 20 mentioned 31 other patients were treated with 5 per cent sulfathiazole ointment without the author's attempting a comparison. The lesions of these patients were also noticeably improved in forty-eight hours and healed in four to five days. Impetigo of the scalp was more resistant, and for 7 patients with this condition an average of eight days was required for healing. The impetigo was often accompanied by scabies and treatment of the parasitic infestation was greatly facilitated by clearing up the impetigo first. Antisclerotic therapy could then be carried out more efficiently, with less discomfort and fewer recurrences.

Glasgow Medical Journal

19 1-32 (Jan.) 1942

War-time Problems of the Cardiologist C. Brimwell—p. 1

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2 661-688 (Dec. 13) 1941

- Demelination: Clinicopathologic and Experimental Study E. W. Hurst—p. 661  
\*Hemochromatosis with Special Reference to Supervening Carcinoma of Liver R. A. Willis—p. 666  
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2 689-728 (Dec. 20) 1941

- The Principle of Health C. I. McLaren—p. 689  
Some Observations on Use of 'Pentothal Sodium' Under War Conditions S. V. Marshall—p. 694  
Examination of Recruits for Army R. J. Taylor—p. 700  
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2 729-754 (Dec. 27) 1941

- Medical Men and Literature H. B. Graham—p. 729  
Some Observations on Effects of Selective Irradiation of Stomach in Cases of Chronic Nonobstructive Duodenal Ulcer with Hyperchlorhydria W. P. Holman and R. A. Lewis—p. 735  
Present and Future Organization of Medical Profession B. W. Monahan—p. 740

1 1-32 (Jan. 3) 1942

- Two Items of Recent Branch History F. W. R. Lukin—p. 1  
Thiamine (Vitamin B<sub>1</sub>) Content of Human Milk E. C. Slater and E. J. Rial—p. 3  
Symptoms of Partial Vitamin B<sub>1</sub> Deficiency in Breast Fed Infants F. W. Clements—p. 12

**Hemochromatosis**—Willis gives an account of the post-mortem data on 7 fatal cases of hemochromatosis or bronze diabetes, observed at the Alfred Hospital during the last six years. In 3 of the 7 patients the liver exhibited multicentric carcinoma. Their ages at death ranged from 38 to 72 years, conforming with Sheldon's conclusion that the disease is rarely seen in young people. Except for the patient who died at 38 from an unrelated complaint with no clinical evidence of bronze diabetes, the age at death of all patients exceeded 48 years. Six of the 7 patients were men. In Sheldon's analysis the ratio of male to female patients was 20:1. The male predominance is probably even greater, as the disease, being rare in women, is more likely to be reported when it occurs in them. Hemochromatosis is of slow development and of long duration. Even after the syndrome is recognized, patients often live for many years. No significant relationship to any particular occupation has been established. The fully developed disease is recognized by the triad diabetes, pigmentation of the skin and hepatic enlargement and later ascites. The most obvious and constant macroscopic observation at necropsy is the distinctive pigmentation of the liver, pancreas and neighboring lymph glands. The liver if seen in an early preclinical stage of the disease as in the author's youngest patient, may show typical pigmentation before it is either cirrhotic or enlarged or it may be cirrhotic but not enlarged. On the cut

surface the pigmentation of the liver usually shows a distinct and characteristic lobular pattern, which, as microscopic examination shows is largely because the deposits of pigment are heaviest in the liver cells at the margins of the cirrhotic lobules. In the pancreas, as in the liver it is also probable that pigmentation precedes fibrosis with most pigmentation in the parenchyma cells. Microscopic study does not support either of two commonly held ideas regarding the causation of the diabetic state—that it is due to pancreatic fibrosis with atrophy of the islet cell tissue or that it is due to impaired function of the islet cells because of overloading by pigment. Therefore the diabetic state must be related to hemochromatosis in some more subtle way. The spleen is usually slightly to moderately enlarged and gives a positive prussian blue reaction. The characteristic pigmentation is often obscured by its naturally being dark red. Sometimes heavy pigmentation may be seen in the gastric and intestinal mucous membranes, the myocardium and the adrenals. The presence of carcinoma in 3 of the 7 cases suggests that the frequency of this complication may heretofore have been underestimated. The carcinomas were malignant hepatomas, and they almost invariably appeared to have arisen independently in multiple foci. The disease recalls the multiple development of malignant lesions in susceptible areas. Advanced hemochromatosis is clearly just such a precancerous state with regard to the hepatic cells, and when hepatic carcinoma supervenes the entire liver must be looked on as incipiently cancerous. The tumors remain unpigmented, microscopically they are white and contrast sharply with the surrounding brownish red hepatic tissue. Microscopically no pigment granules are found in them.

### Practitioner, London

148 65-128 (Feb) 1942

- The Coma of Old Age. W. H. Wynn—p. 65.  
Management of Acute Nasal Sinusitis and Its Complications. C. Gill—p. 70.  
Nasal Sinusitis in Children. I. Crooks—p. 76.  
Chronic Nasal Catarrh. I. R. Rogers—p. 82.  
Hay Fever. G. W. Bray—p. 88.  
Sulfonamides: Some Pharmacologic Observations. W. K. Litch—p. 93.  
National War Formulary, 1941. R. St. A. Heathcote—p. 101.  
Practical Points in Treatment of Diabetes Mellitus. A. Patrick—p. 105.  
Clinical Review of Encephalitis. W. G. Wyllie—p. 111.  
Heart Disease of Old Age. C. B. Perry—p. 117.

### Deutsche Zeitschrift für Nervenheilkunde, Berlin

152 1-108 (Feb 24) 1941

- Interpretation of Electroencephalogram. J. Ohm—p. 1.  
Successful Surgical Treatment of Intracranial Cholesteatomas. Three Cases. A. Graser—p. 13.  
Permeation Capacity of Wassermann Reagents into Cerebrospinal Fluid and Persistence of Specific Reactions in Cerebrospinal Fluid. G. Saker—p. 29.  
Clinical and Pathological Aspects of Spinal Arachnoiditis. A. Juba—p. 37.  
Pathologic Cough Reflex. Pathophysiology of Thalamus Syndrome. L. von Aulic—p. 57.  
Question of Symptomatic Zoster. C. Mumme—p. 67.  
Cerebroelectrical Investigations in Genuine Epilepsy. A. E. Kornmüller and R. Janzen—p. 78.

**Interpretation of Electroencephalogram**—Ohm points out that Berger's invention of the electroencephalograph in 1924 signified a great advance in research on the brain. The author's studies on miners' nystagmus may throw light on the interpretation of electroencephalographic records. The records Ohm made of miners' nystagmus greatly resemble electroencephalographic records. In all curves the waves are nearly sinus shaped. He suggests that the oscillations of the eye muscles in nystagmus disclose the oscillations of a brain center. In a book entitled *Nystagmus as Brain Radiation*, published in 1924, he concluded that the vital function of the ganglion cell consists in a production of pendulum-like (i. e. sinus shaped) electrical oscillations. This capacity of the sinus cell is intrinsic (intrinsic tonus), it reacts to incoming stimuli with a change in frequency (extrinsic tonus). The neurons of the optic tract have a rhythmic action even in the dark (dark tonus), but they act with a lower frequency than in the presence of illumination (light tonus). Frequency is the essential characteristic of the ganglion cell, amplitude is not characteristic.

The nystagmus curves record the activity of a small center in the vestibular nuclei, the electroencephalogram, however, is taken from an extensive region of the cranium. The differences in the curves obtained by Berger and Rohrer and by Kornmüller the author ascribes to the fact that the first named investigators made their records from the intact cranium whereas Kornmüller took his recordings directly from the surface of the brain.

### Surgical Treatment of Intracranial Cholesteatoma—

Graser reports 3 cases of cholesteatoma successfully treated by surgical intervention. The first patient, a man aged 31, had sudden acute symptoms with attacks of convulsion, paralysis and aphasia. The symptoms suggested a malignant bleeding glioma, but the arteriogram excluded this diagnosis and suggested a benign tumor. The exact type of the tumor could not be determined before operation. The sudden onset may have been caused by serous meningitis following disintegration and absorption of the tumor or by circulatory disturbances in the region of the anterior cerebral artery. A postoperative febrile condition with stupefaction and a dreamy twilight state is ascribed to the same cause. The fact that for a long time the tumor caused no symptoms might be explained by the extra-cerebral, well circumscribed position of the tumor. The tumor of the second patient, a man aged 33, was typical of a slowly growing, benign tumor. The neurologic symptoms suggested a tumor of the posterior cranial fossa, possibly of the acoustic nerve, the cerebellum or the medulla oblongata. The air picture disclosed outlines of the tumor on the roof of the fourth ventricle. Operation disclosed a cholesteatoma of the fourth ventricle with attachment at the calamus scriptorius. Patient 2 also had a central fever after the operation. The third patient, a man aged 57, remained free from a postoperative increase in temperature. The benign, slowly growing tumor, which involved the left temporo-parieto-occipital region, early produced a clear pathologic picture. The arteriogram and phlebogram proved of differential diagnostic value. Roentgenoscopy without a contrast medium disclosed typical bone erosions above the extradural cholesteatoma. The mental functions of patient 3 improved slowly after the operation, he was completely normal after several months.

### Cerebroelectrical Investigations in Genuine Epilepsy

Kornmüller and Janzen report investigations on 43 patients with genuine epilepsy and on 3 with pyknopsy. Emphasis was placed on the care with which each patient was examined over long periods. On a number of patients registrations were made continuously for twenty-four hours. The authors describe cerebroelectrical manifestations not associated with the attack and during the attack. The question of the epileptogenic focus still dominates research on epilepsy. Animal experiments indicated that an epileptogenic focus is bioelectrically characterized by the appearance of convulsion current discharges. The evaluation of the cerebroelectrical observations during the attack furnished the authors with a new point of view for the interpretation of bioelectrical manifestations during the interval. It was observed that during minor epileptic attacks abnormally slow oscillations appear over extensive regions. These records resemble those obtained during the interval either spontaneously or during hyperventilation. During the minor attacks the cortical changes can be regarded as effects of noncortical foci. The abnormal manifestations during the interval presumably have an analogous origin. If the clinical manifestations give no indication of an attack-like abnormal process, it can probably be explained from the localization of the primary point of attack of the epileptogenic stimulus. According to this interpretation there would be no difference between some only bioelectrically detectable interval manifestations and certain minor attacks. It must be assumed also that abnormal processes may take place which are detectable neither bioelectrically nor clinically. From a primary focus the function of various other gray parts is modified by nervous channels, and these secondary foci exert effects on a third group of areas, and so on. Thus rather complicated mechanisms must be expected, during the attack more functional connections will probably become evident than is the case under physiologic conditions.

## Book Notices

**Occupational Diseases. Diagnosis, Medicolegal Aspects and Treatment**  
By Rutherford T. Johnstone, A.B., M.D., Director of the Department of Occupational Diseases, Coiden State Hospital, Los Angeles. Cloth. Price \$7.50. Pp. 558 with 132 illustrations. Philadelphia & London: W. B. Saunders Company, 1941.

The effects of environment on health and particularly of occupation on morbidity and mortality have intrigued the curiosity of many astute medical observers. Under this traditional form of self-improvement the medical and allied professions have accumulated a body of information designed to recognize and manage individual examples of intoxication or other ill effects of uncontrolled working environment. This volume on the occupational diseases is the best compilation to date of verified and practical experience in the fields of diagnostic and remedial industrial medicine. It still leaves for other hands or future editions of the book to develop in much stronger terms the important concept that the hope of industrial medical service lies in prevention. This attitude can hardly be developed in professional minds through relatively inconspicuous discussions of prophylaxis under treatment. The last few decades have witnessed an enormous acceleration of scientific interest in the prevention of occupational disease, most noticeable in recent years under the program of attack by official and other agencies set up to explore and control industrial exposure. The effect of these programs will certainly have an influence on the point of view of the whole profession about industrial disability.

Good professional management of industrial accidents and diseases is, and always will be, a great medical responsibility. Johnstone's chapters on medicolegal considerations ably reflect this point of view and at the same time underscore again the physicians' bewilderment that such important legislation is so frequently framed without seeking competent advice about all medical aspects. Occupational disease compensation schedules have been adopted without any reference to the character of regional industrial exposures. Only recently has there been any effort to base remedial legislation on surveys of actual working conditions and on the character of occupational disease reporting. Medical organizations must strenuously object to such illogical methods just as much as they object to senseless limitations in medical and hospital benefits, admission of bad or biased medical testimony, or other loose administrative practices.

The main objective of the book is to deal consecutively with all the common and many uncommon causes of occupational disability including the industrial back, hernia, the dermatoses and the troublesome neurosis and malingering problems. Certain sections possibly may not withstand careful scrutiny by advanced workers in this field, but for all ordinary purposes and especially for the physician in community practice these discussions will carry the imprint of wide experience and judicious selection. The reported 11,000 annual admissions to the author's clinic, representing multiple and varied diseases and conditions, will be a source of mingled envy and concern to all other industrial clinicians—envy at this enormous concentration of material and concern that preventive industrial medicine and industrial hygiene have made such little headway in southern California. To a generation of employers, workers and physicians who are coming to recognize the considerable effect of occupational disability on the public health, the obvious suggestion will be to emphasize much more strongly in works of this character specific instruction in those fundamental medical and hygienic principles on which eradication of occupational disease must ultimately rest.

**Seasonal Influence on Growth Function and Inheritance** By A. B. Fitt. New Zealand Council for Educational Research. Educational Research Series No. 17. Cloth. Price 10s. 6d. Pp. 182 with 11 illustrations. Christchurch, N. Z.: Whitcombe & Tombs Ltd. London: Oxford University Press, 1941.

This monograph represents the author's extracurricular pursuit of a scientific hobby for over a quarter of a century. While his findings might have been of interest to American readers of a decade ago, the facts can today be found much more adequately presented in the writings of Huntington (*Season of Birth*), Mills (*Medical Climatology*) and various other authors to whom Fitt makes no reference. While familiar with

the literature of twenty-five years ago the author seems not to have kept well abreast of more recent work. The greater part of the monograph deals with the physiologic and health aspects of seasonal influences; here the author's lack of medical or physiologic training becomes painfully evident as he flounders along through numerous and inconclusive citations. The build up to his final chapter on conclusions and implications leaves the reader quite at sea regarding the purpose of the book. Because infant mortality and general death rates are low in the autumn and high in late winter and early spring, Fitt concludes that general vitality is highest in the autumn months, quite overlooking the fact that vitality may well be highest in those very winter and spring months when unstable weather brings greatest frequency of respiratory infections. The graphs are poorly done and lack uniformity. No basis whatever can be found for including "inheritance" in the book's title. There is little that is new or worth while for American medical readers in this publication.

**Psychogenic Factors in Bronchial Asthma. Part II** By Thomas M. French, M.D., and Franz Alexander, M.D. With the collaboration of Catherine J. Bacon, M.D., et al. *Psychosomatic Medicine Monographs*, Volume II, Nos. I and II. Published with the Sponsorship of the Committee on Problems of Neurotic Behavior, Division of Anthropology and Psychology, National Research Council. Paper. Price \$3. 1p. 236. Washington, D. C.: National Research Council, 1941.

This monograph consists of the records of 11 adults and 7 children, sufferers from bronchial asthma who were experimentally treated by psychoanalysis at the Chicago Institute for Psychoanalysis. It is the work of eleven authors and is published as the second part of a larger monograph. Part I, published earlier in the same year and reviewed in *THE JOURNAL*, Dec. 20, 1941, gave a summary and an interpretation of the findings in these and 9 other unreported cases in adults and indicated certain constant features in the psychology of the asthma patient and the asthma attack. The patient's great dependence on a mother or mother figure, a greater proportion of dreams dealing with pregnancy, abortion and intrauterine existence, replacement of the infantile crying reaction by the asthmatic attack, and several minor findings were found uniformly, and a chapter could in effect be written that might well appear in a textbook description of asthma—a chapter on the psychology of the asthmatic and of the asthmatic attack. The relation of allergy to the attack and its psychologic provocation was speculatively considered and the two factors were seen as complementary. It was pointed out that the attacks occurred when there was an unresolved conflict and tension rather than when there was a true or even partial expression of instinctual activity. The present monograph (part II), which is purely descriptive, will give the interested reader an opportunity to learn the empirical basis for such statements. Particularly it furnishes detailed accounts of the exact psychologic situations that precipitate the attacks. The protocols are extensive enough too to furnish to the interested reader insight into many particulars not dealt with in the summary.

**State Board Questions and Answers for Nurses. Essay and Objective Types Compiled from Actual Examination Questions Given Throughout the Country by State Examining Boards.** Twentieth edition, 1942 revision. Fabrikoid. Price \$3.50. Pp. 1084. Philadelphia: Montreal & London: J. B. Lippincott Company, 1942.

This book comprises hundreds of questions compiled from examinations for nurses given throughout the country by state examining boards and the answers. It is arranged in four parts: (1) biologic and physical science, (2) medical science, (3) nursing and allied arts, (4) nursing ethics and history of nursing. The book opens with a short chapter on suggestions to assist nurses in preparing for passing state examinations. The subdivisions are indexed in order to make it simple to find questions on particular subjects, for example, questions relating to bone and cartilage appear from pages 3 to 20, questions concerning nursing during the puerperium from pages 725 to 735, questions concerning general nursing care of children from pages 832 to 851, and so on. The book is edited by eleven women, mostly nurses who occupy important positions on the staffs of universities, hospitals and examining boards. Aside from its value to nurses preparing to pass state board examinations, the book offers much of practical value to others interested in the nursing care of the sick.

**Mule Spinners Cancer Epithelioma of the Skin in Cotton Spinners** By J. M. Brookbank M.B.L., M.D., F.R.C.P., Medical Referee for Industrial Diseases Manchester Boards, Price, 1s. Pp 36, with Illustrations London H. K. Lewis & Co., Ltd., 1941

The author of this small monograph has had an opportunity to see a great many cases of epithelioma of the skin commonly known as mule spinners' cancer, and therefore his comments and conclusions are valuable to any one interested in this type of malignant growth. The monograph is written from the industrial point of view and covers the subject thoroughly, recommending periodic examination of workers in the cotton spinning industry and emphasizing preventive measures to the workers. It also contains specifications for several lubricating oils. There are six illustrations showing early epithelioma of the skin and one depicting the machine which gives this type of epithelioma its name.

**Symptom Diagnosis Regional and General** By Wallace Mason Yater A.B. M.D. M.S. Professor of Medicine and Director of the Department of Medicine Georgetown University School of Medicine Washington D. C. Originally written by the late Wm. J. M. Barton A.M. M.D., F.A.C.P. and Wallace M. Yater A.B. M.D. M.S. Fourth edition Fabrikoid Price \$10 Pp 900 New York & London H. Appleton-Century Company Incorporated 1942

The fourth edition of this practical book includes seventeen tables of differential diagnosis and some other features that are distinctly new. The two indexes have been combined. Obviously not as many changes are necessary in a work of this type as would be involved in one devoted largely to therapy, since the advances in diagnosis come more slowly and must be extensively confirmed before they can be given the status of conclusion in an authoritative book. The arrangement of the volume permits ready reference to any symptom with which the physician may be concerned and the cross references enable more extended study once a lead has been found toward a positive diagnosis.

**Business Procedures** By Perry H. Taylor Joint Committee of the Twentieth Century Fund and the Good Will Fund and Medical Administration Service Inc. Paper Price 25 cents Pp 180 Boston Edward A. Filene Good Will Fund 1941

As a pioneer effort in the field of accounting and business practices for prepayment medical plans, this work will be welcomed by all concerned in organizing and conducting such plans. Lack of experience with such plans necessarily makes the detailed instructions in accounting, collection and general office procedures largely theoretical. Contract group plans occupy the center of discussion with only occasional references to medical society plans although the medical societies now provide medical care to several times as many persons as all the contract plans.

**Professional Dentistry in American Society A Historical and Social Approach to Dental Progress An Introductory Text for Students and Professional Health Workers** By Alfred J. Asks Ph.D. D.D.S. Assistant Professor of Oral Surgery and Lecturer on Orientation at the New York University College of Dentistry Student edition Cloth Price, \$1.50 Pp 175 with Illustrations New York Clinical Press 1941

Dentistry came into existence as a profession much later than medicine. The period of professional awakening, 1820-1840, preceded the establishment of medical schools and the rise of medical journalism. Dentistry has now reached a state in which it can be considered "as an oral health service." It is playing its part in public health and in the development of a preventive program. The author is inclined to favor the application of some type of insurance to dental care. He is especially anxious that dental education should include training in the social problems affecting dentistry, and this volume is intended to be an introductory textbook to further that object.

**Organization and Administration of Group Medical Practice** By Denu A. Clark M.D., and Katharine G. Clark Joint Committee of the Twentieth Century Fund and the Good Will Fund, and Medical Administration Service, Inc. Paper Price, 25 cents Pp 109 Boston Edward A. Filene Good Will Fund, 1941

The work as a whole fills the need for frequently requested information for a working manual on the organization and conduct of group practice. Its most significant weakness is that such organizations as the University of Chicago Clinics and the Mayo Clinic are discussed along with various contract pre-

payment and industrial groups as if they were all of the same type and pattern. In the chapter on scope and standards of service it is assumed that the same principles of "selection of personnel" are used in these varieties of organization, which is contrary to the facts. Although eight university and charitable or private reference clinics (under which are listed the Lahey and Mayo clinics), and only seven of the contract type are studied, most of the comments are given to the contract practice. There is a chapter on the appraisal of group medical service which is disappointingly indefinite.

**Synopsis of Genitourinary Diseases** By Austin J. Dodson, M.D. F.A.C.S., Professor of Genitourinary Surgery, Medical College of Virginia Richmond Third edition Fabrikoid Price \$3.50 Pp 307, with 112 Illustrations St. Louis C. V. Mosby Company, 1941

This book is divided into fourteen well arranged, compact chapters. The author gives the usual consideration to the general principles of urology and the methods used in arriving at an adequate diagnosis of urologic diseases, such as a careful history, physical examination and the various methods of urologic examination. In this edition, material on the application of sulfamamide and its derivatives has been added and that on the etiology of urinary calculi rearranged. The discussions are clearcut, so that information is quickly obtained. As the title indicates and the author states, the book is a synopsis and as such is a ready and valuable addition to the book shelf of the busy practitioner. Likewise it has an appeal to the medical student as a handy review of urology. It is not a reference book, and little if any space is devoted to controversial theories. The information is sound.

**Los Angeles County General Hospital House Staff Manual** By the Attending and House Staffs of the Los Angeles County General Hospital Second edition Paper Price, \$3 Pp 181 Los Angeles, 1941

This volume contains rules and regulations of the house staff and a list of therapeutic procedures compiled for the guidance of interns and resident physicians in the various clinical and laboratory divisions of the hospital. It follows the general plan of house staff regulations as required in all hospitals approved for intern training but is more extensive than the average manual of this type, since it is designed to meet the inpatient and emergency needs of one of the largest hospital services in the country. Other hospitals seeking guidance in the preparation of a suitable "procedure book" will find this manual exceedingly helpful.

**Creative Group Work on the Campus A Developmental Study of Certain Aspects of Student Life** By Louise Price, Ph.D. Teachers College Columbia University Contributions to Education, No 830 Published with the Approval of Professor Ruth Strang, Sponsor Cloth \$3.25 Pp 49 New York Bureau of Publications, Teachers College, Columbia University, 1941

From Stephens College and Stanford University comes this contribution to the study of certain aspects of student life. The investigation was made largely by the case method, although it is extensively documented with bibliography. This preliminary study leads the authors to recommend the development of specialized auxiliary services such as speech, posture and grooming, the addition of a staff capable of advising students on personal and group problems, including standards of participation in social and other leisure activities, and improvements in the faculty. Many new fields of research are proffered to institutions which wish to extend studies in these fields.

**Doctor Wood Modern Wizard of the Laboratory The Story of an American Small Boy Who Became the Most Daring and Original Experimental Physicist of Our Day—But Never Grew Up** By William Seabrook Cloth Price, \$3.75 Pp 335, with 15 Illustrations New York Harcourt Brace & Company, 1941

The ability of William Seabrook as a writer is here turned to the study of an eminent physicist whose work at Johns Hopkins University, particularly on the physics of light, has gained worldwide recognition. He did much to debunk scientific cranks and frauds, and many of his observations have been of aid in criminology. The book is supplemented by a bibliography of scientific publications of Professor Wood, including two hundred and sixty-three references, the latest in December 1941.



## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT HOWEVER REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS BUT THESE WILL BE OMITTED ON REQUEST.

### MILK AS A PREVENTIVE OF LEAD POISONING

To the Editor—Please advise whether the taking of large quantities of milk has any bearing on the prevention of lead poisoning. Is the giving of milk to lead workers a common practice in industry?

Peter J. Dinatale, M.D. Batavia N.Y.

ANSWER.—Few physicians will gain any advantage from the consumption of milk by workmen exposed to lead, not so much because milk has any specific action in preventing lead poisoning but because it is an excellent supplementary dietary agent. While lead poisoning may arise with less frequency among workers exposed to lead who are supplied with milk, it may not be regarded as a specific preventive agent against lead poisoning. Supporters of a high daily milk intake point out that the calcium thus provided tends to immobilize the lead in bony structures, thus saving the body against its action. Antagonists believe that, even though this is true, any such calcium promoted storage merely defers the evil day when for other reasons the lead in larger quantities will be mobilized from bony tissues in the blood stream and clinical lead poisoning will arise. Without necessarily referring to milk as such, many publications have been made on the influence of calcium on lead poisoning prevention and treatment. A number of such items later are cited. From them a few statements are now excerpted.

Lederer and Bing state that "the evidence that milk would be of value is largely presumptive" and "the amount of lead stored in the body is diminished by the addition of calcium carbonate to the diet," and, further, the beneficial effect of calcium appears to be due to the prevention of absorption of lead from the intestinal tract, but it is here noted that in the greater number of cases lead poisoning follows inhalation rather than absorption from the alimentary tract. However Dannenberg and his associates, condemning the use of ascorbic acid, favor a high calcium-phosphorus diet, given along with other agents in the treatment of lead poisoning. Sobel and his associates, in discussing the biochemical behavior of lead, note that the deposition of the metal in body tissues is directed by a system of its own, which is governed by the same laws as calcium deposition but not necessarily in the same direction. The effect of calcium on lead deposition is essentially competitive and apparently thus not desirable. Holmes and his associates have carried out extensive work with ascorbic acid, chiefly alone but at times combined with calcium and other agents. Apparently these authors attach greater significance to vitamin C than to calcium. In the treatment of lead poisoning, calcium in various forms has been used extensively, as reviewed by Johnstone. There appear to be good reasons for stating that the use of milk for lead workers is most commendable but not as the keystone of a program for the prevention of lead poisoning.

#### References

- Lederer L. G. and Bing I. C. Effect of Calcium and Phosphorus on Retention of Lead by Growing Organism. *THE JOURNAL* June 22 1940 p. 2457.  
Dannenberg A. M., Wideman A. H. and Friedman P. S. Ascorbic Acid in the Treatment of Chronic Lead Poisoning. Report of a Case of Clinical Failure. *THE JOURNAL* April 13 1940 p. 1439.  
Sobel A. E., Yuka Henry, Peters D. D. and Kramer Benjamin. The Biochemical Behavior of Lead. I. Influence of Calcium, Phosphorus and Vitamin D on Lead in Blood and Bone. *J Biol Chem* 132 2:9 (Jan.) 1940.  
Holmes H. N., Campbell Kathryn and Amerg E. J. The Effect of Vitamin C on Lead Poisoning. *J Lab & Clin Med* 24 1119 (Aug.) 1939.  
Johnstone R. T. Occupational Diseases. Philadelphia W. B. Saunders Company 1941.

### CHEMICALS USED IN CURING TOBACCO

To the Editor—What chemicals are used to cure tobacco? Are they injurious to the human organism?

J. A. Schurgot, M.D. Grafton Ohio

ANSWER.—Humidity, temperature, ventilation and pressure are the chief measures utilized in controlling the plant and microbial enzymatic processes which constitute the curing of tobacco. Constituents of the earth added fertilizers or insecticides or their derivatives present in the raw tobacco may remain in the finished product or may be altered during the curing.

Chemicals used in manufacturing tobacco products vary with the type and brand of the product, and their identity is often kept secret. Sweetening agents, such as licorice, sugar and molasses are added chiefly to chewing tobacco. Liquors containing salts may be used in wetting down pipe tobaccos. Flavoring agents like vanilla may be added to snuff. Hygroscopic materials, such as glycerin or glycols, are added to cigarette tobacco to keep it moist. Other agents may be added at times to affect the burning qualities, appearance, taste or smell of tobacco products.

Aside from literature on irritant aldehydes derived from hygroscopic agents, little has been published regarding added substances in ordinary tobacco products which may be of any hygienic significance as compared with the nicotine and the products of combustion of the tobacco itself.

### CORONARY INSUFFICIENCY OR PAGET'S DISEASE?

To the Editor—A man aged 45 has had severe pain in the chest for the past two months. He is a husky man who had never had a sick day in his life. Pain was indicated in the left upper quadrant of the chest radiating down to the left elbow. Attacks would come during walking but also during sleep. No substernal pressure or dyspnea was admitted. Straightening up the back either on standing or on sitting would help relieve the seizure which in any event lasted only a minute or two. No sweating or apprehension was elicited. Administration of glyceryl trinitrate relieved the attack but substitution of acetylsalicylic acid in pills of the same size also gave relief (probably because the attacks were so short lived anyway). The heart is normal on physical, roentgenographic, fluoroscopic and electrocardiographic examination. Numerous heart tracings were all negative. Tracings taken after exertion [walking up and down a flight of stairs] and breathing a mixture of a low concentration of oxygen show no significant changes in RS-T segments or T waves. A provocative test with epinephrine gave negative results. Cervical arthritis, hiatus hernia and mediastinal tumors have been reported absent on roentgen examination. An equivocal reaction to the Graham test was reported; there were no calcular shadows. The blood and blood pressure were normal. Neither pain in the shoulder nor motion nor swelling (or atrophy of the hand) is present. On the positive side, a foreign body was found accidentally in the arm 3 cm. below the axillary fold. This was removed with no change in the status. Evidence of proliferative osteitis (Paget's disease) was found in the right humerus, both clavicles and the scapula. The skull was normal. Attacks continue to recur in spite of rest in bed for three weeks. (There was no relief during the regimen of rest.) The administration of sedatives, xanthine drugs and thiamine hydrochloride and local infiltration of the brachial plexus had no effect. Is this coronary insufficiency? In spite of a normal roentgenogram of the spine, can Paget's disease be responsible for the attacks of pain in the chest and in the arm?

M.D., Connecticut

ANSWER.—It seems most unlikely that this pain has its origin in a deficient coronary circulation. The lack of other symptoms of coronary artery disorder and the failure of the various tests to produce pain would argue strongly against a coronary origin.

The distribution of the pain to both the chest and the arm strongly suggests pressure on one or the sensory roots or possibly on one of the upper cervical sympathetic ganglions. If the diagnosis of Paget's disease is assured it is more than likely that the source of the pain lies in bony pressure. Severe cramping pain in muscle often accompanies Paget's disease. Straightening the back as a method of relief suggests pressure that may be relieved by change of position. It seems unlikely that the biliary tract can be responsible for the symptoms. Roentgenograms of soft tissue should be made to rule out the presence of calcareous deposits in the muscle as a source of irritation.

### BACTERIOPHAGE THERAPY FOR TYPHOID

To the Editor—I am reporting at our staff meeting a case of typhoid in a child of 14 months. I am sure that the bacteriophage will come up in the discussion. In reading what I can find on the subject I am impressed by (1) the apparent success of the bacteriophage treatment in the cases reported by J. M. Frawley in *California and Western Medicine* (48 415 [June] 1938) and (2) its complete disappearance as a therapeutic agent. Can you tell me the answer? 1 Was it found ineffectual? 2 Was it too dangerous? 3 Why if it was useful did it fall into disrepute? 4 Does anybody use it now?

H. G. Bull, M.D. Ithaca, N.Y.

ANSWER.—The article referred to in *California and Western Medicine* deals with lysed vaccine, not bacteriophage. The results, obtained in only 4 cases, are not convincing, and no control tests were made. Numerous studies made with vaccines of various kinds have given suggestively good results, but many investigators believe that the effect is a nonspecific one.

A study of critical reports in *THE JOURNAL* by Eaton and Bayne-Jones (Dec. 8 1934, p. 1769, December 15, p. 1847 and December 22, p. 1934) and by Krueger and Scribner (May 10 1941, p. 2160, and May 17, p. 2269) will supply detailed answers.



to all the questions raised with regard to the use of bacteriophage in the treatment of infectious diseases. According to Eaton and Bayne-Jones "the literature on the treatment of typhoid with bacteriophage indicates that this agent has, apparently, no striking effect on the course of the disease except perhaps on the production of reaction followed by temporary relief." Krüger and Scribner conclude that "bacteriophagy in vivo is of rare occurrence."

Therefore with few exceptions it is not logical to rely on the lytic power of the phage in the treatment of disease.

In answer to the specific questions raised it may be said that

1 Bacteriophage is generally found to be ineffectual, its effects are neutralized in vivo by dilution and by the presence of serum or pus.

2 It occasionally causes severe reactions.

3 It is not useful.

4 It is still used by various observers, chiefly in experimental studies.

### DROOLING IN A CHILD

To the Editor—A girl aged 7½ years (premature at birth she weighed 5 pounds [2.3 Kg]), whose mother was eclamptic during pregnancy, had convulsions during the first month of life but has not had convulsions since. The chief complaint is excessive dribbling from the mouth. The child understands everything but does not attempt to say any words. She has been at school for two years. She has a severe squint and myopia. The head measures 17 inches (43 cm) and the chest 23 inches (58 cm). The child is normal in weight but 3 inches (7.6 cm) shorter than average. Amphetamine sulfate, thyroid and atropine have been advised. Would anything else be beneficial?

M. D., Canada

ANSWER—Dribbling or drooling from the mouth in a 7½ year old child is definitely abnormal and may arise from a variety of conditions among which are mental deficiency and other organic or functional nervous disturbances. Judging from the history, one would suspect that the child had an organic brain lesion possibly resulting from toxemia in the mother and prematurity in the infant. Convulsions during the first month of life frequently result from organic brain disease. The fact that the child does not talk at 7½ years further indicates an organic brain disturbance with or without mental backwardness. Before one attempts to treat the drooling, a thorough neurologic and psychiatric study should be made including spinal puncture and pneumoencephalography. The drooling is merely a symptom which will not respond to thyroid therapy unless the child suffers from hypothyroidism which does not seem likely. Atropine may inhibit the flow of saliva to a certain extent, especially if the drooling is secondary to hypersecretion.

If however the drooling is due to inability or to neglect in swallowing the saliva, only psychiatric therapy will avail if the child is able to understand what is desired and provided the swallowing reflexes are functioning properly.

### LOW URETERAL STRICTURE AFTER URETEROLITHOTOMY

To the Editor—I have observed several cases of surgical removal of a stone from the lower portion of the ureter with a persistent urinary discharge at the operative site. In most cases a catheter could not be passed via the cystoscope and reoperation had to be done. What method is advocated to eliminate this complication?

C. H. Whiting, M.D., New York

ANSWER—Factors which may contribute to this complication are (1) damage to the mucosa and the wall of the ureter caused by trauma from an impacted stone, (2) localized periureteritis at or near the site of the stone and (3) improper surgical technique. The most common cause of stricture following ureterolithotomy probably is overenthusiasm on the part of the surgeon in effecting closure of the ureter so that it will be water tight. Great care should be taken to avoid reducing the lumen of the ureter. It probably is advisable to place any stitch that is inserted in the ureter to close the opening made by the ureterolithotomy only in the adventitia and not through the entire ureteral wall. It is not necessary to close the opening of the ureter so that it is water tight. If there is evidence of trauma or infection of the ureter at the time of ureterolithotomy a ureteral catheter should be introduced into the ureter so that one end extends into the bladder and the other end extends up the ureter. When periureteritis is present or develops later, thorough drainage of the periureteral tissues is essential.

In case postoperative stricture is formed, the procedure to correct it depends largely on the condition of the kidney. If the site of the ureterolithotomy is low enough and if the stricture is impassable to a ureteral bougie, reimplantation of the ureter into the dome of the bladder may be tried. If the ureteral lesion is too high for this procedure, nephrectomy probably will be necessary. Nephrectomy would be indicated anyway in case of extensive infection or disease of the kidney.

### PAINTS AND MULTIPLE SCLEROSIS

To the Editor—A man aged 35 has been engaged in spraying paint on automobile trucks for fifteen years. He sprays both the primer and the secondary coat. He wears a mask, but occasionally when without a mask he gets the fumes from adjacent sprayers. He now presents the typical findings of advanced multiple sclerosis. Can this syndrome be attributed to his occupation? I am aware that increased lead is found in the spinal fluid in patients with multiple sclerosis. I do not know that the paint spray contains lead.

M. D., Illinois

ANSWER—In the query no mention is made of any of the symptoms present in a case of lead poisoning. These are anemia, abdominal pain, headache, a blue line on the gum, arteriosclerosis, basophilic degeneration of the red cells and lead deposits in the long bones. Lead can produce changes in the brain, spinal cord and peripheral nerves. These are in the form of an encephalopathy, myelopathy or neuropathy. There has been no clinical or pathologic proof that lead intoxication can cause the typical symptoms of multiple sclerosis. The lead found in the spinal fluid of patients with multiple sclerosis has not been in excess of that found in the fluid of other patients. The patient's syndrome, therefore, cannot be attributed to his occupation of spraying paint. Some paint sprays (for the primer and the secondary coat) contain lead and some do not.

### ALCOHOLISM AND SYPHILIS

To the Editor—The combination in the same patient of chronic alcoholism and third stage syphilis is frequently observed in practice, most patients being men in their fifties and sixties. Is it wise to give thiamine and iodides at the same time? If so, is it possible to give the two substances in one prescription, and could you advise a good formula for such a prescription? The textbooks do not contain statements about the compatibility of vitamins with other drugs.

M. D., Massachusetts

ANSWER—There is no reason why it would not be possible to give iodides before the meals and follow with the thiamine hydrochloride after the meals. With regard to a formula it should be stated that what might be indicated for one patient would possibly be entirely out of order for another. The same would apply to the dosage. Both of these preparations may be used as indicated. We are not aware of either the presence or the absence of incompatibility between iodides and thiamine or of incompatibility with the other vitamins.

### FISSURES ON TIPS OF FINGERS

To the Editor—A patient consulted me about small painful fissures which periodically develop on the tips of the fingers, more frequently on the thumb of the right hand, less frequently on the fingers of the right hand and least frequently on the fingers of the left hand. They usually occur on the lateral margin of the digits near the end of the nail, are tender and occasionally bleed. Not infrequently they are aggravated by an infection of the upper respiratory tract. They vary from 0.2 to 0.4 cm in length, have sharp edges and strongly resemble knife cuts. Does the condition suggest a vitamin A or B deficiency?

M. D., Massachusetts

ANSWER—Cases of the type described are common in winter. Often the condition is due to contact with external irritants, such as alcohol, soap and water, dye on clothing and occasionally the nickel plating of safety pins. (Downing reported such a case several years ago.) Cold weather and the frequent use of soap and water are contributory factors. Possibly, however, the dryness which causes the skin to fissure may be due to lack of vitamin A. The local use of an ointment such as the following is of considerable value.

|                                 | Gm or G.   |
|---------------------------------|------------|
| Tincture of benzoin compound    | 4          |
| Salicylic acid                  | 0.50       |
| Hydrous wool fat and petrolatum | to make 30 |

The avoidance of soap and water, the use of acidolate in place of soap and the taking of fairly large doses of vitamin A should be of considerable help.

### TREATMENT OF CARCINOMA OF THE CERVIX

To the Editor—Two years ago I saw a patient who had carcinoma of the cervix, which was proved by biopsy. This condition was treated with radium and high voltage roentgen therapy. There has been no recurrence during the past two years. Do you think a panhysterectomy is indicated?

M. D., West Virginia

ANSWER—The prognosis with radium and high voltage roentgen therapy equals that of radical surgery in the treatment of carcinoma of the cervix. Unless there are unusual complications in this case there is no advantage to be gained from removal of the uterus. The cervix should be kept dilated and the patient examined from time to time, under anesthesia if necessary.

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## TESTS OF CARBOHYDRATE METABOLISM IN INFANTS

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Although the dextrose tolerance test has been widely used both in pediatrics and in general medicine for the recognition of disturbances in carbohydrate metabolism difficulties are often encountered in the interpretation of the results obtained. In part these difficulties appear to arise from a lack of conformity to accepted technics and consequently also to inadequate standards for comparison. In addition, there has been a tendency to view certain characteristics of blood sugar curves as specific for individual diseases without giving adequate consideration to the complexity of the physiologic processes involved. The present study was, therefore, undertaken with a view toward a better standardization and interpretation of the tests used to evaluate the state of carbohydrate metabolism in small infants.

### METHODS

In the present study, the various tests of carbohydrate function commonly used in clinical medicine have been applied to a group of selected normal infants. The tests involved observations on the rise and fall of the blood sugar after oral and intravenous dextrose, dextrose and insulin, epinephrine, levulose and galactose. The infants varied in age from 1½ to 24 months. All were patients who had been admitted to the hospital wards for non-nutritional problems such as repair of harelip, clubfoot, or acute infections from which they had since recovered. They were ready for discharge when the tests were begun but were kept in the hospital as normal subjects for the study. The patients had been receiving a regular hospital diet for at least two weeks prior to the performance of the test, and at least five days were allowed to elapse before a second test was made on the same subject. Capillary blood for the blood sugar determinations was obtained from finger pricks. The Hagedorn-Jensen<sup>1</sup> method of sugar estimation was employed.

In the oral tests the dextrose was dissolved in the volume of liquid usually taken at a feeding which included 1 to 2 ounces (30 to 60 cc) of orange juice. The carbohydrate content of this was calculated as part of the total dextrose. To study the effect of different doses of dextrose on the blood sugar response the

patients were given 1, 1.75 and 3 Gm of dextrose per kilogram of body weight after a standard fasting period of twelve hours. Samples of blood were taken at the usual intervals—fasting and thirty, sixty, one hundred and twenty and one hundred and eighty minutes after the ingestion of the sugar. In the intravenous tests, 50 per cent dextrose which is available in sterile 20 cc ampules was used and the patients were given 1 Gm of dextrose per kilogram following a twelve hour fasting period. The injection was given slowly over a period of two to four minutes. Samples of blood were obtained just prior to the injection and at intervals of ten, thirty, sixty, ninety and one hundred and twenty minutes afterward.

The so-called insulin sensitivity test consisted in the administration of dextrose orally and insulin subcutaneously. The procedure of the present study was to perform first an oral dextrose tolerance test, using 3 Gm of dextrose per kilogram of body weight. After an interval of not less than five days the test was repeated with the patient receiving in addition ¼ unit of regular insulin per kilogram of body weight subcutaneously. The insulin was injected exactly ten minutes after the patient started to drink the dextrose solution. This procedure was employed because otherwise the hypodermic injection might have upset the infant and caused him to refuse the dextrose. Blood samples were collected at the usual periods—initial fasting, thirty, sixty, one hundred and twenty and one hundred and eighty minutes. The curves obtained with and without insulin were compared and the degree to which the alimentary hyperglycemia was suppressed by the insulin was taken as an indication of the degree of sensitivity to insulin.

The rise and fall in blood sugar level after the administration of epinephrine (epinephrine tolerance test) was also investigated. After the usual twelve hour fasting period 0.03 cc (½ minim) of a 0.1 per cent solution of epinephrine hydrochloride per kilogram of body weight was injected subcutaneously. Blood samples for the estimation of sugar were obtained at the same intervals as for the oral dextrose tolerance test.

For the levulose and galactose tolerance tests a similar procedure was followed. After a twelve hour period of starvation either 1 or 1.75 Gm of the sugar per kilogram was given by mouth. The sugars were dissolved in water and given without added flavoring. It was found convenient to use hot water to obtain rapid solution of the galactose. Blood for sugar analysis was obtained at the usual intervals during a period of three hours. No attempt was made to distinguish dextrose from levulose or galactose in the blood. The data for blood sugar level therefore represent a sum of the two. Pfanstiehl 90 per cent levulose, which is practically free from other sugars, was used. The impurities for this grade are described as calcium, levulosate and moisture

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<sup>1</sup> Hagedorn H. C. and Jensen B. N. *Biochem. Ztschr.* 135: 46, 1923.

This form of levulose is much less expensive than the 100 per cent chemically pure grade and for practical purposes is satisfactory. For the galactose test d-galactose (anhydrous) prepared by the Eastman Kodak Company was used.

TABLE 1—Blood Sugar Curves of Normal Infants Following a High Fat Diet and a Regular Diet

| Case    | Dextrose,<br>Gm. per<br>Kg. of<br>Body<br>Weight | Type of<br>Diet | Blood Sugar, Mg. per 100 Cc. |                        |     |     |     |
|---------|--|-----------------|------------------------------|------------------------|-----|-----|-----|
|         |  |                 | Fast <sup>1</sup><br>mg.     | Minutes After Dextrose |     |     |     |
|         |  |                 |                              | 30                     | 60  | 120 | 180 |
| A       |  | Regular         | 81                           | 136                    | 165 | 130 | 82  |
| B       |  | Regular         | 78                           | 140                    | 130 | 161 | 88  |
| C       |  | Regular         | 85                           | 176                    | 136 | 112 | 81  |
| Average |  |                 | 81                           | 147                    | 144 | 135 | 85  |
| A       |  | High fat        | 70                           | 139                    | 220 | 181 | 153 |
| B       |  | High fat        | 65                           | 129                    | 230 | 191 | 140 |
| C       |  | High fat        | 73                           | 146                    | 200 | 178 | 148 |
| Average |  |                 | 71                           | 138                    | 230 | 181 | 141 |

The formulas were prepared by adding either butter fat or cane sugar to a whole powdered milk base in the following proportions:

| Fast Diet           |           | Regular Diet        |          |
|---------------------|-----------|---------------------|----------|
| Whole powdered milk | 5 Gm.     | Whole powdered milk | 130 Gm.  |
| Butter fat          | 7 1/2 Gm. | Cane sugar          | 50 Gm.   |
| Water to make       | 1000 Cc.  | Water to make       | 1000 Cc. |

The whole powdered milk which was prepared by Mead, Johnson & Co. of Evanston, Ind., contains protein 2.8 per cent, fat 28 per cent, lactose (by difference) 37.7 per cent, ash 1 per cent, and moisture 1.1 per cent. When thus prepared the high fat formula contains fat 9 per cent, carbohydrate 34 per cent, protein 1.5 per cent, water and minerals 87.4 per cent. The regular formula contains fat 5.9 per cent, carbohydrate 34 per cent, protein 3.8 per cent, water and minerals 79 per cent.

#### EFFECT OF PRECEDING DIET AND OF FASTING PERIOD

It is well known that the nature of the diet preceding a dextrose tolerance test has a distinct influence on the results obtained. Among the various workers in the field Himsworth<sup>2</sup> and Sweeney<sup>3</sup> particularly have shown that an increased proportion of carbohydrate in the diet results in a low blood sugar curve whereas an increased proportion of fat in the diet causes a high and prolonged curve suggestive of "starvation diabetes." The height and prolongation of the curve bear a rough quantitative relationship to the proportions of carbohydrate and fat ingested. Relatively little attention has been given to this phenomenon in the interpretation of clinical data.

The present study afforded an opportunity for confirming these results on 3 small infants under the carefully controlled conditions of a metabolism ward. The infants were first tested while receiving diets of usual proportions. Later the fat content of the diet was increased until 85 per cent of the total calories was obtained from fat. The results, which are presented in table 1, show a distinctly high and prolonged blood sugar curve following the high fat diet. This is in agreement with more extensive investigations reported by others and reemphasizes the necessity of attention to diet when dextrose tolerance studies are being made.

Starvation, which affects metabolism similarly to a high fat diet by stimulating the utilization of large quantities of fat from the depots, is of equal importance. The so-called starvation diabetes has been recognized since the observations of Lehmann<sup>4</sup> in 1874 and Hofmeister<sup>5</sup> in 1890. In animals du Vigneaud and Karr<sup>6</sup>

have shown that the height and duration of the blood sugar curves were increased progressively by previous fasting up to as long as twenty days. In human beings, the effects of short periods of fasting on the dextrose tolerance test are not generally appreciated. Bridge<sup>7</sup> has demonstrated on adults that an additional four to eight hours of fasting beyond the usual overnight period results in a distinct change in the dextrose tolerance test. While comparable observations have not been made on infants heretofore, it is well known that they withstand starvation less well than adults. Attention to this factor is obviously needed.

In a small group of infants, the effects of different periods of preliminary starvation on the dextrose tolerance test were observed. So far as possible, the same infants were employed to make the comparison between six, twelve and twenty-four hours of fasting. A test dose of 3 Gm. of dextrose per kilogram was used in all, and the tests were not repeated in less than five days. As will be seen in table 2, the blood sugar curves obtained after a six hour fast were very similar in the 3 infants studied. The maximal rise in blood sugar was less and appeared earlier than after the twelve hour fast. When the preliminary fast was extended to twenty-four hours, the effects on the sugar curve were somewhat irregular. In 4 patients the return to normal was delayed, but the maximal level attained was not necessarily higher than after the twelve hour fast. In 1 infant the more prolonged fast resulted in a distinctly low blood sugar curve. In general, starvation appears to affect infants as it does adults by causing changes in the direction of so-called starvation diabetes. Other factors are probably operating to account for the exceptions.

It is also interesting to note in table 3 the effect of starvation on the fasting blood sugar level. Normal infants showed little variation after the standard twelve hour fast. However when the fast was extended to twenty-four hours all 6 patients showed either low or

TABLE 2—Blood Sugar Curves of Normal Infants After Different Periods of Preliminary Starvation and After the Ingestion of Three Grams of Dextrose per Kilogram of Body Weight

| Case    | Length of<br>Fasting<br>Period,<br>Hours | Blood Sugar, Mg. per 100 Cc. |                        |     |     |     |
|---------|--|------------------------------|------------------------|-----|-----|-----|
|         |  | Fasting                      | Minutes After Dextrose |     |     |     |
|         |  |                              | 30                     | 60  | 120 | 180 |
| A       | 6  | 90                           | 158                    | 136 | 118 | 61  |
| B       | 6  | 91                           | 155                    | 142 | 120 | 85  |
| C       | 6  | 89                           | 155                    | 146 | 124 | 87  |
| Average | 6  | 90                           | 156                    | 141 | 121 | 84  |
| A       | 12                                       | 86                           | 148                    | 182 | 119 | 98  |
| B       | 12                                       | 87                           | 155                    | 187 | 107 | 106 |
| C       | 12                                       | 88                           | 141                    | 174 | 120 | 90  |
| Average | 12                                       | 87                           | 148                    | 181 | 114 | 100 |
| A       | 24                                       | 51                           | 114                    | 153 | 148 | 114 |
| D       | 24                                       | 60                           | 89                     | 117 | 162 | 137 |
| E       | 24                                       | 58                           | 98                     | 147 | 198 | 141 |
| F       | 24                                       | 60                           | 84                     | 116 | 203 | 138 |
| B       | 24                                       | 63                           | 88                     | 119 | 114 | 91  |
| Average | 24                                       | 60                           | 95                     | 130 | 165 | 137 |

definitely hypoglycemic levels. Possibly this tendency to hypoglycemia is related to the low blood sugar curve mentioned in connection with the more extended fast.

#### ORAL DEXTROSE TOLERANCE TEST

As commonly used in adult medicine, the oral dextrose tolerance test consists in the administration of a standard amount of dextrose after an overnight fast and

<sup>2</sup> Himsworth, H. P. *J. Physiol.* **81**: 29-48, 1934, *Clin. Sc.* **2**: 67-64, 1935.

<sup>3</sup> Sweeney, J. S. *Dietary Factors That Influence the Dextrose Tolerance Test*, *Arch. Int. Med.* **40**: 818-830 (Dec.) 1927.

<sup>4</sup> Lehmann, W. L. *Arch. f. exper. Path. u. Pharmacol.* **2**: 463, 1874.

<sup>5</sup> Hofmeister, Franz. *Arch. f. exper. Path. u. Pharmacol.* **26**: 355, 1874.

<sup>6</sup> du Vigneaud V., and Karr, W. G. *J. Biol. Chem.* **66**: 281, 1925.

<sup>7</sup> Bridge, E. M. Unpublished data.

the estimation of changes in blood sugar level during the succeeding three hours. Sometimes the dose of dextrose is based on body weight, at other times a fixed amount is given regardless of the weight. In the case of infants the test dose most commonly used has

TABLE 3—Fasting Blood Sugar Levels of Normal Infants\*

| Number of Infants | Length of Preceding Fast, Hours | Blood Sugar Level, Mg per 100 Cc |
|-------------------|---------------------------------|----------------------------------|
| 5                 | 6                               | $87 \pm 1$                       |
| 111               | 12                              | $87 \pm 1$                       |
| 6                 | 24                              | $87 \pm 4$                       |

\* In this and subsequent table the  $\pm$  figures represent the average range of two thirds of the data.

TABLE 4—Average Blood Sugar Curves of Normal Infants Following the Oral Administration of Dextrose

| Num<br>ber<br>of<br>Cases | Dex<br>trose,<br>Gm<br>per<br>Kg of<br>Body<br>Weight | Fast<br>ing<br>Level | Blood Sugar, Mg per 100 Cc |              |             |            | Rise Above<br>Fasting Level<br>Mg/100 Cc |             |
|---------------------------|---|----------------------|----------------------------|--------------|-------------|------------|--|-------------|
|                           |   |                      | Minutes After Dextrose     |              |             |            | Maxi<br>mal                              | Mini<br>mal |
|                           |   |                      | 30                         | 60           | 120         | 180        |  |             |
| 15                        | 3.0   | $87 \pm 2$           | $149 \pm 8$                | $170 \pm 5$  | $127 \pm 9$ | $87 \pm 7$ | 11"                                      | 7           |
| 10                        | 1.75  | $86 \pm 2$           | $127 \pm 7$                | $129 \pm 10$ | $100 \pm 5$ | $87 \pm 4$ | 6"                                       | 59          |
| 10                        | 1.0   | $82 \pm 4$           | $109 \pm 10$               | $115 \pm 5$  | $95 \pm 10$ | $78 \pm 4$ | 49                                       | 2           |

been 1.75 Gm per kilogram. It is generally assumed that the rise in blood sugar level will be comparable to that found in adults. That this is not strictly correct is evident from the observations to be reported and from the observations in the literature.<sup>8</sup> As a means of determining the most satisfactory quantity of dextrose to use a group of normal infants was given 1, 1.75 and 3 Gm of dextrose per kilogram following a twelve hour fast. So far as possible, the same infants were used for all three doses, the usual interval of five days being maintained between tests.

It will be seen from the data in table 4 that the blood sugar response was influenced by the amount of dextrose ingested. In the majority of the tests the maximal rise with each dose was obtained within one-half to one hour, although occasionally not until two hours. In most tests the level of blood sugar had returned to the initial fasting value in three hours. There was no overlapping between the groups. A maximal rise in blood sugar to 160 to 180 mg per hundred cubic centimeters and a return to a normal level within three hours can, therefore be considered a normal response to a test of 3 Gm of dextrose per kilogram for infants under the age of 2 years. Standard conditions of preceding diet and fasting period should, of course, be adhered to.

#### INTRAVENOUS DEXTROSE TOLERANCE TEST

In studying disturbances of carbohydrate metabolism it is frequently helpful to eliminate the factor of absorption by injecting the dextrose directly into the blood stream. The usefulness of such tests has been discussed recently by Crawford<sup>9</sup> by Ross<sup>8</sup> and by Tunbridge and Allibone.<sup>10</sup> To obtain standards from which to judge the results of such injections, 15 normal infants have been studied. After the regular twelve hour preliminary fast they were given 1 Gm of dextrose per kilogram intravenously and samples of blood were taken ten, thirty, sixty, ninety and one hundred and twenty minutes

later. No attempt was made to determine the maximal level of blood sugar reached which should occur within one-half to one minute. As will be seen in table 5, the blood sugar remained high during the first half hour. In all patients the initial fasting value was reached within one and one-half hours after the injection and never in less than one hour. By the technic used, therefore curves returning to the fasting level in less than one hour or later than one and one-half hours should be considered abnormal.

#### THE INSULIN SENSITIVITY TEST

The activity of insulin in promoting the withdrawal of dextrose from the blood stream has received relatively little attention in infants. In older children and in adults two types of tests have been employed, the injection of insulin alone and the administration of insulin combined with a standard amount of dextrose.<sup>11</sup> In the present study of infants, a simple dextrose tolerance test was first performed with 3 Gm of dextrose per kilogram. After an interval of not less than five days the test was repeated, giving in addition  $\frac{1}{4}$  unit of regular insulin per kilogram subcutaneously ten minutes after the patient began to drink the dextrose. The degree of sensitivity to insulin was measured by comparing the blood sugar level of the two curves one hour after the ingestion of the dextrose. This point in the two curves was selected for comparison to avoid errors caused by the temporary hyperglycemic action of impurities in commercial insulin preparations and to minimize the effects of variations in the rate of absorption of the dextrose.

As will be seen in table 6, the dose of  $\frac{1}{4}$  unit of regular insulin per kilogram of body weight results in a definite lowering of the blood sugar curve but without hypoglycemia in the group of normal children studied. Larger doses of insulin proved unsatisfactory because of the development of hypoglycemia which confused the

TABLE 5—Average Blood Sugar Curves of Normal Infants Following the Injection of One Gram of Dextrose per Kilogram of Body Weight Intravenously

| No of Cases | Fast ing   | Blood Sugar, Mg per 100 Cc |              |              |            |            |
|-------------|------------|----------------------------|--------------|--------------|------------|------------|
|             |            | Minutes After Dextrose     |              |              |            |            |
|             |            | 10                         | 30           | 60           | 90         | 120        |
| 15          | $87 \pm 4$ | $370 \pm 11$               | $225 \pm 14$ | $120 \pm 23$ | $87 \pm 7$ | $78 \pm 3$ |

TABLE 6—Average Blood Sugar Curves Obtained in Insulin Sensitivity Tests of Normal Infants

| Num<br>ber<br>of<br>Cases | Dex<br>trose<br>Gm<br>per<br>Kg of<br>Body<br>Wt | Insu<br>lin<br>Unit<br>per<br>Kg of<br>Body<br>Wt | Blood Sugar, Mg per 100 Cc |                        |             |             |            |
|---------------------------|--|---|----------------------------|------------------------|-------------|-------------|------------|
|                           |  |   | Fast<br>ing                | Minutes After Dextrose |             |             |            |
|                           |  |   |                            | 30                     | 60          | 120         | 180        |
| 9                         | 3  | 0   | $86 \pm 2$                 | $132 \pm 5$            | $170 \pm 4$ | $123 \pm 6$ | $87 \pm 5$ |
| 10                        | 3  | $\frac{1}{4}$                                     | $84 \pm 3$                 | $117 \pm 7$            | $120 \pm 5$ | $84 \pm 4$  | $80 \pm 2$ |
| Average difference        |  |   |                            | 15                     | 45          | 44          | 7          |

picture by stimulating the mechanism for raising the blood sugar level. Comparison of the blood sugar curves obtained with and without insulin showed an average difference of 45 mg per hundred cubic centi-

<sup>8</sup> Fries M E and Kohn J L. *Am J. M. Sc.* 170: 547-563 1925.  
<sup>9</sup> Svensgaard E. *Acta paediat. (supp. 4)* 12: 1-6 1931.  
<sup>10</sup> Tunbridge R E and Allibone E G. *Quart J. Med.* 5: 227-250 1936.  
<sup>11</sup> Ross C W. *Arch. Dis. Childhood* 13: 289-309 1938.  
<sup>12</sup> Crawford T. *Arch. Dis. Childhood* 13: 69-77 1938.  
<sup>13</sup> Tunbridge R E and Allibone E G. *Quart J. Med.* 9: 11-35 1940.

<sup>11</sup> Gilchrist M L. *Arch. Dis. Childhood* 7: 169-180 1932.  
<sup>12</sup> Kuntz A H and Boyd J D. *Blood Sugar in Diabetes in Children*. *Am J. Dis. Child.* 54: 1005-1011 (Nov.) 1937.  
<sup>13</sup> Himsworth H P and Kerr R B. *Clin. Sc.* 4: 117 1939.  
<sup>14</sup> Fraser R W. *Albright Fuller and Smith P H. J. Clin. Endocrinol.* 1: 297-306 1941.  
<sup>15</sup> Himsworth (second reference) *Badenoch and Morris*.

meters one hour after the administration of the dextrose with relatively small variations (56 to 31) from this. For use in small infants, therefore, the technic employed in the present study appears to be a satisfactory means of evaluating insulin sensitivity.

III. EPINEPHRINE TEST

The ability of the liver to convert glycogen into dextrose and to discharge the dextrose into the blood stream can be studied grossly by the subcutaneous

TABLE 7—Average Blood Sugar Curve Obtained After the Administration of Epinephrine Subcutaneously to a Group of Normal Infants

| Number of Cases | Gm. per Kg. of Body Weight | Epinephrine, cc. | Blood Sugar, Mg. per 100 Cc. |                         |       |      |     |              |
|-----------------|----------------------------|------------------|------------------------------|-------------------------|-------|------|-----|--------------|
|                 |                            |                  | Fast                         | Minutes After Injection |       |      |     | Maximal Rise |
|                 |                            |                  |                              | 0                       | 10    | 120  | 180 |              |
| 10              | 0.6                        | 50±2             | 17±4                         | 14±3                    | 101±5 | 76±2 | 71  | 10           |

administration of epinephrine. After preliminary trials, a test dose of 0.03 cc. (1½ minims) of a 0.1 per cent solution of epinephrine hydrochloride per kilogram of body weight was found to be satisfactory. The preceding diet, the fasting period and the time for taking blood samples were the same as for the dextrose tolerance test. The results are shown in table 7. In the 10 patients studied the maximal rise in blood sugar occurred in one hour in 9 of them and in one-half hour in 1. These findings are in general agreement with those obtained by other workers in studies of older children and of adults.<sup>12</sup>

LEVULOSE AND GALACTOSE TOLERANCE TESTS

The so-called carbohydrate liver function tests, namely the levulose and galactose tolerance tests, give an index of the rapidity with which these sugars can be converted into dextrose and stored as glycogen. The literature on the subject has been reviewed by Tomlinson,<sup>13</sup> who lists many investigations done since the original work of Strauss<sup>14</sup> in 1901. Strauss observed that, whereas only 10 per cent of normal subjects showed levulose in the urine following the ingestion of this sugar, the phenomenon was manifested in 90 per cent of subjects having disorders of the liver. Shirohauer<sup>15</sup> modified

TABLE 8—Average Total Blood Sugar Curves Following the Oral Administration of Levulose

| Number of Cases | Gm. per Kg. of Body Weight | Levulose, cc. | Blood Sugar, Mg. per 100 Cc. |                        |      |      |     |              |
|-----------------|----------------------------|---------------|------------------------------|------------------------|------|------|-----|--------------|
|                 |                            |               | Fast                         | Minutes After Levulose |      |      |     | Maximal Rise |
|                 |                            |               |                              | 0                      | 60   | 120  | 180 |              |
| 10              | 1.0                        | 77±4          | 81±3                         | 87±3                   | 78±3 | 75±3 | 22  | 4            |
| 10              | 1.75                       | 78±3          | 81±3                         | 95±2                   | 85±3 | 76±2 | 21  | 11           |

the procedure of Strauss by introducing total blood sugar estimation in place of urinary sugar excretion. Various improvements in technic have been proposed from time to time<sup>16</sup> so that, at present, methods are

available for determining levulose or galactose in the blood directly. The simpler procedure, however, of determining the rise in total blood sugar after the ingestion of a standard quantity of the sugars has been employed in the present study. The technic consisted in the administration of 1 Gm. and 1.75 Gm. of levulose or galactose per kilogram of body weight to a group of normal infants after the usual twelve hour fasting period and the determination of the total blood sugar response. The figures obtained represent the sum of the basic dextrose value and the additional concentration of the levulose or galactose.

As will be seen in table 8, following the ingestion of 1 Gm. of levulose per kilogram of body weight the maximal and minimal increases in the blood sugar level were 22 and 4 mg. per hundred cubic centimeters respectively. In the 10 patients studied the maximal rise occurred in one hour in 8 of them and in an equal number the return to the fasting value occurred within two hours. Our results are in agreement with those of Tallerman<sup>17</sup> in showing that a larger test dose of levulose makes no appreciable change in the blood sugar response.

Similar studies were made using galactose instead of levulose. As will be seen in table 9, wide variations were obtained. Since total blood sugars were estimated, it is impossible to conclude whether the sharp rise in sugar level observed in some patients was due directly

TABLE 9—Average Total Blood Sugar Curves Following Oral Administration of Galactose

| Num<br>ber of<br>Cases | Galac<br>tose,<br>Gm per<br>kg of<br>body<br>Weight | Fasting<br>Level | Blood Sugar, Mg per 100 Cc |        |       |       |                     |                     |
|------------------------|---|------------------|----------------------------|--------|-------|-------|---------------------|---------------------|
|                        |   |                  | Minutes After<br>Galactose |        |       |       | Maxi<br>mal<br>Rise | Mini<br>mal<br>Rise |
|                        |   |                  | 30                         | 60     | 120   | 180   |                     |                     |
| 10                     | 1.0   | 81±5             | 96±6                       | 98±3   | 88±4  | 80±4  | 42                  | 6                   |
| 10                     | 1.75  | 81±2             | 121±20                     | 118±15 | 108±8 | 89±10 | 94                  | 13                  |

to the increase in blood galactose or whether the galactose stimulated the formation of dextrose from glycogen. In either case the lack of consistency in the response of normal infants created doubts concerning the usefulness of the procedure as an index of liver function in children of this age.

COMMENT

For the recognition of clinical disturbances in carbohydrate metabolism, the dextrose tolerance test has become an accepted procedure. In the absence of glycosuria it frequently calls attention to a hidden abnormality. While the test is simple to carry out, its interpretation is complex. An unusually high and prolonged curve, so commonly considered to be evidence of a "decreased tolerance," means merely that the sum of the rates of disappearance of sugar from the blood (storage, utilization and excretion) falls short of the rate of absorption of the ingested sugar. The opposite may be said of the low or flat curve, usually interpreted as evidence of "increased tolerance." Little can be inferred concerning the adequacy of the specific functions involved.

If progress is to be made in our understanding of disturbances in carbohydrate metabolism, means must be available for evaluating such important phases as (1) rate of absorption, (2) ability to build up glycogen reserves, (3) ability to maintain a normal blood sugar level by glycogen breakdown or, when the glycogen reserves are consumed, by protein breakdown and (4)

12. Ingel'son, B. Acta med. Scandinav. suppl. 45, 1932. Gjertz, A., ibid. 88, 464-477, 1936. Munzer, F., ibid. 100, 231-243, 1939. Gilchrist, D.  
13. Tomlinson, R. W. Delaware State M. J. 6, 199-211 (Sept.) 1934, 7, 210-213 (Oct.) 1934.  
14. Strauss, Hermann. Deutsche med. Wochenschr. 27, 757, 1901.  
15. Shirohauer, H. Ztschr. f. klin. Med. 78, 462, 1913.  
16. Scott, I. D. Brit. J. Exper. Path. 16, 489-496, 1935. Althausen, J. and Wever, G. K. J. Clin. Investigation 16, 257-259, 1937. Herbert, I. K. Brit. M. J. 1, 867-870, 1939. Thompson, J. C., and Wilkinson, A. W. Edinburgh M. J. 47, 250-261, 1940. MacLagan, N. I. Quart. J. Med. 9, 151-162, 1910.  
17. Tallerman, K. H. Quart. J. Med. 17, 37, 1923.



ability of the tissues to use dextrose. At the present time too little is known concerning the fundamental physiology of these integral processes of metabolism to make it possible to apply procedures to clinical problems with entirely satisfactory results. The hope of progress lies in becoming able to interpret abnormal blood sugar curves in terms of disturbances in the physiologic processes involved. The present study was undertaken with this point of view in mind.

The conditions under which tests of carbohydrate function are performed are of necessity somewhat different with small infants than with older children or adults. The standard overnight fast preceding the test for adults has no counterpart in small infants receiving feedings every three or four hours throughout the day. Formula feedings vary widely in proportions of fat, protein and carbohydrate with appreciable effects on the "dextrose tolerance." And in addition an inadequate caloric intake of both children and adults can affect the test by forcing the metabolism to draw on the fat depots instead of utilizing a normal diet of the usual proportions. It is important, therefore, both in infants and in adults, that the conditions preceding the test be maintained constant in order that satisfactory comparison with standards may be possible.

In the present study a fast of twelve hours preceding the test has been found satisfactory for full term infants up to 2 years of age. While the data reported show relatively small differences between the blood sugar curves obtained after a six and twelve hour fast, the shorter one would frequently fail to bring out a hidden tendency to fasting hypoglycemia, which is important to know. The twenty-four hour fast is obviously too long, for even normal infants may exhibit hypoglycemia, ketosis and an abnormal blood sugar curve at this time. In the case of premature infants weighing less than 2.5 kilograms and receiving feedings every two or three hours throughout the day, it seems advisable to reduce the fasting period somewhat. Such infants quite probably have a smaller glycogen reserve than full term and older children, and a shorter fasting period would therefore be comparable to the twelve hour fast of normal infants. In no case, however, should the fast be less than nine hours.

Too frequent repetition of the dextrose tolerance test also affects the results. John<sup>18</sup> demonstrated this fact by performing daily tests on the same patient for five successive days, using the same dose of dextrose each time. The results of the experiment showed that on the first day the hyperglycemia reached a peak of 260 mg per hundred cubic centimeters, with a return to normal at the end of three hours. On the fifth day the peak was only 90 mg per hundred cubic centimeters. From this and other reports it has therefore seemed advisable to repeat tests of carbohydrate function at intervals of not less than five days.

It has sometimes been stated that the quantity of dextrose administered was relatively unimportant. Our experience indicates that this is not the case with infants, for the blood sugar curves resulting from doses of 1, 1.75 and 3 Gm of dextrose per kilogram of body weight are distinctly different and show no overlapping. The smallest dose not infrequently gives a low curve which might easily be confused with the flat curve seen in certain diseases. Using the dose of 1.75 Gm per kilogram equivocal results are sometimes obtained, but in our experience the large dose of 3 Gm per kilogram for

infants under 2 years of age has been most satisfactory, differentiating clearly between normal low and high curves. We therefore believe that 3 Gm of dextrose per kilogram of body weight should be adopted for use with infants under 2 years and a somewhat smaller amount for older children to be comparable to the dose of 1.5 Gm per kilogram which has proved satisfactory for adults.

Rate of absorption undoubtedly plays a role in the type of blood sugar curve obtained. Such conditions as celiac disease, intestinal tuberculosis and pressure from enlarged viscera are known to interfere with absorption, while intestinal hypermotility, gastroenterostomy, hyperthyroidism and emotional disturbances may speed up absorption. All low or flat blood sugar curves should of course be considered as possibly resulting from delayed absorption. Our experience with adults suggests that curves rising to a high level in one-half hour often mean increased rate of absorption. An index of the normality of the absorptive mechanism may be obtained by comparing oral with intravenous curves or with curves obtained by placing the dextrose directly into the duodenum by stomach tube, and by tests of intestinal motility, since rate of absorption appears to bear some relationship to peristaltic activity. For the intravenous test in infants we have found 1 Gm of dextrose per kilogram given over a period of two to four minutes to be satisfactory, the blood sugar returning to the original fasting level within one and one-half hours after the administration of the dextrose. The blood sugar levels at ten minutes and one-half hour appear to have no significant utility and can be omitted without loss.

Glycogen deposition cannot, of course, be measured directly in human beings. However the fasting respiratory quotient of animals has been shown to vary with the glycogen content of the liver, and it is well known that in human beings the fasting respiratory quotient depends directly on the composition of the diet.<sup>19</sup> At present, experiments are in progress designed to utilize the stability of the respiratory quotient during fasting as an index of glycogen reserves. A report of this aspect of the work will be published later. For the present, in the absence of respiratory data on the general metabolism of the individual, one must interpret carbohydrate storage and utilization together from the height and the rate of fall of the blood sugar curve, eliminating if possible abnormalities in the absorptive mechanism.

The nature of the contribution of insulin to carbohydrate metabolism is as yet not entirely clear, although its action in promoting the deposition of glycogen in the muscle and in inhibiting the new formation of dextrose from protein appears definite. It seems likely that the former function is responsible for the lowering of the blood sugar in the usual clinical insulin sensitivity tests.<sup>20</sup> To demonstrate abnormal sensitivity to insulin, we believe that a comparison of a simple dextrose tolerance test with a later similar test accompanied by a subcutaneous injection of  $\frac{1}{4}$  unit of insulin per kilogram gives the most satisfactory results in infants. This test has several advantages over others commonly employed. In the first place, it eliminates the need for intravenous injections, which in infants are both difficult and disturbing. In the second place, it does not induce hypoglycemia,

19 Bridge E. M. Bull. Johns Hopkins Hosp. 61: 349-357, 1937.  
Benedict F. G. and Higgins H. L. Am. J. Physiol. 30: 217-232, 1912.  
20 Bridge E. M. and Winter E. A. Bull. Johns Hopkins Hosp. 64: 257-272, 1939.

which in turn stimulates the adrenergic-sympathetic mechanism for dextrose formation from liver glycogen. The results obtained by this technique give, we believe, a more accurate picture of insulin sensitivity and in addition the test is easy to perform.

To test the mechanism that controls the supply of dextrose to blood and tissue is by no means simple, but some help may be obtained in the following two ways. (a) The function of glycogen breakdown to form dextrose can be evaluated roughly from the action of epinephrine in raising the blood sugar level. If the liver contains little or no glycogen as in starvation, or if the glycogen is abnormally stable as in glycogen disease, epinephrine induces little or no rise in blood sugar. Under ordinary conditions, however, in which liver glycogen is at a normal level, the subcutaneous injection of 0.03 cc ( $\frac{1}{2}$  min.) per kilogram of a 0.1 per cent solution of epinephrine to infants gives a rise in blood sugar level similar to that obtained in a dextrose tolerance test. (b) When glycogen reserves are no longer available, it is well known that protein is broken down to form dextrose. A simple test of this function is to observe the ability of the individual to maintain a normal blood sugar level during starvation. Healthy infants do not show hypoglycemia after a fast of twelve hours but may if the fast is continued for twenty-four hours. In contrast to this, infants who have some difficulty in forming dextrose from protein will show hypoglycemia after twelve hours and in some instances after only five hours without food. Thus in infants the epinephrine test and the control of the blood sugar level during fasting offer means of evaluating another phase of carbohydrate metabolism.

As an additional test of the carbohydrate aspects of liver function, levulose and galactose tolerance tests have been employed. Normally these sugars are converted into dextrose and deposited as glycogen so rapidly that only a small amount passes through the liver to increase the blood sugar level. Various procedures for the test have been tried in the past. The technique that we have found satisfactory for infants is to give 1 Gm. of levulose per kilogram under the same conditions as in the dextrose tolerance test and to follow the blood sugar similarly. With infants the galactose test has been found so variable as to be of little value. The levulose test, however, appears satisfactory, although it has limitations. For example, if the fasting blood sugar value is abnormally low, the total glycemic response (which includes both levulose and dextrose) is unusually high and no conclusions can be drawn from the curve. This difficulty, however, can be overcome by the recent procedure of Thompson and Wilkinson,<sup>16</sup> who measure the actual concentration of blood levulose. The levulose tolerance test has been found useful as an index of liver function in a variety of diseases.

#### SUMMARY

A group of normal infants has been studied in order to standardize more satisfactorily the various tests of carbohydrate metabolism. The following techniques can be recommended for children under the age of 2 years.

(a) Preceding diets: normal caloric intake and normal proportions of fat, carbohydrate and protein for several days. The tests should not be repeated at intervals of less than five days.

(b) Fasting period: twelve hours for infants receiving three, four or five feedings a day, nine hours for premature and those receiving six or more feedings.

(c) Dextrose tolerance test: a test dose of 3 Gm. of dextrose per kilogram of body weight.

(d) Intravenous dextrose tolerance test: 1 Gm. of dextrose per kilogram in 50 per cent solution given over a period of two to four minutes.

(e) Insulin sensitivity test:  $\frac{1}{4}$  unit of regular insulin per kilogram given subcutaneously ten minutes after the ingestion of 3 Gm. of dextrose per kilogram is begun. A control test without insulin is necessary for comparison.

(f) Epinephrine test: 0.03 cc ( $\frac{1}{2}$  min.) of a 0.1 per cent solution of epinephrine hydrochloride per kilogram given subcutaneously.

(g) Levulose tolerance test: 1 Gm. per kilogram.

## THE TREATMENT OF PRIMARY DYSMENORRHEA WITH ESTRIOLE GLYCURONIDE

A CONTROL STUDY

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The treatment of essential dysmenorrhea has been one of the most difficult problems for the gynecologist. So little is known of the cause or causes of painful menstruation that methods of treatment that have been used have been almost entirely empirical. Until the past few years, when great advances have been made in our knowledge of the relation of the endocrine glands to the menstrual function, the treatment of dysmenorrhea has consisted largely in the use of analgesics or sedatives, antispasmodics or surgery. More recently, with preparations of ovarian and sex stimulating pituitary hormones available, numerous reports have appeared in the literature on the efficacy of various endocrine preparations in relieving dysmenorrhea. Many investigators have reported encouraging results with the administration of estrogenic substance, particularly to women in whom the uterus was found to be small anteverted and hard. Other investigators, notably Novak, have advanced the theory that estrogen, which experimentally has been shown to increase the contraction of uterine muscles, is not as logical a therapeutic agent in the treatment of menstrual pain as is progesterone, which experimentally inhibits uterine contraction. Good results in the treatment of dysmenorrhea have been claimed with both estrogen and progesterone. More recently experimental and clinical studies have shown that testosterone propionate will reduce uterine contractions and in certain cases prevent dysmenorrhea. In all these reports, however, one is impressed with the fact that few attempts have been made to evaluate the results of the various endocrine preparations by a controlled clinical study. It seems especially important in evaluating the effects of any treatment for a condition such as dysmenorrhea, in which the psychogenic factor has long been recognized as exceedingly important, to control carefully the results of any therapeutic agents used.

This study presents the results of the treatment of dysmenorrhea in a group of 100 girls, 50 of whom were given estriol glycuronide extracted from human

From the Students' Health Service, University of Minnesota. This study was carried out with the aid of a grant from the Medical Research Fund of the University of Minnesota.

placentas and 50 a placebo.<sup>1</sup> Estriol glycuronide (emmenin) was first announced by Dr I B Collip as an alcohol soluble ether insoluble substance present in acetone extract of human placentas active orally and partially estrogenic in immature rodents with intact ovaries, though relatively inert in ovariectomized animals. Collip concludes that, since emmenin is ineffective in the castrate it functions directly or indirectly by stimulation of the intact ovary thus differing from estrogen. However its primary effect is estrogenic in character. Campbell and Collip<sup>2</sup> in 1930 reported 36 cases of dysmenorrhea in which estriol glycuronide was administered, with 26 cases showing definite improvement. There were no controls. Several similar reports have appeared in the literature during the past eight years. Goldberg and Lisser<sup>3</sup> in 1935 reported 40 cases of dysmenorrhea in which estriol glycuronide was administered. The estriol glycuronide failed utterly in 8 cases was of doubtful value in 7, produced definite improvement in 12 and achieved brilliant results in 13. In other words in 25 of 40 cases or over 60 per cent either entire relief or pronounced improvement was obtained.

The group of 100 young women included in this study were all students at the University of Minnesota ranging in age from 17 to 25 years. Each student was given a general physical examination, including an estimation of the hemoglobin, a basal metabolism test and a pelvic examination. No cases were included in which any pelvic abnormality was noted. All were considered cases of primary dysmenorrhea. In order to rule out any psychic effect of the treatment, a prescription for "dysmenorrhea tablets" was given to each patient. The pharmacy then dispensed estriol glycuronide tablets and a placebo tablet identical to the estriol glycuronide tablet in appearance to each alternate student. The estriol glycuronide results obtained were recorded by us with no knowledge of which of these tablets the patient was taking. The estriol glycuronide tablets which were furnished us at the time were not quite equivalent to 1 drachm (4 cc) of the liquid estriol glycuronide. We therefore gave each patient 6 tablets daily. The tablets were given for ten days before the calculated menstrual period. All patients were treated

plete relief from menstrual pain. All of the patients in both the therapeutic and the placebo groups had complete relief the first period after taking the medication and were free from pain every period while under treatment. Nine of the 10 students in this group reported that they have had no recurrence of symptoms since the onset of treatment, which is a period of nine to twelve months. The 1 student who had a recurrence of symptoms after discontinuing her medication wrote to us for a copy of her prescription. She had been unable to be up on her feet the first day of her menstrual period prior to medication but had complete

TABLE 2—Results

|                     | Total Number | Complete Relief |    | Partial Relief |    | No Relief |    |
|---------------------|--------------|-----------------|----|----------------|----|-----------|----|
|                     |              | No              | %  | No             | %  | No        | %  |
| Estriol glycuronide | 50           | 6               | 12 | 18             | 36 | 26        | 52 |
| Placebo             | 50           | 4               | 8  | 17             | 34 | 29        | 58 |

relief while on treatment. Her record disclosed that she had been taking the placebo tablets. This illustrates the difficulty encountered in evaluating results from any type of medication for dysmenorrhea.

Eighteen of the 50 on estriol glycuronide and 17 of the 50 on the placebo tablets obtained partial relief from the medication. Thirteen of those taking estriol glycuronide in this group had complete relief the first period after treatment but did not have consistent benefit during subsequent periods. Some periods were free from pain while in others the medication produced no effect. In 4 of the group on estriol glycuronide, no benefit was obtained the first period after treatment but there was complete relief the second period while under treatment. In the group classified as obtaining partial relief who were taking the placebo tablets, 12 were free from pain the first period after taking the medication and 4 had no benefit the first period but definite relief the second period. As with those on estriol glycuronide, there was no consistency in the effects of the treatment during subsequent periods. All of these were followed from nine to twelve months after the onset of treatment.

Twenty-six, or 52 per cent, of the group taking estriol glycuronide and 29, or 58 per cent, of those given the placebos reported no relief whatever. The results of this controlled group of cases show such a small difference between the therapeutic and the control group that one questions the earlier reports on the benefit of estriol glycuronide in the treatment of dysmenorrhea in studies which have not been so controlled. Although the results of this study are negative, they show the importance of controlled clinical studies in the evaluation of therapeutic agents, particularly in a condition in which there is a known psychogenic factor.

## SUMMARY

In a controlled study of the use of estriol glycuronide in the treatment of dysmenorrhea, the subjects were 100 unmarried young women between the ages of 17 and 25, all with primary dysmenorrhea. Fifty of the group were given estriol glycuronide tablets, and the other 50 were given placebo tablets indistinguishable from the estriol glycuronide tablets.

Twelve per cent of the group receiving estriol glycuronide and 8 per cent of the group receiving placebos reported complete relief from dysmenorrhea for a period of nine to twelve months. Thirty-eight per cent of

TABLE 1—Duration of Treatment

|  | Total No of Cases | 3 Mo | 4 Mo | 5 Mo | 6 Mo | 7 Mo |
|--|-------------------|------|------|------|------|------|
| Estriol glycuronide with complete relief | 6                 | 2    | 2    | 1    | 1    |      |
| Placebo with complete relief             | 4                 | 2    | 1    |      | 1    |      |
| Estriol glycuronide with partial relief  | 18                | 9    | 2    | 3    | 4    |      |
| Placebo with partial relief              | 27                | 8    | 4    | 4    | 7    |      |
| Estriol glycuronide with no relief       | 26                | 14   | 7    | 3    | 1    | 1    |
| Placebo with no relief                   | 29                | 20   | 8    |      | 1    |      |

for at least three months and observed either personally or by letter for about one year. The patients were divided into three groups: those who experienced complete relief, those who had partial relief and those who had no benefit whatever from the medication. Table 1 shows the number of months the treatment was continued in each of the three groups.

Six of the 50 taking estriol glycuronide tablets and 4 of the 50 taking the placebo tablets reported com-

<sup>1</sup> The placebo tablets were furnished through the courtesy of the Ayerst McKenna Company.

<sup>2</sup> Campbell A D and Collip J B. On the Clinical Use of the Ovary Stimulating Hormone of the Placenta. *Canad M A J* 23: 633 (Nov.) 1930.

<sup>3</sup> Goldberg, Minnie B and Lisser Hans. On the Clinical Use of Emmenin. *Endocrinology* 19: 649 (Nov Dec) 1935.

At three weeks post partum, the specimen showed completely regenerated endometrium, with a few mitotic figures, proliferative glands with some subnuclear vacuolization and pseudostriatification. Stroma is dense.

At four weeks post partum, there was no essential change except that more definite proliferative activity was noted.



Fig. 5—Thirteen day postpartum mucosa. Mucosal surface is completely undifferentiated, dense without cellular infiltration. Glands are simple.

At five weeks there was definite evidence of renewed secretory activity, suggesting that the patient had ovulated recently. There was still present some hemosiderosis, however.

At six weeks the patient showed mild proliferative activity and evidence of old hemorrhage was still present.

At twelve weeks post partum, the patient showed twenty-three to twenty-four day secretory endometrium, pointing out that, despite continued lactation, she had ovulated and was due to have a period shortly. This she did have.

At fourteen weeks post partum, another lactating patient showed only mild proliferating activity, indi-



Fig. 5—Biopsy specimen from a fourteen week postpartum lactating patient demonstrating complete repair of the mucosal surface, but the endometrium is arrested in mildly proliferating phase.

cating that ovulation was still withheld even at this late date (fig. 5).

Apparently, then, patients who are lactating regenerate the endometrium at approximately the same rate as the nonlactating patients. However, if ovulation is inhibited, as by continued lactation, the endometrium

tends to remain as resting or mildly proliferating endometrium, until at last the previous ovarian rhythmicity breaks through.

#### REGENERATION OF THE UTERINE MUCOSA FOLLOWING SPONTANEOUS ABORTION

An effort was made to follow 9 cases of spontaneous abortion in the first trimester of pregnancy by biopsies at intervals following abortion until ovulation and menstruation could be proved histologically. In these cases specimens for biopsy were taken three days after the abortion, again at seven days and then at weekly intervals until menstruation occurred. Four of these cases will be presented in some detail to illustrate the variations possible in the process of regeneration and the factors which may influence the rate of regeneration. The remaining 5 cases fall into one of these four groups.

CASE 1—Mrs. B. M., aged 37, a decipara, had had two previous nonconsecutive abortions. At six weeks she passed a pathologic ovum consisting only of intact ovisac without evidence of cord or embryo. She was curetted immediately to remove all loose tissue, of which there was but a slight amount—the decidua having separated with the ovisac. Biopsy on the third postpartum day showed acute polymorphonuclear leukocytic infiltration of early decidua, which consisted mostly

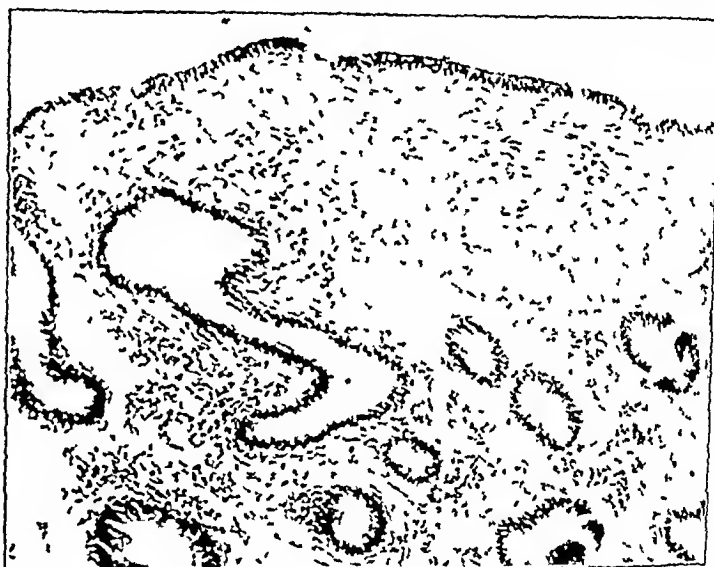


Fig. 6 (case 1)—Biopsy twenty one days after spontaneous abortion in which curettage was done immediately. Early secretory endometrium. Patient has ovulated and she menstruated twenty eight days after abortion, or seven days after this specimen was taken.

of glands and fibrotic basal stroma. There were many thrombosed vessels present. Biopsy taken on the seventh day showed complete regeneration of the mucosal surface and glands which were numerous and slightly tortuous, showing some mitoses. There was beginning subnuclear vacuolization. Stroma had regressed to dense nuclei, with no evidence of decidual change.

On the fourteenth day biopsy showed the endometrial phase continuing as described. On the twenty-first day there was definite early secretory activity in the glands, demonstrating ovulation (fig. 6). Dating was that of early secretory endometrium. Biopsy taken on the thirtieth day, two days after a normal period began, showed menstruating endometrium but as well an unchanged strip of mildly proliferating lower segment endometrium. The latter is notorious, however, for failing to mirror the cyclic changes found in the upper segment, so that it may be discounted.

Here, then, is a patient who had a spontaneous abortion of a pathologic ovum at six weeks, was immediately curetted and had endometrial regeneration complete within seven days, ovulating on approximately the fourteenth day and menstruating on the twenty-eighth day. She continued thereafter on her previous twenty-seven to twenty-eight day cycle.



CASE 2—Mrs I G, aged 18, a primipara, passed at four months a blighted ovum of approximately two and one-half months growth, the embryo macerated and showing multiple congenital anomalies as well as intrauterine amputation of a leg. The patient was not curetted, as all products of conception were identified.

Biopsy on the third day showed only necrotic decidua without evidence of regeneration. On the seventh day there were noted regenerating basal glands compact stroma, probably basal with middle and superficial regression as well as degenerating decidua and with complete regeneration of the surface epithelium. On the fourteenth day was noted resting endometrium, completely regenerated but slight proliferative activity with no mitoses. On the twenty-first day there were no mitoses, certain areas suggested late proliferation, but in other areas there was still local and diffuse necrosis, suggesting (as was confirmed by the thirty-five day biopsy) that some placental or decidual tissue was retained, that possibly a chronic endometritis was present and that ovulation had not taken place.

On the twenty-eighth day there was no change from the picture on the twenty-first day. On the thirty-fifth day the patient flowed (one pad of bright blood) and complained of cramps. Biopsy at this time showed regressing decidua (fig 7). Flow was not menstrual-like. Immediately after this biopsy, on the thirty-sixth day the patient flowed (four to six pads) and had cramps. This continued for six days. A biopsy was again taken on the fifty-third day. This specimen showed no inflammation, but there was still some predecidual reaction with stromal edema. The patient did not return until the one hundred and seventeenth day, at which time she requested an examination to determine whether she was pregnant. She was found to be for biologic tests were positive, although the uterus had not yet begun to enlarge.

In this case, curettement after spontaneous abortion of a blighted, pathologic embryo was not carried out and regeneration of the superficial epithelium was again complete by the seventh day. However, possibly owing to retention of placental or decidual tissue or because of low grade infection, she failed to ovulate for at least two months after the abortion. Endometrium was restrained as resting or proliferating endometrium with focal areas of continued predecidual change with chronic

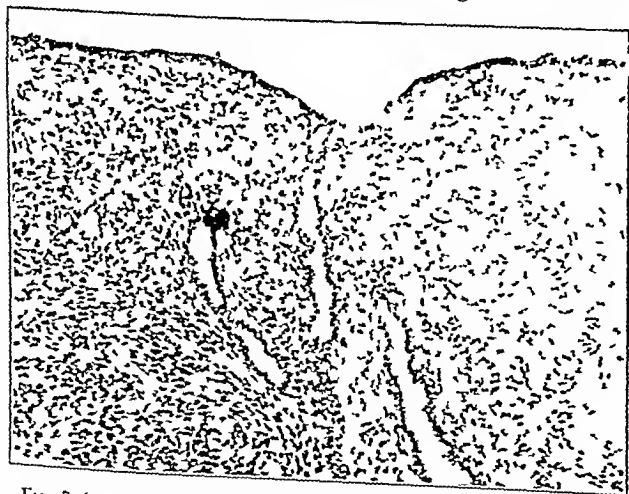


Fig 7 (case 2)—Biopsy thirty-five days after a spontaneous abortion in which curettement was not immediately done. Specimen elsewhere shows areas of still regressing decidua with chronic cellular infiltration. This slide shows resting endometrium with no evidence of secretory activity and with chronic inflammation present.

infiltration of inflammatory cells. Ultimately she did ovulate, but presumably at least three months after the abortion.

CASE 3—Mrs I G, aged 35, a secundipara who had had one abortion a year before, at eleven weeks began to bleed following a fall. Over the next three weeks she was given three successive courses of progesterone therapy, the last being 10 mg

of corpus luteum substance daily for seven days. Two days after the completion of therapy she began to bleed again. Definite tissues were not passed at any time, although all pads had been inspected. Immediate curettage was performed, but scant tissue was removed. A specimen for biopsy was taken nine days after the abortion, showing endometrium from the upper segment with a strong decidual reaction, glands were



Fig 8 (case 3)—Biopsy specimen nine days after abortion in case in which curettement was done after heavy progesterone therapy had been given to continue a blighted ovum. There is still adherent necrotic decidua, some placental site with maintenance of secretory glands of pregnancy. There is no evidence of reparative activity.

secretory and well preserved. There were foci of necrosis and infiltration of inflammatory cells throughout. Seen also was a well preserved placental site (fig 8). Biopsy was not done again, but she failed to have a period for nine weeks. Since then, her periods have been grossly irregular, whereas her previous catamenia had followed regular cycles.

This case may point out one of the possible hazards of heavy progesterone therapy, for involution and regeneration seemed to have been retarded, if this case is compared with case 1 (menstruation at twenty-eight days after spontaneous abortion with immediate curettage).

CASE 4—Mrs A B, aged 30, a quartipara, had two previous nonconsecutive abortions. At eleven weeks the patient passed a pathologic ovum, which contained neither cord nor embryo, of an estimated size of six and one-half weeks. Biopsy taken immediately after the abortion procured a strip of endometrium from the upper segment which demonstrated that the necrotic decidual cast was undergrown by repairing and proliferative endometrium. This process had started apparently before the actual abortion had taken place.

#### COMMENT

These sequences of endometrial regeneration emphasize the therapeutic values which emerge. It would seem, as many writers have said, that the average postpartum patient is safe from pregnancy until ovulation recurs, which takes place on an average about six weeks after delivery. Four of the 5 nonlactating convalescent patients menstruated eight weeks after delivery—about 80 per cent in this small group. In the case of the lactating patient, menstruation is delayed for varying periods of time, but from the eighth week on the ovarian cycle may escape from pituitary inhibition and render the patient susceptible of pregnancy. Certainly, prolonging the lactation period will not be a wholly effective contraceptive measure. Conversely, for the patient anxious for reimpregnation, procreative activities may begin at will. Usually the tenderness has left the postepisiotomy perineum just before ovulation takes place in the nonlactating woman.



Of much more significance is the sequence following abortion. From the study of the 4 cases cited and 9 cases followed after spontaneous abortion, it would seem that in the ideal case of spontaneous abortion ovulation occurs within the first two to three weeks after abortion. There is no endometrial evidence submitted that this is not as good a time for impregnation as any other. Reid<sup>3</sup> has employed this period to great advantage in 4 cases of "chronic aborters." Our personal experience extends to 3 other cases in which impregnation occurred before the first period following abortion. This may save valuable time for the older patient hastening before the shadows of diminished ovarian function.

Equally striking is the fact that curettage may be worth while even though all products are identified as passed. As in case 1 in which curettage was done immediately regeneration was prompt and ovulation took place some fourteen days after the abortion. In case 2 in which curettage was not done, regeneration and ovulation were delayed at least nine weeks, possibly by retained fragments of placenta or decidua or by chronic infection. No harm can be demonstrated in routine, gentle curettage. In many cases, because one cannot be certain that all tissues have passed, curettage is done. This would seem to guarantee that all morsels of the detached ovum have been removed, thus allowing uninhibited regeneration to take place at maximum speed.

True every one is familiar with the fact that placental polyps are not incompatible with a series of normal periods. Equally true is such a condition as that cited in case 4, in which even before the necrotic decidual slough separates repair is nearly complete. However, for certainty of removal routine curettage is advised.

#### CONCLUSIONS

1 Routine curettage is recommended in cases of spontaneous abortion, even though all products of conception have been identified as extruded.

2 The effect of heavy doses of progesterone in the treatment of threatened abortion is possibly that of delaying endometrial regeneration.

3 Patients may be urged to seek impregnation within two weeks after spontaneous abortion. Unless maternal health has been impaired seriously by the abortion, there are apparently no dangers of such a quickly imposed pregnancy.

4 Following normal full term pregnancy, the patient is susceptible of impregnation after six weeks, although lactation may inhibit ovulation for a longer period of time.

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3 Reid, D. E. Personal communication to the authors.

**Not Enough Imagination**—The simplest proposition in the social field today is that our people shall not go hungry. If we could kill ten million unemployed this year, another group of unemployed would exist next year. Something produces unemployment. While we are finding it and correcting it we must feed the victims. On that simple principle a great many other facts and actions depend. That is why I would call it a fundamental principle. Happily all can agree to it. We disagree only as to next steps. Science may find a way to make those steps more sure. Business may find a way. Government may find a way. All three may combine to find a way. It has been suggested and even attempted to combine these three groups of agencies but never with enough imagination or enough reliance on scientific method.—Bowman, Isaiah. Enduring Purpose, *Assn. Am. Coll. Bull.* 26 194 (May) 1940.

## INTRASPINAL OPERATIONS IN COMPENSATION CASES

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In the past seven years there has been rapid progress in knowledge concerning intractable low back and sciatic pain due to intraspinal pressure on the nerve roots. The lesions are intraspinal protrusion of the intervertebral disk, thickening of the ligamentum flavum, or both. Whereas the scientific aspects of these cases have been adequately reviewed elsewhere,<sup>1</sup> this paper is being presented to emphasize the features of the management of such operable intraspinal lesions which have to do with workmen's compensation.

For best results, cooperation between the insurance carrier and the responsible surgeon is essential. However, many managers of insurance companies have had the impression, based perhaps on unfortunate experiences with osteoplastic and other spinal operations, that any spinal operation is rarely successful in a compensation case. It is natural that these men, in all sincerity, have urged injured workmen to avoid any spinal operation whatsoever. It is hoped that this paper will help clarify these problems and result in progress toward the common goal of all who deal with compensation cases, namely the prompt and permanent relief of disability.

#### CLINICAL MATERIAL

The incidence of these symptoms and the frequency with which operation has been performed may be illustrated by the following facts. In the past two and a half years 158 patients were examined because of low back and sciatic pain. Of this group it was suspected that 108 had an intraspinal lesion. Spinograms were performed in 50 cases and operation in 38 cases in which intractable low back and sciatic pain had not responded to prolonged nonoperative orthopedic management, which usually included a period of three weeks of complete bed rest. Of those patients who underwent operation at least four months ago, there were 12 who claimed that their disability was compensable. The management and end results of this complete series of 12 cases represent the gist of this report.

In this series there were 10 men and 2 women, who ranged in age between 29 and 53 years. The preoperative duration of symptoms varied from three months to fourteen years, averaging thirty-four months. The amount of time lost from work before operation ranged from two to sixty-three months, with the exception of 1 man who did office work and who had lost only three weeks from work although he had been suffering for over two years. All patients underwent operation between Oct. 27, 1939 and Oct. 10, 1941.

#### METHODS OF DIAGNOSIS AND TREATMENT

It is now established that most cases of prolonged severe sciatic pain are due to mechanical irritation of the nerve roots. The diagnosis of intraspinal pressure on nerve roots (probably intraspinal protrusion of the intervertebral disk, thickening of the ligamentum flavum, or both) was usually made on a clinical basis, that is, entirely on the history and physical examination.

Abridgment of a talk given to the Syracuse Claim Association on Oct. 6, 1941.  
From the Syracuse University College of Medicine and the Syracuse University Hospital.  
1 Bradford, F. K., and Spurling, R. G. The Intervertebral Disk. Springfield, Ill., C. C. Thomas, 1941.

The most common symptoms and signs were history of onset while bending forward or straining early development of backache later development of sciatic pain limp on the affected side, increase of pain on coughing, sneezing or bending relief of pain with bed rest, pain and limitation of straight leg raising, limitation of flexion of the lumbar spine with flattening of the normal lumbar lordosis list of back, paresthesia and sensory changes especially in the fifth lumbar and first sacral dermatome diminished or absent ankle jerk tenderness along the course of the sciatic nerve and increased total protein content of the spinal fluid The most reliable sign of the exact level of the lesion was localized tenderness above or below the spinous process of the fifth lumbar vertebra (and at times a little to one side) with reproduction of sciatic pain by firm thumb pressure over this site

Plain roentgenograms of the spine were used only in order to exclude other lesions although a diminished intervertebral space above or below the fifth lumbar vertebra is suggestive of a protruded disk Pneumograms of the lower spinal canal were made primarily to exclude a lesion above the level of the fourth lumbar vertebra and to obtain spinal fluid for laboratory study Incidentally, it was determined whether root pain was produced with each injection of air Occasionally the pneumogram itself helped convince the doctors representing the insurance company of the nature of the lesion and made for a more harmonious management of the case In 1 case the pneumogram seemed normal, and operation was unnecessarily delayed Such apparently normal pneumospinograms occur especially when the lesion is at the lumbosacral space, where there is plenty of room for an intraspinal lesion to be present between the vertebral pedicle and the dural sac without distorting the latter Iodized oil was not used in any case because of the possible psychologic effect of the presence of this oil in the spinal canal or along the nerve roots, as shown in subsequent x-ray films When one needle was used to inject the air as well as to obtain the spinal fluid, the pneumograms were only of limited value, as described However, the use of two spinal needles may yield more complete filling of the dural sac Furthermore, oblique views should yield a greater percentage of positive spinograms It is important to emphasize however that, when a definite clinical diagnosis has been made the presence of an apparently normal pneumospinogram should not contraindicate surgical treatment

In order to relieve intraspinal pressure on the nerve roots, it is usually necessary to remove the thickened ligamentum flavum, intraspinal protrusions of the intervertebral disk, or both In all these compensation cases, laminectomy of the fifth lumbar vertebra was performed Laminectomy of the one vertebra permits exploration of the intraspinal surface of the intervertebral disk both above and below the fifth lumbar vertebra on both the right and left sides The skin incision is usually  $2\frac{1}{2}$  inches long<sup>2</sup>

#### OPERATIVE FINDINGS AND POSTOPERATIVE MANAGEMENT

In 1 case there was found only thickened ligamentum flavum, in 2 cases only intraspinal protrusion of the intervertebral disk in 8 cases both thickened ligamen-

tum flavum and protruded intervertebral disk and in 1 case there was found congenital shortness of the dural sac All the lesions were immediately above or below the fifth lumbar vertebra In 1 case there was a protruded intervertebral disk at the fourth lumbar interspace and also thickening of the ligamentum flavum at the lumbosacral interspace

The articular facets were not disturbed and the dural sac was not opened in any case In the protruded disk was small and had not torn through the posterior longitudinal ligament it was not removed, however, the nerve root was decompressed by adequate removal of lamina and ligamentum flavum By leaving the posterior longitudinal ligament (and perhaps some strands of annulus fibrosus) intact, risk of recurrence of intraspinal protrusion of another portion of the disk was minimized After laminectomy was performed the patient was kept in bed ten days and in the hospital twenty-one days after operation It was considered important not to prescribe a corset or brace in these cases because their use implies a weakness of the back and tends to undermine the patient's confidence in the strength of his back Most patients were not permitted to return to their full time regular work until three months had elapsed after they had been dismissed from the hospital However it was found advisable to allow patients to return to light part time work after the second month

When the time came to return to work, most patients became very nervous and apprehensive and required considerable reassurance Frequently the sympathetic encouragement of the patient's spouse was of great assistance In 2 cases amphetamine sulfate in doses of 5 mg was prescribed for fatigue

#### RESULTS

Every patient seems to have been promptly and permanently relieved of severe pain No patient suffered any permanent ill effect from the operation Except for patients 5 and 8, all returned to their regular work within four months after operation The occupations represented were, in order, bookkeeper, truck mechanic, factory employee, office worker, laborer, linotypist, store clerk, laborer, machine operator carpenter, sales woman and salesman In a few cases there have persisted minor discomforts, such as feelings of fatigue or drawing sensations in the back and legs, especially after heavy exertion<sup>3</sup>

Of the 8 patients whose claims for compensation were promptly accepted by the insurance companies every one returned to his regular work within four months after the operation Of the 4 patients whose compensability was contested, 2 have returned promptly to their regular work Although the other 2 patients (5 and 8) admit that they have no severe pain, they have not returned to regular work They were both unskilled laborers but now refuse to do heavy work Furthermore, both are receiving as much income now as they did before they were injured As a matter of fact, 1 of these 2 is learning a new occupation by working as a clerk four hours a day without pay, and the other has applied for a light job

2 Since this report was written I have removed huge protruded disks in each of 2 additional compensation cases utilizing only a hemilaminectomy of the fifth lumbar vertebra In these cases diagnosis and localization were unusually definite In 1 case a preliminary spinogram was done and in the other not even a spinal puncture was performed Both patients have had immediate and persistent relief from severe pain

3 The latest report in each case is as follows (with time since operation indicated) twenty six months no pain at all two years no pain at all twenty two months some discomfort but no severe pain seventeen months no severe pain nineteen months no pain at all sixteen months no pain at all eleven months no pain at all seven months no severe pain seven months no pain at all seven months some fatigue but no pain five months some discomfort when tired four months no pain at all

FEATURES OF SPECIAL INTEREST FROM THE POINT  
OF VIEW OF WORKMAN'S COMPENSATION

A tear in the annulus fibrosus which results in protrusion of the disk or in the ligamentum flavum which leads to thickening is as much an accident as a tear in the ligament of the ankle. In the latter there are externally visible swelling and ecchymosis, whereas in the former the injury is deep in the body and the immediate disability may be only a slight backache. The pain caused by gradual thickening of the ligamentum flavum progressive protrusion of the intervertebral disk or both is progressive and is due to pressure on the nerve roots. Hence the sciatica may not set in for days, weeks, months or even years later. The syndrome is characterized by exacerbations and remissions. The intermittent character of the pain is purely mechanical in origin. With more pressure on the nerve roots there is more pain.

In many cases the clinical diagnosis is clear, but often it is difficult to decide when operation should take place. I believe that all reasonable orthopedic measures should be used first. At least three weeks of bed rest with or without traction on the affected leg, should be employed. Both the patient and his home physician must be convinced that nonsurgical treatment is ineffective. The patient should also have a period of time to think over the idea of operation, its risks and probable outcome and should actually request surgical intervention. Most patients are free from pain at rest, but the patient has to make a living, he should not be subjected to too long a period of suffering and rest before operation is performed. The more a person is away from his regular work the more nervous and apprehensive he is when he thinks of returning to it. On the other hand, the presence of well defined neurotic symptoms should not be an absolute contraindication of operation although it may make the prognosis somewhat guarded. I have seen many patients lose all their so-called neurotic symptoms as soon as they were relieved of long standing pain. Incidentally, it is advisable before operation to eliminate foci of infection which may be present in the teeth or prostate so as to avoid complications or delay in convalescence.

The patient should feel the sympathetic cooperation of the claim manager. This is one of the most important factors in maintaining his morale and getting him back to work. If possible all questions of compensability should be settled prior to operation. Finally, it is desirable to have the employer's cooperation in allowing the patient to return to work part time, without heavy lifting for the first month. Such cooperation allows him to regain self confidence and resume the habit of working.

## SUMMARY

Twelve patients who suffered from intractable low back and sciatic pain and who claimed that their disability was compensable underwent intraspinal operation for decompression of the nerve roots. Ten of the 12 patients were found to have a protruded intervertebral disk, with or without thickening of the ligamentum flavum, above or below the fifth lumbar vertebra. All patients were relieved of severe pain. Ten of the 12 patients returned to their regular work within four months of operation. The 2 patients who failed to return to work were among 4 the compensability of whose injuries was contested. One of these 2 patients is doing clerical work several hours daily, the other has applied for a light job.<sup>1</sup>

## CONCLUSION

Compensable intraspinal lesions (protrusion of intervertebral disks and thickening of the ligamentum flavum) which cause intractable low back and sciatic pain that fails to respond to orthopedic management should undergo operation just as in noncompensable cases. Proper selection of patients and minimal neurosurgical intervention which is adequate to decompress the nerve roots, together with the cooperation of the insurance carrier, yield excellent results, both in terms of relief of pain and in return to regular work.

Physicians Building

THE COLOSTRUM CUTANEOUS TEST  
FOR THE DIAGNOSIS OF  
PREGNANCY

## A STATISTICAL ANALYSIS OF FIVE HUNDRED TESTS

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In a recent paper by Falls, Freda and Cohen<sup>1</sup> a cutaneous test based on the intradermal injection of human colostrum was described.

The theoretical background for the test was based on sensitivity to the colostrum substances during the nonpregnant state and absence of sensitivity during pregnancy.

## TECHNIC

The technic of the test in our study and the source of material utilized were made to conform as closely as possible to that of the original paper. Colostrum was obtained from primiparous pregnant women after at least twenty-eight weeks of pregnancy. The material was diluted to twice its volume with sterile isotonic solution of sodium chloride, and merthiolate solution was added as preservative.

One-fiftieth cc of dilute colostrum and a similar quantity of isotonic solution of sodium chloride as a control wheal were injected intradermally in adjacent areas. Reactions were read at intervals of ten, thirty and sixty minutes. A papular elevation without pinkish areola was considered negative (positive reaction for pregnancy of Falls, Freda and Cohen). A pink areola of less than  $\frac{1}{4}$  inch diameter was considered a 1 plus, of  $\frac{1}{2}$  inch diameter 2 plus,  $\frac{3}{4}$  inch diameter 3 plus and an areola of 1 inch or more diameter with pseudopodic manifestations a 4 plus reaction. All reactions 2 plus or greater were considered positive reactions (so-called nonpregnancy result).

## SOURCE OF MATERIAL

Persons selected for testing were chosen from the private practice and the various clinics of the Newark Beth Israel Hospital, consisting of a group of antepartum patients in various stages of pregnancy, a large group of endocrine patients, both male and female, and control groups of both normal and nonendocrine medical conditions among children, men and women. An analysis of the incidence of the various persons tested will be found in table 1.

From the Laboratories and Obstetrical Services of the Newark Beth Israel Hospital.  
1 Falls, F. H., Freda, V. C. and Cohen, H. H. Skin Test for Diagnosis of Pregnancy, *Am J Obst & Gynec* 41: 431 (March) 1941.

<sup>1</sup> Love, J. Grafton. Treatment of Protruded Intervertebral Disks, *Minnesota Med* 23: 692 (Oct.) 1940.

Persons 12 years of age or less were considered to be children. All patients diagnosed as endocrine on the basis of glandular stigmas, menstrual disturbance or menopausal phenomena and all other persons receiving endocrine therapy in any form were included in the endocrine disturbance groups. The pregnant patients varied from four weeks to forty weeks gravid. The postpartum group included all cases less than six months after delivery.

Among the nonendocrine, non-normal groups were cases of idiopathic sterility, anemia, cervical polyp, fibroids, anal fissures, hypertension, vaginitis, cystitis, habitual abortion, appendicitis, respiratory infections and heart disease.

The normal subjects consisted of resident physicians, laboratory technicians and general hospital personnel. In each instance a careful history was obtained to rule out the presence of either endocrine or nonendocrine disturbances.

#### FINDINGS

Of the total antepartum cases examined, comprising a group of 185 tests, 131, or 70.8 per cent, showed a negative reaction indicative of pregnancy, while 54, or 29.2 per cent, showed a positive reaction. It is interesting to note that among those giving a correct response

TABLE 1—Persons Tested

| Diagnosis               | Number of Cases | Percentage of Cases |
|-------------------------|-----------------|---------------------|
| Antepartum              | 185             | 37.0                |
| Nonpregnancy            | 315             | 63.0                |
| Normal and nonendocrine | 153             | 50.6                |
| Girls                   | 8               |                     |
| Boys                    | 12              |                     |
| Women                   | 93              |                     |
| Men                     | 40              |                     |
| Endocrine disturbances  | 122             | 29.4                |
| Girls                   | 4               |                     |
| Boys                    | 8               |                     |
| Women                   | 110             |                     |
| Men                     | 10              |                     |
| Postpartum              | 30              | 6.0                 |

the period of gestation varied from nine to thirty-nine weeks with an average of twenty-seven and six-tenths weeks. On the other hand, those showing an incorrect response varied from four to thirty-nine weeks with an average of twenty and five-tenths weeks. The average period of gestation appears to be somewhat shorter among those showing the false reaction.

In the postpartum group of 30 tests there were 17 correct reactions, or 56.6 per cent, and 13 incorrect, or 43.4 per cent. Here the average period following delivery was slightly smaller for the group of correct reactions. The period post partum among this group varied from three to twenty-six weeks with an average of eight and five-tenths, while that among the incorrect group varied from five to twenty-two with an average of nine and three-tenths weeks. It appears that the test may be less accurate in the first six months following pregnancy than during the period of gestation.

In the control groups composed of nonpregnant, non-endocrine cases, the total number of tests performed was 153. Among these were 40 men showing the non-negative reaction, an incidence of 75 per cent, 93 women showing a correct reaction in 65.6 per cent of cases, 8 girls with a correct incidence of 50 per cent and 12 boys with an incidence of 66.6 per cent. The total number of correct reactions among this group was 103, or 67.3 per cent. It is interesting to note that the per-

centage of correct responses among the normal males was distinctly higher than that of the females (73.1 per cent to 64.3 per cent). In the subjects classified as nonpregnant endocrine patients the total number of tests performed was 132, of which 89, or 67.4 per cent, were incorrect. Among these the women showed the

TABLE 2—Correct Reactions

| Diagnosis       | Total Number | Number Correct | Percentage Correct |
|-----------------|--------------|----------------|--------------------|
| Antepartum      | 185          | 131            | 70.8               |
| Postpartum      | 30           | 17             | 56.6               |
| Control men     | 40           | 30             | 75.0               |
| Control women   | 93           | 61             | 65.6               |
| Control boys    | 12           | 8              | 66.6               |
| Control girls   | 8            | 4              | 50.0               |
| Endocrine men   | 10           | 8              | 80.0               |
| Endocrine women | 110          | 75             | 68.1               |
| Endocrine boys  | 8            | 7              | 87.5               |
| Endocrine girls | 4            | 2              | 50.0               |
| All women       | 415          | 260            | 62.9               |
| All men         | 50           | 38             | 76.0               |
| All children    | 22           | 22             | 100.0              |
| Total tests     | 487          | 320            | 65.9               |

greatest error (35.5 per cent). The men showed only 20 per cent error, the girls 25 per cent and the boys only 12.5 per cent.

An analysis of the incidence of correct reactions among the various groups is found in table 2. It should also be noted that the expected reactions in the entire group of women and also among the pediatric cases were somewhat less than that in the total group of men, also that the apparent efficiency of the test based on the total average incidence of correct reactions is only 65.9 per cent.

Since women at the child bearing age or during the early stages of the menopause make up a large percentage of the cases which are diagnostic pregnancy problems, the efficiency of any pregnancy test would necessarily depend on the accuracy of the test in this group of patients. An analysis of the group in our series, comprising a total of 110 cases, shows a correct incidence of approximately that found in any other group. It was observed that in the cases of idiopathic

TABLE 3—Analysis of Endocrine Cases (Women)

| Diagnosis                | Number Correct | Number Incorrect | Total Cases | Percentage Correct |
|--------------------------|----------------|------------------|-------------|--------------------|
| Menopause                | 26             | 16               | 42          | 61.9               |
| Amenorrhea               | 14             | 3                | 17          | 82.3               |
| Hypothyroidism           | 12             | 1                | 13          | 92.3               |
| Sterility                | 4              | 4                | 8           |                    |
| Menorrhagia              | 5              | 3                | 8           |                    |
| Obesity                  | 3              | 2                | 5           |                    |
| Metrorrhagia             | 1              | 3                | 4           |                    |
| Genital vaginitis        | 1              | 2                | 3           |                    |
| Posthysterectomy         | 2              | 1                | 3           |                    |
| Dysplutarianism          | 2              | 0                | 2           |                    |
| Hypoadrenalism           | 1              | 1                | 2           |                    |
| Hyperplastic endometrium | 1              | 0                | 1           |                    |
| Diabetes insipidus       | 1              | 0                | 1           |                    |
| Pituitary tumor          | 0              | 1                | 1           |                    |
| Total                    | 75             | 35               | 110         | 68.1               |

sterility, which consisted of only eight tests, the efficiency if anything was lower than that of the entire series. The menopausal cases, which formed the greatest number in this group, are sufficiently important to justify separate analysis (table 4).

While the proportion of correct reactions in the entire group of menopausal cases was 61.9 per cent, it is

## ARTERIOVENOUS FISTULA

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A critical search of the literature since Stemmann first described the use of his pin for skeletal traction in 1907 has failed to produce a report of an arteriovenous aneurysm resulting from its use. It seems amazing that some instances have not been reported when one considers the proximity of the anterior tibial artery and vein to the anterior tibial crest at

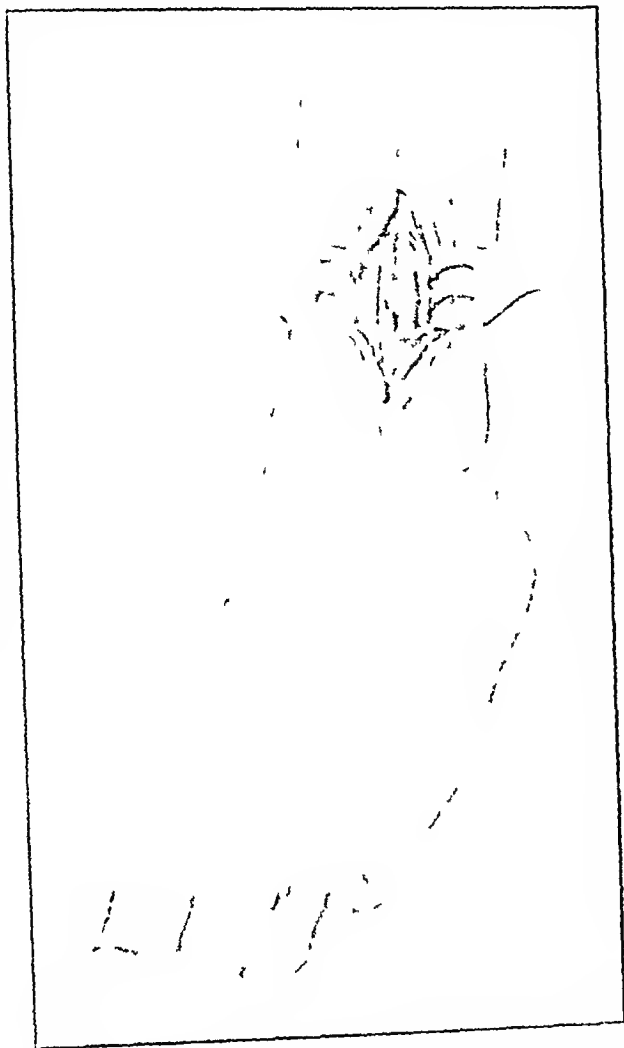


Fig. 1—Relationship of arteriovenous fistula to ankle

its distal third. The use of the Stemmann pin for skeletal traction gained popularity in this country in 1918 following the war, and further impetus to this means of traction was added by the publishing of Böhler's fracture hook in English in 1929. In the eastern part of the country traction for tibial fractures is usually obtained by a pin through the os calcis, while in our section of the country it seems to be the rule to place it through the distal end of the tibia and avoid traction through a joint.

A brief list of references to the literature is given<sup>1</sup> for those wishing to refresh their memory with the pathologic physiology of abnormal communications between the arteries and veins in the extremities.

## REPORT OF CASE

R. W., aged 44, an American seaman, on April 2, 1941, fell 12 feet down a ladder aboard his ship and sustained a fracture of the left os calcis.

From the U. S. Marine Hospital

- 1 These include:  
Stewart, I. I. Arteriovenous Aneurysm Treated by Angiorrhaphy, *Ann Surg* 57: 574-581, 1913.  
Matas, Rudolph. Arteriovenous Fistula of the Femoral Vessels (Aneurysmal Varix on a Level with the Origin of the Profunda). *Details of Technique and Commentaries*, *S. Clin North America* 2: 1165 (Oct.) 1922.  
Reid, Mont. The Treatment of Abnormal Arteriovenous Communications, *Arch Surg* 11: 237 (Aug.) 1925.  
Herman, L. G., and Reid, Mont. The Management of Arteriovenous Aneurysm in the Extremities, *Am J Surg* 44: 17-24 (April) 1939.  
Pemberton, J. DeJ., and Waugh, J. M. Traumatic Arteriovenous Aneurysm, *S. Clin North America* 19: 981 (Aug.) 1939.  
Murray, Gordon. Heparin in Thrombosis and Blood Vessel Surgery, *Surg, Gynec & Obst* 72: 340-344 (Feb.) 1941.

For a number of years the patient has consumed about 300 cc of alcohol daily. He had a gunshot wound of the left hand and a bayonet stab wound of the left arm in 1918. The rest of his past history is noncontributory.

The fracture was treated in a Böhler reducing frame by means of traction with a Stemmann pin through the os calcis and countertraction through the distal third of the tibia. He was placed in a cast which encompassed the pins. This was removed at the end of six weeks. The patient alleges that there was a considerable amount of bleeding from the pin wounds in the tibia when the pin was removed. The patient returned to work in July and except for an occasional pain he had little swelling in the left ankle and foot. On August 2 he twisted his ankle, and because the pain and swelling persisted he presented himself at our hospital for treatment. Examination in the outpatient clinic of the injured ankle revealed a palpable thrill and a bruit audible with the stethoscope. He was promptly hospitalized for further study.

Physical examination revealed that the patient was well nourished and well developed. He walked with a limp and favored the left ankle.

Examination of the head, eyes, ears, nose and throat was noncontributory except for pyorrhea alveolaris.

The chest was asthenic with retracted clavicular spaces. Respiration was free and at the rate of 18 a minute. The lungs were essentially normal on percussion and auscultation.

The heart was not enlarged to percussion, and a teleroentgenogram revealed no increase in size. There were no murmurs and the rhythm was regular. The blood pressure was 160 systolic and 94 diastolic. The pulse was full and rapid 118 a minute.

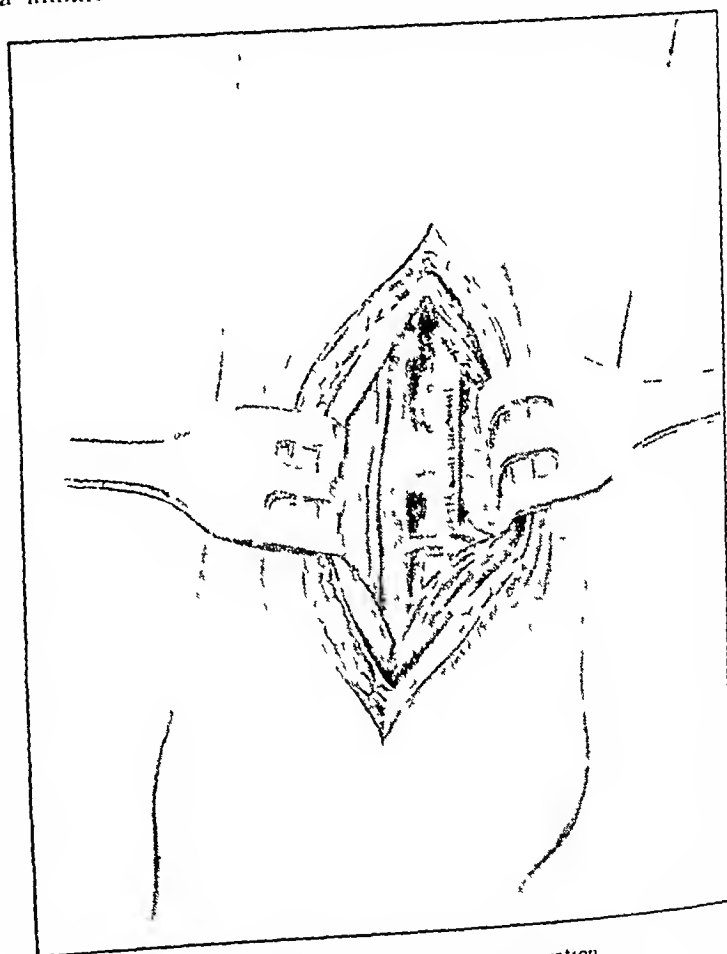


Fig. 2—Arteriovenous aneurysm at operation

The abdomen was essentially normal, as was the genito-urinary system.

Examination of the extremities was noncontributory except for the left lower leg. There was moderate edema about the left ankle extending over the dorsum of the foot. He had a complete range of motion in the left ankle but alleged pain on all motion. Inversion and eversion particularly caused pain in the subastragalar joint. There was some widening of the os calcis with a piling up of bone beneath the fibula. There



was a palpable thrill along the anterior tibial region lateral to the crest 8 cm above the ankle joint, with systolic accentuation. Over this area a systolic accentuated bruit was audible throughout the cardiac cycle. The foot was warm and moist. The dorsalis pedis artery and the posterior tibial artery were pulsating.

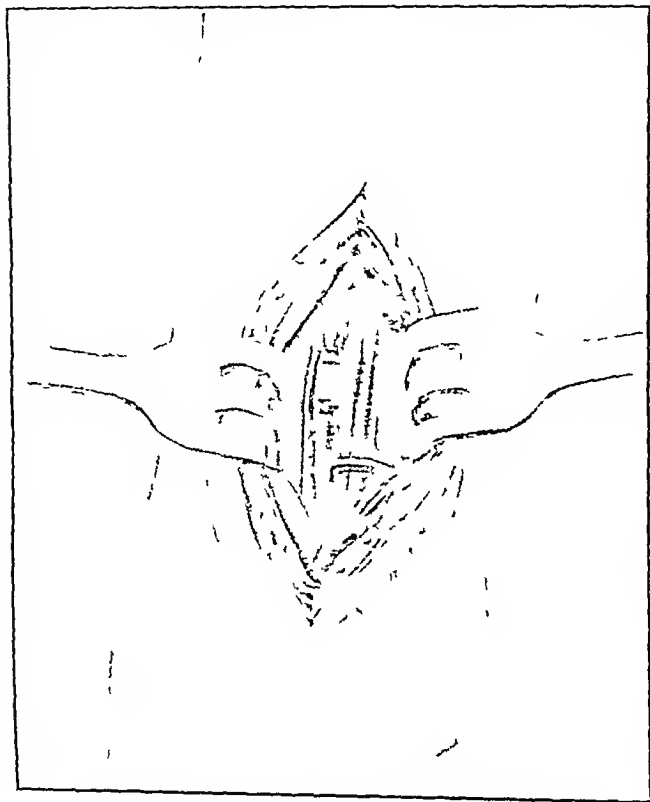


Fig 3—Vein ligated with arteriorrhaphy completed

On compression of the pulsile mass or compression of the anterior tibial artery above, the thrill and bruit disappeared. A modified Branham's bradycardia phenomenon was present. After the fistula was occluded the pulse dropped from 108 to 92, but the blood pressure failed to rise and there was no feeling of faintness or thoracic constriction.

Oscillometric and dermaterm readings with a U M A oscillometer of the Collen's type are given in the accompanying table.

A Moschowitz-Matas test revealed adequate circulation to the left foot.

Usually it is best to wait six months before having the operation after injury, but once the patient was aware of the aneurysm he was anxious to have it corrected.

Arteriograms were made with colloidal thorium dioxide but were not conclusive.

After a twenty-four hour preparation of the skin with soap packs on August 15, the anterior tibial region was exposed. The tibialis anticus muscle was retracted medially and the extensor hallucis longus and deep peroneal nerve were retracted laterally. Thus was exposed a fistulous communication of fibrous tissue that appeared to be neither vein nor artery between the left anterior tibial artery and vein. Its lumen was about 0.5 cm in diameter and its outside diameter 1 cm. There was a large amount of scar tissue about the artery and vein but the wall of the artery did not appear thinned out nor did the proximal branch appear dilated. The wall of the vein was somewhat thickened but not dilated. Photographs taken were not sufficiently detailed to publish but the semidiagrammatic drawing shows the involved area before and after repair. The fistulous tract was excised and the proximal and distal segments of the tibial vein were ligated. The anterior tibial artery was clamped with a Dieffenbach clamp and the fistulous

communication was closed with five sutures of 0000 arterial silk. When the arterial clamp was removed, the dorsalis pedis artery was again seen to pulsate, and the arteriorrhaphy was competent.

On microscopic examination the tissue consisted of a vessel wall irregularly and definitely thickened. It was composed of an irregular, dense meshwork of cellular fibrous tissue with ovoid and elongated nuclei. Some were considerably flattened and elongated. There was no definite pattern of arrangement. This wall faded imperceptibly into a denser less cellular surrounding stroma containing scattered adipose tissue and collagenous fibers. The outer surface of the specimen was covered with adipose tissue infiltrated with a few neutrophils, probably of operative origin. The vessel was lined with intima of varying thickness and not well demarcated. A few neutrophils were noted just exterior to the endothelium. A few arterioles coursing through the specimen had significantly hyperplastic walls and small lumens.

The patient was given a solution of heparin immediately and continuously in sufficient amount to keep his clotting time above fifteen minutes. This required 40,000 units a day, 10,000 units was given in 500 cc of physiologic solution of sodium chloride about 15 drops a minute by means of an 18 gage needle in the basilic vein. Owing to the oozing from the anterior tibial wound the heparin was discontinued after forty-eight hours, although we had planned on giving it for seven days.

The convalescent course was not without excitement for the patient left the hospital against advice on the fourth postoperative day. He was returned to us by the police on the twelfth postoperative day. He was in the midst of an alcoholic debauch, and his operative wound had become infected. He has been seen in the outpatient clinic since that time but never will remain long enough to permit us to do a skin graft on the granulating anterior tibial wound. When seen in November 1941, the anterior tibial artery was palpable and all the patient's complaints were referable to his postoperative wound.

#### COMMENT

This case was of particular interest owing to the fact that an arteriovenous fistula, even as small as this one proved to be, can produce mild cardiac embarrassment. Usually, unless local symptoms are present, small arteriovenous fistulas of the extremities do not warrant operative repair and may, within a year after the injury, heal spontaneously.

#### Oscillometric and Dermatherm Readings

| Oscillometric Readings | Right | Left |
|------------------------|-------|------|
| Mid thigh              | 8     | 12   |
| Above knee             | 9     | 14   |
| Below knee             | 8     | 16   |
| Calf                   | 6     | 20+  |
| Ankle                  | 6     | 17   |
| Foot                   | 1     | 2    |
| Dermatherm Readings    |       |      |
| Great toe              | 38°   | 30°  |
| Instep                 | 37½°  | 39½° |
| Dorsum foot            | 39°   | 31°  |
| Inside foot            | 38°   | 39°  |
| Anterior ankle         | 30°   | 32°  |

The accepted treatment for fistulas of the anterior tibial artery and vein has been to excise the aneurysm and ligate the proximal and distal arteries and veins with all collateral communications. However, in view of the success that Murray of Toronto has had in vascular surgery since using heparin, we yielded to temptation and did a ligation of a vein with lateral arteriorrhaphy. We were fortunate in preserving the pulsation in the dorsalis pedis artery, this, we believe, justified our procedure.

Forty-Fifth Street and Avenue N

## THROMBOSIS AS A COMPLICATION OF VENOGRAPHY

JON HOMANS, M.D. BOSTON

The recent introduction of venography in a number of the larger clinics suggests that the procedure may perhaps become widely used. In that case the complications to which it may give rise should be made a matter of general knowledge. With this object in view, I report an instance of severe pain and local thrombosis resulting from the introduction of a 50 per cent compound diodrast solution into the lesser saphenous vein of the leg. Records of a previous case of this kind are not available to me.

## HISTORY OF CASE

A man aged 34 had previously been well and was of a vigorous athletic type. However his father had died of pulmonary embolism and a brother had suffered a serious postoperative embolic accident from which he recovered. During the previous year the patient had experienced three attacks of acute pleuritic pain, each of which was followed after a few days by the expectoration of a moderate amount of blood. The severity of the attacks varied and the attacks themselves were not particularly characteristic of pulmonary infarction. However roentgenologic study of the chest on several occasions revealed what appeared to be pulmonary infarcts, several in the base of the right lung and one in the left. During this period the patient had not considered himself ill and had noticed no lumpiness, swelling, or cyanosis in either leg, and had it not been for his family history he might perhaps have waited considerably longer before submitting to any sort of investigation. A bronchoscopic study of the lungs and the injection of iodized oil failed to reveal any pathologic condition in the air passages. Physical examination showed no abnormalities except that forced dorsiflexion of the right foot excited a very slight discomfort high up in the heel of the calf—a positive dorsiflexion sign which was thought to mean that thrombosis had recently occurred in some of the great venous plexuses among the large flat muscles of the calf. To support this diagnosis it was thought advisable to make a venogram.

On Nov. 13, 1941 the right lesser saphenous vein posterior to the external malleolus was exposed in the usual way and a small blunt-nosed cannula tied into the vein with silk. As the patient lay on his side, 20 cc. of a 50 per cent compound diodrast solution was injected over a period of twenty seconds, that is at the rate of about 1 cc. a second after which 20 cc. of salt solution was injected through the same cannula. Within a minute after the injection the patient experienced a violent cramp in the lower leg which was so severe as to cause him to writhe. It lasted for about three to five minutes, dying out rather gradually, and was believed to be due to vascular spasm.

Late in the night and in the early hours of the next morning (the venogram was made about 4 p.m.) the patient experienced an itching discomfort in the right calf and was conscious of a tightening and swelling of the right leg. In the morning it was clear that a fresh extensive thrombosis had occurred in the deep veins of this leg. The calf had increased perhaps 2 cm. in circumference, as compared with the other leg. The foot was bluish, and the muscles felt tense and resistant. The reaction was confined to the lower leg, but a hardening along the great saphenous vein was evident, at this time entirely below the knee. Here it is pertinent to remark that the venogram gave no evidence of occlusion of the veins but did show slight irregularity in the lower part of the femoral vein as if a nonoccluding thrombus had previously been organized and had left several small irregularities in the wall of the vein. Thus the right leg was presumably the source of embolism. A venogram of the left leg for purposes of comparison was not attempted.

Because of the unexpected thrombosis, the recent pulmonary infarctions and the patient's family history it seemed advisable to divide the femoral vein at the groin in order to head off a further spread of the thrombosis and possible detachment of an embolus. The operation was performed with local anesthesia without any particular difficulty, and no thrombus was found

in the superficial femoral vein just below the profunda. Here the vein was divided. On examination of the thigh at the end of the operation it was realized that the thrombosis in the saphenous vein had progressed upward so rapidly that it had reached a point within 2 to 3 cm. of the saphenous opening. Accordingly the great saphenous vein as well was sectioned.

The patient's tendency to thrombosis appeared to have been so actively stimulated that it was decided to heparinize him. Accordingly heparin was given during the next five days by injection at four hour intervals, and the clotting time was kept between five and twenty-five minutes. The foot of the bed was elevated 6 inches to encourage an easy venous return. The patient was given a normal diet with plenty of fluids. At the end of five days, on the withdrawal of heparin, a fresh accession of thrombosis began. This showed itself in the form of a recurrence of swelling of the calf, tenseness of the muscles and blueness of the foot. It was associated with a moderate rise of temperature, but the whole process subsided fairly rapidly, and within two weeks after the operation the leg had regained a normal appearance. The patient was then able to get out of bed wearing an elastic stocking. He gradually increased his periods of activity, which brought on no swelling and no more than a moderate engorgement of the ankle and foot. However, twenty-seven days after venography the extraction, with procaine hydrochloride anesthesia, of a suppurating, impacted third molar tooth was followed by another attack of thrombosis, this time in a branch of the lesser saphenous vein directly tributary to the vessel into which the injection of diodrast had been made. There were heat, redness and soreness, but on elevation of the extremity in bed this whole process cleared up within five or six days, and the patient has since remained well.

It seems possible that a dissemination of bacteria had occurred as a result of the tooth extraction and that this caused thrombosis in a vein previously irritated by the injection of diodrast.

It is impossible to escape the conclusion that it was the introduction of the solution of diodrast which touched off, in veins which had recently been the scene of phlebothrombosis, the patient's violent acute attack. The immediate painful effect, followed within eight or ten hours by the active thrombosis itself, indicates clearly enough what happened. However, there is present in this case what might be called a thrombophilic background. There appears to be even a constitutional tendency in the patient and his family to thrombosis and embolism. This has shown itself in other members after operation, but in this patient embolism occurred without clinical signs of thrombosis and in the absence of any injury or operation whatever. The suggestion is offered, in view of the recurrence following extraction of the infected tooth, that a focal infection in some way may have influenced the thrombosing process.

The rare serious general reactions to the introduction of iodine solution are apparently at present unpredictable. Death has been known to occur in the making of a venogram with diodrast. In the case presented there was no question of any constitutional reaction for no change in the circulatory or the nervous system occurred and urticaria or edema did not follow the introduction of the solution. It must therefore be supposed that in a person susceptible to thrombosis the introduction of a 50 per cent compound diodrast solution into the lesser saphenous vein caused immediate vasoconstriction followed by thrombosis, that a local venous disorder continued for at least five days (because a recurrence followed the withdrawal of heparin) and that even twenty-seven days after the original injection of diodrast the tendency to thrombosis was still present (because there was recurrence in the vein into which the injection had been made).

Diodrast, as a 35 per cent, 50 per cent and even stronger solution is commonly introduced into the veins. It has frequently been introduced into a vein of the foot in the presence of active thrombosis without exciting any detectable reaction. The procedure is so valuable that one unfortunate but not serious accident should not be held against it. A watch should be kept for similar episodes, with an eye to their prevention.

311 Beacon Street

## Council on Pharmacy and Chemistry

### REPORT OF THE COUNCIL

IN 1932 THE COUNCIL ON PHARMACY AND CHEMISTRY SET UP A SPECIAL COMMITTEE ON THE STANDARDIZATION OF CATGUT TO DETERMINE THE STATUS OF THE STERILITY OF COMMERCIAL CATGUT SUTURES AND AT THE COUNCIL'S REQUEST THE BOARD OF TRUSTEES OF THE AMERICAN MEDICAL ASSOCIATION GRANTED THE COUNCIL AN APPROPRIATION FOR A SPECIAL INVESTIGATION OF THIS PROBLEM. AS A RESULT OF THIS ACTION A REPORT ON THE SUBJECT PREPARED FOR THE COMMITTEE BY AN OUTSIDE INVESTIGATOR WAS PUBLISHED UNDER THE AUSPICES OF THE COUNCIL (BREWER JOHN H. THE PRESENT STATUS OF THE STERILITY OF CATGUT SUTURES ON THE AMERICAN MARKET J A M A 108 722 [Feb 27] 1937).

ON THE RECOMMENDATION OF THE COUNCIL'S COMMITTEE ON THE STANDARDIZATION OF CATGUT THE INVESTIGATION OF A DIFFERENT PHASE OF THE PROBLEM OF THE STANDARDIZATION OF SURGICAL CATGUT HAS BEEN AIDED IN PART BY ANOTHER APPROPRIATION GRANTED RECENTLY BY THE BOARD OF TRUSTEES UNDER THE AUSPICES OF THE COUNCIL A STUDY OF THE ABORPTION QUALITIES OF SURGICAL CAT WAS INITIATED AND CARRIED OUT BY DR HILGER PERRI JENKINS AND CO-WORKERS AT THE UNIVERSITY OF CHICAGO DEPARTMENT OF SURGERY. THE PAPER WHICH HAS BEEN PREPARED BY THESE INVESTIGATORS IS IN FOUR PARTS AND BECAUSE OF ITS UNUSUAL LENGTH IS BEING PUBLISHED IN THE ARCHIVES OF SURGERY IN FOUR CONSECUTIVE INSTALLMENTS THE FIRST OF WHICH APPEARS IN THE MAY ISSUE OF THAT PUBLICATION.

IN RECOGNITION OF THE CONTRIBUTION OF THESE INVESTIGATORS ON THIS PHASE OF CATGUT SUTURE STANDARDIZATION AND BECAUSE OF THE IMPORTANCE OF THE INFORMATION TO THE MEDICAL PROFESSION THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING SYNOPSIS OF THIS STUDY IN THE FORM OF A REPORT. THE COUNCIL DESIRES TO EXPRESS APPRECIATION TO THE AUTHORS OF THE PAPER AND TO THE COMMITTEE ON THE STANDARDIZATION OF CATGUT PARTICULARLY TO THE CHAIRMAN FOR HIS EFFORTS IN REVIVING THE PAPER.

ON THE BASIS OF THE DATA CONTAINED IN THE PAPER BEING PUBLISHED IN THE ARCHIVES OF SURGERY THE COUNCIL BELIEVES THE PRESENT LABELING OF SURGICAL CATGUT ON THE MARKET—PARTICULARLY WITH RESPECT TO THE LENGTH OF TIME THE CATGUT CAN BE EXPECTED TO PERFORM ITS FUNCTION IN THE TISSUES UNDER CONDITIONS OF ACTUAL USE—IS INADEQUATE AND THAT BETTER METHODS OF GRADING THE VARIOUS TYPES OF THIS SUTURE MATERIAL ARE NECESSARY AS RECOMMENDED IN THE PRESENT STUDY.

ALFRED F. SMITH, M.D., Acting Secretary

### ABSORPTION OF SURGICAL GUT (CATGUT)

The results of a recent comprehensive study by Dr H. P. Jenkins and his associates on this subject are being published elsewhere.<sup>1</sup> The observations made by these investigators are reported herewith under headings which represent the subtitles used by the authors to designate the four parts into which their paper is divided.

#### I. THE DECLINE IN TENSILE STRENGTH IN THE TISSUES

This part of the study begins by the investigators pointing out that the term "catgut as commonly applied to surgical sutures is essentially a misnomer and that the term 'surgical gut' which has been adopted by the U. S. Pharmacopoeia to designate sheep intestine prepared for surgical use is a fundamental improvement in suture terminology. It is indicated that the absorbability of this material has been the subject of some controversy from previously published observations the duration of the tensile strength of catgut in the tissues did not correspond closely to the label declaration of this material as so called twenty day chromic or forty day chromic—terms which have been used to designate the approximate absorption time.

To obtain further data concerning the problem the investigators carried out a series of fifteen hundred implants (usually made in duplicate) of 6 inch lengths of surgical gut in the abdominal muscles of dogs to test various types and sizes of this suture material as marketed by ten different manufacturers: so called plain catgut and twenty day (medium hard) chromic and forty day (extra hard) chromic catgut in all sizes from No. 2 to No. 000, of six concerns and twenty day (medium hard) chromic catgut in sizes No. 2, No. 0 and No. 000 of four concerns were used in the study. Most of the catgut tested

was manufactured prior to the change in labeling recommended by the Committee of Revision of the U. S. Pharmacopoeia, which has adopted the following nomenclature for the various types of surgical gut:

- Type A Plain Surgical Gut (untreated)
- Type B Mild Chromic (mild treatment)
- Type C Medium Chromic (medium treatment)
- Type D Extra Chromic (prolonged treatment)

These official designations are the approximate equivalents of plain ten day chromic, twenty day chromic and forty day chromic catgut respectively. The remaining portions of each strand of surgical gut used in the implants were saved for a determination of its original tensile strength by means of a spring scale and for subsequent digestion tests in enzyme solutions. The animals were killed at the end of various periods, depending on the type of catgut which had been implanted and the residual tensile strength of the specimens thus recovered was measured to afford comparison between the different brands studied. These observations were plotted on graphs in terms of the days of the duration of tensile strength of the gut from averages obtained from six or more individual tests on each size, type and brand of gut. In those tests in which there was appreciable residual tensile strength at the implanted gut at the termination of the test implantation period this residual strength was measured. With the data on original tensile strength, the residual tensile strength and the duration of the gut in the tissues a theoretical end point was computed by graph or equation. The theoretical end point was construed as the time at which useful holding power of the suture was gone. The graph or equation method was based on the assumption that the decline in tensile strength of surgical gut (catgut) in the tissues was a relatively constant factor, at least within reasonable limitations. This assumption was supported by observations made during the course of this work, as well as by other investigators. When implant specimens were recovered from the animal in short fragments with obvious loss of continuity, it was considered that the end point of complete loss of tensile strength had been reached. As pointed out in the latter part of this work the loss of tensile strength of the gut was not necessarily shortly followed by complete disappearance of the gut from the tissues, especially when the gut remained intact for ten days or more in the tissues.

To test the reliability of the tests conducted on dogs as an index of the behavior of catgut in human tissues the results obtained in the series of dog implants were graphically compared with clinical tests made in the laparotomy wounds of patients previously reported by the investigators. The series of graphs used to tabulate the various observations which were made in the study appear in the original paper.

The results obtained indicate that plain catgut of most manufacturers usually underwent a complete loss of tensile strength within approximately five days, whereas the various brands of chromic (treated) catgut showed considerable variation in performance. The differences between the duration of the tensile strength of twenty day and forty day chromic catgut of the same brand were relatively slight. The behavior of the twenty and forty day chromic catgut (without regard to size) of the different manufacturers was classified into three general categories: (1) those which did not maintain their tensile strength for ten days; (2) those which lasted ten to fifteen days; and (3) those which held up for fifteen to thirty days. The various sizes for the same type of chromic material were frequently found to perform within different categories. The smaller sizes of chromic gut of several concerns outlasted the larger sizes rather conspicuously, although in other products the larger sizes held up better than the smaller sizes. A uniform loss of tensile strength of large and small sizes was rather uncommon. Attention has been drawn by other investigators to the longer duration of the smaller sizes of chromic gut in the tissues when certain products are used. The plain catgut was inclined to last about one day longer in patients than in dogs whereas the chromic tended to hold a few days less in patients than in the animals.

On the basis of their results the investigators point out that the terms 'twenty day' or 'forty day' which have been used for chromic catgut are to a considerable extent unreliable as far as duration of tensile strength in the tissue is concerned and

1 Jenkins H. P. and Hrdina I. S. Absorption of Surgical Gut (Catgut). I. The Decline in Tensile Strength in the Tissues. Arch. Surg. 44: 881 (May) 1942. II. Pepsin Digestion Tests for the Evaluation of the Duration of Tensile Strength of Surgical Gut in the Tissues. Ibid. June 1942. Jenkins H. P. and Hrdina I. S. Swisher F. M. and Owens I. W. III. The Duration of Surgical Gut in the Tissues After Loss of Tensile Strength. Ibid. July 1942. Jenkins H. P. IV. Recommendations for the Absorbability and Digestibility Specifications of Surgical Gut. Ibid. August 1942.

that the Committee of Revision of the U. S. Pharmacopoeia has taken a justifiable step in the elimination of such terms from the nomenclature of this suture material. From the tests made, the so-called twenty-day chromic material (which is ordinarily used in suturing tissue) could not be expected to maintain its tensile strength for anywhere near that period, and the question was raised as to what should be the duration requirement of such material used in the ordinary case by the average surgeon. The reason for the failure of chromic catgut to maintain its holding power for the designated period, particularly in the larger sizes, is explained by the likelihood that manufacturers from experience had found it necessary to decrease the amount of chromic treatment sufficiently to avoid late absorption, which usually is the cause of a draining sinus from a knotted portion of the unabsorbed suture. Certain differences in plain catgut of the various brands tested are explained by probable differences in the source and method of preparation of the raw product obtained from sheep intestine. It is indicated that this might also account for variations in the chromicized sutures, since most manufacturers employ methods of treatment which are deemed to give a fair amount of precision, although making allowances in the chromic treatment of the larger sizes. The slight difference in the behavior of the material in human beings and in dogs is explained on the basis of the differences in tension of the implanted sutures and in the method of implantation.

The investigators conclude that the implantation technique is a satisfactory direct method of evaluating the absorption qualities of surgical gut (catgut) from the standpoint of the rate of decline of its tensile strength in the tissues, that the nomenclature formerly employed to designate the absorption period of sutured products is sufficiently unrelated to the duration of their tensile strength to warrant its discontinuance, and that a period of about ten to fifteen days is probably better suited to the need of the average surgeon for routine closure of wounds, particularly when large sizes of chromic suture material are used.

#### II. TESTS: DIGESTION TESTS FOR THE EVALUATION OF THE DELAY OF TENSILE STRENGTH OF SURGICAL GUT IN THE TISSUES

This part of the investigation deals with *in vitro* digestion tests of catgut sutures and the relation of the digestion time in pepsin to the duration of the tensile strength in the tissues as reported in part I. It is pointed out that, although trypsin has probably been most generally employed as the enzyme for such tests, pepsin was used to explore the possibilities of this enzyme as a satisfactory basis for evaluating the absorption qualities of surgical gut. In one group of tests, digestion time was measured by a previously described ingenious method devised by Kraissel and Melencz (for trypsin digestion), so that, when strands of suture material held under tension by means of 30 Gm. lead weights were severed as a result of exposure to an acid pepsin solution in a special incubator, the circuit activating an electric clock was broken to permit determination of the elapsed period of exposure. At first the gastric juice obtained from dogs was used for the testing and then, after experimentation to ascertain the concentrations of pepsin and hydrochloric acid that most nearly approximated the results obtained with pure gastric juice, an aqueous solution of pepsin U. S. P. 10% (w/v) and hydrochloric acid U. S. P. 1% (v/v) was used. In another group of tests a simpler method of measuring digestion time was devised by affixing 2 Gm. split lead shots to sutures suspended in a graduated cylinder containing the same solution, so that the shrinkage, subsequent stretching and eventual breaking of the catgut could be detected by changes in the level assumed on the scale by the attached weights. The end point of breakage was conveniently detected by the noise made from the impact of the weight on the bottom of the cylinder or by estimating the time at which this would occur from the amount of stretching last detected. This procedure permitted a large number of observations to be made in an ordinary laboratory incubator. The temperature of incubation in both methods of testing was 37° C. and, in all, over three thousand two hundred tests were made. Essentially the same surgical gut which was used in the tissue implants was used for the digestion experiments. The shrinkage phase of the

catgut in the solution was attributed to the acid, because it occurred in a hydrochloric acid solution of the same concentration without pepsin. Heat sterilized catgut was found to undergo more shrinkage than raw catgut not subjected to heat sterilization. The rate and extent of initial shrinkage were found to bear a relationship to the length of time for digestion. If rapid and considerable shrinkage occurred, the digestion time was shorter than when shrinkage was slow and less extensive. Breakage normally occurred during the period of stretching. If the break occurred before the stretching phase, it was considered a premature break, which was often due to a small area in the gut more vulnerable to digestion than the rest of the strand. Plain catgut and some of the large sizes of chromic catgut, when securely tied to lead weights, were found to undergo spontaneous untying while exposed to the action of the acid pepsin, whereas similarly exposed small sizes of the more resistant chromic catgut usually did not. This observation is of obvious significance to the surgeon who uses surgical gut for gastrointestinal anastomosis where the inner suture is bathed in gastric juice.

The 2 Gm. procedure of testing revealed that plain catgut of all brands tested was digested in an average of eleven hours, the larger sizes showed a general tendency to resist digestion longer than the smaller sizes. On the other hand, the average time for digestion of chromic catgut varied widely with different brands; most of the products tested averaged more than twenty hours, though some were almost the same as that observed generally for the plain material. Differences between the twenty-day and forty-day chromic sutures of the same brand and size were relatively minor. The smaller sizes of chromic gut of several companies outlasted the larger sizes by a conspicuous margin, although in other products the opposite was observed. These observations coincided with the results obtained by implantation of the gut in the tissues.

The 30 Gm. tests showed that plain catgut was digested in twenty-five to fifty hours and chromic catgut in fifty to one hundred and twenty-five hours. The longer digestion time by this method as compared to the 2 Gm. method was attributed to the greater degree of tension produced with the 30 Gm. procedure, a factor in the delay of penetration of the peptic ferment. It was found that results from the 30 Gm. and 2 Gm. tests had an approximate relationship of  $2\frac{1}{2}$  to 1 on the basis that twenty-five hours' exposure by the former was the equivalent of ten hours' exposure by the latter. By either test procedure, raw plain catgut (not heat sterilized) was found to have a rather wide range in digestion time depending on the source of the material, and chromicized catgut (not heat sterilized) was found to have a longer digestion time than that usually observed for the heat sterilized product of the same concern. All the observations from the two procedures were plotted on graphs which will accompany the original paper.

A correlation of the 2 Gm. digestion experiments and the previously accumulated observations on the duration of tensile strength in the tissues was done by using the combined averages from six of the ten brands studied for plain catgut and by using the separate averages obtained from each of the six brands of chromic catgut. These averages (plotted on a graph) showed an essentially straight line relationship, indicating that ten hours in digestion time should be considered the approximate equivalent of five days of duration of tensile strength in the tissues. It was shown that there was a corresponding trend in the general behavior of catgut in pepsin and in the tissues if allowances were made for variations in size and the brand of material studied, so that a reasonably accurate prediction of the tensile strength could be made on the basis of the digestion tests. The discrepancies of appreciable magnitude in the correlation are explained from the standpoint of a number of factors, such as management of the raw product, duration and temperature of sterilization, chemical agents in the tubing fluid and obscure details in the method of chromic treatment employed. Without possession of every detail involved in the preparation of surgical gut, it is indicated that the reliability of digestion tests *in vitro* to ascertain the expected duration of the tensile strength of the material in the tissues would be questionable. The influence of some factors on the results of digestion tests is discussed, particularly the variability of the original raw product.



In the evaluation of the reliability of the digestion test as an assay of the absorption qualities of surgical gut, the investigators point out that the enzyme preparation should be uniform (the one used in their study was obtained from the same source), its rate of deterioration during use must be taken into account (relatively high concentrations appeared to minimize attenuation of the enzyme) and the growth of bacteria in the solution must be prevented (the acid in the acid pepsin solution used gave adequate bacteriostasis). Other sources of error, such as too much tension and variation in the quality of different portions of the same strand of catgut, are also mentioned. The 2 Gm suspension pepsin digestion test is suggested as a means of evaluating raw catgut, with such a method correlation may be established between unsterilized and heat sterilized chromic catgut which might serve as a basis for determination of the absorption qualities of this material before it is tubed, labeled and heat sterilized. Trypsin digestion of catgut which has not been heat sterilized proceeds too slowly to offer a feasible method for testing surgical gut before it reaches the stage of the sterilized finished product. The investigators propose the use of a common source of pepsin for testing the surgical gut marketed by several manufacturers in order to establish a basic unit for the tensile strength of the products in the tissues.

The investigators conclude that within certain limitations the 2 Gm suspension pepsin digestion test described in their paper offers a simple, rapid, indirect method of evaluating the absorption qualities of surgical gut of most manufacturers, that discrepancies in the reliability of digestion tests on some products will probably not be understood fully without more information regarding their manufacture than is now generally available to investigators and that any such method of assaying catgut should be checked at intervals by clinical and experimental tissue implants to avoid misleading interpretations of the absorption quality of surgical gut on the market.

### III THE DURATION OF SURGICAL GUT IN THE TISSUES AFTER LOSS OF TENSILE STRENGTH

The importance of this aspect of the absorption of catgut in relation to the problems of delayed healing and early disruption of surgical wounds is pointed out in connection with references to previously published reports on the subject. The investigators endeavored to obtain a comprehensive view of the ultimate fate of surgical gut after loss of tensile strength from a series of approximately two thousand experimental implants in the abdominal muscles of dogs and from thirty-five clinical specimens obtained from patients at autopsy or secondary operation. Specimens of the animal tissue implants were obtained by killing the dogs after various periods of survival. Both the experimental and the clinical specimens were first examined grossly and then sectioned for microscopic study. Essentially the same products or the ten manufacturers which were studied in parts I and II were employed for this study, the sizes of catgut ranging from No 2 to No 000. Most of the catgut used was of the nonboilable variety, though a considerable number of samples of the boilable type were compared to the former. The gross and microscopic appearance of the specimens of tissue and of the various types, sizes and brands of catgut was recorded by means of photographs which will appear in the original paper.

The results obtained indicate a number of variable aspects in the absorption of surgical gut: the variation between different brands was generally of greater magnitude than that which occurred between the types or sizes of catgut of any one brand or between any particular lot of the same brand. The absorption behavior of the catgut could generally be classified from the gross appearance as "rapidly absorbed" or "slowly absorbed" and occasionally as "intermediately absorbed." Catgut which was previously found to have usually lost its tensile strength in less than ten days was generally "rapidly absorbed" within one to three weeks, that which usually retained its tensile strength beyond ten days was generally "slowly absorbed" within three to six months and that which occasionally remained intact for approximately ten days was frequently "intermediately absorbed" within three weeks to three months. The absorption behavior of catgut sutures could also be correlated, from the standpoint of the microscopic studies, with the cellular response of the tissues.

The response to catgut was characterized by two phases of reaction: an initial reaction consisting of an invasion of the surrounding tissues and the suture material by polymorphonuclear leukocytes (which subsided after fragmentation of the catgut), attributed to the action of liberated leukocytic enzymes, and a secondary reaction consisting of an invasion of the adjacent tissues and the suture material by macrophages or histiocytes which completed the fragmentation and destruction of the catgut by phagocytic activity. The leukocytic reaction was found to be characteristic of the "rapidly absorbed" class of material, whereas the more "slowly absorbed" classes which survived the first phase were gradually attacked by the phagocytic cells. Foreign body giant cells were also detected in the tissues of the latter class of catgut. With certain exceptions, most brands of plain catgut underwent more or less complete absorption, with the leukocytic response predominating; whereas most varieties of the chromic sutures tended to elicit a less intense initial reaction and were associated with a more conspicuous macrophage response. In general, the severity of the initial tissue response could be correlated with the gross appearance of the different types of catgut and the observations on their tensile strength. The phagocytic cells in the tissues, characteristic of the "slowly absorbed" material, often remained for a long time. Sometimes the chromic catgut remained unabsorbed after periods longer than six months. Fibrous tissue encapsulation of chromic catgut which remained intact for ten days or more was also observed grossly and microscopically. The few instances in which this type of suture underwent rapid absorption were attributed to failure or delay in the encapsulation process. The catgut knot was usually the last portion absorbed when this process was rapid, but it was absorbed more like the rest of the suture when the process was slow. The plain catgut, because of its elicitation of a predominant leukocytic reaction, was regarded as more irritating material than chromic catgut, which usually stimulated fibroblast and macrophage activity. The investigators cite previously reported controversial evidence concerning this point and suggest that irritating chemicals used in the chromicizing process (which were not completely removed) or in the tubing fluid employed for boilable catgut could be a source of irritation where substantial irritation was observed in some chromicized gut products, the bulk of the suture material is also indicated as a factor in irritation. The possibility that a certain amount of the tissue reaction was due to sensitization is discounted in the present study.

The investigators recommend that the larger sizes of chromic catgut for fascial closure of the average case should probably have properties described as "intermediately absorbed" (about ten days duration of tensile strength and complete absorption in three weeks to three months), because the minimum length of time required for normal healing should be considered as ten days on the basis of the extensive work by Howes and others. However, since the choice of catgut hinges on the bulk of suture material concentrated at any one point in the wound, they suggest that the smaller sizes of the "slowly absorbed" chromic sutures should be employed to provide greater duration of tensile strength with a minimum of bulk in order to avoid the production of draining sinuses sometimes induced by relatively resistant bulky material. They also recommend that the use of smaller sizes of plain catgut, when "rapidly absorbed" material is desired, would minimize the more acute tissue reaction generally attributed to this type of suture. Attention is drawn to other work in support of the use of the smaller sizes of catgut, especially the numerous communications by Howes and others.

The investigators conclude that the fallacy of designating absorption time as a specific number of days, such as ten day, twenty day or forty day, has been clearly demonstrated, that, although the present classification recognizes four different types, their study suggests that not more than three general categories can be reasonably used to classify the absorbability of catgut, that there does not appear to be any major clinical problem of wound closure which cannot be solved by absorbable suture material, and that more uniform standards for the different types of surgical gut manufactured would be of considerable aid to the surgeon in the selection of absorbable suture material best suited to his needs.



IV. RECOMMENDATIONS FOR THE ABSORBABILITY AND  
DIGESTIBILITY SPECIFICATIONS OF SURGICAL GUT

The fourth part of the study is devoted to the consideration of the specifications, which would appear to be most desirable from the standpoints of the patient and surgeon as well as of the manufacturer for the classification of catgut in accordance with the new terminology adopted by the Committee of Revision of the U. S. Pharmacopeia for designating and labeling this suture material under the name "surgical gut." The investigators point out that the division of the various types of surgical gut into type A for plain untreated surgical gut and into types B, C and D for the three grades of treated (chromicized, tanned or otherwise) surgical gut is not as yet accompanied by official statements as to the degree of resistance to digestion or absorption these types of suture material might be expected to possess. However, they indicate that in the absence of standard specifications manufacturers undoubtedly have been carrying over at least to some extent the specifications formerly used for their plain catgut and for their ten day, twenty day and forty day chromic catgut for products labeled by the new terminology as types A, B, C and D respectively.

On the basis of the experimental and clinical observations over a period of more than five years (as reported in the preceding parts of their study) the investigators propose specifications for the four types of surgical gut which are to be recommended for U. S. P. XII. They indicate that the division of surgical gut into these four types is somewhat arbitrary and subject to some overlapping in view of their studies which suggest only three general categories. The specifications they recommend are predicated on the basis that type A (plain) is presumed to represent 'rapidly absorbed' material, type D (extra chromic) 'slowly absorbed' material, type B (mild chromic) 'rapidly absorbed' or 'intermediately absorbed' material and type C (medium chromic) 'intermediately absorbed' or 'slowly absorbed' material. In setting up specifications for the four types the investigators proposed as a reference standard for grading the use of digestibility data averaged from the results obtained from widely selected specimens of plain untreated heat sterilized surgical gut if such a batch of this material could be found experimentally and clinically to have a duration of tensile strength of approximately five days as reported in their studies. It is emphasized however that digestibility is the secondary consideration, the primary consideration being absorbability and that the former is useful only as a means of accomplishing some degree of uniformity by utilization of some readily applied test in an attempt to meet the specifications for the four types of material.

In the specifications recommended by the investigators, time data for both the absorbability and the digestibility of the four types of surgical gut are proposed. The absorbability data for each type are divided into duration of tensile strength in the tissues (subdivided into an average, a theoretical minimum range and a probable maximum range) and ultimate complete absorption in the tissues (given only as an average range). The digestibility data for each type are subdivided like that for the duration of tensile strength in the tissues. The duration of tensile strength for each of the four types is expressed as average absorbability with the symbols AAA, AAB, AAC and AAD respectively, theoretical minimum range of absorbability with the symbols TRAA, TRAB, TRAC and TRAD, and probable maximum range of absorbability with the symbols PRAA, PRAB, PRAC and PRAD. The digestibility is similarly expressed as average digestibility with the symbols ADA, ADB, ADC and ADD, theoretical minimum range of digestibility with the symbols TRDA, TRDB, TRDC and TRDD, and probable maximum range of digestibility with the symbols PRDA, PRDB, PRDC and PRDD. The absorbability data are given in multiples of the average digestibility of type A surgical gut (ADA) defined as the average digestion time in hours of plain catgut in vitro by an enzyme digestion test and to be determined as indicated above by the establishment of a common standard for this material. The values given for digestibility for the various types are elaborated on the basis of the

correlation established with the decline of tensile strength in the tissues and in acid pepsin from the previous studies.

The values for all the criteria specified for the absorbability and digestibility of surgical gut (to be tabulated in the original paper) are discussed from the practical standpoint of the use of surgical gut as suture material by the surgeon. The investigators emphasize that in the choice of surgical sutures more attention should be paid to the fundamental principle of minimizing local bulk of foreign material in wounds, and that use of the smaller sizes of surgical gut of the "slowly absorbed" type offers a basis for a more reliable closure of abdominal wounds without having to resort to nonabsorbable material or to large sizes of slowly absorbed gut, which may lead to a draining sinus. However, doubt is expressed that surgeons can be persuaded to use absorbable material in place of the nonabsorbable material now commonly employed in gastrointestinal anastomosis unless a reliable, relatively highly resistant surgical gut of type D is made generally available by all the manufacturers. They admit that the vagaries of surgical gut and the available methods for assaying its digestibility and absorbability make it obvious that the ranges of values set up in the proposed specifications would be subject to practical variation and that this should be taken into consideration in whatever specifications are ultimately elaborated.

The paper is concluded with the following brief general outline of the specifications recommended for surgical gut.

| Type of Surgical Gut | Absorbability in the Tissues<br>Duration of Tensile Strength | Complete Absorption | Digestibility in Enzymes |
|----------------------|--|---------------------|--------------------------|
| Type A               | 5 days   | 1 to 3 weeks        | ADA                      |
| Type B               | 5 to 10 days   | 3 wks to 3 mos      | 1 to 2 × ADA             |
| Type C               | 10 to 15 days  | 3 to 6 months       | 2 to 3 × ADA             |
| Type D               | 15 to 25 days  | 6 months            | 3 to 5 × ADA             |

[EDITOR'S NOTE—The senior author of the paper reviewed in the foregoing synopsis has indicated that further correlative studies on the absorption of surgical gut with trypsin digestion tests and on the nature of tubing fluids are in progress and will be made the subject of subsequent reports to be submitted for later publication as additional parts of the present series appearing in the *Archives of Surgery*.]

## NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AUSTIN E. SMITH, M.D. Acting Secretary

**CALCIUM GLUCONATE** (See New and Nonofficial Remedies, 1941, p. 176)

The following dosage forms have been accepted

PARKE, DAVIS & COMPANY, DETROIT

Compressed Tablets Calcium Gluconate 0.5 Gm (7½ grains) and 1 Gm (15½ grains)

**SODIUM r-LACTATE ONE-SIXTH MOLAR** (See the Revised Supplement to New and Nonofficial Remedies, 1941, p. 27)

The following product has been accepted

ABBOTT LABORATORIES, NORTH CHICAGO, ILL.

Solution Sodium-r-Lactate ½ Molar 500 cc and 1,000 cc bottles. A sterile solution of sodium r-Lactate one-sixth molar (18.7% W/V) in distilled water.

**SULFAPYRIDINE** (See New and Nonofficial Remedies, 1941, p. 511)

The following dosage form has been accepted

GEORGE A. BREON & CO., INC., KANSAS CITY, MO.

Tablets Sulfapyridine 0.5 Gm (7.7 grains)

**AMYLCAINE HYDROCHLORIDE** (See the Revised Supplement to New and Nonofficial Remedies, 1941, p. 12)

The following additional dosage form has been accepted

NOVOCOL CHEMICAL MFG. CO., INC., BROOKLYN

Solution Amylcaine Hydrochloride 4% 1 ounce and 2 ounce bottles

# MEDICAL LICENSURE STATISTICS FOR 1941

FORTIETH ANNUAL PRESENTATION OF LICENSURE STATISTICS BY THE COUNCIL  
ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN  
MEDICAL ASSOCIATION

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## THE ACCELERATED PROGRAM OF MEDICAL SCHOOLS

As a war measure programs have been initiated to increase the supply of physicians for the Army, Navy and civilian population by the adoption of an accelerated program of medical education by the various medical schools of the country. In connection with the adoption of such programs, the Council on Medical Education and Hospitals of the American Medical Association, the Association of American Medical Colleges and the Federation of State Medical Boards of the United States in February 1942 adopted resolutions as follows:

*Council on Medical Education and Hospitals of the American Medical Association*—The Council is of the opinion that the adoption of a program for an accelerated curriculum for approved medical schools during this war period is a decision which should be determined by each medical school.

The decision of a medical school to initiate an accelerated curriculum should be made only after a comprehensive survey of the personnel, facilities and equipment of the school and its ability to give a medical education without deterioration of the quality of the medical instruction and in conformity with the statutes of the various states and the rulings of the state medical boards.

The Council stands ready to make necessary inspections whenever in its judgment such inspections are required to maintain the present high standards of medical education.

The Council believes that financial assistance for needy medical students during the accelerated program is best provided through scholarships or loans.

*Association of American Medical Colleges*—The executive Council requested approval of the recommendations sent to the deans of member colleges Dec 18 and Dec 23 1941 urging member colleges, which can do so without any lowering of present standards of medical education, to go on an accelerated program of instruction on or about July 1 1942.

Attention is called to the fact that the Executive Council recommended that only those medical colleges that can do so without lowering present standards of medical education should adopt the accelerated program. This applies not only to the utilization of the summer as a teaching period but also to the interval at which freshman classes are admitted; that is, whether annually or at approximate nine month intervals.

The Executive Council recommends that the accelerated program consist of four full academic sessions of not less than thirty-two weeks each and that graduation shall not follow sooner than thirty-five months after first matriculation as a freshman.

The Executive Council recommends that as many colleges as can do so start instruction of the next freshman class on or about July 1 1942 and subsequent freshman classes at approximately nine months intervals until July 1, 1945.

The Executive Council recommends that in admitting students for the accelerated program, eligibility requirements for admission be not lowered from the present minimum standards set by the Association of American Medical Colleges.

The Association of American Medical Colleges requests that the Federation of State Medical Boards recommend to its members that they arrange to make whatever changes are necessary in state licensing laws and/or board regulations to legalize licensure of students graduating under the accelerated program adopted by medical schools to meet the needs of the national emergency.

*Federation of State Medical Boards of the United States*—WHEREAS As a war emergency measure several approved medical schools of the United States are contemplating to accelerate the courses of medical education so as to comprise four full academic sessions of at least thirty-two weeks each and that at least thirty-six months shall elapse between the beginning of medical instruction and graduation, and

WHEREAS, The medical schools initiating such an accelerated curriculum will be able to maintain the personnel, facilities and equipment necessary to give a medical education without deterioration of the quality of the medical instruction and in conformity with the statutes and licensure regulations of their respective states and territories of the United States and the District of Columbia, and

WHEREAS, The proposed accelerated course of medical education as a war emergency measure is expected not to extend beyond the present period of war emergency, therefore be it

*Resolved*, That the Federation of State Medical Boards of the United States in annual session assembled in Chicago Feb 17 1942 hereby endorse the proposed accelerated course of medical education and recommend it in principle as a war emergency measure for favorable consideration by the licensing authorities of the several states and territories of the United States and the District of Columbia.

In adopting these resolutions all three agencies emphasized the importance of the maintenance of high standards of medical education in connection with any program adopted.

There are many problems involved in connection with the proposed changes in the program of medical education. With the curriculum extending throughout the

calendar year with only a brief vacation between sessions, students will have little or no opportunity to seek employment for the purpose of financing their medical education. There is, however, some promise that loan funds and scholarship funds may be made available through the deans of the various medical schools to assist in the financing of needy students. Through the Association of American Medical Colleges, application

United States and Canada, funds to be used for either loans or scholarships.

Another difficulty involved will be that of correlating or integrating the graduation of medical students every nine months with the customary one year rotating internships.

In order to present a clear picture of the programs of the various medical schools, questionnaires were sent

TABLE 1—Program of Medical Schools in the United States, 1942-1943

| School   | Session Begins                     |                   |                                    | Graduation    |                          |
|--|------------------------------------|-------------------|------------------------------------|---------------|--------------------------|
|  | 1912-1913<br>2d, 3d & 4th<br>Years | Entering<br>Class | Subsequent Ent<br>ering Class—1943 | 1942<br>Class | Subsequent<br>Class 1943 |
| University of Arkansas School of Medicine                        | September                          | September         | September                          | June          | June                     |
| University of California Medical School                          | June                               | June              | February                           | May           | February                 |
| College of Medical Examiners                                     | July                               | July              | July                               | June          | April *                  |
| University of Southern California School of Medicine             | June                               | June              | June                               | June          | January *                |
| Stanford University School of Medicine                           | June                               | June              | June                               | June          | March *                  |
| University of Colorado School of Medicine                        | June                               | June              | March                              | June          | March                    |
| Yale University School of Medicine                               | June                               | June              | April                              | June          | March (n)                |
| Georgetown University School of Medicine                         | June                               | June              | March                              | May           | March                    |
| George Washington University School of Medicine                  | June                               | June              | February                           | June          | February                 |
| Howard University College of Medicine                            | September                          | September         | September                          | June          | June                     |
| Emory University School of Medicine                              | June                               | June              | March                              | June          | March                    |
| University of Georgia School of Medicine                         | July                               | July              | April                              | June          | March                    |
| Loyola University School of Medicine                             | July                               | July              | April                              | June          | April *                  |
| Northwestern University Medical School                           | June                               | June              | March                              | June          | Aug 1942* (h)            |
| University of Chicago, The School of Medicine                    | June                               | June              | March                              | June          | Aug 1941* (b)            |
| University of Illinois College of Medicine                       | June (c)                           | September         | June                               | June          | March                    |
| Indiana University School of Medicine                            | May                                | May               | January                            | May           | January                  |
| State University of Iowa College of Medicine                     | May                                | June              | February                           | May           | February                 |
| University of Kansas School of Medicine                          | September                          | September (d)     | September (d)                      | June          | June (d)                 |
| University of Louisville School of Medicine                      | July                               | July              | April                              | May           | February                 |
| Louisiana State University School of Medicine                    | June                               | June              | March                              | (e)           | March                    |
| Indiana University of Louisiana School of Medicine               | September                          | September         | September                          | June          | April                    |
| Johns Hopkins University School of Medicine                      | June                               | June              | March                              | June          | March                    |
| University of Maryland School of Medicine and Coll. of P. and S. | June                               | June              | April                              | May           | March                    |
| Boston University School of Medicine                             | June                               | June              | March                              | June          | February                 |
| Harvard Medical School   | July                               | July              | March                              | June          | March                    |
| Tufts College Medical School                                     | July                               | July              | March                              | June          | March                    |
| University of Michigan Medical School                            | June                               | October           | October                            | May           | February                 |
| Wayne University College of Medicine                             | June                               | June              | April                              | June          | March *                  |
| University of Minnesota Medical School                           | June                               | June              | March                              | June          | March *                  |
| St. Louis University School of Medicine                          | June                               | June              | February                           | June          | March                    |
| Washington University School of Medicine                         | June                               | July              | March                              | June          | March                    |
| Columbia University School of Medicine                           | July                               | July              | March                              | June          | March                    |
| University of Nebraska College of Medicine                       | June                               | June              | March                              | May           | March                    |
| Albany Medical College   | July                               | July              | July                               | June          | March                    |
| Long Island College of Medicine                                  | July                               | July              | March                              | June          | March                    |
| University of Buffalo School of Medicine                         | July                               | July              | July                               | June          | March                    |
| Columbia University College of Physicians & Surgeons             | July                               | July              | March                              | June          | March                    |
| Cornell University Medical College                               | July                               | July              | April                              | June          | March                    |
| New York Medical College, Flower & Fifth Ave. Hosp.              | July                               | July              | April                              | June          | April                    |
| New York University College of Medicine                          | June                               | June              | April                              | June          | April                    |
| University of Rochester School of Medicine                       | July                               | July              | March                              | June          | March                    |
| Syracuse University College of Medicine                          | July                               | July              | July                               | June          | March                    |
| Duke University School of Medicine                               | July                               | July              | March                              | June          | March *                  |
| Bowman Gray School of Medicine of Wake Forest College            | June                               | June              | March                              | (f)           | December                 |
| University of Cincinnati College of Medicine                     | June                               | June              | March                              | June          | February                 |
| Western Reserve University School of Medicine                    | June                               | June              | March                              | June          | February                 |
| Ohio State University College of Medicine                        | June                               | June              | March                              | June          | March                    |
| University of Oklahoma School of Medicine                        | September                          | September         | September                          | June          | June                     |
| University of Oregon Medical School                              | June                               | June              | March                              | June          | March                    |
| Hahnemann Medical College and Hospital of Philadelphia           | July                               | July              | April                              | June          | March                    |
| Jefferson Medical College of Philadelphia                        | August (g)                         | June              | April                              | June          | February                 |
| Temple University School of Medicine                             | July                               | August            | June                               | June          | March                    |
| University of Pennsylvania School of Medicine                    | July                               | July              | April                              | (h)           | April                    |
| Woman's Medical College of Pennsylvania                          | September (i)                      | September         | (j)                                | June          | March                    |
| University of Pittsburgh School of Medicine                      | July                               | July              | March                              | June          | March                    |
| Medical College of the State of South Carolina                   | June                               | June              | March                              | June          | March                    |
| University of Tennessee College of Medicine                      | July                               | July              | (k)                                | June          | (k)                      |
| Marshall Medical College   | September                          | September         | September                          | May           | May                      |
| Vanderbilt University School of Medicine                         | June                               | June              | March                              | June          | March                    |
| Baylor University College of Medicine                            | September                          | September         | September                          | June          | June                     |
| University of Texas Medical Branch (m)                           | March (l)                          | June              | March                              | (n)           | Dec 1941                 |
| University of Vermont College of Medicine                        | July                               | July              | April                              | June          | March                    |
| University of Virginia Department of Medicine                    | June                               | June              | March                              | June          | March                    |
| Medical College of Virginia                                      | July                               | July              | April                              | June          | March                    |
| University of Wisconsin Medical School                           | July                               | July              | July                               | June          | March *                  |
| Marquette University School of Medicine                          | July                               | July              | March                              | May           | March *                  |

\* Internship required for M.D. degree  
(n) Commencement June 1943  
(h) Quarterly graduation  
(c) Second year—September  
(d) Students may take laboratory and clinical courses in summer quarters. M.D. awarded special students in September  
(e) Senior year accelerated 1941-1942—M.D. conferred March 1942  
(f) No seniors 1941-1942  
(i) Seniors—June

(h) Senior year accelerated 1941-1942—M.D. conferred May 2, 1941  
(i) Seniors—July  
(j) Undecided  
(k) Operated on four quarter plan—new students admitted in classes graduated every quarter  
(l) Classes in session since March 23, 1942  
(m) Entire curriculum accelerated session 1941-1942  
(n) Senior year accelerated 1941-1942—M.D. conferred March 29, 1941

has been made for federal funds for this purpose. The W. K. Kellogg Foundation is initiating a plan involving the availability of funds to meet the immediate emergency offering to one hundred and fifty schools of medicine, dentistry, public health and nursing in the

by the Council and in table 1 are listed these schools with as accurate information as has been obtainable with regard to the details of their program. In table 2 are listed the schools of the basic medical sciences with similar data regarding their programs.

The following schools have adopted the accelerated curriculum involving both the acceptance of entering students and the graduation of a class every nine months

University of California Medical School  
University of Colorado School of Medicine  
Yale University School of Medicine  
Georgetown University School of Medicine  
George Washington University School of Medicine  
Emory University School of Medicine  
University of Georgia School of Medicine  
Loyola University School of Medicine  
Northwestern University Medical School  
University of Chicago The School of Medicine  
University of Illinois College of Medicine  
Indiana University School of Medicine  
State University of Iowa College of Medicine  
University of Louisville School of Medicine  
Louisiana State University School of Medicine  
Johns Hopkins University School of Medicine  
University of Maryland School of Medicine and College of Physicians and Surgeons  
Boston University School of Medicine  
Harvard Medical School  
Tufts College Medical School  
Wayne University College of Medicine  
University of Minnesota Medical School  
St. Louis University School of Medicine  
Washington University School of Medicine  
Creighton University School of Medicine  
University of Nebraska College of Medicine  
Long Island College of Medicine  
Columbia University College of Physicians and Surgeons  
Cornell University Medical College  
New York Medical College, Flower and Fifth Avenue Hospitals  
New York University College of Medicine  
University of Rochester School of Medicine  
Duke University School of Medicine  
Bowman Gray School of Medicine of Wake Forest College  
Western Reserve University School of Medicine  
Ohio State University College of Medicine  
University of Cincinnati College of Medicine  
University of Oregon Medical School  
Hahnemann Medical College and Hospital of Philadelphia  
Jefferson Medical College of Philadelphia  
Temple University School of Medicine  
University of Pennsylvania School of Medicine  
University of Pittsburgh School of Medicine  
Medical College of the State of South Carolina  
Vanderbilt University School of Medicine  
University of Vermont College of Medicine  
University of Virginia Department of Medicine  
Medical College of Virginia  
Marquette University School of Medicine

Eleven schools have adopted an accelerated curriculum involving the graduation of a class every nine months but will admit an entering class on an annual basis as follows

College of Medical Evangelists  
University of Southern California School of Medicine  
Stanford University School of Medicine  
Tulane University of Louisiana School of Medicine  
University of Michigan Medical School  
Albany Medical College  
University of Buffalo School of Medicine  
Syracuse University College of Medicine  
Woman's Medical College of Pennsylvania  
University of Texas Medical Branch  
University of Wisconsin Medical School

The University of Tennessee College of Medicine will operate as in the past on the four quarter plan,

admitting new students and graduating a class every quarter

Eight schools have not adopted an accelerated program namely

University of Arkansas School of Medicine  
Howard University College of Medicine  
University of Kansas School of Medicine  
University of North Dakota School of Medicine  
University of Oklahoma School of Medicine  
University of South Dakota School of Medical Sciences  
McHerry Medical College  
Baylor University College of Medicine

As has been pointed out, there are many difficulties involved in the acceleration of the program, and where a school has failed to adopt such a program in order to maintain satisfactory standards it is to be commended rather than criticized

The acceleration of the training of medical students to the end that graduation will occur following three calendar years of instruction raises questions concerning medical licensure that demand consideration along with a consideration of the merits of the proposal itself

The medical practice acts of the several states define the standards that a medical school must maintain in

TABLE 2—Program of Schools of the Basic Medical Sciences, 1942-1943

| School  | Session Begins |                   |  |
|---|----------------|-------------------|--|
|   | 1942-1943      |                   | Subsequent<br>Entering<br>Classes—1943 |
|   | 2d<br>Year     | Entering<br>Class |  |
| University of Alabama School of Medicine              | June           | June              | March                                  |
| University of Mississippi School of Medicine          | June           | June              | January                                |
| University of Missouri School of Medicine             | June           | June              | March                                  |
| Dartmouth Medical School                              | May            | May               | February                               |
| University of North Carolina School of Medicine       | June           | June              | March                                  |
| University of North Dakota School of Medicine         | September      | September         | September                              |
| University of South Dakota School of Medical Sciences | September      | September         | September                              |
| University of Utah School of Medicine                 | June           | June              | March                                  |
| West Virginia University School of Medicine           | June           | June              | March                                  |

order that graduates may qualify for licensure. If those standards are defined in such a way that courses of study must be given in four different calendar years, the obvious result will be that graduates after the abbreviated course will be disqualified for licensure unless the standards are reset by amendatory legislation

The situation in the several states in this respect may be briefly summarized as follows: the summary being based on the provisions of the several medical practice acts

In the following seven states there are statutory provisions that would seem to require modification before licenses can be granted to persons who have graduated after three calendar years of instruction

|          |          |            |
|----------|----------|------------|
| Georgia  | Maryland | Nebraska   |
| Illinois | Michigan | New Jersey |
| Kansas   |          |            |

In the following five states statutory provisions obtain that may necessitate rather liberal construction to permit the granting of such licenses

|               |                |           |
|---------------|----------------|-----------|
| Kentucky      | Mississippi    | Tennessee |
| Massachusetts | North Carolina |           |

In twenty-eight states and in the District of Columbia the statutory provisions seem to be broad enough to permit the granting of licenses to such graduates if the

examining boards or other state approving agencies will recognize a medical school that graduates students after the abbreviated course of study. In these states, if standards have been set up by examining boards or other approving state agencies by rule or regulation and if existing standards preclude the licensure of graduates after abbreviated courses, the rules or regulations must be amended to permit such licensure.

|                      |               |                |
|----------------------|---------------|----------------|
| Alabama              | Louisiana     | Rhode Island   |
| California           | Maine         | South Carolina |
| Colorado             | Minnesota     | South Dakota   |
| Connecticut          | Missouri      | Texas          |
| Delaware             | Montana       | Utah           |
| District of Columbia | New Hampshire | Vermont        |
| Florida              | New York      | Virginia       |
| Idaho                | North Dakota  | Wisconsin      |
| Illinois             | Ohio          | Wyoming        |
| Iowa                 | Pennsylvania  |                |

In the remaining eight states, graduates after the abbreviated course may obtain licensure if the school of graduation is one approved by the Association of American Medical Colleges or, in the case of two states, Arkansas and Oregon, and possibly a third, West Virginia, by the Council on Medical Education and Hospitals of the American Medical Association.

|          |            |               |
|----------|------------|---------------|
| Arizona  | New Mexico | Washington    |
| Arkansas | Oklahoma   | West Virginia |
| Nevada   | Oregon     |               |

Within the next few months an attempt will be made to develop a fairly accurate approximation of the number of trained personnel to be secured by this process of speeding the production of physicians and to ascertain whether the number of physicians so trained will be adequate to supply the anticipated needs of the military and civilian population for new graduates during the next few years.

STATE BOARDS OF MEDICAL EXAMINERS

The fortieth annual compilation of medical licensure and allied statistics by the Council on Medical Education and Hospitals is here presented. The report for the year 1941 includes data regarding (a) medical examining and licensing boards of the United States, the District of Columbia, the territories and the possessions

of the United States, (b) examining boards in the medical specialties, (c) boards of examiners in the basic sciences and (d) the National Board of Medical Examiners.

The official reports which form the basis for these compilations have been contributed throughout the year by the medical licensing boards of all states, the District of Columbia, Alaska, Hawaii, Puerto Rico and the Virgin Islands, the homeopathic medical examining boards of Connecticut, Delaware and Maryland, the seventeen boards of examiners in the basic sciences in operation last year (Arizona, Arkansas, Colorado, Connecticut, the District of Columbia, Florida, Iowa, Michigan, Minnesota, Nebraska, New Mexico, Oklahoma, Oregon, Rhode Island, South Dakota, Washington and Wisconsin), the fifteen approved examining boards in the medical specialties, namely, anesthesiology, dermatology and syphilology, internal medicine, neurology, surgery, obstetrics and gynecology, ophthalmology, orthopedic surgery, otolaryngology, pathology, pediatrics, plastic surgery, psychiatry and neurology, radiology, surgery and urology, and the National Board of Medical Examiners. The homeopathic and eclectic examining boards in Arkansas and the homeopathic board in Louisiana did not license any one during the year. Likewise no physicians were registered for civilian practice in the Canal Zone.

The cooperation of the officers of these agencies in furnishing complete reports makes possible these annual compilations. The Council and THE JOURNAL express thanks and appreciation to those who have supplied data, for without such help the presentation of the calculations included in the following pages would not have been possible.

Dates of coming examinations of state licensing basic science boards, specialty boards and the National Board of Medical Examiners appear weekly in THE JOURNAL in the department "Medical Examinations, Licensure." The results of such tests are furnished the office of the Council and are recorded on the biographic record of the physician concerned are published weekly in THE JOURNAL and then are permanently preserved in the archives of the American Medical Association. For a period of twelve years beginning in 1926, the number of physicians coming from abroad have been reported in the official correspondence with the medical

TABLE 1—Licenses Issued, 1941

|                      | On the Basis of |                             |       |
|----------------------|-----------------|-----------------------------|-------|
|                      | Examination     | Reciprocity and Indorsement | Total |
| Alabama              | 21              | 6                           | 87    |
| Alaska               | 17              | 19                          | 6     |
| Arkansas             | 29              | 2                           | 8     |
| California           | 101             | 229                         | 630   |
| Colorado             | 1               | 1                           | 83    |
| Connecticut          | 1               | 71                          | 129   |
| Delaware             | 18              | 1                           | 22    |
| District of Columbia | 1               | 67                          | 100   |
| Florida              | 14              |                             | 14    |
| Georgia              | 91              | 6                           | 10    |
| Idaho                | 29              |                             | 29    |
| Illinois             | 471             | 107                         | 551   |
| Indiana              | 120             | 97                          | 217   |
| Iowa                 | 66              | 47                          | 71    |
| Kansas               | 92              | 22                          | 114   |
| Kentucky             | 80              | 17                          | 127   |
| Louisiana            | 145             | 12                          | 157   |
| Maine                | 1               | 29                          | 67    |
| Maryland             | 176             | 27                          | 20    |
| Massachusetts        | 201             | 100                         | 351   |
| Michigan             | 226             | 188                         | 414   |
| Minnesota            | 210             | 29                          | 269   |
| Mississippi          | 8               | 7                           | 75    |
| Missouri             | 196             | 8                           | 270   |
| Montana              | 7               | 20                          | 27    |
| Nebraska             | 92              | 10                          | 105   |
| Nevada               | 4               | 12                          | 16    |
| New Hampshire        | 10              | 71                          | 44    |
| New Jersey           | 157             | 107                         | 262   |
| New Mexico           | 2               | 29                          | 1     |
| New York             | 886             | 287                         | 1,170 |
| North Carolina       | 54              | 65                          | 119   |
| North Dakota         | 15              | 10                          | 25    |
| Ohio                 | 29              | 116                         | 409   |
| Oklahoma             | 51              | 9                           | 93    |
| Oregon               | 22              | 22                          | 54    |
| Pennsylvania         | 446             | 9                           | 539   |
| Rhode Island         | 22              | 13                          | 35    |
| South Carolina       | 45              | 17                          | 62    |
| South Dakota         | 8               | 7                           | 15    |
| Tennessee            | 198             | 50                          | 256   |
| Texas                | 177             |                             | 290   |
| Utah                 | 17              |                             | 27    |
| Vermont              | 18              |                             | 32    |
| Virginia             | 146             |                             | 217   |
| Washington           | 69              |                             | 139   |
| West Virginia        | 34              |                             | 93    |
| Wisconsin            | 120             |                             | 172   |
| Wyoming              | 8               |                             | 20    |
| Unlabeled            | 38              |                             | 59    |
| Total                | 6,020           |                             |       |

ns\*

Alaska and the Virgin Isl



school either directly or through the diplomatic services. This has been impossible for the last several years and on the licensing boards in the various states rests the responsibility of determining the authenticity of the evaluation of credentials presented from schools outside the United States and Canada. Statistics are presented separately enumerating data regarding phy-

TABLE 2—Licenses Issued, 1935-1941

|       | Examination | Reciprocity and Endorsement | Total  |
|-------|-------------|-----------------------------|--------|
| 1935  | 572         | 2,104                       | 2,676  |
| 1936  | 627         | 2,772                       | 3,399  |
| 1937  | 1,130       | 984                         | 2,114  |
| 1938  | 1,337       | 2,025                       | 3,362  |
| 1939  | 1,400       | 1,871                       | 3,271  |
| 1940  | 6,389       | 2,844                       | 9,233  |
| 1941  | 6,090       | 2,735                       | 8,825  |
| Total | 4,891       | 19,600                      | 24,491 |

sicians examined on the basis of certificates obtained in countries other than the United States and Canada during 1941.

More than half of the examining and certifying boards obtain from the Council verification of biographic data and other claims before granting a license or permission to take the licensing examination. This service is available to all boards.

The tables referring to medical licensing boards include figures regarding the number of candidates examined in 1941, the number licensed and the number added to the profession. The state boards are discussed first, followed by the specialty examining boards, the basic science boards and the National Board of Medical Examiners.

#### LICENSES ISSUED

The figures presented in the first table cover the number of licenses issued in the various states, territories and possessions, both by examination and reciprocity or endorsement of state licenses or by the certificate of the National Board of Medical Examiners. During the year 1941 there were 8,758 licenses issued to practice medicine and surgery in the forty-eight states, the District of Columbia, Alaska, Hawaii, Puerto Rico and the Virgin Islands. Of the 8,758 licenses, 6,020 were issued after examination and 2,738 by reciprocity and endorsement.

Twenty states, the District of Columbia, Alaska, Hawaii and Puerto Rico require that applicants for licensure possess a hospital internship (table 22). However, the licensing boards permit the candidate to take the examination and, if successful, the license is withheld until completion of the internship. The 8,758 licenses issued include, therefore, many candidates who were examined in 1940 and even a few in previous years. Licenses are also withheld for proof of citizenship and minor technicalities. In some states also the licenses of those examined in December are dated and issued only in the following year. The figures in this table therefore will not correspond with those hereafter given.

The greatest number of licenses during 1941 were issued in New York, 1,173; California granted 630; Illinois 581 and Pennsylvania 539. These were the only states which registered more than 500. Twenty states and the territories and possessions issued licenses to fewer than 100. The fewest number (15) were issued in South Dakota. Nevada licensed 16 and

Delaware 22. An interesting point to observe is the fact that in some states the number registered without examination far exceed those required to write an examination, while on the other hand in many states the reverse was the case. The latter is particularly significant in New York where 886 took examinations and 287 received licenses by endorsement of their credentials. Louisiana issued only 12 of its 157 licenses on the basis of credentials only. Three were registered in the Virgin Islands, 11 in Alaska, 14 in Puerto Rico and 31 in Hawaii. Of these 21 were granted certificates by endorsement of credentials, 5 in Alaska, 13 in Hawaii and 3 in the Virgin Islands. The states of Florida and Idaho grant licenses only on the basis of examination. Massachusetts, Rhode Island and Hawaii have no reciprocity agreements but endorse diplomates of the National Board of Medical Examiners.

Figures for six previous years and 1941 giving totals for each year for the number of licenses issued on the basis of examination and endorsement of credentials are contained in table 2. Since 1937 fewer licenses have been issued annually. In 1941 there were 395 fewer licenses issued than in 1940 and 1,075 less than in 1937. The increase in that year of over 800 greater than in 1936 represented largely physicians migrating to this country from Europe.

Licenses issued do not, however, represent individuals, since several have been licensed in more than one state during the year. Nor does the total represent additions to the medical profession at large, since those licensed by reciprocity and endorsement with the exception of the National Board of Medical Examiners, have previously been registered. Table 15 shows how many of those licensed were not previously granted licenses to practice medicine and therefore represent the number added to the medical profession in the United States and its territories and possessions.

In seven years, 63,495 medical licenses have been issued, 43,895 by examination and 19,600 by endorsement of credentials.

#### CANDIDATES EXAMINED BY MEDICAL EXAMINING BOARDS

Compilations referring to those examined for medical licensure by individual states throughout the year indicating the number who passed and failed in each state and the medical school of graduation, are recorded in table 4. There were 7,511 examined, of whom 6,030

TABLE 3—Source of Candidates Examined, 1941

| Medical Schools           | Number | Number Examined | Number Passed | Number Failed | Percentage Failed |
|---------------------------|--------|-----------------|---------------|---------------|-------------------|
| Approved in United States | 67     | 5,206           | 4,966         | 240           | 4.6               |
| Approved in Canada        | 9      | 167             | 142           | 25            | 15.0              |
| Extinct                   | 8      | 8               | 4             | 4             | 50.0              |
| Foreign                   | 104    | 1,705           | 690           | 1,015         | 59.6              |
| Unapproved                | 11     | 422             | 228           | 194           | 46.0              |
| Totals                    |        | 7,511           | 6,030         | 1,481         | 19.7              |

passed and 1,481 failed, representing sixty-seven medical schools in the United States and nine of the medical schools of Canada, one hundred and one faculties of medicine and three licensing corporations of other countries, eight medical schools now extinct, seven unapproved institutions and six colleges of osteopathy. Osteopaths who are granted the privilege to practice medicine, surgery, or both, by the medical examining board are included in these statistics, elimi-

(CONTINUED ON PAGE 148)

TABLE 4—CANDIDATES EXAMINED BY

|   | 1       | 2       | 3        | 4          | 5        | 6           | 7        | 8             | 9       | 10      | 11    | 12       | 13      | 14   | 15     | 16       | 17        | 18    | 19       | 20            | 21       | 22        |
|---|---------|---------|----------|------------|----------|-------------|----------|---------------|---------|---------|-------|----------|---------|------|--------|----------|-----------|-------|----------|---------------|----------|-----------|
| SCHOOL  | Alabama | Arizona | Arkansas | California | Colorado | Connecticut | Delaware | Dist Columbia | Florida | Georgia | Idaho | Illinois | Indiana | Iowa | Kansas | Kentucky | Louisiana | Maine | Maryland | Massachusetts | Michigan | Minnesota |
| 1 University of Arkansas School of Medicine   |         |         | 60 0     |            |          |             |          |               |         |         |       |          |         |      |        |          |           |       |          |               |          |           |
| 2 College of Medical Evangelists  |         |         |          |            |          |             |          |               |         |         |       |          |         |      |        |          |           |       |          |               |          |           |
| 3 Stanford University School of Medicine  |         | 2 0     |          | 55 1 3 0   |          |             |          |               | 1 0     | 1 0     | 1 0   | 1 0      | 2 0     |      | 1 0    |          | 1 0       |       |          |               | 6 0      | 1 0       |
| 4 University of California Medical School   |         |         |          | 51 2       |          |             |          |               |         |         |       |          |         |      |        |          |           |       |          |               |          |           |
| 5 University of Southern California Sch of Med                                      |         | 2 0     |          | 51 0       |          |             |          |               |         |         |       |          |         |      |        |          |           |       |          |               |          |           |
| 6 University of Colorado School of Medicine   |         |         |          | 17 0       |          |             |          |               |         |         |       |          | 1 0     |      |        |          |           |       |          |               |          |           |
| 7 Yale University School of Medicine  |         |         |          |            | 1 0 9 0  |             |          |               |         | 2 0     |       |          |         |      |        |          |           |       |          |               |          |           |
| 8 George Washington University School of Med  |         |         |          |            |          | 7 0         |          | 1 0           |         |         |       |          |         |      |        |          |           |       | 1 0      | 1 0           | 2 0      | 0 0       |
| 9 Georgetown University College of Medicine   | 1 0     | 1 0     |          | 6 0        |          | 1 0         | 14 0     | 2 0           |         | 1 0     |       | 1 0      |         |      |        |          | 1 0       |       | 6 0      |               |          | 1 0       |
| 10 Howard University College of Medicine  | 1 0     |         |          | 3 0        |          | 0 1         | 8 0      | 2 0           |         |         |       |          |         |      |        |          |           | 1 0   | 3 0      | 2 0           |          | 1 0       |
| 11 Emory University School of Medicine  |         |         |          |            |          | 1 0         |          |               |         | 1 0     |       | 5 0      |         |      |        |          |           |       | 5 0      |               |          |           |
| 12 University of Georgia School of Medicine   | 3 0     |         |          |            |          |             |          | 16 147 1      |         |         |       |          |         |      |        |          |           |       |          |               |          |           |
| 13 Lovola University School of Medicine   |         |         |          |            |          |             |          | 4 0 17 0      |         |         |       |          |         |      |        |          |           |       |          |               |          |           |
| 14 Northwestern University Medical School   |         | 1 0     |          | 5 1        | 1 0      | 1 0         |          |               | 5 0     |         |       | 63 0     | 3 0     | 2 0  |        |          |           |       |          | 1 1           | 3 0      | 1 0       |
| 15 University of Chicago Rush Medical College                                       |         | 1 0     | 1 0      | 5 1        | 2 0      | 1 0         |          |               |         | 3 0     | 54 0  | 3 0      |         |      | 3 0    |          | 2 0       |       | 1 0      | 2 0           | 11 0     | 15 0      |
| 16 University of Chicago The School of Medicine                                     |         | 1 0     | 2 0      | 8 0        | 2 0      | 1 0         |          |               | 1 0     | 2 0     | 45 0  | 1 0      |         |      |        | 2 0      | 1 0       | 1 0   | 1 0      | 3 0           | 4 0      | 1 0       |
| 17 University of Illinois College of Medicine                                       |         |         |          | 4 0        |          |             |          |               | 1 0     |         | 1 0   | 18 0     | 1 0     |      | 1 0    | 1 0      |           |       |          | 2 0           | 3 0      | 1 0       |
| 18 Indiana University School of Medicine  |         |         |          | 5 0        |          |             |          |               |         | 1 0     | 1 0   | 13 0     | 2 0     |      |        |          |           |       |          |               | 2 0      | 1 0       |
| 19 State University of Iowa College of Medicine                                     |         |         |          | 2 0        |          |             |          |               |         |         |       |          | 93 0    |      |        |          |           |       |          | 1 0           | 1 0      | 1 0       |
| 20 University of Kansas School of Medicine  |         | 1 0     |          | 3 0        | 1 0      |             |          |               | 1 0     |         |       | 1 0      | 53 1    |      |        |          |           |       |          | 1 0           | 1 0      | 3 0       |
| 21 University of Louisville School of Medicine                                      |         |         |          | 1 0        |          |             |          |               |         |         |       |          |         | 79 0 |        |          |           |       |          | 1 0           |          |           |
| 22 Louisiana State University School of Medicine                                    |         |         |          | 2 0        |          |             |          |               | 4 0     |         | 2 0   |          | 2 0     |      | 74 0   |          |           |       |          |               |          |           |
| 23 Tulane University of Louisiana School of Med                                     |         |         | 0 0      | 2 0        |          | 1 0         |          | 14 0          |         | 1 0     |       |          |         |      | 2 0    | 2 0      | 64 0      |       |          | 2 0           | 1 0      | 0 0       |
| 24 Johns Hopkins University School of Medicine                                      |         |         |          | 3 0        |          | 1 0         | 1 0      | 4 0           | 1 0     | 1 0     |       |          |         |      |        |          |           |       | 49 0     | 3 0           | 1 0      | 1 0       |
| 25 University of Maryland School of Medicine and College of Physicians and Surgeons |         |         |          |            |          | 1 0         | 2 0      | 3 0           |         |         |       |          |         |      |        | 1 0      |           |       | 64 1     |               |          | 1 0       |
| 26 Boston University School of Medicine   |         | 0 1     |          | 1 0        |          |             |          |               | 0 1     |         |       |          |         |      |        |          |           |       |          |               |          |           |
| 27 Harvard Medical School   |         |         |          | 4 0        |          | 5 1         |          | 1 1           |         |         |       | 3 0      |         |      |        |          |           | 1 1   |          | 3 0           |          |           |
| 28 Tufts College Medical School   |         |         |          |            |          | 3 1         |          | 1 0           | 1 0     |         |       |          |         |      |        |          |           | 6 0   | 3 0      | 33 0          | 4 0      | 5 0       |
| 29 University of Michigan Medical School  |         |         |          | 2 0        |          | 1 0         |          | 1 0           |         | 2 0     | 1 0   |          |         |      |        |          |           | 3 1   |          | 11 0          |          |           |
| 30 Wayne University College of Medicine   |         |         |          |            |          |             | 1 0      |               | 1 0     |         |       |          |         |      |        |          |           |       |          | 1 0           | 54 0     |           |
| 31 University of Minnesota Medical School   |         |         |          | 5 0        |          |             |          | 4 0           |         | 1 0     |       | 1 0      |         | 1 0  | 1 0    | 1 0      |           |       |          | 4 0           | 1 0      | 3 0       |
| 32 St. Louis University School of Medicine  |         | 1 0     |          | 3 0        | 2 0      |             |          |               |         |         |       | 1 0      |         | 1 0  | 1 0    |          |           |       |          | 2 0           | 1 0      | 1 0       |
| 33 Washington University School of Medicine   | 1 0     |         |          | 2 0        | 1 0      |             | 1 0      | 4 0           |         |         |       | 2 0      |         |      |        |          |           |       |          | 2 0           | 2 0      | 1 0       |
| 34 Creighton University School of Medicine  |         |         |          | 11 1       |          |             |          |               |         |         | 1 0   |          |         | 5 0  | 2 0    |          |           |       |          | 2 0           | 3 0      | 1 0       |
| 35 University of Nebraska College of Medicine                                       |         |         |          | 2 1        | 1 0      |             |          | 1 0           | 1 0     | 3 0     |       |          |         |      |        |          |           |       |          |               |          |           |
| 36 Albany Medical College   |         |         |          |            |          |             |          |               |         |         |       |          |         |      |        |          |           |       |          | 1 0           |          |           |
| 37 Columbia University Coll of Phys and Surgs                                       |         |         |          | 3 0        | 10 0     |             | 1 0      | 4 1           | 1 0     |         |       |          |         |      |        |          |           |       | 4 0      |               |          |           |
| 38 Cornell University Medical College   |         |         |          |            | 1 1 0    |             |          | 1 0           |         | 1 0     | 1 0   |          |         |      |        |          |           |       |          | 2 0           | 1 0      | 1 0       |
| 39 Long Island College of Medicine  |         |         |          |            | 1 0      |             |          | 4 0           |         |         |       |          |         |      |        |          |           |       |          | 1 0           |          |           |
| 40 New York Medical College, Flower and 111th Avenue Hospitals                      |         |         |          |            | 2 0      |             |          | 2 0           |         |         |       |          |         |      |        |          |           |       |          | 1 0           |          |           |
| 41 New York University College of Medicine  |         |         |          |            | 3 0      |             |          | 3 0           |         |         | 1 0   |          |         | 1 0  |        |          |           |       |          |               |          |           |
| 42 Syracuse University College of Medicine  |         |         |          |            |          |             |          | 1 0           | 1 0     |         |       |          |         |      |        |          |           |       |          | 1 0           | 1 0      | 1 0       |
| 43 University of Buffalo School of Medicine   |         |         |          |            |          |             |          | 1 0           |         |         |       |          |         |      |        |          |           |       |          | 1 0           | 1 0      | 1 0       |
| 44 Univ of Rochester Sch of Med and Dentistry                                       |         |         |          | 1 0        |          |             |          | 1 0           |         |         | 1 0   |          |         |      |        |          | 1 0       |       | 2 0      | 1 0           | 1 0      | 1 0       |
| 45 Duke University School of Medicine   |         |         |          |            |          |             |          | 4 0           |         |         | 1 0   |          |         |      |        |          |           |       | 1 0      | 1 0           |          |           |
| 46 Ohio State University College of Medicine  |         |         |          |            |          |             |          | 2 1           |         |         |       |          |         |      |        |          |           |       |          |               |          |           |
| 47 University of Cincinnati College of Medicine                                     |         |         |          |            |          | 1 0         |          | 3 0           |         |         |       |          |         |      |        |          |           |       |          | 3 0           | 1 0      |           |
| 48 Western Reserve University School of Medicine                                    |         |         |          |            |          |             |          | 1 0           |         |         |       |          |         |      |        |          |           |       |          |               |          |           |
| 49 University of Oklahoma School of Medicine  |         |         |          | 3 0        | 2 0      | 1 0         |          |               |         |         | 1 0   |          |         |      |        |          |           |       |          |               |          |           |
| 50 University of Oregon Medical School  |         |         | 11 0     |            |          |             |          |               |         |         | 2 0   | 2 0      | 1 0     |      |        |          | 1 0       |       | 1 0      |               |          |           |
| 51 Hahnemann Medical Coll and Hosp of Phila   |         |         |          |            | 3 0      | 2 0         |          | 2 0           |         |         | 2 0   |          |         |      |        |          |           |       | 1 1      | 8 0           | 3 5      | 1 0       |
| 52 Jefferson Medical College of Philadelphia  | 1 0     |         |          | 2 0        | 2 0      | 8 0         | 1 0      | 2 0           | 1 0     |         | 1 0   |          |         |      |        |          |           |       | 1 0      | 3 0           | 4 0      | 0 0       |
| 53 Temple University School of Medicine   |         |         |          | 3 0        | 1 0      | 2 0         |          | 6 0           |         | 1 0     |       |          |         |      |        |          |           |       | 1 0      | 2 0           | 1 0      | 0 0       |
| 54 University of Pennsylvania School of Medicine                                    | 2 0     |         |          | 3 0        |          | 1 0         |          | 2 0           |         | 1 0     | 2 0   |          |         | 2 0  |        |          |           |       | 3 0      | 5 0           | 5 0      | 6 0       |
| 55 University of Pittsburgh School of Medicine                                      |         |         |          |            |          |             |          | 2 0           |         |         |       |          |         |      |        |          |           |       |          | 1 0           |          |           |
| 56 Woman's Medical College of Pennsylvania  | 1 0     |         |          |            | 1 0      |             |          |               |         |         |       |          |         |      |        |          |           |       |          |               |          |           |
| 57 Medical College of the State of South Carolina                                   |         |         |          |            |          |             |          | 2 0           |         |         |       |          |         |      |        |          |           |       |          | 1 0           |          |           |
| 58 Meharry Medical College  |         |         |          |            |          |             |          | 3 1           |         |         |       |          |         |      |        |          |           |       |          |               |          |           |
| 59 University of Tennessee College of Medicine                                      | 2 0     |         |          | 3 0        |          | 1 0         |          | 2 0           |         | 1 0     | 2 0   |          |         | 1 0  |        |          |           |       |          |               |          |           |
| 60 Vanderbilt University School of Medicine   |         |         |          | 1 0        |          |             |          | 3 0           |         |         |       |          |         |      |        |          |           |       |          |               |          |           |

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TABLE 4—CANDIDATES EXAMINED BY MEDIC

| School Number                                    |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |
|--|---------|---------|----------|------------|----------|-------------|----------|----------------|---------|---------|-------|----------|---------|------|--------|----------|-----------|-------|----------|---------------|----------|
|  | 1       | 2       | 3        | 4          | 5        | 6           | 7        | 8              | 9       | 10      | 11    | 12       | 13      | 14   | 15     | 16       | 17        | 18    | 19       | 20            | 21       |
| SCHOOL   | Alabama | Arizona | Arkansas | California | Colorado | Connecticut | Delaware | Dist. Columbia | Florida | Georgia | Idaho | Illinois | Indiana | Iowa | Kansas | Kentucky | Louisiana | Maine | Maryland | Massachusetts | Michigan |
| 11 Baylor University College of Medicine         | P       | P       | P        | P          | P        | P           | P        | P              | P       | P       | P     | P        | P       | P    | P      | P        | P         | P     | P        | P             | P        |
| 12 University of Texas Medical Branch            |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |
| 13 University of Vermont College of Medicine     |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |
| 14 Medical College of Virginia                   |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |
| 15 University of Virginia Department of Medicine |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |
| 16 Marquette University School of Medicine       |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |
| 17 University of Wisconsin Medical School        |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |
| 18 Pathology University Faculty of Medicine      |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |
| 19 Naval University Faculty of Medicine          |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |
| 20 McGill University Faculty of Medicine         |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |
| 21 Quebec University Faculty of Medicine         |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |
| 22 University of Alberta Faculty of Medicine     |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |
| 23 University of Manitoba Faculty of Medicine    |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |
| 24 University of Montreal Faculty of Medicine    |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |
| 25 University of Toronto Faculty of Medicine     |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |
| 26 University of Western Ontario Medical School  |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |
| 27 Lutheran Medical Faculty                      |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |
| 28 Lutheran Medical Schools                      |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |
| 29 Unapproved Schools                            |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |
| 30 Totals  |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |
| 31 Totals—Examined—Passed                        |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |
| 32 Total—Examined—Failed                         |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |
| 33 Percentage Failed                             |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |

P = Passed, F = Failed

(CONTINUED FROM PAGE 145)

nating, for instance osteopaths in California and other states who obtain the legal right to special practice by the osteopathic board of the state.

There were 5,206 graduates of approved medical schools in the United States examined, of whom 46 per cent failed, 167 graduates of approved Canadian

TABLE 5—Graduates of Medical Schools in Canada Examined for Licensure in the United States 1941

|                      | Examined | Passed | Failed |
|----------------------|----------|--------|--------|
| Arizona              | 2        | 2      | 0      |
| California           | 2        | 2      | 0      |
| Connecticut          | 6        | 6      | 0      |
| District of Columbia | 1        | 1      | 0      |
| Florida              | 2        | 1      | 1      |
| Georgia              | 1        | 1      | 0      |
| Illinois             | 7        | 6      | 1      |
| Iowa                 | 2        | 1      | 1      |
| Louisiana            | 1        | 1      | 0      |
| Maine                | 8        | 6      | 2      |
| Maryland             | 5        | 5      | 0      |
| Massachusetts        | 5        | 4      | 1      |
| Michigan             | 3        | 3      | 0      |
| Minnesota            | 12       | 12     | 0      |
| Missouri             | 4        | 4      | 0      |
| Montana              | 1        | 1      | 0      |
| New Hampshire        | 8        | 7      | 1      |
| New Jersey           | 4        | 4      | 0      |
| New York             | 42       | 25     | 17     |
| North Carolina       | 1        | 1      | 0      |
| North Dakota         | 1        | 1      | 0      |
| Ohio                 | 2        | 2      | 0      |
| Pennsylvania         | 11       | 11     | 0      |
| Rhode Island         | 2        | 2      | 0      |
| South Dakota         | 1        | 1      | 0      |
| Tennessee            | 2        | 2      | 0      |
| Vermont              | 1        | 1      | 0      |
| Washington           | 6        | 6      | 0      |
| West Virginia        | 1        | 1      | 0      |
| Wisconsin            | 1        | 1      | 0      |
| Hawaii               | 1        | 1      | 0      |
| Totals               | 167      | 142    | 25     |

graduated from medical schools extinct, of whom 50 per cent failed, and 422 from unapproved and osteopathic schools, of whom 46 per cent failed.

The 422 from unapproved and osteopathic schools represented 139 graduates of schools of osteopathy, of whom 85 passed and 54, or 38.8 per cent, failed and 283 graduates of unapproved schools of whom 143 passed and 140, 49.5 per cent, failed. Graduates of osteopathic schools were examined by the medical boards of nine states, namely Colorado, Connecticut, Indiana, Massachusetts, New Jersey, Oregon, Texas, Virginia and Wisconsin, while graduates of unapproved medical schools were examined in four states and Hawaii. These states included California, Illinois, Massachusetts and Missouri.

Of the 139 osteopaths, 63 were examined in Massachusetts, 36 in New Jersey, 21 in Texas and 6 in Colorado. Other states examined fewer than 4.

Of the graduates of unapproved schools, Massachusetts examined 229 and Illinois 50. One candidate also was examined by the licensing boards in California, Missouri and Hawaii.

Osteopaths in Colorado, Massachusetts, New Jersey and Texas were examined in medicine and surgery, those in Oregon, Virginia and Wisconsin only in surgery, while Connecticut examined 1 each in medicine, surgery, and medicine and surgery.

The total number examined (7,511) do not represent individuals, since a candidate might take the examination in more than one state and would be counted in each state. This applies to those who pass or fail or those who fail and later pass in one or more states or pass in one or more states and later in the same state fail elsewhere. However, if a candidate fails more than once in a given state within the year he is counted that state only once as a failure.

schools, 150 per cent of whom failed, 1,708 graduates of schools outside the United States and Canada, principally in Europe, with 59.6 per cent failures, 8 who

### EXAMINING BOARDS, 1941—Continued

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Three of the five homeopathic boards in existence, Connecticut, Delaware and Maryland, examined 13 candidates, all of whom passed. The homeopathic boards in Arkansas and Louisiana did not examine any one in 1941. The one eclectic board in existence, in Arkansas, did not examine a candidate.

The greatest number of graduates of any one school examined was 174, representing the University of Illinois College of Medicine, who were examined in seventeen states. Of these, 5, 2.9 per cent, failed. The next greatest number, 165, were from the Hahnemann Medical College and Hospital of Philadelphia, examined in eighteen states. Thirty graduates of this school failed to pass the licensure examination, a percentage of 18.2. Only 1 of the 155 graduates of the University of Pennsylvania School of Medicine, who took the test in twenty-four states, failed.

Twenty medical schools in the United States had no failures before medical licensing boards, twenty-four less than 5 per cent, thirteen between 5 and 10 per cent and ten more than 10 per cent. The number examined from many of the schools having a high percentage of failures is small compared to the number of graduates annually from these schools. This is accounted for by the fact that the majority of their graduates take the examinations of the National Board of Medical Examiners. Table 10 includes figures and percentages of all examined during 1941, i.e. those who were examined by the National Board of Medical Examiners in their final examination as well as those passing state tests.

Graduates of Rush Medical College were examined in the greatest number of states, thirty-one, graduates of Northwestern University Medical School by twenty-eight states, Jefferson Medical College twenty-five, the University of Pennsylvania School of Medicine twenty-

four and Loyola University School of Medicine twenty-one. All other schools had their graduates examined in fewer than twenty-one states. Graduates of Stanford, the University of California, Southern California, Georgia Albany Medical College and Pittsburgh were examined in fewer than five states. The Albany Medical College had but 2 of its graduates examined for licensure in 1941, 1 each in Massachusetts and New York both of whom were successful.

The source of candidates for licensure last year are further tabulated in table 3, giving totals for five groups, namely approved medical schools in the United States and in Canada, schools no longer in existence, schools of foreign countries and unapproved institutions. Of the United States schools 4.6 per cent failed and of the graduates of Canadian schools 15.0 per cent. The greatest percentage of failures represented two groups, foreign schools and unapproved schools. In these two groups 59.6 and 46.0 per cent, respectively, failed. Half of the 8 graduates of schools now extinct failed.

One hundred and sixty-seven graduates of nine approved medical schools in Canada took the test for medical licensure in the United States in 1941 in thirty states, the District of Columbia and Hawaii, of whom 142 passed and 25 failed. The greatest number (60) represented McGill University Faculty of Medicine, who were examined in twenty-two states and 45 graduates of the University of Toronto Faculty of Medicine in seventeen states, while 17 from Dalhousie University Faculty of Medicine applied for licensure in three states. The highest percentage of failures was 80, representing 5 graduates from the University of Montreal Faculty of Medicine examined in four states, only 1 of whom was successful. The state of New York examined 42 Canadian graduates, California 23, Minnesota 12 and Pennsylvania 11. All other states testing Canadian graduates



TABLE 6—GRADUATES OF 1939, 1940 AND 1941

| SCHOOL   | 1       | 2   | 3    | 4           | 5   | 6   | 7       | 8         | 9       | 10           | 11            | 12      | 13   | 14 | 15           | 16   | 17      | 18      | 19          | 20          | 21      | 22  |
|--|---------|-----|------|-------------|-----|-----|---------|-----------|---------|--------------|---------------|---------|------|----|--------------|------|---------|---------|-------------|-------------|---------|-----|
| SCHOOL   |         |     |      |             |     |     |         |           |         |              |               |         |      |    |              |      |         |         |             |             |         |     |
| ARKANSAS   |         |     |      |             |     |     |         |           |         |              |               |         |      |    |              |      |         |         |             |             |         |     |
| 1 University of Arkansas School of Medicine      |         |     | 60 0 |             |     |     |         |           | 1 0     |              |               |         |      |    |              |      |         |         |             |             |         |     |
| CALIFORNIA                                       |         |     |      |             |     |     |         |           |         |              |               |         |      |    |              |      |         |         |             |             |         |     |
| 2 College of Medical Practitioners               |         | 2 0 |      | 5, 1, 0     |     |     |         |           | 1 0 1 0 |              |               | 1 0 2 0 |      |    |              |      | 1 0     |         |             |             | 6 0     |     |
| 3 Stanford University School of Medicine         |         |     |      | 2, 2        |     |     |         |           |         |              |               |         |      |    |              |      |         |         |             |             |         | 1 0 |
| 4 University of California Medical School        |         |     |      | 1 0         |     |     |         |           |         |              |               |         |      |    |              |      |         |         |             |             |         |     |
| 5 University of Southern California Sch of Med   |         | 2 0 |      | 16 0        |     |     |         |           |         |              |               | 1 0     |      |    |              |      |         |         |             |             |         |     |
| COLORADO   |         |     |      |             |     |     |         |           |         |              |               |         |      |    |              |      |         |         |             |             |         |     |
| 6 University of Colorado School of Medicine      |         |     |      | 1 0 0 0     |     |     |         |           |         | 2 0          |               |         |      |    |              |      |         |         |             |             | 1 0 1 0 |     |
| CONNECTICUT                                      |         |     |      |             |     |     |         |           |         |              |               |         |      |    |              |      |         |         |             |             |         |     |
| 7 Yale University School of Medicine             |         |     |      |             |     | 2 0 |         | 1 0       |         |              |               |         |      |    |              |      |         | 1 0 1 0 | 2 0 1 0     |             |         |     |
| DISTRICT OF COLUMBIA                             |         |     |      |             |     |     |         |           |         |              |               |         |      |    |              |      |         |         |             |             |         |     |
| 8 George Washington University School of Med     | 1 0 1 0 |     | 6 0  |             | 1 0 |     | 12 0    |           |         | 1 0          |               | 1 0     |      |    |              |      |         | 5 0     |             |             |         |     |
| 9 Georgetown University School of Medicine       |         |     | 1 0  |             | 0 1 |     | 7 0 1 0 |           |         |              |               |         |      |    |              |      |         | 3 0 2 0 |             | 1 0         |         |     |
| 10 Howard University College of Medicine         | 1 0     |     |      |             | 1 0 |     | 3 0     |           | 1 0     |              | 4 0           |         |      |    |              |      |         | 5 0     |             |             |         |     |
| GEORGIA  |         |     |      |             |     |     |         |           |         |              |               |         |      |    |              |      |         |         |             |             |         |     |
| 11 Morehouse University School of Medicine       |         | 1 0 |      |             |     |     |         | 13 0 47 1 |         |              |               |         |      |    |              |      |         |         |             |             |         | 1 0 |
| 12 University of Georgia School of Medicine      |         |     |      |             |     |     |         | 3 0 17 0  |         |              |               |         |      |    |              |      |         |         |             |             |         |     |
| ILLINOIS   |         |     |      |             |     |     |         |           |         |              |               |         |      |    |              |      |         |         |             |             |         |     |
| 13 Loyola University School of Medicine          |         | 1 0 |      | 4 1 1 0 1 0 |     |     |         | 1 0       |         |              | 6 0 0 3 0 2 0 |         |      |    |              |      |         |         | 1 1 3 0 1 0 |             |         |     |
| 14 Northwestern University Medical School        | 1 0 1 0 |     |      | 8 1 2 0 1 0 |     |     |         |           |         |              | 73 0 3 0      |         |      |    | 3 0          |      | 2 0     | 1 0 1 0 | 1 0 1 0     | 11 0 13 0   |         |     |
| 15 University of Chicago, Rush Medical College   | 1 0 2 0 |     |      | 6 0 2 0 1 0 |     |     |         | 2 0       |         | 2 0 4 0 1 0  |               |         |      |    |              | 2 0  | 1 0 1 0 | 1 0 1 0 | 4 0 3 0     |             |         |     |
| 16 University of Chicago, The School of Medicine |         |     |      | 1 0         |     |     |         |           |         | 1 0 16 0 1 0 |               |         |      |    | 1 0 1 0      |      |         | 1 0     |             | 2 0 2 0     |         |     |
| 17 University of Illinois College of Medicine    |         |     |      | 7 0         |     |     |         | 1 0       |         | 1 0 13 2 3   |               | 2 0     |      |    |              |      |         |         |             | 1 0 1 0     |         |     |
| INDIANA  |         |     |      |             |     |     |         |           |         |              |               |         |      |    |              |      |         |         |             |             |         |     |
| 18 Indiana University School of Medicine         |         |     | 2 0  |             |     |     |         |           |         |              |               | 98 0    |      |    |              |      |         |         |             | 1 0 1 0 1 0 |         |     |
| IOWA   |         |     |      |             |     |     |         |           |         |              |               |         |      |    |              |      |         |         |             |             |         |     |
| 19 State University of Iowa College of Medicine  |         | 1 0 |      | 0 1 0       |     |     |         | 1 0       |         |              | 1 0           | 58 1    |      |    |              |      |         |         |             | 1 0 1 0 2 0 |         |     |
| KANSAS   |         |     |      |             |     |     |         |           |         |              |               |         |      |    |              |      |         |         |             |             |         |     |
| 20 University of Kansas School of Medicine       |         |     | 1 0  |             |     |     |         |           |         |              |               |         | 79 0 |    |              |      |         |         |             |             |         |     |
| KENTUCKY   |         |     |      |             |     |     |         |           |         |              |               |         |      |    |              |      |         |         |             |             |         |     |
| 21 University of Louisville School of Medicine   | 2 0     |     |      | 1 0         |     | 2 0 |         | 4 0       |         | 1 0          |               | 2 0     |      |    |              | 74 0 |         |         |             |             |         | 1 0 |
| LOUISIANA  |         |     |      |             |     |     |         |           |         |              |               |         |      |    |              |      |         |         |             |             |         |     |
| 22 Louisiana State University School of Medicine |         |     |      |             |     |     |         |           | 1 0     |              |               |         |      |    |              |      | 64 0    |         |             |             |         | 1 0 |
| 23 Tulane University of Louisiana Sch of Med     | 0 0 2 0 |     |      |             |     | 1 0 |         | 11 0      |         |              |               |         |      |    | 2 0 2 0 70 1 |      |         |         | 1 0 1 0 1 0 |             |         |     |
| MARYLAND</                                       |         |     |      |             |     |     |         |           |         |              |               |         |      |    |              |      |         |         |             |             |         |     |

[illegible]

TABLE 6—GRADUATES OF 1939, 1940 AND 1941

| SCHOOL  | 1       | 2       | 3        | 4          | 5        | 6           | 7        | 8              | 9       | 10      | 11    | 12       | 13      | 14   | 15     | 16       | 17        | 18    | 19       | 20            | 21       | 22        |
|---|---------|---------|----------|------------|----------|-------------|----------|----------------|---------|---------|-------|----------|---------|------|--------|----------|-----------|-------|----------|---------------|----------|-----------|
|   | Alabama | Arizona | Arkansas | California | Colorado | Connecticut | Delaware | Dist. Columbia | Florida | Georgia | Idaho | Illinois | Indiana | Iowa | Kansas | Kentucky | Louisiana | Maine | Maryland | Massachusetts | Michigan | Minnesota |
| TEXAS   | P       | P       | P        | P          | P        | P           | P        | P              | P       | P       | P     | P        | P       | P    | P      | P        | P         | P     | P        | P             | P        | P         |
| (1) Baylor University College of Medicine         |         |         |          | 2          | 0        |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |           |
| (2) University of Texas Medical Branch            |         |         |          | 1          | 0        |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |           |
| VERMONT   |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |           |
| (1) University of Vermont College of Medicine     |         |         |          |            |          | 1           | 0        |                |         |         |       |          |         |      |        |          | 1         | 0     |          |               |          | 3         |
| VIRGINIA  |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |           |
| (1) Medical College of Virginia                   |         |         |          | 2          | 0        |             |          |                | 2       | 0       |       |          |         |      |        |          |           |       |          |               |          |           |
| (2) University of Virginia Department of Medicine |         |         |          |            |          |             | 1        | 0              |         |         |       |          |         |      |        |          |           |       |          |               |          |           |
| WISCONSIN   |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |           |
| (1) Marquette University School of Medicine       |         |         |          | 4          | 0        | 1           | 1        |                |         |         |       |          |         |      |        |          |           |       |          |               | 2        | 0         |
| (2) University of Wisconsin Medical School        |         | 1       | 0        | 1          | 0        | 1           | 0        |                | 1       | 0       |       | 1        | 0       |      |        |          | 1         | 0     |          |               | 1        | 0         |
| CANADA  |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |           |
| (1) Dalhousie University Faculty of Medicine      |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |           |
| (2) Royal University Faculty of Medicine          |         |         |          | 1          | 0        |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |           |
| (3) McGill University Faculty of Medicine         |         | 1       | 0        | 10         | 0        |             |          |                |         |         |       |          |         |      |        |          |           | 1     | 1        |               |          |           |
| (4) Queen's University Faculty of Medicine        |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           | 1     | 0        | 1             | 0        | 3         |
| (5) University of Alberta Faculty of Medicine     |         |         |          |            |          |             |          |                | 1       | 0       |       |          |         |      |        |          |           |       |          |               |          |           |
| (6) University of Manitoba Faculty of Medicine    |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |           |
| (7) University of Montreal Faculty of Medicine    |         |         |          |            |          |             |          |                |         |         |       |          |         |      |        |          |           |       |          |               |          |           |
| (8) University of Toronto Faculty of Medicine     |         | 1       | 0        | 10         | 0        | 1           | 0        |                |         |         |       |          |         |      |        |          |           | 0     | 2        |               |          |           |
| (9) University of Western Ontario Medical School  |         |         |          |            |          | 2           | 0        |                |         |         |       |          |         |      |        |          |           |       |          |               |          |           |
| FOREIGN MEDICAL FACILITIES                        |         |         |          | 2          | 0        |             |          |                |         |         |       | 9        | 5       |      |        |          |           |       |          | 1             | 1        | 1         |
| UNAPPROVED SCHOOLS                                |         |         |          |            | 2        | 1           |          |                |         |         |       | 0        | 0       | 3    | 0      |          |           |       |          | 8             | 0        | 0         |
| TOTALS  | 2       | 16      | 69       | 35         | 7        | 51          | 1        | 2              | 8       | 90      | 16    | 89       | 118     | 69   | 91     | 84       | 143       | 24    | 155      | 232           | 96       | 1         |
| TOTALS—Examined—Passed                            | 2       | 16      | 69       | 35         | 7        | 48          | 11       | 2              | 8       | 89      | 16    | 88       | 118     | 67   | 91     | 84       | 142       | 20    | 153      | 231           | 96       | 1         |
| TOTALS—Examined—Failed                            | 0       | 0       | 0        | 6          | 1        | 3           | 0        | 0              | 0       | 1       | 0     | 1        | 0       | 2    | 0      | 0        | 1         | 4     | 2        | 101           | 0        | 0         |
| PERCENTAGE FAILED                                 | 0.0     | 0.0     | 0.0      | 17         | 11       | 5.0         | 0.0      | 0.0            | 0.0     | 1.1     | 0.0   | 2.1      | 0.0     | 2.9  | 0.0    | 0.0      | 0.7       | 16.7  | 1.3      | 43.5          | 0.0      | 0.0       |

- Passed - Failed

(CONTINUED FROM PAGE 149)

examined less than 10 and nineteen states and Hawaii fewer than 5. Seventeen of the total number of failures (25) were unsuccessful in the examination of the New York Board of Medical Examiners.

Twenty states examined 1,708 graduates of medical schools other than those in the United States and Canada. One took the test in Alaska and 4 in Puerto Rico. In 1941 also 422 unapproved graduates were examined in four states and Hawaii.

Forty-three candidates were examined in Alaska, Hawaii and Puerto Rico, 37 of whom passed and 6 failed. Of these 19 were tested in Hawaii with 1 failure, 18 in Puerto Rico with 5 failures, and 6 were examined in Alaska and passed.

Altogether in 1941 there were 7,511 examined, of whom 6,030 passed and 1,481, or 19.7 per cent failed.

The number so examined in 1941 was a decrease of 410 from the number examined in 1940, likewise a decrease of 252 among successful returns and a decrease of 158 among those who failed. The number of graduates of foreign medical schools examined in 1941 was considerably fewer than the previous years. It may be assumed also that a small number of recent graduates entered the military services of the country before securing state licensure.

Elsewhere are given figures referring to actual licentiates and additions to the medical profession.

#### GRADUATES OF 1939, 1940 AND 1941 EXAMINED FOR MEDICAL LICENSURE

Figures recording graduates of 1939, 1940 and 1941 examined for medical licensure in 1941 are presented in table 6. Altogether, 5,309 were examined, of whom 4,916 passed and 393, or 7.4 per cent, failed. Represented were 4,740 graduates of sixty-seven medical schools of the United States. From the nine approved medical schools in Canada which offer the complete

course, 104 were examined. There were 190 recent graduates of medical schools of countries other than the United States and Canada and 275 graduates of unapproved schools.

Combined totals for the graduates of the three years for each of these groups, recording the number examined, passed and failed, are given in table 7.

Of the medical schools in the United States 3.9 per cent failed while among the graduates of Canadian schools 14.4 per cent, those holding foreign diplomas 46.8 per cent and unapproved schools 37.5 per cent.

Twenty-six schools in the United States had no failures among recent graduates applying for licensure, twenty-four had less than 5 per cent and seventeen more than 5 and ranging to 29.3 per cent, five schools having failure percentages of 20 or more.

TABLE 7—Source of Graduates of 1939, 1940 and 1941 Examined, 1941

| Medical Schools            | Examined | Passed | Failed | Percent Failed |
|----------------------------|----------|--------|--------|----------------|
| Approved, in United States | 4,740    | 4,554  | 186    | 3.9            |
| Approved, in Canada        | 104      | 89     | 15     | 14.4           |
| Foreign                    | 190      | 101    | 89     | 46.8           |
| Unapproved                 | 275      | 172    | 103    | 37.5           |
| Total                      | 5,309    | 4,916  | 393    | 7.4            |

New York examined the greatest number of recent graduates, 697, then came Pennsylvania with 416, Illinois with 389, California with 358 and Ohio with 246. More than 100 from each of seventeen schools were examined, the highest being 164 graduates of the University of Illinois College of Medicine, who appeared before licensing boards in fifteen states. Forty graduates of McGill University Faculty of Medicine, the greatest number from any one Canadian medical school, were tested in seventeen states, while only 1 graduate from the University of Alberta Faculty of Medicine

| 23          | 24       | 25      | 26       | 27     | 28            | 29         | 30         | 31       | 32             | 33           | 34   | 35       | 36     | 37           | 38           | 39             | 40           | 41        | 42    | 43   | 44      | 45       | 46         | 47            | 48        | 49      | 50                             |        |    |
|-------------|----------|---------|----------|--------|---------------|------------|------------|----------|----------------|--------------|------|----------|--------|--------------|--------------|----------------|--------------|-----------|-------|------|---------|----------|------------|---------------|-----------|---------|--------------------------------|--------|----|
| Mississippi | Missouri | Montana | Nebraska | Nevada | New Hampshire | New Jersey | New Mexico | New York | North Carolina | North Dakota | Ohio | Oklahoma | Oregon | Pennsylvania | Rhode Island | South Carolina | South Dakota | Tennessee | Texas | Utah | Vermont | Virginia | Washington | West Virginia | Wisconsin | Wyoming | Alaska, Hawaii and Puerto Rico | Totals |    |
| P           | P        | P       | P        | P      | P             | P          | P          | P        | P              | P            | P    | P        | P      | P            | P            | P              | P            | P         | P     | P    | P       | P        | P          | P             | P         | P       | P                              |        |    |
|             |          |         |          |        |               |            |            |          |                |              |      |          |        |              |              |                |              |           | 1     | 1    |         |          | 1          | 0             |           |         |                                | 67     |    |
|             |          |         |          |        |               |            |            |          |                |              |      |          |        |              | 1            | 0              |              |           | 8     | 3    |         |          |            |               |           |         |                                | 93     |    |
|             |          |         |          |        |               |            |            |          |                |              |      |          |        |              |              |                |              |           |       |      | 11      | 0        |            |               |           |         |                                | 14     |    |
|             |          |         |          |        |               | 1          | 0          |          | 1              | 0            | 0    |          |        | 4            | 0            |                |              |           |       |      |         | 61       | 0          | 4             | 0         | 1       | 0                              | 82     |    |
|             |          |         |          |        |               |            |            |          | 1              | 0            | 1    | 0        |        |              |              |                |              |           |       |      |         | 0        |            | 1             | 0         |         |                                | 36     |    |
|             | 1        | 0       |          |        | 1             | 0          |            |          | 2              | 0            | 4    |          |        | 1            | 0            |                |              |           | 1     | 0    |         |          |            |               | 1         | 0       |                                | 75     |    |
|             |          |         |          |        |               |            |            |          |                |              |      |          |        |              |              |                |              |           | 3     | 0    |         |          |            | 1             | 0         |         |                                | 48     |    |
|             | 1        | 0       |          |        |               |            |            |          | 2              | 0            |      |          |        | 1            | 0            |                |              |           |       |      |         |          |            |               | 1         | 0       |                                | 16     |    |
|             | 1        | 0       |          |        |               |            |            |          | 2              | 0            |      |          |        |              |              |                |              |           |       |      |         |          |            |               |           |         |                                | 9      |    |
|             |          |         |          |        |               |            |            |          | 3              | 0            |      |          |        | 4            | 0            | 1              | 0            |           |       |      |         |          |            |               |           |         |                                | 40     |    |
|             |          |         |          |        |               |            |            |          | 0              | 1            |      |          |        |              |              |                |              |           |       |      |         |          |            |               |           |         |                                | 1      |    |
|             |          |         |          |        |               |            |            |          |                |              |      |          |        |              |              |                |              |           |       |      |         |          |            |               |           |         |                                | 4      |    |
|             |          |         |          |        |               |            |            |          |                |              |      |          |        |              |              |                |              |           |       |      |         |          |            |               |           |         |                                | 4      |    |
|             |          |         |          |        |               |            |            |          |                |              |      |          |        |              |              |                |              |           |       |      |         |          |            |               |           |         |                                | 4      |    |
|             |          |         |          |        |               |            |            |          |                |              |      |          |        |              |              |                |              |           |       |      |         |          |            |               |           |         |                                | 21     |    |
|             |          |         |          |        |               |            |            |          |                |              |      |          |        |              |              |                |              |           |       |      |         |          |            |               |           |         |                                | 6      |    |
|             |          |         |          |        |               |            |            |          |                |              |      |          |        |              |              |                |              |           |       |      |         |          |            |               |           |         |                                | 101    |    |
|             |          |         |          |        |               |            |            |          |                |              |      |          |        |              |              |                |              |           |       |      |         |          |            |               |           |         |                                | 89     |    |
|             |          |         |          |        |               |            |            |          |                |              |      |          |        |              |              |                |              |           |       |      |         |          |            |               |           |         |                                | 46     |    |
|             |          |         |          |        |               |            |            |          |                |              |      |          |        |              |              |                |              |           |       |      |         |          |            |               |           |         |                                | 13     |    |
|             |          |         |          |        |               |            |            |          |                |              |      |          |        |              |              |                |              |           |       |      |         |          |            |               |           |         |                                | 77     |    |
| 37          | 194      | 2       | 89       | 2      | 11            | 139        | 1          | 697      | 51             | 10           | 24   | 5        | 21     | 416          | 14           | 44             | 4            | 200       | 183   | 14   | 14      | 149      | 51         | 27            | 114       | 6       | 27                             | 309    | 79 |
| 37          | 194      | 2       | 89       | 2      | 10            | 122        | 1          | 479      | 51             | 10           | 24   | 5        | 21     | 40           | 14           | 44             | 4            | 196       | 174   | 14   | 14      | 129      | 51         | 27            | 114       | 6       | 23                             | 300    | 79 |
| 0           | 0        | 0       | 0        | 0      | 1             | 10         | 0          | 218      | 0              | 0            | 3    | 0        | 0      | 1            | 0            | 0              | 0            | 4         | 9     | 0    | 0       | 0        | 0          | 0             | 0         | 0       | 4                              | 916    | 80 |
| 00          | 00       | 00      | 00       | 00     | 91            | 76         | 00         | 313      | 00             | 00           | 12   | 00       | 00     | 31           | 00           | 00             | 00           | 20        | 49    | 00   | 00      | 00       | 00         | 00            | 00        | 00      | 148                            | 74     | 82 |
| 23          | 24       | 25      | 26       | 27     | 28            | 29         | 30         | 31       | 32             | 33           | 34   | 35       | 36     | 37           | 38           | 39             | 40           | 41        | 42    | 43   | 44      | 45       | 46         | 47            | 48        | 49      | 50                             |        |    |

appeared for registration. Only 11 of the graduates of Yale University School of Medicine of 1939, 1940 and 1941 were examined last year in nine states. Very few also of the recent graduates of Boston University

TABLE 8—Source of Graduates of 1939, 1940 and 1941, Respectively Examined for Medical Licensure 1941

| Medical Schools           | 1939   |        | 1940   |        | 1941   |        |
|---------------------------|--------|--------|--------|--------|--------|--------|
|                           | Passed | Failed | Passed | Failed | Passed | Failed |
| Approved in United States | 431    | 29     | 1 062  | 64     | 3 061  | 93     |
| Approved in Canada        | 23     | 4      | 52     | 7      | 14     | 4      |
| Foreign                   | 47     | 49     | 40     | 38     | 9      | 2      |
| Unapproved                | 28     | 21     | 40     | 47     | 99     | 35     |
| Totals                    | 529    | 103    | 1 204  | 156    | 3 183  | 134    |

School of Medicine, Tufts College Medical School, the New York Medical College, Flower and Fifth Avenue Hospitals and Duke University School of Medicine applied for licensure by this method and only 1 from Albany Medical College. The majority of the graduates of these schools with few examinees before state licensing boards obtained the certificate of the National Board of Medical Examiners and receive state licenses to practice medicine by endorsement of this certificate.

The data enumerated in table 6 are subdivided by years in table 8, giving totals, passed and failed for the graduates of 1939, 1940 and 1941 respectively of (a) approved medical schools in the United States (b) approved medical schools in Canada, (c) foreign faculties of medicine and (d) unapproved schools and schools of osteopathy. Of the graduates of 1939, 529 passed. In 1940 1,204 and 1941 3,183 were successful. The failures of graduates of these three years were respectively 103, 156 and 134.

Table 9 gives the totals of all groups, segregated by year of graduation, examined and the results for each year.

Of the total number of examinees for licensure in the United States in 1941, 707 per cent were graduates of 1939, 1940 and 1941. Of those graduates prior to 1939 49.4 per cent failed, whereas only 7.4 per cent of the recent graduates of all schools failed.

#### CONSOLIDATED EXAMINATIONS

In table 10 are presented for each approved medical school in the United States and Canada the number of graduates examined in 1941 for medical licensure and the number who appeared for part III, the final examination of the National Board of Medical Examiners, in 1941. In some instances schools having a high percentage of failures before licensing boards had few, if any, failures before the National Board.

During the year 5,206 graduates of approved medical schools in the United States were examined by medical licensing boards, of whom 46 per cent failed, while in the consolidated figures 6,042 were examined and 43 per cent failed.

Of the Canadian schools, 150 per cent failed state board tests and 14.8 per cent the combined tests. Only

TABLE 9—Graduates of 1939, 1940, 1941, Respectively Examined 1941

| Graduates of | Examined | Passed | Failed | Percentage Failed |
|--------------|----------|--------|--------|-------------------|
| 1939         | 632      | 529    | 103    | 16.3              |
| 1940         | 1 360    | 1 204  | 156    | 11.5              |
| 1941         | 3 317    | 3 183  | 134    | 4.0               |
| Totals       | 5 309    | 4 916  | 393    | 7.4               |

58 graduates of foreign faculties of medicine took the final test of the National Board of Medical Examiners, while 1,708 were examined by state licensing boards. The National Board does not admit to its examination graduates of other than approved medical schools.

TABLE 10—Consolidated Examinations, State Medical Exam-  
ining Boards and the National Board of Medical  
Examiners, 1941

| School                          | Examined by<br>Medical<br>Examining<br>Boards |       | Part III of<br>Examination<br>of National<br>Board of<br>Medical<br>Examiners |    | Totals |       |     |
|---------------------------------|---|-------|---|----|--------|-------|-----|
|                                 | P   | F     | P   | F  | P      | F     | %P  |
|                                 |   |       |   |    |        |       |     |
| Univ. of Arkansas               | 67  | 1     | 1   | 1  | 68     | 5     | 68  |
| Coll. of Medical Evangelists    | 91  | 1     | 16  | 1  | 108    | 2     | 11  |
| Stanford Univ.                  | 55  | 2     |   | 0  | 55     | 2     | 11  |
| Univ. of California             | 51  | 0     | 1   | 0  | 52     | 0     | 00  |
| Univ. of Southern California    | 50  | 0     | 1   | 0  | 51     | 0     | 00  |
| Univ. of Colorado               | 19  | 0     | 6   | 0  | 25     | 0     | 00  |
| Yale Univ.                      | 16  | 0     | 1   | 0  | 17     | 0     | 00  |
| Georg. Washington Univ.         | 19  | 1     | 10  | 0  | 29     | 1     | 15  |
| Georgetown Univ.                | 69  | 10    | 6   |    | 96     | 11    | 110 |
| Howard Univ.                    | 9   | 1     | 2   | 0  | 12     | 1     | 0   |
| Emory Univ.                     | 72  |       | 1   | 0  | 73     | 2     | 27  |
| Univ. of Georgia                | 42  | 0     | 1   | 0  | 43     | 0     | 00  |
| Loyola Univ.                    | 112   | 5     |   | 0  | 117    | 5     | 12  |
| Northwestern Univ.              | 116   |       | 25  |    | 141    | 3     | 17  |
| Univ. Medical Coll.             | 123   |       |   | 0  | 123    | 3     | 23  |
| Univ. of Chicago, Sch. of Med.  | 42  | 0     | 11  | 0  | 53     | 0     | 00  |
| Univ. of Illinois               | 309   | 5     | 5   | 0  | 314    | 5     | 25  |
| Indiana Univ.                   | 169   | 0     | 2   | 0  | 171    | 0     | 00  |
| State Univ. of Iowa             | 72  | 1     | 8   | 1  | 80     | 2     | 24  |
| Univ. of Kansas                 | 81  | 0     |   |    | 81     | 0     | 00  |
| Univ. of Louisville             | 108   | 0     |   |    | 108    | 0     | 00  |
| Louisiana State Univ.           | 73  | 1     | 3   | 0  | 76     | 1     | 1   |
| Tulane Univ.                    | 129   | 1     | 5   | 0  | 134    | 1     | 07  |
| Johns Hopkins Univ.             | 78  | 0     | 8   | 0  | 86     | 0     | 00  |
| Univ. of Maryland               | 81  | 2     | 1   | 0  | 84     | 2     | 2   |
| Boston Univ.                    | 10  | 4     |   | 1  | 14     | 5     | 9   |
| Harvard Medical Sch.            | 91  | 6     | 17  |    | 108    | 6     | 7   |
| Tufts Coll. Med. Sch.           | 28  |       | 20  | 2  | 48     | 2     | 11  |
| Univ. of Michigan               | 100   | 2     | 7   | 0  | 107    | 2     | 14  |
| Wayne Univ.                     | 57  | 1     |   |    | 58     | 1     | 17  |
| Univ. of Minnesota              | 142   | 2     | 11  | 0  | 153    | 2     | 11  |
| St. Louis Univ.                 | 111   | 5     | 15  | 0  | 126    | 5     | 34  |
| Washington Univ.                | 118   | 1     | 5   | 0  | 123    | 1     | 08  |
| Cleveland Univ.                 | 59  | 0     | 4   | 0  | 63     | 0     | 00  |
| Univ. of Nebraska               | 92  |       |   |    | 92     |       | 32  |
| Albany Med. Coll.               | 2   | 0     | 2   | 0  | 4      | 0     | 00  |
| Columbia Univ.                  | 105   | 11    | 14  | 0  | 119    | 11    | 53  |
| Cornell Univ.                   | 64  | 8     | 14  | 0  | 86     | 8     | 88  |
| Long Island Coll. of Med.       | 65  | 19    | 21  | 1  | 105    | 20    | 194 |
| New York Med. Coll.             | 11  |       | 5   |    | 16     | 5     | 101 |
| New York Univ.                  | 110   | 20    | 21  | 0  | 151    | 20    | 111 |
| Syracuse Univ.                  | 14  | 12    | 2   | 0  | 26     | 12    | 250 |
| Univ. of Buffalo                | 19  | 4     | 55  | 1  | 74     | 5     | 63  |
| Univ. of Rochester              | 9   | 13    | 10  | 0  | 29     | 13    | 210 |
| Duke Univ.                      | 14  | 0     | 79  | 0  | 93     | 0     | 00  |
| Ohio State Univ.                | 73  | 4     |   |    | 77     | 4     | 51  |
| Univ. of Cincinnati             | 56  |       | 1   | 0  | 57     | 1     | 3   |
| Western Reserve Univ.           | 65  | 0     | 1   | 0  | 66     | 0     | 00  |
| Univ. of Oklahoma               | 65  | 0     | 2   | 0  | 67     | 0     | 00  |
| Univ. of Oregon                 | 15  | 0     | 2   | 0  | 17     | 0     | 00  |
| Hahnemann Medical Coll.         | 130   | 7     |   |    | 137    | 7     | 152 |
| Jefferson Med. Coll.            | 141   |       | 8   | 1  | 149    | 4     | 26  |
| Temple Univ.                    | 117   | 8     | 5   | 1  | 130    | 1     | 06  |
| Univ. of Pennsylvania           | 151   | 1     | 14  | 0  | 165    | 1     | 06  |
| Univ. of Pittsburgh             | 48  | 0     | 1   | 0  | 49     | 0     | 00  |
| Woman's Medical Coll.           | 15  | 1     | 6   | 1  | 22     | 2     | 50  |
| Medical Coll. of South Carolina | 47  | 0     | 1   | 0  | 48     | 0     | 00  |
| McHerry Medical Coll.           | 53  | 1     |   |    | 54     | 1     | 70  |
| Univ. of Tennessee              | 126   | 7     |   |    | 133    | 7     | 53  |
| Vanderbilt Univ.                | 62  | 0     |   |    | 62     | 0     | 00  |
| Baylor Univ.                    | 69  | 1     |   |    | 70     | 1     | 14  |
| Univ. of Texas                  | 96  | 4     |   |    | 100    | 4     | 40  |
| Univ. of Vermont                | 11  | 1     | 18  | 1  | 30     | 2     | 59  |
| Medical Coll. of Virginia       | 91  | 0     | 2   | 0  | 93     | 0     | 00  |
| Univ. of Virginia               | 61  | 0     | 1   | 0  | 62     | 0     | 00  |
| Marquette Univ.                 | 70  | 5     | 8   | 0  | 78     | 5     | 60  |
| Univ. of Wisconsin              | 51  | 1     |   |    | 52     | 1     | 19  |
| Totals U S Schools              | 1,966   | 210   | 810   | 20 | 5,782  | 260   | 43  |
| Dalhousie Univ.                 | 12  | 5     |   |    | 17     | 5     | 294 |
| Univ. of Alberta                | 6   | 1     |   |    | 7      | 1     | 333 |
| McGill Univ.                    | 55  | 5     | 12  | 2  | 74     | 7     | 95  |
| Queen's Univ.                   | 6   | 1     |   |    | 7      | 1     | 143 |
| Univ. of Manitoba               | 2   | 1     |   |    | 3      | 1     | 313 |
| Univ. of Montreal               | 6   | 0     |   |    | 6      | 0     | 00  |
| Univ. of Toronto                | 1   | 4     |   |    | 5      | 4     | 800 |
| Univ. of Western Ontario        | 40  | 5     | 1   | 0  | 46     | 5     | 109 |
| Totals Canadian Schools         | 142   | 25    | 14  | 2  | 156    | 27    | 148 |
| Foreign Medical Faculties       | 690   | 1,018 | 55  | 3  | 745    | 1,021 | 578 |
| Univ. Medical Schools           | 1   | 4     |   |    | 5      | 4     | 500 |
| Unapproved Schools              | 228   | 194   |   |    | 422    | 194   | 460 |
| Totals                          | 6,070   | 1,481 | 885   | 25 | 6,915  | 1,506 | 179 |

The total of all examined before medical licensing boards was 7,511, of whom 6,030 passed and 1,481, or 197 per cent, failed. For both groups 8,421 were examined, 6,915 passed and 1,506, or 179 per cent, failed. The total percentage of failures has been slightly reduced by including figures for the National Board but materially so for certain schools. Twenty-one schools had no failures in either group.

TABLE 11—Licensure Failures by Graduates of Schools Located  
in the State Where Examined and Elsewhere, 1941

|                                   | Total No<br>Examined | No Failures<br>of Schools<br>in State | No Schools<br>in State<br>Represented | Per Cent<br>Failed | No Failures of<br>Schools Out<br>of State | No Schools<br>Out of State<br>Represented | Per Cent<br>Failed | Total Per Cent<br>Failed in Both |
|-----------------------------------|----------------------|---------------------------------------|---------------------------------------|--------------------|---|---|--------------------|----------------------------------|
| Arkansas                          | 60                   | 0                                     | 1                                     | 00                 | 0   | 0   | 00                 | 00                               |
| California                        | 318                  | 3                                     | 4                                     | 14                 | 4   | 36  | 29                 | 20                               |
| Colorado                          | 52                   | 0                                     | 1                                     | 00                 | 0   | 8   | 00                 | 00                               |
| Connecticut                       | 66                   | 0                                     | 1                                     | 00                 | 5   | 30  | 79                 | 76                               |
| Dist. Columbia                    | 32                   | 0                                     | 3                                     | 00                 | 0   | 7   | 00                 | 00                               |
| Georgia                           | 95                   | 1                                     | 2                                     | 12                 | 1   | 10  | 100                | 21                               |
| Illinois                          | 342                  | 3                                     | 5                                     | 09                 | 0   | 16  | 00                 | 09                               |
| Indiana                           | 116                  | 0                                     | 1                                     | 00                 | 0   | 11  | 00                 | 00                               |
| Iowa                              | 67                   | 1                                     | 1                                     | 17                 | 0   | 3   | 00                 | 13                               |
| Kansas                            | 92                   | 0                                     | 1                                     | 00                 | 0   | 9   | 00                 | 00                               |
| Kentucky                          | 81                   | 0                                     | 1                                     | 00                 | 0   | 7   | 00                 | 00                               |
| Louisiana                         | 145                  | 1                                     | 2                                     | 07                 | 0   | 9   | 00                 | 01                               |
| Maryland                          | 159                  | 1                                     | 2                                     | 09                 | 0   | 17  | 00                 | 06                               |
| Massachusetts                     | 101                  | 0                                     | 3                                     | 00                 | 7   | 27  | 125                | 65                               |
| Michigan                          | 236                  | 0                                     | 2                                     | 00                 | 0   | 27  | 00                 | 00                               |
| Minnesota                         | 228                  | 0                                     | 1                                     | 00                 | 0   | 45  | 00                 | 00                               |
| Missouri                          | 191                  | 0                                     | 2                                     | 00                 | 0   | 15  | 00                 | 00                               |
| Nebraska                          | 92                   | 0                                     | 2                                     | 00                 | 0   | 1   | 00                 | 00                               |
| New York                          | 607                  | 86                                    | 9                                     | 218                | 84  | 43  | 394                | 250                              |
| North Carolina                    | 73                   | 0                                     | 1                                     | 00                 | 0   | 18  | 00                 | 00                               |
| Ohio                              | 249                  | 3                                     | 3                                     | 15                 | 0   | 17  | 00                 | 19                               |
| Oklahoma                          | 51                   | 0                                     | 1                                     | 00                 | 0   | 3   | 00                 | 00                               |
| Oregon                            | 20                   | 0                                     | 1                                     | 00                 | 0   | 4   | 00                 | 00                               |
| Pennsylvania                      | 431                  | 9                                     | 6                                     | 25                 | 1   | 34  | 15                 | 93                               |
| South Carolina                    | 45                   | 0                                     | 1                                     | 00                 | 0   | 5   | 00                 | 00                               |
| Tennessee                         | 201                  | 3                                     | 3                                     | 16                 | 1   | 7   | 125                | 20                               |
| Texas                             | 168                  | 4                                     | 2                                     | 26                 | 0   | 9   | 00                 | 24                               |
| Vermont                           | 16                   | 0                                     | 1                                     | 00                 | 0   | 5   | 00                 | 00                               |
| Virginia                          | 131                  | 0                                     | 2                                     | 00                 | 0   | 9   | 00                 | 00                               |
| Wisconsin                         | 117                  | 0                                     | 2                                     | 00                 | 0   | 16  | 00                 | 00                               |
| States Without Medical Schools    |                      |                                       |                                       |                    | 1   | 13  | 39                 | 39                               |
| Alabama                           | 26                   |                                       |                                       |                    | 0   | 11  | 00                 | 00                               |
| Arizona                           | 15                   |                                       |                                       |                    | 0   | 8   | 00                 | 00                               |
| Delaware                          | 18                   |                                       |                                       |                    | 6   | 48  | 41                 | 41                               |
| Florida                           | 148                  |                                       |                                       |                    | 0   | 19  | 00                 | 00                               |
| Idaho                             | 23                   |                                       |                                       |                    | 3   | 11  | 115                | 115                              |
| Maine                             | 26                   |                                       |                                       |                    | 0   | 8   | 00                 | 00                               |
| Mississippi                       | 38                   |                                       |                                       |                    | 1   | 5   | 200                | 200                              |
| Montana                           | 5                    |                                       |                                       |                    | 2   | 6   | 256                | 256                              |
| Nevada                            | 7                    |                                       |                                       |                    | 0   | 2   | 00                 | 00                               |
| New Hampshire                     | 2                    |                                       |                                       |                    | 5   | 24  | 48                 | 48                               |
| New Jersey                        | 104                  |                                       |                                       |                    | 0   | 2   | 00                 | 00                               |
| New Mexico                        | 2                    |                                       |                                       |                    | 1   | 7   | 67                 | 61                               |
| North Dakota                      | 15                   |                                       |                                       |                    | 0   | 12  | 00                 | 00                               |
| Rhode Island                      | 19                   |                                       |                                       |                    | 0   | 6   | 00                 | 00                               |
| South Dakota                      | 8                    |                                       |                                       |                    | 0   | 6   | 00                 | 00                               |
| Utah                              | 14                   |                                       |                                       |                    | 1   | 23  | 17                 | 11                               |
| Washington                        | 59                   |                                       |                                       |                    | 0   | 21  | 00                 | 00                               |
| West Virginia                     | 33                   |                                       |                                       |                    | 0   | 6   | 00                 | 00                               |
| Wyoming                           | 7                    |                                       |                                       |                    |   |   |                    |                                  |
| Alaska, Hawaii<br>and Puerto Rico | 32                   |                                       |                                       |                    | 2   | 21  | 62                 | 62                               |

FAILURES BEFORE MEDICAL EXAMINING BOARDS  
BY LICENTIATES

The number licensed after failing a state licensing examination once and after two or more failures, the two groups being classified by indication whether the failure or failures have been in the state in which they are receiving a license or elsewhere and also if the failure has been in the state where licensed and elsewhere, are presented in table 12. These two divisions are given for three groups of candidates, namely graduates of approved medical schools, foreign faculties of medicine and unapproved institutions. The total number of candidates examined and licensed or granted licenses by endorsement or reciprocity in each state is also shown.

P=Passed, F=Failed



Of the 8756 licentiates in 1941, 686 had previously been unsuccessful before a licensing board. Of the approved schools 130 were licensed after one failure in the state where licensed, and 43 licensed after one failure elsewhere. Fifty-four received licenses after more than one failure, of whom 37 received licenses in the state of their previous failures, 16 received licenses after more than 1 failure in other states. One candidate was licensed in Hawaii after failing in Hawaii and before three state boards.

majority of these physicians were Massachusetts and New York examinees. There was 1 graduate of an approved school in the United States who made fourteen attempts in New York before registration.

Seventeen states licensed in 1941 only physicians who never failed a state board examination, while New York licensed 417 who had failed previously. With the exception of California, Illinois, Massachusetts, New Jersey, Ohio and Pennsylvania, no state licensed more than 8 such candidates.

TABLE 12—Failures Before Medical Licensing Boards by Licentiates 1941

|                           | Licenses Issued by Examination, Reciprocity or Indorsement | Approved Schools               |               |                                     |               |  |                                | Foreign Schools |                                     |               |                                | Unapproved Schools |                                     |   |    |     |     | Total Failures by Licentiates, 1911 |
|---------------------------|--|--------------------------------|---------------|-------------------------------------|---------------|--|--------------------------------|-----------------|-------------------------------------|---------------|--------------------------------|--------------------|-------------------------------------|---|----|-----|-----|-------------------------------------|
|                           |  | Licensed After One Failure     |               | Licensed After Two or More Failures |               | Failed in State Where Licensed and Licensed here | Licensed After One Failure     |                 | Licensed After Two or More Failures |               | Licensed After One Failure     |                    | Licensed After Two or More Failures |   |    |     |     |                                     |
|                           |  | Failed in State Where Licensed | Licensed here | Failed in State Where Licensed      | Licensed here |  | Failed in State Where Licensed | Licensed here   | Failed in State Where Licensed      | Licensed here | Failed in State Where Licensed | Licensed here      |                                     |   |    |     |     |                                     |
|                           |  |                                |               |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    |     |     |                                     |
| Alabama                   | 87   |                                |               |                                     | 1             |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 1   |     |                                     |
| Arizona                   | 39   |                                |               |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 0   |     |                                     |
| Arkansas                  | 28   |                                | 1             |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 1   |     |                                     |
| California                | 699  | 12                             | 2             | 6                                   | 1             |  |                                | 1               | 2                                   | 3             |                                |                    |                                     |   |    | 27  |     |                                     |
| Colorado                  | 88   |                                |               |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 0   |     |                                     |
| Connecticut               | 133  |                                |               | 1                                   | 1             |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 2   |     |                                     |
| Delaware                  | 22   |                                |               |                                     |               |  |                                |                 | 2                                   |               |                                |                    |                                     |   |    | 3   |     |                                     |
| District of Columbia      | 100  |                                | 1             |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 1   |     |                                     |
| Florida                   | 14   |                                | 3             |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 3   |     |                                     |
| Georgia                   | 10   |                                |               |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 0   |     |                                     |
| Idaho                     | 23   |                                |               |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 0   |     |                                     |
| Illinois                  | 51   | 4                              |               |                                     |               |  |                                | 10              | 2                                   | 7             | 1                              | 1                  |                                     |   | 1  | 27  |     |                                     |
| Indiana                   | 217  |                                | 1             |                                     |               |  |                                |                 | 1                                   |               |                                |                    |                                     | 1 |    | 2   |     |                                     |
| Iowa                      | 113  |                                | 1             |                                     |               |  |                                |                 | 1                                   |               |                                |                    |                                     |   |    | 1   |     |                                     |
| Kansas                    | 114  |                                | 1             |                                     |               |  |                                |                 |                                     |               | 2                              |                    |                                     |   |    | 3   |     |                                     |
| Kentucky                  | 127  |                                |               |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 1   |     |                                     |
| Louisiana                 | 157  |                                |               |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 0   |     |                                     |
| Maine                     | 67   | 4                              |               | 1                                   |               |  |                                | 1               | 1                                   |               | 1                              |                    |                                     |   |    | 6   |     |                                     |
| Maryland                  | 20   |                                | 1             |                                     |               |  |                                |                 | 2                                   |               |                                |                    |                                     |   |    | 4   |     |                                     |
| Massachusetts             | 349  |                                | 3             | 4                                   |               |  |                                |                 | 2                                   | 10            | 5                              | 4                  | 15                                  |   | 2  | 34  |     |                                     |
| Michigan                  | 414  |                                | 3             |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 3   |     |                                     |
| Minnesota                 | 26   |                                |               |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 0   |     |                                     |
| Mississippi               | 79   |                                |               |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 0   |     |                                     |
| Missouri                  | 279  |                                | 1             |                                     | 1             |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 2   |     |                                     |
| Montana                   | 27   |                                |               |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 0   |     |                                     |
| Nebraska                  | 105  |                                |               |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 0   |     |                                     |
| Nevada                    | 16   | 2                              |               |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 2   |     |                                     |
| New Hampshire             | 44   |                                | 1             |                                     | 1             |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 2   |     |                                     |
| New Jersey                | 267  | 4                              | 5             |                                     | 4             |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 13  |     |                                     |
| New Mexico                | 31   |                                |               |                                     |               |  |                                |                 |                                     | 2             | 2                              | 8                  |                                     |   |    | 12  |     |                                     |
| New York                  | 117  | 88                             |               | 25                                  |               |  |                                | 104             | 5                                   | 157           | 1                              | 37                 |                                     |   |    | 417 |     |                                     |
| North Carolina            | 119  |                                |               |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 0   |     |                                     |
| North Dakota              | 2  |                                |               |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 0   |     |                                     |
| Ohio                      | 409  |                                | 1             |                                     | 1             |  |                                | 3               | 2                                   |               | 5                              | 5                  |                                     |   |    | 16  |     |                                     |
| Oklahoma                  | 9  |                                |               |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 2   |     |                                     |
| Oregon                    | 34   |                                |               |                                     | 2             |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 0   |     |                                     |
| Pennsylvania              | 329  | 12                             | 7             |                                     | 1             |  |                                | 3               | 2                                   |               |                                |                    |                                     |   |    | 25  |     |                                     |
| Rhode Island              | 25   |                                | 1             |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 1   |     |                                     |
| South Carolina            | 67   |                                |               |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 0   |     |                                     |
| South Dakota              | 1  |                                |               |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 0   |     |                                     |
| Tennessee                 | 256  |                                | 2             |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 3   |     |                                     |
| Texas                     | 290  | 1                              | 1             |                                     | 1             |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 0   |     |                                     |
| Utah                      | 27   |                                |               |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 2   |     |                                     |
| Vermont                   | 39   |                                | 2             |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 0   |     |                                     |
| Virginia                  | 217  |                                |               |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 2   |     |                                     |
| Washington                | 129  |                                | 1             |                                     |               |  |                                | 1               | 2                                   |               | 1                              |                    |                                     |   |    | 4   |     |                                     |
| West Virginia             | 9  |                                |               |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 2   |     |                                     |
| Wisconsin                 | 172  |                                | 2             |                                     | 1             |  |                                |                 |                                     |               |                                | 1                  |                                     |   |    | 3   |     |                                     |
| Wyoming                   | 20   |                                |               |                                     |               |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 1   |     |                                     |
| Alaska Hawaii Puerto Rico | 59   |                                | 1             |                                     | 1             |  |                                |                 |                                     |               |                                |                    |                                     |   |    | 2   |     |                                     |
| Totals                    | 8756   | 139                            | 42            | 37                                  | 16            | 1  |                                | 122             | 20                                  | 189           | 22                             | 55                 | 16                                  | 1 | 40 | 2   | 625 |                                     |

Four hundred graduates of foreign faculties were licensed after previous failure and 59 graduates of unapproved institutions.

In the computation of these statistics it was noted that 57 licentiates had failed five or more times. Of these 22 had five failures before obtaining a license, 10 had six, 9 failed seven examinations, 3 individuals failed eight and nine times, 2 failed ten, 2 failed eleven and 2 failed fourteen tests. Noteworthy were 4 candidates from unapproved medical schools licensed in Massachusetts, 1 each after sixteen, seventeen, twenty-three and twenty-five unsuccessful attempts. The great

In another table presented in this group (table 11) are recorded data referring to the number who failed state board examinations and were graduates of a medical school located in the state in which they were examined and by comparison the number of graduates licensed in the state who obtained their medical training in schools in other states. It is particularly significant that in New York State 218 per cent of those who studied medicine in the nine schools in that state and who appeared for licensure in 1941 failed, while a much higher percentage, 394, who obtained their medical training in forty-three schools located in other

TABLE 14—Candidates Licensed by Reciprocity and Fiduciary, 1941

| Marital Number   | 1   | 2  | 3 | 4 | 5  | 6 | 7 | 8  | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |  |  |  |
|--|-----|----|---|---|----|---|---|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|--|--|
| <b>SCHOOL</b>  |     |    |   |   |    |   |   |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |
| <b>ARKANSAS</b>  |     |    |   |   |    |   |   |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |
| 1 University of Arkansas School of Medicine            | 2   | 1  | 3 | 7 |    |   |   |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |
| <b>CALIFORNIA</b>                                      |     |    |   |   |    |   |   |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |
| 2 College of Medical Evangelists                       | 1   | 10 | 3 |   |    |   |   | 1  | 1 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |
| 3 Stanford University School of Medicine               | 2   | 1  | 1 |   |    |   |   | 1  |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |
| 4 University of California Medical School              |     |    |   |   |    |   |   | 1  |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |
| 5 University of Southern California School of Medicine |     |    |   |   |    |   |   | 1  |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |
| <b>COLORADO</b>  |     |    |   |   |    |   |   |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |
| 6 University of Colorado School of Medicine            |     |    |   |   |    |   |   |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |
| <b>CONNECTICUT</b>                                     |     |    |   |   |    |   |   |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |
| 7 Yale University School of Medicine                   | 1   | 1  | 1 | 6 | 13 | 1 |   | 1  |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |
| <b>DISTRICT OF COLUMBIA</b>                            |     |    |   |   |    |   |   |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |
| 8 George Washington University School of Medicine      | 1   |    | 1 |   |    |   |   | 1  |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |
| 9 Georgetown University School of Medicine             |     |    |   |   |    |   |   | 18 |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |
| 10 Howard University College of Medicine               | 1   |    | 1 |   |    |   |   | 2  |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |
| <b>GEORGIA</b>   |     |    |   |   |    |   |   |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |
| 11 Emory University School of Medicine                 | 2   |    | 1 |   |    |   |   |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |
| 12 University of Georgia School of Medicine            | 2   |    |   |   |    |   |   |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |
| <b>ILLINOIS</b>  |     |    |   |   |    |   |   |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |
| 13 Loyola University School of Medicine                | 1</ |    |   |   |    |   |   |    |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |

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(CONTINUED FROM PAGE 157)

sented licenses from other states, the District of Columbia, Canada and foreign countries, the certificate of the National Board of Medical Examiners, one of the government services or other credentials.

The greatest number of licenses by this method were issued in New York where 287 were registered. Seven other states endorsed more than 100 such candidates: California 229, Michigan 188, Ohio 116, Texas 112, Illinois and New Jersey 107 and Massachusetts 100. The largest group representing the same type of credentials were the 714 diplomates of the National Board of Medical Examiners. Two hundred and fourteen were registered on the basis of such credentials in New York and 100 in Massachusetts.

More than 100 physicians holding licenses from Illinois, Missouri, New York, Ohio, Pennsylvania and Tennessee respectively were licensed in other states.

One license was granted in New York by endorsement of a license issued in Germany. Two were registered in this state without examination on the basis of a diploma from a European medical school. Eight presented licenses issued in Canada as follows: 1 each in New York and Wyoming and 2 in Oregon presented a license issued by the dominion of Canada while a physician was certified in Kentucky on a Newfoundland provincial license, another in Tennessee who presented a New Brunswick credential, and in New York 2 were registered on provincial licenses, namely Ontario and Quebec. California accepted for registration without examination a physician holding a Hawaiian license. Three were admitted to private practice in the Virgin Islands.

Twelve retired officers of one of the government services secured licenses without written examination in six states: 6 in California, 2 in Texas, and 1 each in Kentucky, New Hampshire, North Carolina and Virginia.

Not included in the table are 9 osteopaths licensed by the board of examiners in five states, namely 2 each in the District of Columbia and Oregon and 1 in Virginia granted the right to practice osteopathy and surgery, 3 in Indiana privileged to practice osteopathy, surgery and obstetrics, and 1 in Texas granted unlimited practice.

Diplomates of the National Board of Medical Examiners were licensed in thirty-nine states and Hawaii.

Thirty-nine licentiates of New York secured licenses to continue their practice in New Jersey, Arizona, Connecticut, Delaware, Florida, Idaho, Massachusetts, Mississippi, Montana, Nevada, New Hampshire, North Dakota, Rhode Island, South Dakota, Utah, Vermont, Washington and Wyoming had less than 10 of their licentiates endorsed to other states. None were licensed on the basis of a New Mexico license.

A total of 2,729 physicians secured licenses on endorsement of credentials in 1941. The physicians so licensed and, in addition, 9 osteopaths registered by medical examining boards, are recorded by school of graduation and state or territory where licensed in table 14. Sixty-seven medical schools were represented, as well as seven in Canada, nineteen faculties of medicine and two licensing corporations of other countries, two unapproved medical schools and 33 medical schools now extinct and several osteopathic schools. One hundred and four graduates of Harvard Medical School were registered in twenty-eight states and one of the territories, Northwestern University Medical School had 87 graduates licensed by this method in thirty-one

states and the territories. In fact, more than 50 graduates of each of eighteen schools were so recognized for registration. Those holding credentials on the basis of study abroad (52) but registered on the basis of a state license issued in the United States were registered in seventeen states and the District of Columbia. Fifty-three from schools in the United States no longer in existence migrated to twenty states and the District of Columbia, and 18 from unapproved and osteopathic schools were granted licensure privileges in six states and the District of Columbia.

Of the 2,738 candidates licensed by reciprocity and endorsement, 2,559 were graduates of approved medical schools in the United States, 56 of seven schools

TABLE 15—Licentiates Representing Additions to the Medical Profession, 1941

|                      | Examination | Reciprocity and Endorsement | Total |
|----------------------|-------------|-----------------------------|-------|
| Alabama              | 22          | 2                           | 24    |
| Arizona              | 11          |                             | 11    |
| Arkansas             | 60          | 2                           | 62    |
| California           | 347         | 6                           | 353   |
| Colorado             | 52          | 1                           | 53    |
| Connecticut          | 42          | 25                          | 67    |
| D. C.                | 10          |                             | 10    |
| District of Columbia | 17          | 18                          | 35    |
| Florida              | 25          |                             | 25    |
| Georgia              | 74          | 1                           | 75    |
| Idaho                |             |                             | 0     |
| Illinois             | 438         | 11                          | 449   |
| Indiana              | 115         |                             | 115   |
| Iowa                 | 6           | 1                           | 7     |
| Kansas               | 89          |                             | 89    |
| Kentucky             | 79          | 5                           | 84    |
| Louisiana            | 127         |                             | 127   |
| Maine                | 28          | 3                           | 31    |
| Maryland             | 16          | 5                           | 21    |
| Massachusetts        | 18          | 75                          | 93    |
| Michigan             | 214         | 5                           | 219   |
| Minnesota            | 157         | 4                           | 161   |
| Mississippi          | 5           |                             | 5     |
| Missouri             | 188         | 7                           | 195   |
| Montana              | 1           | 1                           | 2     |
| Nebraska             | 91          | 2                           | 93    |
| Nevada               | 2           |                             | 2     |
| New Hampshire        | 9           | 4                           | 13    |
| New Jersey           | 149         | 13                          | 162   |
| New Mexico           | 2           | 1                           | 3     |
| New York             | 204         | 189                         | 393   |
| North Carolina       | 53          | 11                          | 64    |
| North Dakota         | 3           | 1                           | 4     |
| Ohio                 | 278         | 12                          | 290   |
| Oklahoma             | 50          |                             | 50    |
| Oregon               | 18          |                             | 18    |
| Pennsylvania         | 385         | 14                          | 399   |
| Rhode Island         | 16          | 9                           | 25    |
| South Carolina       | 43          |                             | 43    |
| South Dakota         | 2           |                             | 2     |
| Tennessee            | 171         | 2                           | 173   |
| Texas                | 176         |                             | 176   |
| Utah                 | 15          | 1                           | 16    |
| Vermont              | 15          | 9                           | 24    |
| Virginia             | 179         | 4                           | 183   |
| Washington           | 6           | 6                           | 12    |
| West Virginia        | 20          | 6                           | 26    |
| Wisconsin            | 110         |                             | 110   |
| Wyoming              | 1           |                             | 1     |
| Virgin Islands       | 22          | 12                          | 34    |
| Totals               | 5,213       | 468                         | 5,681 |

so approved in Canada, 52 graduates of foreign faculties of medicine, 53 of institutions now extinct and 9 each from unapproved and osteopathic schools.

LICENTIATES REPRESENTING ADDITIONS TO THE MEDICAL PROFESSION

Licentiates of 1941 representing additions to the physician population of the United States and its territories and possessions are recorded in table 15. The figures represent candidates examined in 1941 and licensed, also those examined in previous years whose licenses were withheld for lack of internship, citizenship and other technicalities and issued last year, and those without a state license who were during the year certified on the basis of the certificate of the National Board of Medical Examiners, the government services, Canadian and foreign credentials. In the main they represent recent graduates.

TABLE 16.—*Credentials Presented by Physicians for Insurance by Reciprocity and Endorsement 1911*

[illegible]



There were 5,681 additions to the medical profession in 1941. The number removed by death annually approximates 3,700. It would appear that the physician population in 1941 was increased therefore by about 1,900. While it cannot be said that all those licensed are in practice, it may be assumed that the great majority are. The greatest number in any one state were added in New York 993 and 449 in Illinois. More than 300 received their first license in California and Pennsylvania. The states of Indiana, Louisiana, Maryland, Minnesota, Missouri, New Jersey, Tennessee, Texas, Virginia and Wisconsin increased their population of physicians by between 100 and 201. Thirty-one states, the District of Columbia, Alaska, Hawaii, Puerto Rico and the Virgin Islands added fewer than 100.

Of the licentiates constituting additions to the medical profession last year, 5,213 secured their license after examination and 468 by endorsement of credentials.

Figures for six previous years and 1941 are shown in table 17 for comparison. In 1935 there were 5,099 by examination and 411 by endorsement of credentials, a total of 5,510 additions. In 1936 there were 667 more added than in the previous year; in 1937 247 more than in 1936 and 914 more than in 1935. Since 1937 there has been a reduction in the number of those represent-

TABLE 17—*Licentiates Representing Additions to the Medical Profession 1935-1941*

| Year  | Examination | Reciprocity and Endorsement | Total  |
|-------|-------------|-----------------------------|--------|
| 1935  | 5,099       | 411                         | 5,510  |
| 1936  | 5,185       | 421                         | 5,606  |
| 1937  | 5,813       | 411                         | 6,224  |
| 1938  | 5,003       | 401                         | 5,404  |
| 1939  | 4,811       | 401                         | 5,212  |
| 1940  | 5,112       | 405                         | 5,517  |
| 1941  | 5,213       | 468                         | 5,681  |
| Total | 34,447      | 3,436                       | 41,983 |

ing additions to the profession. In 1941 there were 743 fewer than in 1937, when the greatest number were licensed.

In seven years altogether 41,983 received original licenses, 38,447 after written examination and 3,536 by endorsement of credentials. In the same period 63,495 licenses were issued, 43,895 by examination and 19,600 by endorsement of credentials. Of these 21,512 were previously licensed.

Increases in the physician population arranged in nine geographic divisions are shown in table 18. The greatest number, 1,554 were added in the Middle Atlantic states. The East North Central group added 1,183, the South Atlantic 622, the West North Central 608, the Pacific group 440, the New England states 418, the West South Central group 415 and the Mountain states 91. Nineteen were added in Hawaii, 11 in Puerto Rico and 2 each in Alaska and the Virgin Islands.

In table 19 data pertaining to those securing their first medical licenses are arranged by school of graduation. The largest number from any one school was 152 graduates of the University of Illinois College of Medicine. Northwestern University Medical School had 135 of its graduates registered in 1941. Fourteen other schools contributed 100 or more. Of the United States schools, Albany Medical College and the Woman's Medical College of Pennsylvania had the fewest, 19, while only 1 represented University of Montreal Faculty of Medicine. McGill University

Faculty of Medicine added 44 of its graduates to the medical profession in the United States.

From the United States schools there were added to the profession by examination 4,290 graduates and 448

TABLE 18—*Licentiates Representing Additions to the Medical Profession Grouped in Geographic Divisions, 1941*

|                             | Examination | Reciprocity and Endorsement | Total |
|-----------------------------|-------------|-----------------------------|-------|
| New England                 |             |                             |       |
| Maine                       | 26          | 3                           | 31    |
| New Hampshire               | 9           | 4                           | 13    |
| Vermont                     | 15          | 9                           | 24    |
| Massachusetts               | 183         | 75                          | 258   |
| Rhode Island                | 16          | 9                           | 25    |
| Connecticut                 | 12          | 25                          | 37    |
|                             | 293         | 125                         | 418   |
| Middle Atlantic             |             |                             |       |
| New York                    | 804         | 189                         | 993   |
| New Jersey                  | 149         | 13                          | 162   |
| Pennsylvania                | 385         | 14                          | 399   |
|                             | 1,338       | 216                         | 1,554 |
| East North Central          |             |                             |       |
| Ohio                        | 278         | 12                          | 290   |
| Indiana                     | 115         |                             | 115   |
| Illinois                    | 438         | 11                          | 449   |
| Michigan                    | 214         | 5                           | 219   |
| Wisconsin                   | 110         |                             | 110   |
|                             | 1,155       | 28                          | 1,183 |
| West North Central          |             |                             |       |
| Minnesota                   | 157         | 4                           | 161   |
| Iowa                        | 63          | 1                           | 64    |
| Missouri                    | 168         | 7                           | 175   |
| North Dakota                | 3           | 1                           | 4     |
| South Dakota                | 2           |                             | 2     |
| Nebraska                    | 91          | 2                           | 93    |
| Kansas                      | 89          |                             | 89    |
|                             | 593         | 15                          | 608   |
| South Atlantic              |             |                             |       |
| Delaware                    | 10          |                             | 10    |
| Maryland                    | 163         | 5                           | 168   |
| District of Columbia        | 17          | 18                          | 35    |
| Virginia                    | 149         | 4                           | 153   |
| West Virginia               | 20          | 6                           | 26    |
| North Carolina              | 33          | 11                          | 44    |
| South Carolina              | 43          |                             | 43    |
| Georgia                     | 74          | 1                           | 75    |
| Florida                     | 8           |                             | 8     |
|                             | 577         | 45                          | 622   |
| East South Central          |             |                             |       |
| Kentucky                    | 79          | 5                           | 84    |
| Tennessee                   | 171         | 2                           | 173   |
| Alabama                     | 22          | 2                           | 24    |
| Mississippi                 | 36          |                             | 36    |
|                             | 307         | 9                           | 316   |
| West South Central          |             |                             |       |
| Arkansas                    | 60          | 2                           | 62    |
| Louisiana                   | 127         |                             | 127   |
| Oklahoma                    | 50          |                             | 50    |
| Texas                       | 176         |                             | 176   |
|                             | 413         | 2                           | 415   |
| Mountain                    |             |                             |       |
| Montana                     | 1           | 1                           | 2     |
| Idaho                       | 3           |                             | 3     |
| Wyoming                     | 1           |                             | 1     |
| Colorado                    | 52          | 1                           | 53    |
| New Mexico                  | 2           | 1                           | 3     |
| Arizona                     | 11          |                             | 11    |
| Utah                        | 15          | 1                           | 16    |
| Nevada                      | 2           |                             | 2     |
|                             | 87          | 4                           | 91    |
| Pacific                     |             |                             |       |
| Washington                  | 63          | 6                           | 69    |
| Oregon                      | 18          |                             | 18    |
| California                  | 347         | 6                           | 353   |
|                             | 428         | 12                          | 440   |
| Territories and Possessions |             |                             |       |
| Alaska                      | 1           | 1                           | 2     |
| Hawaii                      | 10          | 9                           | 19    |
| Puerto Rico                 | 11          |                             | 11    |
| Virgin Islands              |             | 2                           | 2     |
|                             | 22          | 12                          | 34    |
| Totals                      | 5,213       | 468                         | 5,681 |

by reciprocity or endorsement, a total of 4,738, from the Canadian schools 90, by examination 85 and without 5. There were 626 graduates of foreign faculties of medicine, 226 from unapproved schools and from a school now extinct.

Altogether there were 5 213 graduates of all schools added to the medical profession in 1941 by examination for licensure and 468 by reciprocity and endorsement a total of 5 681. The number of living physicians in the United States in 1941 was approximately 180,871.

#### STATE REQUIREMENTS OF PRELIMINARY EDUCATION

The minimum requirement for admission to approved medical schools since 1918 has been two years of collegiate training, and since 1938 three years has been

table 20 Alaska, Hawaii and Puerto Rico likewise require two years of preliminary training.

#### REQUIRED HOSPITAL INTERNSHIPS

In tables 21 and 22 are listed the medical schools and licensing boards now requiring internships for the M.D. degree and licensure respectively.

The medical licensing boards of twenty states the District of Columbia, Alaska, Hawaii and Puerto Rico require that all applicants for licensure serve a hospital

TABLE 19—Licentiates Representing Additions to the Medical Profession Classified by Schools 1941

| School  | Examination | Reciprocity and<br>Endorsement | Totals | School   | Examination | Reciprocity and<br>Endorsement | Totals |
|---|-------------|--------------------------------|--------|--|-------------|--------------------------------|--------|
| <b>ARKANSAS</b>   |             |                                |        | <b>NEW YORK—Continued</b>                                      |             |                                |        |
| University of Arkansas School of Medicine   | 12          |                                | 6      | Cornell University Medical College                             | 57          | 12                             | 69     |
| <b>CALIFORNIA</b>   |             |                                |        | Long Island College of Medicine                                |             |                                |        |
| College of Medical Evangelists  | 81          | 7                              | 88     | New York Medical College (Lower and Fifth Avenue<br>Hospitals) | 11          | 33                             | 44     |
| Stanford University School of Medicine  | 3           |                                | 3      | New York University College of Medicine                        | 25          | 17                             | 42     |
| University of California Medical School   | 51          |                                | 51     | Syracuse University College of Medicine                        | 20          | 1                              | 21     |
| University of Southern California School of Medicine                                  | 43          | 1                              | 44     | University of Buffalo School of Medicine                       | 16          | 22                             | 38     |
| <b>COLORADO</b>   |             |                                |        | University of Rochester School of Medicine and Dentistry       | 37          |                                | 37     |
| University of Colorado School of Medicine   | 40          | 1                              | 41     | <b>NORTH CAROLINA</b>  |             |                                |        |
| <b>CONNECTICUT</b>  |             |                                |        | Duke University School of Medicine                             | 9           | 33                             | 42     |
| Yale University School of Medicine  | 10          | 26                             | 36     | <b>OHIO</b>  |             |                                |        |
| <b>DISTRICT OF COLUMBIA</b>   |             |                                |        | Ohio State University College of Medicine                      | 68          |                                | 68     |
| George Washington University School of Medicine                                       | 37          | 4                              | 41     | University of Cincinnati College of Medicine                   | 72          | 2                              | 74     |
| Georgetown University School of Medicine  | 37          | 22                             | 59     | Western Reserve University School of Medicine                  | 69          |                                | 69     |
| Howard University College of Medicine   | 27          |                                | 27     | <b>OKLAHOMA</b>  |             |                                |        |
| <b>GEORGIA</b>  |             |                                |        | University of Oklahoma School of Medicine                      | 59          |                                | 59     |
| Emory University School of Medicine   | 51          | 1                              | 52     | <b>OREGON</b>  |             |                                |        |
| University of Georgia School of Medicine  | 37          |                                | 37     | University of Oregon Medical School                            | 42          | 1                              | 43     |
| <b>ILLINOIS</b>   |             |                                |        | <b>PENNSYLVANIA</b>  |             |                                |        |
| Loyola University School of Medicine  | 110         | 2                              | 112    | Hahnemann Medical Coll. and Hosp. of Philadelphia              | 121         |                                | 121    |
| Northwestern University Medical School  | 124         | 11                             | 135    | Jefferson Medical College of Philadelphia                      | 120         | 3                              | 123    |
| University of Chicago, Rush Medical College   | 105         | 5                              | 110    | Temple University School of Medicine                           | 102         | 4                              | 106    |
| University of Chicago The School of Medicine  | 31          |                                | 31     | University of Pennsylvania School of Medicine                  | 137         | 4                              | 141    |
| University of Illinois College of Medicine  | 150         | 2                              | 152    | University of Pittsburgh School of Medicine                    | 45          | 1                              | 46     |
| <b>INDIANA</b>  |             |                                |        | Woman's Medical College of Pennsylvania                        | 13          | 6                              | 19     |
| Indiana University School of Medicine   | 101         |                                | 101    | <b>SOUTH CAROLINA</b>  |             |                                |        |
| <b>IOWA</b>   |             |                                |        | Medical College of the State of South Carolina                 | 48          |                                | 48     |
| State University of Iowa College of Medicine  | 67          | 1                              | 68     | <b>TENNESSEE</b>   |             |                                |        |
| <b>KANSAS</b>   |             |                                |        | Meharry Medical College  | 49          | 1                              | 50     |
| University of Kansas School of Medicine   | 89          |                                | 89     | University of Tennessee College of Medicine                    | 86          |                                | 86     |
| <b>KENTUCKY</b>   |             |                                |        | Vanderbilt University School of Medicine                       | 53          | 1                              | 54     |
| University of Louisville School of Medicine   | 80          |                                | 80     | <b>TEXAS</b>   |             |                                |        |
| <b>LOUISIANA</b>  |             |                                |        | Baylor University College of Medicine                          | 65          |                                | 65     |
| Louisiana State University School of Medicine   | 61          |                                | 61     | University of Texas Medical Branch                             | 88          |                                | 88     |
| Tulane University of Louisiana School of Medicine                                     | 104         | 1                              | 105    | <b>VERMONT</b>   |             |                                |        |
| <b>MARYLAND</b>   |             |                                |        | University of Vermont College of Medicine                      | 12          | 11                             | 23     |
| Johns Hopkins University School of Medicine   | 59          | 7                              | 66     | <b>VIRGINIA</b>  |             |                                |        |
| University of Maryland School of Medicine and Col-<br>lege of Physicians and Surgeons | 77          | 2                              | 79     | Medical College of Virginia                                    | 78          | 2                              | 80     |
| <b>MASSACHUSETTS</b>  |             |                                |        | University of Virginia Department of Medicine                  | 5           |                                | 5      |
| Boston University School of Medicine  | 6           | 26                             | 32     | <b>WISCONSIN</b>   |             |                                |        |
| Harvard Medical School  | 69          | 51                             | 120    | Marquette University School of Medicine                        | 60          | 4                              | 64     |
| Tufts College Medical School  | 19          | 40                             | 59     | University of Wisconsin Medical School                         | 49          |                                | 49     |
| <b>MICHIGAN</b>   |             |                                |        | <b>CANADA</b>  |             |                                |        |
| University of Michigan Medical School   | 100         | 1                              | 101    | Dalhousie University Faculty of Medicine                       | 9           |                                | 9      |
| Wayne University College of Medicine  | 38          |                                | 38     | Laval University Faculty of Medicine                           | 4           |                                | 4      |
| <b>MINNESOTA</b>  |             |                                |        | McGill University Faculty of Medicine                          | 39          | 5                              | 44     |
| University of Minnesota Medical School  | 126         | 1                              | 127    | Queen's University Faculty of Medicine                         | 2           |                                | 2      |
| <b>MISSOURI</b>   |             |                                |        | University of Alberta Faculty of Medicine                      | 1           |                                | 1      |
| St. Louis University School of Medicine   | 96          | 6                              | 102    | University of Manitoba Faculty of Medicine                     | 3           |                                | 3      |
| Washington University School of Medicine  | 101         | 2                              | 103    | University of Montreal Faculty of Medicine                     | 1           |                                | 1      |
| <b>NEBRASKA</b>   |             |                                |        | University of Toronto Faculty of Medicine                      | 20          |                                | 20     |
| Creighton University School of Medicine   | 51          | 4                              | 55     | University of Western Ontario Medical School                   | 6           |                                | 6      |
| University of Nebraska College of Medicine  | 70          | 4                              | 74     | Foreign Medical Faculties                                      | 612         | 14                             | 626    |
| <b>NEW YORK</b>   |             |                                |        | Extinct Medical Schools  | 1           |                                | 1      |
| Albany Medical College  | 1           | 18                             | 19     | Unapproved Schools   | 225         | 1                              | 226    |
| Columbia University College of Phys. and Surg.  | 86          | 11                             | 97     | <b>Totals</b>  | 5 213       | 463                            | 5 681  |

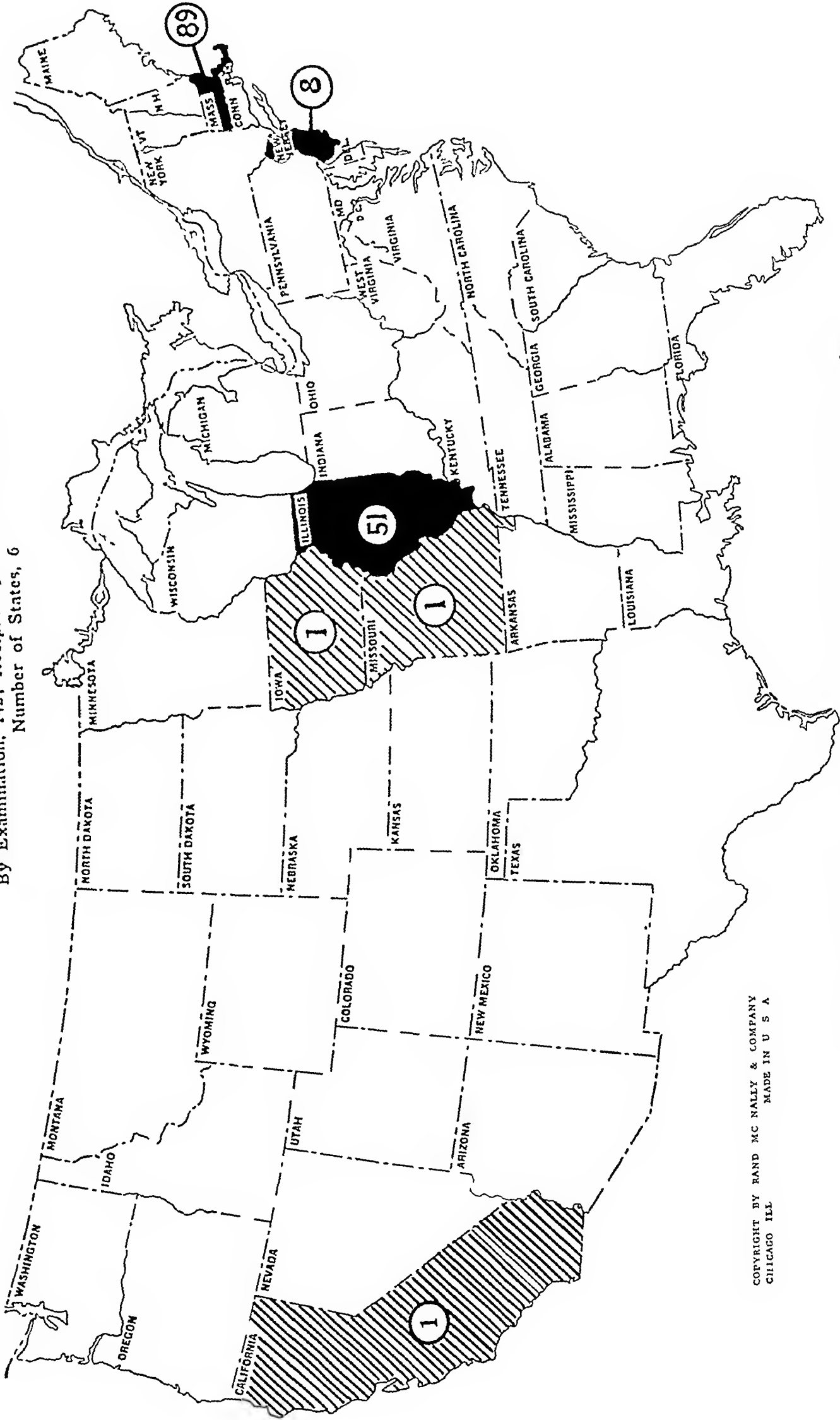
recommended. With but four exceptions, namely California, Connecticut, Massachusetts and Nebraska, the state licensing boards also specify two years or more of college as a preliminary requirement. Although their statutes do not conform with the two year requirement the states just named, with the exception of Massachusetts do not license other than graduates of approved schools whose graduates since 1918 have had two years or more of college work preliminary to beginning the study of medicine. This information is given in

internship. The Louisiana board in February 1942 rescinded its rule regarding a year's rotating internship in an approved hospital as a requisite for obtaining a certificate to practice medicine. The present war emergency together with the accelerated curriculum by undergraduate medical schools and the inability to keep an intelligent check on the various hospitals was the reason for dropping the requirement.

Ten medical schools in the United States and three in Canada require completion of an internship before

CHART 1—STATES REGISTERING GRADUATES OF UNAPPROVED MEDICAL SCHOOLS, 1941

Total Registered, 151  
By Examination, 142, Reciprocity or Endorsement, 9  
Number of States, 6



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The states in black registered more than 5 such candidates those shaded 5 or less

awarding the M D degree Several medical schools will accept research or other clinical work in lieu of hospital service One school recently awarded the M D degree to 2 of its seniors, in 1 case before completion of and in another without, an internship since these 2 men are members of the military hospital unit of the school At the University of Illinois College of Medicine the

TABLE 20—Requirements of Preliminary Training by Medical Licensing Boards

| Two Years or More of College             |                |                |
|--|----------------|----------------|
| Alabama                                  | Louisiana      | Oklahoma       |
| Alaska                                   | Maine          | Oregon         |
| Arizona                                  | Maryland       | Pennsylvania   |
| Arkansas                                 | Michigan       | Puerto Rico    |
| Colorado                                 | Minnesota      | Rhode Island   |
| Delaware                                 | Mississippi    | South Carolina |
| District of Columbia                     | Missouri       | South Dakota   |
| Florida                                  | Montana        | Tennessee      |
| Georgia                                  | Nebraska       | Texas          |
| Hawaii                                   | New Hampshire  | Utah           |
| Idaho                                    | New Jersey     | Vermont        |
| Illinois                                 | New Mexico     | Virginia       |
| Indiana                                  | New York       | Washington     |
| Iowa                                     | North Carolina | West Virginia  |
| Kansas                                   | North Dakota   | Wisconsin      |
| Kentucky                                 | Ohio           | Wyoming        |
| One Year of College                      |                |                |
| California                               | Connecticut    |                |
| High School Graduation or Its Equivalent |                |                |
| Massachusetts                            | Nebraska       |                |

internship requirement was waived in 1941 because of the national emergency The University of California Medical School has discontinued the requirement of an internship for the seniors of 1941-1942 and, since the school is planning to accelerate the curriculum, it will no longer be a requirement for the M D degree

The University of Minnesota Medical School in 1915 was the first school to adopt the internship as a basis for the M D degree, and the first state exacting this requirement was Pennsylvania in 1914 Several states in addition require graduates of medical faculties abroad and reciprocity or endorsement applicants to have completed an internship These states and schools are recorded in tabulations presented in this group under their respective headings Since 1936 seven schools have dropped the internship requirement, i e Rush Medical College and the University of Chicago School of Medicine in 1936, Louisiana State University School

TABLE 21—Internship Required by Medical Schools

|  |
|--|
| College of Medical Evangelists                       |
| University of Southern California School of Medicine |
| Stanford University School of Medicine               |
| Loyola University School of Medicine                 |
| Northwestern University Medical School               |
| Wayne University College of Medicine                 |
| University of Minnesota Medical School               |
| Duke University School of Medicine                   |
| University of Cincinnati College of Medicine         |
| Marquette University School of Medicine              |
| University of Manitoba Faculty of Medicine           |
| Dalhousie University Faculty of Medicine             |
| University of Montreal Faculty of Medicine           |

of Medicine in 1940, the University of Cincinnati School of Medicine, the University of Illinois College of Medicine and McGill University Faculty of Medicine in 1941 and the University of California Medical School in 1942 The M D degree is conferred by Duke University School of Medicine after completion of the senior year, but all graduates are required to spend two years in a hospital or laboratory work after graduation In 1941

this school agreed to accept one year of military service in lieu of the second year of internship There have been no recent additions to either table 21 or 22 by institution of the requirement by a medical school or licensing board

## CANDIDATES EXAMINED

The number of candidates examined in the United States its territories and possessions in the five year period 1937-1941 are given in table 23 For each year there is recorded the number who passed and failed licensing examinations Totals for the five year period and the percentage of candidates who failed are also given

During this period 37,985 were tested, of whom 32,006 were successful and 5,979, 15.7 per cent failed Of these 3,414 were examined in New York and passed 2,517 in Illinois 2,513 in Pennsylvania and 1,930 in California More than 1,000 were successful also in Massachusetts Michigan Minnesota, New Jersey and Ohio Nine states examined and passed between 500 and 1,000 applicants for licensure, thirty states and the District of Columbia registered fewer than 500 and in ten of these less than 100 The smallest number 8 passed examinations in New Mexico

The percentage of failures in all states and the territories and possessions has increased from 10.0 in 1937

TABLE 22—Internship Required by Medical Licensing Boards of All Candidates\*

|                      |               |               |
|----------------------|---------------|---------------|
| Alabama              | New Hampshire | Utah          |
| Alaska               | New Jersey    | Vermont       |
| Delaware             | North Dakota  | Washington    |
| District of Columbia | Oklahoma      | West Virginia |
| Hawaii               | Oregon        | Wisconsin     |
| Idaho                | Pennsylvania  | Wyoming       |
| Illinois             | Puerto Rico   |               |
| Iowa                 | Rhode Island  |               |
| Michigan             | South Dakota  |               |

\* In addition some states require the internship of graduates of medical faculties abroad and reciprocity or endorsement applicants See tables 13 and 20

to 20.6 in 1940 The number failing in 1941 was 19.7 per cent

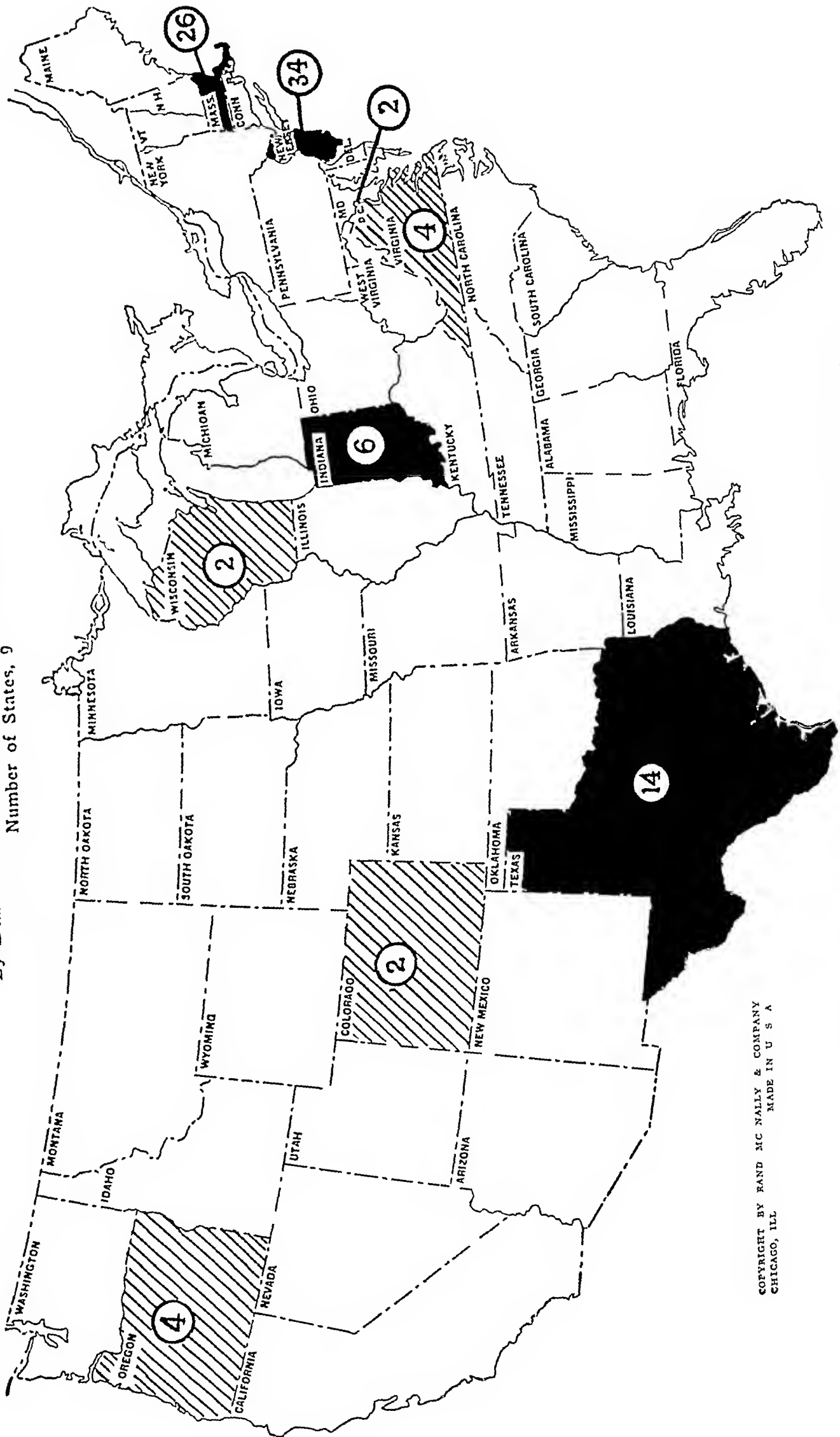
The greatest percentage of failures occurred in Massachusetts, which had an average of 48.2 The high percentage in this state is due to the fact that by law the licensing board is required to admit to its examination the graduates of unapproved schools, the majority of whom repeatedly fail New York had a failure percentage of 40.5, occasioned in part by the admittance to examination of a large number of graduates of foreign faculties of medicine who likewise repeatedly failed On the other hand, twenty-eight states failed less than 5 per cent, in twelve of these the percentage of failures was less than 1 In five years seven states—Arkansas, Nebraska North Carolina, Oklahoma, Oregon, Utah, and Wisconsin—had no failures

A total of 37,985 were examined from 1937 to 1941 inclusive of whom 32,006 passed and 5,979, 15.7 per cent, failed

These figures represent examinations given and not individuals A candidate who fails more than once in a given year in a state is counted as only 1 failure, but should he fail in one of the succeeding years he is counted in that year also The same is true of the successful candidates This table is merely a compilation of figures computed annually and grouped for comparison This table gives a fair approximation of the number of physicians added to the profession in

CHART 2—MEDICAL EXAMINING BOARDS REGISTERING OSTEO-  
PATHY OR MEDICINE AND SURGERY 1941 TO PRACTICE SUR-

Total Registered, 94  
By Examination, 85, Reciprocity or Endorsement, 9  
Number of States, 9



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The states in black registered more than 5 such candidates, those shaded 5 or less.



five years by means of written examination. On page 162 is a compilation giving exact figures for the period of 1935 to 1941 inclusive.

## REGISTRATION 1904-1941

A study of totals and percentages for thirty-eight years (1904-1941) will be found in table 24. This tabulation includes figures for each year covering the number examined and passed, the percentage failed, the number registered by reciprocity or endorsement and the total registered. No decided increase was evidenced from 1904 to 1935. However in 1936 and in the following two years there was a noticeable increase while since 1938 the number registered has decreased. The number registered without examination has increased considerably since 1904, owing to the wider recognition of reciprocal relations and the acceptance of the certificate of the National Board of Medical Examiners. The decrease of more than 1,200 in 1918 was due to the sudden withdrawal of physicians and recent graduates

TABLE 23—Candidates Examined 1937-1941

|                           | 1937  |     | 1938  |     | 1939  |     | 1940  |       | 1941  |     | Totals for 5 Years |       |      |
|---------------------------|-------|-----|-------|-----|-------|-----|-------|-------|-------|-----|--------------------|-------|------|
|                           | P     | F   | P     | F   | P     | F   | P     | F     | P     | F   | P                  | F     | % F  |
| Alabama                   | 26    | 1   | 29    | 0   | 14    | 0   | 26    | 0     | 25    | 0   | 120                | 4     | 3.2  |
| Arizona                   | 14    | 2   | 15    | 0   | 11    | 1   | 20    | 1     | 17    | 0   | 77                 | 4     | 4.9  |
| Arkansas                  | 45    | 0   | 72    | 0   | 65    | 0   | 58    | 0     | 60    | 0   | 299                | 0     | 0.0  |
| California                | 349   | 20  | 402   | 19  | 335   | 19  | 376   | 29    | 400   | 11  | 1,662              | 91    | 4.6  |
| Colorado                  | 76    | 78  | 3     | 69  | 3     | 75  | 4     | 54    | 4     | 152 | 17                 | 4.6   |      |
| Connecticut               | 80    | 21  | 7     | 24  | 37    | 47  | 3     | 80    | 26    | 329 | 161                | 32.2  |      |
| Delaware                  | 14    | 2   | 14    | 0   | 11    | 2   | 15    | 0     | 18    | 0   | 72                 | 4     | 5.7  |
| Dist. Columbia            | 41    | 0   | 32    | 0   | 34    | 0   | 49    | 2     | 33    | 0   | 210                | 2     | 0.9  |
| Florida                   | 164   | 38  | 15    | 41  | 172   | 27  | 171   | 6     | 147   | 7   | 767                | 119   | 1.5  |
| Georgia                   | 82    | 0   | 72    | 0   | 90    | 0   | 88    | 0     | 94    | 2   | 427                | 2     | 0.5  |
| Idaho                     | 20    | 0   | 25    | 0   | 24    | 8   | 40    | 1     | 20    | 0   | 142                | 9     | 6.0  |
| Illinois                  | 488   | 5   | 490   | 12  | 52    | 18  | 542   | 24    | 474   | 46  | 2,517              | 104   | 4.0  |
| Indiana                   | 125   | 2   | 110   | 1   | 112   | 0   | 125   | 0     | 120   | 0   | 592                | 0     | 0.0  |
| Iowa                      | 88    | 0   | 94    | 11  | 104   | 2   | 67    | 5     | 67    | 2   | 420                | 20    | 4.5  |
| Kansas                    | 82    | 0   | 9     | 1   | 85    | 0   | 92    | 0     | 92    | 0   | 444                | 1     | 0.2  |
| Kentucky                  | 81    | 1   | 81    | 1   | 88    | 0   | 77    | 0     | 84    | 0   | 411                | 2     | 0.5  |
| Louisiana                 | 174   | 1   | 184   | 2   | 153   | 0   | 164   | 1     | 145   | 1   | 810                | 5     | 0.6  |
| Maine                     | 58    | 2   | 39    | 7   | 42    | 6   | 32    | 14    | 38    | 12  | 209                | 41    | 16.4 |
| Maryland                  | 209   | 27  | 227   | 38  | 187   | 16  | 178   | 18    | 177   | 9   | 979                | 108   | 10.0 |
| Massachusetts             | 207   | 218 | 207   | 220 | 277   | 267 | 278   | 299   | 262   | 287 | 1,776              | 1,281 | 48.2 |
| Michigan                  | 211   | 1   | 226   | 1   | 217   | 0   | 247   | 0     | 239   | 0   | 1,140              | 2     | 0.2  |
| Minnesota                 | 219   | 0   | 219   | 2   | 217   | 1   | 196   | 0     | 240   | 0   | 1,091              | 3     | 0.3  |
| Mississippi               | 22    | 2   | 31    | 1   | 21    | 0   | 42    | 0     | 38    | 0   | 154                | 3     | 1.9  |
| Missouri                  | 168   | 12  | 174   | 3   | 211   | 0   | 179   | 0     | 190   | 0   | 928                | 15    | 1.6  |
| Montana                   | 4     | 1   | 11    | 0   | 11    | 0   | 9     | 0     | 7     | 1   | 42                 | 2     | 4.5  |
| Nebraska                  | 79    | 0   | 83    | 0   | 78    | 0   | 84    | 0     | 92    | 0   | 418                | 0     | 0.0  |
| Nevada                    | 5     | 0   | 5     | 0   | 4     | 0   | 3     | 1     | 5     | 2   | 22                 | 3     | 12.0 |
| New Hampshire             | 18    | 0   | 17    | 0   | 14    | 2   | 9     | 1     | 10    | 1   | 68                 | 4     | 5.6  |
| New Jersey                | 240   | 3   | 281   | 57  | 277   | 109 | 179   | 36    | 157   | 29  | 1,104              | 260   | 19.1 |
| New Mexico                | 2     | 0   | 2     | 0   | 2     | 0   | 0     | 1     | 2     | 0   | 8                  | 1     | 11.1 |
| New York                  | 1,072 | 291 | 1,078 | 372 | 1,024 | 693 | 956   | 1,088 | 888   | 968 | 5,018              | 3,414 | 40.3 |
| North Carolina            | 8     | 0   | 83    | 0   | 57    | 0   | 65    | 0     | 54    | 0   | 344                | 0     | 0.0  |
| North Dakota              | 17    | 0   | 15    | 2   | 17    | 1   | 24    | 0     | 13    | 1   | 84                 | 4     | 4.6  |
| Ohio                      | 247   | 5   | 342   | 11  | 269   | 15  | 205   | 16    | 268   | 14  | 1,026              | 61    | 3.6  |
| Oklahoma                  | 49    | 0   | 46    | 0   | 47    | 0   | 47    | 0     | 54    | 0   | 229                | 0     | 0.0  |
| Oregon                    | 88    | 0   | 94    | 0   | 26    | 0   | 33    | 0     | 22    | 0   | 193                | 0     | 0.0  |
| Pennsylvania              | 529   | 4   | 512   | 9   | 548   | 10  | 478   | 24    | 446   | 18  | 2,013              | 65    | 2.9  |
| Rhode Island              | 38    | 7   | 26    | 1   | 25    | 0   | 19    | 0     | 22    | 0   | 140                | 8     | 5.8  |
| South Carolina            | 46    | 1   | 39    | 1   | 48    | 0   | 41    | 0     | 45    | 0   | 219                | 2     | 0.9  |
| South Dakota              | 17    | 2   | 8     | 0   | 15    | 0   | 7     | 0     | 9     | 0   | 56                 | 2     | 3.4  |
| Tennessee                 | 208   | 1   | 179   | 3   | 193   | 0   | 188   | 1     | 199   | 4   | 967                | 9     | 0.9  |
| Texas                     | 181   | 19  | 200   | 26  | 208   | 15  | 209   | 25    | 177   | 13  | 975                | 98    | 9.1  |
| Utah                      | 10    | 0   | 14    | 0   | 17    | 0   | 9     | 0     | 15    | 0   | 65                 | 0     | 0.0  |
| Vermont                   | 26    | 0   | 26    | 1   | 17    | 0   | 21    | 1     | 18    | 0   | 108                | 2     | 1.8  |
| Virginia                  | 140   | 2   | 127   | 0   | 119   | 1   | 142   | 1     | 146   | 3   | 678                | 7     | 1.0  |
| Washington                | 57    | 0   | 72    | 0   | 80    | 1   | 48    | 0     | 69    | 1   | 265                | 2     | 0.7  |
| West Virginia             | 69    | 1   | 62    | 1   | 33    | 0   | 38    | 0     | 34    | 0   | 230                | 2     | 0.9  |
| Wisconsin                 | 118   | 0   | 115   | 0   | 111   | 0   | 113   | 0     | 100   | 0   | 577                | 0     | 0.0  |
| Wyoming                   | 2     | 1   | 7     | 0   | 8     | 1   | 16    | 1     | 8     | 0   | 41                 | 3     | 6.8  |
| U. S. Terr. & Possessions | 40    | 4   | 34    | 9   | 30    | 4   | 30    | 2     | 37    | 6   | 171                | 25    | 12.8 |
| Total Examined            | 7,334 |     | 7,461 |     | 7,754 |     | 7,925 |       | 7,511 |     | 37,985             |       |      |
| Passed                    | 6,604 |     | 6,589 |     | 6,492 |     | 6,290 |       | 6,050 |     | 32,006             |       |      |
| Failed                    | 730   |     | 872   |     | 1,262 |     | 1,635 |       | 1,461 |     | 5,979              |       |      |
| Percentage Failed         | 10.0  |     | 11.7  |     | 16.3  |     | 20.6  |       | 19.7  |     | 15.7               |       |      |

from civilian life during the World War. However in the following year the number registered was 2,389 greater than in 1918. The same situation prevailed in 1941 when 385 fewer were registered although this decrease is also due in part to the fewer graduates of European schools registered as compared with several preceding years.

The greatest number registered in thirty-eight years was in 1937 9,807, of whom 6,604 passed licensing tests and 3,203 were endorsed for registration.

The percentage of failures annually dropped from 193 in 1904, when a great many proprietary medical schools were fluctuating, to 5.7 per cent in 1930.

TABLE 24—Registration 1904-1941

| Year | All Candidates Examined |        |                   | Reciprocity or Endorsement | Total Registered |
|------|-------------------------|--------|-------------------|----------------------------|------------------|
|      | Examined                | Passed | Percentage Failed |                            |                  |
| 1904 | 7,044                   | 5,693  | 19.3              | 1,005                      | 6,698            |
| 1905 | 7,178                   | 7,088  | 20.8              | 701                        | 6,082            |
| 1906 | 8,010                   | 6,337  | 20.7              | 1,402                      | 7,575            |
| 1907 | 7,279                   | 7,711  | 21                | 1,427                      | 7,158            |
| 1908 | 7,775                   | 6,079  | 21.7              | 1,284                      | 7,7              |
| 1909 | 7,291                   | 5,465  | 19.6              | 1,181                      | 7,246            |
| 1910 | 7,011                   | 5,719  | 18.4              | 1,610                      | 7,339            |
| 1911 | 6,964                   | 5,82   | 19.8              | 1,21                       | 6,825            |
| 1912 | 6,880                   | 7,467  | 20.5              | 1,27                       | 6,740            |
| 1913 | 6,488                   | 5,286  | 18.6              | 1,292                      | 6,545            |
| 1914 | 5,379                   | 4,379  | 21.5              | 1,4                        | 5,818            |
| 1915 | 5,334                   | 4,307  | 18.7              | 1,299                      | 5,906            |
| 1916 | 4,878                   | 4,151  | 14.9              | 1,28                       | 5,504            |
| 1917 | 4,788                   | 4,084  | 14.1              | 1,50                       | 5,441            |
| 1918 | 667                     | 3,184  | 1.2               | 1,047                      | 4,21             |
| 1919 | 4,750                   | 4,074  | 14.2              | 2,346                      | 6,620            |
| 1920 | 4,796                   | 4,062  | 17                | 2,598                      | 6,620            |
| 1921 | 4,828                   | 4,28   | 12.4              | 2,186                      | 6,414            |
| 1922 | 4,011                   | 3,599  | 12.2              | 2,071                      | 5,612            |
| 1923 | 4,727                   | 4,028  | 14.8              | 2,405                      | 6,42             |
| 1924 | 5,292                   | 4,766  | 11.8              | 1,922                      | 6,678            |
| 1925 | 6,002                   | 5,460  | 9.2               | 1,861                      | 7,311            |
| 1926 | 5,770                   | 5,14   | 7.9               | 1,955                      | 7,269            |
| 1927 | 5,289                   | 5,002  | 7.2               | 2,176                      | 7,178            |
| 1928 | 5,488                   | 5,090  | 6.7               | 2,228                      | 7,318            |
| 1929 | 5,629                   | 5,282  | 6.2               | 2,420                      | 7,702            |
| 1930 | 5,571                   | 5,283  | 5.7               | 2,366                      | 7,621            |
| 1931 | 5,611                   | 5,261  | 6.2               | 2,211                      | 7,476            |
| 1932 | 5,675                   | 5,247  | 7.6               | 1,888                      | 7,132            |
| 1933 | 5,673                   | 5,244  | 7.6               | 1,989                      | 7,283            |
| 1934 | 6,144                   | 5,627  | 8.4               | 2,160                      | 7,788            |
| 1935 | 6,444                   | 5,833  | 9.1               | 2,196                      | 8,035            |
| 1936 | 6,917                   | 6,22   | 10.0              | 2,776                      | 8,998            |
| 1937 | 7,4                     | 6,694  | 10.0              | 3,207                      | 9,807            |
| 1938 | 7,461                   | 6,883  | 11.7              | 2,056                      | 9,745            |
| 1939 | 7,754                   | 6,49   | 16.7              | 2,872                      | 9,365            |
| 1940 | 7,925                   | 6,290  | 20.7              | 2,86                       | 9,183            |
| 1941 | 7,511                   | 6,050  | 19.7              | 2,798                      | 8,768            |

Improvement in the standards of medical education is largely responsible for the decrease in failures before licensing examinations. With the migration of physicians to this country beginning in 1936 and their failure to pass examinations, the percentage of failures began to rise until it reached a peak of 20.7 in 1940. In 1941 it dropped 1 per cent for the country as a whole in spite of the high percentage of failures in New York State. The rise in failure percentages has also been due to the inability of graduates of unapproved medical schools to obtain licensure successfully without failure.

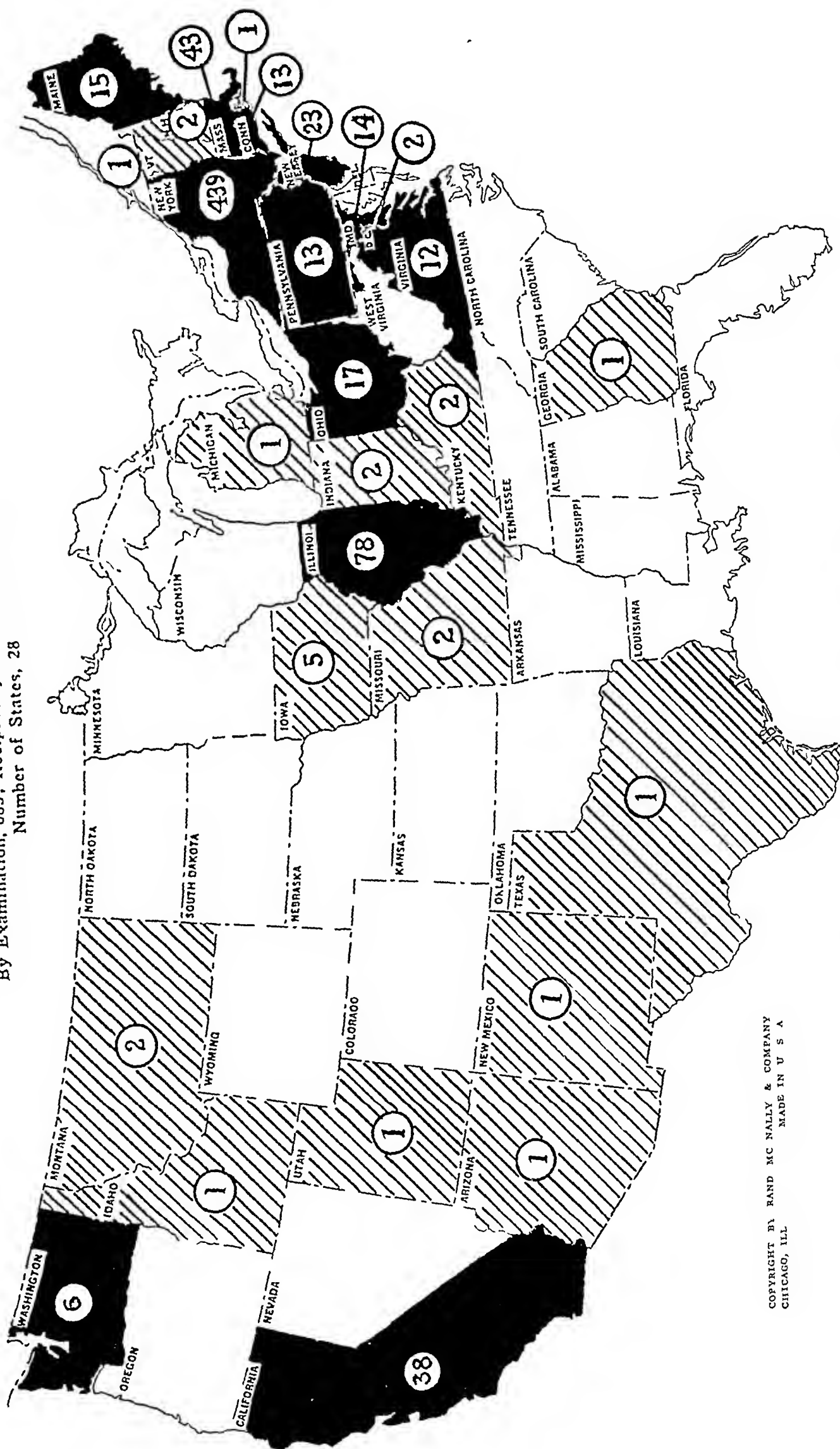
While these figures represent those registered in the years given, they do not represent actual additions to the medical profession even among those who tried the written examination.

GRADUATES OF APPROVED SCHOOLS AND OTHERS  
REGISTERED 1922-1941

The educational fitness of the individuals registered in twenty years is recorded in table 25. In the computation of these figures, schools rated as class A and B by the Council on Medical Education and Hospitals of the American Medical Association since 1907 are classified as approved. In the column "others" are included graduates of institutions prior to 1907, of foreign faculties of medicine, class C graduates, osteopaths given recognition by medical licensing boards and graduates of schools not approved by the Council. In 1928 the classification A, B and C by the Council was discontinued and medical schools have since been classified as approved or unapproved.

CHART 3—STATES REGISTERING GRADUATES OF MEDICAL FACULTIES ABROAD, 1941

Total Registered, 737  
By Examination, 685, Reciprocity or Endorsement, 52  
Number of States, 28



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The states in black registered more than 5 such candidates those shaded 5 or less

Of the 8768 registered by all methods in 1941, 7,727, 88.1 per cent, represented graduates of approved medical schools and 1,041, 11.9 per cent, the group designated as others.

In twenty years a total of 156,442 were registered including 138,287 approved graduates, 88.4 per cent,

TABLE 25—*Graduates of Approved Schools and Others Registered 1922-1941*

| Year  | Graduates of Approved Schools |          | Others |          | Totals  |
|-------|-------------------------------|----------|--------|----------|---------|
|       | Number                        | Per Cent | Number | Per Cent |         |
| 1922  | 4,519                         | 80.5     | 1,093  | 19.5     | 5,612   |
| 1923  | 5,196                         | 80.8     | 1,277  | 19.2     | 6,473   |
| 1924  | 5,606                         | 85.2     | 992    | 14.8     | 6,598   |
| 1925  | 6,314                         | 86.4     | 997    | 13.6     | 7,311   |
| 1926  | 6,441                         | 88.7     | 828    | 11.3     | 7,269   |
| 1927  | 6,410                         | 89.4     | 767    | 10.6     | 7,177   |
| 1928  | 6,885                         | 90.1     | 753    | 9.9      | 7,638   |
| 1929  | 7,003                         | 91.0     | 699    | 9.0      | 7,702   |
| 1930  | 7,011                         | 92.1     | 610    | 7.9      | 7,621   |
| 1931  | 6,992                         | 92.8     | 544    | 7.2      | 7,536   |
| 1932  | 6,775                         | 95.7     | 457    | 6.3      | 7,232   |
| 1933  | 6,774                         | 95.7     | 479    | 6.3      | 7,253   |
| 1934  | 7,171                         | 92.1     | 617    | 7.9      | 7,788   |
| 1935  | 7,462                         | 91.5     | 673    | 8.5      | 8,135   |
| 1936  | 7,992                         | 88.2     | 1,066  | 11.8     | 9,058   |
| 1937  | 8,329                         | 85.6     | 1,418  | 14.4     | 9,747   |
| 1938  | 8,315                         | 87.1     | 1,230  | 12.9     | 9,545   |
| 1939  | 8,007                         | 89.2     | 1,256  | 13.8     | 9,263   |
| 1940  | 7,778                         | 89.0     | 1,375  | 15.0     | 9,153   |
| 1941  | 7,727                         | 88.1     | 1,041  | 11.9     | 8,768   |
| Total | 138,287                       | 88.4     | 18,155 | 11.6     | 156,442 |

and 18,155 others 11.6 per cent. The improved standards of medical education are again evident in a study of these totals and in the percentages representing approved graduates. The number of graduates of approved schools in the period shown has always been in the bracket above 4,000, representing more than 80 per cent of those annually registered. The recognition of graduates of approved schools by licensing boards and the consistent refusal of many state boards to recognize graduates from unapproved schools is revealed in the number of others registered. Until the

TABLE 26—*Graduates of Unapproved Medical Schools Registered 1936-1941*

|                                | Examination |      |      |      |      |      | Reciprocity and Endorsement |      |      |      |      |      | Total |
|--------------------------------|-------------|------|------|------|------|------|-----------------------------|------|------|------|------|------|-------|
|                                | 1936        | 1937 | 1938 | 1939 | 1940 | 1941 | 1936                        | 1937 | 1938 | 1939 | 1940 | 1941 |       |
| Arizona                        | 0           | 2    | 1    | 2    | 0    | 0    | 0                           | 0    | 0    | 0    | 0    | 0    | 5     |
| Arkansas                       | 0           | 0    | 1    | 0    | 0    | 0    | 0                           | 0    | 0    | 1    | 0    | 0    | 2     |
| California                     | 0           | 0    | 0    | 0    | 1    | 1    | 0                           | 0    | 0    | 1    | 0    | 0    | 3     |
| Florida                        | 1           | 2    | 2    | 1    | 0    | 0    | 0                           | 0    | 0    | 0    | 0    | 0    | 6     |
| Illinois                       | 84          | 82   | 60   | 51   | 48   | 51   | 0                           | 0    | 0    | 0    | 0    | 0    | 376   |
| Indiana                        | 0           | 0    | 0    | 0    | 0    | 0    | 0                           | 0    | 0    | 3    | 1    | 2    | 6     |
| Iowa                           | 0           | 0    | 0    | 0    | 0    | 0    | 0                           | 0    | 0    | 0    | 0    | 1    | 1     |
| Kentucky                       | 0           | 0    | 0    | 0    | 0    | 0    | 2                           | 2    | 1    | 2    | 2    | 0    | 9     |
| Massachusetts                  | 77          | 97   | 57   | 79   | 9    | 89   | 0                           | 0    | 0    | 0    | 0    | 0    | 493   |
| Missouri                       | 0           | 0    | 0    | 0    | 0    | 1    | 0                           | 0    | 1    | 0    | 0    | 0    | 2     |
| Nebraska                       | 0           | 0    | 0    | 0    | 0    | 0    | 1                           | 0    | 0    | 0    | 0    | 0    | 1     |
| New Jersey                     | 3           | 1    | 7    | 0    | 0    | 0    | 1                           | 2    | 4    | 4    | 13   | 8    | 45    |
| New Mexico                     | 1           | 0    | 1    | 0    | 0    | 0    | 1                           | 0    | 2    | 0    | 2    | 0    | 7     |
| New York                       | 0           | 0    | 0    | 0    | 0    | 0    | 1                           | 14   | 8    | 12   | 8    | 0    | 55    |
| North Carolina                 | 1           | 2    | 0    | 0    | 0    | 0    | 0                           | 0    | 0    | 0    | 0    | 0    | 3     |
| Ohio                           | 31          | 23   | 32   | 36   | 0    | 0    | 0                           | 0    | 0    | 0    | 0    | 0    | 122   |
| Pennsylvania                   | 0           | 1    | 4    | 1    | 5    | 0    | 0                           | 0    | 0    | 0    | 0    | 0    | 11    |
| Texas                          | 0           | 0    | 1    | 4    | 6    | 0    | 0                           | 0    | 0    | 0    | 0    | 0    | 11    |
| Virginia                       | 0           | 1    | 0    | 1    | 0    | 0    | 0                           | 0    | 0    | 0    | 0    | 0    | 2     |
| Wisconsin                      | 0           | 0    | 0    | 0    | 0    | 0    | 1                           | 0    | 0    | 0    | 0    | 0    | 1     |
| Alaska, Hawaii and Puerto Rico | 1           | 1    | 0    | 0    | 1    | 1    | 1                           | 0    | 0    | 0    | 0    | 0    | 5     |
| Totals                         | 201         | 217  | 177  | 175  | 130  | 14   | 19                          | 22   | 20   | 20   | 27   | 9    | 1,174 |

influx of foreign graduates in 1936 the number in this second group has always been well below 1,000.

Of the 8,768 registered in 1941 there were 5,112 who were graduates of approved medical schools of the United States and Canada licensed by examination and 2,615 licensed without examination. By examination, 221 unapproved graduates and 697 foreign graduates

were registered. Likewise among those registered by endorsement there were 24 graduates of unapproved schools and 99 foreign graduates.

New York registered 735 graduates of approved schools of a total of 1,175 registered. This state licensed the largest number with foreign credentials 439. Only graduates of approved schools in the United States and Canada were registered in Kansas, Minnesota, Nebraska, Nevada, North Dakota, South Carolina and South Dakota.

#### GRADUATES OF UNAPPROVED MEDICAL SCHOOLS REGISTERED 1936-1941

Data regarding the number of graduates of those institutions which do not meet the standards outlined by the House of Delegates of the American Medical Association and enforced by the Council on Medical Education and Hospitals who were registered as medical licentiates in the United States, Alaska, Hawaii and Puerto Rico with or without examination from 1936 to 1941 inclusive are recorded in table 26.

In the six years shown, twenty states, Alaska, Hawaii and Puerto Rico registered 1,057 by examination and 117 by reciprocity or endorsement. In 1941 there were 152 registered in six states namely

TABLE 27—*Graduates of Schools of Osteopathy Registered by Medical Examining Boards 1936-1941*

|                | Examination |      |      |      |      |      | Reciprocity and Endorsement |      |      |      |      |      | Total |
|----------------|-------------|------|------|------|------|------|-----------------------------|------|------|------|------|------|-------|
|                | 1936        | 1937 | 1938 | 1939 | 1940 | 1941 | 1936                        | 1937 | 1938 | 1939 | 1940 | 1941 |       |
| Colorado       | 16          | 19   | 18   | 22   | 15   | 2    | 0                           | 0    | 0    | 0    | 0    | 0    | 92    |
| Connecticut    | 1           | 1    | 0    | 1    | 0    | 0    | 0                           | 0    | 0    | 0    | 0    | 0    | 3     |
| Dist. Columbia | 0           | 0    | 1    | 0    | 1    | 0    | 0                           | 0    | 0    | 0    | 0    | 2    | 4     |
| Indiana        | 2           | 2    | 2    | 4    | 7    | 3    | 1                           | 1    | 0    | 0    | 1    | 3    | 20    |
| Massachusetts  | 12          | 18   | 10   | 10   | 27   | 26   | 0                           | 0    | 0    | 0    | 0    | 0    | 103   |
| New Hampshire  | 1           | 4    | 2    | 0    | 2    | 0    | 0                           | 2    | 1    | 0    | 2    | 0    | 14    |
| New Jersey     | 0           | 52   | 46   | 45   | 47   | 34   | 0                           | 0    | 0    | 0    | 0    | 0    | 224   |
| Oregon         | 1           | 1    | 1    | 1    | 0    | 2    | 2                           | 0    | 1    | 1    | 1    | 2    | 13    |
| Texas          | 11          | 17   | 22   | 19   | 20   | 13   | 34                          | 72   | 37   | 17   | 1    | 1    | 264   |
| Virginia       | 4           | 2    | 1    | 0    | 0    | 3    | 0                           | 0    | 0    | 0    | 0    | 1    | 11    |
| Wisconsin      | 3           | 1    | 0    | 0    | 1    | 2    | 5                           | 2    | 3    | 0    | 0    | 0    | 17    |
| Wyoming        | 0           | 0    | 0    | 0    | 1    | 0    | 4                           | 4    | 1    | 2    | 0    | 0    | 12    |
| Totals         | 51          | 117  | 103  | 102  | 121  | 85   | 46                          | 81   | 43   | 20   | 9    | 9    | 783   |

California, Illinois, Iowa, Massachusetts, Missouri and New Jersey. Two states, Illinois and Massachusetts, registered 140 of the 152 reported. These statistics include 8 graduates of a school recently dissolved and from which the Council has removed inhibitions formerly made regarding this school. However, they were licensed during the period when the school was not recognized as an approved institution. Chart 1, on page 164, records graphically the number so registered, indicating by shaded lines those states registering fewer than 6 graduates of unapproved schools and by a solid area those registering more than 5 such candidates during 1941.

#### GRADUATES OF SCHOOLS OF OSTEOPATHY REGISTERED BY MEDICAL EXAMINING BOARDS 1936-1941

The number of graduates of schools of osteopathy granted the privilege of practicing medicine, surgery or both by medical examining boards from 1936 to 1941 inclusive are given in table 27. Osteopaths licensed by osteopathic boards and given medical privileges in some form are not included in these statistics. Likewise, excluded are osteopaths licensed by medical boards to practice osteopathy only.

In six years twelve states recognized such individuals and 783 were registered, 579 by examination and 204 by endorsement of credentials.

(CONTINUED ON PAGE 172)

TABLE 28—Physicians Examined on the Basis of Credentials Obtained in Countries Other Than the United States and Canada 1911

| Marginal Number | California | Connecticut | Idaho | Illinois | Indiana | Maine | Massachusetts | Michigan | Minnesota | Montana | New Hampshire | New Jersey | New York | Ohio | Pennsylvania | Rhode Island | Texas | Utah | Vermont | Virginia | Washington | West Virginia | Totals | Examined - Paid | Percentage of Failures | No. of Boards Examined by | Marginal Number |    |
|-----------------|------------|-------------|-------|----------|---------|-------|---------------|----------|-----------|---------|---------------|------------|----------|------|--------------|--------------|-------|------|---------|----------|------------|---------------|--------|-----------------|------------------------|---------------------------|-----------------|----|
| 1               | P          | F           | P     | F        | P       | F     | P             | F        | P         | F       | P             | F          | P        | F    | P            | F            | P     | F    | P       | F        | P          | F             | P      | F               | P                      | F                         | P               | F  |
| 2               |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 2      | 1               | 1                      | 500                       | 2               | 1  |
| 3               |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 1      | 0               | 1                      | 1000                      | 1               | 2  |
| 4               |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 15     | 21              | 22                     | 761                       | 2               | 4  |
| 5               | 1          | 0           | 0     | 1        | 1       | 1     |               | 2        |           |         |               |            | 10       | 9    |              |              |       |      | 1       | 1        |            |               | 15     | 21              | 1                      | 867                       | 2               | 6  |
| 6               | 0          | 1           |       | 1        | 1       |       |               |          |           |         |               | 1          | 2        |      |              |              |       |      |         |          |            |               | 15     | 21              | 2                      | 600                       | 2               | 6  |
| 7               |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 1      | 0               | 1                      | 1000                      | 1               | 7  |
| 8               |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 2      | 1               | 1                      | 500                       | 1               | 8  |
| 9               |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 0      | 6               | 7                      | 323                       | 1               | 9  |
| 10              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 1      | 0               | 1                      | 1000                      | 1               | 10 |
| 11              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 1      | 1               | 0                      | 00                        | 1               | 11 |
| 12              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 1      | 1               | 0                      | 00                        | 1               | 12 |
| 13              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 1      | 1               | 0                      | 00                        | 1               | 13 |
| 14              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 1      | 1               | 0                      | 00                        | 1               | 14 |
| 15              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 2      | 1               | 1                      | 311                       | 3               | 15 |
| 16              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 2      | 1               | 1                      | 500                       | 1               | 16 |
| 17              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 4      | 2               | 2                      | 500                       | 1               | 17 |
| 18              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 21     | 7               | 14                     | 667                       | 1               | 18 |
| 19              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 1      | 1               | 0                      | 00                        | 1               | 19 |
| 20              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 13     | 5               | 3                      | 615                       | 3               | 20 |
| 21              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 8      | 5               | 3                      | 621                       | 1               | 21 |
| 22              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 3      | 1               | 4                      | 200                       | 3               | 22 |
| 23              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 3      | 1               | 4                      | 200                       | 3               | 23 |
| 24              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 1      | 9               | 5                      | 604                       | 10              | 24 |
| 25              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 1      | 9               | 5                      | 604                       | 10              | 25 |
| 26              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 1      | 9               | 5                      | 604                       | 10              | 26 |
| 27              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 18     | 8               | 10                     | 536                       | 5               | 27 |
| 28              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 9      | 2               | 7                      | 778                       | 7               | 28 |
| 29              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 30     | 13              | 17                     | 567                       | 4               | 29 |
| 30              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 42     | 14              | 28                     | 667                       | 4               | 30 |
| 31              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 11     | 5               | 6                      | 545                       | 2               | 31 |
| 32              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 10     | 7               | 7                      | 700                       | 2               | 32 |
| 33              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 6      | 0               | 6                      | 1000                      | 2               | 33 |
| 34              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 69     | 28              | 41                     | 694                       | 8               | 34 |
| 35              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 3      | 3               | 2                      | 333                       | 2               | 35 |
| 36              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 32     | 10              | 12                     | 545                       | 6               | 36 |
| 37              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 35     | 12              | 23                     | 657                       | 5               | 37 |
| 38              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 0      | 1               | 1                      | 833                       | 3               | 38 |
| 39              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 50     | 24              | 20                     | 590                       | 8               | 39 |
| 40              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 8      | 2               | 0                      | 750                       | 2               | 40 |
| 41              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 9      | 4               | 5                      | 556                       | 2               | 41 |
| 42              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 6      | 3               | 5                      | 600                       | 2               | 42 |
| 43              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 479    | 206             | 273                    | 570                       | 14              | 43 |
| 44              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 4      | 1               | 3                      | 760                       | 3               | 44 |
| 45              |            |             |       |          |         |       |               |          |           |         |               |            |          |      |              |              |       |      |         |          |            |               | 4      | 1               | 3                      | 760                       | 3               | 45 |

Marginal Number

BELGIUM

1 Université Libre de Bruxelles

CHINA

2 Pennsylvania Medical School, Shanghai

CUBA

3 Universidad de la Habana

CZECHOSLOVAKIA

4 Deutsche Universitäts, Prag

5 Universita Karlova, Praha

6 Univerzita Komenského, Bratislava

DENMARK

7 Københavns Universitet

ENGLAND

8 Licentiate in Medicine, Surgery and Midwifery of the Apothecaries Society of London

9 Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England

10 London Hospital Medical College

11 St. Bartholomew's Hospital Medical College

12 University of Cambridge

13 University of London

FRANCE

14 Université de Bordeaux

15 Université de Lyon

16 Université de Montpellier

17 Université de Nancy

18 Université de Paris

GERMANY

19 Albert Ludwigs Universität, Freiburg

20 Albertus Universität, Königsberg

21 Christian Albrechts Universität, Kiel

22 Eberhard Karls Universität, Tübingen

23 Ernst Moritz Arndt Universität, Greifswald

24 Friedrich Alexanders Universität, Erlangen

25 Friedrich Wilhelms Universität, Berlin

26 Georg August Universität, Göttingen

27 Hamburgische Universität

28 Hessische Ludwigs Universität, Gießen

29 Johann Wolfgang Goethe Universität, Frankfurt am Main

30 Julius Maximilians Universität, Würzburg

31 Kaiser Wilhelms Universität, Strassburg

32 Karl Franzens Universität, Graz

33 Leopold Franzens Universität, Innsbruck

34 Ludwig Maximilians Universität, München

35 Medizinische Akademie Düsseldorf

36 Philipps Universität Marburg

37 Rheinische Friedrich Wilhelms Universität, Bonn

38 Schlesische Friedrich Wilhelms Universität, Breslau

39 Thüringische Landesuniversität Jena

40 Universität Heidelberg

41 Universität Köln

42 Universität Leipzig

43 Universität Rostock

44 Universität Wien

45 Universität Zürich

46 Universität Halle-Wittenberg

47 Universität Gießen

HUNGARY  
17 Magyar Királyi Felsőbbi Tudományegyetem Pécs  
18 Magyar Királyi Ferencz József Tudományegyetem Szeged  
19 Magyar Királyi Péter Pál Tudományegyetem Budapest  
20 Magyar Királyi Tiszai Iskolai Tudományegyetem Debrecen

IRELAND  
21 Licentiate of the Apothecaries Hall Dublin  
22 National University of Ireland  
23 Queen's University Belfast  
24 University of Dublin

ITALY  
25 Regia Università di Reindio, Muscolind di Bari  
26 Regia Università di Bologna  
27 Regia Università di Firenze  
28 Regia Università di Genova  
29 Regia Università di Messina  
30 Regia Università di Milano  
31 Regia Università di Napoli  
32 Regia Università di Padova  
33 Regia Università di Palermo  
34 Regia Università di Pisa  
35 Regia Università di Perugia  
36 Regia Università di Roma  
37 Regia Università di Siena  
38 Regia Università di Torino

#### LATVIA

39 Latvian University, Riga

#### LITHUANIA

40 American University of Beirut

41 Université de St Joseph, Bejruth

42 Mexico

43 Escuela Libre de Homocopatia, Puebla

44 Universidad Nacional México D.F.

45 Universidad Libre México Instituta Ciencias

46 Mexico

47 Rijks Universiteit te Groningen

48 Rijks Universiteit te Fribourg

49 Rijks Universiteit te Utrecht

50 Universiteit van Amsterdam

51 University of New Zealand

52 Kongelige Frederiks Universitet, Oslo

53 University of Oslo

54 Universitet Jagiellonski Orncow

55 Uniwersytet Jana Kazimierza, Lwów

56 Uniwersytet Józefa Piłsudskiego, Warszawa

57 Uniwersytet Stefana Batorego, Wilno

58 Universidade de Coimbra

59 Universidade de Lisboa

60 Anderson College of Medicine, Glasgow

61 School of the Royal College of Physicians, Glasgow

62 University of Glasgow

63 University of Glasgow

64 Karolinska Mediko Akademska Institutet, Stockholm

65 Universität Basel

66 Universität Bonn

67 Universität Zürich

68 Universität des Saarlandes

69 Universität de Lausanne

|    |   |    |      |   |     |
|----|---|----|------|---|-----|
| 10 | 7 | 12 | 632  | 6 | 17  |
| 11 | 2 | 1  | 311  | 1 | 18  |
| 12 | 1 | 2  | 618  | 7 | 19  |
| 13 | 1 | 2  | 311  | 1 | 20  |
| 14 | 1 | 0  | 00   | 1 | 21  |
| 15 | 1 | 0  | 1000 | 1 | 22  |
| 16 | 2 | 0  | 00   | 1 | 23  |
| 17 | 0 | 1  | 1000 | 1 | 24  |
| 18 | 1 | 2  | 700  | 1 | 25  |
| 19 | 1 | 2  | 737  | 6 | 26  |
| 20 | 1 | 2  | 100  | 2 | 27  |
| 21 | 1 | 8  | 889  | 1 | 28  |
| 22 | 1 | 5  | 911  | 5 | 29  |
| 23 | 1 | 8  | 431  | 2 | 30  |
| 24 | 1 | 2  | 700  | 4 | 31  |
| 25 | 1 | 2  | 851  | 6 | 32  |
| 26 | 1 | 5  | 625  | 5 | 33  |
| 27 | 1 | 1  | 800  | 2 | 34  |
| 28 | 1 | 1  | 730  | 1 | 35  |
| 29 | 1 | 2  | 1000 | 2 | 36  |
| 30 | 1 | 2  | 810  | 2 | 37  |
| 31 | 1 | 1  | 717  | 6 | 38  |
| 32 | 1 | 1  | 00   | 3 | 39  |
| 33 | 1 | 7  | 171  | 1 | 40  |
| 34 | 1 | 1  | 00   | 1 | 41  |
| 35 | 1 | 1  | 00   | 1 | 42  |
| 36 | 1 | 1  | 00   | 1 | 43  |
| 37 | 1 | 1  | 500  | 1 | 44  |
| 38 | 1 | 1  | 411  | 3 | 45  |
| 39 | 1 | 1  | 718  | 7 | 46  |
| 40 | 1 | 1  | 400  | 1 | 47  |
| 41 | 1 | 1  | 00   | 1 | 48  |
| 42 | 1 | 1  | 00   | 1 | 49  |
| 43 | 1 | 1  | 00   | 1 | 50  |
| 44 | 1 | 1  | 00   | 1 | 51  |
| 45 | 1 | 1  | 00   | 1 | 52  |
| 46 | 1 | 1  | 00   | 1 | 53  |
| 47 | 1 | 1  | 00   | 1 | 54  |
| 48 | 1 | 1  | 00   | 1 | 55  |
| 49 | 1 | 1  | 00   | 1 | 56  |
| 50 | 1 | 1  | 00   | 1 | 57  |
| 51 | 1 | 1  | 00   | 1 | 58  |
| 52 | 1 | 1  | 00   | 1 | 59  |
| 53 | 1 | 1  | 00   | 1 | 60  |
| 54 | 1 | 1  | 00   | 1 | 61  |
| 55 | 1 | 1  | 00   | 1 | 62  |
| 56 | 1 | 1  | 00   | 1 | 63  |
| 57 | 1 | 1  | 00   | 1 | 64  |
| 58 | 1 | 1  | 00   | 1 | 65  |
| 59 | 1 | 1  | 00   | 1 | 66  |
| 60 | 1 | 1  | 00   | 1 | 67  |
| 61 | 1 | 1  | 00   | 1 | 68  |
| 62 | 1 | 1  | 00   | 1 | 69  |
| 63 | 1 | 1  | 00   | 1 | 70  |
| 64 | 1 | 1  | 00   | 1 | 71  |
| 65 | 1 | 1  | 00   | 1 | 72  |
| 66 | 1 | 1  | 00   | 1 | 73  |
| 67 | 1 | 1  | 00   | 1 | 74  |
| 68 | 1 | 1  | 00   | 1 | 75  |
| 69 | 1 | 1  | 00   | 1 | 76  |
| 70 | 1 | 1  | 00   | 1 | 77  |
| 71 | 1 | 1  | 00   | 1 | 78  |
| 72 | 1 | 1  | 00   | 1 | 79  |
| 73 | 1 | 1  | 00   | 1 | 80  |
| 74 | 1 | 1  | 00   | 1 | 81  |
| 75 | 1 | 1  | 00   | 1 | 82  |
| 76 | 1 | 1  | 00   | 1 | 83  |
| 77 | 1 | 1  | 00   | 1 | 84  |
| 78 | 1 | 1  | 00   | 1 | 85  |
| 79 | 1 | 1  | 00   | 1 | 86  |
| 80 | 1 | 1  | 00   | 1 | 87  |
| 81 | 1 | 1  | 00   | 1 | 88  |
| 82 | 1 | 1  | 00   | 1 | 89  |
| 83 | 1 | 1  | 00   | 1 | 90  |
| 84 | 1 | 1  | 00   | 1 | 91  |
| 85 | 1 | 1  | 00   | 1 | 92  |
| 86 | 1 | 1  | 00   | 1 | 93  |
| 87 | 1 | 1  | 00   | 1 | 94  |
| 88 | 1 | 1  | 00   | 1 | 95  |
| 89 | 1 | 1  | 00   | 1 | 96  |
| 90 | 1 | 1  | 00   | 1 | 97  |
| 91 | 1 | 1  | 00   | 1 | 98  |
| 92 | 1 | 1  | 00   | 1 | 99  |
| 93 | 1 | 1  | 00   | 1 | 100 |



TABLE 28—Physicians Examined on the Basis of Credentials Obtained in Countries Other Than the United States and Canada 1941—Continued

| Marginal Number | UNION OF SOVIET REPUBLICS          | Totals |      |     |       |          |         |       |          |               |         |               |            |          |      |              |              |       |         |          |            |      | No. of Boards Examined by | Percentage of Failures | 1 Examined—Failed | 1 Examined—Passed | Marginal Number |
|-----------------|------------------------------------|--------|------|-----|-------|----------|---------|-------|----------|---------------|---------|---------------|------------|----------|------|--------------|--------------|-------|---------|----------|------------|------|---------------------------|------------------------|-------------------|-------------------|-----------------|
|                 |                                    | Cal    | Conn | Del | Idaho | Illinois | Indiana | Maine | Maryland | Massachusetts | Montana | New Hampshire | New Jersey | New York | Ohio | Pennsylvania | Rhode Island | Texas | Vermont | Virginia | Washington | West |                           |                        |                   |                   |                 |
| 100             | First Moscow Medical Institute     | P      | P    | P   | P     | P        | P       | P     | P        | P             | P       | P             | P          | P        | P    | P            | P            | P     | P       | P        | P          | P    | 1                         | 100.0                  | 1                 | 0                 | 100             |
| 101             | Second Leningrad Medical Institute | P      | P    | P   | P     | P        | P       | P     | P        | P             | P       | P             | P          | P        | P    | P            | P            | P     | P       | P        | P          | P    | 2                         | 100.0                  | 2                 | 0                 | 101             |
| 102             | Tomsk Medical Institute            | P      | P    | P   | P     | P        | P       | P     | P        | P             | P       | P             | P          | P        | P    | P            | P            | P     | P       | P        | P          | P    | 1                         | 0.0                    | 1                 | 1                 | 102             |
| 103             | Vinnitsa Medical Institute         | P      | P    | P   | P     | P        | P       | P     | P        | P             | P       | P             | P          | P        | P    | P            | P            | P     | P       | P        | P          | P    | 1                         | 100.0                  | 1                 | 0                 | 103             |
| 104             | Voronezh Medical Institute         | P      | P    | P   | P     | P        | P       | P     | P        | P             | P       | P             | P          | P        | P    | P            | P            | P     | P       | P        | P          | P    | 2                         | 50.0                   | 1                 | 1                 | 104             |
| 105             | Totals                             | 9      | 11   | 1   | 1     | 1        | 1       | 1     | 1        | 1             | 1       | 1             | 1          | 1        | 1    | 1            | 1            | 1     | 1       | 1        | 1          | 1    | 1                         | 1                      | 1                 | 1                 | 105             |
| 106             | Totals—Examined—Passed             | 9      | 11   | 1   | 1     | 1        | 1       | 1     | 1        | 1             | 1       | 1             | 1          | 1        | 1    | 1            | 1            | 1     | 1       | 1        | 1          | 1    | 1                         | 1                      | 1                 | 1                 | 106             |
| 107             | Totals—Examined—Failed             | 4      | 2    | 0   | 0     | 0        | 0       | 0     | 0        | 0             | 0       | 0             | 0          | 0        | 0    | 0            | 0            | 0     | 0       | 0        | 0          | 0    | 0                         | 0                      | 0                 | 0                 | 107             |
| 108             | Percentage Failed                  | 103    | 63   | 0   | 0     | 0        | 0       | 0     | 0        | 0             | 0       | 0             | 0          | 0        | 0    | 0            | 0            | 0     | 0       | 0        | 0          | 0    | 0                         | 0                      | 0                 | 0                 | 108             |

(CONTINUED FROM PAGE 169)

In 1941 nine states registered 85 by examination and 9 by endorsement of credentials, a total of 94. The number for each state so registered in 1941 is shown graphically in chart 2, page 166, indicating by shaded lines those registering fewer than 6 graduates of osteopathic schools and by a solid area more than 5 such candidates. Massachusetts, New Jersey and Texas registered 74 of the 94 so licensed. Colorado prior to 1941 was one of the four states recognizing the greatest number of such graduates but in 1941 only 2 were licensed.

In six years Texas registered 264, New Jersey 224, Massachusetts 103 and Colorado 92, a total of 683. In six years eight other states licensed altogether 100.

The situation in these states whereby the medical board is by law required to recognize such graduates is as follows:

In Colorado osteopaths have no separate board. They are admitted to examination under the medical practice act for a license to practice medicine. In Connecticut any registered osteopath may practice either medicine, surgery or both as the case may be after passing a satisfactory examination before the medical examining board.

In Indiana the licenses issued to osteopaths authorize the holders to practice osteopathy, surgery and obstetrics.

In Massachusetts the medical practice act by definition includes osteopathy in the practice of medicine and does not differentiate the type of license issued to an osteopathic applicant. The act requires that any applicant for license to practice must be in possession of a degree of doctor of medicine, or its equivalent, from a legally chartered medical school which gives a full four year course of instruction of not less than thirty-two weeks in each year.

In New Hampshire, osteopaths are granted the right to practice medicine and surgery by the Board of Registration in Medicine.

In New Jersey osteopaths licensed prior to Nov. 1, 1941 who furnished proof prior to that date, of having served for a period of two years as an intern or resident surgeon in an osteopathic or medical hospital approved by the state board of medical examiners, of having completed a postgraduate course of two years in a college of osteopathy or medicine approved by the board or of having had at least three years of practice in a hospital approved by the board could be admitted to an examination in pharmacology, therapeutics and surgery and, if the examination was passed could obtain a license to practice medicine and surgery. Since Nov. 1, 1941 all osteopathic applicants who have met the requirements of the medical practice act have received licenses to practice medicine and surgery.

The medical practice act of Texas provides for the issuing of a license to practice medicine only. Osteopaths are issued licenses unrestricted in scope.

In Virginia, osteopaths may obtain the right to perform surgery with the use of instruments if they satisfy the board of medical examiners that they have had "adequate clinical facilities in their respective college of graduation, or by hospital work to enable them to perform such operations."

In Wyoming the statutes contain no specific provision for the licensing of osteopaths. The medical practice act provides that the certificates issued to all applica-

"shall be deemed licenses to practice medicine in all branches in which the applicant has taken examination in this state"

In the District of Columbia Oregon and Wisconsin osteopaths are granted the right to practice surgery

#### PHYSICIANS EXAMINED ON BASIS OF CREDENTIALS OBTAINED IN COUNTRIES OTHER THAN THE UNITED STATES AND CANADA

The requirements of candidates for medical licensure in the United States Alaska Hawaii and Puerto Rico on the basis of credentials obtained in countries other than in the United States and Canada based on data recently received from state boards of medical examiners are given in table 29 Eighteen states report that, because of the inability to evaluate foreign credentials holders of such certificates are not eligible for licensure while one state reported that no new applications have been accepted since Feb 21 1941 Seventeen states Alaska Hawaii and Puerto Rico require full citizenship and ten states first naturalization papers as a condition precedent to taking the examination In some states the requirement is by rule of the medical board, in others the provision is by statute In addition, other restrictions are imposed Ten states which accept foreign graduates require a certificate in the basic sciences Sixteen states, Alaska Hawaii and Puerto Rico require a one year internship in a United States Hospital approved for intern training In five states there is a requirement of a senior year's work in an approved medical school in the United States In four states these graduates are not acceptable unless they can present a license to practice medicine and surgery in the country in which the school of graduation is located In one state a limited number contracting to practice in rural districts may be accepted, while another reports that enemy aliens are not considered

Table 28 presents figures regarding physicians examined on the basis of credentials obtained in countries other than the United States and Canada by licensing boards of the United States, Alaska and Puerto Rico The figures represent both American and foreign born physicians educated abroad Since 1930 and until the issuance of passports was terminated by the Department of State students from the United States migrated to Europe to obtain a medical education It is estimated that 2,000 were so studying in Europe Many were able to complete their training and returned to the United States to practice Many of those licensed in recent years represent foreign born physicians One hundred and four faculties of medicine, including four licensing corporations, of nineteen European and five other countries were represented There were 1,708 examined by twenty states, Alaska and Puerto Rico, of whom 690 passed and 1,018, 59.6 per cent, failed Graduates of the University of Vienna represented the largest group, 479, who were examined in fourteen states with a percentage of failures of 57 Ten states examined 139 graduates of the University of Berlin, of whom 60.4 per cent failed Graduates of all other schools were examined in fewer than ten states The greatest number examined by any one state (1,207) were in New York, of whom 426 passed and 64.7 per cent failed Massachusetts examined 139, of whom 102, 73.4 per cent, failed Illinois examined 119 of whom 34.5 per cent failed More than 25 were examined in 1941 in California Connecticut and New Jersey Of

TABLE 29—Requirements of Candidates for Medical Licensure on the Basis of Credentials Obtained in Countries Other Than the United States and Canada

|                                     | Admitted to<br>examination | Admitted by<br>endorsement of<br>State License | Citizenship | Basic Science<br>Certificate | Internship in<br>Hospital in<br>United States | Further Medical<br>Education | Examination<br>Fee, Dollars | Other Re-<br>quire-<br>ments |
|-------------------------------------|----------------------------|--|-------------|------------------------------|---|------------------------------|-----------------------------|------------------------------|
| Alabama                             | —                          | —  | —           | —                            | —   | —                            | 10                          | 1                            |
| Arizona                             | —                          | Not accepted                                   | —           | —                            | —   | —                            | —                           | —                            |
| Arkansas (reg and homeo<br>boards)  | —                          | Not accepted                                   | —           | —                            | —   | —                            | —                           | —                            |
| California                          | —                          | —  | —           | —                            | —   | —                            | —                           | —                            |
| Colorado                            | —                          | 1st P  | —           | —                            | —   | —                            | 25                          | 2                            |
| Connecticut (regular board)         | —                          | 1st P  | —           | —                            | —   | —                            | 25                          | —                            |
| Delaware (regular board)            | —                          | —  | —           | —                            | —   | —                            | 25                          | —                            |
| District of Columbia                | —                          | —  | —           | —                            | —   | —                            | 25                          | —                            |
| Florida                             | —                          | —  | —           | —                            | —   | —                            | 25                          | —                            |
| Georgia                             | —                          | —  | —           | —                            | —   | —                            | 25                          | —                            |
| Idaho                               | —                          | —  | —           | —                            | —   | —                            | 25                          | —                            |
| Illinois                            | —                          | 1st P  | —           | —                            | —   | —                            | 15                          | 5                            |
| Indiana                             | —                          | —  | —           | —                            | —   | —                            | 25                          | —                            |
| Iowa                                | —                          | —  | —           | —                            | —   | —                            | 25                          | —                            |
| Kansas                              | —                          | —  | —           | —                            | —   | —                            | 25                          | —                            |
| Kentucky                            | —                          | Not accepted                                   | —           | —                            | —   | —                            | 25                          | 11                           |
| Louisiana (reg and homeo<br>boards) | —                          | Not accepted                                   | —           | —                            | —   | —                            | —                           | —                            |
| Maine                               | —                          | 1st P  | —           | —                            | —   | —                            | 27                          | 11                           |
| Maryland (reg and homeo<br>boards)  | —                          | 1st P  | —           | —                            | —   | —                            | 25                          | 19                           |
| Massachusetts                       | —                          | 1st P  | —           | —                            | —   | —                            | 25                          | —                            |
| Michigan                            | —                          | —  | —           | —                            | —   | —                            | 25                          | —                            |
| Minnesota                           | —                          | Not accepted                                   | —           | —                            | —   | —                            | 25                          | —                            |
| Mississippi                         | —                          | Not accepted                                   | —           | —                            | —   | —                            | —                           | —                            |
| Missouri                            | —                          | —  | —           | —                            | —   | —                            | 15                          | —                            |
| Montana                             | —                          | —  | —           | —                            | —   | —                            | 50                          | —                            |
| Nebraska                            | —                          | —  | —           | —                            | —   | —                            | 25                          | —                            |
| Nevada                              | —                          | Not accepted                                   | —           | —                            | —   | —                            | 25                          | —                            |
| New Hampshire                       | —                          | —  | —           | —                            | —   | —                            | 20                          | 15                           |
| New Jersey                          | —                          | —  | —           | —                            | —   | —                            | 25                          | —                            |
| New Mexico                          | —                          | Not accepted                                   | —           | —                            | —   | —                            | 25                          | —                            |
| New York                            | —                          | 1st P  | —           | —                            | —   | —                            | 25                          | —                            |
| North Carolina                      | —                          | Not accepted                                   | —           | —                            | —   | —                            | —                           | —                            |
| North Dakota                        | —                          | —  | —           | —                            | —   | —                            | 25                          | 11                           |
| Ohio                                | —                          | —  | —           | —                            | —   | —                            | 25                          | —                            |
| Oklahoma                            | —                          | Not accepted                                   | —           | —                            | —   | —                            | 25                          | —                            |
| Oregon                              | —                          | —  | —           | —                            | —   | —                            | —                           | —                            |
| Pennsylvania                        | —                          | 1st P  | —           | —                            | —   | —                            | 25                          | —                            |
| Rhode Island                        | —                          | 1st P  | —           | —                            | —   | —                            | 25                          | —                            |
| South Carolina                      | —                          | Not accepted                                   | —           | —                            | —   | —                            | 20                          | 13                           |
| South Dakota                        | —                          | Not accepted                                   | —           | —                            | —   | —                            | —                           | —                            |
| Tennessee                           | —                          | Not accepted                                   | —           | —                            | —   | —                            | —                           | —                            |
| Texas                               | —                          | —  | —           | —                            | —   | —                            | 25                          | —                            |
| Utah                                | —                          | Not accepted                                   | —           | —                            | —   | —                            | —                           | —                            |
| Vermont                             | —                          | Not accepted                                   | —           | —                            | —   | —                            | —                           | —                            |
| Virginia                            | —                          | Not accepted                                   | —           | —                            | —   | —                            | —                           | —                            |
| Washington                          | —                          | 1st P  | —           | —                            | —   | —                            | 25                          | 34                           |
| West Virginia                       | —                          | Not accepted                                   | —           | —                            | —   | —                            | 25                          | 9                            |
| Wisconsin                           | —                          | Not accepted                                   | —           | —                            | —   | —                            | —                           | —                            |
| Wyoming                             | —                          | Not accepted                                   | —           | —                            | —   | —                            | —                           | —                            |
| Alaska                              | —                          | —  | —           | —                            | —   | —                            | 25                          | —                            |
| Hawaii                              | —                          | —  | —           | —                            | —   | —                            | 25                          | —                            |
| Puerto Rico                         | —                          | —  | —           | —                            | —   | —                            | 25                          | —                            |

\* Refer to chart of Reciprocity and Endorsement Policies for further data

1 Certificate of National Board of Medical Examiners and licensure in country in which school of graduation is located

2 Internship or one year in medical school in United States

3 Certificate of National Board of Medical Examiners

4 For graduates of last five years if more than five years \$50

5 Residence of one year in Delaware

6 Provided similar privileges are accorded licensees of District of Columbia by licensing agency of the jurisdiction from which the applicant comes

7 Senior year in class A medical school in United States

8 No applications accepted after Feb 21 1941

9 Enemy aliens not accepted

10 Application must be filed six months prior to date of examination

11 Licensed to practice medicine and surgery in country in which school of graduation is located otherwise required to complete senior year in approved medical school in United States

12 Diplomates of the National Board of Medical Examiners eligible

13 License to practice medicine and surgery in the country in which the school of graduation is located

14 Internship and one year graduate work

15 Diplomates of the National Board of Medical Examiners exempt from special requirements

16 Internship and graduate work

17 Internship completed in foreign countries after July 1 1934 not acceptable

18 Rotating Internship in approved hospital in the United States or completion of senior year in class A medical school in the United States

19 These requirements apply also to graduates of Canadian schools

20 Graduates from foreign medical colleges accepted if they present also a diploma from an approved medical school in the United States

21 Provided standard was the same as California on the same date Council of Delaware required

22 Degree from an American medical college acceptable to the Medical Council of Delaware required

23 Diplomates of the National Board of Medical Examiners accepted

24 Very limited number contracting to practice in rural districts may be accepted

TABLE 30—Physicians Examined on the Basis of Credentials Obtained in Countries Other Than the United States and Canada by Licensing Boards of the United States and Possessions, 1936-1941

|   | 1936-1940          |                      | 1941               |                              |   | 1936-1940          |                      | 1941               |                      |
|---|--------------------|----------------------|--------------------|------------------------------|---|--------------------|----------------------|--------------------|----------------------|
|   | Number<br>Examined | Percentage<br>Failed | Number<br>Examined | Percentage<br>Failed         |   | Number<br>Examined | Percentage<br>Failed | Number<br>Examined | Percentage<br>Failed |
| AUSTRIA   |                    |                      |                    |                              |   |                    |                      |                    |                      |
| University of Salzburg  | 1                  | 0.0                  | 0                  | 0.0                          | Licentiate of the Royal College of Physicians of Ireland and Licentiate of the Royal College of Surgeons in Ireland                                     |                    |                      |                    |                      |
| BELGIUM   |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Université de Liège   | 1                  | 50.0                 | 0                  | 0.0                          | National University of Ireland  |                    |                      |                    |                      |
| Université Libre de Bruxelles   | 11                 | 18.2                 | 2                  | 50.0                         | Queen's University, Belfast   |                    |                      |                    |                      |
| Université de Louvain   | 4                  | 75.0                 | 0                  | 0.0                          | University of Dublin  |                    |                      |                    |                      |
| BOLIVIA   |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Universidad de Chile, Sucre   | 1                  | 0.0                  | 0                  | 0.0                          | Regia Università di "Benito Mussolini" di Bari  |                    |                      |                    |                      |
| CHINA   |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Pennsylvania Medical School, Shanghai   | 6                  | 16.7                 | 1                  | 100.0                        | Regia Università di Bologna   |                    |                      |                    |                      |
| Womans Christian Medical College, Shanghai  | 1                  | 0.0                  | 0                  | 0.0                          | Regia Università di Catania   |                    |                      |                    |                      |
| CHINA   |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Universidad de la Habana  | 6                  | 66.7                 | 1                  | 100.0                        | Regia Università di Firenze   |                    |                      |                    |                      |
| CZECHOSLOVAKIA  |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Deutscher Universität Prag  | 1                  | 16.7                 | 1                  | 100.0                        | Regia Università di Genova  |                    |                      |                    |                      |
| Masarykova University Brno  | 1                  | 0.0                  | 0                  | 0.0                          | Regia Università di Messina   |                    |                      |                    |                      |
| Universita Karlova Praha  | 1                  | 16.7                 | 1                  | 100.0                        | Regia Università di Milano  |                    |                      |                    |                      |
| Universita Komenského Bratislava  | 1                  | 20.0                 | 1                  | 100.0                        | Regia Università di Modena  |                    |                      |                    |                      |
| DENMARK   |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Københavns Universitet  | 1                  | 100.0                | 1                  | 100.0                        | Regia Università di Napoli  |                    |                      |                    |                      |
| ENGLAND   |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Christ Church Hospital Medical School, London   | 1                  | 0.0                  | 0                  | 0.0                          | Regia Università di Padova  |                    |                      |                    |                      |
| Fellow of the Royal College of Physicians of London   | 1                  | 0.0                  | 0                  | 0.0                          | Regia Università di Palermo   |                    |                      |                    |                      |
| Licentiate in Medicine, Surgery and Midwifery of the Apothecaries Society of London   | 6                  | 66.7                 | 2                  | 50.0                         | Regia Università di Pisa  |                    |                      |                    |                      |
| Licentiate of the Royal College of Physicians of London and Member of the Royal College of Physicians of London   | 1                  | 0.0                  | 0                  | 0.0                          | Regia Università di Perugia   |                    |                      |                    |                      |
| Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England  | 1                  | 18.0                 | 0                  | 0.0                          | Regia Università di Roma  |                    |                      |                    |                      |
| London Hospital Medical College   | 0                  | 0.0                  | 1                  | 100.0                        | Regia Università di Sassari   |                    |                      |                    |                      |
| Middlesex Hospital Medical School, London   | 1                  | 0.0                  | 0                  | 0.0                          | Regia Università di Torino  |                    |                      |                    |                      |
| St. Bartholomew's Hospital Medical College  | 0                  | 0.0                  | 1                  | 0.0                          | Imperial Medical College, Tokyo   |                    |                      |                    |                      |
| University of Birmingham  | 1                  | 0.0                  | 0                  | 0.0                          | Latvian University, Riga  |                    |                      |                    |                      |
| University of Bristol   | 1                  | 0.0                  | 0                  | 0.0                          | American University of Beirut   |                    |                      |                    |                      |
| University of Cambridge   | 2                  | 0.0                  | 1                  | 0.0                          | Université de St. Joseph, Beyrouth  |                    |                      |                    |                      |
| University of Durham Newcastle upon Tyne  | 2                  | 0.0                  | 0                  | 0.0                          | Escuela Libre de Homeopatia del Estado de Puebla  |                    |                      |                    |                      |
| University of Liverpool   | 1                  | 0.0                  | 0                  | 0.0                          | Escuela Medica Militar, Mexico, D. F.   |                    |                      |                    |                      |
| University of London  | 1                  | 2.0                  | 1                  | 0.0                          | Universidad Libre Mexico Instituto de Ciencias  |                    |                      |                    |                      |
| University of Oxford  | 2                  | 0.0                  | 0                  | 0.0                          | Universidad Nacional, Mexico, D. F.   |                    |                      |                    |                      |
| University of Sheffield   | 2                  | 0.0                  | 0                  | 0.0                          | Rijks Universiteit te Groningen   |                    |                      |                    |                      |
| ESTONIA   |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Universit de Tartu  | 100.0              | 0                    | 0.0                | Rijks Universiteit te Leiden |   |                    |                      |                    |                      |
| FRANCE  |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Université de Bordeaux  | 2                  | 0.0                  | 1                  | 0.0                          | Rijks Universiteit te Utrecht   |                    |                      |                    |                      |
| Université de Lyon  | 10                 | 0.0                  | 1                  | 0.0                          | Universiteit van Amsterdam  |                    |                      |                    |                      |
| Université de Montpellier   | 8                  | 2.0                  | 2                  | 0.0                          | New Zealand   |                    |                      |                    |                      |
| Université de Nancy   | 9                  | 66.7                 | 4                  | 50.0                         | Kongelige Frederiks Universitet, Oslo   |                    |                      |                    |                      |
| Université de Paris   | 12                 | 7.0                  | 21                 | 66.7                         | Poland  |                    |                      |                    |                      |
| Université de Strasbourg  | 6                  | 0.0                  | 0                  | 0.0                          | Uniwersytet Jagielloński, Cracow  |                    |                      |                    |                      |
| Université de Toulouse  | 1                  | 0.0                  | 0                  | 0.0                          | Uniwersytet Janusz Kuzmierzka, Iwów   |                    |                      |                    |                      |
| GERMANY   |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Albert-Ludwigs-Universität, Freiburg  | 121                | 19.6                 | 1                  | 51.1                         | Uniwersytet Józefa Piłsudskiego, Warszawa   |                    |                      |                    |                      |
| Albert-Ludwigs-Universität, Königsberg  | 71                 | 76.0                 | 1                  | 61.1                         | Uniwersytet Stefana Batoryego, Wilno  |                    |                      |                    |                      |
| Christian-Albrechts-Universität, Kiel   | 23                 | 16.4                 | 8                  | 62.5                         | Universidade de Coimbra   |                    |                      |                    |                      |
| Friedrich-Karl-Universität, Jena  | 29                 | 31.7                 | 1                  | 20.0                         | Universidade de Lisbon  |                    |                      |                    |                      |
| Friedrich-Wilhelm-Universität, Göttingen  | 1                  | 100.0                | 1                  | 20.0                         | RUMANIA   |                    |                      |                    |                      |
| Friedrich-Wilhelm-Universität, Erlangen   | 12                 | 39.4                 | 2                  | 100.0                        | Universitatea din Bucuresti   |                    |                      |                    |                      |
| Friedrich-Wilhelm-Universität, Berlin   | 650                | 44.9                 | 18                 | 60.4                         | Universitatea Regele Ferdinand I din Cluj   |                    |                      |                    |                      |
| Georg-August-Universität, Göttingen   | 42                 | 32.4                 | 8                  | 87.5                         | SCOTLAND  |                    |                      |                    |                      |
| Hannoversche Universität  | 89                 | 11.5                 | 18                 | 55.6                         | Anderson College of Medicine, Glasgow   |                    |                      |                    |                      |
| Hessische-Ludwigs-Universität, Gießen   | 6                  | 55.6                 | 9                  | 77.8                         | Fellow of the Royal Faculty of Physicians and Surgeons of Glasgow   |                    |                      |                    |                      |
| Johann-Wolfgang-Goethe-Universität, Frankfurt am Main   | 127                | 40.2                 | 30                 | 56.7                         | Licentiate of the Royal College of Physicians of Edinburgh and Licentiate of the Royal College of Surgeons of Edinburgh                                 |                    |                      |                    |                      |
| Julius-Maximilians-Universität, Würzburg  | 126                | 31.4                 | 42                 | 66.7                         | Licentiate of the Royal College of Physicians, of the Royal College of Surgeons, Edinburgh, and of the Royal Faculty of Physicians and Surgeons Glasgow |                    |                      |                    |                      |
| Kaiser-Wilhelms-Universität, Strassburg   | 0                  | 50.0                 | 11                 | 54.5                         | School of Medicine of the Royal Colleges, Edinburgh   |                    |                      |                    |                      |
| Karl-Franzens-Universität, Graz   | 35                 | 51.1                 | 10                 | 70.0                         | St. Mungo's College Medical School, Glasgow   |                    |                      |                    |                      |
| Leopold-Franzens-Universität, Innsbruck   | 11                 | 35.5                 | 6                  | 100.0                        | University of Aberdeen  |                    |                      |                    |                      |
| Ludwig-Maximilians-Universität, München   | 260                | 47.7                 | 69                 | 69.4                         | University of Edinburgh   |                    |                      |                    |                      |
| Medizinische Akademie Düsseldorf  | 26                 | 42.3                 | 1                  | 33.3                         | University of Glasgow   |                    |                      |                    |                      |
| Philipps-Universität, Marburg   | 13                 | 69.2                 | 5                  | 40.0                         | University of St. Andrews   |                    |                      |                    |                      |
| Rheinische-Friedrich-Wilhelms-Universität, Bonn   | 92                 | 50.0                 | 22                 | 54.5                         | SPAIN   |                    |                      |                    |                      |
| Sächsische-Friedrich-Wilhelms-Universität, Breslau  | 178                | 41.0                 | 15                 | 15.7                         | Universidad Central de España, Madrid   |                    |                      |                    |                      |
| Thüringische Landesuniversität, Jena  | 19                 | 47.4                 | 6                  | 8.3                          | Universidad de Santiago   |                    |                      |                    |                      |
| Universität Heidelberg  | 102                | 46.4                 | 50                 | 52.0                         | SWEDEN  |                    |                      |                    |                      |
| Universität Köln  | 48                 | 37.5                 | 8                  | 75.0                         | Karolinska Mediko Kirurgiska Institutet, Stockholm  |                    |                      |                    |                      |
| Universität Leipzig   | 82                 | 47.6                 | 9                  | 56.6                         | SWITZERLAND   |                    |                      |                    |                      |
| Universität Rostock   | 32                 | 69.4                 | 6                  | 50.0                         | Universität Basel   |                    |                      |                    |                      |
| Universität Wien  | 1,318              | 45.7                 | 470                | 57.0                         | Universität Bern  |                    |                      |                    |                      |
| Vereinigte-Friedrichs-Universität, Halle-Wittenberg   | 32                 | 50.0                 | 7                  | 85.7                         | Universität Zurich  |                    |                      |                    |                      |
| Westfälische-Wilhelms-Universität, Münster  | 1                  | 0.0                  | 0                  | 0.0                          | Université de Genève  |                    |                      |                    |                      |
| GREECE  |                    |                      |                    |                              |   |                    |                      |                    |                      |
| National University of Athens   | 10                 | 84.2                 | 4                  | 75.0                         | Université de Lausanne  |                    |                      |                    |                      |
| GUATEMALA   |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Universidad Nacional de Guatemala   | 1                  | 0.0                  | 0                  | 0.0                          | TURKEY  |                    |                      |                    |                      |
| HUNGARY   |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Magyar Királyi I. József Tudományegyetem, Pécs  | 95                 | 60.0                 | 19                 | 63.2                         | University of Istanbul  |                    |                      |                    |                      |
| Magyar Királyi I. József Tudományegyetem, Szeged  | 15                 | 66.7                 | 3                  | 33.3                         | UNION OF SOCIALIST SOVIET REPUBLICS   |                    |                      |                    |                      |
| Magyar Királyi Pázmány Petrus Tudományegyetem, Budapest   | 91                 | 52.7                 | 38                 | 65.8                         | First Leningrad Medical Institute   |                    |                      |                    |                      |
| Magyar Királyi Tisza István Tudományegyetem, Debrecen   | 4                  | 50.0                 | 3                  | 33.3                         | First Moscow Medical Institute  |                    |                      |                    |                      |
| IRELAND   |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Licentiate of the Apothecaries' Hall, Dublin  | 1                  | 100.0                | 1                  | 0.0                          | Kharkov Medical Institute   |                    |                      |                    |                      |
| IRELAND   |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Licentiate of the Royal College of Physicians of Ireland and Licentiate of the Royal College of Surgeons in Ireland                                     | 3                  | 66.7                 | 0                  | 0.0                          | Kiev Medical Institute  |                    |                      |                    |                      |
| National University of Ireland  | 8                  | 37.5                 | 1                  | 100.0                        | Military Medical Academy, Leningrad   |                    |                      |                    |                      |
| Queen's University, Belfast   | 1                  | 0.0                  | 2                  | 0.0                          | Second Leningrad Medical Institute  |                    |                      |                    |                      |
| University of Dublin  | 17                 | 29.4                 | 3                  | 100.0                        | Second Moscow Medical Institute   |                    |                      |                    |                      |
| ITALY   |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Regia Università di "Benito Mussolini" di Bari  | 5                  | 80.0                 | 4                  | 50.0                         | Tomsk Medical Institute   |                    |                      |                    |                      |
| Regia Università di Bologna   | 129                | 33.6                 | 41                 | 38.1                         | Vinnitsa Medical Institute  |                    |                      |                    |                      |
| Regia Università di Catania   | 3                  | 33.3                 | 0                  | 0.0                          | Voronezh Medical Institute  |                    |                      |                    |                      |
| Regia Università di Firenze   | 25                 | 40.0                 | 5                  | 40.0                         | Totals  |                    |                      |                    |                      |
| Regia Università di Genova  | 22                 | 81.8                 | 9                  | 83.9                         | 6,401   |                    |                      |                    |                      |
| Regia Università di Messina   | 11                 | 100.0                | 6                  | 83.3                         | 40  |                    |                      |                    |                      |
| Regia Università di Milano  | 22                 | 50.0                 | 12                 | 33.3                         | 1,700   |                    |                      |                    |                      |
| Regia Università di Modena  | 15                 | 80.0                 | 8                  | 53.3                         | 4   |                    |                      |                    |                      |
| Regia Università di Napoli  | 163                | 65.0                 | 34                 | 83.3                         |   |                    |                      |                    |                      |
| Regia Università di Padova  | 24                 | 58.3                 | 8                  | 62.5                         |   |                    |                      |                    |                      |
| Regia Università di Palermo   | 17                 | 70.6                 | 9                  | 80.0                         |   |                    |                      |                    |                      |
| Regia Università di Pisa  | 5                  | 80.0                 | 4                  | 100.0                        |   |                    |                      |                    |                      |
| Regia Università di Perugia   | 13                 | 53.8                 | 2                  | 100.0                        |   |                    |                      |                    |                      |
| Regia Università di Roma  | 28                 | 60.7                 | 13                 | 84.6                         |   |                    |                      |                    |                      |
| Regia Università di Sassari   | 253                | 53.0                 | 46                 | 17.7                         |   |                    |                      |                    |                      |
| Regia Università di Torino  | 18                 | 72.2                 | 8                  | 50.0                         |   |                    |                      |                    |                      |
| Regia Università di Venezia   | 11                 | 45.5                 | 17                 | 41.1                         |   |                    |                      |                    |                      |
| JAPAN   |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Imperial Medical College, Tokyo   | 5                  | 100.0                | 0                  | 0.0                          |   |                    |                      |                    |                      |
| LATVIA  |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Latvian University, Riga  | 3                  | 100.0                | 1                  | 0.0                          |   |                    |                      |                    |                      |
| LIBANON   |                    |                      |                    |                              |   |                    |                      |                    |                      |
| American University of Beirut   | 6                  | 0.0                  | 3                  | 33.3                         |   |                    |                      |                    |                      |
| Université de St. Joseph, Beyrouth  | 2                  | 100.0                | 2                  | 0.0                          |   |                    |                      |                    |                      |
| MEXICO  |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Escuela Libre de Homeopatia del Estado de Puebla  | 2                  | 100.0                | 1                  | 100.0                        |   |                    |                      |                    |                      |
| Escuela Medica Militar, Mexico, D. F.   | 6                  | 83.3                 | 0                  | 0.0                          |   |                    |                      |                    |                      |
| Universidad Libre Mexico Instituto de Ciencias  | 0                  | 0.0                  | 1                  | 100.0                        |   |                    |                      |                    |                      |
| Universidad Nacional, Mexico, D. F.   | 12                 | 75.0                 | 1                  | 0.0                          |   |                    |                      |                    |                      |
| NETHERLANDS   |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Rijks Universiteit te Groningen   | 3                  | 33.3                 | 2                  | 0.0                          |   |                    |                      |                    |                      |
| Rijks Universiteit te Leiden  | 1                  | 0.0                  | 2                  | 50.0                         |   |                    |                      |                    |                      |
| Rijks Universiteit te Utrecht   | 1                  | 0.0                  | 2                  | 50.0                         |   |                    |                      |                    |                      |
| Universiteit van Amsterdam  | 4                  | 25.0                 | 11                 | 45.0                         |   |                    |                      |                    |                      |
| NEW ZEALAND   |                    |                      |                    |                              |   |                    |                      |                    |                      |
| University of New Zealand   | 0                  | 0.0                  | 1                  | 0.0                          |   |                    |                      |                    |                      |
| NORWAY  |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Kongelige Frederiks Universitet, Oslo   | 1                  | 0.0                  | 1                  | 100.0                        |   |                    |                      |                    |                      |
| POLAND  |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Uniwersytet Jagielloński, Cracow  | 1                  | 100.0                | 2                  | 0.0                          |   |                    |                      |                    |                      |
| Uniwersytet Janusz Kuzmierzka, Iwów   | 7                  | 42.9                 | 1                  | 100.0                        |   |                    |                      |                    |                      |
| Uniwersytet Józefa Piłsudskiego, Warszawa   | 9                  | 66.7                 | 2                  | 50.0                         |   |                    |                      |                    |                      |
| Uniwersytet Stefana Batoryego, Wilno  | 8                  | 37.5                 | 1                  | 100.0                        |   |                    |                      |                    |                      |
| PORTUGAL  |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Universidade de Coimbra   | 0                  | 0.0                  | 3                  | 33.3                         |   |                    |                      |                    |                      |
| Universidade de Lisbon  | 1                  | 100.0                | 1                  | 100.0                        |   |                    |                      |                    |                      |
| RUMANIA   |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Universitatea din Bucuresti   | 2                  | 50.0                 | 0                  | 0.0                          |   |                    |                      |                    |                      |
| Universitatea Regele Ferdinand I din Cluj   | 3                  | 33.3                 | 0                  | 0.0                          |   |                    |                      |                    |                      |
| SCOTLAND  |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Anderson College of Medicine, Glasgow   | 1                  | 100.0                | 2                  | 50.0                         |   |                    |                      |                    |                      |
| Fellow of the Royal Faculty of Physicians and Surgeons of Glasgow   | 1                  | 0.0                  | 0                  | 0.0                          |   |                    |                      |                    |                      |
| Licentiate of the Royal College of Physicians of Edinburgh and Licentiate of the Royal College of Surgeons of Edinburgh                                 | 2                  | 0.0                  | 0                  | 0.0                          |   |                    |                      |                    |                      |
| Licentiate of the Royal College of Physicians, of the Royal College of Surgeons, Edinburgh, and of the Royal Faculty of Physicians and Surgeons Glasgow | 284                | 22.2                 | 60                 | 60.0                         |   |                    |                      |                    |                      |
| School of Medicine of the Royal Colleges, Edinburgh   | 1                  | 0.0                  | 1                  | 0.0                          |   |                    |                      |                    |                      |
| St. Mungo's College Medical School, Glasgow   | 1                  | 0.0                  | 0                  | 0.0                          |   |                    |                      |                    |                      |
| University of Aberdeen  | 4                  | 0.0                  | 0                  | 0.0                          |   |                    |                      |                    |                      |
| University of Edinburgh   | 43                 | 9.3                  | 1                  | 100.0                        |   |                    |                      |                    |                      |
| University of Glasgow   | 26                 | 39.0                 | 1                  | 100.0                        |   |                    |                      |                    |                      |
| University of St. Andrews   | 31                 | 22.6                 | 0                  | 0.0                          |   |                    |                      |                    |                      |
| SPAIN   |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Universidad Central de España, Madrid   | 4                  | 25.0                 | 0                  | 0.0                          |   |                    |                      |                    |                      |
| Universidad de Santiago   | 1                  | 0.0                  | 0                  | 0.0                          |   |                    |                      |                    |                      |
| SWEDEN  |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Karolinska Mediko Kirurgiska Institutet, Stockholm  | 1                  | 100.0                | 0                  | 0.0                          |   |                    |                      |                    |                      |
| SWITZERLAND   |                    |                      |                    |                              |   |                    |                      |                    |                      |
| Universität Basel   | 164                | 34.8                 | 13                 | 41.1                         |   |                    |                      |                    |                      |
| Universität Bern  | 249                | 36.9                 | 33                 | 71.5                         |   |                    |                      |                    |                      |
| Universität Zurich  | 122                | 36.1                 | 20                 | 40.0                         |   |                    |                      |                    |                      |
| Université de Genève  | 100                | 37.0                 | 12                 | 55.0                         |   |                    |                      |                    |                      |
| Université de Lausanne  | 126                | 43.7                 | 4                  | 13.3                         |   |                    |                      |                    |                      |
| TURKEY  |                    |                      |                    |                              |   |                    |                      |                    |                      |
| University of Istanbul  | 3                  | 100.0                | 0                  | 0.0                          |   |                    |                      |                    |                      |
| UNION OF SOCIALIST SOVIET REPUBLICS   |                    |                      |                    |                              |   |                    |                      |                    |                      |
| First Leningrad Medical Institute   | 1                  | 100.0                | 0                  | 0.0                          |   |                    |                      |                    |                      |
| First Moscow Medical Institute  | 2                  | 0.0                  | 1                  | 100.0                        |   |                    |                      |                    |                      |
| Kharkov Medical Institute   | 1                  | 0.0                  | 0                  | 0.0                          |   |                    |                      |                    |                      |
| Kiev Medical Institute  | 5                  | 80.0                 | 0                  | 0.0                          |   |                    |                      |                    |                      |
| Military Medical Academy, Leningrad   | 1                  | 100.0                | 2                  | 100.0                        |   |                    |                      |                    |                      |
| Second Leningrad Medical Institute  | 4                  | 50.0                 | 0                  | 0.0                          |   |                    |                      |                    |                      |
| Second Moscow Medical Institute   | 1                  | 0.0                  | 1                  | 100.0                        |   |                    |                      |                    |                      |
| Tomsk Medical Institute   | 1                  | 100.0                | 1                  | 100.0                        |   |                    |                      |                    |                      |
| Vinnitsa Medical Institute  | 1                  | 100.0                | 1                  | 100.0                        |   |                    |                      |                    |                      |
| Voronezh Medical Institute  | 1                  | 100.0                | 1                  | 100.0                        |   |                    |                      |                    |                      |
| Totals  |                    |                      |                    |                              |   |                    |                      |                    |                      |
| 6,401   |                    |                      |                    |                              |   |                    |                      |                    |                      |

these states Connecticut had the highest percentage of failures 68.3. Seven states examined 1 each, 6 of whom were successful.

Chart 3, page 168 shows in graphic form the number registered during 1941 by states examining graduates of foreign faculties of medicine. Included in the

TABLE 31—Physicians Examined on the Basis of Credentials Obtained in Countries Other Than the United States and Canada 1930-1941

| Year   | Number Examined | Passed | Percentage Failed |
|--------|-----------------|--------|-------------------|
| 1930   | 167             | 92     | 44.9              |
| 1931   | 138             | 91     | 42.4              |
| 1932   | 162             | 96     | 47.3              |
| 1933   | 200             | 129    | 35.5              |
| 1934   | 283             | 170    | 40.2              |
| 1935   | 437             | 303    | 30.7              |
| 1936   | 588             | 382    | 35.0              |
| 1937   | 920             | 637    | 30.8              |
| 1938   | 1,164           | 716    | 38.5              |
| 1939   | 1,691           | 839    | 50.4              |
| 1940   | 2,088           | 948    | 54.7              |
| 1941   | 1,708           | 690    | 59.6              |
| Totals | 9,688           | 5,093  | 46.9              |

chart are 52 granted licenses without examination, with but 3 exceptions, on the basis of a license obtained in the United States. The states which licensed more than 5 graduates are indicated by states reproduced in black, those shaded, 5 or less.

In table 30 are assembled figures showing for the five year period 1936-1940 the number of graduates of faculties of medicine outside the United States and Canada admitted to licensing examinations in this country. Included also is a tabulation for 1941. There were represented one hundred and nineteen European faculties and nine of the licensing corporations of Great Britain, and sixteen schools of other countries.

During the five year period 1936-1940, 6,451 were examined, with 45.2 per cent failures and, in 1941, 1,708 with 59.6 per cent failures.

The largest group from any one school examined in the five year period were 1,318 from the University of Vienna, of whom 45.7 per cent failed. There were 650 from the University of Berlin, with 44.9 per cent failures. Large numbers also were examined who presented credentials from the universities of Prague, Paris, Freiburg, Frankfurt-on-the-Main, Wurzburg, Munich, Breslau, Heidelberg, Bologna, Naples, Rome, Basel, Bern, Zurich, Geneva and Lausanne. There were 284 in the five year period who presented in lieu

TABLE 32—Annual Registration Required

|             |              |
|-------------|--------------|
| Alaska      | Nebraska     |
| Arizona     | Nevada       |
| California  | New York     |
| Colorado    | North Dakota |
| Connecticut | Oklahoma     |
| Florida     | Oregon       |
| Hawaii      | Pennsylvania |
| Idaho       | Texas        |
| Iowa        | Utah         |
| Kansas      | Washington   |
| Louisiana   | Wyoming      |
| Minnesota   |              |

of the M.D. degree the triple qualification certificate of Scotland. These individuals secured their education in the so-called extramural schools of Scotland.

Table 31 records the number of graduates of faculties of medicine abroad examined for medical licensure in the United States in twelve years, 1930 to 1941 inclusive. Altogether 9,588 were examined, of whom 5,093 passed and 46.9 per cent failed. The greatest number 2,088, were examined in 1940, when 54.7 per cent failed. The number licensed in twelve years

increased from 92 in 1930 to the high peak of 948 in 1940. In 1941, 158 fewer were registered than in 1940. The highest percentage of failures occurred in 1941, 59.6. At no time during this twelve year period did fewer than 30.7 per cent fail.

The Council on Medical Education and Hospitals does not grade or classify medical schools outside the United States and Canada. No opportunity is afforded for visiting and inspecting such schools, nor are official reports received from them. The Council therefore has no evidence on which to base a rating. A list of foreign schools which has been published from time to time merely serves as a key to the American Medical Directory and indicates the names of the institutions which physicians now licensed to practice in the United States attended or from which they graduated. In the next edition because of the inability to verify claims of foreign degrees, it is planned to indicate by the symbol ° that the information given is the licensing board's record of the credential submitted to and accepted as meeting the educational qualifications for licensure. It may be assumed that for those without this symbol there has been official verification received.

#### ANNUAL REGISTRATION

Twenty-one states, Alaska and Hawaii, as shown in table 32, require that all physicians register annually. Some of these states require such registration whether or not physicians reside in the state. The fee for registration is generally \$2.

#### APPROVED EXAMINING BOARDS IN MEDICAL SPECIALTIES

The House of Delegates of the American Medical Association in 1933 authorized the Council on Medical Education and Hospitals to formulate standards and approve examining boards in the medical specialties. The resolution urged that the machinery of the American Medical Association, including the publication of the American Medical Directory, be used in furthering the work of boards accredited under this plan.

Standards governing approval of specialty boards were compiled by the Council and approved by the House of Delegates in 1934. In addition to regulations relating to the organization and operation of specialty boards, the Essentials of Approved Examining Boards in Specialties contains also the minimum qualifications deemed necessary for certification as a specialist. The latter include graduation from an approved medical school, an internship in a hospital approved by the Council and a period of specialized training in a selected field.

Examining and certifying boards had already been established in ophthalmology (1917), otolaryngology (1924), obstetrics and gynecology (1930) and dermatology and syphilology (1932), but the resolution was introduced in 1933 in the belief that there was need for a universal standard governing all fields of medical practice in order that properly qualified physicians might readily be recognized.

Eleven boards have been organized since 1933. These boards, together with the four previously operating, are now fully approved by the Council and represent the specialties of anesthesiology, dermatology and syphilology, internal medicine, neurologic surgery, obstetrics and gynecology, ophthalmology, orthopedic surgery, otolaryngology, pathology, pediatrics, plastic surgery, psychiatry and neurology, radiology, surgery and urology.

The American Board of Internal Medicine by special examination certifies specialists in allergy, cardiovascular disease, gastroenterology and tuberculosis. Similarly the American Board of Surgery certifies specialists in proctology.

Approved Examinations Boards in Medical Specialties

| Key No<br>A B | Name of Board                                    | Year of<br>Incorporation | Certificates Awarded             |               |
|---------------|--|--------------------------|----------------------------------|---------------|
|               |  |                          | Total Issued to<br>March 1, 1941 | March 1, 1942 |
| 1             | American Board of Pediatrics                     | 1905                     | 1,611                            | 1,781         |
| 2             | American Board of Psychiatry and<br>Neurology    | 1911                     | 1,062                            | 1,551         |
| 3             | American Board of Orthopedic Surgery             | 1914                     | 701                              | 757           |
| 4             | American Board of Dermatology and<br>Syphilology | 1912                     | 55                               | 607           |
| 5             | American Board of Radiology                      | 1914                     | 1,552                            | 1,699         |
| 6             | American Board of Otolaryngology                 | 1915                     | 785                              | 810           |
| 7             | American Board of Obstetrics and<br>Gynecology   | 1910                     | 1,212                            | 1,165         |
| 8             | American Board of Internal Medicine              | 1916                     | 2,419                            | 2,806         |
| 9             | American Board of Pathology                      | 1916                     | 759                              | 850           |
| 10            | American Board of Ophthalmology                  | 1917                     | 1,820                            | 1,970         |
| 11            | American Board of Otolaryngology                 | 1921                     | 1,181                            | 1,149         |
| 12            | American Board of Surgery                        | 1917                     | 1,674                            | 1,916         |
| 13            | American Board of Anesthesiology                 | 1918                     | 106                              | 110           |
| 14            | American Board of Plastic Surgery                | 1917                     | 111                              | 126           |
| 15            | American Board of Neurological Surgery           | 1910                     | 67                               | 107           |
| Totals        |  |                          | 17,682                           | 19,425        |

Certification in the subspecialties. By the American Board of Internal Medicine: Allergy, cardiovascular disease, gastroenterology, tuberculosis. By the American Board of Surgery: Proctology. Total certified in the subspecialties, 484.

A key number has been assigned to each approved specialty board such as A B 1, and the biographic records of physicians published in the American Medical Directory include by this means reference to those certified by these boards.

The identifying numerical symbols of the boards, the number of certificates awarded prior to March 1, 1941 and those certified from that date to March 1, 1942 respectively appear in the accompanying tabulation. On March 1, 1941 there were 17,682 physicians certified by these fifteen approved boards and in the following year 1,756, excluding the subspecialties, a total of 19,425 as of March 1, 1942. In the subspecialties 484 have been registered, namely allergy 59, cardiovascular disease 221, gastroenterology 99, proctology 46 and tuberculosis 105. In internal medicine 2,556 have been certified and in surgery 1,912. The greatest number certified by any one board were the 3,349 physicians certified in otolaryngology since the organization of this board in 1924. While the board in pediatrics has been operating only since 1933, to date 1,784 have been certified as specialists. Radiology, organized in 1934, has recognized 1,699 as specialists. The oldest board in existence, ophthalmology (1917), has certified 1,970.

The future training of young men to meet the requirements of the specialty boards will be greatly curtailed since no provision has been made for military deferment beyond the internship. The Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association have appointed a committee to formulate plans to submit to the military authorities whereby a percentage of interns may be given an opportunity to continue their training in the special fields of medicine.

For the current emergency the specialty boards in anesthesiology, dermatology and syphilology, internal medicine, orthopedic surgery, pediatrics, psychiatry and neurology and radiology will permit one year of military service to be applied toward the satisfaction of one year of graduate training. Urology does not give routine credit for military service but

may grant a credit of one year toward the requirement of two years of private practice. An applicant entering military service and assigned to work in general surgery may receive credit toward the required special training up to a maximum of six months by the American Board of Obstetrics and Gynecology. The surgical board will accept service in a military hospital in lieu of an equal amount of time spent in a civil hospital as a resident. Boards in ophthalmology, otolaryngology and pathology will consider each case individually on its own merits. Allowance for military service is under consideration by the boards in neurologic and plastic surgery.

BASIC SCIENCE BOARDS

Basic science requirements underlying the practice of the healing art have been created by legislative action in sixteen states and the District of Columbia. These acts provide certification by a board of examiners in the basic sciences as a prerequisite to eligibility for a license to practice any branch of the healing art, whether the license is to be issued after written examination or on the basis of endorsement of credentials or reciprocity. Connecticut and Wisconsin, in 1925, were the first states to enact laws. The most recent addition to the list, and the only new one added in 1941, was New Mexico. While the basic science laws in some states include reciprocal agreements, the certificate is obtainable only after examination in the majority of instances.

In 1941 basic science boards were in operation in Arizona, Arkansas, Colorado, Connecticut, the District of Columbia, Florida, Iowa, Michigan, Minnesota, Nebraska, New Mexico, Oklahoma, Oregon, Rhode

TABLE 1—States Having Basic Science Laws and Year of Enactment

|                      |      |              |      |
|----------------------|------|--------------|------|
| Arizona              | 1936 | Nebraska     | 1925 |
| Arkansas             | 1929 | New Mexico   | 1941 |
| Colorado             | 1937 | Oklahoma     | 1931 |
| Connecticut          | 1925 | Oregon       | 1933 |
| District of Columbia | 1929 | Rhode Island | 1930 |
| Florida              | 1939 | South Dakota | 1929 |
| Iowa                 | 1935 | Washington   | 1925 |
| Michigan             | 1937 | Wisconsin    | 1925 |
| Minnesota            | 1927 |              |      |

TABLE 2—Subjects

|                | Examinations Required in |                   |                |                |              |                |                 |
|----------------|--------------------------|-------------------|----------------|----------------|--------------|----------------|-----------------|
|                | Anat-<br>omy             | Bacteri-<br>ology | Chem-<br>istry | Diag-<br>nosis | Hy-<br>giene | Pathol-<br>ogy | Physi-<br>ology |
| Arizona        | +                        | +                 | +              |                | +            | +              | +               |
| Arkansas       | +                        | +                 | +              |                | +            | +              | +               |
| Colorado       | +                        | +                 | +              | +              | +            | +              | +               |
| Connecticut    | +                        | +                 | +              |                | +            | +              | +               |
| Dist. Columbia | +                        | +                 | +              |                | +            | +              | +               |
| Florida        | +                        | +                 | +              |                | +            | +              | +               |
| Iowa           | +                        | +                 | +              |                | +            | +              | +               |
| Michigan       | +                        | +                 | +              |                | +            | +              | +               |
| Minnesota      | +                        | +                 | +              |                | +            | +              | +               |
| Nebraska       | +                        | +                 | +              |                | +            | +              | +               |
| New Mexico     | +                        | +                 | +              |                | +            | +              | +               |
| Oklahoma       | +                        | +                 | +              |                | +            | +              | +               |
| Oregon         | +                        | +                 | +              |                | +            | +              | +               |
| Rhode Island   | +                        | +                 | +              |                | +            | +              | +               |
| South Dakota   | +                        | +                 | +              |                | +            | +              | +               |
| Washington     | +                        | +                 | +              | +              | +            | +              | +               |
| Wisconsin      | +                        | +                 | +              |                | +            | +              | +               |

Island, South Dakota, Washington and Wisconsin. The years in which the various laws were enacted are shown in table 1.

Shown in table 2 are the subjects in which examinations are conducted by the respective states and the District of Columbia. The subjects included in basic science examinations are specified by the statutes. The



examining boards may neither add to nor subtract from such subjects. All boards examine in anatomy, pathology and physiology; fifteen examine in chemistry, thirteen in bacteriology, eight in hygiene, two in diagnosis and one in public health.

Applicants examined during 1941 are presented in four groups in table 3, namely, physicians or medical students, osteopaths, chiropractors and unclassified applicants. Included among those unclassified were 17 doctors of dentistry examined in Rhode Island and 3 naturopaths, 2 examined in Connecticut and 1 in Iowa. For the remainder it was not possible to determine what profession they represented. In applying for a basic science certificate it is not necessary in most of the states to mention the school of practice, but by checking the biographic records of the American Medical Association and various directories it has been possible to determine the profession of the majority of candidates.

TABLE 3—Applicants Examined 1941

|                   | Physicians or Medical Students |    | Osteopaths |   | Chiropractors |   | Unclassified |     | Total Examined | Passed | Failed | Percentage Failed |
|-------------------|--------------------------------|----|------------|---|---------------|---|--------------|-----|----------------|--------|--------|-------------------|
|                   | P                              | F  | P          | F | P             | F | P            | F   |                |        |        |                   |
| Arizona           | 40                             | 1  | 0          | 0 | 1             | 0 | 65           | 42  | 24             | 64     |        |                   |
| Arkansas          | 97                             | 2  | 0          | 0 | 0             | 0 | 0            | 97  | 97             | 2      | 2      |                   |
| Colorado          | 72                             | 19 | 5          | 7 | 0             | 0 | 8            | 114 | 85             | 29     | 25     | 4                 |
| Connecticut       | 1                              | 2  | 2          | 1 | 1             | 4 | 0            | 2   | 145            | 136    | 9      | 6                 |
| Dist. of Columbia | 21                             | 0  | 0          | 0 | 0             | 0 | 0            | 21  | 21             | 0      | 0      |                   |
| Florida           | 196                            | 25 | 12         | 0 | 3             | 0 | 0            | 239 | 205            | 31     | 13     | 0                 |
| Iowa              | 10                             | 22 | 44         | 2 | 0             | 0 | 4            | 58  | 236            | 190    | 105    | 5                 |
| Michigan          | 151                            | 17 | 1          | 2 | 0             | 0 | 2            | 7   | 160            | 174    | 26     | 16                |
| Minnesota         | 205                            | 40 | 1          | 3 | 1             | 0 | 4            | 7   | 264            | 214    | 70     | 18                |
| Nebraska          | 100                            | 11 | 2          | 0 | 0             | 2 | 0            | 115 | 104            | 14     | 11     | 9                 |
| New Mexico        | 9                              | 1  | 0          | 0 | 0             | 0 | 0            | 0   | 10             | 9      | 1      | 10                |
| Oklahoma          | 50                             | 1  | 0          | 0 | 1             | 0 | 3            | 0   | 55             | 54     | 1      | 1                 |
| Oregon            | 77                             | 2  | 1          | 0 | 0             | 0 | 4            | 7   | 113            | 82     | 30     | 26                |
| Rhode Island      | 43                             | 6  | 2          | 0 | 0             | 0 | 9            | 5   | 65             | 54     | 11     | 16                |
| South Dakota      | 8                              | 1  | 0          | 0 | 0             | 0 | 1            | 1   | 11             | 9      | 2      | 18                |
| Washington        | 134                            | 36 | 4          | 9 | 1             | 4 | 0            | 1   | 189            | 129    | 60     | 31                |
| Wisconsin         | 138                            | 2  | 21         | 2 | 1             | 0 | 13           | 8   | 185            | 175    | 12     | 6                 |
| Totals—Examined   | 1 768                          |    | 151        |   | 16            |   | 189          |     |                | 2 148  |        |                   |
| Totals—Passed     | 1 560                          |    | 96         |   | 5             |   | 90           |     |                | 1 751  |        |                   |
| Totals—Failed     | 208                            |    | 55         |   | 11            |   | 99           |     |                | 397    |        |                   |
| Percentage Failed | 11.8                           |    | 36.4       |   | 68.8          |   | 52.4         |     |                | 18.5   |        |                   |

\* School of practice undeterminable since names of failures not supplied.

There were 2,148 candidates in the various groups examined last year by the seventeen boards named. Of this number 1,768 were doctors of medicine or medical students, 151 osteopaths, 16 chiropractors, and 189 were placed in the unclassified group. Of all applicants examined, 1,751 passed and 397, 18.5 per cent failed. Of the physicians examined 11.8 per cent failed, osteopaths 36.4 per cent, chiropractors 68.8 per cent and unclassified 52.4 per cent. Among those who passed there were 1,560 physicians, 96 osteopaths, 5 chiropractors and 90 who were unclassified. Ten doctors of dentistry passed but none of the naturopaths. Iowa examined the greatest number, 295, of whom 35.6 per cent failed. The next largest number, 264, were examined in Minnesota, with 18.9 per cent failures. One other state examined more than 200, Florida, of whom 13.0 per cent failed.

Osteopaths were examined in Arizona, Colorado, Connecticut, Florida, Iowa, Michigan, Minnesota, Nebraska, Oregon, Rhode Island, Washington and Wisconsin—twelve states. Chiropractors appeared for examination in only six states—Connecticut, Florida, Minnesota, Oklahoma, Washington and Wisconsin.

The highest percentage of failures, 36.4, was in Arizona, which examined 66 individuals. It is the policy of the Arizona Board of Examiners in the Basic Sciences to omit the names of applicants who fail

examinations, and the law does not require the board to record the professional school of graduation of the examinees. The failures for this state therefore are recorded in the total column only.

TABLE 4—Certificates Issued by Examination, Reciprocity and Endorsement 1941

|                   | Examination                |            |               |              |       | Reciprocity and Endorsement |            |               |              |       | Registered |
|-------------------|----------------------------|------------|---------------|--------------|-------|-----------------------------|------------|---------------|--------------|-------|------------|
|                   | Physicians or Medical Stud | Osteopaths | Chiropractors | Unclassified | Total | Physicians or Medical Stud  | Osteopaths | Chiropractors | Unclassified | Total |            |
| Arizona           | 40                         | 1          | 0             | 1            | 42    | 0                           | 0          | 0             | 0            | 0     | 42         |
| Arkansas          | 97                         | 0          | 0             | 0            | 97    | 129                         | 1          | 1             | 0            | 4     | 110        |
| Colorado          | 72                         | 51         | 0             | 8            | 131   | 0                           | 1          | 0             | 1            | 11    | 119        |
| Connecticut       | 1                          | 2          | 1             | 0            | 4     | 0                           | 0          | 0             | 0            | 0     | 176        |
| Dist. of Columbia | 21                         | 0          | 0             | 0            | 21    | 26                          | 0          | 0             | 0            | 4     | 61         |
| Florida           | 196                        | 12         | 0             | 0            | 208   | 0                           | 0          | 0             | 0            | 0     | 208        |
| Iowa              | 10                         | 44         | 0             | 4            | 159   | 61                          | 4          | 0             | 2            | 67    | 227        |
| Michigan          | 151                        | 1          | 0             | 2            | 154   | 1                           | 1          | 0             | 4            | 6     | 140        |
| Minnesota         | 205                        | 1          | 1             | 4            | 211   | 70                          | 6          | 0             | 14           | 90    | 391        |
| Nebraska          | 100                        | 1          | 0             | 2            | 104   | 0                           | 0          | 0             | 1            | 4     | 105        |
| New Mexico        | 9                          | 0          | 0             | 0            | 9     | 0                           | 0          | 0             | 0            | 0     | 9          |
| Oklahoma          | 50                         | 0          | 1             | 0            | 51    | 1                           | 0          | 0             | 0            | 1     | 51         |
| Oregon            | 77                         | 1          | 0             | 4            | 82    | 10                          | 4          | 0             | 0            | 17    | 109        |
| Rhode Island      | 43                         | 2          | 0             | 9            | 54    | 0                           | 0          | 0             | 0            | 0     | 54         |
| South Dakota      | 8                          | 0          | 0             | 1            | 9     | 6                           | 6          | 0             | 0            | 12    | 21         |
| Washington        | 134                        | 4          | 1             | 0            | 139   | 0                           | 0          | 0             | 0            | 0     | 139        |
| Wisconsin         | 138                        | 21         | 1             | 1            | 17    | 50                          | 6          | 1             | 2            | 59    | 222        |
| Totals            | 1 560                      | 96         | 5             | 90           | 1 751 | 2 29                        | 41         | 2             | 27           | 2 10  | 2 10       |

Four other states had more than 25 per cent of their candidates fail, while the District of Columbia reported no failures.

The number of certificates (2,103) issued by examination, reciprocity and endorsement are recorded in table 4. A total of 1,751 were granted after examination, 1,560 were issued to physicians or medical students, 96 to osteopaths, 5 to chiropractors and to 90 persons who were unclassified. There were also 352 certified without examination by reciprocity and

TABLE 5—Total Candidates 1927-1941

|        | Physicians or Medical Students<br>Examinations |          |        |        |                      |                                   | Other Practitioners<br>Examinations |        |        |                      |                                   |     |       |
|--------|--|----------|--------|--------|----------------------|-----------------------------------|-------------------------------------|--------|--------|----------------------|-----------------------------------|-----|-------|
|        | Number of Boards                               | Examined | Passed | Called | Percentage<br>Failed | Endorsement<br>Total<br>Certified | Examined                            | Passed | Called | Percentage<br>Failed | Endorsement<br>Total<br>Certified |     |       |
| 1927   | 5  | 305      | 279    | 26     | 8.5                  | 26                                | 305                                 | 22     | 15     | 7                    | 31.8                              | 1   | 16    |
| 1928   | 5  | 646      | 585    | 60     | 9.3                  | 19                                | 605                                 | 59     | 31     | 28                   | 47.5                              | 0   | 31    |
| 1929   | 7  | 608      | 610    | 58     | 9.5                  | 75                                | 655                                 | 66     | 31     | 35                   | 55.0                              | 0   | 31    |
| 1930   | 7  | 685      | 606    | 79     | 11.5                 | 118                               | 724                                 | 78     | 0      | 45                   | 61.5                              | 4   | 4     |
| 1931   | 7  | 680      | 586    | 94     | 13.8                 | 141                               | 727                                 | 107    | 48     | 59                   | 55.1                              | 0   | 4     |
| 1932   | 7  | 657      | 590    | 67     | 10.2                 | 106                               | 696                                 | 78     | 44     | 34                   | 4.6                               | 12  | 56    |
| 1933   | 8  | 601      | 527    | 74     | 12.3                 | 121                               | 648                                 | 60     | 50     | 50                   | 80.0                              | 10  | 40    |
| 1934   | 9  | 815      | 725    | 90     | 11.0                 | 127                               | 852                                 | 51     | 26     | 25                   | 49.0                              | 11  | 57    |
| 1935   | 10   | 882      | 761    | 121    | 13.7                 | 110                               | 871                                 | 74     | 2      | 41                   | 55.4                              | 4   | 37    |
| 1936   | 10   | 1 032    | 891    | 141    | 13.7                 | 210                               | 1 121                               | 66     | 26     | 40                   | 69.6                              | 17  | 37    |
| 1937   | 12   | 1 231    | 1 061  | 170    | 13.8                 | 192                               | 1 255                               | 115    | 41     | 72                   | 62.7                              | 10  | 51    |
| 1938   | 12   | 1 163    | 1 026  | 142    | 12.2                 | 267                               | 1 229                               | 153    | 70     | 88                   | 55.7                              | 26  | 96    |
| 1939   | 14   | 1 341    | 1 015  | 125    | 9.3                  | 727                               | 1 740                               | 218    | 97     | 121                  | 55.5                              | 294 | 314   |
| 1940   | 16   | 1 303    | 1 140  | 163    | 12.5                 | 324                               | 1 464                               | 280    | 157    | 127                  | 4.9                               | 22  | 173   |
| 1941   | 17   | 1 763    | 1 560  | 203    | 11.5                 | 279                               | 1 839                               | 346    | 191    | 165                  | 46.3                              | 75  | 264   |
| Totals | 13   | 5 521    | 4 961  | 1 621  | 11.9                 | 2 862                             | 14 822                              | 1 786  | 566    | 970                  | 51.5                              | 480 | 1 466 |

endorsement representing 279 physicians, 44 osteopaths, 2 chiropractors and 27 in the unclassified group.

Minnesota certified 90 without examination, the greatest number of whom 70 were physicians, 6 osteopaths and 14 unclassified. Arizona, Florida and Washington have no reciprocal relations. None were certified by this method in Connecticut, New Mexico or Rhode Island. Osteopaths were registered in all states but Arizona. Connecticut, the District of Columbia, Ne-

braska, New Mexico, Oklahoma, Rhode Island and Washington while chiropractors were registered by this method in but two states—Arkansas and Wisconsin.

Altogether, 2,103 individuals received basic science certificates in 1941 in seventeen states, ranging from 9 in New Mexico to 304 in Minnesota.

Table 5 shows the number of candidates examined and certified by basic science boards in fifteen years, 1927 to 1941 inclusive. In 1928 when five boards were functioning there were 646 physicians examined, of whom 9.3 per cent failed and 59 other practitioners of whom 47.5 per cent failed. In 1941, by comparison, 1,768 were examined of whom 11.8 per cent failed and 350 other practitioners 46.3 per cent of whom failed. During the fifteen year period a total of 13,582 physicians or medical students were examined, of whom 11,961 passed and 1,621, 11.9 per cent failed, while in the same period 1,786 other practitioners were examined of whom 866 passed and 920, 51.5 per cent, failed. During this period also 2,862 physicians and 480 other practitioners were certified without examination.

Altogether 16,469 certificates have been issued by basic science boards since 1927, of which 14,823 were granted to physicians or medical students and 1,346 to other practitioners. In this period also 13,582 physicians or medical students were examined, of whom 11,961 were registered and 1,786 other practitioners, of whom only 866 were registered. Since 1927, 2,862 physicians and 480 others received certificates by reciprocity and endorsement.

From the high percentage of failures in the other practitioners group it seems apparent that the enforcement of basic science laws affects mostly this group. The object of basic science legislation is to provide a means of insuring that all candidates seeking the right to care for sick and injured people shall first possess a reasonable knowledge of the sciences fundamental to the healing art.

### NATIONAL BOARD OF MEDICAL EXAMINERS

The National Board of Medical Examiners was founded in 1915 by Dr. W. L. Rodman, then President of the American Medical Association, and chartered on March 17, 1922 under the laws of the District of Columbia. Its purpose was to establish in this country a qualifying examination of such high character that successful candidates could be safely admitted to the practice of medicine without further examination. Its membership at present numbers twenty-nine, representing the three federal services, the Federation of State Medical Boards of the United States, the Association of American Medical Colleges, the Council on Medical Education and Hospitals of the American Medical Association and fourteen members elected at large.

The fulfillment of the ideals of its founder is evidenced by the fact that the certificate of the National Board is accepted as an adequate qualification for a medical license by the licensing authorities of the District of Columbia and all states except Florida, Louisiana, Texas and Wisconsin. It is also accepted by the territories of Alaska, Hawaii, Puerto Rico and the Canal Zone. The states, territories and possessions which will endorse certificates of the National Board of Medical Examiners are recorded in table 1.

The only additional examinations required of those who hold the certificate of the National Board by the

states mentioned are oral examinations in Connecticut, Illinois, Maine, Montana, Rhode Island and Wyoming, and a supplemental written examination in Michigan. California requires that the certificate of the National Board must be dated not less than one year prior to applying for a medical license. Pennsylvania requires a rotating internship.

TABLE 1—States Endorsing Certificates of National Board of Medical Examiners

|                   |               |                |                |
|-------------------|---------------|----------------|----------------|
| Alabama           | Illinois      | Nebraska       | Puerto Rico    |
| Alaska            | Indiana       | Nevada         | Rhode Island   |
| Arizona           | Iowa          | New Hampshire  | South Carolina |
| Arkansas          | Kansas        | New Jersey     | South Dakota   |
| California        | Kentucky      | New Mexico     | Tennessee      |
| Canal Zone        | Maine         | New York       | Utah           |
| Colorado          | Maryland      | North Carolina | Vermont        |
| Connecticut       | Massachusetts | North Dakota   | Virginia       |
| Delaware          | Michigan      | Ohio           | Washington     |
| Dist. of Columbia | Minnesota     | Oklahoma       | West Virginia  |
| Georgia           | Mississippi   | Oregon         | Wyoming        |
| Hawaii            | Missouri      | Pennsylvania   |                |
| Idaho             | Montana       |                |                |

The examinations of the National Board in the basic sciences are accepted in lieu of the examinations in these subjects given by the basic science boards of Connecticut, Iowa, Minnesota, Nebraska and the District of Columbia. Diplomates are admitted to the final examination of the Conjoint Examining Boards of England and Ireland and the Triple Qualification Board of Scotland. The certificate is accepted by the United States Public Health Service in lieu of the usual written examination. Diplomates are admitted to the Mayo Foundation without further examination. Finally the certificate is recognized as a credential of merit by hospital boards and by various medical organizations including faculties of medical schools and examining boards in the medical specialties.

In the following paragraphs data are presented for the twenty-fourth consecutive year regarding the examinations conducted and the issuance of certificates by the National Board of Medical Examiners. These statistics are based on official reports received periodically from the executive office of the National Board.

The early development of the work of the National Board was materially affected by the participation of the United States in the World War, but since 1922 the number obtaining the certificate has been steadily increasing.

TABLE 2—Examinations, 1916-1921

| Date          | Total Examined | Failed | Percent Failed |
|---------------|----------------|--------|----------------|
| October 1916  | 10             | 5      | 50.0           |
| June 1917     | 12             | 3      | 25.0           |
| October 1917  | 28             | 6      | 21.4           |
| January 1918  | 20             | 2      | 10.0           |
| April 1918    | 25             | 5      | 20.0           |
| December 1918 | 16             | 1      | 6.3            |
| June 1919     | 52             | 1      | 1.9            |
| February 1920 | 48             | 12     | 25.0           |
| May 1920      | 60             | 14     | 23.3           |
| February 1921 | 16             | 5      | 31.3           |
| June 1921     | 40             | 3      | 7.5            |
| Totals        | 325            | 57     | 17.5           |

From October 1916 to Dec. 31, 1921 eleven examinations were held and 268 candidates were certified. The results of each examination during this period are given in table 2.

Since 1922 the examination has been given in three parts in the following sequence: part I, a written examination, in each of the six fundamental medical sciences; part II, likewise a written examination, in five main

clinical subjects, and part III, the clinical preparation of the candidate after one year's internship. Examinations in parts I and II are held in February, June and September at approved medical schools provided there are at least 5 candidates available and part III examinations are held at times sufficiently frequent to accommodate all eligible candidates in twenty-two established centers throughout the United States.

The tables hereinafter presented enumerate the results of examinations in parts I, II and III for each calendar year since 1922, including those who passed and failed examinations, and those certified.

Candidates are required to take all six subjects of part I at a regular examination period unless entitled to take an incomplete examination or electing to take a divided examination. An incomplete examination is allowed candidates taking part I at the end of their second year in schools whose third year curriculum include courses in one or two subjects of this part. The examinations in the subjects not yet completed are therefore postponed and may be taken at any exami-

TABLE 3—Examinations in Part I in 1941 and 1922-1941

| Date          | Total Examinations | Passed        | Incomplete   | Failed       | Per centage Failed |
|---------------|--------------------|---------------|--------------|--------------|--------------------|
| February      | 218                | 167           | 26           | 25           | 11.5               |
| June          | 1,019              | 688           | 104          | 137          | 13.4               |
| September     | 403                | 232           | 126          | 45           | 11.2               |
| <b>Totals</b> | <b>1,640</b>       | <b>1,087</b>  | <b>346</b>   | <b>207</b>   | <b>12.6</b>        |
| 1922          | 225                | 263           | 58           | 67           | 20.3               |
| 1923          | 507                | 349           | 77           | 81           | 15.8               |
| 1924          | 501                | 410           | 69           | 107          | 20.5               |
| 1925          | 608                | 400           | 50           | 138          | 22.3               |
| 1926          | 625                | 476           | 104          | 85           | 16.3               |
| 1927          | 702                | 452           | 150          | 100          | 16.6               |
| 1928          | 843                | 533           | 231          | 79           | 12.9               |
| 1929          | 1,066              | 670           | 331          | 90           | 11.8               |
| 1930          | 1,260              | 801           | 345          | 114          | 12.5               |
| 1931          | 1,277              | 755           | 425          | 97           | 11.4               |
| 1932          | 1,307              | 847           | 371          | 89           | 9.5                |
| 1933          | 1,234              | 722           | 316          | 136          | 14.8               |
| 1934          | 1,241              | 809           | 347          | 85           | 9.5                |
| 1935          | 1,264              | 783           | 410          | 69           | 6.1                |
| 1936          | 1,344              | 858           | 363          | 123          | 12.0               |
| 1937          | 1,435              | 871           | 415          | 149          | 14.6               |
| 1938          | 1,634              | 986           | 508          | 160          | 14.1               |
| 1939          | 1,733              | 1,048         | 460          | 225          | 17.7               |
| 1940          | 1,651              | 1,067         | 375          | 209          | 16.4               |
| 1941          | 1,640              | 1,087         | 346          | 207          | 12.6               |
| <b>Totals</b> | <b>22,400</b>      | <b>14,219</b> | <b>5,700</b> | <b>2,421</b> | <b>10.8</b>        |

nation period after the candidate has completed them in his medical school. Any candidate not entitled to take an incomplete examination in part I may, if he so elects, take a divided examination by writing any four subjects at one time and the remaining two within thirteen months, but after at least one semester of study. Incomplete examinations have been enumerated in subsequent tabulations but were not included in percentage computations. Those electing to take a divided examination are excluded from the statistical presentations until reported as having passed or failed the complete examination.

A candidate who fails to make an average of at least 75 per cent in three or more main divisions of part III is required to repeat those divisions. In such case the candidate is "referred" and required after a three months interval to pass a reexamination. Referred candidates are likewise excluded from the statistics.

Three examinations in part I were held in 1941, and four in part II. The results of these examinations, together with totals for twenty years, are included in tables 3 and 4. The figures cover the totals of each examination given during a calendar year and include some who fail and are reexamined during the same year and also some who pass parts I and II in the same

year. They represent therefore examinations conducted rather than individuals examined.

Altogether, 1,640 examinations were given in part I in 1941, of whom 1,087 candidates passed and 207, 12.6 per cent failed. In 1941 also 346 incomplete examinations were given in part I. In 1941, 1,001 examinations were held in part II. There were 954

TABLE 4—Examinations in Part II in 1941 and 1922-1941

| Date          | Total Examinations | Passed        | Incomplete | Failed     | Per centage Failed |
|---------------|--------------------|---------------|------------|------------|--------------------|
| February      | 116                | 107           | 1          | 8          | 6.9                |
| May           | 122                | 615           | 0          | 17         | 2.7                |
| June          | 179                | 129           | 0          | 20         | 11.2               |
| September     | 74                 | 73            | 0          | 1          | 1.4                |
| <b>Totals</b> | <b>1,001</b>       | <b>654</b>    | <b>1</b>   | <b>46</b>  | <b>4.6</b>         |
| 1922          | 109                | 90            | 0          | 19         | 17.4               |
| 1923          | 192                | 170           | 2          | 20         | 10.5               |
| 1924          | 267                | 227           | 0          | 40         | 15.0               |
| 1925          | 342                | 290           | 0          | 52         | 16.6               |
| 1926          | 351                | 334           | 1          | 46         | 12.1               |
| 1927          | 61                 | 314           | 1          | 46         | 12.8               |
| 1928          | 410                | 371           | 1          | 38         | 9.3                |
| 1929          | 465                | 389           | 19         | 47         | 10.5               |
| 1930          | 620                | 543           | 7          | 70         | 11.4               |
| 1931          | 719                | 630           | 2          | 87         | 12.1               |
| 1932          | 732                | 674           | 0          | 58         | 7.9                |
| 1933          | 714                | 651           | 0          | 63         | 8.8                |
| 1934          | 633                | 583           | 0          | 50         | 7.9                |
| 1935          | 659                | 620           | 0          | 39         | 10.0               |
| 1936          | 703                | 716           | 2          | 50         | 6.7                |
| 1937          | 855                | 803           | 1          | 51         | 6.0                |
| 1938          | 861                | 815           | 0          | 46         | 7.3                |
| 1939          | 978                | 884           | 0          | 54         | 7.8                |
| 1940          | 1,028              | 903           | 9          | 56         | 5.7                |
| 1941          | 1,001              | 954           | 1          | 46         | 4.6                |
| <b>Totals</b> | <b>12,055</b>      | <b>11,650</b> | <b>46</b>  | <b>359</b> | <b>5.2</b>         |

successful examinations and 46, or 4.6 per cent, failures. One candidate was reported as having taken an incomplete examination.

Since 1922 a total of 22,400 examinations have been given in part I and 12,085 in part II. During this period, 14,219 passed part I and 11,050 part II. In twenty years there have been 2,421 failures in part I, 10.8 per cent, and 391 failures in part II, 5.2 per cent.

TABLE 5—Examinations in Part III, 1922-1941

| Date          | Total Examinations | Passed       | Failed     | Percentage Failed |
|---------------|--------------------|--------------|------------|-------------------|
| 1922          | 22                 | 22           | 0          | 0.0               |
| 1923          | 82                 | 81           | 1          | 1.2               |
| 1924          | 126                | 120          | 6          | 4.8               |
| 1925          | 219                | 206          | 13         | 5.9               |
| 1926          | 255                | 243          | 12         | 4.7               |
| 1927          | 293                | 272          | 21         | 7.2               |
| 1928          | 322                | 306          | 16         | 5.0               |
| 1929          | 352                | 337          | 15         | 4.3               |
| 1930          | 420                | 401          | 19         | 4.5               |
| 1931          | 437                | 419          | 18         | 4.1               |
| 1932          | 500                | 522          | 28         | 5.1               |
| 1933          | 501                | 526          | 25         | 4.5               |
| 1934          | 507                | 548          | 19         | 3.4               |
| 1935          | 598                | 578          | 20         | 3.3               |
| 1936          | 576                | 547          | 29         | 5.0               |
| 1937          | 665                | 630          | 35         | 5.7               |
| 1938          | 706                | 682          | 24         | 3.4               |
| 1939          | 770                | 729          | 41         | 5.3               |
| 1940          | 791                | 770          | 21         | 2.7               |
| 1941          | 910                | 885          | 25         | 2.7               |
| <b>Totals</b> | <b>9,215</b>       | <b>8,824</b> | <b>391</b> | <b>4.2</b>        |

Between 1916 and 1921 a total of 325 were examined of whom 268 passed and 57, 14.3 per cent failed. Total certificates awarded up to and including 1941, 9,092.

From 1922 to 1941 inclusive, 5,760 took incomplete examinations in part I and 46 in part II.

The results of examinations in part III for the twenty year period 1922 to 1941 inclusive are given in table 5. In 1941, 910 were examined as compared with only 22 in 1922. This was the greatest number examined in any one year. Of those examined in 1941, 25, or 2.7 per cent, failed. In twenty years 9,215 were examined, of whom 8,824 were granted certificates and 391,

42 per cent, failed Between 1916 and 1921, certificates were awarded to 268 candidates Altogether from 1916 up to and including 1941, 9,092 certificates have been awarded Physicians who earn the certificate are designated Diplomates of the National Board and are privileged to use the designating initials D N B

The number of individuals examined during any one year is given in table 6 The classification as passed or failed, in cases in which more than one examination has been taken in a given year, was based on the results of the last examination during the year in question For example, if in 1941 a candidate passed part I but later in 1941 failed part II he is listed as having failed Figures computed on this basis indicate there were 3,318 who took at least one of the examinations of the National Board of Medical Examiners during 1941, as compared with 525 in 1922 A total of 40,486 individuals were examined in one or more of the examinations in the twenty years shown of whom 31,638 passed 5,520 took incomplete examinations and 3,328, 82 per cent, failed

Physicians certified as diplomates in 1941 numbered 885, representing graduates of fifty-five medical schools

TABLE 6—Parts I, II and III, Excluding Duplications 1922-1941

|        | Total<br>Examined | Passed | Incom-<br>plete | Failed | Percentage<br>Failed |
|--------|-------------------|--------|-----------------|--------|----------------------|
| 1922   | 525               | 381    | 58              | 86     | 18.4                 |
| 1923   | 775               | 594    | 79              | 102    | 14.7                 |
| 1924   | 978               | 756    | 69              | 153    | 16.8                 |
| 1925   | 1,167             | 915    | 50              | 202    | 18.1                 |
| 1926   | 1,161             | 900    | 105             | 156    | 11.9                 |
| 1927   | 1,248             | 947    | 142             | 159    | 14.4                 |
| 1928   | 1,400             | 1,101  | 211             | 118    | 9.7                  |
| 1929   | 1,722             | 1,280  | 190             | 124    | 8.8                  |
| 1930   | 2,044             | 1,547  | 322             | 175    | 10.2                 |
| 1931   | 2,218             | 1,652  | 410             | 176    | 9.7                  |
| 1932   | 2,422             | 1,850  | 355             | 137    | 6.9                  |
| 1933   | 2,277             | 1,806  | 280             | 191    | 9.6                  |
| 1934   | 2,261             | 1,801  | 280             | 180    | 6.7                  |
| 1935   | 2,768             | 1,851  | 408             | 129    | 6.6                  |
| 1936   | 2,517             | 1,959  | 353             | 175    | 8.1                  |
| 1937   | 2,711             | 2,151  | 97              | 187    | 8.0                  |
| 1938   | 2,992             | 2,085  | 496             | 191    | 7.6                  |
| 1939   | 3,221             | 2,476  | 441             | 302    | 10.9                 |
| 1940   | 3,186             | 2,597  | 366             | 228    | 8.1                  |
| 1941   | 3,318             | 2,749  | 352             | 217    | 7.1                  |
| Totals | 40,486            | 31,638 | 5,520           | 3,328  | 8.2                  |

in the United States and three in Canada and of twenty-four faculties of medicine abroad Table 7 records the number of diplomates from each school certified last year Six medical schools require students to take part I of the examination of the National Board at some time before receiving their medical degree, namely, the College of Medical Evangelists, Yale University School of Medicine Boston University School of Medicine the New York Medical College Flower and Fifth Avenue Hospitals Albany Medical College and the University of Buffalo School of Medicine More than 34 of the graduates of each of these schools have become diplomates of the National Board in 1941 In addition the graduates of Georgetown University Medical School Northwestern University Medical School Harvard Medical School, Tufts College Medical School Albany Medical College and Duke University School of Medicine represented the majority of those certified last year The greatest number 80 were graduates of Tufts College Medical School

Diplomates licensed on the basis of their credentials, increased from 2 in 1917 to 714 in 1941 6,870 having been so licensed since the National Board was formed However 9,092 have received the certificate of the board In 1941 diplomates were licensed on the basis

of their National Board Certificate in thirty-eight states, the District of Columbia, Alaska and Hawaii The number so registered in each state are recorded in table 8

As the accelerated war emergency curriculums in the medical schools of the country take form the National Board of Medical Examiners will adjust its examination schedule, which will be satisfactory to all con-

TABLE 7—Diplomates from Individual Medical Schools, 1941

| Certificates<br>Awarded |    | Certificates<br>Awarded |    |
|-------------------------|----|-------------------------|----|
| Univ of Arkansas        | 1  | Albany Med Coll         | 52 |
| Coll of Med Evan        | 46 | Columbia Univ           | 14 |
| Stanford Univ           | 2  | Cornell Univ            | 19 |
| Univ of California      | 1  | Long Island Coll of Med | 21 |
| Univ of Southern Calif  | 1  | N Y Med Coll            | 2  |
| Univ of Colorado        | 6  | New York Univ           | 2  |
| Yale University         | 34 | Syracuse Univ           | 2  |
| George Washington Univ  | 10 | Univ of Buffalo         | 11 |
| Georgetown Univ         | 36 | Univ of Rochester       | 10 |
| Howard Univ             | 2  | Duke Univ               | 10 |
| Lincoln Univ            | 1  | Univ of Cincinnati      | 1  |
| Univ of Georgia         | 1  | Western Reserve Univ    | 1  |
| Loyola Univ             | 2  | Univ of Oklahoma        | 2  |
| Northwestern Univ       | 25 | Univ of Oregon          | 2  |
| Rush Med Coll           | 5  | Jefferson Med Coll      | 8  |
| Univ of Chicago         | 11 | Temple Univ             | 8  |
| Univ of Illinois        | 5  | Univ of Pennsylvania    | 14 |
| Indiana Univ            | 2  | Univ of Pittsburgh      | 1  |
| State Univ of Iowa      | 8  | Woman's Med Coll        | 8  |
| Louisiana State Univ    | 3  | Med Coll of So Car      | 1  |
| Tulane Univ             | 5  | Univ of Vermont         | 15 |
| Johns Hopkins Univ      | 8  | Med Coll of Virginia    | 1  |
| Univ of Maryland        | 1  | Univ of Virginia        | 1  |
| Boston Univ             | 39 | Marquette Univ          | 8  |
| Harvard Med School      | 67 | McGill University       | 11 |
| Tufts Coll Med Sch      | 80 | Univ of Toronto         | 1  |
| Univ of Michigan        | 7  | Univ of Western Ontario | 1  |
| Univ of Minnesota       | 13 | Foreign                 | 2  |
| St. Louis Univ          | 15 |                         |    |
| Washington Univ         | 5  | Total                   | 81 |
| Creighton Univ          | 4  |                         |    |

cerned No change in the examination schedule for the present year seems at present to be necessary

At the meeting of the Executive Committee of the National Board of Medical Examiners held on Feb 15, 1942 the following resolution was adopted

*Resolved*, That, beginning February 15, the National Board of Medical Examiners will not accept applicants for admission to its examinations from graduates of any medical school in continental Europe or from graduates of the extramural schools of Scotland and Ireland

TABLE 8—Licenses Granted on the Basis of National Board Certificate 1941

|                      |     |                |    |
|----------------------|-----|----------------|----|
| Alabama              | 6   | New Hampshire  | 1  |
| Arizona              | 5   | New Jersey     | 2  |
| Arkansas             | 3   | New Mexico     | 1  |
| California           | 29  | New York       | 11 |
| Colorado             | 6   | North Carolina | 1  |
| Connecticut          | 44  | North Dakota   | 2  |
| District of Columbia | 27  | Ohio           | 2  |
| Georgia              | 2   | Oklahoma       | 1  |
| Illinois             | 21  | Oregon         | 2  |
| Indiana              | 1   | Pennsylvania   | 1  |
| Iowa                 | 2   | Rhode Island   | 10 |
| Kansas               | 2   | Tennessee      | 1  |
| Kentucky             | 7   | Utah           | 9  |
| Maine                | 15  | Vermont        | 11 |
| Maryland             | 10  | Virginia       | 1  |
| Massachusetts        | 100 | Washington     |    |
| Michigan             | 9   | West Virginia  |    |
| Minnesota            | 1   | Alaska         | 1  |
| Missouri             | 8   | Hawaii         | 11 |
| Montana              | 2   |                |    |
| Nebraska             |     | Total          |    |
| Nevada               |     |                |    |

This action does not apply to graduates of universities in the British Isles or to those candidates who had registered before Feb 15, 1942

One of the factors that caused the board to take this action was the refusal of approximately one half of the states of this country to grant licenses to physicians trained in European medical schools even though they had been certified by the National Board

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SATURDAY MAY 9, 1942

## MEDICAL LICENSURE EXAMINATIONS

The results of the state licensing examinations published in this issue of THE JOURNAL are striking evidence of the lack of uniformity of standards of licensure among the various states. Seven states reported not one failure in their 1941 licensing examinations, indeed, they had not had a failure in the past five years. Twelve additional states have reported failures of less than 1 per cent during the same period. Other states, notably New York, have each year reported a high percentage of failures.

In New York 21.8 per cent of the graduates of the New York State medical colleges who tried the New York State licensing examinations failed, while 39.4 per cent of the graduates of other approved medical colleges in the United States who tried these same examinations failed. Of the 145 graduates of New York State medical colleges who tried licensing examinations in other states, four, or 2.8 per cent, failed.

The lack of uniformity of results in some states is made more obvious by the fact that a candidate is passed if he receives an average of 75 per cent and is not below 50 per cent in any subject. Furthermore, in case of failure in not more than two subjects the applicant may be entitled to another examination in the subjects failed and is considered conditioned and is not reported as a failure.

Paradoxically, New York which reported the highest percentage of failures among the graduates of approved medical colleges on its own examinations, issued a greater number of licenses on the basis of credentials without examination than did any other state.

In spite of this lack of uniformity, the fact is striking that the graduates of the foreign medical schools and the unapproved schools in the United States showed the highest percentage of failures, 59.6 and 46.0 respectively. Six states licensed graduates of unapproved schools during 1941. Four states granted unlimited licenses to practice medicine to graduates of osteopathic schools.

The best interests of the public and of the medical profession seem to demand serious thought right now on the establishment of uniform standards of licensure. These not only would facilitate the migration of qualified physicians from one state to another but would offer to the public greater assurance of the training and competence of practicing physicians. War conditions, involving as they do the migration of great masses of the population including physicians, emphasize the great need for such uniformity.

Is it unreasonable to hope that all states will sometime be willing to maintain standards high enough to make such uniformity possible?

## ABSORPTION OF SURGICAL GUT

In this issue of THE JOURNAL appears a report of the Council on Pharmacy and Chemistry which is a synopsis of the results of a comprehensive investigation conducted over a period of five years on the absorption of catgut sutures. This study was initiated and carried on by Jenkins and his co-workers at the University of Chicago, Department of Surgery, under the auspices of the Council. The work that has thus far been done on this subject is being published in detail under the names of the investigators in the *Archives of Surgery*<sup>1</sup> in four consecutive instalments, the first of which appears in the May issue.

The term "catgut," as commonly applied to surgical sutures, is essentially a misnomer for the sheep intestine which is used. The name "surgical gut" adopted for the U. S. Pharmacopeia is a fundamental improvement in terminology. The classification of this material adopted for the U. S. P. XII recognizes four different types (designated A, B, C and D), which are approximately equivalent to the older terminology of plain, ten day chronic, twenty day chronic and forty day chronic catgut.

The investigators made a detailed experimental study of a large series of catgut suture implants in the abdominal muscles of dogs and a few clinical tests on surgical patients in order to obtain further data on the duration of tensile strength and the time required for ultimate absorption in the tissues of both the plain and the chromic types of this material. Ten standard brands of suture material, in various sizes, were examined. Specimens of the same material were also subjected to *in vitro* digestion tests performed in an incubated acid pepsin solution to correlate the time required for artificial digestion with the period over which the sutures

<sup>1</sup> Jenkins H. P. and Hrdina L. S. Absorption of Surgical Gut (Catgut). I. The Decline in Tensile Strength in the Tissues. *Arch Surg* 44: 881 (May) 1942. II. Pepsin Digestion Tests for the Evaluation of the Duration of Tensile Strength of Surgical Gut in the Tissues. *ibid* June 1942. Jenkins H. P., Hrdina L. S., Swisher F. M. and Owens F. W. III. The Duration of Surgical Gut in the Tissues After Loss of Tensile Strength. *ibid* July 1942. Jenkins H. P. IV. Recommendations for the Absorbability and Digestibility Specifications of Surgical Gut. *ibid* August 1942.



actually retain their holding power in the tissues. The time required for complete absorption of the implanted specimens was determined from a gross study of the cleared tissues removed from the animals, killed after varying periods of exposure. The response of the tissues to the sutures was observed from a microscopic study of the corresponding sections. The investigation shows that for the most part the plain catgut examined maintained its tensile strength in the tissues for an average of approximately five days. Various sizes of the twenty day and forty day chromic material fell into three categories: that which did not maintain tensile strength for ten days, that which lasted ten to fifteen days and that which held up for fifteen to thirty days. The time observed for ultimate absorption falls into two main categories: "rapidly absorbed" (one to three weeks) for plain catgut, associated with a predominant leukocytic tissue response, "slowly absorbed" (three to six months) for chromic catgut, associated with a more conspicuous macrophage response. Some of the chromic, and even some plain, material was "intermediately absorbed." Correlation of the tissue studies with the *in vitro* enzyme tests indicates that the latter offer a practical method of assaying the absorption qualities of surgical gut, provided a check is made with experimental and clinical observations and care is taken to use a uniform enzyme solution.

Specifications are proposed for both the absorbability and the digestibility of each of the four types of surgical gut to be recognized in the U. S. Pharmacopeia XII, though it is indicated that division of surgical gut into four types is somewhat arbitrary, since the studies suggest only three general classes. The specifications provide for time data, in days, of the average range and the minimum and maximum ranges of duration of tensile strength and the average range in weeks or months for complete absorption in the tissues, and for digestibility values of the average range and the minimum and maximum ranges expressed as multiples of the average digestion time of type A (plain) surgical gut to be determined from pooled catgut of this type, which has an average duration of tensile strength of approximately five days.

The primary aim of the studies now being published is to stimulate the ultimate elaboration of suitable standards and methods of testing for surgical gut. The specifications formerly used under the older designations of the material, namely "plain," "ten day," "twenty day" and "forty day," will no doubt be followed to some extent by manufacturers in labeling their products with the new terminology. Such practice will probably soon be generally superseded by more reliable testing methods of surgical gut, designed to insure accurate classification within reasonably broad standards, to enable the surgeon to evaluate better the uses of this suture material in the apposition of tissues.

## Current Comment

### ADDITIONS TO THE MEDICAL PROFESSION

Perhaps the most accurate index of actual additions to the medical profession of the United States is to be found in the medical licensure statistics collected by the Council on Medical Education and Hospitals of the American Medical Association and published annually in the State Board Number of *THE JOURNAL*. The number of graduates of the medical colleges of the United States includes a certain number of students from foreign countries and does not include students from the United States graduating from Canadian medical schools. Neither does it indicate the graduates of the foreign medical schools who initiate practice in the United States. Data presented elsewhere in this issue indicate that there were 5,681 additions to the medical profession in 1941. The number lost to the profession each year by death is approximately 3,700. There has thus occurred during 1941 a net increase of approximately 1,900 in the number of physicians in the United States. Of these 5,681 newly licensed physicians, 626 were graduates of foreign medical schools and 226 were graduates of unapproved medical colleges in the United States. During 1941, 4,738 graduates of approved medical colleges were added to the profession in the United States. Accumulated data indicate that during the past seven years there have been 41,983 new additions to the profession. As a result of increases in the number of students admitted and the adoption of an accelerated curriculum by most of the medical colleges, the annual additions to the profession from the medical schools of this country should increase by more than 25 per cent during the next few years.

### PHENOL-CAMPBOR FOR "ATHLETE'S FOOT"

In *THE JOURNAL*, Dec 6, 1941, a clinical note by Francis<sup>1</sup> on the use of a mixture of phenol and camphor for the treatment of "athlete's foot" was published. This preparation consists of 3 cc of U. S. P. phenol and 3 Gm of U. S. P. camphor, the entire mass being rubbed together in a mortar until it is liquefied. An alternate formula proposed in the communication was three parts of phenol and one part of camphor. Although the mixture is purported to be nonirritating to the skin, the communication warned that the phenol-camphor preparation should not be applied to the wet skin, since water has been reported to permit a release of the phenol with the result that it becomes caustic. More attention has now been drawn to this treatment by the appearance of an article in the May 1942 issue of the *Reader's Digest* entitled "A Working Cure for Athlete's Foot." The medical and pharmacy professions have received many requests for prescriptions and compoundings of the phenol-camphor mixture. Most cases of fungous infection require persistent skilful attention if the disease is to be brought under complete control. Recommendation that untrained people use on themselves

<sup>1</sup> Francis, Edward. Phenol Camphor for "Athlete's Foot." *J. A. M. A.* 117: 1973 (Dec 6) 1941.

agent which has the potential danger of causticity is highly doubtful. According to information received by THE JOURNAL and the office of the Council on Pharmacy and Chemistry, a number of investigations are now being conducted to determine the extent of the causticity of the phenol-camphor mixture and its possible benefits and dangers. This has become doubly imperative because of the response of the public to the article in the *Reader's Digest*. Other factors which have been suggested as meriting consideration are the possible aggravation of an existing irritation and the absorption of phenol if the medicament is liberally applied and the affected area subsequently enclosed in bandages. Until the studies are concluded treatment of "athlete's foot," ringworm and other fungous infections with a mixture of phenol and camphor or any other potent remedies is best intrusted to the qualified physician.

#### BIOTIN DEFICIENCY IN MAN

Investigations of the nutritional requirements of experimental animals influence human problems. A preliminary report just available<sup>1</sup> concerns biotin deficiency in man and its cure with a biotin concentrate. The deficiency was induced by feeding a diet poor in biotin, the lack of this dietary factor was accentuated by including dried egg white in the diet. The "egg white injury" syndrome in rats, now attributable to a biotin deficiency, has been studied for some years. A group of four volunteers subsisted on a diet planned to contain a minimal amount of biotin, supplemented daily with a suitable mixture of other purified vitamins. During the third and fourth weeks of the study all four subjects developed a scaly desquamation without pruritus. The condition cleared spontaneously within seven to ten days. At the seventh week one subject developed a maculosquamous dermatitis of the neck, hands, arms and legs. During the seventh and eighth weeks all showed a pronounced grayish pallor of the skin and mucous membranes which was not accounted for solely on the basis of the blood picture. The latter manifested a definite diminution in hemoglobin content, in the number of erythrocytes and in the volume of packed red cells. There was a striking rise in the serum cholesterol. Despite the daily administration of 6 mg of thiamine hydrochloride to each subject during the entire experiment, symptoms strikingly like those noted in experimental thiamine deficiency were seen after the fifth week. Treatment with daily injections of 75 to 300 micrograms of a biotin concentrate resulted in prompt relief in each subject, 150 micrograms daily was suggested as the minimum effective amount. There was an increase in appetite on the third to fifth days after giving biotin, despite the continuance of the same experimental diet. The striking ashy pallor of the skin and mucous membranes disappeared in four days. The elevated level of serum cholesterol was significantly reduced after one week. The detailed results will be of interest in evaluating problems dealing with manifestations of spontaneous avitaminosis and its relation to biotin deficiency.

#### PALINDROMIC RHEUMATISM

The term "palindromic rheumatism" has been recently applied by Hench and Rosenberg<sup>1</sup> of the Mayo Clinic to a disorder observed by them in 34 persons, they consider the condition sufficiently distinctive to constitute a clinical entity. "Palindromic"—from the Greek—means simply "to recur." The disease described is characterized by oft recurring multiple afebrile attacks of acute arthritis and peri-arthritis, sometimes also para-arthritis with pain, swelling, redness and disability. The attacks appear suddenly, develop rapidly generally last a few hours or days and then disappear completely but recur at irregularly spaced intervals. In the cases observed the two sexes were about equally affected, the ages of the patients at onset varied from 13 to 68. The majority of attacks were monoarticular, the sites of predilection were the fingers wrist, shoulder, knee, toe and elbow. Despite the transitory presence of inflammatory exudate in articular tissues, little or no constitutional reaction was observed. Neither could they detect abnormality in laboratory tests or significant functional, pathologic or roentgenologic residues even after years of the disease and scores of attacks. From two to ten attacks occurred yearly in 9 of their cases twenty to sixty yearly in 17 cases, one hundred to two hundred a year in 3 cases and two hundred and fifty or more a year in 5 cases. The Rochester clinicians attempt to differentiate this disorder from rheumatoid arthritis, gouty arthritis, "angioneural arthrosis" and "allergic rheumatism." Results of treatment to date have been inconclusive. The disease is a nuisance and handicap but, in spite of a total of thousands of attacks, permanent crippling was not demonstrated in any single joint. The preliminary report indicates that the claim for the establishment of "palindromic rheumatism" as a clinical entity is well supported by evidence, though it can be accepted as established only after confirmatory studies have been made by several independent observers.

#### COMPULSORY IMMUNIZATION

The report of a survey of all the jurisdictions under the control of the United States, summarized in *Public Health Reports*, March 6, shows that only nine states and Alaska have any express provisions requiring immunization against diphtheria. North Carolina is the only state that requires general immunization of all children between 6 and 12 months of age and those between 12 months and 5 years not previously immunized. The only children exempted are those whose parents or guardians are "bona fide members of a religious organization whose teachings are contrary to the practices required by the law." New Jersey appears to be the only state in which immunization may be required as a prerequisite to school attendance. North Dakota has a statute which "forbids making any form of vaccination or inoculation a condition precedent for admission to any public or private school or college, or for the exercise of any right."

<sup>1</sup> Sjödenströcker, V. P. Singal, S. A. Briggs, A. P. DeVaughn, M. and Isbell, H. Science 95: 176 (Feb. 13) 1942.

<sup>1</sup> Hench, P. S. and Rosenberg, E. F. Palindromic Rheumatism: A New, Oft Recurring Disease of Joints (Arthritis, Peri-arthritis, Para-Arthritis) Apparently Producing No Articular Residues. Proc. Soc. Meet. Mayo Clin. 16: 893 (Dec. 17) 1941.

# MEDICINE AND THE WAR

*In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession*

## THE SALVAGE OF RUBBER AND METALS

Paul C Cabot deputy chief of the Bureau of Industrial Conservation of the War Production Board Washington, D C, has supplied the following information

There is a critical shortage of many necessary war materials at present in this country. The primary sources of supply are now denied to us as the result of conditions in both the Pacific area and in Europe. It is becoming increasingly necessary to tap all possible secondary sources and to reclaim every ounce of these badly needed materials that we can find.

To this end there has been established through the General Salvage Section of the Bureau of Industrial Conservation, state salvage committees in practically every state in the country. These state committees have in turn established local salvage committees in every local defense council in their territory. Complete organization nationwide, can be expected by May 1.

There is a potentially large source of these critical materials to be reclaimed from hospitals, clinics, health departments, diagnostic laboratories—in fact, from all health and medical institutions of any kind not excluding physicians and dentists. The Bureau of Industrial Conservation, therefore, requests that the Health and Medical Committee of the Office of Defense Health

and Welfare Services make every effort to see that the need for these scarce materials is brought to their attention.

Rubber is now America's number one shortage. Our war machine must roll on rubber, and since the rupture of trade lines to the Far East we must rely in large measure on existing scrap rubber now in this country. There is also an acute shortage of metals ferrous and nonferrous. We do not anticipate that medical institutions can make available much tonnage in scrap iron and steel but large quantities of some of the scarcer metals may be collected from such sources.

All medical institutions and individuals desirous of helping in our 'Salvage for Victory' program should get in touch directly with their state or local salvage committee, which will be able to indicate to them the best method of procedure in the collection and disposition of these materials. Following is a list of these state salvage committees.

It can be expected that the health and medical profession which has already contributed so largely to the welfare of the nation, may by this plan be enabled to broaden the scope of its useful activities and provide a definite added service to the country in this time of need.

## STATE SALVAGE COMMITTEES

| Chairman             | Executive Secretary                   | Office   | Chairman            | Executive Secretary                  | Office   |
|----------------------|---------------------------------------|--|---------------------|--------------------------------------|--|
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# CENTRAL CONTROL AND ADMINISTRATION OF EMERGENCY MEDICAL SERVICE

Medical Division Bulletin No 4, United States Office of Civilian Defense, Washington, D C

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### FOREWORD

This bulletin outlines the relationship of each of the various units of the Emergency Medical Service to the Control System of the Citizens' Defense Corps and the Civil Air Raid Warning System. Every movement of a protective service must be orderly and purposeful. It is therefore important that every member of the Emergency Medical Service, whether belonging to an administrative service, a field unit, an ambulance unit, a casualty receiving hospital or an emergency base hospital, understand the coordinated timing of their activities with those of other protective services under the constant direction of the Control Center.

### I AIRCRAFT WARNING SERVICE

The Aircraft Warning Service has been organized by the Combat Command of the United States Army Air Forces for detecting and reporting the presence of enemy airplanes. For the purposes of air defense, the continental United States is divided into large areas, each of which is served by an air force. An air force area is, in turn, divided into air defense regions. The command post of an air defense region is known as an information center.

Each subdivision of an air defense region is served by a central communications point known as a filter center. Filter center areas are subdivided into areas of approximately 36 square miles in each of which is located an observation post manned by civilian observers.

The observation post reports the presence of planes to the filter center, where similar information coming in from other observation posts is assembled and evaluated by trained army officers. The combined picture of the probable height, speed, direction, type and number of enemy planes is relayed to the information center. Here the information from various filter centers is plotted on an operations map, and pursuit planes are ordered to intercept the enemy.

### II AIR RAID WARNING SYSTEM

A civil air raid warning officer at the information center notifies the communities in the path of the invading bombers to prepare for a possible air raid. This message is telephoned from the information center to the district warning centers of the civil air raid warning system and from there to the control centers of the communities in the area (fig 1).

### III CONTROL CENTER

The control center of a community is the headquarters of the commander of the citizens' defense corps and his technical staff. Here is received all information essential for operating the civilian protection services during an emergency (fig 2). The control center receives air raid warnings and transmits them to the proper recipients; it orders the sounding of air raid alarms; it receives reports from wardens concerning damage; and it dispatches operating units of the protection services to bombing incidents.

Large cities are subdivided into a number of districts, in each of which is a district control center. The district control center receives and transmits air raid warnings, receives reports of incidents from wardens, and controls the movement and operation of all protection units within or assigned to the district. To large incidents it sends an incident officer who takes command of all protection forces on the scene (including the medical), orders unnecessary units back to their stations or requests additional assistance from the control center.

Over all the district control centers of a large community or area is a main control center which receives reports from the district control centers (not from wardens) and controls the movement of services between districts.

**A Message Room**—In the control center there are an electric bell and a set of four lights corresponding to the degrees of warning—yellow, blue, red and white. From the message room come the signals; the bell is rung and the appropriate light switched on as each signal is received (fig 3).

**B Control Room**—In the control room is a map of the area served by the control center, on which are recorded the locations of wardens' posts, the boundaries of sectors and precincts, and the stations, depots and headquarters of the various civilian protection services. The chief of the Emergency Medical Service is responsible for the accurate recording on this map of the locations of (1) hospitals, (2) casualty stations and medical supply depots and (3) ambulances and other vehicles in transport centers. He must also know the location of emergency medical field units, the number of squads available in each unit and which hospitals have their own ambulances.

With numbered pins of four different colors, the locations and types of incidents are indicated on the map (high explosive, incendiary, gas, unexploded bombs). Road blockages are also recorded.

**C Control Panel**—On a control panel are recorded the numbers and nature of the incidents, the protection services available and the services dispatched. This enables the controller to have a complete visual record of the number and disposition of his services. Pins of distinctive colors are used to identify types of service. Each pin bears a separate number indicating a service unit. Pins for the emergency medical field units are red and white and those for ambulances are white (fig. 4).

**D Communications System**—Telephone numbers at the control center are known only to persons authorized to call the center. Similarly, outgoing lines to stations

might except that essential industry and transportation will be allowed sufficient lights, and street lights will be kept on but will be properly screened so that they will not be visible from the air.

When the presence of hostile aircraft is detected in an area, a series of "warnings" flows from the informa-

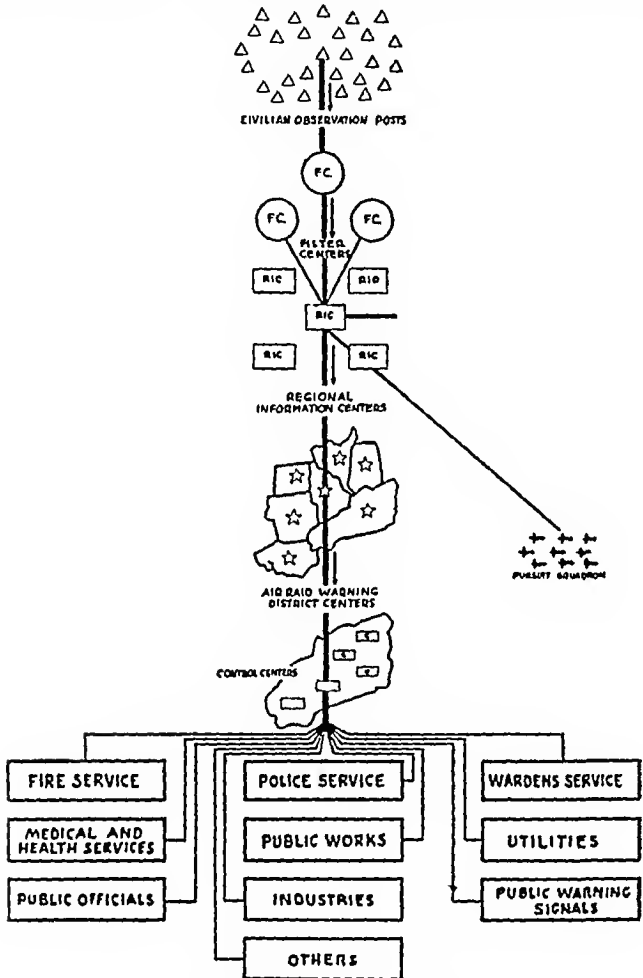


Fig. 1—Aircraft warning service and air raid warning system

of the protective services have unlisted numbers. Alternate or "stand by" methods of communication, such as municipal signal systems, short wave radio, broadcast radio, radio telephone or messengers should be provided for in case the telephone service is interrupted.

**Procedure**—Three persons should be on duty at each control center at all times, and a full shift should be available on call.

All essential information is assembled in the control room to enable the commander and his staff to make the necessary decisions. The objectives are speed and, above all, accuracy. Written messages are used rather than verbal instructions, to reduce the possibility of error.

When the military commander decides that an air defense area is vulnerable to bombardment, he will alert the area even though there appears to be no immediate threat of enemy action. An "alert" may be intermittent or continuous over long periods. An area which has been alerted will be blacked out at

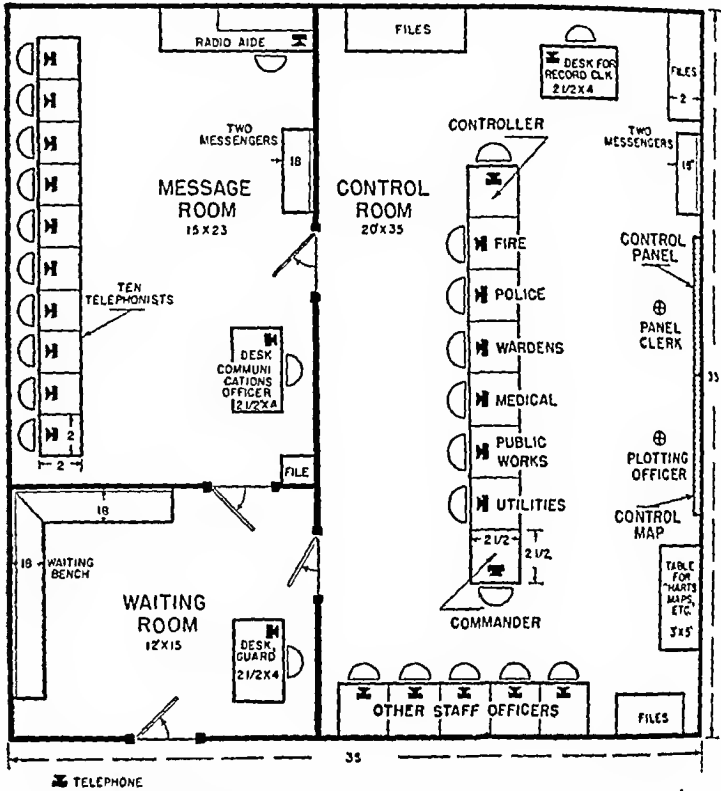


Fig. 2—Typical room layout of control center serving a population of one hundred thousand

tion center through the district warning centers and control centers to the final recipient. In some cases the final recipient may be warned directly from district warning centers rather than control centers.

**1 Yellow Warning—preliminary caution**—The yellow warning is confidential and is not released to the public. It is telephoned to staff members of the control center including the chief of Emergency Medical Ser-

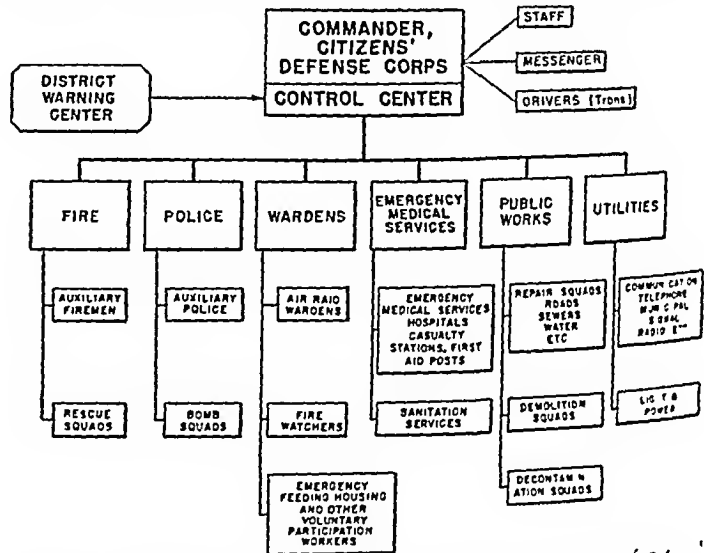


Fig. 3—Relationship between the commander and the various groups. On the yellow warning the chief of the Emergency Medical Service or his deputy reports as medical adjutant to the commander of the control center. On the blue or red warning, hospital or field units prepare for action but do not move to casualty stations or first aid posts until ordered by the control center.

vice and his deputies, to summon them to their stations. The head warden in each zone, who telephones the remaining wardens, to industry and transport, and to police and fire stations. It is not received by medical field units.



2 Blue Warning—*lights warning*—This means that raiders are expected to pass over the area. The warning is telephoned to industry, transportation and hospitals to notify them to obscure their lights. The blue warning is also confidential.

3 Red Warning—*action warning*—When it appears that an air raid is imminent the 'red warning' is given to the general public. It is telephoned to all protection services including hospitals and casualty stations notifying them to be ready for action and the public air raid warning is sounded for a total blackout.

4 White Message—*all clear*—It means that the hostile planes have left the area and that industry and

During a raid, after wardens have reported the location and details of incidents to the control center, fire fighters, rescue squads or other appropriate action units are dispatched to the scene. When casualties are reported the hospital field units and ambulances are ordered to the casualty stations near the incidents.

#### FIELD UNITS OF THE EMERGENCY MEDICAL SERVICE

The organization, equipment and operation of emergency medical field units is described in Medical Division Bulletins Nos 1 and 2. There is great advantage in organizing nonsurgical resident staffs of hospitals—

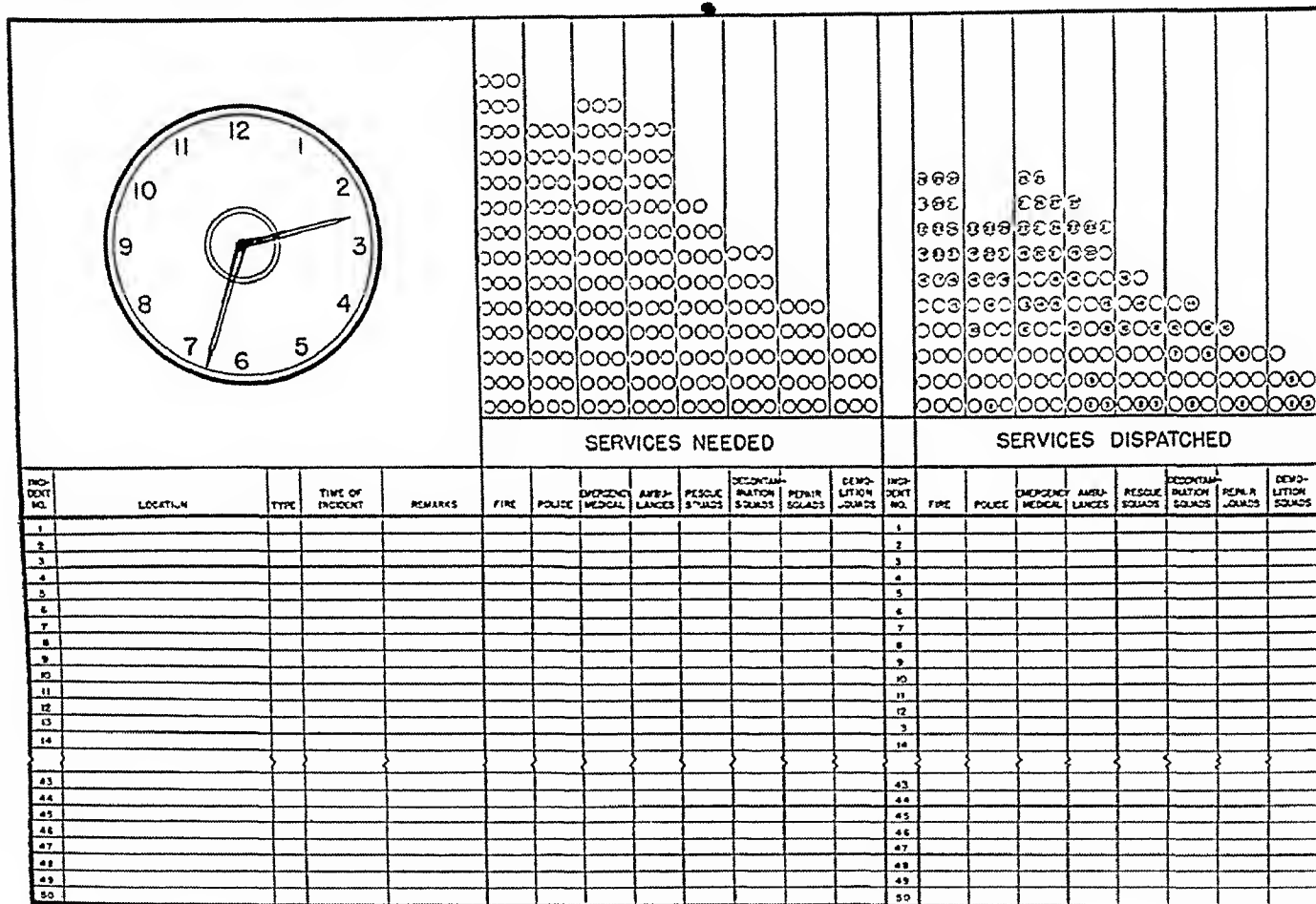


Fig. 4—Control panel

transportation may resume the use of lights allowed them under the provisions for the "alert."

*Warnings to Hospitals and Field Units of the Emergency Medical Service*—Medical units are not as a rule brought into action on the yellow signal. This is a precautionary warning which should not disturb the operation of hospitals and the regular duties of physicians and nurses throughout the community.

The blue warning is the first received by hospitals and casualty stations. It is confidential and not a signal for calling doctors and nurses from all parts of the city to their posts at the casualty stations.

The red warning to hospitals means "Assemble your emergency field units, their equipment and transportation, but do not move until you receive orders."

In communities in which field units have not been organized in hospitals, the red warning means "Summon doctors, nurses and nurses' aides to the casualty stations and have them stand by for orders."

interns and nurses of the medical, pediatric and neurologic services—into emergency medical field units to serve as the first line of the casualty services. Squads of two to four interns and nurses can be on call day and night, but their regular work continues until they are notified that persons have been injured and their services are needed. Their preparedness makes it unnecessary to man all casualty stations on every alert. If, however, prolonged or repeated raiding results in continued demand for medical services at casualty stations, hospital units may be relieved by reserve units of neighborhood physicians and nurses. These units should be related to hospitals and drilled regularly in case it becomes necessary to relieve the hospital units and to staff casualty stations on a more permanent basis.

The hospital should be the center of all casualty services in its area. Its staff is ready for emergency duty at a moment's notice, and there are trained reserves

PROPERTY

available in the event of prolonged or frequent attack. Failure to organize emergency medical field units within hospitals will waste time and effort. Areas alerted will be much larger than those actually attacked, and, in the absence of hospital units available at all times for immediate dispatch, practicing physicians and nurses whose services are sorely needed in their communities must man every casualty station in the alerted area.

In small hospitals which have no resident staffs, consideration should be given to a plan under which one or more physicians are on call each night. The physicians on duty would not be required to remain in the hospital, but they should be ready to take up their posts as soon as the warning is given.

All members of emergency medical field units (physicians, nurses, orderlies) and medical auxiliaries such as stretcher teams will be identified by the caduceus on the civilian defense armband, nurses' aides by the red cross on the civilian defense armband.

#### V CHIEF OF EMERGENCY MEDICAL SERVICE AND DEPUTIES

Certain duties of the local chief of Emergency Medical Service are listed in Medical Division Bulletin No. 2.

A During the period of preparation the chief of Emergency Medical Service is responsible for

##### 1 Organization of the field casualty service

(a) Organize and drill emergency medical field units in hospitals and among physicians and nurses in the community.

(b) Select casualty station sites and arrange for canteen and disaster relief services at casualty stations.

(c) Assemble field equipment in medical supply depots.

(d) Assemble transport facilities.

##### 2 Plans for hospitalization of casualties

(a) Assign hospital beds to each control district.

(b) Arrange for periodic census of vacant beds.

(c) Plan with state chief of Emergency Medical Service for base hospital facilities to which casualties and other sick may be evacuated.

##### 3 Provision for medical direction at the control center

(a) Train and assign deputies to serve as medical adjutants.

(b) Arrange for direct telephone lines between control center and hospitals and casualty stations.

(c) Spot hospitals, casualty stations, medical supply depots and ambulance depots on control center map.

##### 4 Collaboration with the Red Cross

(a) Promote the training and assignment of volunteer nurses' aides.

(b) Extend first aid training, emphasizing priority for personnel of the Citizens' Defense Corps.

(c) Train stretcher teams for assignment to casualty stations.

##### 5 Organization of casualty information and mortuary services

B During the period of operations the chief of Emergency Medical Service or one of his deputies serves as medical adjutant at each control center. The adjutant must be ready to report immediately on receiving the yellow warning. He must have complete knowledge of the number and availability of all service units at his disposal. He must also know the number of vacant hospital beds in the city and the maximum daily operating load each hospital can assume. On report of casualties he will order the dispatch of medical field units under the general supervision of the commander or the controller.

Large cities are usually subdivided into districts, each governed during an air raid by a district control center.

The chief of Emergency Medical Service should assign deputies to serve as medical adjutants in district control centers and to assume responsibility under the district commander for the operation of all units of the Emergency Medical Service in the district. The main control center for an area will receive reports from district centers (not from wardens) and will govern the transfer of services between districts when needed. When medical field units return to their casualty stations or hospitals, they should report immediately to their control center so that they may be used at other incidents. The district medical adjutant will report periodically to the chief of Emergency Medical Service the number of casualties in his district and, when indicated, the need for the allocation of additional hospital beds or emergency medical field units.

The chief of Emergency Medical Service will keep a daily record of new casualties and of deaths due to enemy action and will clear the record through the personnel officer of the control center to the proper municipal departments. For this purpose he must organize a casualty information service and also a mortuary service for identification and custody of the dead.

#### VI CARE OF CASUALTIES IN THE FIELD

An air raid casualties are usually limited in number compared with the amount of structural damage produced by high explosive bombs. Most casualties are, however, severe. In the British experience, 40 or 50 per cent are killed outright or die soon after injury, and most of the remainder require prompt transportation to hospitals for operative procedures and resuscitation therapy. Crushing injuries, fractures, internal hemorrhage, extensive burns and shock require skilful medical judgment and attention at the site of the incident. Abdominal perforation may accompany a small penetrating lesion, head injury may cause a skull fracture or a cerebral or subdural hemorrhage without external wound. Multiple penetrating lesions of the face, eyes and other parts of the body due to fragments of glass are common and require immediate skilled attention.

As the injured are extricated from demolished buildings by rescue squads, stretcher bearers carry them to first aid posts. Medical judgment is required to classify injuries, apply first aid, administer morphine, prevent shock and indicate priority for ambulance transportation to the hospital. Responsibility for the care of an air raid casualties is for trained physicians with their nurse assistants and medical auxiliaries, and not for persons with a twenty-hour course in first aid or for the corner druggist.

*A Casualty Stations and First Aid Posts*—The functions of casualty stations and first aid posts are outlined in Medical Division Bulletin No. 2. The casualty station is at a fixed, predetermined site whereas the location of a first aid post is selected at the time of the incident. The casualty station should have direct telephone communication with its control center. Primarily, the casualty station is the place of assembly for one emergency medical squad consisting of two to four medical teams, each headed by a physician and including a nurse and one or more nurses' aides or orderlies, as described in Medical Division Bulletin No. 1. It is also the place of assembly for stretcher teams who assist the medical team at the first aid post by bringing in the injured.

From the casualty station one or more medical teams may be deployed by the squad leader or on instruction

from the control center to establish temporary first aid posts near the incidents. The site selected for a first aid post should provide shelter, safety and accessibility to ambulances. The responsibility of the first aid post is to administer emergency care and to expedite transport of the severely injured to a hospital. A casualty station may serve as a first aid post if it is near the incident.

In large cities there should be one casualty station for every twenty-five thousand of population. In small cities with less population and relatively larger area it may be necessary to provide stations in double this ratio. The number and location of casualty stations are to be determined by geographic considerations as well as by the population to be served.

A casualty station serves for the reception of the less severely injured (those who can walk) and for those suffering from nervous shock or hysteria. It should have facilities for a canteen and be related to a temporary rest center for uninjured persons whose homes have been destroyed or are unsafe for occupancy. It removes the burden of a vocal but less seriously injured group from hospitals overtaxed with the care of severe casualties. Every hospital should therefore provide casualty station facilities in its outpatient clinic or other suitable place.

After a short period of observation at the casualty station, slightly injured persons may be allowed to return to their homes or to places of temporary shelter provided by the welfare department of the city or by the Red Cross. In order that persons sent home may be assured of adequate care, the chief of Emergency Medical Service should arrange with local public health nursing agencies for follow-up service. The day following an incident a physician or a public health nurse should visit the homes of all persons who have been slightly injured. Persons needing medical care may be referred to a neighborhood physician. In this manner the neighborhood physicians in the vicinity of a casualty station may serve as "incident physicians." Those who require medical care but cannot afford a private physician should be referred to a clinic.

**B. Medical Supply Depots**—The casualty station or some place in its vicinity is also the site of the medical supply depot, where stretchers and blankets are stored for the stretcher teams and collapsible cots, blankets and other equipment for the station itself. Here should also be based the canteen and the reclothing and rehousing services of the municipal welfare department or the Red Cross.

It may be necessary to establish a larger medical supply depot at a police or fire station or other suitable place from which several casualty stations may be equipped. Transportation must then be constantly available at these depots. This is less desirable than the establishment of a medical supply depot at the casualty station itself.

The medical supply depot for each casualty station should include a minimum of twenty stretchers and fifty collapsible cots. At least two blankets should be available for each stretcher and cot. Additional stretchers and blankets must be provided at the hospitals for exchange with the ambulance driver when stretcher patients are received. A surplus is essential because many stretchers and blankets will be occupied by seriously injured persons who cannot be moved. Others

may have been used for the dead and must await cleaning and disinfection.

Cities in the "target areas" may require as many as two stretchers per thousand of population and three times this number of collapsible cots. They should be provided as far as possible out of local resources. This equipment will later be supplemented from federal sources.

Medical Division Bulletin No. 2 lists the medical and surgical equipment of a casualty station (list 2). The individual cases of equipment for emergency medical teams (list 1) are best stored at the hospital from which the field unit is derived, here the morphine supply can be protected and the surgical dressings replenished and resterilized. If the field unit is not related to a hospital the individual cases of equipment for a team may remain in possession of the physician members of the team or stored in the casualty station, except for the morphine supply which must be safeguarded in accordance with the instructions of the federal commissioner of narcotics as outlined in Medical Division Memoranda dated Dec. 15, 1941 and Jan. 19, 1942.

The medical supply depot should also be provided with simple heating equipment and cooking utensils and a generous supply of hot water bottles or chemical heating pads.

**C. Medical Auxiliaries—Stretcher Teams**—Trained stretcher teams are part of the Emergency Medical Service. They serve under the physician in charge at the casualty station or first aid post and are responsible for transporting the severely injured to the first aid post or to the casualty station if it is serving as a first aid post. Each casualty station will require at least four to six stretcher teams or a total of twenty trained stretcher bearers, half should be on call during the day and half at night.

Team members should be derived from the immediate neighborhood of the casualty station or hospital to which the team is attached. It will usually be necessary to organize separate day and night teams. If there are numerous casualties, stretcher team members can commandeer volunteers to assist in stretcher carrying. The regular stretcher team member serves as leader of this impromptu type of team and is responsible for proper handling of casualties.

A leader and assistant leader should be appointed for each team and a group leader for each group of teams based on a single casualty station or hospital. The group leader and at least one team leader should be selected, whenever possible, from the employees of the building used as a casualty station or from the personnel of the hospital. No member of a hospital staff who has any maintenance function should be selected for this position.

On the public alarm the group leader and at least one team leader (or assistant group leader) will report to the casualty station and remain near the telephone connected with the control center.

On order of the control center the group leader will activate teams as directed and will dispatch them to such points as may be designated by the control center. Teams should be so organized that they can be activated rapidly without recourse to public communication facilities. Activation must also be selective, so that only the teams needed are dispatched.

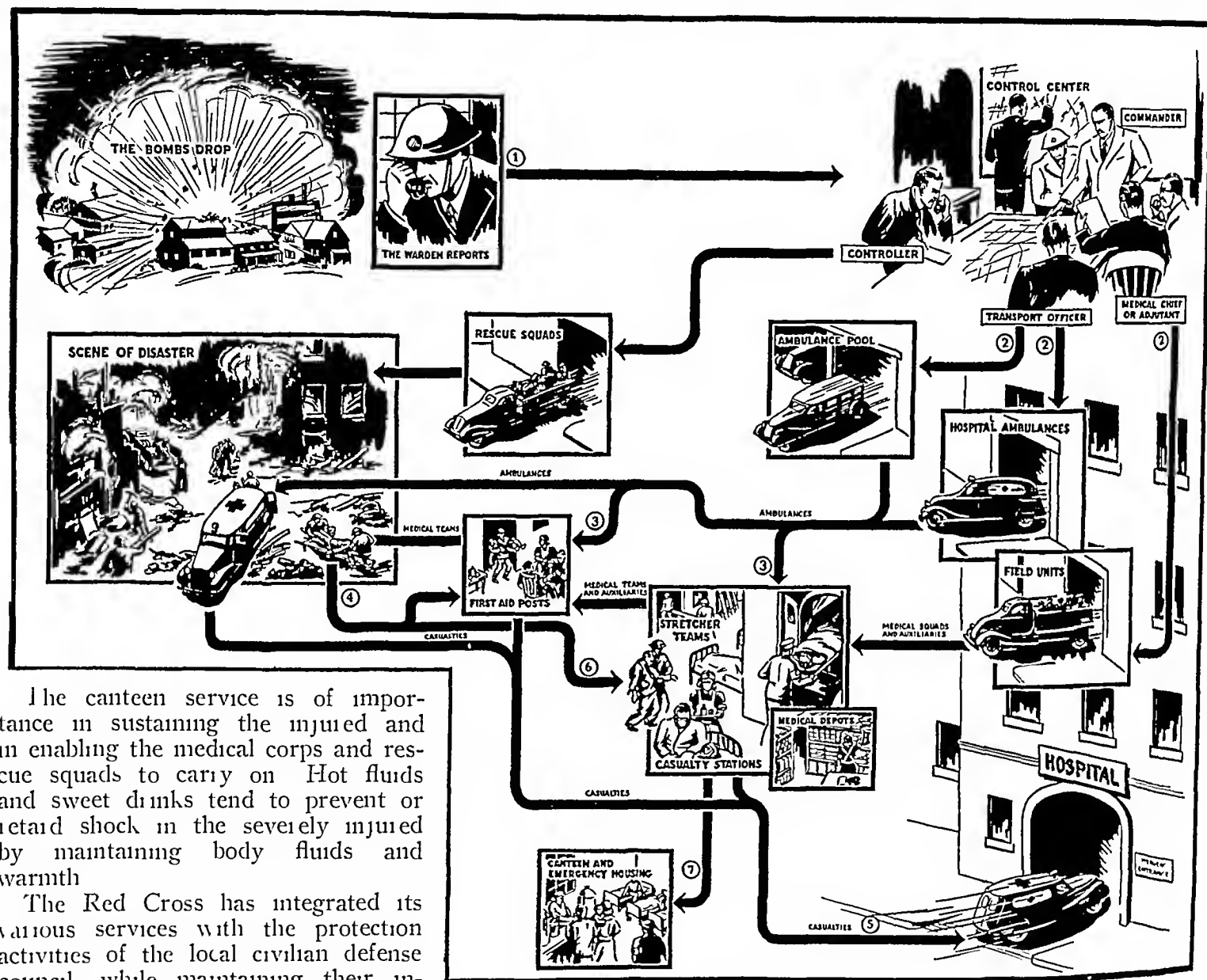
Technical training for stretcher bearers will consist of the standard first aid course of the Red Cross followed by supplemental training and drilling in extri-

cating injured persons from difficult positions, in loading and carrying a stretcher, and in loading and unloading ambulances

**D American Red Cross Units**—In almost all communities the local Red Cross chapter is prepared to provide a variety of essential disaster relief services, such as canteen, reclothing, rehousing, auxiliary ambulance and passenger transportation. In many communities Red Cross chapters are also prepared to assist the chief of Emergency Medical Service in equipping casualty stations and medical supply depots and providing some of the personnel

Office of Civilian Defense only if given by qualified Red Cross or Bureau of Mines instructors in accordance with the Red Cross or Bureau of Mines standards approved by the Office of Civilian Defense. The Red Cross will assist in the training and organization of stretcher teams for assignment by the chief of Emergency Medical Service to casualty stations. The Red Cross also has assumed complete responsibility for training volunteer nurses' aides in collaboration with hospitals designated as training centers.

The chief of Emergency Medical Service is in charge of the operation of all units of the Emergency Medical



The canteen service is of importance in sustaining the injured and in enabling the medical corps and rescue squads to carry on. Hot fluids and sweet drinks tend to prevent or retard shock in the severely injured by maintaining body fluids and warmth.

The Red Cross has integrated its various services with the protection activities of the local civilian defense council, while maintaining their integrity as Red Cross service units. In emergencies arising out of enemy action the Red Cross will place its units and equipment under the direction of the commander of the citizens' defense corps.

Local welfare, feeding, housing and other relief services are primarily the responsibility of local government, and a unit to serve these functions is part of the citizens' defense corps. These government services will be supplemented by the Red Cross to the limit of its disaster relief resources. The evacuation of city populations to rural areas will be the responsibility of the state and federal evacuation authorities, under whom the Red Cross will operate. First aid training is the responsibility of the Red Cross, and when sponsored by other agencies it will be recognized officially by the

Fig 5—Operation of the Emergency Medical Service. 1 The warden reports on casualties at the incident. 2 The control center orders the medical field unit of the hospital to the casualty station nearest the incident. 3 The casualty station, if close to the incident, serves as first aid post; otherwise medical teams headed by doctors are sent for to set up advanced first aid posts to which ambulances can approach. 4 Stretcher teams carry the injured to the first aid post, from which they are transported to (5) the casualty receiving hospital as soon as possible. The slightly injured go to (6) the casualty station for temporary care until they can return home or go to temporary shelters. At or near the casualty station are (7) a medical supply depot and a canteen service station. 8 From the casualty receiving hospital the injured can later be evacuated to an emergency hospital in a safe rural area.

Service under the direction of the commander of the citizens' defense corps. In some communities the local Red Cross chapter has equipped casualty stations with medical supply depots. Under the conditions of actual air raid all organizations must work directly under central control. Otherwise the commander cannot have a complete and consistent picture of the situation. He will not be able to direct help to the place where it is most urgently needed, nor will he be

when to summon outside assistance or whether he can safely send services to other areas

*E Local Ambulance and Other Transport Services*—Ambulances and other vehicles for transporting casualties from an incident to hospitals will be obtained from three sources (1) casualty receiving hospitals, (2) private ambulance companies and undertakers and (3) central ambulance depots where auxiliary trucks, converted station wagons and taxicabs are available. It is necessary to provide a central ambulance depot in each control district so that the district commander may know the number and the location of all vehicles at his disposal. The pool may be composed of ambulances belonging to the American Red Cross and the various voluntary agencies, commercial vehicles equipped with special racks for carrying stretchers, and passenger vehicles for sitting patients.

Ambulances or passenger vehicles carrying squads of emergency medical field units and their equipment from hospitals to casualty stations will transport casualties from the incident or the first aid posts to the hospital. Other vehicles remain at their assigned central depots until instructed to move by central control. Vehicles on discharging their load at hospitals continue to move only in accordance with orders from central control. If there are no orders, they return to their depots and await further instructions.

All requests for ambulance service must pass through the district control center, which should report at once any shortage of transport to the main control center. Under conditions of raiding and blackout, shortage of transport may be due to faults in distribution rather than lack of vehicles. It is essential, therefore, that the commander have an exact knowledge of the disposition of his transport at any moment. This is not possible if ambulances move in response to local calls without reference to the control center.

Ambulance drivers should return to their depots as soon as they have carried out an order. Under blackout conditions a whole fleet of vehicles can easily be lost for hours if they do not follow instructions. They must make trips to specified points and return as soon as they have carried out instructions. Ambulance drivers must not stop on their return journey from hospitals to collect wounded from the streets, by so doing they will interfere with other ambulances and slow up the whole process of collecting the wounded.

A number of vehicles needed for a given population will vary according to geographic considerations. A minimum of one four stretcher ambulance or two two stretcher vehicles is desirable for every ten thousand of population. Specially built ambulances are not necessary, commercial trucks with or without special stretcher racks may be used. A surplus of ambulance vehicles and drivers must be registered, because they will not always be available. If hospitals are some distance from probable sites of enemy attack a greater number of ambulances must be provided because of the long transport haul.

At hospitals and in central depots, passenger vehicles also should be available. Experience indicates the need of providing for as many sitting patients as stretcher patients.

*F Regional or State Ambulance Service*—Ambulances accommodating four or six stretchers, and trucks or converted busses capable of holding a larger number, should be available in the exposed seaboard areas. This service, which is distinct from the field ambulance service, should be controlled by regional or state medical

officers. It is for the evacuation of patients from casualty hospitals to emergency base hospitals in protected rural sites. Ambulance trains should also be obtainable through the military authorities in exposed areas.

#### VII CASUALTY RECEIVING HOSPITALS

All general hospitals in a community, voluntary as well as governmental, are included in the Emergency Medical Service. Each hospital should be specifically related to the control center and to certain casualty stations in the district in which it lies or to which its beds have been assigned.

The chief of Emergency Medical Service may delegate to a member of the hospital staff the responsibility as field leader, for supervising the medical and surgical equipment of the hospitals' related casualty stations and the training of their field units, whether derived from hospitals or composed of physicians of the community. This will relate all field units advantageously to hospitals, so that the clinical experience of the hospital may serve as a guide to the emergency measures employed by the field units.

All hospitals in the community should submit a daily census of vacant beds to the chief of Emergency Medical Service for transmittal to the medical adjutants at the district control centers. Hospitals must be prepared to expand their bed capacity in an emergency (1) by discharging convalescent patients to their homes, (2) by transfer of patients to other institutions and (3) by setting up additional beds in dining rooms, classrooms and other places. Additional stores of beds, mattresses and linens should be available.

To insure continuation of adequate nursing care for convalescent patients evacuated from hospitals, organizations employing public health nurses may be asked to provide for home visits. Directions for medical care to be given at home should, if possible, come from patients' private physicians. Welfare and social service organizations in the community may be called on to assist with arrangements for transfer of patients to other institutions or to their homes.

The number of casualties sent to a hospital will depend on the operating room load it is capable of handling, as well as on the number of vacant beds. Because of the severity of air raid injuries, an operating team will average less than one operation an hour. Where possible, two tables should be provided for each operating room so as to conserve the services of anesthetists, transfusion teams, nurses and orderlies, as well as equipment. The operating rooms and surgical staff of a fairly large hospital may be expected to care for only fifty major air raid casualties in twenty-four hours.

Casualty receiving hospitals must keep the control center constantly informed during an air raid of their ability to accept admissions. A hospital should notify the control center before its maximum capacity is reached, so that casualties may be diverted to another hospital. If the maximum capacity of all hospitals in a district is approached, the district control center will call on the main control center for allocation of additional beds from other districts.

When there are large numbers of burn cases, it is advisable to divide them among several hospitals. Burn cases constitute a heavy burden on the medical and nursing staff and require much care. For this reason it is advisable also to distribute burn cases among several wards of a hospital.

Medical Division Bulletin No. 3, "Protection of Hospitals" includes a description of facilities for unloading



of ambulances at the hospital during a blackout. As stretchers are unloaded, an equal number of clean stretchers and blankets must be available for exchange.

Adequate facilities and efficient administration will save lives in the receiving ward as well as in the operating room. The reception officer should be an experienced surgeon who can classify patients according to the nature of the injuries and determine need for prompt transfer to operating or resuscitation rooms. The reception room should be large. Patients should be arranged so that all can be watched by the reception officer and nurse for signs of shock or hemorrhage.

On the first manifestations of shock the injured should be transferred to an adjacent resuscitation room where plasma and whole blood are available and a trained transfusion team is in attendance. Shock and hemorrhage should be combated before as well as during and after operative intervention. If dried or frozen plasma is employed, the transfusion teams must be familiar with the technique of preparing the plasma for injection.

#### VIII. EMERGENCY BASE HOSPITALS

Cities likely to be exposed to enemy action require the assistance of a state chief of Emergency Medical Service to interrelate their medical protective activities with those of adjacent localities. Under his direction a state hospital officer is required in the seaboard states to maintain an inventory of hospitals, mental institutions, convalescent homes and other medical facilities in rural areas. These facilities will serve as emergency base hospitals to which civilian casualties and certain categories of the hospital population may be evacuated from exposed cities. Direct bomb hits, the effect of blast or the proximity of an unexploded bomb may necessitate the complete evacuation of a hospital. Partial evacuation may be required to remove patients from exposed locations such as upper floors or to free beds for new casualties.

*A Hospital Officer*—In planning for the most efficient use of existing hospital facilities the state hospital officer should work in close collaboration with the state evacuation authority. This is essential if emergency base hospitals and other medical and transport facilities in reception areas are to be utilized also for evacuated civilians. These recommendations are intended only for seaboard states with densely populated centers located in exposed areas which might be military objectives.

The functions of the state hospital officer are:

1 To survey hospitals throughout the state (excluding those in exposed cities) and determine how many beds can be put into immediate use with existing kitchen, laundry, sanitation and other engineering facilities by:

- (a) Clearing patients to their homes
- (b) Restricting admissions
- (c) Using rooms not normally used for patients
- (d) Rehousing medical nursing and other personnel outside the hospital
- (e) Using neighboring buildings (schools, hotels, and the like) for patients
- (f) Extra bed accommodation in temporary structures erected on grounds near the hospital

2 To assist in designating for each casualty hospital or group of hospitals in each exposed city (a) the line of evacuation to the base (b) the transport arrangements and (c) the emergency base hospitals provisionally allotted to each local casualty hospital or group of hospitals.

3 To keep constantly informed of the bed state of every hospital in his area by weekly reports:

4 To advise the Office of Civilian Defense through the regional medical officer on the need for providing additional accommodations.

5 To report to the regional medical officer of the Office of Civilian Defense any exceptional conditions requiring action (e.g. beyond state boundaries or required by the military situation) and to forward to him a monthly report on the state emergency hospital program. Where a hospital outside a state boundary is accessible for casualties from an exposed city in his area he should record this fact and include in his report any arrangements made for cooperation.

6 To maintain constant touch with the other service departments of the state defense council (e.g., evacuation).

7 To supervise the distribution of medical equipment furnished by the Office of Civilian Defense and report any threatened deficiency to the regional medical officer.

8 To supervise staff arrangements for emergency base hospitals and reception areas.

9 To control movements of medical and nursing staffs as well as of casualties in any situation affecting emergency base hospitals.

*B Mental Hospital Inventory*—Preparation for making a mental disease hospital available for casualties (emergency base hospital) requires the collaboration of the state officer in charge of mental institutions. It should include the following specialized inventory of the patient population:

1 Patients confined to bed and requiring hospital treatment (a) under restraint or isolation or (b) in a general ward and requiring only custodial care.

2 Ambulatory patients (a) requiring constant or occasional restraint (b) requiring expert supervision (but not restraint) in a mental hospital, (c) fit for discharge to a home or institution and requiring only custodial care, (d) fit for discharge to their own homes under occasional supervision or (e) able to work under supervision in the state institution.

3 Total number of patients—male, female, children (a) total for discharge, (b) total for work in a hospital (c) total for transfer to custodial institutions, (d) total requiring transfer to other institutions.

#### IX. CASUALTY INFORMATION SERVICE

In order that information may be promptly available to relatives and friends for early identification a casualty information service should be established in exposed communities by some responsible agency such as the health department or a joint hospital council. In an emergency it should be possible to expand the personnel with librarians and other trained persons accustomed to filing information and dealing with the public. The casualty information service will obtain the information from the chief of Emergency Medical Service and will verify its accuracy by direct communication with hospitals, police, medical examiners and morgues. It should serve under the general direction of the chief of Emergency Medical Service but should relieve him of the burden of operating the service.

The physician in charge of the medical squads or teams at an incident must keep the medical adjutant at the control center constantly informed of his casualties list and of the hospitals to which the injured have been evacuated. Casualty stations will render similar reports. During an air raid each casualty receiving hospital will report every two hours the list of casualties received.

The medical adjutants will render a daily report to the chief of Emergency Medical Service which will include the names and disposition of all injured persons. He will transmit this information to the casualty information service. He will also submit a report of the dead and their disposition which will be transmitted to the appropriate agencies.

#### MORTUARY SERVICE

A mortuary service should be established by the police department, the medical examiner or coroner and the department of health in collaboration with the morticians. They should jointly organize the mortuary service as one of the essential protection services and should train squads of nontechnical men and women for the collection, cleansing, laying out and disposition of the dead. Undertaking establishments may be helpful in supplementing morgue facilities and providing transportation of the dead. Those who are killed in

an incident should not be brought to a casualty station or first aid post. A separate room or yard should be provided at casualty stations for those who may die before transfer to a hospital. They can later be removed to morgues with the least disturbance of the population.

Provision must be made for identification of the dead, and for this purpose the police medical examiner or other government agency must be equipped for fingerprinting and photography. At the morgue or other temporary resting place, opportunity should be provided for viewing and identification of bodies by relatives and friends.

#### COLONEL FINNEY TO HEAD JOHNS HOPKINS UNIT

The War Department has activated the 118th general hospital unit which is one section of the Johns Hopkins University Hospital Unit and will be under the command of Col. George Finney, the son of Col. J. M. T. Finney, who headed the same numbered unit from Johns Hopkins when it went to France during the first world war. The 118th general hospital unit will train at Camp Edwards, Mass.

The other section of the Johns Hopkins unit, the eighteenth General Hospital, has been activated and will train at Fort Jackson, S. C.

The 42d and 142d General Hospital units from the University of Maryland Hospital also have been activated and will train at Fort Custer, Mich., and Fort Riley, Kan., respectively. According to the *Army and Navy Journal*, the unit director is Lieut. Col. Maurice C. Pincoff.

#### SUMMER UNIFORM FOR ARMY OFFICERS

A lightweight khaki single-breasted semi-form fitting sack coat without belt of the same design as the officers' white dress coat has been authorized for optional wear by army officers with the khaki summer uniform. The War Department has announced. The new coat may be made from 8.2 ounce cotton twill, 7-8 ounce rayon, tropical worsted or cotton warp mohair filling. When the new coat is worn, uniform trousers must be of the same material. Officers will not be required to purchase or wear the new coat. The summer uniform for duty consists of shirt and trousers in khaki color. At the option of the officer, this coat may be worn on appropriate occasions. In the District of Columbia, the summer uniform is to be worn from May 15 to October 1. Elsewhere, dates are designated to suit local climatic conditions.

#### INTENSIFY DRIVE FOR MORE NURSES FOR WAR DUTY

The national director of the Red Cross Nursing Service, Miss Mary Beard, stated on April 18 that the problem of supplying nurses to meet the constantly increasing demands of the Army and Navy is still a serious one, although seven thousand registered nurses from every section of the country have volunteered since Pearl Harbor for war duty through the Red Cross. This figure represents an all-time peak in enrollments and is 50 per cent above the same month a year ago and more than were registered during the entire year of 1940. Nevertheless, a thousand additional trained nurses must be recruited each month this year.

Miss Beard also announced the creation of a student nurse reserve and the assignment of representatives of each of the nine army corps areas to stimulate enrollments further. Senior students in qualified schools of nursing will be given an opportunity to sign up with the Red Cross through the new student nurse reserve, and on completion of their final year and state registration they automatically become members of the reserve and eligible for assignment to the Army and Navy. Representatives in each senior class are being appointed to assist local Red Cross nursing committees to build up the new reserve. The special representatives on enrollment in the nine army

corps areas will begin immediately and will assist army nurse corps captains in enrollment routines and in checking the qualifications of nurses volunteering for service with the armed forces.

The formation of many army-affiliated medical units requiring from fifty to one hundred and twenty nurses each has increased further the need for nurses, and only Red Cross first reserve nurses are eligible for assignment to these hospital units, which will serve in camps here and abroad. The age limit for nurses in these units has been raised to 45 years, but for other army commissions, nurses must be between the ages of 21 and 40.

#### ONE THOUSAND SHELTERS FOR NEW YORK CITY

One thousand rest centers or shelters are already available in New York City, it was announced April 1, where residents who have been bombed out of their homes can be fed and sheltered. Robert C. Davis, executive director of the New York chapter of the American Red Cross, said that a plan had been worked out in cooperation with the municipal officials to make rest centers available in every precinct in New York City. The Red Cross has assumed the responsibility of establishing, equipping and operating them for the temporary care of noninjured persons.

#### THE CHICAGO LOYOLA UNIT

U. S. Army General Hospital No. 108 is being organized at Loyola University School of Medicine, Chicago, and will be ready for preliminary training in a short time. The applicants for the fifty-seven medical positions in the unit must be graduates of Loyola, according to Dr. George T. Jordan, Chicago director of the unit. The one hundred and twenty nurses will be from Mercy Hospital, St. Bernard's Hospital, St. Elizabeth's Hospital and Columbus Hospital in Chicago, St. Francis Hospital in Evanston and St. Anne's Hospital in Oak Park.

#### INSTRUCTION TO WATERWORKS OFFICIALS

An emergency water and sewerage committee has been created by the Indiana State Defense Council in cooperation with the state board of health. The secretary of the committee is B. A. Poole, chief sanitary engineer of the state board of health. According to Dr. J. W. Ferree, state commissioner of health, the committee has issued instructions to all waterworks officials concerning the protection of plants against sabotage.

#### SECOND HARVARD UNIT ACTIVATED

The 105th General Hospital unit from Harvard University has been activated and ordered to a far western station for training. The 5th General Hospital unit from Harvard University had been activated previously.

#### BLOOD BANK ON UNIVERSITY CAMPUS

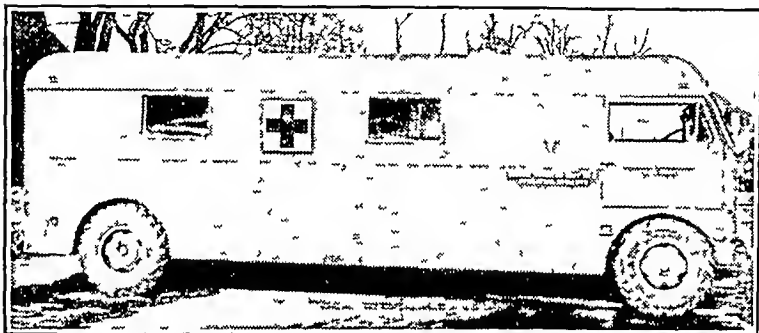
A blood plasma bank is being set up in Cowell Memorial Hospital on the Berkeley campus of the University of California for civilian use in time of disaster.

# ORGANIZATION SECTION

## OFFICIAL NOTES

### ARMY EXHIBIT AT ATLANTIC CITY

A feature of the annual session of the American Medical Association in Atlantic City, June 8-12, will be an exhibit of the work of the Medical Department of the Army. This will occupy spaces 1-2-9U, 1-10-11V and 1-2W in the Technical Exhibit. The illustrations shown herewith indicate a portion of the exhibit. The purpose of the exhibit presented by the Medical Department Equipment Laboratory, Carlisle Barracks,



Outside view of operating room, mobile unit, Sixth Surgical Hospital

Pa., is to acquaint the medical profession at large with the various types of combat and field equipment employed in the Medical Department of the United States Army. The exhibit includes such equipment as the folding leg splint, steel litter, battalion medical equipment pack carrier, new type helmets and head gear, portable disinfectors, gas proof litter covers, aerial

delivery units, battalion medical carts, cross country ambulance, wheeled litter carriers, flight service chest, gas casualty chest, ambulance and mobile units of surgical hospitals.



Interior view of operating room, mobile unit, Sixth Surgical Hospital

## MEDICAL LEGISLATION

### MEDICAL BILLS IN CONGRESS

*Change in Status*—H R 4476 has been reported to the Senate, providing for sundry matters affecting the military establishment. Among other things, the reported bill authorizes the Secretary of War, out of any moneys available for the War Department, to provide for the employment of interns who are graduates of or have successfully completed at least four years' professional training in reputable schools of medicine or osteopathy in the medical department, at not to exceed \$720 per annum.

*Bills Introduced*—S 2454, introduced by Senator Walsh, Massachusetts, and H R 6929, introduced by Representative Vinson, Georgia, propose to prescribe the relative rank of members of the Navy Nurse Corps in relation to commissioned officers of the Navy. S 2456, introduced by Senator Walsh, Massachusetts, and H R 6931, introduced by Representative Vinson, Georgia, propose to amend an act entitled "An Act to provide for the award of medals of honor, distinguished service medals and Navy crosses, and for other purposes." The bill, among other things, authorizes the President to present, in the name of Congress, a medal of honor to any person who while in the naval service of the United States shall, in the line of his profession, distinguish himself conspicuously by gallantry and intrepidity at the risk of his life above and beyond the call of duty. S 2468, introduced by Senator George, Georgia, proposes to amend the Soldiers' and Sailors' Civil Relief Act of 1940 so as to extend its provisions to an obligation originating on or after Oct 17, 1940, and prior to the time of induction in the service, such obligation being secured by a mortgage, trust

deed or other security in the nature of a mortgage on real or personal property owned by such person at the commencement of his period of military service and still so owned by him. S 2484, introduced by Senator Lee, Oklahoma, proposes to direct the Secretary of War to take such action as may be necessary, and as may be possible in view of the number of registered pharmacists serving in or whose services are available to the Army, to assure that a registered pharmacist is placed in charge of each Army dispensary or similar establishment from which drugs are dispensed. H R 6917, introduced by Representative Beiter, New York, proposes to extend the benefits of the United States Employees' Compensation Act to certain persons and to the widows, children and dependents of certain persons injured while performing duty as firemen on property under the exclusive jurisdiction of the United States. H R 6980, introduced by Representative Hendricks, Florida, proposes to authorize an appropriation of \$1,750,000 to construct a five hundred bed capacity veterans' general medical surgical hospital and domiciliary facility at Saint Cloud, Fla. H R 6922, introduced by Representative Rankin, Mississippi, proposes to amend the existing veterans' regulation regarding hospitalization to bring within its provisions any officer, enlisted man, member of the Army Nurse Corps (female) or Navy Nurse Corps (female) employed in the active military or naval service of the United States on or after Dec 7, 1941, and before the termination of the present war. H R 6996, introduced by Representative Anderson, California, provides for the transfer to certain states of Farm Security Administration facilities and equipment which are used to provide shelter, medical care and sanitary facilities for migrant farm labor families.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATIVE TO SOCIETY ACTIVITIES NEW HOSPITALS EDUCATION AND PUBLIC HEALTH)

### ARIZONA

**Public Health Meeting**—The Arizona Public Health Association held its annual meeting on March 13-14 in Tucson under the presidency of Robert A. Greene, Ph.D., Tucson. Among the speakers were Dr. Jerome E. Andes, Tucson on 'Chemical Substances Occasionally Introduced into Food by Accident', Dr. George O. Hartman, Tucson, 'Bacterial Enteric Infections and Intoxications', and Dr. Sydney E. Sinclair, San Francisco 'A Pediatrician's Thoughts on Mental Hygiene'.

### ARKANSAS

**Dr. Wassell Cited for Bravery**—Dr. Corvidon M. Wassell, Little Rock, who was commissioned a lieutenant commander in the U. S. Naval Reserve and assigned to caring for wounded officers and men of the cruisers *Houston* and *Marblehead* was commended by President Roosevelt in his radio address on April 28 for heroism in Java and has been awarded the navy cross. The following is quoted from the President's address as printed in the *Chicago Tribune*:

When the Japanese advanced across the island, it was decided to evacuate as many as possible of the wounded to Australia. But about 12 of the men were so badly wounded that they could not be moved. Dr. Wassell remained with these men knowing that he would be captured by the enemy. But he decided to make a desperate attempt to get the men out of Java. He asked each of them if he wished to take the chance and every one agreed.

He first had to get the 12 men to the sea coast—50 miles away. To do this he had to improvise stretchers for the hazardous journey. The men were suffering severely but Dr. Wassell kept them alive by his skill and inspired them by his own courage.

As the official report said, Dr. Wassell was almost like a Christlike shepherd devoted to his flock.

On the sea coast he embarked the men on a little Dutch ship. They were bombed and machine gunned by waves of Japanese planes. Dr. Wassell took virtual command of the ship and by great skill avoided destruction, hiding in small bays and inlets.

A few days later Dr. Wassell and his little flock of wounded men reached Australia safely.

Dr. Wassell, who is 59 years of age, graduated at the University of Arkansas School of Medicine, Little Rock, in 1909. It is reported that at various times he has served as a medical missionary in China.

### CALIFORNIA

**Personal**—Dr. James F. Rinehart, San Francisco, has been appointed a member of the state board of health to succeed Dr. Amos Christie, San Francisco, who went to Washington to become assistant director of medical and health service of the American Red Cross. Dr. Rinehart is associate professor of pathology at the University of California Medical School, Berkeley.—Dr. Dwight M. Bissell, Salinas, has resigned as health officer of Monterey County to go to San Jose.

**State Tuberculosis Meeting**—The California Tuberculosis Association held its annual session at the Ambassador Hotel, Los Angeles, April 9-11. The meeting opened with a forum on the organization and operation of a tuberculosis program. Out of state speakers included Mr. Daniel C. McCarthy, New York, on 'Public Relations, Publicity and the Promotion of a Local Tuberculosis Association', Dr. James Burns, Amberson, Jr., New York, 'What to Do with Tuberculosis Discovered by Case Finding', and 'Features of the Early Pulmonary Infiltration', and Dr. Henry C. Sweeney, Chicago, 'Applications of Our Knowledge of Pathogenesis of Tuberculosis to Case Finding'.

### DISTRICT OF COLUMBIA

**Biochemist Receives Milk Award**—George E. Holm, Ph.D., since 1920 biochemist, bureau of dairy industry, U. S. Department of Agriculture, Washington, has been awarded the Borden Company prize of \$1,000 in recognition of his contributions to the understanding of the basic causes and the control of oxidative deterioration of fats and oils and to the prevention of spoilage of dairy products caused by the oxidation of milk fat. The prize is awarded through the American Chemical Society for "outstanding research in the chemistry of milk." Dr. Holm received his Ph.D. in 1919 at the University of Minnesota, Minneapolis.

**Group Hospitalization and Doctors Hospital in Controversy**—Newspapers reported on April 25 that Doctors Hospital has given notice that after March 31, 1943, it will not renew its contract to care for patients enrolled under Group Hospitalization and also that the hospital was refusing care to any new persons signing up for group hospitalization or those whose individual contracts with Group Hospitalization, Inc., expired and have to be renewed in the meantime. The latter was said to have announced that it would take action to require the hospital to care for patients with new or renewed contracts, "even though this may require an appeal to the courts," according to the *Washington Star*. It was stated that there was no disagreement over the issue of termination of the contract between the two corporations as official notice had been served that the hospital would terminate its contract next March. It was agreed that the controversial issue was involved in the difference of opinion over whether the hospital should accept for admission G. H. I. subscribers whose contracts are written or renewed subsequent to March 31, 1942. During the negotiations over whether the contract between the two corporations should be renewed, the hospital officials said they had agreed to continue provided G. H. I. would pay the per diem tax cost of G. H. I. patients. This amounted to about sixty-five cents a day, and G. H. I. refused to pay it. It was stated that Group Hospitalization is one of the nonprofit organizations formed to make available hospital facilities when needed at reasonable costs on a prepayment basis that can be met by low income groups of employees and their families.

### ILLINOIS

**Postgraduate Conference**—The Sixth Councilor District of the state medical society sponsored a postgraduate conference at the Lincoln-Douglas Hotel in Quincy, April 23. The following program was presented:

Dr. Walter R. Fischer, Chicago, Painful Feet  
Dr. Henry George Poncher, Chicago, Blood Dyscrasias  
Frank T. Maher, Ph.D., Chicago, The Chemistry of the New Sulfonamides  
Dr. Arkell M. Vaughn, Chicago, Treatment of Shock  
Dr. Charles H. Phifer, Chicago, War Medicine  
Dr. Harold M. Camp, Monmouth, What May the Medical Man Expect Regarding Military Service?

**Medical Aid Plan Expanded**—The Illinois Division of Public Assistance, with the help of the state medical advisory committee appointed by the Illinois State Medical Society, has completed plans for a new medical care program for recipients of aid to dependent children and old age assistance, effective April 15. A county medical advisory committee has been appointed by each county medical society to work with the county department of public welfare and to provide professional advice through the county department relative to the quality, quantity and cost of medical care. As heretofore the plan for physicians' services is based on free choice of physician by the patient. However, in order to facilitate understanding of the program and foster a closer relationship between the physician and the county department of public welfare, physicians are being asked to apply for placement on a roster from which the patient may choose his physician. After July 1, allowances to recipients to pay for medical care will be made only when services are given by physicians whose names are on the roster. The county department will accept applications from physicians at any time, but only those received by May 1 can be acted on by July 1, when the initial section of the roster becomes effective.

**State Medical Meeting in Springfield**—The one hundred and second annual session of the Illinois State Medical Society will be held at the Hotel Abraham Lincoln, Springfield, May 19-21, under the presidency of Drs. Charles H. Phifer, Chicago. The preliminary program lists the following speakers, among others:

Dr. Frank H. Lahey, Boston, Medicine and the National Program  
Dr. Raymond A. Vonderlehr, Washington, D. C., The Detection of Venereal Disease in the Second Million Selectees  
Dr. Hobart A. Reimann, Philadelphia, Virus Disease and the Soldier  
Dr. Tom B. Throckmorton, Des Moines, (subject not announced)  
Dr. Lowell S. Selling, Detroit, Alcoholism and Traffic Problems  
Dr. Nathan A. Womack, St. Louis, Carcinoma of the Rectum  
General Considerations  
Dr. Hedwig S. Kuhn, Hammond, Ind., Visual Problems in Modern Industry  
Carl E. Buck, D.P.H., New York, Survey of the State Department of Public Health  
Dr. Richard Paddock, St. Louis, The Third Stage of Labor  
Dr. Curtis J. Lund, Madison, Wis., Asphyxia Neonatorum

The oration in medicine will be delivered Tuesday evening by Dr. Cecil J. Watson, Minneapolis, on 'Macrocytic Anemia'. The oration in surgery will be given the same evening by Dr.



Lahey on "Surgical Management of Lesions of the Esophagus, Stomach, Rectum and Colon." The secretaries conference will be held Tuesday evening. Other groups meeting during the session of the state society include the Medical Women's Association, Illinois Society of Pathologists, Physicians' Association of the State Department of Public Welfare, Illinois chapter of the American College of Chest Physicians and the woman's auxiliary to the state medical society.

### KANSAS

**New Executive Secretary**—Mr. D. D. Jeffers, Pittsburg, who for two years has been working with the Crawford County Medical Society in the operation of its medical care plan for indigents, has been named full time executive secretary for the society.

**University Adopts Accelerated Program**—The University of Kansas School of Medicine reports that the next freshman class will be enrolled in June. Upper classes will begin the accelerated program in the fall of 1942. Freshmen will be admitted annually in June and will complete the medical course in three years. These data supersede the information listed on page 142.

**State Medical Meeting**—The eighty-third annual session of the Kansas Medical Society will be held at the Wichita Forum, Wichita, May 11-14, under the presidency of Dr. Clyde D. Blake, Hays. The medical societies of Sumner, Pratt and Cowley have cooperated with the Sedgwick County Medical Society in the preparations for this meeting. Included among the guest speakers will be:

Dr. Cyril M. MacBride, St. Louis, Synthetic Estrogens and Their Use.  
Dr. Harry E. Vock, Chicago, Management of Skull Fracture and Brain Injuries.  
Dr. Alan Brown, Toronto, Ontario, Canada, Feeding Difficulties Encountered in the Newborn Period.  
Dr. Frank H. Lahey, Boston, President, American Medical Association, Lesions of the Colon and Rectum.  
Dr. Joe V. Meigs, Boston, Cancer of the Cervix—Changing Concepts of Treatment.  
Dr. William D. Stroud, Philadelphia, Modern Therapy in Cardiology.  
Dr. Paul A. O'Leary, Rochester, Minn., Modern Treatment of Syphilis.  
Dr. Charles W. Mayo, Rochester, Treatment of Duodenal Ulcer.  
Dr. John W. Harris, Madison, Wis., Some Practical Aspects of Pain Relief in Labor.  
Dr. John I. Shea, Memphis, Tenn., Modern Treatment of Acute Infections in Otolaryngology.  
Dr. Howard Rommel Hildreth, St. Louis, Detachment of Retina—Diagnosis, Management and Surgical Results.

The program includes in addition to the general sessions a group of round table discussions covering a wide range of subjects. Dr. Lahey will address the annual banquet on Wednesday evening. Other groups meeting at this time include the Kansas Obstetrical and Gynecological Society and the woman's auxiliary to the state medical society. The Kansas Medical Assistants Society will also meet on May 11 at the Alhambra Hotel.

### KENTUCKY

**Hospital News**—The Central State Hospital at Lakeland has been built at a cost of \$93,000. Special ceremonies were held on March 24 to open and dedicate the institution.

**Course on Industrial Health**—A nine weeks course for the senior medical students at the University of Louisville School of Medicine, Louisville, has been arranged by Dr. Walter E. Doyle, Louisville. The course will include lectures and field trips.

**Personal**—Dr. Amphas W. Davis, Madisonville, has been appointed a member of the state board of health for a term ending Dec. 31, 1947, succeeding Dr. Ernest L. Gates, Greenville, whose term has expired.—Dr. Frank Marion Melton, Brandenburg, has been appointed health officer for the unit in Oldham County.

**Psychiatrists Elect Officers**—Dr. John D. Reichard, medical officer, U. S. Public Health Service Hospital, Lexington, was chosen president-elect of the Kentucky Psychiatric Association recently and Dr. William K. Keller, assistant director of mental hygiene, Louisville City Hospital, was installed as president. Other officers include Drs. Abraham Wikler, Lexington, vice president, and Louis M. Foltz, Lakeland, secretary-treasurer.

### LOUISIANA

**School Health Survey**—The Louisiana board of health recently completed a survey to determine health needs among school children of the state. A report points out that while the group examined was small it does reflect all strata of the population of the state. A total of 779 children of whom 353 were white and 426 were colored was examined in seventeen parishes of the state. The examination included a general physical examination to determine nutritional status and gen-

eral health conditions, a thorough dental examination, vision and hearing tests, and laboratory tests. It was found that 44 per cent of the group were judged as undernourished, 56 per cent needed some treatment or the removal of tonsils, 86 per cent had dental defects in need of correction, 10 per cent had visual defects in need of correction, 25 per cent showed defective hearing, 33 per cent had poor posture, 24 per cent of feces specimens submitted were found with intestinal parasites of one kind or another, 6 per cent of the colored children were found with syphilis and 5 per cent had doubtful reactions. None of the white children had positive serologic reactions for syphilis. In connection with the survey, 14,665 chest roentgenograms were made on grammar, high school and college students, resulting in the detection of 7 significant cases of tuberculosis, another 696 showed calcified evidence of the primary type of infection. The report points out that, if the results of this survey are true of the school population as a whole, the school children are not a healthy group and recommends a broadening of present programs in public health and public health education.

### MASSACHUSETTS

**Position as Medical Director Open**—Applications are being received to fill the position of full time medical director of the state medical society's prepayment medical care insurance plan. Only physicians are eligible. The salary has not as yet been fixed, but physicians interested in securing information concerning the position should communicate with Dr. Pierce H. Leavitt, 129 West Elm Street, Brockton, chairman of the committee to select the medical director. The society's plan cannot begin to function until a medical director is employed.

**Regional Meeting of Chest Physicians**—The New England Chapter of the American College of Chest Physicians will hold a meeting at the Harvard Club, Boston, May 18. Dr. Aleksei A. Leonidoff, Poughkeepsie, N. Y., will speak on "Psychiatric Problem of Tuberculosis in Mental Hospitals" and Mr. Murray Kornfeld, Chicago, executive secretary of the American College of Chest Physicians, on "Chest Specialists and the War Effort." Members of the American Psychiatric Association, who will meet in Boston May 18-22, have been invited to attend the meeting.

**Accelerated Training Program for Public Health Workers**—The Massachusetts Institute of Technology, Cambridge, announces a special intensive and accelerated training program for public health workers to meet the growing shortage in the profession. Clair E. Turner, Sc.D., professor of biology and public health at the institute, will direct the work to provide adequate training for public health administrators, public health engineers, public health educators and public health bacteriologists. The first period will begin on June 8 and continue through July 24. The second term will run from July 27 to September 12. In addition, a similar program for state graduate students will open on June 8 and continue through February 6. The completion of this course will lead to a degree of master of public health or a certificate in public health. Another course will be offered for public health bacteriologists and one for the training of health educators.

**State Medical Meeting in Boston**—The Massachusetts Medical Society will hold its one hundred and sixty-first annual meeting at the Hotel Statler, Boston, May 25-27 under the presidency of Dr. Frank R. Ober, Boston. Among the speakers will be:

Dr. Henry E. Meloney, New York, The Problem of Certain Tropical Diseases in the War.  
Dr. Raymond A. Vonderlehr, Washington, D. C., Impact of the War on the Venereal Disease Problem.  
Dr. Morris Fishbein, Editor of THE JOURNAL, Chicago, Medicine and the War.  
Dr. Joseph F. McCarthy, New York, Interrelation of Anesthesia with Analgesia.  
Dr. Rolla E. Dyer, Washington, D. C., Typhus.  
Mr. John M. Pratt, Chicago, World Conflict and Medical Service.  
Dr. Virgil H. Moon, Philadelphia, The Vascular Dynamic Response and Management of Shock.

There will be symposiums on minor psychiatric disorders in war and civilian life and bronchial obstructions. The address of the day will be delivered Tuesday morning by Dr. William Castle, Boston, on "Medical Therapy." The annual dinner will be held in the evening with Dr. Fishbein and Dr. Lahey, Boston, President American Medical Association, as the speakers. On this occasion Dr. John I. Fulton, professor of physiology, Yale University School of Medicine, New Haven, will deliver the Shattuck Lecture on "The Air and Air Supremacy."



## MICHIGAN

**Course for Operators of Milk Plants**—The School of Public Health of the University of Michigan Ann Arbor is offering a course for operators of milk plants May 12-13 as a part of the civilian defense program. Instruction in health and sanitary services for the operators of pasteurization plants will be given. Business and trade aspects will be left to other agencies. Among the speakers will be

James A. Tobey, Dr. P.H. milk consultant, New York Sanitation in Milk Plant Operation Pays Dividend  
Robert S. Breed, Ph.D., professor of bacteriology, New York Experiment Station, Geneva, N.Y., The Problem of Bacteria in Milk  
Dr. Milton J. Rosenau, dean, School of Public Health, University of North Carolina School of Medicine, Chapel Hill, N.C., Theory and Practice of Pasteurization  
Walter von D. Tiedemann, Albany, chief, division of milk sanitation, Bureau of Engineering, New York State Department of Health, Mechanics of Pasteurization

## MINNESOTA

**Annual Journal-Lancet Lecture**—Herald R. Cox, Sc.D., associate bacteriologist, U.S. Public Health Service, stationed at the laboratory in Hamilton, Mont., will deliver the second annual *Journal-Lancet* lecture at the University of Minnesota Medical School, Minneapolis, May 22. His subject will be Typhus Fever, with Special Reference to Epidemiology and Immunity.

## MISSISSIPPI

**State Medical Meeting in Jackson**—The seventy-fifth annual session of the Mississippi State Medical Association will be held at the Robert E. Lee Hotel, Jackson, May 12-14 under the presidency of Dr. Augustus Street, Vicksburg. Included among the speakers will be

Dr. Wiley R. Buffington, New Orleans, Retinal Detachment Its Surgical Correction, Preoperative and Postoperative Care  
Dr. Theodore A. Watters, New Orleans, The Consideration of Mental Health as a Part of a State Health Program  
Dr. Don W. Gudakunst, New York, Recent Research in Poliomyelitis  
Dr. Ralph Bowen, Houston, Texas, The Practical Management of the Asthmatic Child  
Dr. Frederick A. Willis, Rochester, Minn., Hypertensive Heart Disease  
Dr. John Albert Key, St. Louis, Compound Fractures  
Dr. Leonard G. Rowntree, chief of medical division, Selective Service System, Washington, D.C., The Future of Medicine in Selective Service  
Capt. Lucius W. Johnson, U.S. Navy Hospital, Pensacola, Fla. (subject not announced)  
Dr. Charles L. Williams, Jr., U.S. Public Health Service, Wadesboro, N.C. (subject not announced)

At the evening session Tuesday, Dr. William A. Evans, Aberdeen, will deliver the Ewing Fox Howard Oration on Jefferson Davis, Some of His Diseases and His Doctors. The Mississippi State Hospital Association will hold its meeting at the Heidelberg Hotel, Jackson, May 11. Its program will include panel discussions on war and hospitals and hospitalization insurance. Among others, Dr. Julius H. Hess, Chicago, will address the annual meeting of the Mississippi Pediatric Society at the Robert E. Lee Hotel, May 11, on "Celiac Disease" and "The Care of the Premature Infant." Speakers before the Louisiana-Mississippi Ophthalmological and Otolaryngological Society at the Heidelberg Hotel, May 11, will include Drs. James H. Maxwell, Ann Arbor, Mich., on "Acute Swellings of the Face and Neck," James W. White, New York, "Surgery of the Obliques: The Indications and Contraindications," and Henry P. Wagener, Rochester, Minn., "Clinical Significance of Certain Vascular Lesions in the Retina." Dr. Murdock S. Eque, Atlanta, Ga., will deliver the Raymond Hume address on "Laryngoscopic and Bronchoscopic Studies." The eighteenth annual convention of the women's auxiliary to the Mississippi State Medical Association will be at the Robert E. Lee Hotel, May 12-13.

## NEW JERSEY

**Society Refuses to Support Bill to Aid Examining Board**—The house of delegates of the Medical Society of New Jersey at its recent annual meeting in Atlantic City rejected overwhelmingly the state board's plea for support of a proposed law that would require all New Jersey physicians to contribute \$2 a year each toward its support according to the *New York Times*. Physicians who led the opposition argued the state examiners did not serve the doctors at all but served the public and therefore the taxpayers should pay the cost. The *Times* reported that the state board of medical examiners had only \$41 in its treasury. A special meeting of the board is planned for May 20 to discuss means of obtaining needed funds.

## NEW YORK

**State Medical Election**—Dr. Thomas A. McGoldrick, Brooklyn, was named president elect of the Medical Society of the State of New York at its annual meeting in New York on April 28 and Dr. George W. Cottis, Jamestown, was inducted into the presidency. Dr. Peter J. Di Natale, Batavia, was elected second vice president. Other officers were reelected according to the *New York Times*. The 1943 meeting will be in Buffalo.

**New Director of Study of Parole and Family Care**—Dr. Reginald R. Steen has been given a leave of absence as first assistant physician at Kings Park State Hospital, Kings Park, to direct a study of parole and family care of the temporary commission on state hospital problems. He succeeds Dr. Frank F. Tallman who resigned to become director of mental hygiene for the Michigan State Hospital Commission. Lansing Central (N.Y.) State Hospital with an urban population and the Marcy (N.Y.) State Hospital with patients from rural areas were selected for the study. The objective of which is to determine to what extent additional psychiatric social work results in increasing paroles and family care.

**Accidents in the Home**—A five point program was drawn up at a conference in Albany in March of sixty representatives of national, state and local organizations to plan an offensive against accidents in the home and on the farm. The conference also voted to continue the farm and home safety work under the direction of the state department of health with the cooperation of the groups represented and to appoint an advisory committee to plan a state conference in Syracuse on May 29 when an institute will be held for the training of leaders in home safety, the development of committees to work in the various fields of home and farm safety and the outlining of methods. The five point program aims at determining quickly what has already been done about home and farm safety in the state, perfecting statewide organization with all possible speed, planning state county and community conferences disseminating to all participating groups practical information on methods of combating the problems and developing a plan for intensive follow-up work.

## New York City

**Symposium on Sulfonamides**—The New York Academy of Pharmacy devoted its meeting April 30 to a symposium on the "Action and Uses of Sulfa Drugs" with the following speakers: Curt P. Wimmer, Ph.D., Review of Chemistry and Pharmacology of Sulfa Drugs; Dr. Elias Wilhami Abramowitz, Sulfonamides in the Treatment of Various Skin Diseases; Dr. Milton A. Miller, "The Sulfonamides in Non-pneumonic Conditions" and Dr. Solomon Biloon, "The Sulfonamides in Pneumonia."

**Body and Mind Clinic Accused of Violating Medical Practice Laws**—The Body and Mind Foundation Inc. of which Dr. Edward Spencer Cowles is director is accused in an information filed by the New York County Grand Jury of having violated the state laws governing the practice of medicine, according to the *New York Times*. Simultaneously with this announcement was a report that proceedings had been started for revocation of the license of Dr. Cowles. The information named Robert Rebold and Evelyn Dolm (also given as Evelyn Dolm Schulman) the self-styled psychologists as violators of the state medical laws. The information containing five counts charged the corporation Rebold and Dolm with the unlawful practice of medicine with maintaining operating and conducting a dispensary and clinic from May 3, 1934 up to April 15, 1942 without having first obtained a license with displaying signs and other things on which were written the words "dispensary" and "clinic" in violation of the social welfare law, with conspiracy to violate the Education law by practicing medicine unlawfully and the defendant Rebold alone with violation of the Education law in that he used the title M.D. and other designations that implied he was a practitioner of medicine. The disciplinary charges were made against Dr. Cowles by State Inspector Albert A. Bucholz who accused the doctor of having associated with and cooperated with the Body and Mind Foundation Inc. a corporation that he alleged was practicing medicine and of having associated with Rebold and Dolm in the illegal practice of medicine. Bucholz charged that Dr. Cowles represented his associates as licensed and qualified to practice medicine. The *Times* further reports that Dr. Cowles was accused by Inspector Bucholz of having used magazines and other publications for the purpose of advertising

contrary to the education law and to misrepresenting the purposes of the corporation, as set forth in the certificate of incorporation. A charge in the petition before the grievance committee sets forth that Dr Cowles was responsible for all the fraud, "deceitful, and wrongful unlawful acts and conduct alleged herein." Dr Cowles, who is widely known as a psychiatrist and neurologist, founded the Body and Soul Medical and Mental Foundation in July 1923. In 1934 the clinic changed its title to The Body and Mind Foundation, Inc., and moved to the East Sixty-Ninth Street address, where thousands have attended the clinics, which became the subject of much comment. It was stated that twelve state investigators made repeated visits to the clinic. The investigators found 200 to 300 patients being treated at once for individual ills, the most frequent treatment consisting of taking a stimulant and listening to suggestions by doctors and other patients that they were getting better, it was stated. Dr Cowles graduated at University College of Medicine, Richmond, Va., in 1907.

## NORTH CAROLINA

**Society Opposes Construction of New Hospital**—The Cumberland County Medical Society on April 6 appeared before the board of county commissioners in opposition to the erection of a \$400,000 hospital in Fayetteville by the federal government, newspapers reported. After hearing the opposition, the commissioners stated that nothing could be done to halt the project. The society contended that there are more than a sufficient number of hospital beds in the county to meet the requirements, that no patient has been refused admittance to any hospital in the county for lack of space, that the construction of such an institution would be unwise at this time because of material needs, that doctors and nurses probably could not be secured to staff the hospital and that the county has no right to operate a hospital without a mandate of the people.

## NORTH DAKOTA

**State Medical Meeting in Jamestown**—The North Dakota State Medical Association will hold its annual meeting in Jamestown, May 18-20, under the presidency of Dr Frederick W Fergusson, Kulm. The speakers will include

Dr Ralph A Reis, Chicago, Obstetrics  
Dr Erling S Platou, Minneapolis, Pediatrics  
Dr Stanley R Maxeiner, Minneapolis, Fractures  
Dr W Wright Bethesda, Md, Trichinosis  
Dr Lawrence R Boies, Minneapolis, Symptom of Headache  
Dr Gordon R Krimman, St Paul, The Depressed Patient

Dr Edward C Rosenow, Rochester, Minn., and Herald R Cox, Sc D, Hamilton, Mont., will participate in a symposium on "Infectious Encephalomyelitis." The North Dakota State Health Officers Association will meet on May 18 and the North Dakota Academy of Ophthalmology and Otolaryngology on May 19.

## OHIO

**New Supervisor of Health**—Paul E Landis, associate professor of physical education at Bowling Green State College, Bowling Green, has been named state supervisor of health, physical education, recreation and safety, effective March 1. This position was created within the department of education to cooperate with federal defense agencies now promoting a program "for improving the health and physical status of the people," according to *Ohio Public Health*. Mr Landis received his M A degree at Teachers College, Columbia University, New York.

**Grant for Study of Adolescent Children**—The General Education Board of the Rockefeller Foundation has given the Brush Foundation of Western Reserve University School of Medicine, Cleveland, a supplementary grant of \$15,000 for one year to be used in completing its study of the growth and development of adolescent children. The study was begun in 1935 by the late Dr T Wingate Todd and has been continued by William Walter Greulich, Ph D, director of the Brush Foundation and professor of physical anthropology and anatomy in the school of medicine.

## OREGON

**Personal**—Dr Irvin R Fox, Eugene and J L Ingle, D O, La Grande have been reappointed members of the state board of medical examiners.—Dr Edward J Delne, Coquille, health officer of Coos County has been ordered to active duty with the army.—Dr Vernon A Douglas, Salem health officer of Marion County, has been appointed medical officer for the Oregon state defense council.

## PENNSYLVANIA

**Additional Care for Blind**—Plans are under way to launch a new expanded program providing additional care for blind and visually defective persons in Pennsylvania. The program was authorized by the last general assembly. The state council for the blind will administer the plan, which will be far more comprehensive than the state's past activities for the blind and visually defective persons. Regional supervisors will be assigned to various sections of the state to carry on the work in defined areas, according to the *Pennsylvania Medical Journal*.

### Philadelphia

**The Jarecki Lecture**—The eighth Edwin A Jarecki Memorial Lecture was delivered at Jewish Hospital on April 23 by Dr Elliott P Joslin, Boston. His subject was "The Responsibility of Being a Diabetic."

**New Professor of Proctology**—Dr Harry E Bacon has been elected professor and head of the department of proctology at Temple University School of Medicine. Dr Bacon is a native of Philadelphia and graduated at Temple in 1925. He is co-founder and past president of the Proctologic Society of the Graduate Hospital of the University of Pennsylvania, according to an announcement.

**Endocrine Clinic Opened at Jefferson**—A new clinic has been organized at Jefferson Medical College of Philadelphia for clinical research and teaching of endocrinology. It will also function in the diagnosis and treatment of endocrinopathies. Dr Karl E Paschikis, J Ewing Mears Teaching and Research Fellow in Physiology and Medicine, is the chief clinical assistant.

## SOUTH CAROLINA

**Personal**—Dr William Weston Sr, Columbia, was presented with a silver platter and scroll by the Columbia Medical Society at a meeting, March 10, in honor of his "outstanding work and contributions to the society."

**First Case of Smallpox in Years**—Spartanburg newspapers reported recently that 924 residents of the Glendale section were vaccinated against smallpox, following the report of 1 case of the disease, the first in several years in South Carolina.

**The Sims Lecture**—Dr Tinsley R Harrison, professor of medicine, Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, N C, delivered the second annual J Marion Sims Lecture on April 17 at the Medical College of the State of South Carolina, Charleston. His subject was "Cardiac Dyspnea."

## SOUTH DAKOTA

**Accelerated Program Adopted by University**—Since the compilation of table 2 on page 143 in this issue of THE JOURNAL the University of South Dakota School of Medical Sciences, a school of the basic medical sciences, has announced the adoption of the accelerated program. Classes will begin on June 15 for both years and end on Feb 23, 1943. The subsequent freshman class will begin on March 8, 1943.

## TENNESSEE

**State Medical Election**—Dr Oval N Bryan, Nashville, was chosen president-elect of the Tennessee State Medical Association at its annual meeting in Memphis, April 16, and Dr James B Stanford, Memphis, was inducted into the presidency. Vice presidents are Drs Samuel J Fentress, Goodlettsville, for the Middle Tennessee area, Featherston Dougherty, Dyer, for West Tennessee, and Burton L Jacobs, Chattanooga, for the East Tennessee area. Dr Harrison H Shoulter, Nashville, was reelected secretary-editor.

## TEXAS

**Special Society Elections**—Dr Eugene L Allen, Dallas, director of the Dallas Child Guidance Clinic, was chosen president of the Texas Society for Mental Hygiene at its annual meeting in Fort Worth. Miss Lucile Allen, Dallas, secretary-treasurer. The next annual session will be in Dallas. Out of state speakers at the recent meeting included Dr George S Stevenson, New York, and Horton K C, Nashville, Tenn.—Mr A C Scwell, whom that City and County Hospital of Fort Worth was chosen president-elect of the Texas Hospital Association. Mr. Max, Falls, is president and Miss Madeline Sturdivant, Falls, is executive secretary.

## PHILIPPINE ISLANDS

**Dr Whitacre Interned in Manila**—Dr Frank L. Whitacre, professor of obstetrics and gynecology at the Peiping Union Medical College, Peiping, China, is interned in Manila, newspapers reported, March 31. He with his family was evacuated from Peiping but remained in Manila when his wife and her sister returned to the United States.

## PUERTO RICO

**Blood Bank at School of Medicine**—The School of Tropical Medicine, San Juan, started the operation of a blood bank at the school on April 7 in connection with a program of civilian defense. Among the speakers of the occasion were Dr Oscar G. Costa-Mandry, Dr Eduardo Garrido Morales, Mr Jaime Annex, Dr Pablo Morales Otero and Dr Artajerjes Oliveras-Guerra, all of San Juan.

**Water Borne Outbreak of Typhoid**—Thirteen cases of typhoid with two deaths were recently reported in an outbreak in the municipality of Juana Diaz, which has a population of 23,396. The 13 cases were evenly distributed over the town. An investigation disclosed the public aqueduct to be the only factor common to all the patients. A resident living a few yards from a dam at the source of water supply was found to be a typhoid carrier and gave a history of having defecated above the impounding place of the water, which is served without any protection or treatment to the inhabitants of the town of Juana Diaz. No other case appeared after the public water was properly chlorinated.

## GENERAL

**First Award of Nutrition Grants**—The Nutrition Foundation, Inc., recently organized with the support of the food industry, announces that its first series of grants will be made to promote research and education in the science of nutrition, effective July 1. The grants will be made following action to be taken by the foundation trustees at their May meeting.

**Meeting of Laryngologists**—The American Laryngological Association will hold its sixty-fourth annual meeting at the Marlborough-Blenheim Hotel, Atlantic City, May 25-27, under the presidency of Dr Thomas E. Carmody, Denver. Included among the speakers will be

Dr Thomas C. Galloway, Evanston, Ill. Infection with Anaerobic Streptococci with Special Reference to Cranial Osteomyelitis.  
Dr Daniel S. Cunningham, New York. Chemotherapy: Especially the Use of the Newer Sulfocompounds in Nose and Throat Diseases.  
Drs Frederick A. Figi and Charles H. Watkins, Rochester, Minn. The Treatment of Hereditary Telangiectasia of the Nose.  
Dr E. Fernandez Soto, Havana, Cuba. Contribution to the History of Laryngology in Cuba.  
Dr Oscar V. Batson, Philadelphia. The Veins of the Pharynx.  
Dr Maurice Lenz, New York. A Ray Therapy of Diseases of the Larynx.

**Medical Bowling Tournament Canceled**—The annual tournament planned by the American Medical Bowling Association in Atlantic City, June 8-12, has been canceled. Instead a national medical bowling sweepstakes will be held on June 6, played on a handicap basis on the home alleys in the cities from which the teams may enter. The sweepstakes has been given an official sanction by the American Bowling Congress and will be played under the rules of that organization. The sweepstakes will be for five man teams, doubles, singles and all events to establish the national champions for these various events. Teams will be handicapped on a two thirds basis from 950, doubles on a two thirds basis from 380 and singles on a two thirds basis from 190. The team play will be in the afternoon of June 6, the doubles and singles in the evening. Entries will close at midnight May 23. This is necessary because every entry must be checked by the American Bowling Congress. Entry blanks may be obtained from Dr Joseph J. Jelinek, 1052 West Sixth Street, Los Angeles, acting secretary of the American Medical Bowling Association.

**Knudsen Award Goes to Clarence Selby**—The W. S. Knudsen Award of the American Association of Industrial Physicians and Surgeons has been presented to Dr Clarence D. Selby, Detroit, since 1935 medical consultant to the General Motors Corporation, for "the most outstanding contribution to industrial medicine." The presentation took place during the association's annual meeting in Cincinnati on April 15. Dr Selby was born in Des Moines on July 21, 1878. He graduated at the Western Reserve University School of Medicine, Cleveland, in 1902. During his career he has served as commissioner of health of Toledo, Ohio, consulting hygienist of the U. S. Public Health Service, secretary and chairman of the Section on Preventive Medicine and Public Health and Industrial Medicine, American Medical Association and since

1938 as a member of its Council on Industrial Health. Since 1940 he has been chairman of the subcommittee on industrial health and medicine, Office of Defense Health and Welfare Service, Office of Emergency Management. In 1938 he was president of the American Association of Industrial Physicians and Surgeons, in 1925 of the Ohio State Medical Association, in 1923 of the Ohio Public Health Association and from 1922 to 1928 of the Toledo Public Health Association. The Knudsen Award was established in 1938 by William S. Knudsen, then president of the General Motors Corporation.

**Association on Mental Deficiency**—The sixty-sixth annual meeting of the American Association on Mental Deficiency will be held at the Hotel Bradford Boston May 13-16, under the presidency of Dr Fred O. Butler, Eldridge, Calif., whose address will be entitled "The Defective Delinquent." Among other speakers will be

Dr Hubert H. Ramsey, American Fork, Utah. How the High Grade Mentally Defective May Help in the Prosecution of the War.  
Dr Edgar C. Yerbury and Nancy Newell, Ed M., Boston. Factors in the Early Behavior of Psychotic Children as Related to Their Subsequent Mental Disorder.  
Dr Clemens E. Benda, Wrentham, Mass. Congenital Syphilis in Mental Deficiency.  
Emil M. Bixby, Ph.D., Wrentham. Hormone Studies in Mongolism.  
Dr Raymond W. Waggoner, Ann Arbor, Mich. Agenesis of the White Matter as an Hereditary Disorder.  
Dr Charles Stanley Raymond, Wrentham. Mental Deficiency as a Community and Institutional Problem.  
Dr Douglas A. Thom, Boston. Psychiatric Problems of Children in Time of War.  
Dr Lowell S. Selling, Detroit. Feeble-minded Drivers.  
Dr George A. Jervis, New York. Histologic Studies of Brain Cortex in Certain Types of Mental Defect.

The program will conclude Saturday morning with a symposium on educational provisions for mentally deficient adolescents.

## CANADA

**Outbreak of Poliomyelitis**—Thirteen cases of poliomyelitis with one death were reported on April 20 in an outbreak in the parish of Drummond, Victoria County. The youngest patient was 20 months old and the oldest 11 years.

**Personal**—Dr John H. Holbrook, Hamilton, Ontario, superintendent of the Mountain Sanatorium, was presented with the city's outstanding citizenship medal for 1941 recently for his efforts over a period of thirty years to cut the death rate from tuberculosis in the city.

## Government Services

### Narcotic Hospital to Be Used for Mental Patients

The U. S. Public Health Service Hospital at Fort Worth used since its opening in 1938 for the care and treatment of narcotic addicts only, will soon be used for the treatment of mental patients also, according to the Fort Worth *Star-Telegram*. An initial group of 150 mental patients will be transferred from St. Elizabeths Hospital, Washington, D. C. Dr Grover A. Kempf, former medical officer in charge of the U. S. Marine Hospital, Boston, a psychiatrist, was recently appointed officer in charge of the Fort Worth hospital. He succeeds Dr William F. Ossenfort, Fort Worth, head of the hospital since its opening, who has been appointed assistant surgeon general of the public health service in charge of the hospital division.

### Physical Fitness Division Abolished

The Division of Physical Fitness formerly part of the Office of Civilian Defense was abolished on April 15 by Federal Security Administrator Paul V. McNutt, according to the New York *Times*. Many of the staff members were dismissed, effective May 1, and their activities absorbed immediately by Mr. McNutt's Office of Defense Health and Welfare Services. The director of the division, John B. Kelly, will continue in the new setup with the title of assistant director of defense health and welfare services. He will have no office in Washington and no authority outside Philadelphia, it was stated. All of the sports coordinators whom Mr. Kelly named throughout the country to promote recreational activities were dropped by Mr. McNutt although he said in a statement that he hoped they would continue to promote these vital community programs on their own. The *Times* reported.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

March 21, 1942

#### British Doctor Dies of Typhus in German Camp

Major A. Keith Gibson, a Scottish doctor in the Army Medical Corps, has died of typhus in a German prison camp. He contracted the disease from Russian prisoners whom he was attending. Under the Geneva convention a medical prisoner of war cannot be asked to assist in the treatment of infectious diseases. It is stated that Dr. Gibson volunteered to help to relieve the acute miseries of the Russians. In a report to the Swiss Red Cross the German medical authorities pay tribute to his self sacrifice, and he was buried with full military honors. He worked hard in caring for the men constantly being sent into the camp hospital. He was ill for a fortnight, during which his fellow prisoners worked night and day to save his life. He was captured at Boulogne after the evacuation of Dunkirk. Until December 1939, when he volunteered for military service, he was regional secretary of the London area of the British Medical Association.

#### Anglo-Soviet Medical Relations

Before the war there was little cultural interchange between Britain and the Soviet Union, owing to some dislike in each country for the political system of the other. The war has now brought them together and done something to dispel prejudices on both sides as well as to encourage closer relations. An example is the formation of an Anglo-Soviet medical committee, of which Sir Alfred Webb-Johnson, president of the Royal College of Surgeons, is chairman. The January issue of the *Postgraduate Medical Journal* is entirely devoted to Soviet medicine. In a foreword Russian ambassador Maisky states that an exchange of medical experiences both in time of peace and in time of war will prove of immense benefit to both countries. Sir Alfred Webb-Johnson as president of the Anglo-Soviet committee contributes an introduction in which he welcomes the special issue devoted to Anglo-Soviet medicine.

Dr. D. C. Bunn, honorary secretary of the Anglo-Soviet Medical Committee, says that the most urgent aim is transmission of English material to the Soviet Union. The other side of the picture is to make available here translations of Russian medical literature. English journals, including the *Bulletin of War Medicine* have been dispatched to Russia, also reviews of recent work on malaria, maxillofacial injuries and the treatment of burns and acute war neuroses.

#### Employment of Alien Physicians in Hospitals

The calling of physicians for the fighting forces has produced a shortage of those available for hospitals which is being remedied by the employment of alien physicians subject to regulations issued by the Ministry of Health. The maximum proportion of alien to British physicians employed as residents by any hospital was laid down. As this regulation has been found too restrictive in certain cases it has been relaxed. It was laid down that not less than two British resident physicians should be employed in any hospital employing an alien physician. The necessary number has now been reduced to one. For the hospitals which employ only one resident physician there is a further relaxation allowing them to employ an alien at the prior consent of the minister of health has been obtained. Larger hospitals are permitted to employ a greater percentage of alien physicians. The minister of health stresses the valuable assistance in meeting the pressing problem of medical manpower by the employment of alien physicians.

#### British Medical Unit for China

The offer of the British Red Cross to send a unit to China has been accepted. It will consist of full equipment for a hospital of two hundred beds and a staff of twenty-six consisting of an administrator, four surgeons, three physicians, a pathologist, a radiographer, a storekeeper, accountant, a matron and fourteen nurses. Dr. Wellington Koo, the Chinese ambassador, has informed Field Marshal Sir Philip Chetwode, chairman of the executive committee of the St. John War Organization, that the Chinese have accepted the offer with deep appreciation. The unit will cooperate with the Chinese Red Cross and the British Fund for the Relief of Distress in China. Physicians and nurses who have a knowledge of Chinese are invited to communicate at once with the secretary of the Medical Aid to China Sub-Committee, 14 Grosvenor Crescent, London, S. W. 1.

#### The American Hospital in Britain

The duchess of Kent has opened the new Churchill Hospital at Headington, near Oxford, which is to be the home of the American Hospital in Britain. This project was made possible by an American organization, the British War Relief Committee, a representative of which, Mr. Bertram de N. Cruger, attended the opening ceremony. About two thirds of the new hospital will be orthopedic, and it will form part of the Oxford Orthopedic Center. It will be in charge of Professor Wilson who has brought over in addition to orthopedic surgeons Dr. John M. Converse for plastic surgery, Dr. Rogers McGill for general surgery and Dr. Kirkland, who will take charge of medicine and clinical pathology. The present staff includes twelve American doctors and fifty American and Canadian nurses. The hospital contains six hundred beds and, because of air raids, is constructed on a novel plan. The wards are built round a courtyard and each has its own air raid shelter. In its previous hospital, at Basingstoke, Professor Wilson's unit has American surgeons trained in the methods of war surgery. It is hoped that the Churchill Hospital may eventually be taken over by the American army as its first base hospital in Europe.

#### Polish Professor Honored

At the annual Buckstone Browne luncheon of the Royal College of Surgeons the honorary fellowship was conferred on Prof. Antoni Jurasz, dean of the Polish Faculty of Medicine in Edinburgh University (*THE JOURNAL*, March 29, 1941, p. 1469). The president, Sir Alfred Webb-Johnson, said that in common with the whole civilized world, Britain had been horrified by the calculated brutality of the treatment of the Poles and by the deliberate plan to destroy their centers of intellectual life. Though Poland held a premier place among the persecuted peoples of the world, her national culture had survived all attempts to destroy it. The first essential step toward restoration was training young men and women for the task. We had been deeply impressed by the remarkable achievement of establishing a Polish faculty of medicine in the University of Edinburgh. In reply Professor Jurasz said that it was only through this war that the great Western democracies had come fully to realize that in a nation's struggle for liberty the decisive factor was not the number of inhabitants, their wealth or the absolute superiority of their armed forces, but the spirit inherent in each individual.

#### Some Increase in Tuberculosis

It has been stated in previous letters that the national tuberculosis during the war has improved. In the case of males there has been some slight increase. The most marked increase is in tuberculosis which was also observed to increase in the war of 1914-1918. A progressive decrease in



dence of this disease has been going on since 1919 but in 1940 the first complete war year the mortality showed a rise which was most noticeable in young women between the ages of 15 and 25. Their death rate per million rose from 762 in 1939 to 881 in 1940 compared with a rise in the tuberculosis death rate of all ages for both sexes from 535 to 587. More recent figures for the first quarter of 1941 show a slight decline compared with the corresponding quarter of 1940.

The minister of health has issued a circular to the local health authorities pointing out the importance under war time conditions that both the preventive and the curative arrangements for tuberculosis should be fully maintained. He urges them to review their present arrangements for care and after-care and wherever possible to improve and extend them. It is more bed accommodation is required than is available in any district cooperative arrangements should be sought with neighboring authorities. In many districts the problem of adequate nursing is even more acute. The minister is endeavoring to remedy the shortage of nurses by encouraging recruitment.

### RIO DE JANEIRO

(From Our Regular Correspondent)

April 16 1942

#### Malaria in the Amazon Basin

The total mobilization of the resources of the Western Hemisphere has emphasized the paramount problem of protecting the health of laborers in the tropical sections of the Americas especially those in the Amazon Valley in South America where there are millions of native rubber trees loosely scattered over the largest fluvial basin of the world. Although the Amazon is not the longest river its basin is the largest (2 500 000 square miles against 1 275 000 of the Mississippi-Missouri). Of this enormous basin 1 288 500 square miles are malaria infested jungles within the largest two states of Brazil—Amazonas and Para—and the national Acre Territory, the latter on the upper river near the Peruvian border. The area of these two states and the Acre Territory corresponds to 43 per cent of continental United States and 39 per cent of the whole of Brazil. The health condition of the Amazon Basin has again been brought to the public attention by the arrival in Rio de Janeiro a few days ago of two American experts Dr George Dunham director of the Health Division of the Bureau of the Coordinator of Inter-American Affairs and Dr George Saunders, tropical diseases specialist who are here to confer with the federal health authorities before leaving for the Amazon region.

From time to time scientific expeditions are sent to survey the Amazon region and reports have been published. This great region and its population largely consisting of native Indians and immigrants from the semiarid northeastern section of Brazil is periodically subjected to halt starving droughts. Among the health surveys is the valuable one conducted by Oswaldo Cruz in the first decade of the present century. One of the consequences of this survey was the establishment of a plan of malaria control for the valleys of the Madeira and Mamore rivers two great tributaries of the Amazon which has permitted the construction of the Madeira-Mamore Railroad creating a sure connection with Bolivia and thus opening an important section of the Andes plateau into the Atlantic littoral. The malaria control plan designed by Oswaldo Cruz the execution of which permitted the gathering of thousands of laborers in the heart of the equatorial jungle was a sanitary feat comparable to the work of Gorgas in Panama. In the Amazon region there are malaria hookworm disease yaws amebiasis leishmaniasis yellow fever leprosy syphilis and food deficiency diseases. But malaria is the most important health problem. The total population of the region is 1 450 000 or 11 inhabitants per square mile and there are only two cities of middle size. Iquitos at the mouth of the Amazon River with 100 000 popu-

lation and Manaus in the interior with 210 000. The rest of the population is scattered in a hundred settlements of 500 to 8 000 each mainly occupied in agriculture (rubber, Brazil nuts, timber) and fishing.

During 1941 the Federal Health Service in cooperation with the health departments of the states of Amazonas and Para conducted a special survey in many of these settlements to make it possible to lay out a plan of malarial control. It has been planned to use experts and technicians from Rio de Janeiro and São Paulo to ascertain many important features of the biology of the Anopheles fauna of the Amazon and the extent and severity of the disease. The findings of the survey have just been published in the 1941 annual report of the General Director of the Federal Health Service. According to the report the principal carriers of malaria in the Amazon region are *Anopheles albitarsis*, *Anopheles darlingi*, *Anopheles oswaldoi*, *Anopheles pessoai*, *Anopheles tarsimaculatus* and *Anopheles triannulatus*. In the coastal districts the most important vector is *A. albitarsis*, in the hinterland the predominant carriers are the *tarsimaculatus* and *triannulatus* species. The forty-nine settlements that have been surveyed aggregate a total population of 90 000, out of which more than 18 000 individuals have been examined. In all the forty-nine surveyed settlements the malarial disease is endemic. The splenic index of these localities has been found to vary from 0.2 to 73 with the median value of 24, the hemoscopic index has been found between 0 and 39 with the median value of 7.5. The studies are in progress now, and it is expected that they may be accelerated in order to enable the health authorities soon to begin the real control work with the invaluable cooperation of the coordinator of Inter-American affairs through the action of Dr Dunham and Dr Saunders as field representatives of that agency.

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## Marriages

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ARTHUR M. GREENE, Omaha, to Miss Deborah Brunn of Long Island N. Y. in Panama City, Panama recently.

JOHN LUTHER SHIREY, Mount Pleasant, N. C., to Miss Peggy Elaine Johnson in Birmingham, Ala., in March.

EARL CUNNINGHAM MACCORDY to Miss Regina Barbara Melber, both of St. Petersburg, Fla., March 4.

NORMAN F. PEACOCK, Crawfordsville, Ind., to Miss Margaret Weakley of Fort Thomas, Ky., January 10.

IRWIN WARREN WINFIELD, New York, to Miss Carol Estelle Lehman in White Plains, N. Y., March 29.

LEONARD J. ABRAMOVITZ, Baltimore, to Miss Jeanne Elizabeth Daubert of Tannersville, Pa., February 22.

MALCOLM M. DUNHAM, Woodbridge, N. J., to Miss Gladys L. Bitting of Marysville, Pa., March 8.

CREIGHTON WRENN to Miss Charlotte Hutson Martin, both of Mooresville, N. C., in February.

WESLEY LEONARD FURSTE II, Cincinnati, to Miss Leone James of St. Clairsville, Ohio, March 28.

SAMUEL PHILLIPS ASPER, Jr., Boston, to Miss Ann White Carver of Baltimore, March 13.

JOHN PHILLIPS MOORE, Ocala, Fla., to Miss Martha Helen Olsen in Jacksonville, March 1.

ERNEST JEFF HOLDER to Miss Vivian Elizabeth Boykin, both of Prentiss, Miss., January 17.

GLENN MITCHELL SHIPLEY, Louisville, Ky., to Miss Geneva Peace of Pikeview, March 13.

HORACE E. JONES, Anderson, Ind., to Miss Patricia Harden of St. Louis, January 30.

JOHN FRANCIS LING, Hebron, Ind., to Miss Mildred Thomas of Madison, February 1.

ROBERT J. HALEY, Sr., Paragould, Ark., to Mrs. Jewell Bradsher, January 4.

GEORGE F. JOSEPHSON to Miss Mildred Oremland, both of Brooklyn, recently.



## Deaths

**Mary Luise Diez**, Boston, Woman's Medical College of Pennsylvania, Philadelphia, 1903, member of the Massachusetts Medical Society and the New England Society of Psychiatry, director, division of child hygiene, Massachusetts Department of Public Health, obstetrician, division of maternity, infancy and child hygiene, New York State Department of Health from 1922 to 1926 and associate director from 1926 to 1929, associate in surgery, West Philadelphia Hospital, Philadelphia, from 1909 to 1920 and visiting chief obstetrician at the Woman's Hospital, Philadelphia, during the same time, instructor in child hygiene at the Harvard School of Public Health, special lecturer on child hygiene, department of nursing, at Simmons College, aged 62, died, April 12, in the Massachusetts General Hospital, Boston

**Edward Frost Geddings** ♂ Lieutenant Colonel, U S Army, retired, Chevy Chase, Md., Medical College of the State of South Carolina, Charleston, 1890, in October 1900 entered the medical corps of the U S Army as an assistant surgeon, rose through the various grades and was commissioned a lieutenant colonel May 15, 1917, retired Nov 1, 1919 for disability in line of duty, veteran of the Spanish-American War and World War I, aged 73, died, January 6

**Elbert Mortimer Somers**, Sharon, Conn., University of the City of New York Medical Department, New York, 1893, served during World War I, formerly resident officer at the Hudson River State Hospital, Poughkeepsie, N Y, for many years connected with the New York State Hospitals for the Insane, aged 71, died, February 8, of arteriosclerosis and cerebral hemorrhage

**Henry Robertson Skeel** ♂ New York, Columbia University College of Physicians and Surgeons, New York, 1913, member of the Association for Research in Ophthalmology, Inc., served during World War I, served in various capacities on the staff of the Manhattan Eye, Ear and Throat Hospital, aged 56, died, March 22, of coronary thrombosis

**Norman W Bellrose**, Eaton, Colo., University of Vermont College of Medicine, Burlington, 1889, member of the Colorado State Medical Society, past president of the Weld County Medical Society, formerly mayor, health officer and member of the school board, aged 77, died, February 24, in the Greeley (Colo.) Hospital of cardiac decompensation

**Hubert Raymond Stiles**, Chazy, N Y, University of Vermont College of Medicine, Burlington, 1918, coroner of Clinton County, served during World War I, health officer of the town of Chazy since 1926 and of the town of Beekmantown since 1936, aged 49, died, February 10, of bilateral pyonephrosis with calculi and uremia

**John Gardiner Huck**, Hydes, Md., Johns Hopkins University School of Medicine, Baltimore, 1918, formerly assistant professor of medicine at the University of Maryland and College of Physicians and Surgeons, Baltimore, aged 50, died, March 17, in the Union Memorial Hospital, Baltimore, of cerebral hemorrhage

**Edward James Kevlin**, Ponchatoula, La., Medical Department of Tulane University of Louisiana, New Orleans, 1904, formerly secretary of the Tangipahoa Parish Medical Society, member of the local and Tangipahoa parish school boards, aged 62, died, February 4, of bulbar paralysis and amyotrophic lateral sclerosis

**George M Decherd**, Austin, Texas, University of Texas School of Medicine, Galveston, 1905, member of the State Medical Association of Texas, formerly city health officer, for many years a member and at one time president of the school board, aged 61, died, February 26, of coronary occlusion

**John Flavius Dunn**, Arlington, Ky., Hospital College of Medicine, Louisville, 1905, member of the Kentucky State Medical Association, past president and secretary of the Carlisle County Medical Society, owner of a hospital bearing his name, aged 61, died, March 7, of coronary thrombosis

**Orland Paul Shippey** ♂ Saguache, Colo., Gross Medical College, Denver, 1895, past president of the San Luis Valley Medical Society, county health officer, aged 68, died, February 9, in the Denver and Rio Grande Western Railroad Hospital, Salida, of coronary thrombosis

**Philip Finkle** ♂ Miami Beach, Fla., Columbia University College of Physicians and Surgeons, New York, 1918, fellow

of the American College of Physicians, for many years on the staff of the Mount Sinai Hospital, New York, aged 47, died in March of coronary thrombosis

**David Selman**, Cleveland, Western Reserve University Medical Department, Cleveland, 1911, member of the Ohio State Medical Association, served during World War I, aged 55, died, February 3, at his home in Cleveland Heights of acute coronary insufficiency

**Paul John Alspaugh** ♂ New Philadelphia, Ohio, Starling Medical College, Columbus, 1906, on the staff of the Union Hospital, Dover, member of the medical advisory board of the Selective Service System, aged 63, died, March 10, of dilatation of the heart

**Samuel Paul Sobel** ♂ New York, Columbia University College of Physicians and Surgeons, New York, 1906, member of the National Gastroenterological Association, on the staff of the Bronx Hospital, aged 59, died, February 14, of carcinoma of the pancreas

**Frederick P P Von Keller** ♂ Ardmore, Okla., Universität Heidelberg Medizinische Fakultät, Baden, Germany, 1888, medical superintendent of a hospital bearing his name, aged 82, died, February 13, of carcinoma of the pylorus and cirrhosis of the liver

**Roderick Donald McRae** ♂ Hunters, Wash. (licensed in Washington in 1900), formerly physician for the Indian Service, at one time member of the state legislature and county coroner, aged 77, died, March 23, in a hospital at Spokane of heart disease

**Christopher James Patterson** ♂ Hopewell Junction, N Y (licensed in New York in 1891), aged 78, formerly on the staff of the Hudson River State Hospital, Poughkeepsie, where he died, February 1, of arteriosclerosis and chronic myocarditis

**John Eagleton Ford**, Grand Junction, Colo., Kansas City (Mo.) Hahnemann Medical College, 1906, member of the Colorado State Medical Society, on the staff of St Mary's Hospital, aged 74, died, January 20, of coronary thrombosis

**Irving David Steinhardt**, New York, Columbia University College of Physicians and Surgeons, New York, 1906, aged 64, for many years on the staff of the Mount Sinai Hospital, where he died, February 25, of coronary occlusion

**Joe Bradford Wright** ♂ Lynnville, Tenn., Vanderbilt University School of Medicine, Nashville, 1912, past president of the Giles County Medical Society, served during World War I, aged 54, died, February 3, of coronary thrombosis

**Joseph Martin Knochel** ♂ Lincoln, Ill., Bennett Medical College, Chicago, 1915, served during World War I, formerly member of the city council, aged 53, died, March 21, in St Mary's Hospital, St Louis, of cerebral hemorrhage

**Bayley Burton Bachelder** ♂ Sebastopol, Calif., Hahnemann Medical College of the Pacific, San Francisco, 1914, on the staff of the Sonoma County Hospital, Santa Rosa, aged 63, died, February 23, of coronary thrombosis

**Mary Hance Eccles**, Brooklyn, Woman's Medical College of the New York Infirmary for Women and Children, New York, 1878, aged 91, died, March 17, of arteriosclerosis, chronic myocarditis and coronary thrombosis

**Gertrude Dobson**, Quincy, Mich., Hering Medical College, Chicago, 1909, for many years health officer, formerly member of the school board, aged 81, died, March 5, of valvular heart disease and diabetes mellitus

**Fred Joseph Graham**, Alma, Mich., University of Michigan Department of Medicine and Surgery, Ann Arbor, 1901, member of the Michigan State Medical Society, aged 76, died, March 8, of coronary thrombosis

**John Colton Deal**, Philadelphia, University of Pennsylvania Department of Medicine, Philadelphia, 1897, aged 71, died, March 12, in the Presbyterian Hospital of arteriosclerosis and dissecting aneurysm of the aorta

**John Wesley Browning**, Gary, Okla., Barnes Medical College, St Louis, 1899, member of the Oklahoma State Medical Association, aged 72, died, January 9, of cerebral hemorrhage and arteriosclerosis

**Lorenzo Oscar Smith**, Harlan, Ky., Hospital College of Medicine, Louisville, 1903, for many years member of the staff, served during World War I, aged 63, died, February 1, of coronary thrombosis

Glenn Moomau, Petersburg W Va, College of Physicians and Surgeons Baltimore 1904 member of the West Virginia State Medical Association, aged 61, died recently of coronary occlusion

John Howard Seiple @ Center Square, Pa, University of Pennsylvania Department of Medicine Philadelphia, 1891, aged 73, died, February 13 in Miami, Fla, of cerebral embolism and hypertension

Alva Garfield Dunbar @ Pulaski, N Y, University of Buffalo School of Medicine, 1912, served during World War I, aged 53, died, February 23, of diabetes mellitus and coronary thrombosis

Guy Martin Russell @ Billings, Mont, College of Physicians and Surgeons, Keokuk Iowa, 1898, member of the National Gastroenterological Association, aged 70, died recently of encephalitis

Max Wegman, Newark, N J, Long Island College Hospital, Brooklyn, 1909, served during World War I, aged 58, died, February 3, in Roseland of coronary thrombosis and arteriosclerosis

Samuel Stern @ Atlantic City, N J, Jefferson Medical College of Philadelphia, 1905, served during World War I, aged 63, died, February 18, in the City Hospital of coronary occlusion

Prentiss Leroy Hoot, Monterey, Ind, Bennett College of Eclectic Medicine and Surgery, Chicago, 1890, aged 75, died, March 18, in St Catherine's Hospital, East Chicago, of myocarditis

Lovelace B Capehart, Raleigh, N C Leonard Medical School, Raleigh, 1907, Long Island College Hospital, Brooklyn, 1923, aged 78, died, March 8, in St Agnes Hospital of heart disease

Wilmer J Sell, Crocker Mo, Central Medical College of St Joseph, Mo, 1905, member of the Missouri State Medical Association, aged 74, died, February 2, of lobar pneumonia

Frederick Patrick Reed, Stockton, Calif, University Medical College of Kansas City, Mo, 1899, served during World War I, aged 71, died, February 7, of aortic insufficiency

Anna Carville Hands, Boston, College of Physicians and Surgeons, Boston, 1894, Tufts College Medical School, Boston, 1895, aged 81, died, February 26, of coronary thrombosis

James Marion Smith, Pocatello, Idaho, Iowa Medical College, Des Moines, 1886, Rush Medical College, Chicago, 1888, aged 84, died, February 15, of cerebral hemorrhage

Elmer B Grosvenor, Richmond, Ind, Pulte Medical College, Cincinnati, 1882, formerly president of the board of health of Richmond, aged 80, died, March 12, of myocarditis

Augustus Ives, Grand Ridge, Ill, Bellevue Hospital Medical College, New York, 1878, aged 86, died, March 12, of acute dilatation of the heart and chronic pulmonary emphysema

John Tavner Beale, Lovelock, Nev Missouri Medical College, St Louis, 1876, formerly justice of the peace of Imlay, aged 89, died, February 28, of chronic myocarditis

Thomas M Eade, Champaign, Ill, Rush Medical College Chicago, 1894, aged 69, died, March 12, in the Burnham City Hospital of myocarditis and diabetes mellitus

Edward M Shaffner, Salamanca, N Y, University of Buffalo School of Medicine, 1884, aged 87, died, February 27, of bronchial asthma and edema of the lungs

William Augustus K Chase, St Louis, Barnes Medical College, St Louis 1900, veteran of the Spanish-American War, aged 69, died, February 24, of heart disease

Edith Harris Schad, Bellevue Pa Woman's Medical College of Pennsylvania, Philadelphia, 1890, aged 77, died, February 2, of cardiovascular renal disease

Henry M Meyer, Jupiter, Fla, Homeopathic Medical College of Missouri St Louis, 1888, aged 74, died, February 26, in Lake Worth of heart disease

William Richter, New York, University of the City of New York Medical Department, New York, 1886, aged 77, died February 2 of coronary sclerosis

Lillie Dale Hanley Bates, Long Beach, Calif, State University of Iowa College of Medicine, Iowa City, 1885, aged 84, died February 6, of arteriosclerosis

Norman Grady Williams, Franklin, N C Emory University School of Medicine, Atlanta, Ga, 1917, aged 49 died February 10, of cirrhosis of the liver

William Henry Hersh, Chicago, Harvey Medical College, Chicago, 1902, also a dentist, aged 73, died, March 6, in the Cook County Hospital of pneumonia

Wilfred Gilmour Reive, Welland, Ont, Canada, University of Toronto Faculty of Medicine, 1904, medical officer of health, aged 60, died, January 22

Thomas H Coke, Denver, Tenn, University of Tennessee Medical Department, Nashville, 1901, aged 73, died, February 19 of hypertensor and hemiplegia

Lester A Rhyne, Atlanta, Ga, Georgia College of Eclectic Medicine and Surgery, Atlanta, 1890, aged 74, died, February 21, of chronic nephritis and uremia

Harry Isaac Wiel, San Francisco, Johns Hopkins University School of Medicine, Baltimore, 1905, aged 61, died, February 14, of arteriosclerosis

Josiah U Johnston, Des Moines, Hahnemann Medical College and Hospital, Chicago, 1899, aged 70, died, February 24, of cirrhosis of the liver

William Curtis Stifler @ Baltimore, College of Physicians and Surgeons, Baltimore, 1905, aged 69, died, February 17, of cerebral hemorrhage

Morriss De Witt Kelley, Birmingham, Ala, Louisville (Ky) Medical College 1904, aged 64, died in February of injuries received in a fall

Eugie A Ross, Dlo, Miss, Memphis (Tenn) Hospital Medical College, 1900, aged 64, died, February 27, in Jackson of esophageal varices

Carl L Prichard, Harold, Ky, University of Louisville Medical Department, 1899, aged 71, died, February 21, of cerebral hemorrhage

Charles Hiram Osineup, Colorado Springs, Colo, Baltimore Medical College, 1891, aged 79, died recently of chronic myocardial disease

William George Allen, Chicago, Hahnemann Medical College and Hospital, Chicago, 1910, aged 82, died, February 28, of myocarditis

Dwight Gilbert Hoxie, Hampton, Iowa, Rush Medical College, Chicago, 1893, aged 81, died, February 17, of cerebral hemorrhage

Albion James Howell @ Berkeley, Calif, St Louis University School of Medicine, 1923, aged 45, died recently in San Francisco

Patrick H Brown, Temple, Texas, University of Louisville (Ky) Medical Department, 1892, aged 76, died, January 19

James Walter Mulligan, Fort Coulonge, Que, Canada, McGill University Faculty of Medicine, Montreal, 1905, died recently

George Elliott Chapman, Danville, Ga, Louisville (Ky) Medical College, 1886, aged 76, died, February 9, of heart disease

Maca Gilbert Maker, Fall River, Mass, Baltimore Medical College, 1909, aged 56, died, March 2, in Providence, R I

Allen Reed Taylor, Brodhead, Wis, Milwaukee Medical College, 1899, aged 73, died, February 13, of coronary occlusion

L A Weaver, Rogersville, Ala (licensed in Alabama in 1888), formerly state senator, aged 82, died, February 15

George Franklin Crawford, Tyro, Miss (licensed in Mississippi in 1891), aged 73, died, February 5, of nephritis

Jackson Rhodes, Burbank, Calif, Medical College of Indiana, Indianapolis, 1897, aged 82, died February 12

Ada Barker Luttril, Knoxville, Tenn, Tennessee Medical College, Knoxville, 1907, aged 61 died, January 8

Harry Edgar Cook, New York, Syracuse University College of Medicine, 1898, aged 65, died, January 10

#### DIED IN MILITARY SERVICE

Joseph Antony Ciminera, Waterbury Conn, University of Vermont College of Medicine Burlington 1916, served during World War I was called to active duty Feb 24, 1941 in the National Guard as commanding officer of the medical detachment of the 102d Infantry 43d Division with rank of lieutenant colonel, aged 49, died January 28, at Camp Blanding Fla, of heart disease

## Bureau of Investigation

### PREPOSTEROUS POPPYCOCK FROM HIEL EUGENE CRUM

#### The State of Indiana Catches Up with an Abrams Disciple

One of the strangest and most incredible stories to come to the attention of the Bureau of Investigation is found in the 199-page brief filed by the Indiana State Board of Medical Registration and Examination with the Supreme Court of Indiana, asking that court, in effect, to affirm the action of the Board in revoking the license of one Hiel Eugene Crum to practice chiropractic, naturopathy and electro-therapeutics in Indiana. This revocation was based on the charge of gross immorality in the conduct of his practice, because of the use of a bizarre machine. The story serves merely to illustrate that certain portions of the American public can still be fooled by the tenets of Albert Abrams, while others are sufficiently intelligent to recognize such fakery for what it is.

According to the brief, Crum received a certificate in naturopathy in June 1927. It shows that he graduated from the College of Drugless Physicians and that for his preliminary education he received his common school and high school training in Wilkinson, and that for his professional education he was a student in the College of Drugless Physicians from Sept 14, 1925 to Sept 14, 1926. The certificate of the dean, "Otis J. Briggs, ND," showed that Mr. Crum graduated with the degree of Doctor of Naturopathy from that school on Sept 14, 1926, the same date on which, after a year in that school, he received two other doctorates referred to—Doctor of Chiropractic and Doctor of Electro Therapeutics.

While it would be very interesting to consider here all of the evidence presented in this case, it will be sufficient for our purposes to refer to portions of the testimony of a few witnesses whose names appear above the portions of their testimony presented herewith.

#### W O Hodge

"After we began taking treatments of Crum the members of the staff of the City Hospital wanted her [the patient] to continue treatment at the City Hospital. I advised to let them do what they could and him too but he advised not to go and I couldn't get her to go. She did go back and they wanted to give her X-ray treatments but she refused them because she was depending on Dr. Crum. He told her not to let them have anything more to do with it. He said he could cure her. Her health now is as bad as could be. She had a hemorrhage this morning. She has been in bed for six weeks. Part of her body has decayed and disappeared. You could see her ribs if it was cleaned out. I know. It was almost to her heart. We put pads on it to absorb the stuff in her breast. The other breast is as black as your hat. She is suffering from cancer and was during the time Crum was treating her and said he could cure her and advising her not to go to a doctor. Part of the time she is out of her head so she cannot talk. He gave her different treatments but of the same sort. Sometimes he just rubbed the thumb nail."

Presumably thumbnail rubbing represents the ultimate in nature cure, since it is obvious that if anything is happening to the patient it is by virtue of nature alone.

#### Joseph B. Adler

"Mr. Crum called off a number of different things while pushing his fingers on a little slide. I asked 'What does this mean, doctor?' He says 'When I call to the machine and push my fingers on the slide if it has a rough feeling it indicates trouble. If it has a perfectly smooth feeling it does not.' After he had done that a good many times and he told me it was done by ether. I said 'I feel no sensation of any kind.' I don't see what connection there is. I am not connected with the machine. He says 'It is through the ether that you get the benefit.' I asked, 'What does this cost you?' He answered '\$500.00'."

Where was it made?

"In Chicago."

"How did you learn about it?"

"Went to Chicago."

"How long did it take you to learn?"

"Three months."

#### Carl Stone

"About 1925 I had an attack of what the doctor said was kidney stones. I went to Crum and he worked for about fifteen minutes with his machine and he said I had better let one of the other doctors work on me which was done. They didn't do any good. Finally they sent me to Dr. McAlpin to use the machine. After Dr. McAlpin had worked

with it about thirty minutes he said, 'That machine isn't any good at all. I will get you some medicine.' And he got me some morphine tablets. My son was supposed to have had absent treatments part of the time. When he treated me he would rub the pedal on the side and ask if I felt any better. I would tell him 'No' and he would go through the same performance and ask me again, and I would tell him 'No'. It was rheumatism for instance that he had in mind, he would say 'Rheumatism, rheumatism, rheumatism, rheumatism,' repeating it over and over in that same manner."

Like mumbo-jumbo from deep in the heart of Africa—and also some morphine tablets.

#### Toner Overly

"He pulled the box over to him and started in a chant using these words: 'Kill the bacillus, kill the bacillus, lymph to kidneys, lymph to kidneys, blood to kidneys, blood to kidneys, blood to intestines, electricity to kidneys, electricity to kidneys, kill the bacillus, kill the bacillus poisoning,' and he did that for probably two minutes and turned to me and says, 'Now the poison is killed. All we need to do is tune up your system and get rid of the other difficulties in your system and I think you will be all right.' He said I could come the next Saturday morning and in the meantime he would give me absent treatments on Monday, Tuesday, Wednesday and Friday."

#### Charles C. Shadley

"On the second trip back I told Mr. Crum that I would like to know something about the machine so he started explaining something about the ether and one thing and another. He told me about fertilizing a farm down by Martinsville. He never left the office at all to do it. He told me that he had fertilized the field with the machine and that it produced a good many more bushels per acre afterwards. He also told me about making a demonstration at a dental clinic where he said he filled some man's teeth with the machine so that in ten minutes you couldn't tell the tooth had ever had a cavity in it. Then he told me of some woman that worked in his office after she had been a patient. While she was a patient she made a remark to Mr. Crum about her husband having his finger cut off at the first joint. Says Crum, 'Bring him down and I will grow a new finger on that man.' She brought him 'In ten minutes' time,' said Crum 'that finger had grown out from the first joint there until it even had a new nail started on it.'"

Of course, all this is no more ridiculous than claiming to be able to diagnose and treat disease by the use of this machine, but it is in connection with subjects with which the public is somewhat more familiar and therefore not quite as successful.

In regard to a demonstration of finger-lengthening and shortening:

#### Scott W. Smith

"I watched very carefully and noted that the lengthening of the finger and shortening of it was made by slanting the pencil. 'What are the colored lights for?' I asked. 'If you have one color light that may be kidney trouble. Another color would be some other ailment,' said he."

"'Doctor,' I continued 'you didn't move the thing when you were diagnosing me.' 'Oh,' answered Crum, 'I must have forgotten that.' So he moved the dial along and obtained his original findings."

"He told me he could cure me of infantile paralysis. When I was ready to leave after a 'leg lengthening' treatment he said 'Now if this should slip back you will have to come back for subsequent treatment. I think he meant that when I got out on the street if I found one I was still shorter than the other I should come back for further treatment. So far as I can tell the leg has never changed one bit.'"

#### Now Hiel Eugene Crum for himself

"The school I attended was the College of Drugless Physicians, which also went by the name of Central Scientific College. It later came out in the papers that the institution was closed as a diploma mill. There was a lot that wasn't true about it, but I don't remember the instances. He was fooled by the same outfit that is on me, and all he ever did that was wrong that I know of was to back date a diploma. I think he could still be going now. I went to his school regularly only from September 14th of one year to September of the next year. I got the degrees of Doctor of Naturopathy, Doctor of Chiropractic, Doctor of Herbal Materia Medica, Doctor of Electro Therapeutics, all in one year."

"I don't remember how long it takes to get a degree. Doctor of Herbal Materia Medica. Most of what I got was gotten by going over the stuff that they put out here at Hammond in those herb books. There is a nerve place where they sell herbs. The place has a good reputation among the drugless people."

"In Briggs' school we studied electronics. I have a pamphlet he put out in 1924 that has got it in there. It has got Psycho-Therapy in there and Electro Therapy."

1 For account of revocation of license to practice medicine in this connection see J. A. M. A. 115 (Feb. 21) 1947.

Naturopathy and Chiropractic and Electro Therapeutics and everything else. It has got Biochemistry. [From which one would judge that it was a fair size pamphlet]

I am the inventor of the box that is before me here marked Exhibit 7. I don't think I have used this identical box. I put a transformer in the ones I had. Then there are differences in the boxes. Referring to the box marked Exhibit 8 I have used that box. There is a place in it to carry chemicals. The chemicals I use are Schuessler's [Schuessler's] Biochemical Cell Food.

The way I have reasoned the thing it is in trituration. These chemicals are triturated trillions of times when I get them and are triturated more after I get them and it is a combination between them and whatever organic substance you want to work in with them, but that would make no difference. That is the whole thing.

'The machine would diagnose without the chemical. It wouldn't be of no benefit that I can see without the chemical from the treatment standpoint. The mixture helps in the diagnosis also. You don't have to have it though for the diagnosis but it helps.

'I have treated sarcoma and carcinoma. A sarcoma is a cancerous tumor. I have treated all kinds of diseases that I know the names of, and a lot of them I don't know, I suppose. Wild Welch bacillus is just one of about five thousand foreign bacilli that gets in the colon. It is supposed to come from wild Welch rabbits.'

Q—Isn't this wild Welch rabbit a dish they make up out of cheese and give it that name? It is not an animal at all, isn't that right?

A—Well it got into this country through rabbits is what I understood. It would not necessarily have had to have been wild. I don't know whether wild Welch rabbit means any animal at all or whether they speak of Welch rabbit as a dish made out of cheese and it was once called Welch rarebit. I think I found about wild Welch bacillus in the dictionary.

I got my convictions on the formula I refer to in a dream. I got up one night after I had been thinking about what kind of chemicals I would like to have because I had awakened from a dream where I got the names of a chemical, so I got up and wrote down the list right away. But I did not altogether stick to the list of chemicals I got in a dream.

It is not necessary to talk into the machine, you can think into it.

When I diagnosed the cancer I did not send any section of it to a laboratory to be studied. I diagnosed it by inspection, loss of weight, loss of appetite, general inefficiency, blood disease, blood findings. I guess that is the only way I ever diagnosed a cancer in any case. The only positive proof of the existence of a cancer is to take a section of the growth and examine it under the microscope. You can be sure in a great majority of cases whether they have cancer or not without a microscope. For tuberculosis cases I don't believe I ever had a sputum test made.

We know the death rate for all the germs. We have a death rate for tuberculosis which is 1,045. As to what that means—well I have never tried to find the emanation rate—somebody brighter than myself does that—but I use the rates.

I did not get any information from Dr. Crile that he was using a machine like this. It came through one of his nurses who is an assistant of one of our doctors whom I know very well.

I don't know what these lights are for and the holes. I never use them. The dial is supposed to measure the intensity of the emanations or the amount of disease they have. I don't know whether it is hooked up to anything on the inside. It may be just bolted on the inside and not hooked to anything. The machine doesn't have to be hooked up to a light socket to work. I can't tell you the purpose of a light in it.

The colors don't help in diagnosis but when I am not able to get rid of the pain in any other way, I put it on blue or indigo and the pain leaves. Red gets rid of irritation. For skin disease I put it on turquoise.

And so on ad infinitum.

Even for quickery this is far beyond the beaten path. Time and time again when persons who are engaging in quackery and pseudo-medicine encounter the law, the same witnesses appear in their defense. Edward M. Perdue, whose name has been referred to in these pages in connection with his appearance as a witness for Norman Baker and in other connections, appears in this case. And he does himself proud. For example.

#### Edward M. Perdue

My profession depends on what I am engaged in. I am a lawyer, physician and engineer. In therapeutics I am a graduate in osteopathy. I found when I concluded the publishing of some of my research I had discovered the cause and the biochemistry and the cure of cancer.

I have with me my own translation of works on emanations and oscillations and I have it in Italian. My own translations have gone clear beyond anything done in the United States.

I did not have any desire to come here just to exploit my knowledge. They take me all over the United States because I am a lawyer, engineer and practicing physician.

The color ribbon has little holes in it and above that are different rays or colors of the solar spectrum, all the way from infra-red to ultraviolet.

You can treat patients without putting any specimen like blood, urine or saliva in the machine. [Aha! An improvement on Abrams'—Ed.] That is the justification for treating chickens and cattle. They have just as good a right to get well as we have.

Treatments can be given in the manner in which Dr. Crum treated the brother of a woman who was in his office while the brother was in Ohio. Three years ago my wife was seized with a very serious ailment. She broke out all over her body with a burning sensation. My wife corresponded with Dr. Madge Stephens, of Terre Haute and by correspondence only and the absent treatment she got well. That helped to form my opinion as to whether or not it was proper to cure a person by absent treatment.

I don't know, for I have not investigated, whether this machine could assist in the fertilization of the ground or of the seeds in the ground to the extent that the crop would be more plentiful because of the treatment. The treatment by this machine of animals ought to be just as possible as in human beings.

I do not know the names of any graduates of the Kansas City College of Osteopathy who obtained a license within recent years. I can't give the names of any one who obtained a license in any state in the union upon a basis of reciprocity on the ground he had graduated from the Eclectic Medical University of Kansas City. I became a professor in the medical college five years before I graduated in the same medical college and went to school at the same time. I got the degrees of Bachelor of Science, Bachelor of Arts and Master of Arts from Kansas Normal College. I began going there in 1912, and I think I finished in 1923. No the word should have been 18 that is 1823. But that was before I was born. No, I don't know the dates when I got the degrees. It is true I was teaching in the Hahnemann Medical School in 1895. I got the Master's Degree two or three years after I got my B.A. degree. I got that when I was 23 years old. I got my Master's Degree some time along in 1891 or 1892. I got a license to practice in 24 or 25 but I began practicing in 1900. It was lawful at that time to practice without a license.

I was a personal student of Dr. Albert Abrams. In this book entitled Writings and Translations of Dr. Edward M. Perdue I have some work of Dr. John R. Brinkley. Dr. Brinkley went to school to me. He is the man whose radio



was closed in this country by the government. He was one of these fellows that cured people by the thousands by goat gland treatments. He had some rejuvenation thing by which this ionization to which I referred to could be stopped. He rejuvenated thousands of men and women. There were some articles published in the *Scientific American* about this Abrams to whom I have referred. I suppose he was investigated by the editors of *Hygeia*."

This is a reasonable supposition, in view of the fact that Brinkley unsuccessfully sued the American Medical Association and Dr. Morris Fishbein, editor, for a million dollars because *Hygeia* published a statement to the effect that Brinkley was a quack.

The foregoing excerpts come from the first thirty-six pages of this one hundred and ninety-nine page document, which merely represents the points raised in an appellee's answer brief. Conjecture, then, the total amount of evidence that would appear in the original suit. It hardly seems worth including the statement that on Nov. 3, 1941, the Supreme Court of Indiana upheld the action of the State Board of Medical Registration and Examination in revoking the drugless physician's license of Hiel E. Crum. (See also *THE JOURNAL*, Dec. 6, 1941, p. 1992, and Jan. 24, 1942, p. 322.)

## SOME MISCELLANEOUS MEDICAL FRAUDS

### A Variety of Schemes Debarred from the Mails

Fraud orders issued by the Post Office Department have frequently been the subject of extensive articles by the Bureau of Investigation in these pages of *THE JOURNAL*. Following are brief abstracts of some fraud orders not dealt with previously.

**Joll C. Stockard**—This person was a bartender in a Los Angeles cafe and sometimes used the name Donald K. Eby. Through the Hollywood postoffice he sent out a nostrum known as "Formule 300," representing that it would restore all users to a state of normal youthful vigor and vitality, and that it contained all the vitamins necessary to bring back those powers to all impotent men. Twice in 1941 the Post Office Department ordered Stockard to appear at a hearing and show cause why a fraud order should not be issued against him for making false and fraudulent representations and promises for his nostrum. When the hearing was finally held on July 30, 1941 Stockard did not appear. On this occasion, however, a government chemist and a medical expert testified for the Post Office. According to the chemist the preparation consisted of tablets each chiefly composed of alfalfa with 0.883 grain of sodium carbonate, 0.0015 [grain] of organically combined iodine, 0.064 grain of total alkaloids including those of lobelia, and traces of capsicum, sugar and tale. No yeast was found although the label on the bottle declared that each tablet contained 4 grains of live yeast. The expert medical witness discussed at this hearing the causes and scientific treatment of impotence and showed that Stockard's mixture did not contain all of the elements and vitamins necessary for the successful treatment of that condition and hence would not restore normal youthful vigor to impotent men. Accordingly Stockard was barred from the mails by a fraud order issued on Sept. 30, 1941 which also covered the numbers of the two postoffice boxes that he had used in Hollywood.

**Terminal Products Company**—Under this trade style one Andrew Portnow of New York sold an elastic abdominal belt through the mails under representations which the Post Office Department declared to be false and fraudulent. Among these were that the device when worn by any obese person, would, within a "few days" reduce the waist line of the wearer and remove all excess abdominal fat and would restore "pep" to any user and strengthen weakened abdominal muscles. The manufacturer denied these charges through his attorney. When the case came to a hearing it was shown that the belt in question was made of latex thread and that the part which encircled the abdomen was approximately eight inches in width and had what may be termed a two-way stretch. The pouch was of similar material but the understraps had only a vertical stretch. At the hearing expert medical witnesses testified for the government that obesity may be of two types, one of which involves glandular dysfunction and the other is the result of dietary indiscretions and lack of exercise. Thus every case of obesity should be studied and treated according to its causes. The witnesses went on to show that they had observed many cases of obese persons who wore belts similar to the one in question and in no instance was there noticed a weight reduction which could be in any way attributed to the wearing of the belt. In attempting to refute this evidence Portnow presented two affidavits alleged to have been executed by regular practicing physicians in the city of New York. These stated that the writers had examined the belt and that in their opinion it would have a massaging effect on the abdomen which would tend to reduce local obesity, improve the posture and alleviate certain symptoms such as shortness of breath. This testimony, however, was discounted since the persons quoted were not present to be cross examined nor was it shown that either of them ever had treated obesity or actually used or observed the belt in question or one substantially similar thereto. On March 17, 1941 a fraud order was issued against the Terminal Products Company and its officers and agents.

## Council on Medical Education and Hospitals

### ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

*Thirty-Eighth Annual Meeting, Held in Chicago, Feb. 16 and 17, 1942*

DR. RAY LYMAN WILBUR, Stanford University, Calif.,  
Presiding

### COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

FEBRUARY 16—MORNING

#### Medical Care of Civilian Population During War

DR. RAY LYMAN WILBUR, Stanford University, Calif. War, from the selection of the soldier down to his return to his home after war, compels the very best of medical service. Physicians who join the services are dislocated from their normal environment and they must learn new techniques and new mass procedures in order to get properly done the large amount of medical work required. We need think only of the blood bank to realize what differences in procedure there are between now and the Spanish American War or even the first World War. The skills to be learned by the physician are more intricate, more precise and more effective than ever before. The call for good medical care is of primary importance. We must take it for granted as we build up a larger army and navy that there will be a heavy draft on members of the medical profession between the ages of 30 and 50. This compels us to face the question how we are to supply our civilian population with medical protection. Dependence on the physician and the quality of his work, particularly when the man of the household is in war service, is essential if we are to have a population that holds steady in the face of discouragement and even of disaster.

There is no easy way to multiply rapidly the number of well trained doctors and nurses. The training of the physician must be complete enough so that on graduation and at the end of the intern year he may face with assurance the most difficult medical problems. The greatest responsibility may come in his very first case following some emergency. We can shorten the number of calendar years involved by continuing his training during the so-called vacation period. There is no cheap and quick way to turn out first class physicians. This applies also for nurses. Our principal civilian problem will be to save the time of the trained physicians retained at home so that, in spite of reduced numbers, they can give satisfactory scientific care. There is real danger if we accept an inferior sort of medical attention. The various cultists, with their cheaper training, will not be used to any extent in meeting the emergencies of war. If we permit them to take over in any way the care of a considerable part of our civilian population we are going to pay a heavy price. Epidemics are a normal part of war. We have only to think of the encephalitis cases that distributed themselves over the world following the last war to sense what will come as we send soldiers and sailors over every sea and into jungles and swamps in many parts of the world. Only careful training makes it possible to make the early diagnoses, many of them based on chemical tests and the use of the microscope. If the symptom treaters are used to any great extent during war time we must expect disturbances of civilian morale. The cultist who manipulates an individual for his backache may not recognize it as one of the early symptoms of smallpox and is therefore apt to speed the disease. Ignorance is our greatest enemy in the care and protection of the human body.

If we are to meet the obligations that the community owes to citizens during war time we must continue all the important social activities in which the physician has now taken an important part such as the control of nutrition and the protection of the minds of our youth and of those who are in the strained conditions of warfare. More physicians are



does not give the clue to those innate and essential capacities of men on which we call to an unusual degree in war time. The standards of the draft boards are, of course artificial and are the best screen for sorting out individuals that we have at the moment. None of these tests as yet give us a judgment on what I have designated as fitness. To maintain this capacity to do and to resist strains is the supreme task in the background in all our plans for medical care as a part of civilian defense. Those left at home must be kept fit and must possess that courage which comes with the glow of health.

In rearranging the medical care in any community after a severe draft of physicians from it, we must build on the medical institutions in existence or provide for new ones. We must extend the functions of all organized health departments. It is inevitable that there will be an extension of relief which must be used wisely. Obstetric care must be given a primary place in all planning for the civilian population. Whatever is done must be in tune with experience over the centuries in the care of the sick by the medical profession. There will be an increased use of the hospital and various forms of hospital care must be provided through hospital insurance or other ways. About each hospital there must be grouped the doctors and nurses of the community so that their time can be put to the greatest use. Clinical centers around groups of physicians will also be needed in some places. The indigent sick will require that care which they receive in normal times, but many of the facilities now used for the indigent sick will have to be used for those who normally would care for themselves in some other way.

New methods of convalescent care must be developed. Men returning from service wounded or ill should be given the best of attention. No doubt resort hotels can be used for this purpose. Convalescent patients and the chronically ill will have to be moved promptly out of the hospital centers so that the acute ailments can be handled. There will be a proportionate increase in the number of epileptic, incompetent and alcoholic persons in the peace time population. Every one should have hospital care available to him in every community. Doctors and nurses should be available at all hours. Patients are to be transported to doctors, and not doctors to patients. The California Physicians' Service, with its six thousand doctors, has indicated a procedure by which the medical profession can tackle these responsibilities of medical care. The Farm Security Administration, which is handling over one hundred thousand families and more than a half million persons, has shown what organized medicine can do in marginal rural areas. Experiments in Michigan and elsewhere show that medical care can be handled by and through the profession, if the will to do it is at hand.

While the leadership must come from the doctor, others must join in developing administrative mechanisms that will be sound and effective. There will have to be built up about each hospital a personnel that can be trained to substitute wherever possible for the laboratory workers, the nurse or the doctor. Many women will need to be brought into these auxiliaries to hospitals and, wherever it can be done, the nurse and the doctor should perform only those things that require the expert.

Many undesirables are left on the hands of the community in times of war. We shall not do a complete job unless adequate measures are taken to control the spread of venereal diseases, unless the forces back of the prostitute are brought under full control and unless the distribution of alcohol is put on a basis far different from that of the wholesale social abuse which is evident today. With terrific enemies abroad we have at home termites that are boring into the foundations on which youth must depend. Wholesome living is required if we are to meet Spartan enemies capable of any sacrifice. A steady flow of well trained doctors and nurses must be maintained. We must see that premedical students are discovered, helped and educated in medical schools of high standards. The hospital can become such a center as it has never been before in educating the population in the scientific care of the human body and the scientific protections of society. The newer procedures of education made possible by the motion picture and the radio can be used to build up sound ideas of the human body that will help win the war. Each community must face

its own health and other difficulties. Only through tens of thousands of well organized local communities unafraid and willing can we save our democracy in this war. Each community must stand on its own feet, organize its own facilities and provide its share of the common defense. To do this, medical care is requisite and must take promptly such new forms as conditions demand.

### The Relationship of the Chemist to Medicine

VINCENT DU VIGNEAUX, PH.D., New York. The relation of the chemist to medicine is an involved question. All has not been well between the professional groups representing the chemist and the clinical man. The goal is to bring the groups representing chemistry and medicine to work together for the common good. We must think of the problem from the point of view of the field of medicine in its power to relieve suffering. The chemist has as real an obligation toward this end as the clinician himself but in accomplishing this goal the chemist must function through the clinician and through the field of medicine. It is the obligation of medicine to use to the fullest extent what specialized techniques the chemical discipline can offer and what the chemist can accomplish. At present the full power of chemistry and the chemist in medicine is not fully utilized.

The board of directors of the American Chemical Society became disturbed at the turn of events when chemists and clinical pathologists became involved over their prerogatives in the clinical laboratory. It foresaw that a wider gulf might develop between these fields which would be reflected in a retardation of the development of medicine and with a consequent injury to the public. I was charged by the chairman of the board of directors to select a committee to study this problem, to try to bring the American Chemical Society and the American Medical Association to work together and to make recommendations to the board of directors so that these ends might be accomplished. The committee became known as "The Committee on Chemical Service to Medicine." Chemistry as a profession is independent and of equal rank with other learned professions, but in this particular connection chemistry is functioning in a service capacity to the medical profession. Recognition of this by chemists is in reality a mark of strength and confidence and it does not detract from the standing of chemistry as an independent profession in its own sphere. It was felt best not to have any one on the committee who might be immediately affected by decisions of the committee. The members of the committee were Dr. Donald D. Van Slyke of the Rockefeller Institute for Medical Research, Prof. Hans T. Clarke of the Columbia University College of Physicians and Surgeons, Prof. Victor C. Myers of the Western Reserve University School of Medicine, Dr. Arnold E. Osterberg, head of clinical biochemistry of the Mayo Clinic and Dr. W. G. Karr of the University of Pennsylvania, consulting biochemist to the Abington Memorial Hospital and the Philadelphia General Hospital.

One of the main issues at the outset of our study was the claim by some that the mere determination of a constituent of the body fluid or tissue was the practice of medicine. This is a fundamental point. It seemed to the committee that the determination of the constituents of the body tissues or fluids was not the practice of medicine, that one should be able to make a clear differentiation between technique and interpretation. We felt that the chemical analysis in itself cannot be regarded as the practice of medicine. It is chemistry—chemistry employed in the service of medicine. The actual interpretation of the result and application in diagnosis and treatment however, was clearly the practice of medicine.

It was clearly seen that the chemist's responsibility began with the reception of the labeled sample for analysis and ended with his report of the factual data obtained from that analysis to the physician. To obtain the sample from the patient and to interpret the data for diagnosis, prognosis and treatment of an individual patient are definitely the function and responsibility of the medical profession and should in no way be assumed by the chemist. A chemist may collect a sample from a patient only on direct authorization of the physician. The chemist must not attempt to interpret the data in their direct application to the patient. The character of the information

which the clinical biochemist may offer to the physician from his knowledge of the voluminous literature of clinical chemistry should always be abstract, a combination of a perusal of the literature integrated with basic biochemical information. It thus should always be informative but never specifically diagnostic. Our committee feels that a chemist must respect this in his relation with the medical profession and should never transgress this line. However, the chemical profession should be encouraged to assume the responsibility for the standards of the actual chemical work done in the clinical laboratory.

Another basic point which the committee felt must be established was that no barrier should be set up between the clinical biochemist and the clinician. The chemist recognizes the service which a clinical pathologist can render as consultant when needed, but the chemist feels that the clinical pathologist's role as an intermediary must not be an obligatory part of a system of regular clinical practice but rather that he should be a consultant called in only at the discretion of the physician in charge of the patient. The patient should not be required to pay for the services of a clinical pathologist if the attending physician who has requested the analytic data feels capable of making the diagnostic interpretation himself from the data. The chemist feels that there should be no restriction placed on a competent clinical biochemist in his function of accepting material from and reporting the factual data directly to the practicing physician. Where such restrictions have already been imposed, we would urge the medical profession for the good of medicine to try to have these restrictions removed and take advantage directly and fully of chemical aid. Of course, if the chemical profession demands these rights, it has an obligation to the medical profession and to the public to see to it that the chemical work is of high quality. Furthermore, the chemical profession must see that chemists do not usurp privileges and duties of the medical profession. A dangerous situation can arise if the patient can go directly to a chemist for analytic data to be used in self diagnosis.

If the medical and chemical professions can join in an effort to improve standards of clinical chemical laboratory work, the American Chemical Society is prepared to work out a system of certification for clinical biochemists, i. e. chemists who devote the major part of their time to the application of chemistry to the service of clinical medicine. Certification will undoubtedly aid in elevating the profession of clinical biochemistry and set a standard of service to the medical profession. Certification must rest on competence and training. The committee is prepared to recommend to the board of directors of the American Chemical Society that a biochemist with a Ph.D. degree or its equivalent with at least an additional year's training in a hospital laboratory would qualify as a clinical biochemist. The exact statement of the qualifications is open to further deliberation. It might be necessary in addition to have certification in another classification of a group with less training. These might be college graduates with a background of organic, physical, qualitative and quantitative analytic chemistry. They ought to have at least one year of training in a clinical laboratory under the direction of a clinical biochemist whose training I have outlined. It would be preferable not to call these individuals technicians but to call them assistant clinical biochemists.

There is a third problem whether, in a clinical laboratory where other work in addition to chemical work is done, a clinical biochemist judged of qualified scientific and administrative caliber might become the director. Our committee feels that a question of directorship should rest on competence and not a particular degree or on what subject is represented. A director may have under him men engaged in work in which he himself is not versed, but he may have the ability nevertheless to judge quality and thoroughness and accuracy of work. We believe that a clinical biochemist who through years of contact has learned to appreciate the problems involved in a clinical laboratory and who has the necessary administrative ability which would fit him for a director of a laboratory should be eligible for the directorship. The number of cases in practice would perhaps be relatively few. Yet it is an important point in principle. If the medical world offers nothing but secondary positions it will get nothing but secondary chemists, except in unusual cases resulting from fortuitous cir-

cumstances. The committee has been busy for two years quietly working to effect a satisfactory solution of these questions.

A still greater problem is the full utilization of the chemist in clinical investigation. Medicine should encourage competent chemists with initiative, originality and ability, albeit without a medical background, to participate in clinical investigations with proper clinical collaboration. It is extremely difficult for one man in these days to bridge the gap between medicine and chemistry in an attempt to apply both disciplines to the study of disease. There are individual clinicians capable of doing this and such men are indeed desirable, but we must have more instances of the chemist with the intensive training in chemistry meeting with the clinical man in frank collaboration. An intellectual attitude which properly evaluates the position of medicine as well as chemistry is needed before complete understanding and harmony can be achieved. Each field of science has its own methods. Nevertheless, each field receives help from the more advanced and exact fields. The physicist looks toward the mathematician for aid, the chemist toward the physicist and so on. The medical man must look toward other fields for guidance in development of new concepts and methods and must, on the other hand, pass on the fruits of his endeavor to other fields. When such a mental attitude of mutual respect and intellectual humility is accepted by workers in interrelated fields, then true harmony will prevail.

### Professional Education

RUFUS C. HARRIS, LL.D., New Orleans. The chief role of the professional man in earlier times was that of stabilizing custom and of serving the past. His modern counterpart today is bound more closely to the moving front edge of man's current experience. Education for a profession suggests methods by which a person studies one course of life and action, requiring cumulative knowledge of meaning, values and data the understanding of which is essential to individual progress and intelligent living. Such study enlarges experience, which is educative to the degree that it rests on a continuity of a significant knowledge, and to the degree that this knowledge modifies the learner's outlook, attitude and skill. It must have longitudinal and lateral dimensions. It must be historical and social, orderly and dynamic. As successive generations faced the task of getting the world's work done, many things have been found requiring special skills. As the structure of society became more intricate and the technology which it employed more elaborate, natural aptitude for special tasks, and self-training by the trial and error method, were not enough to supply the requisite degree of skill in the necessary number of persons. Professional and trade schools have come into being by the choosing of a few of each generation to devote all their time to imparting the requisite skill to the generation following.

The problems of professional education are thrown into a practical perspective by grouping them under the two great aims of all such training. One aim is to impart to the coming generation of practitioners the existing fund of professional knowledge and skill in an effective way. The other aim is to renew the fund of knowledge to be imparted by adding to it the new that makes for greater professional skill and by sloughing off what has lost its utility. As to the aim first mentioned, it is the teacher's place to stand between successive generations of men and pass to the coming generation the body of professional knowledge and skill which made the passing generation in that profession most useful in doing the work of the whole social group. Coming to the other aim, namely the improvement of the fund of professional skill, it must be handed on from generation to generation, the striking fact is that in the art of the practitioner of any profession, change, though slow, is constant. Modes of thought, shift, population changes, customs and manners drift, life is altered, business relations take new forms and social questions present new shapes. The practice of the profession is conditioned by this general flux. There is always, therefore, the problem of renewing the fund of professional skill which is to be handed on by adding the new and discarding the useless. As changes eat into the frame of professional knowledge its center gradually shifts and the learning which we are to transmit must also shift. The professional ability is the constant object of professional education.

tion It is from this standpoint if any that a vital relation appears between productive scholarship in medicine and medical education Knowing what of the old to discard and finding the new to add requires confident thorough scholarship on a comprehensive scale if the lag between the changes in training and those in practice is not to become so great as to be seriously wasteful

The major load of renewing our fund of professional skill must be shouldered by the professional schools Just as our university science departments, in addition to teaching students have borne the major load of scientific research, so the work of the university professional schools must be organized in order that the schools may carry a larger part of the research so necessary for professional education The difficulty is that the teaching and other loads of these preceptors is so heavy that seldom can they, unless they have exceptional mental ability and physical strength, do more than occasional pieces of semithorough research without paying in loss of health One of the outstanding and challenging facts in the history of professional education since it was undertaken by our universities has been the adherence to a policy of giving such teachers instructional loads which exhaust substantially all their time and strength This policy is a tradition of the earlier period of professional apprenticeship It puts almost the whole emphasis on merely teaching what the passing generation knows Back of it is an assumption which ignores the task of adding to our fund of knowledge as one of the chief functions of professional education A proper possession then of what may be called a vision of research in professional education constitutes professional education's greatest opportunity and most vital need Means must be found in our university professional schools for giving to those who teach the necessary time in which to do it Moreover, some of the undergraduate students can do worthwhile work Such students are growing in numbers This is probably the most hopeful development in professional education today More and more of them are persons capable of making valuable contributions to our fund of knowledge, and one of the most important questions with which any professional faculty can busy itself is to determine how further to increase the number and quality of such students and how to make their work of maximum value

The line which divides the trade school and the professional school may become in these times of crises dangerously vague and indistinct, but the differences in attitude and purpose must be significant I do not believe that we must sacrifice education to win the war It is one of our most important objects of the war It is one of our best defenses If the stream of our civilization is not to become dried up at its source, the professional schools must treasure and convey the wisdom of the past to the coming generations, who may thereby have an orderly understanding of life as an environment in which to find personal happiness as well as material success To do so they must hold in their ranks and put to better use those minds which are capable of discovering, reorganizing and assaying the trends and aims in nature and in human society The chief task is that of advancing science and history No claim is made that an entire science, university or department of a university should be placed behind an effort to effect any given single change in the economic or political structure of our culture Hypotheses are an indispensable part of good teaching and research A good scientist has a point of view He holds it subject to constant correction, but without a point of view he is no scientist and as a teacher he becomes simply a walking equivalent of a second rate encyclopedia or a colorless textbook A prevalent protest of alert students is that the immediacies of facts and data tend to operate in the university classroom as a monopolizing concern, shutting off the listener from the ripe wisdom of the mature teacher It is the boast of some professors that they handle controversial subjects in the classroom in such a skilful manner that the students are never able to know what the professor himself really thinks about the problem This amounts to sabotaging the inner meaning of education No university of course should have a staff all the members of which think alike on a given problem But the blurring of explicit statement of sharp and divergent hypotheses within a faculty is almost as

dangerous There have been handed down to this generation few institutions more precious than the universities with their schools for professional education whose abounding vitalities are attested by their extraordinary longevity, a fact which is in its turn witness to their success in satisfying many of the noblest and most insistent of human desires Only an utterly phlegmatic imagination could fail to sense the power of such institutions of our day to serve as no other agency can serve a way of life which needs the refining and spiritualizing forces which lie at their command

A prevalent mood today is a sense of helplessness in the face of the too bigness of the issues we confront This is no new experience for human beings, however wistfully we may regard the quiet continuities of earlier periods Prof J B Shotwell a short time ago characterized "the anarchy we are living in today" as "the most dangerous since the fall of Rome" Ours is a world of division of labor and specialization Each of us works, whether as scientist or business man, on a narrow sector This itself enhances our sense of helplessness, because whatever we do we feel ultimately coerced by larger forces not controllable within our immediate area of personal concentration Herein lies one source of the sense of ultimate futility that haunts our private worlds The point which all this suggests is the bringing over into professional training more of liberal arts tradition The complexities of modern living require of the physician or surgeon broader educational bases and experiences and wider social awareness than former periods permitted An appraisal of modern man leads to rather desolate and shapeless confusion unless one is able to perceive the general pattern which the process of living is taking The profession whose members are able to balance comprehensive perspective with methodical analysis of detail, who are able to serve and promote the effort to establish the long view out of objective consideration of the forces which affect life in our day, will find its place secure in whatever may be prescribed for existence in an uncertain world

#### The War, the Colleges and Federal Aid

WILLIAM B MUNRO, PH D, Pasadena Calif This article appeared in full in THE JOURNAL, March 28, page 1030

#### The Effect of the War on Medical Education in Canada

DR JONATHAN C MEAKINS, Montreal It is hard for me to shed the cynicism produced by the ten years that my country has been at war in the forty years of my adult life War cut across my college days, then the years of my early manhood and now in the twilight years of my academic life I am thrown back again into war—war of a savagery compared to which the campaigns of the great Mongols pale into insignificance This same comparison has influenced our students as nothing else could do Its influence goes back even to the high school

In 1914-1918 the army was the dominant service in our country To these forces went the man of mature years and strength There have arisen with us since those days the navy and the air force, which have rivaled the domination of the army and have appealed to our youth with an almost overwhelming urge In 1939 we had little of either Today the destroyer, torpedo boat and corvette are manned by youths The fighter, power diver, reconnaissance and bomber planes are the realm of the young These are all of their generation

I can speak only of my own college, which is representative of the young people of this continent The unanimity of their beliefs and ideals is surprising This did not originate during their medical course alone but antedated it The adventurous student to whom the practice of medicine seemed to offer more action than did other professions, turned his eyes toward greater and more immediate adventure This was an unconscious act inspired by those ideals and angers The number of queries received from young men who have contemplated a medical career and the searchings of heart of freshmen and sophomores as to whether their duty does not lie with the combatant forces leaves little doubt that these ideals have shaped and will shape the destinies of many who would otherwise be leaders in our profession I do not imply that the

standard of medical students is any lower than before the war but that a certain element with the capacity of leadership may have been reduced

In May, last year, it was rumored in the press that the Canadian forces would soon be in need of many additional medical officers. To date no authoritative statement has been made to this effect. A poll of our first three years was answered by 81 per cent, and all but three, including the women, pledged themselves to join the armed forces at the completion of their medical training. Such a deep feeling of national obligation cannot help but breed and foster an unrest which is not conducive to concentration toward the acquisition of knowledge for such an exacting profession. This distraction has been increased by requiring the preclinical students to fulfil one hundred and ten hours of basic military training during the academic session. This represents six hours drill a week for eighteen weeks. All these factors have had an influence on the students.

What measures have been taken in Canada to produce more medical graduates? Increased production can be accomplished only by enlarging our classes. By this means in 1946 the first increase will be harvested. This, many will say, will be too late. The alternative is to force our present crop to maturity at an earlier date by running four terms a calendar year for three years instead of three terms for four years. Can a medical course be compared to an assembly line which is limited in the last analysis by the speed at which a man can screw tight a nut to its bolt? Can the human brain be so geared? I doubt it. There are other considerations. Certain courses in the curriculum can best be given at certain times of the year. Have we in Canada a dire necessity for an increased number of doctors and if so how far will one additional graduating class relieve this demand? It has been estimated that 30 per cent of our profession could be withdrawn from civilian life for the armed forces if they were implemented with any degree of uniformity. There are about eleven thousand practicing doctors in Canada, 30 per cent would represent three thousand three hundred available for active service. In Canada there are about four hundred and fifty graduates a year, of whom about four hundred are physically fit males. If before 1945 we graduate one additional class—and that is all we can do by acceleration—this would at most be enough for an additional sixty thousand troops in the different services. But this maximum would have to be implemented by compulsory selective service, which at present is not the law of our country.

These problems have agitated medical education in Canada. The curriculums of the nine medical colleges do not follow a common pattern. Each has its own individuality. McGill decided in 1936 to lengthen the session to thirty-six weeks, exclusive of examinations, from thirty weeks per session, consequently in 1940 we graduated two classes. Our session now runs practically from Labor Day to the third week in June. Other medical schools can do the same without disrupting their excellence of instruction.

There comes the question of the teaching staff. The full time staffs of anatomy, physiology, biochemistry and pharmacology are not as a rule much disturbed by present conditions. The part time teachers have, however, been sadly depleted in the departments of pathology and bacteriology, and particularly in the clinical subjects. The last are hard pressed from three directions. On the average the staffs of all the teaching hospitals of medical schools have suffered or will suffer depletion to a dangerous extent. This is not a static condition but will progress irregularly as time passes. This has placed to an increasing degree an additional burden on the older members of the hospital staff in matters of private practice, hospital duties and additional teaching hours. They differ, therefore, from the general run of practitioners who have but an increased private practice to consider. The vagaries of this depletion bring queer results. It might be expected that general practitioners, internists, surgeons, orthopedists, roentgenologists and pathologists would have enlisted, but the wholesale enlistment of obstetricians and gynecologists leaves one aghast, particularly as they seem to have a passion for the navy.

And so it goes in an ascending spiral of endeavor and sacrifice, which, however, must not be allowed to plunge medical

education into a vicious circle of overworked students and teaching weary staff. If acceleration is the solution, then let us slough off the frills but hold fast to first principles, so that our teaching will be well and truly done, and let us see to it that the medical students, the public and the men in arms will not upbraid us for being faithless to our trust.

FEBRUARY 16—AFTERNOON

### Current Medical Personnel Problems of the Army

COL GEORGE F LULL, M C, U S Army, Washington, D C. The following will give an idea of what officer personnel is required for the Medical Department for the year 1942. Medical Corps 23,658 (this figure includes personnel for professional units for theater of operations for 1942 augmentation only), Dental Corps 5,309, Veterinary Corps 1,015, Sanitary Corps 498, Medical Administrative Corps 2,310. At present there are on duty in the Medical Corps 11,790, Dental Corps 3,306, Veterinary Corps 731, Sanitary Corps 235, Medical Administrative Corps 1,478. The majority of these officers are reserve officers on extended active duty. The question arises as to where these officers are to be obtained. With five thousand graduates each year, there should be at least three thousand qualified for military duty. If the average age is 26, then in the age group 27 to 36 there should be thirty thousand available.

All requests for commissions should be addressed to the Procurement and Assignment Service. Medical students of the third and fourth year classes are allowed to apply for commissions in the Medical Administrative Corps and, when commissioned, will not be called until they have completed a one year internship. The Surgeon General has recommended that this privilege be extended to the members of the first and second year classes and to all bona fide matriculants.

When a man becomes an army officer, he enters a new profession. Line officers, in 90 per cent of instances, take up new careers, entirely different from their civil occupations. There are many assignments which have to be filled by medical officers and which are dissimilar from the duties performed by them in civil life. Infantry regiments have eight medical officers in many instances. Unless the senior officer trains his men, he will have dissatisfaction now and will fall down in combat. It is highly important to train medical officers and men with tactical units prior to combat, as the prompt treatment and early evacuation of the wounded are the greatest factors in the conservation of manpower. We have had one of the lowest sick records in history.

Two years ago the Secretary of War authorized the formation of hospital units which would be called out in case of war. These units consisted of general hospitals, evacuation hospitals and surgical hospitals. They were sponsored by civil hospitals and medical colleges. Some of these units have already been called out and are en route to distant points. With the ranks of American medicine so greatly improved since the last war, I can see no reason why we cannot commission the number required from volunteers. It would be a reflection on us if we had to resort to legislative action. When the armistice was signed in 1918 there were about thirty one thousand doctors in the army, and I am sure that we are going to repeat our performance in this war.

### Medical Education from the Standpoint of the Navy Medical Corps

REAR ADMIRAL ROSS T MCINTIRE, M C, U S Navy, Washington, D C. The navy has a great stake in medical education in this country. The Bureau of Medicine and Surgery has presented a plan to the Secretary of the Navy, which he has approved. It is now possible for those premedical students who have been accepted for entrance and all medical students in accredited medical colleges to be appointed in the United States Naval Reserve in class H-V(P), provided they meet the physical and other requirements. Such students would not be nominated for active duty until after they have completed their prescribed medical studies and shall have been accepted as acting assistant surgeons of the navy for intern training. They have served one year's internship in a civilian hospital accredited for intern training.



It is my belief that a routine college course, as such, is of doubtful value to the future of a doctor. True, it does lay down groundwork for cultural education and consequent broadening as the young man goes on in life. Let us now consider the age factor. The average boy graduates from high school at 18, spends four years in college, four years in medicine and one to two years in internship and is then 27 or 28 years of age. During this time he has had to secure from \$700 to \$1,000 a year to finance his education. Too often the applicants for entrance to medical college do not come from the right sections of our American life. Too many select medicine because it is a respected profession and seems to be a way to make an easy livelihood. It is a business to some and not a profession. We should be extremely careful in selecting students to see that this type does not get into medical school. I should like to present the thought of standardizing premedical education so that at any accredited medical college the academic and medical courses could be completed in six years. This would bring the medical student into a position where he could practice medicine at the age of 26. It would mean much to the navy, as we are now getting officers who are a year or so older than their line running mates. We have a plan whereby all reserve officers are given proper rank as far as age is concerned. When officers and men live on board ship in close contact, to have a man years senior in age and junior rank to those above him is never good.

I should like to see greater emphasis on instruction in preventive medicine. The army and the navy are being impeded by other organizations, such as the National Osteopathic Association, for permission for graduates of their schools to take examinations for entrance into the Medical Corps. One main objection that we have presented to them, after inspection of one of their best schools, is that they do not approach disease from the preventive standpoint. All our schools could improve their teaching in the field of preventive medicine.

In every accredited school we should have a department of tropical diseases. Tropical diseases are appearing in every section of the United States. Industrial hygiene should be taught in every one of our schools. I should like to see military and naval medicine have a more prominent place in the curriculum of all our institutions.

It is our considered thought that every man in this country should at some time give one year of his life to his government. This applies definitely to the boy who is going to study medicine. When a boy reaches let us say 18 he should be called on to decide as to when he would care to give this year of service, having to do this before he is 28. I leave this thought with you. It would be a splendid morale-building method and would do untold good to the nation and to the individual.

The Navy Medical Corps does not encourage specialization until the medical officer has had an opportunity to become well grounded in medicine and surgery. We have found, on numerous occasions, that young men coming into the service who have had nothing but special residency courses following graduation and internship, covering a period of from three to five years, when sent on independent duty turned out to be poor doctors. Had these boys been given an opportunity to see a lot of patients in general practice they would be better surgeons, better pathologists today.

The need for young doctors in the Medical Corps of the Navy will average three hundred each year. This will hold good for the next five years. We base our needs on a ratio of 65 doctors for every thousand of personnel. At the present time we have on duty some thirty-one hundred medical officers. Great numbers must not be taken into the regular service at any one time, unless forced by abnormal conditions. The Navy, however, can assist in training interns far beyond its own normal needs and will be glad to do so. It will be necessary in my opinion for the medical schools to double their output during the coming five years. I believe, however, that the courses now given should not be curtailed in any way, as it is extremely necessary that graduates be well grounded. In the field of aviation medicine it is our experience that the average medical officer has not had enough mathematical background to be able to carry on the research that we find necessary in the study of the atmosphere. Unless the doctor is able to direct and evaluate the studies in atmospheric hygiene much time is

lost and the practical side of aviation suffers. We should give undergraduates a good understanding of what aviation medicine amounts to but make them understand that it should not be specialized in until a thorough groundwork has been laid down by them in general medical and surgical principles. The Medical Department of the Navy is extremely grateful to the medical profession for the continued help that is being given, and in return the Navy wishes to do all it can to help in your problems.

#### Wartime Problems of the Public Health Service

SURGEON THOMAS PARRAN, U S Public Health Service, Washington D C. This article appeared in full in THE JOURNAL, March 28, page 1033.

#### Selective Service and Medical Students

COL LEONARD G ROWNTREE M C, U S Army, Washington, D C. The function of Selective Service is the procurement of man power for the Army. Selective Service has always been sympathetic to your needs. In my early days in Washington we had many conferences on what to do with medical students. It was the general feeling that this problem could best be solved by taking medical students into the Army and Navy reserve corps. The crucial steps in the program were as follows. First, General Hershey defined clearly the responsibilities of the local boards and indicated their authority in the matter. Next pertinent statistics were collected from the American Medical Association, the Army, the Navy and the United States Public Health Service concerning the need for doctors. These figures seemed to carry no weight at first, but there soon appeared an inspired statement from the Office of Production Management on March 4 of last year to the effect that there existed an overall shortage of doctors and that the supply of medical students not only should be maintained but should be encouraged to grow. On May 2 General Hershey's memorandum to all state directors indicated that "there are no replacements for medical students who are withdrawn from school." To this point the American Medical Association and Selective Service carried the ball. Dr Rappleye reports that of the twenty-two thousand medical students handled by Selective Service there were only three with just causes for complaint. This really constitutes a goal. The Navy created the ensign reserve, which took care of third and fourth year medical students and first year interns. Later this opportunity of applying for a commission with the Navy was extended to all medical students. The privilege was extended of commission to all as Ensigns HV(P), United States Naval Reserve. The Army opened up its Medical Administrative Corps for the commissioning of third and fourth year students and first year interns.

When I left Washington the situation was as follows. Bona fide premedical first and second year medical students were being deferred by Selective Service. Students were advised to apply for commissions in the Ensign Reserve of the Navy, and third and fourth year students and interns to apply to the medical administrative corps of the Army for commission. Second year residents were left to their institutions for certification as to essentiality.

The need is for an all out effort. Colonel Lull has just informed us that the need for officer personnel for the Army Medical Corps for this year is 23,658. He explained that the medical corps figure includes personnel for professional units for theater of operations for 1942 augmentation only. During the last war we had 3,673,888 men under arms and some 30,591 officers in the Medical Corps of the Army.

A communication from the War Department dated February 11 has just come to hand stating that the privilege of applying for commissions in the Medical Administrative Corps is to be extended to first and second year medical students and bona fide accepted matriculants at approved medical schools within the United States. May I, representing Selective Service, after a year's cooperation with you and with the American Medical Association, venture to suggest that 1. The present committee Drs Rappleye, Burwell, Diehl and William Pepper, continue to work closely with the Army and the Navy as they have in the past with Selective Service. This committee was appointed by the Association of Medical Colleges. It has proved its worth. 2. Let the Army and the Navy carry the ball for



you 3 Adhere strictly to cooperation Keep the Army and Navy playing as at present, both intent on carrying the ball in the same direction

### The Committee on Medical Preparedness of the American Medical Association

DR IRVIN ABELL, Louisville, Ky The Committee on Medical Preparedness of the American Medical Association came into being in June 1940, at which time the Surgeon Generals of the Army, Navy and Public Health Service requested the American Medical Association to undertake a survey of the medical personnel of this country, with particular reference to its qualifications and availability The committee is made up of the general chairman, a chairman for each of the nine corps areas in the country, the President of the American Medical Association, the Chairman of its Board of Trustees, the Secretary of the Association and the Editor of THE JOURNAL

The objectives of the survey were to determine (1) the number of physicians licensed to practice medicine, (2) the number capacitated for active service and those incapacitated for active service, (3) the number and location of physicians who may be qualified and available for the armed forces and for other essential services in case of national emergency, (4) the number available for service to civilian population under emergency conditions, (5) the availability and qualifications of those who can serve in special fields of medicine and (6) the number and identity of physicians qualified for teaching and research and who are essential to maintenance of educational institutions, and the number, age, qualifications, availability and other characteristics of all members of the medical profession essential in order that the total personnel resources can be utilized in intelligent preparation, appropriate assignment and adequate services for the armed forces, expanding industry and civilian population

Mailing of schedules began within less than one month after the creation of the committee, July 5, and was completed on July 6, 1940 In this first mailing 179,976 schedules were sent to the latest known addresses of physicians licensed to practice medicine Subsequent to July 16, 1940 approximately 6,000 were sent to recently licensed physicians and to those who for other reasons were not included in the primary list

Of the total of about 185,800 physicians who received schedules, slightly more than 158,000, or 85.8 per cent, had returned them on Jan 2, 1942 Adjustment of totals for death and duplicates give a total list of about 184,000 The information contained in these schedules is transferred to punch cards To complete the punch card file for all physicians, some 26,000 schedules were prepared for those who failed to make a return, these being prepared in the state medical associations and county societies These are designated as incomplete, since they do not include answers to all schedule questions On Jan 30, 1942 all original and incomplete schedules had been edited, coded and punched These 184,000 schedules and punch cards constitute the live working file of physicians in the United States and the dependencies The compilation of this census is a continuing process, since new schedules from recently graduated physicians are being constantly added and others for deceased physicians are being daily withdrawn A large amount of clerical work is involved in changes of addresses and in properly listing the names of physicians ordered to active duty with the armed forces and of those who have been relieved from duty Time consuming investigation and an important phase of the census pertains to the confidential investigation of professional qualifications This has been largely done by the various committees of the Medical Research Council and by the certifying boards This has been completed for approximately 135,000 physicians Listing sheets are in the course of preparation for the remaining 49,000

The number of physicians under 45, the highest age level of the Selective Service Act, is about 62,000 Out of 134,771 schedules studied from this point of view, 41.1 per cent of the physicians classified themselves as general practitioners, 24 per cent as full time specialists and 34.5 per cent as part time specialists If we classify the part time specialists as general practitioners we have about 100,000 general practitioners and 33,000 specialists

The Subcommittee of Medical Education of the Health and Medical Committee recommended the establishment of an agency for the procurement of physicians for the armed forces, industry and the civilian population This recommendation was referred by the Health and Medical Committee to the Committee on Medical Preparedness, which at Cleveland presented to the House of Delegates a resolution relative to the establishment of a procurement and assignment agency The resolution was unanimously adopted by the House of Delegates and was presented to the Health and Medical Committee on July 2, 1941 The Committee on Medical Preparedness met in Washington on August 19 and 20 to consider this resolution, in conjunction with representatives of various federal agencies On Sept 3, 1941 the President established the Office of Defense Health and Welfare Service with Mr Paul V McNutt as director The Health and Medical Committee was transferred to this office The resolution relative to the establishment of the Procurement and Assignment Service was referred to the Health and Medical Committee, which on October 22 met to initiate the development of this service An agreement on policy was reached and a commission appointed with the Health and Medical Committee to draft a program for its Procurement and Assignment Service, the members of this committee being Frank Lahey, Sidney Burwell, Clarence Selby, Morris Fishbein and Willard Camalier, the latter representing the dental profession This commission met on October 28 and submitted its report to Director McNutt, who in turn transmitted it to the President, with the result that the Procurement and Assignment Service was established on October 30 as one of the subdivisions of the Office of Defense Health and Welfare Service, with the following membership: Dr Frank H Lahey, chairman, Dr Willard Camalier, past president of the American Dental Association, representing the dentists, Dr Harold S Diehl, University of Minnesota, representing medical education, Dr James Paullin and Dr Harvey Stone representing the medical and the surgical civilian profession, and Dr Sam F Seeley, connected with the Surgeon General's Office, who was relieved from active duty therein and assigned by General Magee to the agency as its executive officer

The Health and Medical Committee and the Procurement and Assignment Service are both subdivisions of the Office of Defense Health and Welfare Service They occupy adjoining offices and are closely linked in that the Subcommittees on Dentistry, Hospitals, Industrial Health and Medicine, Medical Education and Negro Health are practically the same The personnel of those committees are identical On December 18, at a meeting of the Board of Procurement and Assignment Service with the Committees on Medical Preparedness of the American Medical Association, the American Dental Association and the American Veterinary Medical Association, a definite organization was completed for the functions of this service in relation to the needs of the professional personnel Approval was given to the constitution of committees in each of the corps areas and associated naval districts to function as advisory to the corps area commander, the committees to consist of a chairman who will be the corps area representative of the Committee on Military Preparedness of the American Medical Association, one physician representing medical education, one representing hospital organization, one representing physicians in the community at large, two dentists and one representative of the veterinary profession The state chairmen, the individual state chairmen of the Procurement and Assignment Service, are the state chairmen of the Committee on Military Preparedness of the American Medical Association

The Committee on Medical Preparedness met in Washington on January 30 with the Procurement and Assignment Service Board and representatives of interested agencies to adopt final plans of procedure in utilizing the professional personnel of the country for the duration of the war

The American medical profession has always risen to its obligations in time of war During the American War of Independence fourteen hundred doctors volunteered During the Civil War twelve thousand physicians served with the Federal forces and nine thousand with the Confederate forces In World War I there were about thirty-one thousand doctors in uniform With the projected increase in the Army of two million men

this year, another thirteen or fourteen thousand physicians will be called from civilian life. Approximately eighteen thousand are serving on the various draft boards of the country. Everywhere, in hospitals, in medical societies, all have their committees on medical preparedness in an effort to contribute to our war effort. No other group has been asked to do as much as the medical profession, and no other special group has volunteered to do as much.

### The Role of Medical Education in the War

DR HAROLD S. DIEHL, Minneapolis. In the United States sixty-seven accredited medical schools carry the responsibility for the professional education of the physicians of this country. These heavy responsibilities in times of war are multiplied manifold.

The first responsibility of medical schools is to provide well trained physicians to meet the national needs. In normal times the five thousand physicians who graduate annually from the accredited medical schools are more than sufficient to replace those physicians who discontinue practice each year. In times of war, however, the medical services of the Army and the Navy demand a quota of physicians five to six times as high. To help meet this need, the medical schools have volunteered to increase enrollments as much as their facilities will permit and to accelerate the graduation of physicians. During the next three years about five thousand physicians will be graduated three months earlier than normal, five thousand more six months early, five thousand nine months early and five thousand twelve months early. The medical schools will be able by this acceleration of the curriculum to make available over the next three years the equivalent of one year's medical service by twelve thousand five hundred physicians. To accomplish this the faculties will have to carry heavy teaching loads and vacations and research will have to be sacrificed. Students will forego the summer respite from studies and the opportunities which vacation periods present to earn money sorely needed by many. The deans of medical schools are convinced that there will be an adequate number of qualified applicants to supply the entering classes under the emergency accelerated program. Up to the present the uniformity of action by Selective Service boards in the deferment of medical students has been greater than would have been believed possible, but there is question whether under the increasing urgency for man power similar uniformity of action can be expected in the future.

The Army and the Navy last summer authorized the granting of commissions to junior and senior medical students with the understanding that they will not be called to active duty until they have completed at least one year of internship. This is excellent, but, unless freshmen and sophomores are kept in school and new classes admitted, it will be only a few years until there will be no juniors and seniors to apply for these commissions. To forestall this possibility the Navy Department and the War Department recently authorized the granting of similar commissions also to freshman and sophomore medical students and to students who are "bona fide" matriculants in approved medical schools.

Procedures have been outlined by the Procurement and Assignment Service to provide for retaining on faculties physicians whose services are essential to teaching and service responsibilities. Deferment of essential faculty members who are not physicians will have to be requested from the Selective Service boards with which such individuals are registered. Memorandum I-347, of Jan. 12, 1942 from National Headquarters of Selective Service advises that "It is estimated that the expanding army will eventually require doctors and dentists in numbers heretofore unknown. They will not be available if those students who show reasonable promise of becoming doctors and dentists are inducted prior to becoming eligible for commissions."

It is equally important that instructors in these fields be seriously considered for occupational deferment. Shortages of qualified instructors are known to exist. The educational institution employing the instructor should be requested to file DSS Form 42A in all cases where deferment is sought.

With our country at war we cannot hope to retain our full peacetime teaching forces but by following the procedures out-

lined in this memorandum, we should be able to retain teachers whose services are truly essential to sound medical education during the war.

No basic changes in the established medical curriculum are necessary. There are, however, certain medical problems peculiar to war which should be added to this curriculum. Prominent among the subjects which merit such special attention are first aid, emergency surgery, psychiatry, internal medicine, dermatology, venereal diseases, public health, tropical medicine, military medicine and aviation medicine.

A course in first aid for freshmen will provide a background for later training in emergency surgery and will prepare undergraduate medical students to play the part which would be expected of them in case of casualties or disasters among the civilian population. In the internship as well as in undergraduate teaching, special emphasis should be placed on the emergency care of fractures and wounds.

Emotionally unstable soldiers are not only worthless but a distinct liability to an army. As many of them as possible should be excluded at the time of the induction examination. Special skill, care, training and time are necessary to identify potentially psychopathic individuals and to prevent their induction. Many, however, are certain to get into the armed forces. The medical officer must be constantly on the alert. In military training emotionally unstable individuals are almost certain to exhibit suggestive symptoms, and medical officers need special training to deal effectively with these problems.

Important among the skills of the medical officer is the ability to make discriminating physical examinations of new recruits. Tuberculosis in the last war has cost this country about a billion dollars for hospital care, insurance compensation and vocational training, and these expenditures still continue at the rate of three million dollars a month. The majority of these infections were present at the time the individuals entered the services.

The use of modern diagnostic technics makes it possible to recognize practically all these infected individuals at the time of the examination. Our medical officers should be trained and provided with the facilities to use these technics. Other aspects of the physical examination for which special skills are necessary are the interpretation of heart murmurs, the estimation of cardiovascular efficiency, the neuropsychiatric examination and the examinations of the eyes and ears, particularly for aviators.

The medical departments of the Army and Navy report that newly appointed medical officers do not have an adequate knowledge of the common skin diseases.

Medical officers in our armed forces are responsible for the prevention and control of communicable diseases, the general sanitation of the camp and the safety of foods, milk and drinking water. During the last war measles, mumps, meningitis, influenza and pneumonia occurred in epidemic proportions in many camps. Additional emphasis needs to be placed on these subjects in order that graduates may be qualified for these special responsibilities.

Most of the instruction in tropical medicine will have to be given as intensive postgraduate courses because few of the medical schools have in their teaching hospitals the patients with tropical diseases essential for clinical instruction. At the undergraduate level, special attention to courses in parasitology and some consideration of the pathologic and clinical features of these diseases will serve to provide the students with an introduction and somewhat of an orientation in this field.

Courses in military medicine have already been instituted by certain medical schools. Yet it is not entirely clear as to just what such courses should include.

Some instruction of this type is desirable, but since a year of internship will intervene before medical graduates are called to active duty it is doubtful whether in the undergraduate course more than a few lectures on this subject given during the senior year are justifiable.

No special course in aviation medicine in the undergraduate curriculum is recommended. However, existing courses in physiology, internal medicine and ophthalmology should stress such subjects as anoxemia, physiology of high altitudes, perception of depth and ocular balances.

The Army and the Navy need a certain number of well trained specialists. Most of the facilities needed for the training of specialists are available. Supplementary to these the medical departments of the Army and the Navy are providing special training in their hospitals, and a few civilian institutions are offering intensive highly specialized courses in limited fields for medical officers. It is unlikely that the Army or Navy will be able to release many medical officers to take advantage of such training during the current emergency.

The last war demonstrated the importance of coordinated groups of carefully chosen physicians to serve on the staffs of special hospitals. Two years ago certain medical schools and hospitals were invited to assume responsibility for providing the medical and nursing personnel for such hospital units. In response, staffs have been organized for army general hospitals, evacuation hospitals and smaller medical units for the Navy. The staffs of these army general hospitals contain fifty-six physicians and surgeons. There is no medical school which can lose such a proportion of its faculty without serious difficulties. Those members of the faculties who remain behind must carry this undramatic but essential service as their contribution to the war. These sponsored units are splendid medical and surgical organizations which are certain to render a quality of service of which our medical schools can be proud.

Medical research has greatly reduced the hazard of communicable disease to the modern army but there remain unsolved problems of major importance. The final decision in this war will be determined not only by the number and the quality of the machines that we build but also by the stamina and the skill of the men who operate them.

The hour is late, but we hope not too late, for the investigation of problems on which will depend the effective utilization of the man behind the gun. Most of the scientists with the training and experience needed for the conduct of such studies are to be found on the faculties of our medical schools. For the past year and a half the various committees and subcommittees of the National Research Council have been outlining the problems to be investigated. There was serious delay in providing support for the investigations recommended by these committees, but funds have been made available through the Medical Committee of the Office of Scientific Research Development for the support of these research studies. To date liberal support has been provided for many investigations in aviation physiology, shock, wound infections, infectious diseases and tropical diseases. This is another field in which our medical schools are privileged to make a significant contribution to the winning of the war.

#### DISCUSSION

DR. ANTON J. CARLSON, Chicago: I don't suppose I should be heard at these meetings any more, but I should like briefly to comment on one of the problems that Admiral McIntire threw in our lap, namely the possible remedy for the nine long years in the preparation of modern physicians. In my school I had the privilege of teaching medical students for many years. We admitted them into the medical school after two years in college. Then we changed and I think required the bachelor's degree, that is, two years more. I have followed my students of both groups as nearly as I could. In general I have found that it didn't seem to make much difference in the caliber of work in the medical school, or in the caliber of work out in the field of their profession, whether they had two years in college or four years in college, when they entered the medical school. Now, that doesn't mean that we wasted the last two years in college. It means that the primary element in success in the school and in the life work is in the caliber of the men and women rather than in the specific courses or in the length of time spent in the college before they come into the medical school. I have heard for thirty or forty years that the medical students and the doctors should have a general, liberal education. Of course, but who is there so green as to think that that can be prescribed by any system of education or any number of courses required? That depends solely on the individual. If you will continue to be omnivorous in your study and reading both inside and outside the college, I don't think there is any other remedy.

## JOINT SESSION OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS AND THE FEDERATION OF STATE MEDICAL BOARDS

FEBRUARY 17—MORNING

DR. J. EARL MCINTYRE, Lansing, Mich., Presiding

### Citizenship as Related to Licensure

DR. WALTER E. VEST, Huntington, W. Va.: The aim of the state in regulating a profession is to protect citizens from the ignorant, the impostor and the incompetent and to guarantee that only individuals are admitted to the professions who can be entrusted to render beneficent service. The physical well being of the populace is so largely dependent on the medical profession that, in the interests of public health, the state must set up standards to be met by individuals who desire to practice medicine. The constitutionality of a full citizenship requirement for medical licensure has been much discussed, but the question has never been adjudicated by the Supreme Court. Generally speaking, the tendency of the courts has been to uphold a citizenship requirement in those callings which have sufficient bearing on the general welfare to demand special training, skill or aptitude. The legislatures of eleven states have enacted laws requiring full citizenship for medical licensure. In seventeen other states full citizenship is required by regulation of their respective examining boards. In only one of these twenty-eight states, Texas, has the requirement been tested in court (*Garcia-Godoy v. State Board of Medical Examiners*). In this instance the court upheld the citizenship requirement as "within the legitimate police powers of the state directed to the furtherance and preservation of public health, safety and morals."

The influx of alien physicians cannot but lower our professional level. Their professional education, ideals and ethics have been acquired in an environment entirely different from prevailing American conditions. Their psychology and their reaction to government are at total variance from ours. With rare exceptions their knowledge of our history, our laws, our customs and our usages is practically nil. In comparatively few instances do they have the familiarity with our language to understand us fully or to be understood clearly by us. What is more necessary in the everyday practice of medicine than a clear understanding between doctor and patient? It is not unreasonable to require the emigre physician to attain full citizenship precedent to licensure. He can accomplish this in five years. We require of native born Americans a longer period of training for medical practice. The emigre physician is escaping a country where, in most instances, he found existence intolerable. I dare say not a single emigre would exchange America with a five year waiting period to attain citizenship and licensure for the land of his birth. In the fiscal year ended June 30 last, four hundred and forty-four alien lawyers were admitted to the United States although they knew ahead of time that they could not practice their profession for at least five years. Especially in time of war, why permit any but full citizens to practice the profession which touches so intimately the lives and moral fiber of our citizenry? Why leave ajar the gates of medicine to those who might engage in sabotage, espionage or subversive activities? In the practice of medicine, physicians are often charged with duties on which the public welfare and the administration of justice depend. It is a privilege granted by the state to individuals who have attained standards set up by the state for its own protection and for the betterment of society. What is more reasonable than to demand of the foreign born seeking admission to our profession that he take time enough to attain full citizenship first, that he spend this time in learning us, our laws, ways, customs, ideals and our democracy, to say nothing of perfecting himself in the technic of American medicine and in the use of our language and proving his loyalty to the land in which he would practice and from which he would derive sustenance?

## DISCUSSION

DR ERNST P BOAS, New York The National Committee for Resettlement of Foreign Physicians has had extensive experience with the problems of the immigration of so many physicians and has been particularly concerned with this citizenship problem. Citizenship requirements were set up primarily as an excuse to keep these foreign physicians out of practice, yet citizenship is not a measure of professional ability. Many states exclude foreign physicians from licensure on the grounds of citizenship, and only citizens can be appointed to federal positions. As a result, some two thousand foreign physicians, most of them well trained, cannot practice in any form. Why not use this reservoir of trained physicians for the benefit of our country? Many, I know from personal knowledge, want to serve in the Army or in government services, but they cannot because they are not citizens. It would seem to me a function of this congress and of the American Medical Association to take measures to liberalize state and national regulations and laws, so that this country in its time of stress can use these several thousand physicians in the national defense.

DR THOMAS J CROWE, Dallas, Texas I want to ask a question. I have a very strong objection now, since I know more about the emigres. I am just as sympathetic with them as any one could be, but I know that a number of spies were sprinkled in that emigre crowd. That is the nicest way in the world to get the inside of everything. If we put those people at work in our communities we don't know what they are doing. I don't think any man is competent to practice medicine in the United States until he can speak our language. Many of them can't speak our language. I think we had better go a little slow on what we do with those people in this country until we know more about them.

DR JULIAN F DU BOIS, St Paul In the last several years we have had about twelve thousand applications for entrance to our medical schools which have taken only from five to six thousand a year and specified that we must have class A schools. To the best of my knowledge there is no evaluating board to go into the credentials of foreign schools. If you take two thousand foreigners whose education cannot be verified by the American Medical Association as to the class of school, it seems to me that you are penalizing American boys. It is not the doctor of today that we should worry about. The boys who want to be doctors we have prevented from becoming doctors. You talk about putting these men out, as the refugee committee has suggested in the place of the men who are in the service, give them their work and let these men come back and get a practice, if they can. If, when a man goes into the Army and gives his all, his place should be given to some foreigner who is in tough luck, that is not my idea of Americanism.

DR WALTER E VEST, Huntington, W Va My idea was that these men are here, and we ought to train them for entrance into the American profession, that in the five years required to attain full citizenship they should serve internships in hospitals that are in need of interns. Thus they can be trained in five years to go out and do reasonable work. They certainly do not fit into American life today. I was amused at what Dr Crowe said about the use of the English language. Until very recently, at any rate, his state provided for the use of interpreters to examine foreign born physicians. That may still be on the statute books of Texas. I have known some emigre physicians who are really fine men. I have known some who were horrible and the percentage of the latter was rather high. My point of view has been developed by being a member of a licensing board for ten years and having come in contact with many emigre physicians. I think that the solution to the problem that I have presented is not unreasonable. I noticed that General Parran yesterday did not say that he would take any of these men into federal service. He suggested that they be allowed to go out into private practice but I feel that the safety of this republic now, in our hour of trial, depends on not allowing an infiltration of foreigners who may be saboteurs or spies or may be engaged in subversive activities.

DR CROWE We don't give them an examination in their own language any more. That is out.

Access to Hospital Records  
Some Legal Aspects

MR T A MCDAVITT, Chicago This paper appeared in full in THE JOURNAL, May 2, page 88.

## DISCUSSION

DR IRVIN D METZGER, Pittsburgh Since this is the only paper on matters of record, I should like to bring in the other phase of it. There are two persons concerned, as far as the accuracy of records is concerned. One is the attending physician and the other is the hospital. The attending physician is the last resort in law in respect to the accuracy of the record. Interns or others who have to do with the case are dependent on the physician who supports the record. Even the laboratory workers are responsible to the physician rather than directly responsible to the law for the accuracy of the record. It is important that the physician in charge of the case be very careful to subscribe, by signature in the records, to the findings and activities relative to the case in every respect. In our state, where record keeping has been a matter of evolution during the last twenty-eight years, we have come to emphasize certain points. One is that every person who is admitted to the hospital shall have a careful survey made of the entire physical condition, regardless of the type of service that the patient may request, so there shall be on the record every significant thing in respect to the physical condition of that patient. Again, at the close of the service in that particular case there shall be a careful survey made of the general condition. We require each physician in charge of the case to make a notation of three things: (1) the general condition on discharge, (2) the condition of the part treated and (3) the disposition of the case for future care. If the patient is discharged with no disposition indicated on the chart for future care, somebody may be held responsible. The follow-up worker each morning can go into the record room and make notes of what the doctor desires in respect to that patient in the future. It is her duty to follow up those directions. That gives specific direction to the follow-up worker's activities throughout the day and makes possible a return report to the doctor with regard to the condition of the patient.

DR W S LEATHERS, Nashville, Tenn I should like to ask a question. Speaking of the uses of patients for teaching purposes, I did not catch the exact meaning. I would infer that he was speaking of private patients. It seemed that the statement made was something of a generalization that might be misused with reference to the use, for example, of a semi-private patient. I would like a more definite statement with regard to whether or not a patient would have just rights in the use of such records.

DR CHARLES GORDON HEYD, New York At the New York Postgraduate Hospital we have had to deal with this problem. A few years ago a junior gynecologist got a blanket permission to review all the cases in that hospital. In his review he came upon a female patient who had a positive Wassermann reaction and who was to be married soon to one of his friends. He told that friend, and there was a commotion about it. I think the hospital was saved a lawsuit by nature of the complaint of the lady and by the fact that the gentleman married her anyway. We have a lot of requests from one of the junior men to review all the carcinomas of the thyroid. A committee was appointed to study this condition, and we arrived at the following conclusions. A person could have access to the charts of all so called ward service patients on the consent of the director of the service. He could not have access to semiprivate or private patients without a specific authorization from the attending physician to the record librarian. Out of that came another angle, that the director of a service might wish to evaluate or appraise the service of one of his juniors, and he, the director heretofore has been in the habit of taking all the patients of that particular individual and reviewing the charts. The committee believed that that was fundamentally illegal and wrong so it limited the ability of the director to review only the cases of this junior that were admitted to the service and the director would have to obtain the permission of his junior to review his private and semiprivate patients. An interesting condition occurs in the large city where a doctor has been the attending



physician of a patient. The patient has left him. He later wants to chisel in on the information that the hospital has obtained. He writes in and states that he was the attending physician, or he may leave the impression that he was still the attending physician and ask for the information. We have always maintained the rule at the Postgraduate that any request for such information must be legally buttressed by a signed request and authorization from the patient for the giving out of that information. Anything short of the most complete safeguards lays the institution and the attending physician open to unending possibilities of lawsuits.

MR. GEORGE E. HALL, JR., Medinah, Ill. As I understand Dr. Leathers' question it is whether or not any differentiation should be made between the records of a private patient and a semiprivate patient, as far as the use, by the hospital, of those records is concerned. In my opinion, I would say that as a general rule it is always best to get the consent of the hospital, whether the patient happens to be a private one or a semiprivate one, because even though the person is a semiprivate patient, that person still has the same legal rights, as far as protection from an invasion of his right of privacy is concerned, as any private patient would have. I think the procedure explained by Dr. Heyd illustrates that it is best to get the consent of all patients, wherever it is possible. Even then the records should be so used that the identity of the patient is not revealed, because that again would open the question of the patient's right of privacy. I thank Dr. Metzger for his view on the need for the doctor and the hospital to be most careful in making records, because in many a malpractice suit, or suit for negligence against the hospital, not only what is in the record but what has been left out is often important. Anything that the attorney for the plaintiff thought should be in there is always a fertile ground for argument to the jury.

#### The Function of the State Hospital as an Educational and Social Agency

DR. WINFRED OVERHOLSER, Washington, D. C. This article appeared in full in *THE JOURNAL*, March 28, page 1027.

#### DISCUSSION

DR. BARROW, New York. Dr. Overholser spoke of the mental hospital rendering service in a number of directions in the community. In most states there are only one, two or three mental hospitals, so that an institution would hardly be able to function over a radius sufficiently large to render service. What would he suggest, at a state level or county level, that the existing agencies might do in the direction of preventing persons who represent departures from the normal from being institutionalized? In some instances, one person in every twenty-five or thirty is spotted as presenting some kind of an emotional problem. They are not all mental cases. In those communities is the responsibility most largely in the welfare department, in the health department or in the educational department, and how might the forces be best equipped to carry forward preventive aspects of this problem?

DR. R. N. WHITFIELD, Jackson, Miss. The author stated that in Mississippi these patients are admitted into the hospital by juries. That has been the case, and perhaps the law still is on the statute book, but no patient gets into our hospital without a thorough examination by the hospital physician himself. The institution in Mississippi—and, we have two of them—cost seven and one-half million dollars and is perhaps one of the finest institutions in the United States.

DR. WINFRED OVERHOLSER, Washington, D. C. As for prevention that is a very important field. The economic necessity of it in this particular field is impressing itself in general on appropriating bodies. I question whether the average county is in a position to set up an organization which could do the job properly. Nearly every state now has state supervision rather than county supervision of the care of the mentally ill. Obviously, the campaign against syphilis is one thing which ought to be prosecuted vigorously from the psychiatric as well as the medical point of view. More important, if possible, is the attacking of the problem in the early years of the individual. It is well established that in many of the cases which get as far as the hospital, on going back into the history of the indi-

vidual one finds that there were behavior disorders in early life. A fair proportion of those certainly are amenable to some treatment and guidance. The establishment of mental hygiene clinics throughout the state is probably one of the best economies that a state can engage in, when it comes to the point of view of saving the cost of later building and in salvaging the lives of these individuals. The development of laws which permit the early admittance and the voluntary admittance of persons in the early stages of mental disorder is one that ought to be encouraged.

DR. BARROW. Which agency do you think, within the state, has the major responsibility? I am quite aware that it is widely distributed, but the agency which has the major responsibility perhaps should give leadership.

DR. OVERHOLSER. It is a strange thing that, so far as I am aware, no state has entrusted the care of the mentally ill to the health department of the state. It is extraordinary. We have the hangover of the colonial laws still, that call for the treatment of the mentally ill in the same class with paupers. We still find them cared for, in a good many places, with supervision of a department of public welfare. If a state is large enough, there ought to be a separate department, I should say, which is headed by a psychiatrist. If not that, certainly a bureau headed by a psychiatrist, I should say preferably in the department of health. I hope to see the day when this problem is going to be recognized as a medical problem instead of one of welfare. In the meantime, however, it is encouraging to know that the profession is developing a psychiatric consciousness, and it is important that all who come into contact with welfare problems should be oriented from that point of view, so at least they will recognize the sort of cases that ought to be turned over to these psychiatric clinics.

#### Acceleration of Medical Training in Canada

DR. E. STANLEY RYERSON, Toronto. Acceleration of the medical curriculum was first propounded to the deans of medical colleges in Canada in May 1941. The deans were informed by the director general of the medical services that about 10 per cent of the doctors in Canada had enlisted in the army, navy and air forces. He presented statistics of the estimated need for doctors and asked if the deans could suggest a method that would help his department to meet this demand. A shortage of doctors existed for service in the armed forces and also for civilian needs. Of the eleven thousand doctors in Canada over two thousand are now in the armed forces. The ratio of doctors to population before this depletion was one to one thousand and now is one to over twelve thousand. The need for more doctors is apparent. Requests have been received from Great Britain in both the United States and Canada for more doctors. The problem was: Could the medical schools devise a method for the graduation of doctors more rapidly?

The deans presented the following resolutions to the Director General as possible steps in meeting the demand for more doctors in the immediate future.

#### Be it Resolved

1 That, because of the shortage of doctors both for the armed forces and for civilian needs, the medical schools of Canada be requested to speed up graduation of medical students during the war emergency.

2 That hospitals in Canada be asked to accept eight months' internship in lieu of twelve months, in order to provide medical officers for military service at an earlier date.

3 That provincial licensing colleges or boards be requested to modify their regulations to permit the curriculum to be completed in a shorter time than their regulations now require.

4 That, as a considerable proportion of medical students depend for maintenance and tuition on their vacation earnings, which under the proposal would be seriously impaired, the dominion government be asked to assist in the financing of students and of the instructional staff where this is necessary.

The Director General asked the deans for an estimate of the financial assistance would be required to reimburse the university relative to its instructional staff, to finance the students and the number of students involved. Another telegram arrived stating that financial estimates submitted were such that the Faculty



of Medicine of the University of Toronto decided that the question of securing financial assistance for students or staff should not interfere with the speeding up scheme and it reaffirmed its former decision that the medical course for all years be started on August 25. The graduating class began its sessions a month earlier than usual and will sit for its final examination (which will be conducted coincidentally by the university and the medical council of Canada) at the end of March and early in April. Its members will graduate in time to enter on their internships on May 1, in which positions they will remain until December 31, when they will be released for military service.

being forthcoming. Four of the latter started their final year in July and their students will graduate, become licensed and enter on their internships three months earlier than they would ordinarily.

The adoption of such a speeded up medical course can be carried out with practically no fundamental change in the date of completion of premedical education or in the order and length and distribution of the courses.

#### Education in Industrial Health

DR STANLEY J SEEGER, M.D., Texarkana, Texas. This article appeared in full in THE JOURNAL, March 21, page 1017.

TABLE 1—University of Toronto Course Graduation Internship, Military Service

| 1941-1942   | Graduation    | Internship                | Available for Military Service |                |
|-------------|---------------|---------------------------|--------------------------------|----------------|
|             |               |                           | Speeded Up Course              | Regular Course |
| Sixth year  | April 30 1942 | May 1 1942 to Dec 31 1942 | Jan 1 1943                     | July 1 1943    |
| Fifth year  | Dec 31 1942   | Jan 1 to Aug 31 1943      | Sept 1 1943                    | July 1 1944    |
| Fourth year | July 30 1943  | Sept 1 to April 30 1944   | May 1 1944                     | July 1 1945    |
| Third year  | April 28 1944 | May 1 to Dec 31 1944      | Jan 1 1945                     | July 1 1946    |
| Second year | Dec 31 1944   | Jan 1 to Aug 31 1945      | Sept 1 1945                    | July 1 1947    |

TABLE 2—University of Toronto Course 1941-1942

| First Term       | Second Term      | Third Term           | Fourth Term         |
|------------------|------------------|----------------------|---------------------|
| Aug 25 to Nov 1  | Nov 3 to Jan 17  | Jan 19 to April 4    | April 13 to June 27 |
| Sixth year       | Sixth year       | Sixth year           | Sixth year          |
| Fifth year       | Fifth year       | Fifth year           |                     |
| Aug 25 to Oct 18 | Oct 20 to Dec 20 | Jan 5 to March 28    | April 13 to June 27 |
| Fourth year      | Fourth year      | Fourth year          | Fifth year          |
| Third year       | Third year       | Third year           | Fourth year         |
| Second year      | Second year      | Second year          | Third year          |
|                  |                  | March 30 to April 11 |                     |
|                  |                  | Vac                  |                     |
|                  |                  | Vac                  |                     |
|                  |                  | Vac                  |                     |

TABLE 3—University of Toronto Course Progress of Each Class

|  | First Term  | Second Term  | Third Term                                | Fourth Term  |
|--|---|--|---|--|
| 1941-42                                  | Sixth year  | Sixth year   | Sixth year<br>Graduation<br>April 30 1942 |  |
| 1941-42<br>1942-43                       | Fifth year<br>Sixth year                              | Fifth year<br>Sixth year<br>Graduation<br>Dec 31 1942                              | Fifth year                                | Sixth year   |
| 1941-42<br>1942-43                       | Fourth year<br>Fifth year                             | Fourth year<br>Fifth year  | Fourth year<br>Sixth year                 | Fifth year<br>Sixth year<br>Graduation<br>July 30 1943                 |
| 1941-42<br>1942-43<br>1943-44            | Third year<br>Fourth year<br>Fifth year               | Third year<br>Fourth year<br>Sixth year  | Third year<br>Fifth year<br>Sixth year    | Fourth year<br>Fifth year<br>Sixth year<br>Graduation<br>April 30 1943 |
| 1941-42<br>1942-43<br>1943-44<br>1944-45 | Second year<br>Third year<br>Fifth year<br>Sixth year | Second year<br>Third year<br>Fifth year<br>Sixth year<br>Graduation<br>Dec 31 1944 | Second year<br>Fourth year<br>Fifth year  | Third year<br>Fourth year 3T<br>Sixth year                             |

In table 1 the schedule for the five years now in attendance at the University of Toronto is shown indicating the dates of graduation of the internship and of being available for military service, under the speeded up course, and under the regular course.

In table 2 the dates of the four terms in the University of Toronto course are shown for the session 1941-1942, the regular curriculum for each class being completed during the first second and third terms by the end of March, and the curriculum of the first term of the next succeeding year between April 13 and June 27. In the fourth, third and second years a two weeks vacation is given after final examinations before starting on the work of the fourth term.

In table 3 the progress of each class is shown from its beginning on Aug 25 1941 up to the date of graduation.

This accelerated scheme was adopted only by the University of Toronto, the other schools with the exception of McGill which already has a thirty-six week session being unable to do so owing to financial assistance for their students and staff not

#### The Integrated Course in Anatomy

DR B I BURNS, New Orleans. Modifications in the curriculum of the medical schools during the past twenty-five years have brought much criticism of the standard course in anatomy. The clinical teachers feel that the presentation of the subject has become too academic and that the student's effort is not directed in such a manner as to give a foundation knowledge of the structure of the body which adequately supports his practical training. Realization of some of the defects in the training offered medical students led the staff of the Department of Anatomy of Louisiana State University to consider integrating the four courses in anatomy (gross anatomy, histology, embryology and neuroanatomy) into one course in the hope of providing better opportunities for correlation of anatomy with function and with the clinical fields. The idea was not original. Hooker and his colleagues at the School of Medicine of the University of Pittsburgh abandoned the teaching of separate courses in 1924 and began the experiment of a single

correlated course in anatomy. In each school in which it has been attempted, the integrated course has been proclaimed an unqualified success. Our experiment with it has been under way for seven years. The difficulties of organizing an integrated course in anatomy are largely concerned with determining the proper sequence of various phases of the study. The order is simple, but it calls for the preparation of a laboratory outline, a laborious task. The guiding principle calls for complete gross and microscopic study of a part at one time rather than gross study today and microscopic study two or three months hence. The course begins with a microscopic study of early embryology and the structure of the primary tissues. This training lays the foundation for the microscopic study of the structure and development of any organ. At its conclusion, dissection of the body is begun and from this point the gross study sets the pace for the microscopic. At the opportune time during the gross study of a structure, a laboratory period is scheduled for the study of its microscopic structure and its embryology.

The first seven chapters of the laboratory outline consist of directions for the study of early embryology and the primary tissues. This phase of the study constitutes the first division of the course. The early embryology presentation consists of a study of the development of the fertilized ovum through the formation of the primary germ layers and the fetal membranes. The second division of the course consists in a study of the upper extremity and back. Preceding the beginning of the gross study of this or any other region the student is stimulated, through occasional lectures and frequent quizzes, to familiarize himself with the osteology concerned. The initial laboratory period is devoted to a thorough study of surface landmarks with emphasis on their practical significance. The study of the skin is begun with its gross consideration and reflection of it over the pectoral region. This gross study is followed by the microscopic study of the structure of the skin, skin glands and hair. Next in order is the consideration of the superficial fascia which is reflected. During this procedure the mammary gland and axillary lymph nodes are exposed and studied grossly and finally microscopically. As the dissection progresses, nerves and blood vessels are soon encountered for the first time and are studied microscopically. There is no very good reason for beginning the dissection of the body with the upper extremity. It may be begun anywhere, depending on the whims of the instructional staff but, once it is begun, the accompanying histologic and embryologic studies must be assigned in proper order.

One question frequently raised regarding the integrated program has to do with the amount of time saved. Our experience has not indicated an economy of time in the form of reduction in the total number of hours which may be devoted to the study of anatomy. Perhaps such a course could be organized and conducted in such a manner as to conserve time to some extent. No such objective was contemplated in our course plan. Such an accomplishment could be effected only by avoidance of repetition. Teachers of anatomy will probably agree that frequent recapitulation of ground covered in such a course is desirable if important facts are to be retained. One great advantage in the integration method is that it provides frequent opportunities for recalling knowledge previously gained and correlating it with that based on the study immediately at hand. Repetition becomes a fascinating procedure for teacher and student, and the possibilities offered for accomplishing it in a more natural manner constitute one of the chief advantages of the method. Complete correlation of structure with function and clinical consideration is impossible until all the information regarding the anatomy of the part in question is at hand. Therefore many opportunities for intelligent teaching and study are provided in the integrated course that cannot be found in any other method of approach. By no other means can the sort of consideration be given to the study of an organ or part that simulates the mental approach the practicing physician must adopt. I have never heard an unfavorable evaluation of the method by a teacher or student who has participated in it. Participation in the teaching of such a course requires a teaching knowledge of all the phases of the subject. Each member of the staff must be a complete anatomist. This requirement

constitutes one of the great advantages of the method. The organization and conduct of the integrated course present no serious problems.

#### DISCUSSION

DR THOMAS J. CROWE, Dallas, Texas. Anatomy is one of the most neglected subjects of the college curriculum. I have asked many a recent graduate to give the name of the only spinal nerve which enters the viscera of the body, and I have failed to find one who could.

### THE FEDERATION OF STATE MEDICAL BOARDS

FEBRUARY 17—AFTERNOON

DR J. EARL MCINTYRE, Lansing, Mich., Presiding

#### Industrial Health as Related to Licensure

DR C. O. SAPPINGTON, Chicago. Within the last year the Medical Education Committee of the American Association of Industrial Physicians and Surgeons has presented a report of a plan for the study of industrial hygiene and medicine in medical schools, with an outline of courses for undergraduate students. This report has been accepted by the board of directors of the American Association of Industrial Physicians and Surgeons and has been sent for further consideration to the American Medical Association. The dearth of trained industrial physicians has been disclosed in the evaluation of the available personnel for industrial uses during the war, through the Medical Preparedness Committee of the American Medical Association. At the annual meeting of the American Conference on Industrial Health in November 1941 Dr Rosco G. Leland, Director of the Bureau of Medical Economics of the American Medical Association, presented figures on the availability of industrial physicians and surgeons. Among 157,000 physicians who returned questionnaires, 11,300 received schedules asking for specific information concerning their activities in industrial practice. Of these about 7,500 have returned the special schedules pertaining to industrial practice, and of these 5,700 have been processed for punch cards and about 4,000 have been run through the machines, making the following figures available: 2,967 were engaged in general industrial practice, 617 were engaged in traumatic surgery, 139 were occupied in plant medical department administration, 24 in occupational disease control, 24 in governmental industrial hygiene administration, 49 in workmen's compensation administration, 35 in private industrial hygiene as private industrial hygiene consultants, 17 in industrial toxicology, 18 in casualty insurance administration, 5 in industrial hygiene teaching and 4 in health education of employees.

In the next edition of the American Medical Directory, listed with other specialties will be the specialty of industrial practice. Heretofore industrial surgery has been listed as a specialty, leaving, however, the medical and the industrial hygiene phases without a category in which to be placed unless one chooses to be listed as a specialist in public health. This change is encouraging.

Some of the reasons why a relative minority has been attracted to industrial practice are: 1. Lack of applying a uniform plan for adequate undergraduate instruction in industrial subjects in recognized medical schools. 2. Continued abuses over many years in industrial practice, by persons of unrecognized standing, consequent on the absence of official regulation and standards for qualification, this naturally resulted in commercial exploitation. 3. The habit of well meaning general practitioners using supplementary industrial practice as a "stepping stone" until private work reached the desired volume. 4. The apathetic public reaction, reflected in slow recognition of the necessity to the passage of industrial health legislation.

Some difficulties in teaching undergraduates and physicians the fundamentals of industrial hygiene are found in the necessity of the application of industrial hygiene engineering and chemistry to the problems of prevention and in the investigation of occupational disease claims. These difficulties are not insurmountable. Already a considerable number have become sufficient

well grounded in these technical subjects to give instruction both to undergraduate students and to practitioners in the field. A notable example of postgraduate education of the 'refresher' type was conducted during the past year by the Iowa State Department of Health under the direction of Dr. Walter Bierring. In nine cities specially selected in Iowa there were afternoon and evening meetings on industrial health subjects, varying from consideration of wounds and orthopedics through industrial toxicology, industrial hygiene engineering, the administration of health services in industry and problems of medicolegal importance. Those present believed this a successful method of bringing to the general practitioner fundamental information on these subjects, instead of expecting him to attend meetings at a distance voluntarily.

As to licensure, questions relative to industrial hygiene and occupational diseases have been asked in state board examinations. Dr. Harold Rybins in his book on "Medical State Board Examinations," devoted four pages to industrial hygiene and allied subjects. A rational basis for the solution of this problem involves medical education of undergraduates and practitioners. As desirable as it might be to include questions in state board examinations relative to industrial health, it would be unfair to do so unless organized instruction had been previously given to those who take the examinations. It is suggested that consideration be given to the appointment of a committee on the teaching of industrial health, which could study the problem and make working recommendations to medical schools, examining boards and qualifying groups.

#### DISCUSSION

DR. WALTER BIERRING, Des Moines, Iowa. Dr. Sappington is emphasizing the necessity of incorporating in the examinations of candidates for licensure questions regarding industrial hygiene, occupational disease and industrial health. It takes sixteen men working in industry to support one man at the front, and to keep these industrial workers well is most important in national defense today. The men who are now coming out to practice are efficient in the knowledge of industrial hazards, exposures of various kinds. Their knowledge of occupational disease is lacking. We should recognize that industrial hygiene, occupational disease and industrial health are a most important part of the practice of medicine.

#### Licensure Problems in the District of Columbia

DR. GEORGE C. RUHLAND, Washington, D. C. A Commission on Licensure was created by act of Congress on Feb. 27, 1929 to regulate the practice of the healing art in the District of Columbia. The act provides that the following shall be members of the commission: the president of the Board of Commissioners, the United States Commissioner of Education, the United States District Attorney, the Superintendent of Public Schools and the health officer, who functions as secretary-treasurer. The commission members serve without compensation. The commission being four fifths a lay body, has on occasion adhered so closely to the wording of the law that well qualified physicians were denied licenses. The act required all licentiates of the former Board of Medical Supervisors and all drugless healers to be licensed. Prior to 1929, drugless healers were not licensed in this jurisdiction, and probably because of this all healers were required to be licensed under the new law. Drugless healers were licensed on the basis of practice prior to the passage of the act. Since that time all have been required to pass the basic science examination as a condition precedent to admittance to the professional examinations.

There are three methods by which a person may obtain a license to practice medicine in the District of Columbia: examination, reciprocity and endorsement of the National Board diploma. Graduation from an approved American or Canadian medical school and one year's internship in a class A hospital are a condition precedent to admittance to the District of Columbia medical examination. The examination is written and lasts four days. A person seeking a District of Columbia reciprocal license is required to satisfy the reciprocal requirements set forth in the act. The applicant must be over 21 years of age, of good moral character and a graduate of an approved medical school. He must also have been licensed by regular

written examination, show practice the last two years under authority of the license used as a basis for seeking reciprocity and must satisfy the commission that the jurisdiction whence he comes grants like privileges to licentiates of the District of Columbia. Federal service may be offered in lieu of private practice. The commission investigates the record of all applicants for local licensure so that only well qualified physicians with clear records are admitted to local practice. A diplomate of the National Board of Medical Examiners is eligible to apply for license on the basis of the National Board diploma, the commission procures the diplomate's first and second papers from the National Board and in turn refers them to its basic science and medical examining boards. On the examining boards' favorable recommendation the commission may issue a license without examination. The act provides for the registration of commissioned surgeons of the United States Army, Navy or Public Health Service or medical officers in any other branch of the federal government in the discharge of their official duties. Such registration is effective only as long as the officer's official status remains unchanged. The act also provides for the registration of physicians in adjoining states who have occasion to treat or hospitalize a few specified patients in the District of Columbia. This registration does not permit the holder thereof to open an office or do a general practice in this jurisdiction. The act exempts massage, dietetics and physical therapy if done under the direction of a person licensed to practice the healing art in the District of Columbia.

I want to call attention to Mr. Foley's work in clearing up the classified section of the Washington telephone directory. In conjunction with officials of the telephone company he succeeded in reducing the number of unlicensed persons listed under "Physicians and Surgeons, M. D." from seventy-five to four. Over a hundred cases have been investigated by this office, with numerous prosecutions.

At present the ratio of practitioners to population is 1 to 228, this figure includes federal physicians, based on an estimated population of 770,000. The District of Columbia has 2,138 licensed medical doctors, 848 federal physicians and 375 osteopaths, chiropractors and naturopaths.

When the act was passed in 1929, no provision was made for annual registration. The commission is self supporting in the sense that revenue is derived solely from application fees. There has been a decrease in applicants since the national emergency and a drop in funds to maintain properly the office of secretary-treasurer. Another problem is the physician who appeals to Congress for a special bill to permit him to practice in the District. Because special acts of Congress are a matter of public record, some graduates of second and third rate medical schools got the idea that a special bill should be introduced in their behalf. They knew they were not eligible for admittance to the local medical examination or eligible for reciprocal licensure, but that did not make any difference. They 'camped on the Hill' and not long thereafter a special bill appeared authorizing and directing the commission to issue the license. In some instances the individuals applied to the commission first, in other instances they just didn't bother. Why take the time to get in touch with the licensing agency when they were going to be licensed by special act of Congress anyway? It is fortunate that these bills are referred to the District of Columbia Board of Commissioners and in turn referred to the commission. We oppose the special bills as a matter of principle and in each instance point out the applicant's lack of qualifications and request Congress to let the commission pass on applicants entirely on their merits.

There is pending in Congress a bill to require annual registration and another requiring citizenship as a condition precedent to licensure in the District of Columbia. One foreign physician applied for a reciprocal license, and his application was rejected twice on its merits. He appealed to Congress, and the commission was authorized and directed to issue him a license. By special legislation he was granted a privilege denied American citizens who failed to satisfy local licensure requirements. The national emergency may necessitate a broader interpretation of rules and regulations dealing with medical licensure. The commission, however, will not relax its standards and will insist at

all times that a person licensed to practice the healing art in the District of Columbia be well trained and a man of good moral character

### Have Basic Science Medical Laws Advanced the Skill of Doctors or Improved the Public Health?

DR T J CROWE, Dallas, Texas I can't understand how two examinations for license can possibly be of help to anybody except the incompetents, whom they dignify and with licensure embolden to extend their pernicious practices I've wondered why the framers of the basic science acts did not realize that the drugless healer's colleges could give their students "quiz compend or Goepp courses" sufficient to pass the five subjects before a nonmedical board of examiners, by whom no practical laboratory tests are given

What's the use? 'Twill be only a few months, at most, until some "smart guy" discovers that all physical and mental ills of mankind emanate from "a kinked little toe" or that anterior subluxation of "Adam's apple" is enemy number 1 of the human family, when the mob will flock to them, and we'll have all to do over again Only in healing would such burlesque be tolerated for a single hour, unless the fellow who said "Life is just one damn thing after another" was right

I'm amazed that the church people haven't taken up the basic science idea and asked for a statute requiring that all atheists and infidels shall study and pass examinations in the ten commandments and the Lord's prayer, that the A's and I's shall be the better prepared to deny and to blaspheme their creator

After fifty years' experience with the sick, I'm of the opinion that all persons must be protected against their own lack of information or judgment in matters involving technical skill, as well as against deception and imposture by public servants The state owes to its people to enforce "one" safely high, uniform standard for the issuance of license to make a living off the misfortunes of the sick Every doctor, regardless of method, must be a competent diagnostician Every doctor should know all that may be learned in a reasonable period of years of study and training under the tutorage of recognized, competent instructors Regardless of his methods, every doctor must be educated and adequately trained but above all he must be a competent diagnostician

I cannot understand why the public and the reputable medical profession should not maintain and enforce beneficent, scientific principles and technics and not give licensure to every racketeer with a theory of the cause of diseases and a ridiculous manipulative cure for them Texas has maintained since 1907 a single standard for all who would engage in the treatment of the sick, regardless of school of graduation or method of practice All must be measured by the same yardstick, and all who measure up to the specifications are citizens and graduates of reputable colleges and are given identical privileges of licensure to practice medicine and surgery by any method not in conflict with the criminal statute and this is as it should be the world over We've had to fight through every session of our legislature to maintain it Except for its definition, which I've tried many times to have amended, the Texas medical practice act is the most consistently impartial medical law of the United States We tried the multiple practice acts, multiple boards and multiple limited licensure from 1901 to 1907, when we found we had developed a multiplied chaos which we could no longer tolerate The present amended act eliminated that system

### DISCUSSION

DR CARL G PATTERSON, Baker, Ore If they will adopt a basic science law in Texas they won't have that trouble We have tried it in Oregon for six or eight years During that time we have not a single chiropractor or naturopath who has passed that examination That should be sufficient recommendation for continuing the basic science law in Oregon

CHARLES CARTER, PH D, Fairfield, Iowa We have had a basic science law in Iowa since 1935 There are many improvements to be made in the basic science law which we have in Iowa The basic science is a screen which takes out a good many that never come before the licensing boards The basic science board in Iowa is not a licensing board in any sense It seemed to me that Dr Crowe had that idea in his discussion

DR JULIAN F DU BOIS, St Paul In 1927 Minnesota passed her basic science law At that time we had about 300 osteopaths and 600 chiropractors We now have 160 osteopaths and 300 chiropractors Prior to 1927 our average five year period was licensing 46 chiropractors We have no brief with Dr Crowe on his chiropractors but the subject was basic science In Minnesota it has worked

O E MADISON, PH D, Detroit Our law in Michigan was passed in 1937, but one of the other branches of it, the chiropractors and osteopaths, brought suit against the board to declare it unconstitutional So it didn't get to functioning until 1939 I agree with the doctors from Iowa and Minnesota that it serves as a screening affair, to keep out those who might otherwise get in We are trying in Michigan to work out a means whereby we can get more cooperation between the various boards, that is, the state board of examination in chiropractic and osteopathy and medicine, whereby the chiropractic people and the osteopathic people will realize from the beginning that they are up against something If it doesn't do anything more than strengthen the kind of work that is given in those subjects in the various schools, it will have served a helpful purpose

DR J W BOWERS, Fort Wayne, Ind Last year I gave a paper on this subject, and there was a committee of the basic science boards that promised to give a reply this year on reciprocal relations So far I have not heard anything about that I am afraid we are throttling the medical profession in order to inhibit certain cults or irregular practitioners to our own disadvantage Each person who qualifies medically takes the basic science subjects before his respective state medical board If he does this once, it ought to suffice for life He should not be required to repeat these examinations in the basic science subjects any more than he should take the examination in all the clinical subjects If we are going to have the basic science subjects, let's reciprocate with the medical doctors or those who do take the sciences, when they desire to go from one state to another I defy the average medical man who has been in practice for fifteen to twenty-five years to pass these basic science examinations To take these examinations every time they might desire to reciprocate from one state to another would be practically an impossibility with the average practitioner of medicine

DR CARTER At the last meeting there was a motion made to establish a committee but for some reason that information was never conveyed to any members of our basic science boards Therefore when he says that has not come from the board it is because we have had no official notice of it

PRESIDENT MCINTYRE That is true, Dr Carter They were invited to attend this meeting in the hope that they might perfect their own basic science organization, whereby it would eliminate the retaking of basic science board examinations by the medical men who were reciprocating from one state to another We hope that you men of the basic science boards will perfect this organization I believe the federation would agree in extending to you an invitation to come back next year and have a representation from each basic science board We hope that you will perfect that organization

DR CARL G PATTERSON, Baker, Ore As I remember, last year a motion was made that the secretary of this federation extend to the representatives of the sixteen basic science boards an invitation to be present at this federation meeting I move that that invitation be extended to the representatives of the basic science boards to meet with us next year

DR DU BOIS I second it

DR T P MURDOCK, Meriden, Conn I am not a member of the healing arts board in Connecticut but I am familiar with the operation of the law in Connecticut We were the second state in the United States to adopt a basic science board. A provision was placed in the law covering the situation that has been discussed this afternoon The law provides that a man who has been in practice in another state for three years may be certificated by the healing arts board without examination A man who has been in practice in another state for a period of five years need not appear for certification or examination before the healing arts board After seventeen years or 13

science board in Connecticut, we are thoroughly sold on it. We believe it screens not only poor practitioners of our own but also screens very carefully all the members of cults.

[The question was put to a vote and carried.]

DR CROWE I had no idea that the basic science was a licensing board. I mentioned the fact that they had to take two examinations for license to practice. I have heard it said that some of these boards, since they have organized the basic science board, haven't licensed a single chiropractor. We have never issued a chiropractic license, still we have men who are not licensed and are practicing in violation of the law, and you are not convicting them. If we have a medical science that is worth defense why give some fellow a living to fool people every day? Wisconsin adopted basic science and left bacteriology out of it absolutely. Worst of all, they have all left diagnosis out. If we are protecting the public, let's do it. The basic science law was not called for by the public. It was called for by the medical doctors. Diagnosis means something to the public, and we should have diagnosis in our basic science. I am against having more than one license certificate.

#### Revision of Constitution and By-Laws

PRESIDENT MCINTYRE The next item is the consideration of the revision of the Constitution and By-Laws of the Federation of State Medical Boards of the United States.

DR I. D. METZGER, Pittsburgh I move that they be adopted as proposed.

DR WHITFIELD (Mississippi) I second the motion.

DR PATTERSON I move to amend the motion so that section 3 shall read as follows:

All the individual members of each state medical board member are ex officio fellows of this federation so long as they legally are members of such state medical board.

C. B. BLAKESLESS, Indianapolis I second that motion.

PRESIDENT MCINTYRE All in favor of the amendment will say 'aye'. The motion is carried.

PRESIDENT MCINTYRE The Constitution and By-Laws as amended are declared adopted.

#### GENERAL DISCUSSION

DR WILLARD C. RAPPLEYE, New York I regret I wasn't here yesterday on account of the discussion regarding the accelerated program. We are deeply appreciative of the action taken by your federation in support of our desire to participate in this national emergency program. Sixty of the medical schools already have signed up to do it, three have indicated that they will not be able to accelerate, two of them have good reasons and one doesn't. The great majority of the schools are prepared to do their part in the national emergency.

DR WALTER BIERRING, Des Moines, Iowa Then you would change matriculation to 'from beginning instruction to graduation'?

DR RAPPLEYE The thirty-six months bother us. Matriculation, in the university sense, is the beginning of instruction. Matriculation, as now announced by the War Department in the granting of commissions in the Medical Administrative Corps is any time that the student is accepted and pays a fee. A fee of \$1 is all that is necessary for him to become a matriculated student. Therefore he can matriculate nine months in advance of his beginning instruction. We don't want to have any confusion with your boards about that, because there is a technicality there some of them would pick up. Our idea would be that your thirty-six months period should be from the period of the beginning of instruction of the first year of medicine until the actual signing of the diploma.

DR R. N. WHITFIELD, Jackson, Miss I move that we change these phrases to conform to Dr Rapple's suggestion.

DR METZGER I would like to second that.

DR RAPPLEYE Is it not true that there are states that could not legally recognize a diploma granted thirty-five and one-half months after instruction?

DR BIERRING Yes, two states and the District of Columbia.

DR RAPPLEYE So it is up to us to change all diplomas to make sure that the dating of no diploma is less than thirty-six months after the beginning of instruction in the first year.

## Medical Examinations and Licensure

### COMING EXAMINATIONS AND MEETINGS

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE  
CHICAGO Feb 15-16 1943 Sec Council on Medical Education and Hospitals Dr H. G. Weiskotten 535 North Dearborn Street Chicago

#### NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in THE JOURNAL May 2, page 102.

#### BOARDS OF MEDICAL EXAMINERS

ALABAMA Montgomery June 16-18 Acting Sec Dr B. F. Austin, 519 Dexter Ave. Montgomery  
ARKANSAS \* Medical Little Rock June 4-5 Sec Dr D. L. Owens, Harrison Electric Little Rock June 4-5 Sec Dr Clarence H. Young, 1415 Main St. Little Rock  
CALIFORNIA Written San Francisco June 29-July 2 Oral examination (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California) Los Angeles May 20 Sec Dr Charles B. Pinkham 1020 N. St., Sacramento  
CONNECTICUT \* Medical Hartford July 14-15 Endorsement Hartford July 28 Sec to the Board Dr Creighton Barker 258 Church St., New Haven Homoeopathic Derby July 14-15 Sec Dr Joseph H. Evans 1488 Chapel St. New Haven  
DELAWARE Dover July 14-16 Sec Medical Council of Delaware, Dr Joseph S. McDaniel 229 S. State St. Dover  
FLORIDA \* Jacksonville June 22-23 Sec Dr William M. Rowlett Box 786 Tampa  
GEORGIA Atlanta June Sec State Examining Boards Mr R. C. Coleman 111 State Capitol Atlanta  
HAWAII Honolulu July 13-16 Sec Dr James A. Morgan 55 Young Bldg. Honolulu  
ILLINOIS Chicago June 23-25 Superintendent of Registration, Mr Philip M. Harman Department of Registration and Education Springfield  
INDIANA Indianapolis June 16-18 Sec Board of Registration and Examination Dr J. W. Bowers 301 State House Indianapolis  
IOWA \* Iowa City May 11-13 Dir Division of Licensure and Registration Mr H. W. Greife Capitol Bldg. Des Moines  
KANSAS Kansas City June 2-3 Sec Board of Medical Registration and Examination Dr J. F. Hassig 905 N. Seventh St., Kansas City  
KENTUCKY Louisville May 27-29 Sec State Board of Health Dr A. T. McCormack 620 S. Third St. Louisville  
MAINE Augusta July 7-8 Sec Dr Adam P. Leighton 192 State St. Portland  
MARYLAND Medical Baltimore June 9-12 Sec Dr John T. O'Mara 1215 Cathedral St. Baltimore Homoeopathic Baltimore June 16-17 Sec Dr John A. Evans 612 W. 40th St. Baltimore  
MASSACHUSETTS Boston July 14-17 Sec Dr H. Q. Gallupe 413 F State House Boston  
MICHIGAN \* Ann Arbor and Detroit June 3-5 Sec Board of Registration in Medicine Dr J. Earl McIntyre 2024 Hollister Bldg. Lansing  
MINNESOTA \* Minneapolis April 21-23 Sec Dr Julian F. DuBois 230 Lowry Medical Arts Bldg. St. Paul  
MISSISSIPPI Jackson June 24-25 Assistant Sec State Board of Health Dr R. N. Whitfield Jackson  
MISSOURI St. Louis June 4-6 Sec Board of Health Dr James Stewart State Capitol Bldg. Jefferson City  
NEW HAMPSHIRE Concord Sept 10-11 Sec Board of Registration in Medicine Dr T. P. Burroughs State House Concord  
NEW JERSEY Trenton June 16-17 Sec Dr Earl S. Hallinger 28 W. State St. Trenton  
NEW YORK Albany Buffalo New York and Syracuse June 22-25 Chief Bureau of Professional Examinations Mr Herbert J. Hamilton 315 Education Bldg. Albany  
NORTH CAROLINA Raleigh June 1-5 Sec Dr W. D. James Hamlet  
NORTH DAKOTA Grand Forks July 7-10 Sec Dr G. M. Williamson 4 1/2 S. Third St. Grand Forks  
OHIO Written Columbus June 16-17 Sec Dr H. M. Platter 21 W. Broad St. Columbus  
OKLAHOMA \* Oklahoma City June 3-4 Sec Dr James D. Osborn Jr. Frederick  
OREGON \* Portland July 22-24 Application must be on file not later than July 9 Exec. Sec Miss Lorraine M. Conlee 608 Failing Bldg. Portland  
PENNSYLVANIA Philadelphia and Pittsburgh July Act Sec Bureau of Professional Licensing Mrs. Marguerite G. Steiner 358 Education Bldg. Harrisburg  
SOUTH CAROLINA Columbia June 22-24 Sec Dr A. Earle Boozer 505 Saluda Ave. Columbia  
SOUTH DAKOTA \* Pierre July 21-22 Dir Medical Licensure Dr J. F. D. Cook State Board of Health Pierre  
TENNESSEE Knoxville Memphis and Nashville June 17-20 Sec Dr H. W. Qualls 130 Madison Ave. Memphis  
TEXAS Dallas June 4-6 Sec Dr T. J. Crowe 918 20 Texas Bank Bldg. Dallas  
UTAH Salt Lake City June 29-30 Assistant Dir Department of Registration Mr G. V. Billings 324 State Capitol Bldg. Salt Lake City  
VERMONT Burlington June 16-18 Sec Board of Medical Registration Dr F. J. Lawless Richford  
VIRGINIA Richmond June 17-20 Sec Dr J. W. Preston 30 1/2 Franklin Rd. Roanoke  
WEST VIRGINIA Charleston July 6-8 Commissioner Public Health Council Dr C. F. McClintic State Capitol Charleston  
WISCONSIN \* Milwaukee June 30-July 3 Sec Dr H. W. Shutter 425 E. Wisconsin Ave. Milwaukee  
WYOMING Cheyenne June 1-2 Sec Dr M. C. Keith Capitol Bldg. Cheyenne

\* Basic Science Certificate required

#### BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARIZONA Tucson June 16 Sec Mr Franklin E. Roach Science Hall University of Arizona Tucson  
ARKANSAS Little Rock May 23 Sec Mr Louis E. Gefauer 701 Main St. Little Rock



CONNECTICUT June 13 Address State Board of Healing Arts, 1945  
Yale Station, New Haven

FLORIDA Gainesville, June 8 Applications must be on file not later  
than May 23 Sec, Professor J T Conn, John B Stetson University,  
De Land

MICHIGAN Ann Arbor and Detroit, June 12 13 Sec, Miss Eloise  
LeBeau, 101 N Walnut St, Lansing

NEBRASKA Omaha, June 8 10 Dir, Bureau of Examining Boards,  
Mrs Jeannette Crawford, 1009 State Capitol Bldg, Lincoln

NEW MEXICO Springer, June 12 Sec, Miss Pia Joerger, State  
Capitol, Santa Fe

OKLAHOMA Oklahoma City, May 15 Sec, Dr Oscar C Newman,  
Shattuck

OREGON Corvallis, July 11 Application must be on file not later  
than June 24 Sec, Mr Charles D Byrne, University of Oregon, Eugene

RHODE ISLAND Providence, May 20 Chief, Division of Examiners,  
Mr Thomas B Casey, 366 State Office Bldg, Providence

SOUTH DAKOTA Vermillion, June 5 6 Sec, Dr G M Evans Yankton

WISCONSIN Milwaukee, June 6 Sec, Prof Robert N Bauer, 3414  
W Wisconsin Ave, Milwaukee

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Workmen's Compensation Acts Right to Require Claimant to Submit to Physical Examination**—The workmen's compensation act of Virginia provides that a child over the age of 18 is presumed to be totally dependent if physically or mentally incapacitated from earning a livelihood. After her father had died as the result of an accident during his employment with the defendant employer, the claimant, a 26 year old unmarried daughter of the deceased, filed a petition for compensation under that provision. Prior to a hearing, the claimant was ordered by the industrial commission to submit to a physical examination by two physicians selected by the defendant's insurance carrier, also a defendant in this proceeding. The examination was made over the objections of the claimant. At the hearing these physicians testified that the claimant's heart and lungs were normal and that she was able to do ordinary work, such as clerking in a store. Such work, they said, would be beneficial to her. The claimant called as witnesses two physicians who testified that her blood pressure was low and her pulse rate high, that her heart showed signs of muscular weakness and enlargement and that her lungs showed areas of calcification. The claimant was, in their opinion, physically unable to work at any gainful occupation. From an order denying compensation, the claimant appealed to the Supreme Court of Appeals of Virginia.

The claimant contended that the commission had no authority to compel her to submit to a physical examination and that the testimony of the insurer's physicians was therefore inadmissible. The only provision in the workmen's compensation act having anything to do with physical examinations is section 64. It provides that the commission or any member thereof may, on the application of either party or on its own motion, appoint a disinterested and duly qualified physician to make any necessary medical examination of an employee and that the physician so appointed may testify as to his findings. While the claimant was not an employee within the meaning of this section, the court indicated that it is clearly the modern trend for a court to require a plaintiff in an action to recover damages for personal injuries to submit before trial to a reasonable physical examination by competent physicians when such examination is necessary. The right so to order is within the inherent discretionary power of a court in order to prevent the perpetration of a fraud by feigned personal injuries. But, said the court, the better rule is that unless consent is given to the examination the court should designate an impartial and disinterested physician, not one selected by the defendant. Here the commission compelled the claimant to submit to a physical examination by physicians chosen by the defendant's insurance carrier. In doing so, it erred. Their testimony excluded, the evidence was uncontradicted that the claimant was physically incapable of earning a livelihood. The court therefore reversed the order denying compensation and remanded the cause to the commission for the awarding of proper compensation.—*Basham v R H Lowe, Inc*, 11 S E (2d) 638 (Va, 1940)

**Workmen's Compensation Acts Death from Unintentional Poisoning Following Industrial Injury**—In November 1935 an employee while in the employ of the defendant sustained an industrial injury which necessitated the amputation of the terminal phalanx of the great toe six months later. Postoperative treatment continued until June 16, 1936, when he was discharged by his physician. A few days thereafter the employee experienced pain in his right foot and leg and during the day he took sedative tablets which the physician had prescribed. The pain continued during the night and through mistake a mercury bichloride tablet was taken instead of a sedative tablet. Death followed within five days and was concededly due to mercury bichloride poisoning. His widow, the claimant, filed a petition for compensation under the New York workmen's compensation act. An award was eventually granted by the state industrial board which was affirmed by the supreme court, appellate division (11 N Y S (2d) 849, 19 N Y S (2d) 901, J A M A 115 156 [July 13] 1940), on the finding, in effect, that the industrial injury caused the pain and that the attempt to alleviate the pain resulted in the mistaken choice of tablets and ultimate death. The insurance carrier and the employer appealed to the Court of Appeals of New York.

The Court of Appeals could find no evidence that the accident and the amputation which followed were sufficient to derange the employee's mind or affect his eyesight. He had suffered pain throughout the day preceding his fatal mistake, but proof of pain alone does not permit the implication that such a derangement had taken place as would have caused him to make the mistake which took his life. It was not disputed, the court said, that an independent act by the employee intervened to cause his death. His fatal act of taking internally a mercury bichloride tablet, instead of the mild sedative prescribed for his use, did not relate itself to the accident which he sustained in November 1935. Following such independent act there remained intact no chain of causation between the accidental injury and the fatal consequences of the mistake. Finding no evidence that the employee's death resulted from an accidental injury arising out of and in the course of employment, the Court of Appeals reversed the judgment of the lower court and vacated the award in favor of the claimant.—*Brown v New York State Training School for Girls*, 32 N E (2d) 783 (N Y, 1941)

**Compensation of Physician Liability of Employer and Insurance Carrier in Common Law Action to Recover for Medical Services Rendered Employee**—The plaintiff, a physician, brought a common law action of assumpsit against the defendant employer and his insurer. He alleged that one Marks was injured in the course of his employment with the defendant employer and retained him to treat his injuries, that a few days subsequently the defendant employer and his insurer, the other defendant in the action, authorized him to continue his care and treatment of the employee and promised to compensate him adequately for all treatment and care he might render, and that, relying on such promise, he performed certain services of a stated value for which the defendants had refused to pay. The defendants filed a pleading which, in the opinion of the Supreme Court of Rhode Island, in effect, was either a plea in bar or amounted in substance to a demurrer, alleging that the action should be abated because the physician was attempting to enforce at common law a claim that properly could be enforced only under the workmen's compensation act of Rhode Island. The trial court sustained the defendants' plea and abated the action, and the physician appealed to the Supreme Court of Rhode Island.

In support of their contention that recovery could be had against them only under the workmen's compensation act, the defendants relied on *Henry v American Enamel Co* 48 R I 113, 136 A 3. In our opinion, said the Supreme Court, the defendants' contention is not sound. The *Henry* case cited by them is not applicable to the facts and circumstances of this case as set out in the plaintiff's declaration. In the *Henry* case the court held, in substance, among other things, that the workmen's compensation act permitted an injured employee to select his own physician, that by force of that statute alone and entirely apart from any act or consent of the employer.

the latter became liable to a physician for his fees up to a specified amount under certain conditions and limitations, that the workmen's compensation act created a new right in favor of a physician against an employer, a right having no existence or enforceability apart from the act which provided for a method of enforcement, and that the act did not give a physician an action equivalent to assumpsit against the employer of the injured person. The Henry case, continued the court, thus clearly defined the nature and scope of the right of a physician under the workmen's compensation act to recover his fees from the employer of an injured person who was treated by that physician. That case, however, did not purport to deal with or to limit any other rights which a physician might properly have to collect his fees from an injured person's employer or from any one else by virtue of an independent agreement, entirely apart from the right created by the workmen's compensation act. The act gave to the physician an added remedy to be enforced in a certain manner but did not make that remedy exclusive. There is, therefore, nothing to prevent a physician, if he sees fit from bringing an ordinary action of assumpsit for the collection of his fees against his patient's employer or another entirely apart from the right created under the act, provided he can allege in his declaration facts necessary to support such an action.

In our opinion, said the court, an examination of the declaration as a whole in this case shows clearly that the physician is attempting to bring an ordinary action of assumpsit, entirely apart from the right created under the workmen's compensation act. The gist of the declaration is the allegation that the defendants authorized the physician to continue his treatment of the patient and promised that they would adequately compensate him for such services. This claim is plainly entirely independent of any right created in the plaintiff's favor by the workmen's compensation act, a right requiring no promise for its support but being merely an obligation of the employer and his insurer existing by force of the workmen's compensation act itself.

The same court accordingly concluded that it was error for the trial court to abate the action and remanded the case to the trial court for further proceedings—*Vighaccio v United Wire & Supply Corporation* 23 A (2d) 893 (R I 1942).

**Award Under Federal Longshoremen's and Harbor Workers' Compensation Act as Bar to Action for Damages for Alleged Aggravation of Industrial Injuries by Malpractice of Attending Physicians**—A workman, says the Supreme Court of Washington, who has been awarded compensation under the Federal Longshoremen's and Harbor Workers' Compensation Act for injuries sustained in an industrial accident within the coverage of that act and for the aggravation of those injuries allegedly resulting from the negligence of his attending physicians cannot thereafter maintain an action against the attending physicians for damages resulting from their alleged malpractice—*Anderson v Allison* 122 P (2d) 484 (Wash, 1942).

## Society Proceedings

### COMING MEETINGS

- American Medical Association Atlantic City N J June 8-12 Dr Olin West 535 North Dearborn Street Chicago Secretary
- American Association for the Study of Allergy Atlantic City N J June 8-9 Dr J Harvey Black 1405 Medical Arts Bldg Dallas Texas Secretary
- American Association for the Study of Goiter Atlanta Ga June 1-3 Dr Thomas C. Davison 478 Peachtree St. N.E. Atlanta Ga. Secretary
- American Association for the Study of Trauma Boston June 4-6 Dr Gordon M. Morrison 520 Commonwealth Ave Boston Secretary
- American Association of Genito-Urinary Surgeons Hershey Pa May 27-29 Dr Charles C. Higgins 2020 East 93d St Cleveland Secretary
- American Association of Oral and Plastic Surgeons New York May 28-30 Dr Frederick A. Figg 102 Second Avenue S.W. Rochester Minn Secretary
- American Association on Mental Deficiency Boston May 13-16 Dr Neil A. Dayton 100 Nahua St Boston Secretary
- American Broncho-Esophagological Association Atlantic City N J June 8-9 Dr Paul H. Holinger 700 North Michigan Blvd Chicago Sec retary

- American College of Chest Physicians Atlantic City N J June 6-8 Dr Paul H. Holinger 500 North Dearborn St Chicago Secretary
- American Dermatological Association Hot Springs Va, May 31-June 4 Dr Harry R. Foerster 208 East Wisconsin Ave Milwaukee Secretary
- American Diabetes Association Atlantic City N J June 7 Dr Cecil Striker 630 Vine Street Cincinnati Secretary
- American Gastro-Enterological Association Atlantic City N J June 8-9 Dr J. Arnold Barger 102 Second Ave S.W., Rochester Minn Secretary
- American Gynecological Society Skatop Pa June 15-17 Dr Howard C. Taylor Jr 842 Park Ave., New York Secretary
- American Heart Association Atlantic City N J June 5-6 Dr Howard B. Sprague 50 West 50th St New York Secretary
- American Human Serum Association Atlantic City N J June 8 Dr Maurice Hardgrove 3321 North Maryland Ave Milwaukee Secretary
- American Laryngological Association Atlantic City N J May 25-27 Dr Charles J. Imperatori 108 East 38th St New York Secretary
- American Laryngological Rhinological and Otolological Society Atlantic City N J June 1-3 Dr C. Stewart Nalb 277 Alexander St Rochester N Y Secretary
- American Medical Women's Association Atlantic City N J June 6-7 Dr Ada Chree Reid 102 East 22d St New York Secretary
- American Neurological Association Chicago June 4-6 Dr Henry A. Riley 117 East 72d St New York Secretary
- American Ophthalmological Society Hot Springs Va June 1-3 Dr Eugene M. Blake 303 Whitney Ave New Haven Conn, Secretary
- American Orthopedic Association Baltimore June 3-6 Dr Charles W. Peabody 474 Fisher Bldg Detroit Secretary
- American Otolological Society Atlantic City N J May 28-29 Dr L. Idore Friesner 101 East 73d St New York Secretary
- American Physiotherapy Association Lake Geneva Wis June 28-July 3 Miss Evelyn Anderson Stanford University Calif Secretary
- American Proctologic Society Atlantic City N J June 7 Dr William H. Daniel 1930 Wilshire Blvd Los Angeles Secretary
- American Psychiatric Association Boston May 18-22 Dr Winfred Overholser St Elizabeths Hospital Washington D C Secretary
- American Radium Society Atlantic City N J June 8-9 Dr Axel N. Arne on 4952 Maryland Ave St. Louis Secretary
- American Society of Clinical Pathologists Philadelphia June 5-7 Dr Alfred S. Giordano 331 North Main St South Bend Ind Secretary
- American Therapeutic Society Atlantic City N J June 5-6 Dr Oscar B. Hunter 1835 Eye St N.W. Washington D C Secretary
- American Urological Association New York June 1-4 Dr Clyde L. Deming 789 Howard Ave New Haven Conn Secretary
- Arizona State Medical Association Prescott, May 25-30 Dr W. Warner Watkins 15 East Monroe St., Phoenix Secretary
- A Association for the Study of Internal Secretions Atlantic City N J June 8-9 Dr Henry H. Turner 1200 North Walker St Oklahoma City Secretary
- Connecticut State Medical Society Middletown June 3-4 Dr Creighton Barker 258 Church St New Haven Secretary
- Illinois State Medical Society Springfield May 19-21 Dr Harold M. Camp 224 South Main St Monmouth Secretary
- Kansas Medical Society Wichita May 11-14 Mr C. G. Munns 112 West Sixth St. Topeka Executive Secretary
- Maine Medical Association Poland June 21-23 Dr Frederick R. Carter 142 High Street Portland Secretary
- Massachusetts Medical Society Boston May 26-27 Dr Michael A. Tighe 8 Fenway Boston Secretary
- Minnesota State Medical Association Duluth June 28-July 1 Dr B. B. Souster 493 Lowry Medical Arts Bldg St Paul Secretary
- Mississippi State Medical Association Jackson May 12-14 Dr T. M. Dye P. O. Box 295 Clarksdale, Secretary
- National Gastroenterological Association New York June 3-5 Dr G. Randolph Manning 1819 Broadway New York Secretary
- New Hampshire Medical Society Manchester May 12-13 Dr Carleton R. Metcalf 5 South State St Concord Secretary
- New Mexico Medical Society Santa Fe June 25-28 Dr L. B. Cohenour 221 W. Central Avenue Albuquerque Secretary
- New York State Association of Public Health Laboratories Cooperstown May 18 Miss Mary B. Kirkbride, New Scotland Ave Albany Sec retary
- North Carolina Medical Society of the State of Charlotte May 11-13 Dr Roscoe D. McMillan P. O. Box 232 Red Springs Secretary
- North Dakota State Medical Association Jamestown May 18-20 Dr L. W. Larson 221 Fifth St Bismarck Secretary
- Pacific Coast Oto-Ophthalmological Society Portland Ore. May 11-14 Dr C. Allen Dickey 450 Sutter St San Francisco Secretary
- Pacific Northwest Medical Association Portland Ore. June 17-20 Dr C. W. Countryman 407 Riverside Ave Spokane Secretary
- Rhode Island Medical Society Providence June 3-4 Dr William P. Buffum 122 Waterman St Providence, Secretary
- Society of Surgeons of New Jersey Montclair May 27 Dr Walter B. Mount 21 Plymouth Street Montclair Secretary
- South Carolina Medical Association Myrtle Beach May 19-21 Dr Julian P. Price 105 West Cheves St Florence Secretary
- South Dakota State Medical Association Sioux Falls May 13-15 Dr Clarence E. Sherwood 107 1/2 Egan Avenue South Madron Secretary
- Texas State Medical Association of Houston May 11-14 Dr Holman Taylor 1404 West El Paso St Fort Worth Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

#### American Journal of Clinical Pathology, Baltimore 12 73-128 (Feb) 1942

- Effect of Paraffin Hydrocarbons on Tuberculoallergy and Tuberculoimmunity Produced by Tubercle Bacilli. H. J. Corper and M. L. Cohn, Denver—p. 73.
- \*Histoplasmosis "Darling". T. L. Ramsey and A. A. Applebaum, Toledo, Ohio—p. 85.
- Capillary Venous Differences in Blood Glucose Values During One Hour Two Dose Glucose Tolerance Test (Exton-Rose Procedure). P. H. Langner Jr. and H. L. Ties, Philadelphia—p. 95.
- Xanthoproteic Reaction and Phenol Content of Plasma in Patients with Urea Retention. R. S. Hubbard, F. E. Kenny and J. F. Mezen, Buffalo—p. 103.
- Technic of Kolmer Complement Fixation Tests for Syphilis Employing One Fifth Amounts of Reagents. J. A. Kolmer, with technical assistance of Elsa R. Lynch, Philadelphia—p. 109.
- Nodular Tuberculosis of Liver and Spleen. Case Report. J. E. Welker and J. H. Hill, Kansas City, Mo.—p. 116.

**Histoplasmosis**—Ramsey and Applebaum report a case of histoplasmosis with necropsy. The patient had lived all her life in Michigan and had never visited or lived in the tropics. The organic changes were principally hyperplasia of the cells of the reticuloendothelial system with infection of these cells by the fungous parasite, particularly in the spleen, liver, lymph nodes, lungs and bone marrow. The ulceration in the intestinal tract was probably caused by infection of the lymphoid tissues and reticulum cells in the submucosa. Clinically the disease may suggest Banti's disease, Gaucher's disease, obscure malignant conditions, tuberculosis, undulant fever in the early stages and primary dyscrasias of the blood. A definite diagnosis of histoplasmosis can be made only by isolating the fungus in the tissues of the body or in cultures of material from these tissues. To date there have been no instances of cure and no satisfactory treatment.

#### American Journal of Diseases of Children, Chicago 63 217-432 (Feb) 1942

- Bronchoscopic Aspects of Asthma in Children. Emily L. Van Loon and S. Diamond, Philadelphia—p. 217.
- \*Combined Immunization of Infants Against Diphtheria, Tetanus and Whooping Cough. J. H. Lapin, New York—p. 225.
- Obesity in Childhood. Psychologic Studies. I. P. Bronstein, S. Weiler, A. W. Brown and L. J. Halpern, Chicago—p. 238.
- \*Essential Fructosuria. Its Pathophysiology. B. Sachs, L. Sternfeld and G. Kraus, Brooklyn—p. 252.
- \*Creatine Metabolism in Hypothyroid Infants and Children. Further Observations. H. G. Poncher, I. P. Bronstein, Helen Woodward Wade and Jeanette C. Ricewasser, Chicago—p. 270.
- \*Nonobstructive Hydrocephalus. Treatment by Endoscopic Cauterization of Choroid Plexuses. J. E. Scarff, New York—p. 297.
- Nutritional Requirements of Children. Resume. W. J. Dann and W. C. Davison, Durham, N. C.—p. 366.
- Syphilitic Aortitis of Congenital Origin in Young Children. Review of Literature and Report of Case. J. Yampolsky and C. C. Powell, with pathologic assistance of R. Mosteller, Atlanta, Ga.—p. 371.

**Immunization of Infants**—Lapin discusses the immunity responses of 78 infants aged 6 to 9 months who were given five monthly injections of a combination of clear diphtheria toxoid, alum precipitated tetanus toxoid, whooping cough vaccine and whooping cough toxin. Immunization to diphtheria resulted in all the subjects, 97 per cent showing more than  $\frac{1}{250}$  unit of antitoxin per cubic centimeter of blood and 91 per cent more than  $\frac{1}{40}$  unit per cubic centimeter. In 93.2 per cent the average tetanus antitoxic level rose to 0.5 unit, three months after immunization the antitoxic level was greater than that attained by the usual prophylactic injection of tetanus antitoxin. Evi-

dence is cited which shows that the 68 per cent whose titer was below this level three months after immunization have a sound "basal immunity" and that on exposure they will respond to a boosting dose of antitoxin with a safe antitoxic level. The whooping cough immunization resulted in positive reactions to agglutination tests for all the subjects, complement fixation of 4 plus for 87.2 per cent and positive for 97.4 per cent, and a positive mouse protection titer for 87.5 per cent.

**Essential Fructosuria**—Sachs and his associates report the occurrence of essential fructosuria in 2 brothers and present some experimental studies which attempt to explain the mechanism of the condition. A hypothesis is presented that the mechanism is a failure of part of the ingested fructose to be broken down to lactic acid. The authors further speculate that in normal human beings about 80 per cent of ingested fructose is converted to glycogen, the remainder being broken down to lactic acid. In their patients 10 to 20 per cent of the fructose ingested was excreted as such in the urine instead of being metabolized. The hypothesis would seem to account for the failure of a normal increase in the concentration of lactic acid in the blood and a rise in the respiratory quotient. The abnormality may lie in the failure or lack of some as yet undetermined local specific enzymatic action. The work of Sterkin and Vengerova and of Rynbergen, Chambers and Blatherwick adds validity to this hypothesis.

**Creatine Metabolism in Hypothyroidism**—Poncher and his associates state that their observations on 6 hypothyroid girls, aged 8 months to 13 years, throughout a period of continuous therapy with thyroid substantiate their earlier contention that the creatinuria response to the administration of thyroid is of diagnostic value along with clinical observations. The basal metabolic rate as ordinarily determined is an unreliable criterion in young and in hypothyroid children. The cholesterol value of the blood and roentgenograms are not always informative. Only 2 of the 6 subjects exhibited an elevated level of cholesterol, and because of previous treatment only 2 exhibited any delay in the appearance of the carpal centers at the wrist. No one chemical test is a measure of thyroid activity for all hypothyroid children. However, it is more convenient to carry out studies of the serum cholesterol than of the urinary creatine, but cholesterol determinations are no more informative than carefully controlled creatine studies. The determination of the degree of creatinuria in the 6 hypothyroid children was a valuable aid in the diagnosis. The amount of creatine excreted by a hypothyroid child might be used in gauging the effect of thyroid therapy. The level of urinary creatine serves only as an adjunct to the structural and functional observations on which the diagnosis of hypothyroidism is based. The establishment of a normal type of creatine metabolism was followed by clinical improvement in the 6 subjects. Basal metabolic rates in 3 of the hypothyroid children varied widely, depending on the standard of reference used. The upward trend in the rate as affected by treatment is considered far more significant than the actual numerical values. The rate of energy exchange in the 6 children was not as closely related to the urinary preformed creatinine as it was to height, weight and surface area.

**Nonobstructive Hydrocephalus**—Scarff discusses his experiences with 20 patients during the last seven years and summarizes results obtained in the treatment of communicating hydrocephalus by endoscopic cauterization of the choroid plexus with the ventriculoscope. Forty-eight cauterizations (on one side of the plexus) were performed. There were 3 operative deaths, a mortality of 15 per cent and an operative mortality of 6 per cent. No deaths have occurred during the last four years. Of the children who survived the operation 7 were discharged from the hospital, but the result of their treatment was generally unsatisfactory. The result in the remaining 10 was satisfactory and a lasting reduction of intracranial tension was attained. One of these 10 died after five years, the other 9 are still living after six months to more than six years. Four of the 9 surviving children have an essentially normal mentality, 3 are moderately retarded and 2 are decidedly retarded. One of the successfully treated patients had premeningitic hydrocephalus. He apparently is the first patient

this sort to be the subject of a report. A second patient, who was similarly treated, is still living, although the result of treatment is not considered satisfactory. Acute intraventricular hypotension as a postoperative complication, described for the first time, occurred in 3 children. The importance of early diagnosis, careful choice of patients, radical operation, close follow-up observation and early reoperation if pressure returns is stressed. The results warrant a wider use of the method. A lower mortality and a higher average mentality in patients so treated may be expected in the future.

### American Journal of Surgery, New York

55 189-440 (Feb.) 1942

- Fractures of Elbow. I. Cohn. New Orleans—p. 210.  
Evaluation of Hanging Cast as Method of Treating Fractures of Humerus. J. M. Winfield, H. Miller and A. D. LaFerte. Detroit—p. 228.  
Injuries to Acromioclavicular Joint. Plea for Conservative Treatment. A. Thorndike Jr. and T. B. Quigley. Boston—p. 230.  
Complicating Factors in Treatment of Injuries to Menisci of Knee Joint. C. R. Murray. New York—p. 262.  
Regeneration in Ulnar Median and Radial Nerves. H. C. Marble, E. Hamlin Jr. and A. L. Watkins. Boston—p. 274.  
Spiral and Oblique Fractures of Tibia. Method of Treatment. C. Mathewson Jr. San Francisco—p. 293.  
Convalescent Care of Patients with Fractures. R. H. Kennedy. New York—p. 309.  
Spinal Cord Injuries. Analysis of Six Cases Showing Subarachnoid Block. F. H. Mayfield and G. M. Cazan. Cincinnati—p. 317.  
Method for Closing Traumatic Defect of Finger Tip. R. A. Jones. San Francisco—p. 326.  
\*Treatment of Fractured Patella by Excision. R. P. Dobbie and S. Ryerson. Buffalo—p. 339.  
\*Local Therapeutic Effect of Sulfathiazole. C. C. Weil, D. W. Whitaker and H. W. Rusbridge. Pittsburgh—p. 374.  
Treatment of Fresh Traumatic Wounds. J. D. Bisgard and C. P. Baker. Omaha—p. 386.  
Traumatic Abdominal Surgical Emergencies. E. P. Palmer. Phoenix, Ariz.—p. 397.  
\*Cortical Extract in Treatment of Shock. Preliminary Report. L. S. Helfrich, W. H. Cassels and W. H. Cole. Chicago—p. 410.

**Fractured Patella.**—Dobbie and Ryerson were prompted by the good results obtained in 1937 by Brooke of England to excise completely a fractured patella in 21 patients. A patient who required an open surgical procedure was treated by a complete excision of the fragments. All the fractures but one which was compound, were simple. The average postoperative hospitalization period was twenty-two and seven-tenths days. The average period for 8 private patients was seventeen and one half days. Patients without complications were able to walk well without dressings and or discomfort at the end of the second week. As no physical therapy other than active use is prescribed there is no reason to keep such patients in the hospital any longer. With progressively increasing activity at the end of six to eight weeks the patient is able to walk long distances and to walk up stairs. No functional impairment remains at the end of four months. The end result was considered excellent only when the function of the limb and knee joint was normal. Of the 21 patients 1 died in the seventh postoperative week from pulmonary embolism for 2 sufficient time has not elapsed to expect or to warrant a complete return of function, 2 failed to report for the final check up and in 16 an excellent result was demonstrated from three to forty-one months postoperatively. These 16 have returned to their usual work as laborers or housewives. The range and rapidity of movement and the power of the knee joint from which the patella was removed are in no way inferior to that displayed in the opposite intact limb.

**Effect of Sulfathiazole.**—Weil and his associates report the results obtained with the local application of sulfathiazole in 31 fresh compound wounds, 58 compound fractures and 22 simple fractures requiring operation. Their usual technic of handling wounds and compound fractures was changed in only two respects: (1) application of sulfathiazole crystals directly to the wounds and (2) closure without drainage. An operative procedure was found necessary in 89.6 per cent of the compound fractures. Cultures of material from the wounds showed pathogenic organisms in 50 per cent. Almost all of the cultures were taken within six hours of injury. Infection after sulfathiazole had been applied developed in 6 compound fractures. However in 2 of these bacteria were found in completely

necrotic tissue, and in 1 case in which a fracture of the skull was compounded through the mastoid and middle ear local application of the drug was impossible. This brings the incidence of infection to 5.4 per cent. Of the 3 remaining cases the drug in 1 was applied locally at the time of injury, the wound in 1 continued to discharge a purulent exudate for several weeks in spite of repeated local treatment, and gas gangrene developed in 1 despite prophylactic use of the drug. It is the authors' belief that the administration of large doses of sulfathiazole locally and orally within three or four hours of injury continued for nine to fourteen days will in many cases prevent gas gangrene. Sulfathiazole has not been very effective in the treatment of active gas gangrene. The wounds in the other 52 cases healed without infection in a manner approaching primary union save for the occasional discharge of a clear, non-purulent serosanguineous exudate. A reparative operation was necessary in 67.8 per cent of the 31 cases in which wounds of the soft tissue occurred. Healing comparable to primary union occurred in 25, 5 showed a moderate delay of healing because of a collection of serum within the wounds or of loss of soft tissue and a superficial but persistent infection developed in 1 which responded after six weeks of local therapy. Two deaths occurred but they were due to complicating injuries. The healing of the wound in 12 cases was delayed, and delayed union of fractures occurred in 2. The authors cannot definitely ascribe the delay of healing and union to a toxic reaction to the drug. Among the 22 simple fractures requiring an operation because of gross displacement of the fragments there were no infections. A delay in callus formation occurred in 3 and it too could not definitely be attributed to the drug. None of these patients died.

**Treatment of Shock.**—Helfrich and his co-workers gaged the efficacy of cortical extract in the prophylactic treatment of experimental shock in animals and in human beings undergoing major operations of a magnitude apt to produce shock. When cortical extract was given an hour or two before shock was produced the average drop in systolic blood pressure of the animals after forty minutes of intestinal massage was only 195 mm. contrasted with 353 mm. in animals not receiving extract prophylactically. In 15 human beings undergoing major operations of unusual duration and severity and given cortical extract prophylactically the pulse rate averaged 8 beats per minute slower and the systolic blood pressure 12 mm. higher than in 15 similar patients undergoing comparable operations but not given extract. The observations show that the extract was more effective if given prophylactically than if given after shock had developed.

### Annals of Internal Medicine, Lancaster, Pa.

16 1-220 (Jan.) 1942

- \*Antibody Response of Patients with Pneumococcal Pneumonia Treated with Sulfadiazine and Sulfathiazole. M. Finland, E. Strauss and O. L. Peterson. Boston—p. 1.  
\*Further Studies on Recurrences of Pneumococcal Pneumonia with Special Reference to Effect of Specific Treatment. E. Strauss and M. Finland. Boston—p. 17.  
Treatment of Neuroses by Class Technique. S. B. Hadden. Philadelphia—p. 33.  
Role of Vertebral Veins in Metastatic Processes. O. V. Batson. Philadelphia—p. 38.  
Study of Hereditary Nature of Gout. Report of Two Families. C. J. Smyth and R. H. Freyberg. Ann Arbor, Mich.—p. 46.  
\*Chemotherapy of Pneumonias and Immunity Reactions. J. G. M. Bullowa, N. H. Shackman and D. State. New York—p. 57.  
Protein Derivatives as Factors in Allergy. R. A. Cooke. New York—p. 71.  
\*Treatment of Acute Carbon Tetrachloride Poisoning. Report of Two Cases. B. J. Allen. Long Island, N. Y.—p. 81.  
Theory Concerning Manner in Which Stomach Empties Itself. W. T. Cribb Jr. New York—p. 94.  
Pathologic Physiology of Early Manifestations of Left Ventricular Failure. C. S. Burwell. Boston—p. 104.  
Cruveilhier-Baumgarten Syndrome. Review of Literature and Report of Two Additional Cases. E. I. Armstrong, W. L. Adams Jr., L. J. Tragerman and E. W. Townsend. Los Angeles—p. 113.

**Sulfadiazine and Sulfathiazole in Pneumonia.**—Finland and his co-workers determined the antibody response in the serum of a group of 46 patients treated with sulfathiazole and another group of 48 treated with sulfadiazine. Serum was taken from these patients during and after chemotherapy and the agglutinins and mouse protective antibodies in it were tested.



against the homologous type of pneumococcus and for precipitins against the corresponding type specific polysaccharide. To none of the patients was antipneumococcus serum or vaccine administered. In almost all the patients of the two groups mouse protective antibodies developed at about the time of essential clinical recovery (the day of crisis) or later. In an occasional specimen of serum these antibodies were present as early as the fourth day of the disease, but usually they were not demonstrated until the sixth day or later. The titers of most patients increased gradually over the course of a few days, while in some they rose more rapidly. Agglutinins appeared in the serum either at the same time as the mouse protective antibodies or later. Agglutinins were never demonstrated in the absence of antibody protection, although the reverse was frequent. In general, the results of protection and agglutination tests were similar to those previously obtained in patients treated with sulfapyridine. The precipitin test with the homologous type specific polysaccharide was the least sensitive of the three tests used. Pneumococci, that is multiple organisms, of other types than I to V, VIII, XIV or XVIII, were identified in the sputum of 9 patients. In 3 of these patients agglutinins for the second type of pneumococcus were and in 6 they were not demonstrated. In addition to the 94 patients treated with sulfadiazine or sulfathiazole, 14 patients with type I, II, V or VIII pneumococcus pneumonia were given antipneumococcus serum after one to five days of treatment with sulfadiazine or sulfathiazole. Antibodies were demonstrated in the blood of only 3 of them before the first dose of antipneumococcus serum was given. However, high titers of agglutinins, precipitins and mouse protection for the homologous pneumococcus were found in the blood of the 14 patients after the antiserum was given.

**Recurrence of Pneumococcal Pneumonia**—Strauss and Finland discuss the changes in the incidence or character of one hundred and ninety-one recurrences of pneumonia among 168 patients treated at the Boston City Hospital. All the patients were more than 12 years of age, 48 were female and all but 12 were white, and the interval between the essential recovery from one attack and the onset of another varied from seven days to eighteen years. Multiple types of pneumococci were isolated during one or more attacks from 20 patients. In the one hundred and ninety-one recurrences the blood cultures of 29 patients showed pneumococci. There were 21 deaths during the one hundred and ninety-one recurrent attacks, a mortality of 11 per cent. The patients were specifically treated during one hundred and twelve recurrences with antipneumococcus serums, sulfonamide drugs (sulfapyridine, sulfathiazole and sulfadiazine) or a combination of the two. The mortality in the specifically treated group was 11.6 per cent. The mortality among the patients who had seventy-nine recurrent attacks and who were given no specific treatment was 10.1 per cent. Eight of the 29 patients who had bacteremia during a recurrent attack died, 4 of the 23 given specific therapy died, and 3 of the 5 patients not treated specifically. Five patients died of complicating diseases independent of the pneumonia. The recurrent attacks of nearly three fifths of the 48 patients who had no specific therapy for the first and specific therapy for the recurrent pneumonia were shorter than they had been in the initial infection. Among three fifths of the patients who had the benefit of specific therapy during both attacks the duration of acute illness was the same in both the initial and the recurrent attack. Of the patients who had no specific therapy in either attack, in more than 80 per cent the duration of the recurrence was the same as or shorter than that in the initial attack. A study of the frequency of recurrence as related to the type of therapy and the immunity reactions indicates that patients may have two or more attacks of pneumonia with the same type of pneumococcus, regardless of whether they receive specific or nonspecific treatment during the first attack and regardless of whether antibodies for the homologous type develop after the first attack. Recurrences ensued even though homologous antibodies were present at the time of the recurrent attack. It is impossible to correlate the immunity state with the likelihood of recurrence. Such correlation must await the accumulation of a larger body of data than is available at present.

**Chemotherapy of Pneumonia and Immunity Reaction**—Bullock and his collaborators believe that the capacity to overcome infection must be considered when the effect of different treatments is compared. Patients who recover from pneumonia without specific therapy do so by reason of their immunity response, which destroys the invading bacteria, and such patients as a rule exhibit acquired immunity to the invading organism. The response of the body to invasion by the pneumococcus is discussed and the authors show that there are immunity responses which contribute to recovery when the sulfonamide drugs are used. If the sulfonamide drugs are administered early in the disease, the pneumococci are attenuated or killed by them. Immunity is established about the same time as if the patient had had a mild infection and had recovered spontaneously. Although in most young patients, other than infants, treated early chemotherapy is sufficient to suppress the etiologic agent or to render it relatively innocuous, patients who are most severely stricken may require assistance, to them antibodies must be supplied to augment the immunity response. Moreover, when pneumococci resist chemotherapy they may respond to type specific serum therapy, and therefore specific typing and immunity study of the blood and sputum are necessary for the best care of patients. When nonspecific (for type) chemotherapy is employed, patients in whom specific antibodies develop do not require serum therapy or additional chemotherapy. In such patients, tapering off the drug is unnecessary and may be harmful. The study of C protein (the acute phase protein which may be extracted from the bodies of decapsulated and no longer type specific pneumococci) response may be of value in the diagnosis and in the treatment when it is interpreted correctly. The presence of this protein in large amount indicates that a febrile episode is due not to continued infection or complication but possibly to the chemotherapeutic agent.

**Acute Carbon Tetrachloride Poisoning**—Allison cites 2 cases of acute carbon tetrachloride poisoning, 1 in a 9 year old boy from inhalation and 1 in a man of 48, an alcoholic addict, who died ten days after drinking cleaning fluid. During the ten days symptoms and signs of extensive damage to the liver, kidneys and gastrointestinal tract were present. A necropsy confirmed the clinical manifestations. The boy had smeared red chalk on the covers of his bed, and in the process of cleaning it up with a tin of cleaning fluid he discovered that he liked the odor of the fluid and the way it made him feel. He poured a considerable amount on the blanket, replaced the tin and crawled into bed. He said that he saw stars and then couldn't remember anything. A few minutes later the boy was found under the covers, completely unconscious and breathing noisily. He was completely anesthetized for more than two hours. It is possible that there was some absorption through the skin. Definite evidence of hepatic damage occurred the next day: enlargement, tenderness and pain in the liver, a trace of bile in the urine, a high fever and leukocytosis. The importance of early intravenous administration of calcium and dextrose was not appreciated, and as the blood calcium was high calcium was given only by mouth. There was little evidence of renal damage. Hepatic tenderness persisted for two weeks and enlargement for a month. These physical signs and an evening fever, an increase in the polymorphonuclear leukocyte count and a slight elevation of the blood sedimentation rate indicated that repair was not complete in three weeks. During the next six weeks an elevation of temperature to between 100 and 101 F on slight exertion indicated continued disturbance as no other cause could be found for this fever. The author suggests the following outline for the treatment: removal of all unabsorbed carbon tetrachloride from the gastrointestinal tract; forcing of fluids by mouth and intravenously; prevention of signs of intoxication and organic damage; transfusion of blood or blood plasma if much blood has been lost; repetition of the chemical study of the blood until it returns to normal and complete rest in bed until evidence of hepatic or renal damage has disappeared. Carbon tetrachloride poisoning presents a definite health hazard. The proper labeling of products containing it should be required by law, and writers of textbooks should consider carbon tetrachloride poisoning a disease entity and thus make its nature and treatment known.



## Archives of Ophthalmology, Chicago

27 231-442 (Feb) 1942

- Ring Ulcer of Cornea S R Gifford Chicago—p 231  
 Water Movement and Eye V E Kansey, M Grant and D G Cogan Boston—p 242  
 Carbaminoyletholone Chloride in Treatment of Glaucoma Simplex C S O'Brien and K C Swan Iowa City—p 253  
 Pigmentary Degeneration of Retina Role of Melanophore Hormone of Pituitary Gland in Pigmentary Degeneration of Retina P R McDonald and I H Adler Philadelphia—p 264  
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 Chemical Equilibrium Between Blood and Aqueous Humor Further Studies Eleanor Moore H G Scheie and I H Adler Philadelphia—p 317  
 Ocular Disturbances in Case of Acromegaly Complicated by Diabetes I Igersheimer Boston—p 330  
 Severe Uveitis with Associated Alopecia Poliosis Vitiligo and Deafness W Zentmayer Philadelphia—p 342  
 Lesions in Lens Caused by Purulent Corneal Ulcers B Samuels New York—p 345  
 Characteristics of Average Normal Nerve Head with Reference to Classification of Optic Nerve Atrophy B Friedman New York—p 353  
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 Hysterical Convergence Spasm B F Souders Philadelphia—p 361  
 Paralysis of Superior Rectus and Inferior Oblique Muscle of Same Eye J W White New York—p 366  
 Eyesight in Industry L L Mayer Los Angeles—p 375

**Acromegaly and Diabetes**—Igersheimer reports what appears to be the first case of acromegaly complicated by diabetes with retinal lipemia and peculiar visual disturbances consisting in reduction of vision to perception of movements of the hand and exophthalmos. Analysis of the ocular changes suggests that two processes were going on in the pituitary-diencephalic region one was characterized by bitemporal hemianopia and was caused by the pressure of a pituitary tumor, and the other, superimposed on the first, involved central vision and the visual field as a whole and was located probably in the diencephalic region. The disturbances were favorably influenced by insulin and also by roentgen treatment.

## Bulletin New York Academy of Medicine, New York

18 81-162 (Feb) 1942

- Influence of Extrinsic Factors on Coronary Flow and Clinical Course of Heart Disease A C Gilbert Chicago—p 83  
 Pulmonary Congestion and Edema S Weiss Boston—p 93  
 Oxygen Supply Systems for Military Flying J R Poppen Washington D C—p 102  
 Some Recent Advances in Drug Therapy L S Goodman New Haven Conn—p 112  
 Note on War Psychiatry B Glueck Ossining N Y—p 137  
 Friedrich August Kekule Architect of Atoms H Goodman New York—p 150

## Endocrinology, Springfield, Ill

30 1-174 (Jan) 1942 Partial Index

- Does Stimulation of Germinal Epithelium of Immature Male Rats Occur After Treatment with Gonadotropic Hormones Augmentative Substance Androgens and Vitamin E? B Zondek, A Brzezinski and I Sulman Jerusalem Palestine—p 25  
 Mammary Gland Development with Mammogen I in Castrate and Hypophysectomized Rat A A Lewis Columbia Mo E T Gomez Beltsville Md and C W Turner Columbia Mo—p 37  
 Role of Progesterone and Local Trauma in Production of Cystic Glandular Changes in Endometrium and Hypertrophy of Myometrium H Selye A Borduas and G Masson Montreal Canada—p 71  
 Difference in Response of Mice of Different Strains to Human Pregnancy Urine Katharine P Hummel Bar Harbor Maine—p 74  
 Pubertal Increase in Responsiveness to Androgen in Male Rat C W Hooker New Haven Conn—p 77  
 Effects of Estrogen on Androgenic Stimulation of Prostate and Seminal Vesicle of Rat R R Greene and D M Thomson Chicago—p 85  
 Studies on Recovery of Reproductive System of Male Rat from Regressive Changes Induced by Stilbestrol C S Mathews E L Schwabe and F E Emery Buffalo—p 89  
 Effects of Testosterone Propionate in Immature and Adult Female Rats G L Laqueur and C F Fluhmann San Francisco—p 93  
 Acid Phosphatase Activity of Human Urine Index of Prostatic Secretion W W Scott and C Huggins Chicago—p 107  
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 Primary Action of Parathyroid Hormone A H Neufeld and J B Collip Montreal Canada—p 135

## Journal of Immunology, Baltimore

43 1-128 (Jan) 1942

- Development of Agglutinogens M and N in Newborn Infants with Notes on Agglutinogens A and B Harriet S Hyman Parler Columbus Ohio—p 1  
 Rapid Pertussis Agglutination Test H M Powell and W A Jamieson Indianapolis—p 13  
 Pneumococcus Types and Lobar Pneumonia in Netherlands Indies A S van Heukelom and H Beeuwkes Batavia Java Netherlands East Indies—p 17  
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 Antigenic Structure of Hemolytic Streptococci of Lancefield Group A VII Separation of Protein and Nucleic Acid of Type Specific M Substance and Some Chemical and Serologic Properties of Purified Type Specific Protein C A Zittle Philadelphia—p 31  
 Id VIII Electrophoretic Studies of Type Specific M Protein and Other Isolated Fractions C A Zittle and Florence B Seibert Philadelphia—p 47  
 Id IX Some Physical Properties of M Protein A M Pappenheimer Jr J W Williams and C A Zittle Philadelphia—p 61  
 Influence of Artificial Fever on Mechanisms of Resistance H V Ellington and P F Clark Madison Wis—p 65  
 Relationship of Antigenicity Physical Chemical Properties and Polysaccharide Content of Tuberculus to Their Intracutaneous Activity Janet R McCarter and D W Watson Madison Wis—p 85  
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 Reactions of Dextrans of Leuconostoc Mesenteroides with Antisera of Leuconostoc and of Types II XX and XII Pneumococcus J Y Sugg and E J Hehre New York—p 119

## Virginia Medical Monthly, Richmond

69 57-116 (Feb) 1942

- Office Gynecology Diagnostic and Therapeutic Procedures Used by the Specialist Which Are Also Available to the General Practitioner J R Miller Hartford Conn—p 59  
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 Metrazol in Barbiturate Poisoning Case Report R H Walker and F B Teague Martinsville—p 92  
 Studies of Irradiation Effects on Cancer Cells I Preliminary Report Production of Liver Cancer in White Rats G Z Williams M K Cary and J T Williams Richmond—p 93  
 Evaluation of Operation of Premarital Legislation in Virginia I C Riggan and E M Holmes Jr Richmond—p 96

**Metrazol in Barbiturate Poisoning**—Walker and Teague believe that since pharmacologic studies seem to support the view that the depression resulting from overdosage with barbiturates involves chiefly the hypothalamus and the basal ganglia metrazol and picrotoxin would theoretically be the analectics of choice. However metrazol seems to possess certain advantages. Chemically it is pentamethylene tetrazol. It is a stimulant almost as powerful as picrotoxin but its action is not as prolonged. There is no latent period and its maximal effect is exerted almost immediately after it is injected which practically eliminates the danger of convulsions from overdosage as with the use of picrotoxin because of its delayed peak action. The authors recently had occasion to witness the antagonism of metrazol to barbiturate. The patient's recovery following an intake of 2.5 Gm of sodium 5 ethyl 5 (1-methyl 1-butenyl) barbiturate (delivinal sodium) was rapid after other methods proved ineffective, convalescence was uneventful.

## Wisconsin Medical Journal, Madison

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- Drugs in Intractable Pain M H Seever Madison—p 113  
 Management of Endocervicitis T K Brown St Louis—p 117  
 Syphilis in Wisconsin W F Lorenz Madison—p 121

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## British Journal of Radiology, London

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- Duodenitis G R M Cordiner—p 33  
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\*Contact X Ray Treatment of Cavernous Angioma in Children Inez ApThomas—p 43  
Note on Skin Dose Measurement of Radium Molds Gamma Ray Back Scatter H F Cook—p 48  
Spatial Distribution of X Rays and Total Energy Absorption Consideration of Importance of These Concepts in X Ray Treatment of Cancer D W Smithers—p 50

**Treatment of Cavernous Angioma in Children**—From 1933 to September 1939 ApThomas states that 120 children with cavernous angiomas have been treated with elastoplast molds of radon seeds, 24 with gold seeds and 11 with other radium mediums. Of the 120 children 110 are well and 10 are improved, of the 24 all are well and of the 11 7 are well and 4 are improved. Since September 1939 the three foregoing methods have become impracticable and from then until Dec 31, 1940 102 children with cavernous angiomas have received contact roentgen therapy for which the Chaoul tube was used at 60 kilovolts and 4 milliamperes. Sixty-seven of the 102 children are well, 6 are improved and the treatment in 29 was incomplete.

## British Medical Journal, London

1 31-60 (Jan 10) 1942

- Evolution as Etiologic Factor in Foot Disorders N C Lake—p 31  
17 Ketosteroid Excretion in Adrenal Virilism Jocelyn Patterson Isobel M McPhee and A W Greenwood—p 35  
Fluoroscopic Control in Reduction of Fractures F H Kemp—p 39  
Simple Method of Reducing Mid Shaft Fractures of Humerus G D Rowley—p 41  
\*Sneezing and Disinfection by Hypochlorites R B Bourdillon, O M Lidwell and J E Lovelock—p 42

**Sneezing and Disinfection by Hypochlorites**—Bourdillon and his associates present the data of a brief quantitative study of the number of bacteria carrying particles given out during sneezing, of the rate at which the bacteria disappear from the air in a closed room and of the rate at which they are killed by sodium hypochlorite sprayed into the air with a hand spray. Fifteen tests in a closed room revealed that an average vigorous sneeze causes the emission of about 100,000 bacteria carrying particles of a size small enough to remain in the air for more than one minute. Of these about 4 per cent will usually remain suspended in still air for as long as thirty minutes. All or almost all the bacteria thus emitted can be killed in three to four minutes by a spray of a 1 per cent solution of sodium hypochlorite in a concentration of 2 l cc per thousand cubic feet of air. Under certain unfavorable conditions such as low relative humidity or a high content of organic matter in the air, the action of the hypochlorite spray may be hindered.

1 61-98 (Jan 17) 1942

- Infective Hepatitis History of Outbreak in Lavant Valley J L Newman—p 61  
\*Value of Procaine Infiltration in Diagnosis and Treatment of Fibrositis E J Moynahan and E S Nicholson—p 65  
Ruptured Aneurysm of Splenic Artery During Pregnancy J F E Gillam—p 69  
Arm to Tongue Circulation Time in Chronic Asthma I D Cottrell and D C Cuddie—p 70

**Procaine Infiltration for Fibrositis**—Moynahan and Nicholson subjected more than 80 patients with fibrositis to infiltration of the painful areas with procaine hydrochloride. Only 6 patients failed to obtain relief or cure, in all but 1 of whom the diagnosis was erroneous, 3 had osteoarthritis of the spine, 1 sacralization of the fifth lumbar vertebra and 1 a severe dislocation of the acromioclavicular joint, with fracture of the acromial end of the clavicle, which was mistaken for a deltoid fibrositis. The sixth patient had fibrositis of the shoulder girdle and left arm with no definite tender spots, and 'blind' infiltration failed to relieve the condition. After the tender spots are determined by digital palpation they should be marked on the

skin, and after the skin is cleansed a wheal should be raised by injecting a small quantity of procaine hydrochloride over the site of the lesion. The needle should be driven down until a tender spot is reached and then 2 to 3 cc of the solution should be injected. The injection gives immediate relief from pain and any associated tenderness or muscular spasm disappears. A dental syringe and needle are probably best suited for the infiltration. Some patients experience a return of pain a few hours after the injection, but this pain usually wears off in a few hours. The patient should be encouraged to move the affected part freely and to carry on with his normal occupation. Usually one injection suffices. Every tender area should be infiltrated and the pain eliminated completely at the first sitting.

## Edinburgh Medical Journal

49 1-72 (Jan) 1942

- Footprints of Surgery Inaugural Address to Royal Medical Society on Oct 17 1941 W I de C Wheeler—p 1  
Experiences in Emergency Medical Service Base Hospital in Leningrad Area R L Galloway—p 16  
Abdominal Lymphadenoma with Transposition of Viscera and Accessory Spleens Case A J Rhodes and A Grunberg—p 17  
Osteochondritis and Tuberculosis Demonstration of Cases of Calcification of Spine and Kohler's Disease of Tarsal Scaphoid with Discussion on Their Relationship to Tuberculosis A Dale—p 20  
Studies on Stored Blood IX Further Observations on Effects of Storage on Erythrocytes A Crosbie and H Scarborough—p 21

## Lancet, London

1 31-62 (Jan 10) 1942

- Neurosis Simulating Organic Disorder G T Cook and W Scott—p 31  
Assessment of Foot Function Anatomic and Clinical Considerations H A Harris—p 32  
Natural History of Bright's Disease Clinical, Histologic and Experimental Observations A Ellis—p 33  
Mode of Action of Sulfenamides in Vitro S D Rubbo and I W Gillespie—p 36  
The Dyspeptic Soldier Record of 931 Consecutive Cases W E Banks—p 39  
Disturbances of Body Scheme Anosognosia and Finger Agnosia I D Spillane—p 42  
Agnosia of Hemiplegia and of Blindness After Cerebral Embolism F P Weber—p 44

1 63-94 (Jan 17) 1942

- Medical Graduation at Cambridge Statistical Note M Green and A Telek—p 63  
\*Neonatal Thrush in Maternity Hospital G B Ludlam and I L Henderson—p 64  
Amnioplastin for Adherent Digital Flexor Tendons M C Pinker—p 70  
Natural History of Bright's Disease Clinical, Histologic and Experimental Observations A Ellis—p 72

**Neonatal Thrush in Maternity Hospital**—Ludlam and Henderson point out that the high incidence of thrush found on routine clinical examination of the infants in a maternity hospital was increased when accompanied by bacteriologic examination. The incidence was much higher among bottle fed infants and among those who were in the hospital a long time. The factors account for the extremely high incidence of thrush in premature infants. There was no evidence that local trauma, debility or prematurity predisposed to thrush. The causative organism, *Monilia albicans*, can be isolated several days before lesions become visible, and it usually persists after the lesions disappear. Therefore isolation must continue until discharge unless a negative swab has been obtained. *M. albicans* can be isolated from the feces of most infected infants and also from the hands of 50 per cent of them. There was no significant relationship between the vaginal infection of a mother and infection in her infant. *M. albicans* was isolated from the finger of a third of the nurses and was found on the finger of a third. The organism was found in samples of pooled breast milk for bottle fed infants. The incidence of thrush fell to 1 per cent after such milk was heated. The principal cause of the incidence were overcrowding in the nurseries, failure to prevent spread from infant to infant and failure to make an early diagnosis with its consequent isolation and treatment.

## Tubercle, London

22 257-280 (Nov) 1941

- Tubercle Bacillus in Sputum, with Special Reference to Forms R A Hunter—p 257  
Infective Dose in Pulmonary Tuberculosis A L Jones—p 258

## Monatsschrift für Geburtshilfe und Gynäkologie, Basel

112 313-372 (No. 6) 1941 Partial Index

- Significance of Threatened Abortion for Later Course of Labor  
R Wenner—p. 325
- \*Cause of Torsion of Pedicle of Ovarian Tumors H von Wattenwyl  
—p. 335
- Principal Problem in Campaign Against Cervical Carcinoma H Buechs  
—p. 348
- Role of Man in Sterile Marriages C A Joel—p. 360

**Cause of Torsion of Pedicle in Ovarian Tumors**—von Wattenwyl reviews the classic theories of the cause of torsion of ovarian tumors. Analysis of 59 cases of ovarian tumors with twisted pedicle and comparison with ovarian tumors without torsion demonstrate that none of the theories heretofore advanced alone explain all cases and that the patient's age and number of deliveries and the form size and histologic characteristics of the growth cannot be of essential importance in the twisting of the stalk. On the phantom and in animal experiments torsion of the pedicle can be artificially produced if certain positions are produced, but no new theory can be deduced from this nor can it serve as proof of the validity of one of the former explanations. Sellheim's theory is rejected on the basis of clinical analyses and experiments. The influence of changing vesical and rectal filling on the position of the tumor and in the pathogenesis of torsion of the pedicle was demonstrated in a phantom experiment. However influence of peristalsis could not be demonstrated in animal experiments and the role of hemodynamic factors remains undecided. Torsion of the pedicle apparently takes place only when several favoring factors develop at the same time. This explains its relative rarity.

## Dia Médico, Buenos Aires

14 33-52 (Jan 19) 1942 Partial Index

- \*Clinical Symptoms and Roentgen Signs of Malignant Tumors of Bone—O Copello—p. 3

**Clinical Symptoms and Roentgen Signs of Malignant Tumors of Bone**—Copello made observations on 60 patients with malignant tumors. Local pain tumor and dysfunction of the involved limb are common to all malignant tumors of bone. Malignant osteoblastoma and osteogenic sarcoma develop from bone cells of osteogenic tissues of bone in patients between the ages of 15 and 25. Tumors of these types are rare after 50. Persistent local pain may be the only symptom for a long time. The tumor is solitary. A local venous network is formed and the temperature of the local skin is increased. Edema is observed in cases of advanced tumor. The tumor develops preferably in the metaphysis of the long bones especially the femur and the tibia. The patients live in a relatively good condition for a long time. Fever, leukocytosis and pathologic fractures are rare. Metastasis to the lung and to other bones develops early in the course of the disease. The tumor appears in the roentgenogram as a round or fusiform shadow. Bone changes are typical of osteolysis of osteogenic reaction of the tumor and of the cortex and destruction of bone. Reticulosarcoma of Ewing's type develops from bone cells of reticulo-endothelial tissue of bone in patients between 10 and 30 years old. The solitary tumor appears early in the course of the disease develops rapidly and forms metastases in bones. Pathologic fractures occur in 40 per cent of cases. Fever and leukocytosis are frequent. The general condition of the patient deteriorates and the weight rapidly diminishes. The two main types of roentgen changes are osteolytic and the reactional osteogenic. Myeloma develops from bone cells of the hemopoietic tissue of the bone. The tumor is either multiple or generalized. It develops in persons between the ages of 30 and 48. The thoracic bones are the ones most frequently involved. Osteogenesis is not produced. Pathologic fractures occur in 62 per cent of the cases. Destruction of bone is the cause of various thoracic deformities with consequent bronchopulmonary disease. Renal complications occur. Roentgenograms show multiple or generalized osteolysis and destruction of the cortex of bone similar to the changes due to general metastases of other tumors. Medullary fibrosarcoma develops from bone cells of the connective and vascular tissues of bone in patients between

the ages of 30 and 50 years. Any bone may be involved. The femur is the seat of predilection. The disease is more frequent in women than in men. The tumor is large and painful to pressure. Pathologic fractures are frequent. The tumor gives rise to early metastasis by way of the blood.

## Revista Española de Tuberculosis, Madrid

10 499-548 (Sept.) 1941

- \*Limited Costal Resections in Adherent Pulmonary Zones in Case of Ineffective Artificial Pneumothorax P A Buñlla and D Garcia Alonso—p. 499
- Reflections on Antituberculosis Campaign C Calabarder—p. 505
- Antituberculosis Vaccination and New Ideas Regarding Epidemiology of Tuberculosis A Urgotti—p. 515
- Problem of Work of Tuberculous Patients J A Renedo—p. 521
- Systematic Investigations as Chief Function of Antituberculosis Dispensaries R Navarro Gutierrez and F Paz Espeso—p. 523
- Fra of Tuberculin Verdes Montenegro—p. 527
- \*Campaign Against Tuberculosis and Children's Homes R Navarro Gutierrez and R Martinez Alvarez—p. 531

**Limited Costal Resection in Ineffective Pneumothorax**—Buñlla and Garcia Alonso present the history of a woman aged 24 with severe ulcerative tuberculosis of the upper lobe of the right lung. Artificial pneumothorax proved ineffective because of extensive inoperable posterior adhesions which kept a large cavity open. Extrapleural pneumonolysis was considered dangerous because of the type and localization of the cavity. Phrenic exeresis would probably not have had a beneficial effect because of the high parietal localization of the cavity. Abandonment of the artificial pneumothorax was regarded as a poor solution. Limited costal resection in the zone of adhesions seemed to be the only treatment from which closure of the cavity might be expected. The operation was relatively well tolerated and was followed by rapid improvement of the clinical symptoms with immediate reduction in the volume of the cavity. In spite of the early appearance of an exudate which necessitated premature abandonment of the therapeutic pneumothorax, the patient was clinically and roentgenologically cured twenty-two months after the operation. Examination for bacilli gave negative results. Limited costal resection in the zone of pulmonary adhesions, employed with the aim of completing an ineffective pneumothorax, deserves consideration when other complementary or substitutional treatments are impossible.

**Campaign Against Tuberculosis**—Navarro Gutierrez and Martinez Alvarez stress that an open tuberculous lesion is the chief focus of infection and that the isolation of the patient is therefore of primary importance. They discuss the danger of conjugal infection and the possibility that parents may become infected by tuberculous children, but they regard the danger for children particularly young children, as being much greater if the parents have open tuberculosis, in which case it will often be more economical and more effective to remove the children than the patient. It is suggested that children in poor homes where the mother has open tuberculosis and eliminates tubercle bacilli should be placed in the children's homes of the Auxilio Social (social aid).

## Geneeskundig Tijdschr v Nederl-Indie, Batavia

81 2573-2620 (Dec 2) 1941

- Autoregulation of Blood Pressure A de Waart—p. 2574
- Detachment of Torpid Cuts of Possible Tuberculous Etiology Caer R Kornel Singawinata—p. 2593
- \*Chondroma of Scapula L P van Lelveld—p. 2601

**Chondroma of Scapula**—According to van Lelveld, chondroma is comparatively rare and the localization in the reported case is an exception. A Javanese aged 25 came to the hospital with a painful swelling which had existed in the middle of the left scapula for about two years. Roentgenoscopy disclosed bony tissue and an exploratory excision revealed an osteochondroma. The growth was connected to the surrounding muscles, which had to be removed in part. The postoperative course was normal and the patient was discharged without complaints. The surgical specimen measured 11 by 8 by 6 cm. Sectioning disclosed chiefly cartilage with here and there inclusions of bone tissue of which it could not be ascertained whether they were originally bone or ossified chondroma.

## Book Notices

**The 1941 Year Book of Industrial and Orthopedic Surgery** Edited by Charles F. Palnter M.D., Orthopedic Surgeon to the Massachusetts Women's Hospital, and Beth Israel Hospital Boston. Cloth. Price, \$3. Pp. 432, with 353 illustrations. Chicago: Year Book Publishers Incorporated, 1941.

It is not often that a doctor gets so much for so little. This applies especially to general practitioners and to industrial, traumatic and military surgeons. The best of the leading articles of the year have been selected by the editor and have been abstracted. Some of the two hundred and twenty-two contributions include locking wrist, arthritis, emergency fracture treatment, industrial medicine, differential diagnosis of low back pain, treatment of war wounds of limbs and war burns, treatment of painful feet, four essential points in immediate care of industrial injuries, five principles of management of hand infections, gout, fractures of the forearm and elbow in children, scalenus anticus syndrome, first aid for injuries to the knee and spinal column, special splints for the fingers and thumb, treatment of acute osteomyelitis in children, technic of pedicled flaps for skin plastics, early diagnosis of tuberculosis of the knee in young adults, conservative surgery and roentgen therapy of benign and malignant bone tumors.

**Woman's Personal Hygiene: Modern Methods and Appliances** By Conna W. Chalmers. Foreword by Winfield Scott Pugh, B.S., M.D. Drawings by Alfred Feinberg. X-rays by Winfield Scott Pugh, M.D. Photographs by Tom Rodd. Cloth. Price, \$2. Pp. 192, with 32 illustrations. New York: Pioneer Publications Inc., 1941.

This book was prepared by a lay woman, the wife of a physician, as an educational contribution for the enlightenment of all women, especially from the point of view of sex health. The subjects discussed are the anatomy of the female pelvic organs, the glands of internal secretion, displacements of the uterus, dysmenorrhea, leukorrhea, venereal disease, vaginal hygiene, vaginal douches, postpartum exercises and marital relations. At the end of the book is a list of "don'ts," with some of which the reviewer disagrees. The author says "Don't fail to take an occasional douche, regardless of your excellent health. Douches are refreshing and most women need a 'vaginal cocktail' at least twice a week." This surely is not sound advice. Furthermore, the author says "Don't put off visiting your doctor if you have any pelvic displacements." How is the patient to know about her displacement and, even if she has one, does this always or even usually call for treatment? Also "Don't fail to keep the genitals immaculate at all times." This is a peculiar use of the word "immaculate." On the whole the advice given is excellent. The author quotes a number of leading American authorities throughout the book and gives a bibliography. The language is clear and there are many illustrations which greatly enhance the text.

**Allergy in Clinical Practice** By Staff Members of the Cleveland Clinic. Under the direction of Russell L. Haden M.D., F.A.C.P., Chief of the Medical Division. Edited by J. Warlick Thomas M.D., F.A.C.P., Chief of the Section on Allergy. Fibroid. Price \$5. Pp. 354, with 92 illustrations. Philadelphia: Montreal & London: J. B. Lippincott Company, 1941.

A passage from the introduction well describes the purpose and the scope of this volume. This book has been prepared primarily to illustrate the role of allergy in the production of disease in man. A specialist in each field in which allergy is applicable has evaluated this principle in his field, which seems to be much more desirable than the allergist to evaluate the role of allergy in some other specialist's field.

After the introduction and general discussion on the allergic approach the book devotes a chapter each to bronchial asthma, hay fever, perennial nasal allergy, allergic bronchitis, bronchiectasis, contact dermatitis, atopic dermatitis, drug eruptions, fungus allergies, urticaria, gastrointestinal allergy, ocular manifestations, allergic headaches, endocrine considerations and miscellaneous manifestations. The problems of diagnosis receive proper consideration, and the importance of an adequate and complete history in all cases of allergic disease is emphasized, as rightly should be done. The necessity for careful differential diagnosis before an allergic investigation is undertaken and the

search for coexisting disease of a nonallergic origin requires, according to the authors, cooperation between the allergist and various specialists.

Treatment for each condition is outlined in a general manner, and then a number of detailed case histories are used to illustrate each disease that has been discussed. These case histories represent nearly 50 per cent of the subject matter of the book. The cooperation in treatment, as in diagnosis, of specialists in different fields is set forth as the ideal means of serving the best interests of the allergic patient.

The details of allergic examination, such as preparation of antigens, skin testing and numerous other details of procedure, are omitted, as they should be in a book of this nature. Hypo-sensitization is dealt with briefly in the chapter on hay fever.

Preference is expressed for the perennial type of treatment of this condition. It is gratifying that the authors do not deal with procedures of questionable merit or unproved therapeutic value, many of which have received more or less prominence in recent years. There are, however, some statements that should not go unchallenged, of which the following one, in reference to allergic conjunctivitis, is an example: "Among the inhalant factors, dust, feathers, molds, tobacco smoke and ashes, pollens and animal epidermals must be considered as etiologic suspects." There is no evidence in the literature that tobacco smoke or ashes can be more than mechanical irritants, and certainly they cannot be primary etiologic agents.

This book is written by clinicians, it is not a highly scientific work, nor does it bring out any particularly new ideas. It does serve to bring to the attention of readers who have not followed the rapid strides which allergy is making that allergy may be a factor in diseases other than hay fever and asthma. It should make its readers in general alert to consider an allergic basis in the differential diagnosis of many obscure conditions. There are numerous helpful illustrations throughout the text.

**Diseases of Women** By Harry Sturgeon Crossen M.D., F.A.C.S., Gynecologist to the Barnes Hospital, St. Louis, and Robert James Crossen, A.B., M.D., Assistant Professor of Clinical Gynecology and Obstetrics, Washington University School of Medicine, St. Louis. Ninth edition. Cloth. \$12.50. Pp. 948, with 1,127 illustrations. St. Louis: C.V. Mosby Company, 1941.

This textbook of gynecology is remarkable for its excellent illustrations. Apparently the senior author has been collecting sketches and figures ever since his first edition thirty-four years ago. As a result, the present edition depicts the technique of vaginal examination with a series of plates which is perhaps unequalled. These are accompanied by a detailed description of the manipulations essential to accurate diagnosis. If pelvic diagnosis can be taught by a book, this is the book to do it. In other respects also the work is excellent. Many handsome colored plates have been borrowed from the literature of pharmaceutical houses, and many nearly perfect photographs in color have been secured from other sources. The section on endocrinology has been brought up to date, even though momentarily. References are easily found in a section of twenty-four pages at the end of the book. The main volume of material is what may be expected in a standard textbook of gynecology. No additional commendation is necessary. As a medical book passes through many editions, it often suffers more from what is retained than from what is added. This fine work is no exception, much could be compressed, much omitted. It is not easy for the surgeon to place his book under the scalpel.

**A Text Book of Neuro-Anatomy** By Albert Kuntz, Ph.D., M.D., Professor of Micro-Anatomy in St. Louis University School of Medicine, St. Louis. Third Edition. Cloth. Price, \$6. Pp. 518, with 307 illustrations. Philadelphia: Lea & Febiger, 1942.

This excellent work contains the same number of illustrations as before but some of them are new. All the practical features of the second edition are retained. The newer studies of the diencephalon are included. Microscopic studies of the cerebral cortex have been added. Twenty-six chapters comprise the contents, beginning with the evolution and comparative anatomy of the nervous system and concluding with a laboratory outline. The author expresses himself with clarity and interest. The book is written concisely and should be in the library of every medical man interested in neurology.

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT HOWEVER REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS BUT THESE WILL BE OMITTED ON REQUEST.

### COMBINED DIPHTHERIA AND WHOOPING COUGH IMMUNIZATION

To the Editor—Please advise me regarding the efficacy of combined diphtheria and whooping cough serum. Is use of this form preferable to the old method of giving separate immunization?

Alfred H. Hathcock, M.D., Fayetteville, Ark.

ANSWER—Although a few preliminary reports on the injection of a mixture of pertussis vaccine and diphtheria toxoid for the simultaneous prevention of whooping cough and diphtheria have recently appeared, sufficient time has not elapsed for clinical evidence to prove that protection against whooping cough has thus been conferred.

It seems premature to recommend to physicians in private practice the use of any of the products so far proposed. Carefully controlled clinical studies, covering a period of years, should ultimately decide whether such simultaneous immunization will confer prolonged immunity. The reactions to mixed or so-called combined antigens, especially those made with alum, is more severe than that which ensues when the antigens are injected singly.

### SIGNIFICANCE OF THE DEXTROSE TOLERANCE TEST

To the Editor—For a patient with chronic weakness and lassitude what significance have the following results of the dextrose tolerance test obtained after 100 Gm of dextrose has been given by mouth?

|         | Blood Sugar | Urine |
|---------|-------------|-------|
| Fasting | 90          | —     |
| 1 hour  | 63          | —     |
| 2 hours | 94          | —     |
| 3 hours | 80          | —     |
| 4 hours | 76          | —     |
| 5 hours | 75          | —     |
| 6 hours | 78          | —     |

L. A. Crowell Jr., M.D., Lincoln, N.C.

ANSWER—In recent discussions (Lepore, M. J. Clinical Significance of Low or "Flat" Oral Glucose Tolerance Curve, *Ann Int Med* 14 2008 [May] 1941; Lepore, M. J., and Golden Ross, A Syndrome Due to Deficiency of the Vitamin B Complex, *THE JOURNAL*, Sept 13, 1941, p. 918) the known causes of a low or "flat" oral dextrose tolerance curve have been classified as follows: (a) poor or slow absorption of dextrose from the digestive tract, (b) rapid removal of dextrose from the blood stream and (c) combinations of a and b. Among the diseases mentioned are sprue, malnutrition, vitamin B deficiency states, celiac disease, tuberculosis of the small intestine, tumors of the small intestine, hyperinsulinism, previous high carbohydrate diet, Addison's disease, hypopituitarism including Simmonds' disease, hypothyroidism and renal glycosuria. The reader is referred to the articles cited for a full discussion.

With the patient in question one wonders as to the validity of the figure of 63 mg. per hundred cubic centimeters at the one hour interval. It seems inconsistent with the other values obtained.

Inspection of the values rules out certain of the diseases mentioned. The relatively normal fasting value and the fact that the six hour value is no lower than 78 mg. are against hyperinsulinism due to an islet cell tumor. The absence of glycosuria except in one specimen rules out renal glycosuria. Not enough clinical and laboratory data are furnished to enable one to analyze the situation further, but with the possibilities outlined kept in mind the analysis may be possible. Prominently to be considered are vitamin B deficiency and the endocrinopathies listed.

It would be well worth while to repeat the test at first giving the dextrose orally and then, on a second occasion a week later, intravenously. It must be emphasized that the results of a dextrose tolerance test are influenced by many variables and must always be interpreted with caution and with regard to clinical findings.

### SAKE, JAPANESE RICE WINE

To the Editor—Please give me information as to sake (Japanese rice wine) from a clinical point of view. I refer more particularly to any harmful (or beneficial [?]) effects it may have of an unusual or specific sort as compared to other strong alcoholic beverages. For example, does it conduce to alcoholic polyneuritis more than other alcoholic drinks of more or less equal alcoholic content (it has 17 per cent plus)? In the medical library here and in the city's public library I have not as yet been able to find any information at all of a clinical nature and no references to it even in the indexes of volumes on toxicology, legal medicine and the like. All other books even mentioning sake are rather brief and incomplete as to any information.

H. Otto Sommer, M.D., Denver

ANSWER—The following information has been taken from Edward R. Emmerson's "Beverages, Past and Present," *Chemical Abstracts* and other sources.

The Japanese beverage sake is unique in character, since it is not beer, wine or brandy, but it resembles all three and is often spoken or written of as rice beer, rice wine or rice brandy. Authentically, sake was introduced into Japan about the fourth century. The name seems to be derived from the city Osaka. It is yellowish white and has an acidulous, sherry flavor. It is high in alcoholic content, running 12 to 17 per cent by volume. Sake is the national beverage of Japan and has spread over our Western states through Japanese immigrants. The drink is served in porcelain cups and consumed at body temperature. It is made by Emil Sick of the Lethbridge Brewing Company, Lethbridge, Alberta, Canada.

The mode of preparation varies, but the principal steps are as follows. A culture of a ferment or enzyme (fungus mold) called koji is prepared by growing on rice medium. Hulled rice is washed with fresh water until the water runs off clear. The last water remains on the rice and is steamed to gelatinize the rice and prevent it from sprouting. The soft material is spread on straw mats to cool. At blood temperature this medium is seeded with fane-koji, a sporadic growth of fungus (fane meaning seed) and thoroughly mixed. After several days, during which time the material assumes a less viscous state, the mash is prepared. This consists of 10 parts of rice, 4 parts of koji ferment and 12 parts of water, all taken by weight. The mixture is kept at favorable temperatures for fermentation, and in about fourteen days this is completed. The material is now ready to be filtered under pressure and the turbid liquor is placed in a vertical cask for clarification. After several months the product is ready for consumption. Sake is made during the cold months of the year.

The literature has little on the subject of vitamins in sake. The occurrence of vitamin B in sake and sake-kasu (pressed cake) was investigated by Inukai, Higashi and Nakahara (*Scientific Papers, Institute of Physicochemical Research, Tokyo* 24 113, 1934). Animal experiments described in this paper demonstrate that sake-kasu and raw sake are good sources of the growth promoting vitamin B. The antineuritic vitamin B<sub>1</sub> does not seem to be contained in these fermentation products. A striking difference was found between the bottled sake on the market and the raw sake before the "hite" treatment (heating to stop further fermentation). The difference probably is due to the fact that sake producers treat sake with animal charcoal in order to decolorize the commercial product with the resultant removal of the growth promoting vitamin.

Since the manufacture of sake is somewhat similar to that of beer, it may be assumed that the vitamins in the two products share a similar fate. In beer it is known that thiamine is destroyed to the extent of over 90 per cent during the process of fermentation, so that 100 cc. of beer contains but 1 international unit or about one three-hundredth of the daily requirement of this vitamin. It may therefore be assumed that sake would have the same relationship to polyneuritis that vitamin free beverages of the same alcoholic strength would have.

### GREEN SWEAT

To the Editor—A machinist aged 35 whose present work entails considerable drilling of iron castings at relatively high speeds perspires moderately with a material that stains his underclothing green. Information relative to this condition will be greatly appreciated. Would working in bronze produce any different reaction?

M.D. Ohio

ANSWER—It would be of interest to know whether the perspiration itself of this workman as well as the fabric of the underclothing, is actually greenish and whether the color occurs in the perspiration from all parts of the body. It would be of interest to know also the duration of the coloration if it existed before the present job and if it occurs only during the working period or during week ends or vacations on vigorous exercise. Certain persons have a brownish reddish or even a faint vel-



lowish color to the axillary portion of the underclothing caused by masses of chromogenic bacteria attached to the hairs in that region. Cases of true chromidrosis have been reported rarely. Green sweat supposedly from the ingestion or absorption of copper has been seen in a few cases, and in 1 case blue chromidrosis was presumed to be due to the iron the patient had been taking. The standard works on occupational dermatoses do not cite any cases of green coloration from perspiration in connection with iron or steel workers, but reference is made to a greenish discoloration of perspiration among workers exposed to bronze dust. If the inquirer's patient has a true green chromidrosis it would be of great interest from the physiologic point of view to attempt to work out the etiologic factors.

#### HEALTH HAZARDS IN PEARL BUTTON INDUSTRY

**To the Editor**—A woman aged 35 has had a persistent cough and frequent head colds for ten months and has lost 27 pounds (12 Kg) during the last twelve months. She works in a pearl button factory at feeding a machine which bores holes and grinds buttons and creates considerable dust. A roentgenogram of the chest showed no evidence of tuberculosis. The sinuses are clear except for acute coryza. There are no evidences of other diseases. I should like to know if the dust from the pearl buttons (made from mussel shells) could have any significance in this case. **W B Wilcoxon, M D, Bowling Green, Mo**

**ANSWER**—In 1920 Birge and Havens published an article on health hazards in the pearl button industry (*J Indust Hyg* 2:81 [July] 1920). They reported that the general health of employees was good at that time but that "catarrhal conditions" were extremely common. The rooms where buttons were bored and ground were equipped with an exhaust system, but there was still a good deal of dust.

No roentgenograms were made, but physical examination revealed no more tuberculosis than was present in the population of the community. Contrary to the general impression, infections of the hand and osteomyelitis of the bones of the hand and forearm were not discovered. Rheumatism and indigestion were common complaints.

From the data available it is difficult to imagine the cause of the symptoms described in the query.

#### EFFECT OF MERCURY VAPOR LAMPS ON THE EYE

**To the Editor**—I should like to know if there is any evidence that mercury vapor lamps, as used for industrial lighting, cause any symptoms of eye irritation or disturbances of vision. If there is no direct effect on the eyes, would the distortion of colors (of manufactured parts, such as various colored cables) be a source of eye irritation or visual disturbance?

**H W Garton, M D, Fort Wayne, Ind**

**ANSWER**—Mercury vapor lamps, when the rays are directed into the eye, can cause an irritating conjunctivitis and superficial punctate keratitis. The lights used industrially, however, are usually very high and of insufficient intensity to cause irritation to the average person. A light-complexioned individual is more susceptible to such rays than a brunet type. It is unlikely that working on colored objects under colored light would be any additional source of irritation. Exposure without the use of goggles for a long time to the rays from colored vapor lamps, in the form of the so-called sunlight lamps, produces a superficial punctate keratitis of varying degrees, depending on the length of exposure, and can even cause permanent visual disturbance by opacities of the cornea.

Basil Graves cites such a case in "The Eye and Its Diseases" by Behrens, and Duke Elder, in his "Advances of Ophthalmology" (Philadelphia, P Blakiston's Sons & Co, 1934), describes the pathology of this condition.

#### INTRAVENOUS MERCUROCHROME FOR UNDULANT FEVER

**To the Editor**—Intravenous mercurochrome therapy is commonly used here for infections of the blood stream. I was criticized for not using it in a case of acute undulant fever. What is the present status of the intravenous mercurochrome treatment of acute undulant fever or of any infection of the blood stream?

**M D, New York**

**ANSWER**—Evidence that intravenous administration of mercurochrome significantly modifies the course of brucella infections has never been presented, beyond an occasional, and sometimes striking, immediate clinical improvement. When improvement has occurred a causal relationship has not always been clear, and recorded postrecovery observation periods have been so short that claims of recovery or cure cannot be substantiated. The treatment is not entirely safe. Chills, hyperpyrexia, vomiting, abdominal pain, diarrhea and albuminuria are frequent side effects. Complete anuria has resulted.

For most of the commonly encountered septicemic infections chemotherapy with an appropriate sulfonamide derivative is safer and demonstrably far more efficacious than mercurochrome therapy.

#### RETINITIS PROLIFERANS

**To the Editor**—I should like information on the latest methods of therapy for retinitis proliferans.

**R H Kuhns, M D, Los Angeles**

**ANSWER**—Retinitis proliferans is a complication of general disease, such as diabetes, inflammations or injuries, or is due to hemorrhage of the retina and vitreous. The treatment therefore depends to some extent on the cause.

In the diabetic form, of course, general treatment is indicated. In the inflammatory form, Dugan advises foreign protein therapy, nitrites intravenously and by mouth. Potassium iodide internally is the old standard treatment, and high doses of vitamin C with vitamin B complex may be used in this condition regardless of the cause. Subconjunctival injections of sodium chloride are used by some, and ethylmorphine hydrochloride applied locally in the conjunctival sac is advised by others. Such local applications are of doubtful value.

Prognosis is poor, and treatment is most often without avail.

#### HYDROTHORAX IN CONGESTIVE HEART FAILURE

**To the Editor**—Is there an explanation for the development of hydrothorax in congestive heart failure in the right side of the chest so much more frequently than in the left side?

**M D, Utah**

**ANSWER**—There is not as yet any proved explanation as to why hydrothorax in congestive heart failure is so much more frequent on the right side than on the left. A likely answer is based on the anatomic configuration of the venous return of blood from the pleural cavities. On the right side drainage is by way of the vena azygos major directly into the superior vena cava, when the latter is badly congested in right heart failure the vena azygos is quickly blocked. The left pleural cavity largely drains via the vena azygos minor, which usually empties into the left innominate vein and so is not so immediately obstructed as is the vena azygos major. There may be also, however, another factor involved in the pulmonary circulation per se, consisting of a freer return of blood into the left auricle from the left lung than from the right. More study of this interesting problem is needed.

#### DESENSITIZATION AGAINST ERYSIPELAS

**To the Editor**—A man aged 45 has had frequent attacks of erysipelas which always start on the outside of the left leg. Between the attacks there are no visible cutaneous lesions which could serve as entrance for the infection. The condition reacts promptly to sulfonamide therapy. Is there any possibility that the patient could be desensitized? Have you any other suggestion for preventive treatment?

**M D, New York**

**ANSWER**—It is possible to produce a higher protective immunity to erysipelas by subcutaneous injections of erysipelas toxin. Most important is treatment of epidermophytosis or any nidus of infection which may provide a focus for the intermittent spread of erysipelas.

#### USE OF PRESSURE COOKER FOR STERILIZING

**To the Editor**—In connection with the last paragraph of the answer (*The Journal*, Feb 28, 1942, p 770) which states "Since pressure cookers are not equipped for drawing a vacuum at the conclusion of sterilization bandages and wrappings will be slightly moist when the cooker is opened, and should be immediately dried by a moderate heating in an oven," I suggest that a sufficiently low moisture content is produced in bandages and wrappings for immediate use if the operator removes the vent weight on conclusion of the sterilization period. It must be remembered that when the temperature drop leads the pressure drop the result is condensation and moisture, however, when the pressure drop leads the temperature drop the result is evaporation. The rapid dropping of pressure will cause most of the moisture trapped in the bandages and wrappings to boil off vigorously. **Alfred Vischer Jr, 412 Orleans Street, Chicago**  
**Vischer Products Company**

**To the Editor**—Your correspondent states (*The Journal* Feb 28, 1942, p 770) "Since pressure cookers are not equipped for drawing a vacuum at the conclusion of sterilization, bandages and wrappings will be slightly moist when the cooker is opened and should be immediately dried by moderate heating in an oven." It is, however, easy to create a vacuum in them at the end of autoclaving and to obtain dry sterilized goods. After the desired time of pressure sterilization has elapsed, one turns off the heater, opens the steam valve and lets the steam blow off until the pressure has fallen to zero. Then one closes the valve, removes the cooker from the heater and places it in a pan or sink filled with cold tap water. This will bring condensation on the bottom and will create a vacuum. After a few minutes cooling, the valve is opened and air is permitted to enter the cooker until the air flow stops. Then the cooker is opened and the sterilized goods will be found dry. It is not advised to cool the lid of the cooker also, as this would lead to water precipitating on its inside and the droplets might fall and wet the goods.

**Heinrich Lamm, M D, La Feria, Tex**

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## IRRADIATED ERGOSTEROL POISONING

REPORT OF TWO CASES

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AND

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BALTIMORE

During the past five years there have been an increasing number of clinical reports regarding the use of massive doses of vitamin D in the treatment of rickets, tetany, rheumatoid arthritis and various allergic states.<sup>1</sup>

We shall make no attempt to evaluate the therapeutic efficacy of vitamin D or its concentrates in these conditions but shall rather put out a suggestion of caution regarding the possible ill effects that may follow, under certain circumstances at least, the employment of massive doses of the vitamin.

That vitamin D and the irradiated sterol concentrates may produce toxic reactions has been recognized for many years. Numerous writers have described the occurrence of anorexia, loss of weight, nausea, vomiting, abdominal pain, diarrhea, muscular weakness, headaches, polyuria and polydipsia in both man and animals. Acute intoxications in animals have resulted in coma and death.<sup>2</sup> Only two or three deaths have been described in man. These will be referred to later. It is of interest that most of the patients who have been given massive doses of vitamin D have shown only minor evidences of intoxication and it is perhaps for this reason that the more severe consequences of massive therapy have not been appreciated. Thus McLean<sup>3</sup> says "the dangers of the toxic effects of these substances, while real, have been somewhat overemphasized," and Steinberg<sup>4</sup> echoes him.

It is thus to encourage an attitude of respect for the potential dangers which may lie in the employment of large doses of ergosterol, under certain circumstances

at least, that we present these 2 cases in which a major manifestation of ergosterol intoxication of a serious nature was a prominent and interesting feature.

### REPORT OF CASES

**CASE 1—History**—J. W., a white man aged 22, was admitted to the medical service of the Johns Hopkins Hospital on July 23, 1941. The history revealed only the usual childhood diseases. The system review was entirely negative. He had never had urgency, frequency, nocturia, hematuria or oliguria. He stated that he had never had venereal disease. He was employed in an airplane factory and had never been exposed to any toxic agents. On July 2 he had been struck by an automobile and had fractured his left femur and left clavicle. His leg was immobilized in traction and on July 8 he was given a large dose of a preparation of ergosterol containing 50 per cent calciferol and 50 per cent of a mixture of lumisterol, tachysterol and toxysterol. During the succeeding twelve days he received approximately 750,000 international units of the preparation daily. This medication was frequently given in a glass of milk. Throughout this period he ate a diet which contained 15 to 2 Gm. of calcium daily. At the end of twelve days the patient complained of nausea followed by abdominal pain and later of vomiting, which became almost intractable. At this time the urine was examined and found to contain many hyaline casts and red blood cells. It is significant to note that urine examinations prior to the administration of vitamin D were entirely normal.

He was therefore admitted to the medical service, where the physical examination was essentially negative but for a fractured left femur and left clavicle. Blood studies showed red blood cells 3,730,000, hemoglobin 85 Gm, hematocrit 33 per cent volume of packed cells and white blood cells 7,600, with a normal differential count. The anemia was thought to be due to blood loss at the time of the accident. On admission the urine had a specific gravity of 1.006 and contained no sugar or albumin. The sediment showed red blood cells 1 to 2, white blood cells 1 to 2 and numerous hyaline casts. The Sulkowitch test for hypercalciuria was 4 plus. Chemical examination of the blood revealed a serum calcium level of 15 mg. per hundred cubic centimeters, serum phosphorus 38 mg. per hundred cubic centimeters, blood nonprotein nitrogen 52 mg. per hundred cubic centimeters and serum carbon dioxide combining power 72.7 volumes per cent. Chart 1 illustrates the subsequent course of events.

**Course**—Fluids were forced and the patient was provided with a low calcium diet (0.2 Gm. of calcium intake daily). Nausea, vomiting and abdominal pains disappeared on the second day and he remained symptom free thereafter.

Attention is called to the prolonged elevation of the blood calcium. It is interesting to note that there was no concomitant depression of the blood phosphorus. A transient degree of renal impairment accompanied the hypercalcemia. This was evidenced by the elevation of the blood nonprotein nitrogen and the depression of the phenolsulfonphthalein and urea clearances. We should like to suggest, however, that this functional impairment was not by any means entirely transient despite the rapid return of the phenolsulfonphthalein and urea clearance to normal values, for even after weeks had

From the Medical Clinic the School of Medicine Johns Hopkins University and Hospital.

1. Reed C. I. and Seed L. The Treatment of Clinical Tetany with Irradiated Ergosterol. *Endocrinology* 17: 136-148, 1933. Rappaport B. Z. and Reed C. I. Viosterol of High Potency in Seasonal Hay Fever and Allergy. *J. A. M. A.* 101: 105-109 (July 8), 1933. Rappaport B. Z., Reed C. I., Hathaway Milcent L. and Struck H. C. The Treatment of Hay Fever and Asthma with Viosterol of High Potency. *J. Allergy* 5: 541-553, 1934. Dreyer I. and Reed C. I. The Treatment of Arthritis with Massive Doses of Vitamin D. *Arch. Phys. Therapy* 16: 537-540, 1935. Vrtak E. G. and Lang R. S. Observations on the Treatment of Chronic Arthritis with Vitamin D. *J. A. M. A.* 106: 1162-1163 (April 4), 1936. Vollmer H. Treatment of Rickets and Tetany by Parenteral Administration of One Massive Dose of Vitamin D. *J. Pediatr.* 16: 419-432, 1940. Steinberg C. L. Massive Doses of Vitamin D in Chronic Arthritis. Its Effect on Calcium Metabolism. *J. Lab. & Clin. Med.* 24: 17-24, 1938.

2. Stacey R. S. Treatment of Low Calcium Tetany with Calciferol. *Lancet* 2: 656-658, 1935. Ross S. G. and Williams W. E. Vitamin D Intoxication in Infancy. *Am. J. Dis. Child.* 58: 1142 (Nov.), 1939. Klein I. J. Effects of Massive Doses of Irradiated Ergosterol. *J. A. M. A.* 92: 621 (Feb. 23), 1929. Harris L. J. and Moore T. Hyper-vitaminosis D and Vitamin Balance. *Biochem. J.* 22: 1461, 1928. Vrtak E. and Ling L. McLean F. C. Activated Sterols in the Treatment of Parathyroid Insufficiency. *J. A. M. A.* 117: 609-619 (Aug. 23), 1941.

3. Steinberg C. L. Massive Doses of Vitamin D in Chronic Arthritis. *J. Lab. & Clin. Med.* 24: 17-24, 1938.

passed the patient still could not concentrate his urine above 1 020. This we believe is evidence of continued and significant renal damage. Throughout this entire period the daily urinary output was 1,200 to 2,000 cc. After the first five days the urinary sediment was entirely clear. The blood pressure was never elevated above 120 systolic and 80 diastolic. The electrocardiogram remained normal. X-ray examination showed no calcium in the kidneys or other tissues and no osteoporosis. Biopsy of the sternum on August 5 showed normal bone marrow. Six months after the accident the fracture had not yet healed and orthopedic consultants felt that there was delayed healing and poor callus formation.

**CASE 2—History**—W. S., a Negro aged 22, was admitted to the medical service of the Johns Hopkins Hospital on July 25, 1941. His general health had been excellent and he had never had any serious illnesses. He did not have nocturia, hematuria, dysuria or frequency. On June 30 he was struck by an automobile and sustained a compound fracture of the left tibia and fibula and also of the lower end of the left femur. The leg was put in traction and a cast applied. On July 8 he was started on approximately 750,000 international units daily of a preparation of irradiated ergosterol containing 50 per cent calciferol and 50 per cent lumisterol, tachysterol and toxisterol. This preparation was frequently given in milk. On July 25 he was taken with nausea and vomiting. The diagnosis of irradiated ergosterol intoxication was suggested and he was admitted to the medical service at this time. Physical examination revealed no abnormalities other than the fractures. On admission examination showed red blood cells 4,800,000, hemoglobin 12 Gm., hematocrit 35 per cent volume of packed cells, white blood cells 7,450. On admission the urine had a specific gravity of 1.005 and contained no sugar or albumin. There was an occasional white blood cell and cast. There were no red blood cells. Chemical examination of the blood revealed a serum calcium level of 18 mg. per hundred cubic centimeters, serum phosphorus 2.9 mg. per hundred cubic centimeters and blood nonprotein nitrogen 47 mg. per hundred cubic centimeters. Chart 2 illustrates the patient's subsequent course.

**Course**—Fluids were forced and the patient was given a diet containing approximately 0.2 Gm. of calcium daily. In twenty-four hours the nausea and vomiting subsided and he remained symptom free.

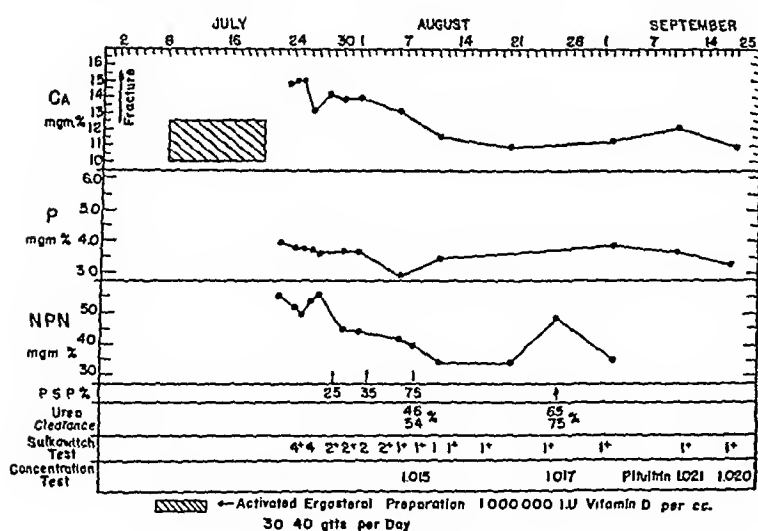


Chart 1—Observations in case 1

One is struck by the remarkably prolonged elevation of the serum calcium. As in the first case the phosphorus was not reduced in the presence of hypercalcemia but remained at a normal or slightly elevated level. Azotemia was slight and of short duration. There was also a transient depression of the phenolsulfonphthalein excretion and urea clearances and a persistent inability of the kidneys to concentrate urine. It is of interest

that on November 27 (twenty weeks following the administration of the drug) the patient returned for a check-up. Although the phenolsulfonphthalein excretion was 80 per cent and the urea clearance 120 per cent of standard, he was unable to concentrate the urine above 1 010. An interesting feature which this patient

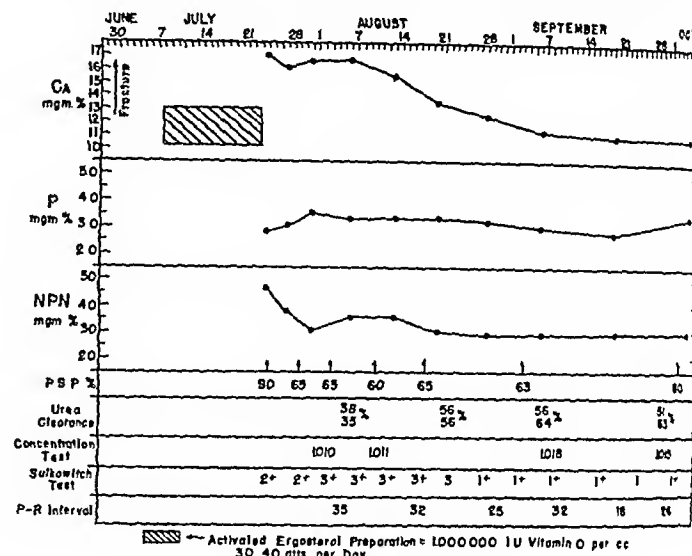


Chart 2—Observations in case 2

showed was remarkable prolongation of the PR interval. This has been described in various conditions associated with hypercalcemia. X-ray studies did not show calcification in the urinary tract or soft tissue. There was no osteoporosis. The patient is still in a cast because of delayed healing.

#### COMMENT

In these two cases the administration of repeated large doses of irradiated ergosterol was associated with a prolonged hypercalcemia and persistent impairment of renal function.

Although postmortem examination of rats, rabbits, monkeys and dogs that had been given large amounts of vitamin D have shown renal damage of varying degrees,<sup>5</sup> similar postmortem lesions have been described in observations on only 3 patients, all infants, who had been given comparable doses of the vitamin. The cases have been described in detail by Thatcher,<sup>6</sup> Malmberg<sup>7</sup> and Putscher.<sup>8</sup> But we should not therefore conclude that renal damage is a rare form of ergosterol intoxication. Let us but remember that polyuria and nocturia have been repeatedly mentioned by numerous writers as being manifestations of vitamin D intoxication. Unfortunately, however, none of these clinical investigators have reported studies of renal function.

The question presents itself: Why did these 2 patients develop evidences of renal impairment? What particular circumstances may have led to it? At the very outset we should admit that it is perhaps impossible to give a completely satisfactory answer. But at least we can surmise.

Was it the total quantity of ergosterol which had been given that was responsible? This appears to be unlikely since much larger doses have been given to other patients without any signs of intoxication. Th. Vollmer<sup>9</sup> gave 2,260,000 and 1,260,000 units of

5. Steck, Deutsch, Reed and Struck.<sup>10</sup> Chown, Lec. Text at C. Ham.  
6. Thatcher, Lewis. Hypervitaminosis D with a Report of a Case in a Child, Edinburgh M. J. 38, 457, 1931.  
7. Malmberg, N. Acta paediat. 8, 364, 1928.  
8. Putscher, W. Ztschr. f. Kinderh. 92, 269, 1927.  
9. Vollmer, H. Distribution of Vitamin D in the Fat of Repeated Administration of Massive Doses Arch. Pediat. 59, 1942.

min D<sub>3</sub> respectively to 2 children who were about to die of a tuberculous infection, and nothing attributable to hypervitaminosis was found post mortem. Steck, Deutsch and Reed<sup>10</sup> have shown that 20,000 units per kilogram daily may be given to dogs or to patients for indefinite periods without evidences of intoxication. However, there is no unanimity of opinion on this question. Bauer and Abrams<sup>11</sup> reported that in a series of patients which they studied the administration of more than 200,000 units daily resulted in evidences of intoxication of a more or less severe degree, among them being polyuria, polydipsia and nocturia. There would therefore appear to be factors other than dosage at play.

Bauer<sup>11</sup> and others have called attention to the great individual variation from patient to patient in the dose required to produce intoxication. An amount insignificant to 1 patient may make another acutely ill. A seasonal variation with reactions much more frequent in the summer time is well established.

Diet is also an important factor, since the degree of hypercalcemia produced by irradiated ergosterol is to an important extent conditioned by the amount of calcium ingested<sup>12</sup> and we feel strongly that the renal damage is occasioned solely by the hypercalcemia.

Not the least important point is the manner in which the ergosterol is administered. Lewis<sup>13</sup> has demonstrated that vitamin D or ergosterol given in milk has ten times the potency of that given in oil. And Bauer<sup>11</sup> points out that the lack of toxicity reported by some observers following the administration of large doses of ergosterol may be accounted for on this basis.

We should like to urge strongly that the fact that these 2 young vigorous men were immobilized in casts probably played a major role in facilitating the hypercalcemia, for immobilization alone through atrophy of disuse, as emphasized by Albright,<sup>14</sup> may produce hypercalcemia with resultant renal damage in a young active person. When to the hypercalcemia so produced one adds the hypercalcemic effect of the irradiated ergosterol, an accumulation of factors can result which may prove extremely damaging to the kidneys which have to excrete it.

We had, therefore, several factors at work in these 2 cases which we suggest played a part in producing the clinical picture: large dosage of irradiated ergosterol, a diet of high calcium content, the administration of irradiated ergosterol in milk, the administration of irradiated ergosterol in summer time and finally immobilization in casts. Which of these factors played the most important part in giving rise to the intoxication seems a matter of debate.

Having considered why the intoxication occurred in these cases, one may next ponder over how it occurred.

There are at present two schools of thought concerned with the mechanism of vitamin D or ergosterol intoxication. One holds that all the symptoms of intoxication are due to hypercalcemia with consequent precipitation of calcium salts in the various affected

tissues of the body. The other contends that hypercalcemia is not at all necessary and that injury and necrosis of body tissues can occur in the complete absence of hypercalcemia or of the deposition of calcium salts. Reed<sup>15</sup> has called attention to the fact that hypercalcemia of an extreme degree may occur in the complete absence of any evidence of intoxication. Conversely, he states that he has seen severe intoxication even to the lethal stage in the presence of a perfectly normal serum calcium. Ham,<sup>16</sup> on the other hand, in a series of experiments on rats demonstrated that no degeneration of tissues preceded the precipitation of calcium salts and thought therefore that ergosterol had no specific effect on the tissues but produced damage solely through supersaturation of the blood serum with calcium and consequent salt precipitation. With ample evidence to prove both suppositions, one is free to choose sides.

In these 2 cases we are particularly interested in attempting to picture the nature of the lesions produced in the kidneys, for that is where the damage was done. The most striking functional abnormality which these 2 patients evidenced was a persistent inability to concentrate their urine, and note that this functional impairment persisted in the presence of a normal phenolsulfonphthalein excretion and urea clearance, and in the absence of albuminuria or hematuria. One would therefore expect to find the chief anatomic alterations in the renal tubules.

Is there any evidence to support this supposition? In animal experiments Steck, Deutsch and Reed<sup>10</sup> found that the kidney was the organ which was most vulnerable to ergosterol intoxication. These investigators described renal injury as due to calcium deposition which began in the tubules and thence spread to involve the entire kidney. Chown, Lee, Teal and Currie<sup>17</sup> in experiments on rabbits noted deposition of calcium within and without tubules with consequent obstruction, which finally resulted in atrophy of some nephrons and dilatation of others. They also noted necroses and inflammatory reaction which occurred about the tubular concentrations. Thatcher<sup>6</sup> described the pathologic findings in the kidneys of an 18 month old infant who died following the administration of large amounts of viosterol. These consisted of calcium deposits in the lumens of the collecting tubules with inflammatory reaction about them and fatty degeneration in the cells of the convoluted tubules.

It is our opinion that the primary pathologic agent in these 2 cases was the hypercalcemia which per se damaged the renal tubular epithelium, the only permanent sequelae of this injury being an inability to concentrate urine. In a personal communication Longcope states that he has seen exactly similar sequelae following sulfonamide nephritis,<sup>18</sup> a condition in which there is abundant evidence in both man and animals of extensive tubular involvement.

15 Reed C I, Struck H C and Steck E. Vitamin D. University of Chicago Press, 1939.

16 Ham A W. Mechanism of Calcification in the Heart and Aorta in Hypervitaminosis D. Arch. Path. 1:4 613 (Nov.) 1932.

17 Chown Bruce Lee, Margaret Teal, John and Currie Robert. Experimental Production of Nephritis in Rats by Means of Parathyroid Hormone and of Vitamin D. J. Path. & Bact. 49: 273-290, 1939.

18 Antopol William, Lehr David, Churg Jacob and Sprinz Helmut. Changes in the Urinary Tract and Other Organs After Administration of Three Sulfanilamide Derivatives. Arch. Path. 31: 592-602 (May) 1941. Clemenko D R and Wright A W. Effects of Continued Administration of Sulfathiazole and Sulfapyridine in Monkeys. Ibid. 32: 794-817 (Nov.) 1941. Gross P and Cooper F. Urolithiasis Medicamentosa. Urol. & Cutan. Rev. 44: 4 1940. Pepper D S and Horack H M. Crystalline Concretions in Renal Tubules Following Sulfathiazole Therapy. Am. J. W. Sc. 199: 674-679, 1940. Stryker W A. Nature of Renal Lesion with Sulfapyridine Therapy. J. A. M. A. 114: 953-954 (March 16) 1940.

10 Steck I E, Deutsch A B, Reed C I and Struck H C. Intoxication with Vitamin D. Ann. Int. Med. 10: 951-963, 1937.

11 Abrams A R and Bauer Walter. Treatment of Rheumatoid Arthritis with Large Doses of Vitamin D. J. A. M. A. 111: 1632-1638 (Oct. 29) 1938.

12 Bauer W, Marhle A and Claßen D. Studies on the Mode of Action of Irradiated Ergosterol. I. IV. J. Clin. Investigation 11: 163, 1932. Mel can?

13 Lewis J H. Clinical Experience with Crystalline D. Influence of Menstruum on Effectiveness of the Antirachitic Factor. J. Pediat. 6: 362, 1935.

14 Albright Fuller, Burnett C H, Cope Oliver and Parson William. Acute Atrophy of Bone (Osteoporosis) Simulating Hyperparathyroidism. J. Clin. Endocrinol. 1: 711, 1941.



## SUMMARY

1 Two patients showed evidence of intoxication which followed the administration of massive doses of irradiated ergosterol

2 The circumstances which may have contributed to this intoxication were the amount of drug which was given, the vehicle in which the drug was given, the calcium content of the diet, the factor of immobilization and the season of the year

3 Sudden skeletal immobilization through its effect in producing hypercalcemia in young and vigorous persons undoubtedly played an important part in the intoxication

4 Hypercalcemia alone appears responsible for the renal damage manifested by these patients

5 Because of the type of functional impairment shown by these patients, principal damage is thought to have occurred in the renal tubular epithelium

6 The functional impairment found in certain cases of sulfonamide nephritis is similar

7 Massive doses of irradiated ergosterol, at least under certain circumstances, present potential danger

## THE EFFECT OF PREGNANCY ON THE COURSE OF MYASTHENIA GRAVIS

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ROBERT S SCHWAB, M D

AND

MARY A B BRAZIER, PH D

BOSTON

Pregnancy may and often does cause profound changes in patients with myasthenia gravis. In some instances during part or all of the nine months of childbearing symptoms disappear entirely, more rarely the disease increases in severity in the early months, and in a few instances during this period abortions for therapeutic reasons have been considered justifiable. More rarely remission does not take place during the entire pregnancy.

The subject has received scant attention in the literature, and few instances of pregnancy occurring in patients with myasthenia gravis have been reported. This is partly due to the rarity of the disease. At the Boston Lying-In Hospital only 1 patient with myasthenia gravis was registered in more than 63,268 admissions between 1900 and 1940. Most textbooks on obstetrics, moreover, do not mention the disease.

Myasthenia gravis, or grave muscle weakness, is a disease characterized by an abnormal state of fatigability of particular voluntary muscle groups. The disease was clearly described in the last two decades of the nineteenth century and widely recognized as a clinical entity after 1900. The symptoms commonly observed in the order of their frequency, as pointed out by Viets and Schwab,<sup>1</sup> are ptosis of the eyelids, often with accompanying diplopia, dysphagia, dysarthria and weakness of the muscles of the jaw, general muscular involvement and neck muscle fatigue. The progress of myasthenia gravis is characterized by spontaneous remissions and relapses.

Myasthenia gravis, however, is much more common than was formerly thought. We have notes on 95 patients in the records of the Myasthenia Gravis Clinic at the Massachusetts General Hospital observed since 1935, more than 70 of them have come under direct observation by one of us (H R V) either at the clinic or in private practice. Of this total, we have data on 8 patients who have had one or more pregnancies during the course of their illness, in 2 instances delivery took place while the patient was under our care. It is on this series of cases that we are reporting, first reviewing the previous literature.

### REVIEW OF THE LITERATURE

That pregnancy might affect the disease was suggested by Sinkler<sup>2</sup> as early as 1899, when myasthenia gravis was little known, his patient improved during her sixth pregnancy and had an easy labor, but symptoms developed again a few days after delivery. The disease was of seven years' duration, with three known relapses in its course. Punton<sup>3</sup> in 1899 reported an example of the disease beginning shortly after a prolonged and difficult labor. In 1901, Burr and McCarthy<sup>4</sup> described a patient with severe myasthenia gravis, who at the end of three or four months of her second pregnancy died of respiratory paralysis. The disease had its onset about one and one-half years before death.

In 1902 Goldflam,<sup>5</sup> who wrote one of the earliest descriptions of myasthenia gravis, in 1893,<sup>6</sup> continued his account of 1 of his patients, unmarried when first observed ten years before (5, p 323, case III). She was married in 1897 and, by 1902, at the age of 32, had borne three children. For five years before her marriage the disease had progressed by relapses and remissions. Her first child was born in January 1898, but her exact condition during the pregnancy is not known. Goldflam implies that she was well, for he states that three months after delivery symptoms returned. After a relapse of two months she had a second remission lasting two years. A second pregnancy, coming during this period, terminated normally in May 1900. By implication, again it is presumed that she was well during her second pregnancy, since it is stated that she suffered a relapse a little more than three months after she was delivered, and by August 1900 her condition was considered serious. In her third pregnancy her condition improved immediately. At the end of eight months she gave birth to a premature child who died. Three months later the symptoms of myasthenia gravis returned, although in a milder degree. Goldflam was much impressed by the patient's good health during pregnancy and had a standing pleasantry with his patient: "You should always be pregnant to remain in continuous good health."

The next report came from Kohn,<sup>7</sup> whose patient manifested symptoms of myasthenia shortly after her fourth pregnancy. By the end of the fourth month of

- 2 Sinkler, W. Asthenic Bulbar Paralysis, *J Nerv & Ment Dis* 26 536 544, 1899
- 3 Punton, J. Asthenic Bulbar Palsy, with Report of a Case, *J Nerv & Ment Dis* 26 545 553, 1899
- 4 Burr, C W and McCarthy, D J. Asthenic Bulbar Palsy, *Am J M Sc* 121 46 52, 1901
- 5 Goldflam, S. Weiteres über die asthenische Lahmung, *nebst einer Obduktionsbefund*, *Neurol Centralbl* 21 97 107 154 160 203 214 217 258 303 310 347 353 390 397, 447 452 490 496, 1902
- 6 Goldflam, S. Ueber einen scheinbar heilbaren bulbarparalytischen Symptomencomplex mit Betheiligung der Extremitäten, *Deut Arch f Nervenhe* 4 312 352, 1893
- 7 Kohn, R. Myasthenia gravis pseudoparalytica und Gravida, *Prag med Wehnschr* 28 242 244, 1903

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Dec 11, 1941.

1 Viets, H R, and Schwab, R S. The Diagnosis and Treatment of Myasthenia Gravis. *J A M A* 113 559 562 (Aug 12) 1939



her fifth pregnancy her symptoms were so severe that the pregnancy was interrupted, only to have the patient die seven days later.

A review of the whole subject of paralysis occurring during pregnancy was published by von Hosslin<sup>8</sup> in 1904 and 1905. He concluded that pregnancy, in spite of Goldflam's report, had a strikingly unfavorable effect on patients with myasthenia gravis. Both labor and nursing, moreover, were made more difficult, and during a second pregnancy the disease was more severe than during the first. He advised patients with myasthenia gravis not to become pregnant and thought that abortion was of doubtful therapeutic value. His deductions were soon confirmed by Warrington<sup>9</sup> and particularly by Gemmell<sup>10</sup>. These two authors observed the same patient during different pregnancies. Her illness began during her first pregnancy and her symptoms increased during the entire period. Two years later a second pregnancy occurred, but the condition of the patient in the meantime is not stated. As term approached the patient became exhausted by trivial acts and suffered from severe attacks of dyspnea. As death seemed imminent, Gemmell successfully delivered the child by cesarean section at term. Improvement in the mother's condition was noted immediately. Indemans,<sup>11</sup> about the same time, fearful of his patient's life during her second pregnancy, induced an abortion at the end of twenty weeks. Except for reports by Dupre and Pagniez,<sup>12</sup> indicating that myasthenia gravis may begin during pregnancy, and the observation by Pietro<sup>13</sup> that the disease may begin after pregnancy, the subject remained in this confused state for many years.

It was not until 1915 that another case of myasthenia gravis associated with pregnancy was reported in the literature. In that year Tilney<sup>14</sup> gave the history of a married woman aged 24 whose first symptom occurred about the fourth month of her first pregnancy. Dysphagia, diplopia and general weakness developed. Although she became worse during pregnancy, she was delivered at term after a normal labor of five and one-half hours. A severe attack of respiratory embarrassment occurred two days before delivery and again four days after labor. One month later she suddenly died of respiratory paralysis. At postmortem examination, in addition to a persistent thymus, Tilney demonstrated an adenoma of the anterior lobe of the pituitary. She had shown no symptoms of pituitary deficiency and the relation of the tumor to her disease was unexplained.

In 1916 Fearnside<sup>15</sup> described a patient, aged 20 in 1903, whose symptoms of myasthenia gravis were of two years' duration. Married at the age of 20, her condition at the time was precarious, for she had to remain in bed a week before her marriage on account of weakness in the arms and legs. In 1931, Laurent<sup>16</sup> observed this same patient and reported on the effects

of repeated pregnancies. During the first pregnancy her health was unchanged, although she had had symptoms of myasthenia gravis three years before. During the second pregnancy she had a complete remission for the last three months, only to suffer a relapse in eight days. In each of the five succeeding pregnancies she became worse. Four of them resulted in miscarriage at three, five, five and six months, one was terminated by a therapeutic abortion at six months. As none of the last five pregnancies, however, progressed beyond the sixth month, we do not know whether recovery with complete remission might not have taken place during the last three months, an event which occurred during the second pregnancy. On two occasions the patient recovered rapidly after a miscarriage.

Wolff<sup>17</sup> in 1924 reported another case. Symptoms began three weeks after the first pregnancy and became more severe during the second, until abortion was carried out at the end of the fourth month.

Freiberg<sup>18</sup> in 1931 reported the development of myasthenia gravis during a third pregnancy. Reuter,<sup>19</sup> also in 1931, observed 11 patients with myasthenia gravis, on 1 there are excellent notes regarding the effects of pregnancy. Patient 2, aged 30, had symptoms after a second pregnancy resulting in a miscarriage at three months. In the third pregnancy his patient was much improved and had no symptoms from the third month on. Her weakness recurred after delivery, but when she became pregnant for the fourth time she again showed improvement. The disease returned in a more severe form after delivery and terminated fatally.

Mortara<sup>20</sup> in 1938 described the symptoms of a patient aged 22 whom he observed in two pregnancies. The first, characterized by severe vomiting in the first months, ended at term with normal delivery. In the eighth month however, the patient showed signs of myasthenia gravis, particularly weakness of the neck muscles. For a week after delivery she was better, but in the next three weeks she grew rapidly worse, with dysphagia, dysarthria and ptosis. Forced to give up nursing her baby at the end of ten weeks, she was in a state of relapse for six months, at one time being unable to get out of bed. Somewhat recovered, she again became pregnant, her symptoms increased at the same time and the fetus was taken at the end of two months. In spite of the therapeutic abortion she did not improve for another period of six months, at which time she had a slight remission only to suffer relapse again a month later.

There are a number of other notes in the literature bearing on the problem. Milhorat,<sup>21</sup> for instance, states that 1 of his patients had a remission during pregnancy. After the termination of the pregnancy by abortion the symptoms returned. Silverstein<sup>22</sup> also observed improvement during pregnancy.

Finally Wilson<sup>23</sup> in his textbook on neurology briefly described a patient as follows: "Symptoms lighten to

8 von Hosslin R. Die Schwangerschaftslähmungen der Mutter. Arch f Psychiat 38 730 861 1904 40 445 576 1905

9 Warrington W B. Myasthenia Gravis with Ophthalmoplegia. With Some Observations on Ocular Palsies. M Chron 40 319 324 1904

10 Gemmell J E. Cesarean Section in a Case of Myasthenia Gravis. Gravidia J Obst & Gynec 7 260 265 1905

11 Indemans J W M. Myasthenia Gravis Pseudoparalytica. Nederl tijdschr geneesk 11 503 512 1905

12 Dupre E and Pagniez P. Myasthenie hypotonique mortelle. Nouv iconog de la Salpetriere 18 247 254 1905

13 Pietro F. Intorno ad un caso di malattia di Erb. Riforma med 23 988 996 1907

14 Tilney F. A Case of Myasthenia Gravis Pseudoparalytica with Adenoma of the Pituitary Body. Neurographs 1 20 46 1915

15 Fearnside E G. Myasthenia Gravis and Epileptiform Attacks Observed Over a Period of Eleven Years. Proc Roy Soc Med Neurol Sec B 47 49 1916

16 Laurent L P E. Remissions and Relapses Associated with Pregnancy in Myasthenia Gravis. Lancet 1 753 754 (April 4) 1931

17 Wolff A. Myasthenia gravis und weibliches Genitalsystem. Monatschr f Geburtsh u Gynak 67 99 105 (Aug) 1924

18 Freiberg H. Neue Beobachtungen bei Myasthenie. Arch f Psychiat 95 163 168 1931

19 Reuter A. Zur Kenntnis der Myasthenia gravis. Deutsche Zt chr f Nervenhe 120 131 161 1931

20 Mortara F. Contributo allo studio delle malattie nervose in gravidanza (myasthenia gravis pseudoparalytica). Riv ital di ginec 21 369 380 (Aug) 1938

21 Milhorat A T. Prostigmone and Phosostigmone in the Treatment of Myasthenia Gravis. Arch Neurol & Psychiat 46 800 834 (Nov) 1941

22 Silverstein A. In discussion on Milhorat A T. Chemical and Pharmacologic Studies on Diseases of Muscle. Arch Neurol & Psychiat 41 1260 (June) 1939

23 Wilson S A K. Neurology. London. Edward Arnold & Co. 1940 p 1604

a surprising degree with the first pregnancy, recurring some months after the puerperium and again remitting with a second, though less well "

Since the use of prostigmine for myasthenia gravis, first advocated by Walker<sup>24</sup> by injection and by Everts<sup>25</sup> by oral administration in 1935, only 1 case in which pregnancy occurred in the course of this disease has been reported, by Tabachnick.<sup>26</sup> His patient had symptoms of myasthenia gravis after her fourth pregnancy. During her fifth pregnancy her symptoms were severe in the first four months, she was given prostigmine with improvement. She did not have a remission during the last five months of pregnancy<sup>27</sup> but required twice as much prostigmine bromide at term as was needed at midterm. The maximum dose was 12 to 14, 15 mg tablets by mouth a day. Delivery, early in 1938, was easy and rapid. In the first four months of the puerperium she improved somewhat but never was able to give up prostigmine entirely. Up to 1941 she progressed, with moderate remissions and relapses, never reducing her intake below 6 to 8 tablets. Her

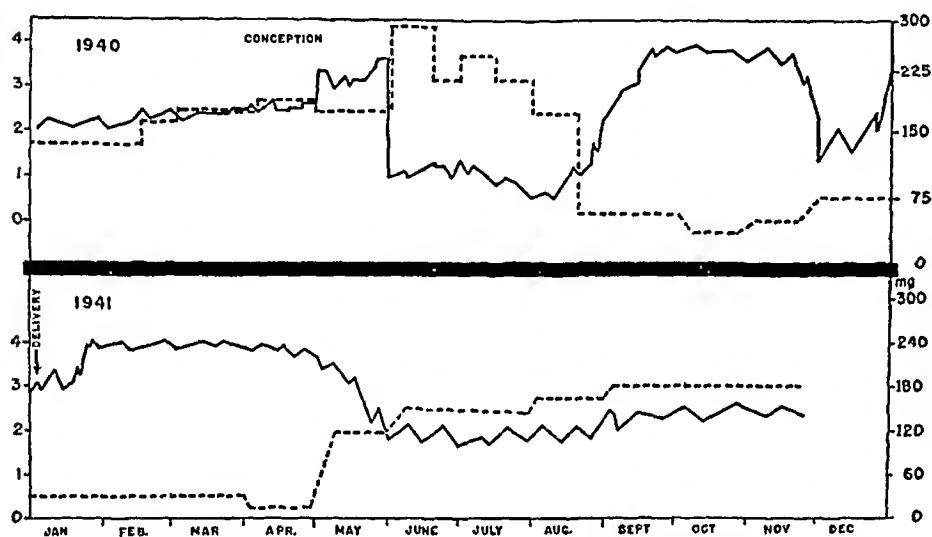


Chart 1 (case 1)—Relation of subjective symptoms to prostigmine intake during pregnancy in myasthenia gravis covering a period of two years, 1940 and 1941. The subjective symptoms are plotted as a solid line based on the Schwab and Skogland scale of 0 to 4 (A Method of Evaluating the Effect of Treatment in Neuromuscular Disorders, *Journal Lancet* 61: 401-404 [Oct.] 1941) as indicated in the left hand margin. The scale reads 0 = bad, 1 = poor, 2 = fair, 3 = good, 4 = excellent. The prostigmine bromide intake, in milligrams, taken by mouth daily, as indicated in the right hand margin, is recorded in a broken line.

child was in normal health in the fall of 1941, nearly four years after birth

A further case has been observed by Richards<sup>28</sup> in the Department of Medicine, College of Physicians and Surgeons, New York. Symptoms of myasthenia gravis first developed in 1937 when the patient was 25. At first intermittent, the disease became more severe and stationary in 1938. Prostigmine treatment was begun in May 1939. By January 1940 she was much improved and in an almost complete remission. In the spring of 1940 she suffered a relapse. Her pregnancy began in August. In the first three months she was not improved but fairly well maintained on prostigmine. The pregnancy was interrupted by abortion at the patient's request (Presbyterian Hospital, New York) at about three months.

24 Walker, M B Treatment of Myasthenia Gravis with Physostigmine, Lancet **1** 1200 (June 2) 1934 Case Showing Effect of Prostigmine on Myasthenia Gravis, Proc Roy Soc Med **28** 759 (April) 1935

1935 25 Everts W H The Treatment of Myasthenia Gravis by the Oral Administration of Prostigmine, Bull Neurol Inst New York 4 523 530 (Dec) 1935

(Dec) 1935  
26 Tabachnick, Harry Myasthenia Gravis Consideration of Recent  
Advances and Influence of Pregnancy Report of Case, J A M A  
110 884 885 (March 19) 1938

110 884 885 (March 19) 1938  
27 Tabachnick, Harry Personal communication to the authors

27 Tabachnick, Harry Personal communication to the authors  
28 Richards, D W, Jr Personal communication to the authors

## REPORT OF OUR CASES

CASE 1—*History*—Mrs Evelyn A H, a housewife, of American-Canadian parentage, was first seen in March 1932 at the age of 22. She was born in November 1909, the second of nine children, her parents and all her sisters and brothers were living and well in 1941. Except for childhood diseases, she had never been sick until the onset of her present illness in 1931. Her catamenia became regularly established at the age of 14. For a number of years before her marriage in 1930, at the age of 21, she had worked hard in a mill as well as at home.

*First Pregnancy*—Her first pregnancy resulted in a miscarriage at slightly over six months, in June 1931. The child lived four hours. Four weeks later she returned to work at the mill. Two months after the miscarriage, in August 1931, she had her first symptom of myasthenia gravis—diplopia. This was followed in October and November by dysarthria, dysphagia and nasal regurgitation of liquids. General weakness, difficulty in chewing and pains in the arms, neck and chest were added to the other symptoms. By the time of her first visit to the Massachusetts General Hospital in March 1932 she had lost 20 pounds (9 Kg). She improved only slightly when taking ephedrine sulfate, 24 mg ( $\frac{3}{8}$  grain) by mouth four times a day.

*Second Pregnancy*—While still having symptoms of myasthenia gravis, she again became pregnant in September 1932. During the first month of pregnancy her symptoms were severe, when seen by the neurologic staff, November 17, she was much improved. By the end of the third month a complete remission had occurred and she was doing everything that she had done while in normal health. For the remainder of the pregnancy she felt even stronger than normal and had none of the usual symptoms associated with the pregnant state. She was delivered by cesarean section of a 4½ pound (2,041 Gm) child May 10, 1933. She did not nurse the baby, who after a difficult period on artificial feeding grew rapidly and is now (1941) strong and well.

*Interval History*—The patient was in perfect health until August 1933 but then relapsed into a state of myasthenia gravis (1 e three months after delivery) beginning with the same initial symptom, diplopia, as at the original onset of her disease. In a week her symptoms were as severe as before her second pregnancy in March 1932. Her condition became stationary for nearly three years from 1933 to 1936, apparently aided somewhat in the last two years of this period by the use of <sup>1</sup>1. She was, however, always incapacitated, having her food because of difficulty in mastication, at 8 p m, often so weak that she could not pull the <sup>1</sup>1. During the summer months there was slight improvement. Ephedrine, first taken in March 1932, was repeated after her second pregnancy.

Returning to the Massachusetts General Hospital in April 1936, she was given prostigmine bromide, 15 mg ( $\frac{1}{4}$  grain) by mouth, six times a day, her prostigmine test was scored as 45 out of a possible 72. From then until April 1940, a period of four years, she was seen about once a month at the Myasthenia Gravis Clinic. The steadiness of the course of her disease may be estimated by her intake of prostigmine: her maintenance dose varied in this period from 8 to 13  $\frac{1}{2}$  tablets a day, the average being 9 or 10. Three slight relapses and one equally mild remission occurred, but the course was in general unremitting and at no time was she able to reduce the prostigmine to below 7 tablets a day. Five times she was taken off medicine for purposes of testing, on two occasions she suffered a severe relapse, but on two had better than was expected, the last being when pregnant. Her catamenia was somewhat irregular, sometimes her menses of myasthenia gravis were slightly exaggerated four or five days before a period, only to return to their usual rate when the period began.

In general, her condition was vastly improved in the prostigmine era (1936-1940) when compared with the preprostigmine period (1933-1936). Except for ptosis and some diplopia, under prostigmine treatment she was only slightly handicapped by her disease and was able to carry on her household duties.

**Third Pregnancy**—Her last period occurred April 8, 1940 (chart 1). In May she felt well, taking 12 tablets a day, but in June there was a moderate relapse requiring 17, and later 20 tablets. Her worst time was about the eighth or ninth week of her pregnancy, and from then on she improved rapidly. By the end of the fifth month she was in definite remission and from the sixth to the ninth month in complete remission. Although the remission was somewhat delayed, as compared with the second pregnancy, the completeness was the same, for indeed she had the same feeling of being stronger than normal. She was delivered by cesarean section of a premature, healthy baby (December 31, Boston Lying-In Hospital), weighing 4 pounds 13½ ounces (2,200 Gm). A month later she was taking 2 to 3 tablets of prostigmine a day in a condition of slight relapse. By October 1941 she was back to her maintenance dose of 8 to 10 tablets a day.

**CASE 2—History**—Lillian P. R., married, aged 22, of French-American parentage, entered the Massachusetts General Hospital June 10, 1937. She was born May 10, 1915 and was healthy during childhood. The catamenia began at 13. She was married in 1935 at the age of 20.

**First Pregnancy**—This occurred immediately after marriage and a healthy child was born March 30, 1936 (Milford Hospital). During her pregnancy she was "continually falling" but there were no other signs of weakness until she had diplopia and dysarthria as her first symptoms of myasthenia gravis in March 1937. These symptoms with ptosis, dysphagia, general weakness and difficulty in chewing, were all present on admission. Her prostigmine test on July 20 was 50 out of a possible total of 62. She recovered rapidly when taking 5 15 mg tablets of prostigmine bromide by mouth daily. From June 1937 to April 1938 she was maintained in a satisfactory condition on 4 to 6 tablets of prostigmine bromide a day, but in May 1938 she suffered a slight relapse which was controlled by increasing the prostigmine bromide to 8 tablets daily.

In the fall of 1938 she was able to reduce the amount to 6, but again in December 1938 and January 1939 she required 8 tablets (chart 2).

**Second Pregnancy**—Late in January she was taken off her medicine for a prostigmine test and for motion picture recording. After forty-eight hours without medicine she had only slight weakness, and even the administration of quinine sulfate 0.65 Gm (10 grains) did not produce symptoms. A state of partial remission was therefore recorded. By February 14 she required only 3 tablets to feel completely well. At this time pregnancy was suspected. The diagnosis of pregnancy was confirmed in March, her last period being on February 6. During the first trimester she required 2 to 4 tablets, during the second and third none at all. Full remission thus occurred in the last six months of pregnancy. Normal, but slow, delivery took place October 14 (Milford Hospital).

**Subsequent History**—Diplopia occurred the day after the baby was born and lasted for one month. This was followed by another remission lasting until July 1940, a period of nine months. During this time she had slight general weakness and diplopia during her monthly periods; these symptoms were controlled by a few tablets of prostigmine bromide. By August 1940 she had suffered a severe relapse, requiring 10 tablets daily. She continued to fail in spite of increasing doses of prostigmine bromide, with ephedrine sulfate and potassium gluconate. From December 1940 to February 1941 she was under almost constant observation in the ward of the hospital. Finally she could be maintained only on 15 tablets of prostigmine bromide a day. Death from respiratory paralysis occurred at home March 8, 1941 while the patient was suffering from

a severe bronchitis and septic sore throat. A persistent thymus, with hyperplasia, was demonstrated at autopsy.

**CASE 3**—Mrs. Bertha O., a housewife, of American-Canadian parentage, was first seen in July 1937 at the age of 28.

She was born in July 1909, she had not been ill except for a mild attack of poliomyelitis at the age of 3 years, without residual paralysis. She was married in 1929 and her first, second and third pregnancies, in 1931, 1933 and 1936 respectively, resulted in normal deliveries (Boston City Hospital). In March and June 1936 she had attacks of acute cholecystitis, and in July her gallbladder was removed.

Shortly after the operation, in August or September, the patient had her first symptoms of myasthenia gravis. The initial symptoms were general weakness and extreme fatigability of both the arms and the legs. When the weakness was at its worst the patient could not write, go up or down stairs or get in or out of bed. In June 1937 she had an attack of diplopia lasting two weeks. The prostigmine test was found positive at the Boston City Hospital in July.

Her fourth pregnancy began in April 1937 and delivery took place on Jan. 4, 1938 (Boston City Hospital). Labor lasted sixteen hours, delivery was accomplished without difficulty and the child was normal. Her symptoms of myasthenia

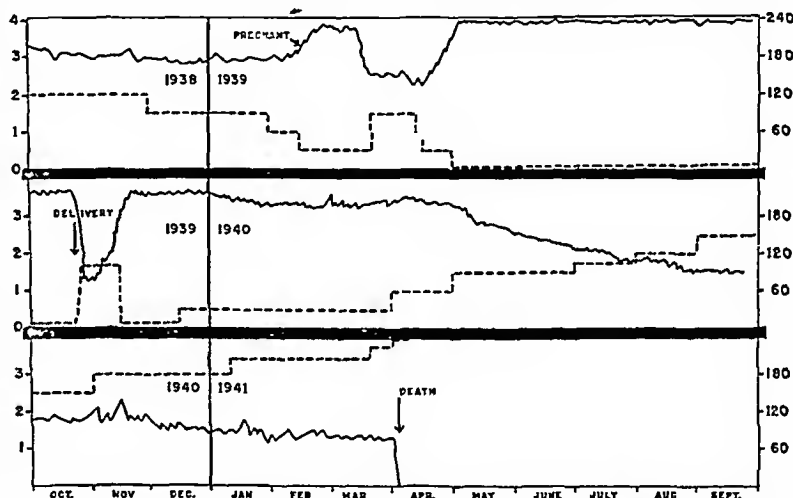


Chart 2 (case 2)—Relation of subjective symptoms to prostigmine intake during pregnancy in myasthenia gravis covering a period of three years, 1938 to the patient's death in 1941. The subjective symptoms are plotted as a solid line based on the Schwab and Skogland scale.

gravis during the period of pregnancy cannot be definitely stated. The patient thinks that she was "worse" and yet some of her symptoms, such as dizziness, scotomas, nocturia, edema and vomiting, were clearly the result of the pregnancy and not due to the myasthenia gravis. General weakness, however, was present and she used a cane to walk. She took 4 or more tablets of prostigmine bromide each day during her pregnancy, although the amount is not exactly known, she may have taken as many as 12. At times there was difficulty in chewing and swallowing, and during the latter part of the pregnancy she could not comb her hair because of weakness of her arm.

There was clearly no remission of the patient's symptoms of myasthenia gravis during pregnancy; there is some evidence, not entirely satisfactory, that she was worse during the last four or five months.

After delivery the patient was somewhat better for three or four months; prostigmine was not required. She did not nurse her child. A relapse occurred in May 1938 and from that date to 1942 the patient has required 6 to 9 tablets of prostigmine bromide a day as a maintenance dose. Except that she is usually worse during her menstrual periods, her course is steady, without remission or relapse.

**CASE 4**—Mrs. Felicine H., a housewife, of Canadian parentage was first seen in June 1939 at the age of 28.

She was born in June 1910, one of eight children, all living and well in 1942. Except for childhood diseases the patient was not sick until the present illness. She was married at

18 and her first, second and third pregnancies were normal. About one and one-half years after the birth of her third child she had her first symptoms of myasthenia gravis, in the summer of 1936. Ptosis and diplopia were soon followed by general weakness and dysphagia. She lost 30 pounds (13.6 Kg).

Her condition was stationary when she began her fourth pregnancy in August 1937. She had an abortion performed in the third month (Worcester) because of her symptoms, which became more severe. While still in the hospital, a prostigmine test was found positive, on 3 or 4 tablets of prostigmine bromide a day she showed immediate improvement.

Since 1937 she has taken 3 to 10 tablets a day as a maintenance dose, on this intake she has remained in fairly good health.

CASE 5—Mrs Anna C., a housewife, of Italian parentage, was first seen in January 1940 at the age of 22.

She was born in September 1917 and had been well, except for childhood diseases, until the present illness. She was married early in 1937, her first pregnancy was normal. Her first symptoms of myasthenia gravis, nasal speech and dysphagia, occurred about six months after her delivery, in the summer of 1938.

In December 1938 her second pregnancy began while she was having fairly severe symptoms. She immediately felt better, even before she was certain of the pregnancy, and she went to work in a shoeshop, in a position she had occupied prior to her marriage. In two or three months all her symptoms were gone and she remained in complete remission for the last two trimesters of pregnancy. Her second pregnancy terminated in August 1939 with normal delivery in four hours.

Symptoms of myasthenia gravis returned five days after delivery. With one mild relapse, the patient has been maintained on 6 to 8 tablets of prostigmine bromide since her pregnancy up to 1942.

CASE 6—Mrs Claire A. D., a shoe factory worker, of French-Canadian parentage, was first seen in May 1932 at the age of 24.

Born in 1908, she was married in 1926 at the age of 18. Three years later her first pregnancy resulted in a miscarriage at five to six months. In 1930 she had her first symptoms of myasthenia gravis—general weakness and a short attack of ptosis and diplopia. Her second pregnancy, in 1931, also resulted in a miscarriage at two months, nothing is known of its effect on her symptoms of myasthenia gravis. From 1933 to 1934 her symptoms were somewhat controlled by ephedrine, but she had difficulty in chewing, as well as diplopia, dysarthria and some general weakness.

Soon after the onset of her third pregnancy, in 1934, she began to feel better, and within a month or two she could run up and down stairs and felt entirely normal. The exact date of the beginning of the remission is not clear, but it came suddenly and was remarkably complete. At the end of six months a therapeutic abortion was performed (Manchester, N. H.), for the patient "feared that the disease might be transmitted to her offspring." Within a few weeks her condition relapsed rapidly to that prior to her pregnancy.

From 1935 to 1939 her condition remained unchanged, somewhat relieved by the taking of ephedrine. In December 1939 she suffered a more severe relapse and returned to the Massachusetts General Hospital after an absence of eight years. From 1940 to 1942, she was fairly well adjusted on 4 to 8 tablets of prostigmine bromide daily.

CASE 7—Mrs Anna L. L., a nurse, of Jewish parentage, was first seen in November 1940 at the age of 32.

There was no relevant history of disease up to the time of her first symptoms of myasthenia gravis in 1937. The disease began with weakness of the jaw and inability to chew. Progression occurred so that her jaw had to be held up with her hand. The neck muscles were soon involved, so that the head fell forward. Subsequently the patient had weakness of the arms. In a few months a remission occurred, lasting for

over a year. A relapse came on in 1939 and in October she had general weakness, diplopia, dysphagia and regurgitation. She lost 17 pounds (7.7 Kg) in about four weeks. The prostigmine test was positive in October 1939 and she responded to prostigmine bromide by mouth in a satisfactory manner, her intake ranging from 8 to 20 tablets, with an average of 10 a day.

Her first pregnancy began in October 1940. Within six weeks she reduced her prostigmine intake from 8 to 3 tablets a day and during the rest of the pregnancy required only 10 in all. Her symptoms of myasthenia gravis entirely disappeared and she felt not only "well" but "better" than her normal state of health. Delivery occurred in July 1941 by low forceps with traction (Massachusetts General Hospital). She nursed her normal child until an abscess of the breast necessitated weaning. Her symptoms of myasthenia gravis returned slightly while she had the abscess and she took 3 to 6 tablets a day. Up to 1942, six months after delivery, she was nearly well, being maintained on 2 to 4 tablets daily.

CASE 8—Mrs Helen D., a housewife, of Irish-American parentage, was first seen in December 1941 at the age of 42.

She was born in September 1899 and had no disease except those of childhood up to the time of her present illness. She was married in May 1925 at the age of 25. Seven children, including twins, were born prior to January 1937. In June 1937 ptosis, her first symptom of myasthenia gravis, developed. Subsequently she showed weakness of her arms and legs, diplopia, dysphagia and dysarthria. She found it difficult to lift her arms and comb her hair. These symptoms were present continuously from about June 1937 to October 1939, a period of more than two years. During this time various treatments, except prostigmine, were tried. These were ineffective, and her condition steadily became worse.

In October 1939 she began her seventh pregnancy and in the fourth month felt better. Shortly her symptoms of myasthenia gravis all disappeared, and during the remainder of the pregnancy she considered herself entirely well. A 6 pound (2,722 Gm) baby was born normally on July 7, 1940 (Winchester Hospital). She contracted whooping cough shortly after the baby was born and finally, by November 1940, her previous symptoms of myasthenia gravis returned. During 1941 her symptoms were severe, treatment with prostigmine bromide was begun after a prostigmine test in December 1941.

#### COMMENT

The course of myasthenia gravis is profoundly affected in most cases by the advent of pregnancy. In patients in whom an even maintenance of symptoms existed for many months before pregnancy on a nearly fixed intake of prostigmine bromide and an equally even course was reestablished after pregnancy, the effect is clearly shown (chart 1). It is well known that progress in myasthenia gravis is by remissions and relapses and that such changes might occur coincidentally with pregnancy must be considered. In view of our experience in the series of 8 cases here reported, however, such a coincidence cannot be held. The prompt change in the symptoms, either a remission or a relapse, occurring in some cases within a few weeks of conception, is also a strong argument against coincidental variations. All our patients have shown some change during pregnancy, most have had remissions even more complete than ever experienced in the natural course of the disease.

Certain features of the effect of pregnancy on the course of myasthenia gravis are worthy of more detailed evaluation. Since prostigmine has so profoundly affected the course of the disease itself, our report must be based largely on experience since 1935. The prostigmine group cannot readily be compared, moreover, with the preprostigmine group.

## REMISSIONS AND RELAPSES

Patients may have both a relapse and a remission in the same pregnancy, the relapse often coming in the first trimester with the remission following. Patient 1 (chart 1) experienced a mild remission during the second month of pregnancy, then suffered a relapse in the third and fourth months. Rapidly in the fifth month a definite remission took place, in the sixth, seventh and eighth months she was better than she had even been at any time during her disease. A slight

TABLE 1—*The Time of Onset and Completeness of Remission in Eight Cases of Myasthenia Gravis During Pregnancy*

| Case | Pregnancy        | Onset                    | Character  |
|------|------------------|--------------------------|--|
| 1    | Second           | Third month              | Complete (above normal)                            |
|      | Third (chart 1)  | Fifth month              | Complete (above normal)                            |
| 2    | Second (chart 2) | Third month              | Complete   |
| 3    | Fourth           | No remission recorded    | relapse in last trimester                          |
| 4    | Fourth           | Abortion in third month, | in relapse   |
| 5    | Second           | Second month             | Complete   |
| 6    | Third            | Second month             | Complete (above normal),<br>abortion at six months |
| 7    | First            | Second month             | Complete (above normal)                            |
| 8    | Seventh          | Fourth month             | Complete (entirely well)                           |

relapse in the ninth month was followed by a good but not complete remission lasting four and one-half months after delivery. A similar course was followed in case 2 (chart 2), mild remission in the second month, a relapse in the third month, complete remission in the fourth to ninth months, with a mild relapse at delivery followed by a remission in the postpartum period lasting five months. The course run by these 2 patients is fairly typical of the group as a whole. There is usually a complete remission of symptoms in the last two trimesters of pregnancy, but the onset may vary in the first trimester or even not occur until the fourth or fifth month (table 1). The onset in 3 cases was in the second month, in 2 in the third month and in the fourth and fifth months in 2 others. In at least 1 case a remission took place before pregnancy was suspected (case 5). Patients long accustomed to taking a maintenance dose of prostigmine bromide by mouth will begin to reduce the daily intake before they realize that a remission is taking place, as in case 1 (chart 1), during the third to fifth months of her pregnancy. The remission may occur abruptly and become complete in about four weeks (case 1). When a remission takes place all symptoms disappear, and many patients report that they feel "better than normal" and "completely well," a condition not attained at any time in the course of their disease except during pregnancy. The remission is like the sense of complete well-being experienced after an injection of prostigmine methylsulfate, as used in the "prostigmine test,"<sup>29</sup> only prolonged over days and months instead of lasting a few minutes.

In 4 of the 8 cases observed no relapses occurred during pregnancy (table 2). One of the 4 patients had an abortion induced at six months, the other 3 went on to delivery at nine months. Patient 1 had a moderate relapse during the third to the fifth month of her third pregnancy and another mild relapse in the ninth month. Patient 2 suffered a moderate relapse in the third month and patient 4 in the first three months, followed by abortion at the end of this period. Patient 3, with the poorest history, did not have a

remission at any time during pregnancy and probably suffered a relapse toward the end of the nine months. She was delivered, however, without the benefits of prostigmine, and her history is not sufficiently accurate to be dependable. In general, the relapses during pregnancy are mild to moderate and usually do not cause undue anxiety when the patient is under complete control with prostigmine. In some cases abortion has been carried out during a period of relapse, a therapeutic measure discussed here.

## ABORTION

In 2 of our cases abortions were induced for therapeutic reasons, 1 in the third month (case 4) and the other after six months (case 6). Neither was directly under our care at the time. Case 4, in which an abortion was induced in the third month because of increased symptoms, illustrates the usual time for pregnancy to be interrupted. Most abortions reported in the literature have been carried out at this time. This therapeutic procedure was seriously considered in case 1 of our series during the eighth and ninth weeks of her pregnancy when her relapse was at its height (chart 1). A week later, however, remission set in rapidly. Under adequate prostigmine therapy it was possible to carry her through her period of relapse, a procedure often not possible before the advent of prostigmine treatment. This was also true in the case reported by Tabachnick,<sup>26</sup> for he carried his patient through to term, under prostigmine, in spite of the fact that no remission occurred. In this respect his report is similar to our case 3.

Before the use of prostigmine, abortion was frequently carried out, usually at the end of the first trimester or in the early part of the second trimester of pregnancy. This is well recognized now as the most dangerous time in the whole nine months. In the case reported by Burr and McCarthy,<sup>4</sup> death occurred in the third or fourth month of the second pregnancy, Kohn's<sup>7</sup> patient had an abortion induced at four months, Indemans'<sup>11</sup> at twenty weeks, Laurent's<sup>16</sup> at six months, and 4 other pregnancies terminated in miscarriage before six months, Wolff's<sup>17</sup> patient had an

TABLE 2—*Relapses in Eight Cases of Myasthenia Gravis During Pregnancy*

| Case | Pregnancy        | Onset and Duration    | Character               |
|------|------------------|-----------------------|-------------------------|
| 1    | Second           | First month only      | Moderate to severe      |
|      | Third (chart 1)  | Third to fifth month  | Moderate                |
|      |                  | Ninth month           | Mild                    |
| 2    | Second (chart 2) | Third month only      | Moderate                |
| 3    | Fourth           | Entire nine months    | Moderate to severe      |
| 4    | Fourth           | First to third months | Abortion in third month |
| 5    | Second           | None                  |                         |
| 6    | Third            | None                  | Abortion at six months  |
| 7    | First            | None                  |                         |
| 8    | Seventh          | None                  |                         |

abortion induced at four months and Mortara's<sup>20</sup> at two months. It seems likely, in view of our more recent experience with patients under prostigmine therapy, that many, if not all, of these abortions would not now be indicated. Abortion, moreover, may not relieve the patient of her symptoms or even prevent a fatal termination from the disease. Kohn's<sup>7</sup> patient died a week after abortion.

At the present time abortion for therapeutic reasons is rarely, if ever, needed, provided adequately controlled prostigmine therapy is instituted. In our series probably neither abortion was justified. There is no reason

<sup>29</sup> Schwab, R. S. and Viets, H. R. The Prostigmine Test in Myasthenia Gravis. Third Report. New England J. Med. 219: 226-228 (Aug. 18) 1938.



to believe that patient 4 could not have been carried through to term. Patient 6 had her abortion induced on the untenable hypothesis that the disease might be transmitted to the child. There is no evidence, either in the literature or in our experience, to lead one to believe that such is ever the case.

#### DELIVERY

In our series of 8 patients, delivery has been supervised in 2 instances. Patient 1 was delivered at the Boston Lying-In Hospital after being under observation for more than five years. A previous pregnancy, her second, was not allowed to go to term, as it was "thought the uterus would fatigue," and the patient was delivered by cesarean section of a  $4\frac{1}{4}$  pound (1,928 Gm) child. Toward the end of her third pregnancy (chart 1) she was in a state of partial remission, taking 45 mg of prostigmine bromide by mouth a day. The patient was delivered by cesarean section, under spinal anesthesia, of a normal child weighting 4 pounds  $13\frac{1}{2}$  ounces (2,197 Gm). The patient exhibited no abnormal symptoms and continued her intake of prostigmine at the same level as before delivery for about four weeks post partum, at which time she had a complete remission lasting a number of months. Because of oligogalactia, the child was given a formula and made a normal gain in weight. At the time of the section the patient was sterilized at her own request. No untoward symptoms at any time disturbed the course of her labor.

Patient 7, who was in complete remission at term, was also delivered without complications. Her labor of eight hours was uneventful, delivery was aided by the use of low forceps and traction. The normal child was nursed for a number of weeks until an abscess of the breast developed. In this instance also myasthenia gravis did not interfere with normal labor and added treatment was not needed. Both patients were closely observed for signs of returning myasthenia and both prostigmine bromide and prostigmine methylsulfate were ready for instant use if needed. There was no indication that either the skeletal muscles or the uterus needed additional support.

In a number of instances, moreover, an accurate history of delivery outside the hospital was obtained. The delivery by cesarean section of the second pregnancy of patient 1 has already been noted. In the second pregnancy of patient 2 normal labor took place at term during a full remission. Patient 3 never had a remission during pregnancy, but in spite of this delivery was accomplished without difficulty, although the labor lasted sixteen hours. In case 5, labor lasted only four hours, delivery was normal at term, the patient being in complete remission. Normal delivery was also reported at term in the seventh pregnancy of patient 8, this patient also being in complete remission. In our series, therefore, labor was normal in each instance and was not affected by the myasthenia gravis even if the patient was not in remission at the time. All patients who were suffering a relapse, however, were under prostigmine control, with the possible exception of patient 3.

Before prostigmine was available, labor was thought to be a serious complication of the disease, and for this reason, at least in part, abortion was frequently carried out. Because of the strain attending labor, von Hosslin<sup>8</sup> advised against pregnancy in patients with myasthenia gravis. Gemmell<sup>10</sup> delivered his patient by cesarean

section rather than have her face labor in her exhausted state. In many instances in the literature, however, labor was normal and without serious effect on the disease, especially if the patient was in a state of remission at term.

In general, either with or without prostigmine, labor itself is not usually affected by the presence of myasthenia gravis. A patient with severe involvement in a state of relapse may have a prolonged and somewhat difficult labor, but this is not the usual experience if the prostigmine intake is well adjusted. The fear of complications during labor should not, in our opinion, justify abortion at an earlier stage of pregnancy.

#### POSTPARTUM PERIOD

Remissions lasting three to five months are the usual course in cases in which there is a remission during pregnancy (charts 1 and 2). The remission in case 1 lasted three months after delivery in both the second and third pregnancy. In case 2 there was a prolonged postpartum remission lasting nine months. Symptoms of myasthenia gravis, however, may return in a few days, as in case 5. In case 7, on the other hand, there were only slight symptoms six months after delivery, but a return in three or four months is about the average, as in case 8. In no case in our series did the myasthenia gravis show itself after delivery in an abrupt or in an alarming manner.

Reuter<sup>19</sup> found his patient's condition worse after delivery and the patient died. One of our patients died (patient 2) but so long after delivery (seventeen months) that the relationship between her pregnancy and her death could not be evaluated.

The evidence for pregnancy making the disease more severe or even being a secondary cause of death is slight. In most instances the disease is not made worse by either pregnancy or labor. Our experience, moreover, does not bear out von Hosslin's statement that nursing has an unfavorable effect on the patient, although most of our patients, for one reason or another, did not nurse their children. In addition, it may be noted, contrary to von Hosslin, that second pregnancies in patients with myasthenia gravis do not result in untoward symptoms or difficult delivery (case 1). Our experience also does not allow us to agree with Novak,<sup>20</sup> who recommends abortion if the disease starts during pregnancy or becomes worse.

#### CONCLUSIONS

The effect of pregnancy on myasthenia gravis is usually favorable. Most patients experience a definite remission in symptoms, relapses, if they occur, are mild. Patients on a maintenance dose of prostigmine before pregnancy may experience a complete remission during the second and third trimesters, and the remission may last three to six months after delivery. Relapses usually occur in the first trimester, when the patient may be at her lowest point. Therapeutic abortion has not been found necessary, nor is it advised, provided the patient can be maintained under prostigmine control. A second pregnancy does not carry more hazard than the first in patients with myasthenia gravis. Pregnancy, labor or nursing does not affect the course of the disease unfavorably under present conditions of treatment.

66 Commonwealth Avenue

<sup>20</sup> Novak, J. Beziehungen zwischen Nervensystem und Genitalorganen. *Beziehungen zwischen Nervensystem und Genitalorganen*. Halban and Sztiz. Biologie und Pathologie des Weibes. Berlin & Schwarzenberg 1928 vol 5, pt 4 p 1427.

## OTOSCLEROSIS

RESULTS WITH THE FENESTRATION OPERATION  
AFTER THREE AND ONE-HALF YEARSGEORGE E SHAMBAUGH JR, MD  
CHICAGO

That the hearing may be partially restored, perhaps permanently, in cases of otosclerosis by means of a one stage surgical procedure was first reported by Lempert<sup>1</sup> in 1938 and has since been confirmed by Campbell,<sup>2</sup> by Ersner and Myers<sup>3</sup> and by my own experience.<sup>4</sup> I first used the fenestration operation on July 15, 1938 and have performed it on a total of 117 patients with otosclerosis between that date and Dec 11, 1941. Sufficient time has now elapsed since this new operation was first used to warrant an analysis of the results and an evaluation of its usefulness in impaired hearing due to otosclerosis.

## OTOSCLEROSIS PATHOLOGY, INCIDENCE, DIAGNOSIS

Otosclerosis is a unique disease of bone found only in man and is confined exclusively to the bony capsule surrounding the inner ear. The pathologic lesion of otosclerosis consists of a rather sharply localized focus

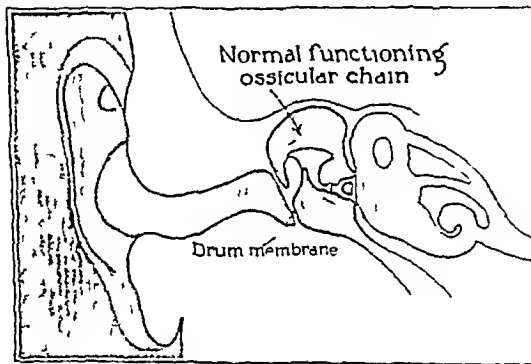


Fig 1—Diagram representing the normally functioning ossicular chain transmitting sound vibrations from the drum membrane to the labyrinth.

of vascular, spongy, newly formed bone that appears in the dense, ivory-like labyrinthine capsule. Routine examination of the temporal bones at autopsy reveals an otosclerotic focus in about 1 out of every 20 to 25 adults.<sup>5</sup> This focus occurs most often just anterior to the oval window. As it slowly enlarges it tends to grow across the annular ligament onto the foot plate of the stapes in the oval window, until finally the stapes becomes firmly ankylosed to the margins of the window and the window is virtually obliterated.

The loss of hearing by patients with otosclerosis is due to the stapes ankylosis which prevents air borne sounds from being carried by the drum membrane and ossicular chain to the inner ear. With the oval window obliterated, only sounds loud enough to cause the skull to vibrate can be carried directly through the bone to the inner ear and be heard. Secondary degeneration of the nerve of hearing is a late develop-

ment in cases of otosclerosis and rarely may lead to complete loss of all hearing. In three fourths of the cases in which microscopic otosclerosis was found at autopsy the focus had not yet invaded the oval window and stapes foot plate and the hearing was not impaired.

The diagnosis of otosclerosis with stapes ankylosis is made on the history of the insidious onset of a slowly progressive hearing loss, beginning in early or middle

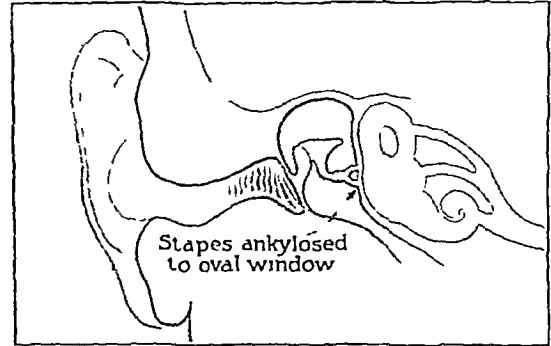


Fig 2—Diagram showing the ossicular chain fixed by stapes ankylosis as the result of otosclerosis.

adult life without involvement of otitis media, with intact drum membranes and normally patent eustachian tubes and a conduction type of hearing impairment with prolonged hearing by bone conduction and decreased hearing by air conduction. Otosclerosis is one of the most important causes for chronic progressive hearing impairment in early and middle adult life. In a study of the causes of hearing impairment among the members of the Washington, D. C., League for the Hard of Hearing made in 1933,<sup>6</sup> I found that 70 per cent had lost their hearing as a result of stapes ankylosis. Subsequently one of these persons died and microscopic study of the temporal bones confirmed the diagnosis of otosclerosis made in the original survey. The clinical diagnosis of stapes ankylosis due to otosclerosis can be made with accuracy in the majority of cases.

The cause of otosclerosis is not known. There is a strong hereditary tendency, about two thirds of the patients with stapes ankylosis having some relative

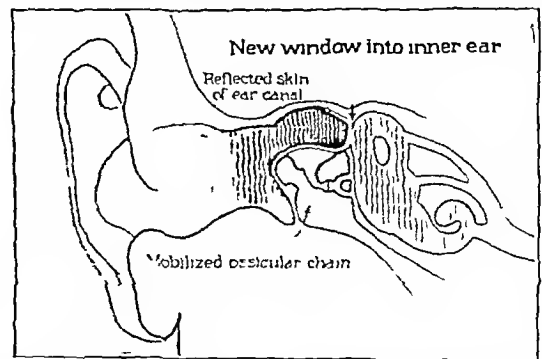


Fig 3—Diagram showing the transmission of sound vibrations from the drum membrane to the labyrinth restored by the fenestration operation.

with progressive deafness. Since for every clinical case of stapes ankylosis and loss of hearing there are 3 in which an otosclerotic focus produces no symptoms, it is extremely difficult to determine the exact role of heredity in this disease.

There is no effective medical treatment for otosclerosis, either to arrest or to prevent the progressive

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<sup>1</sup> Lempert Julius. Improvement of Hearing in Cases of Otosclerosis. *New One Stage Surgical Technic Arch Otol* 28: 42-97 (July) 1938.

<sup>2</sup> Campbell E. H. Fistulization of Labyrinth in Chronic Progressive Deafness. *Report of Cases Arch Otol* 30: 689-710 (Nov) 1939. foot note 11.

<sup>3</sup> Ersner M. S. and Myers David. Surgical Treatment of Deafness. *Report of Experiences with Endaural Labyrinthine Fenestration Ann Otol Rhin & Laryng* 50: 206-234 (March) 1941.

<sup>4</sup> Shambaugh G. E., Jr. Operative Treatment of Otosclerosis. Reply to a Recent Criticism. *Arch Otol* 32: 927-933 (Nov) 1940. foot note 7.

<sup>5</sup> Crowe S. J. *Yearbook of Eye, Ear, Nose and Throat* 1940. Chicago: Yearbook Publishers.

<sup>6</sup> Shambaugh G. E., Wallner L. J., Greene Lois D. and Shambaugh G. E., Jr. Severe Deafness in Adults. *Arch Otol* 18: 430 (Oct) 1933.

hearing loss or to restore the hearing. The most one can do medically is to make the diagnosis, advise against unnecessary or useless treatment, pay attention to the general health and enjoin the learning of lip reading or the use of an electrical hearing aid.

#### HISTORY OF THE FENESTRATION OPERATION

The surgical treatment of otosclerosis has been a long, slow development beginning more than fifty years ago, soon after the disease was first described, with attempts to loosen or remove the ankylosed stapes. Owing to the difficulty of extracting the ankylosed foot plate and to bony closure of the oval window when it was extracted, these operations were finally abandoned around 1900 in favor of attempts to make a new window into the labyrinth to take the place of the occluded oval window. A considerable hearing improvement was repeatedly observed when such a new window was made, but within a few weeks or months the hearing improvement would be lost, as the window would close by bone regeneration. The problem of making a window that would stay open was pursued, especially by Holmgren in Sweden, who tried many different technics but without success. It was not until 1924 that Sourdille in France, inspired by Holmgren's work, devised a technic with which he obtained a permanently open window with a lasting hearing improvement in some cases. Sourdille's "tympanolabyrinthopexy" was accomplished in three or four stages separated by several months, so that a year or more was required to obtain the hearing improvement. This made the Sourdille operation impractical for the average patient.

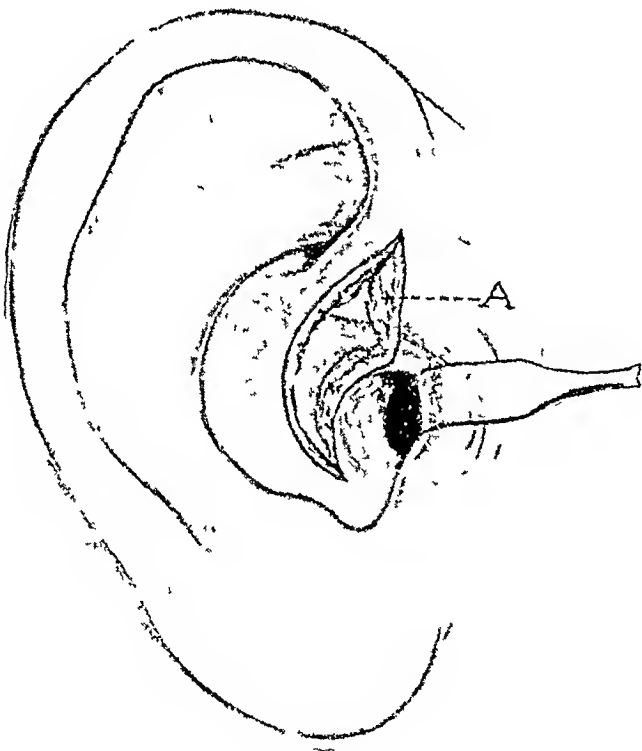


Fig 4—Endaural skin incision for the fenestration operation

In 1938 Lempert<sup>1</sup> in this country described a practical one stage operation which produced an end result similar to Sourdille's. The operation consists essentially in exposing the bony labyrinth by partial removal of the mastoid cells, in making a new window into the horizontal semicircular canal with a dental finishing burr and in covering this window with a flap taken

from the skin of the external auditory meatus and continuous with the drum membrane, so that the vibrations of the drum membrane are carried directly to the window and transmitted to the perilymph (figs 1, 2 and 3).



Fig 5—Operating setup used in making the fenestra, showing the binocular dissecting microscope on one side and the dental engine on the other, shielded from the field by sterile sleeves. The glass irrigating container for the saline solution with the tubing for the saline solution and suction may be seen.

In 1940 I introduced the use of constant irrigation to wash away every particle of bone dust while making the window in the bony horizontal semicircular canal, in order to prevent bone dust from falling into the window and leading to the formation of new bone.<sup>7</sup> I also introduced the use of the binocular dissecting microscope to aid in the visualization of the very tiny structures while making the window. Table 2 shows the improved results obtained when these modifications were added to the technic. In 1941 Lempert<sup>8</sup> described a modification of his original technic in which he makes the new window farther forward where the ampulla of the horizontal semicircular canal opens into the vestibule, permitting a larger window to be made closer to the occluded oval window.

#### TECHNIC OF THE FENESTRATION OPERATION

The fenestration technic that I now follow is essentially that described by Lempert,<sup>9</sup> modified by the use of constant irrigation and the microscope while making the window, and is briefly as follows:

Under avertin with amylene hydrate anesthesia the endaural incision is made to expose the cortex of the

7 Shambaugh G-E Jr. Surgical Treatment of Otosclerosis. *Wisc. Consil. M. J.* 40:488-492 (June) 1941.

8 Lempert Julius. Fenestra Nov Ovalis. A New Oval Window for the Improvement of Hearing in Cases of Otosclerosis. *Arch. Otol.* 880:912 (Nov.) 1941.

9 Lempert (footnotes 1 and 8).

anastoid process (fig 4) Enough of the cortex and mastoid air cells are removed to expose the bony horizontal semicircular canal the incus and the head of the malleus The superior and posterior bony meatal wall is removed, leaving the very thin skin lining the meatus intact with its attachment to the drum membrane. Appropriate incisions through this skin free it in the form of a flap, connected with the drum membrane, with which to cover the new window.

The incus is removed and the head of the malleus is amputated to expose the bulge of the ampulla of the horizontal canal. With the dental finishing burr, working through the microscope and with a film of warm sterile saline solution flowing across the bony horizontal canal (fig 5) the bony covering of the ampulla is slowly removed until only the filmy endosteum remains with pulverized particles of bone adherent to it. With special tiny curved probes and hooks the endosteum is teased away, leaving the perilymph space widely exposed, with the delicate transparent membranous labyrinth floating in it (fig 6). The completed window lies directly above the oval window, separated from it by only the facial nerve in its bony canal and is slightly larger than the oval window. The previously prepared skin flap placed over the new window and held firmly in place with paraffin mesh gauze packs completes the operation.

The hearing which is noticeably improved immediately after the operation, usually declines during the first week and then gradually improves to reach its maximum from two to six months later. Complete healing by epidermization of the operative cavity occurs in from eight to ten weeks in the average case. Tinnitus is frequently but not invariably relieved in the operated ear when the hearing is restored.

#### INDICATIONS

The fenestration operation is indicated in cases of stapes ankylosis with sufficient hearing impairment to constitute a handicap and with an intact nerve of hearing for the conversational frequencies. The bone conduction hearing tests are a reliable measure of the integrity of the nerve of hearing. The patient should be in good health, the drum membrane must be intact and the ear must be free from active or recent inflammation. My oldest patient was 62, my youngest 18. The poorer hearing ear should be selected for operation so that the patient will run no risk of losing what useful hearing he has should the operation be unsuccessful.

#### EVALUATION OF RESULTS

The evaluation of any treatment for the improvement of hearing must be based on audiometrically measured results. Because deafened persons are suggestible, any treatment that stimulates their hope will cause them to pay better attention, and they will seem to hear better. One cannot accept a patient's statement of improvement that is not verified by audiometric tests.<sup>10</sup> To be greater than the normal range of variability a hearing gain must exceed 10 decibels for the conversational tones (512, 1,024, 2,048 vibrations a second).

Not all the published reports of results are sufficiently complete to permit an accurate evaluation. Campbell<sup>11</sup>

in a complete report recorded the hearing gain or loss for the conversational frequencies in 20 consecutive cases in which the operation was performed a year or more before. There was a hearing gain of greater than 10 decibels for these frequencies in 7, a further loss of more than 10 decibels in 6 and no essential change in 7. Frisner and Myers<sup>3</sup> reported 4 good results out of 38 cases in which the operation was done but did not give the decibel gain or loss for conversation in each case. Lempert<sup>12</sup> in 1940, in his most complete report of results, reported a restoration of "practical physiological hearing" in 69, or 58 per cent, of 120 consecutive cases but he does not define clearly what he means by "practical physiological hearing", he does not give the decibel gain in these cases nor does he give the decibel loss in the unsuccessful cases.

One of the principal criticisms of the Lempert fenestration operation when it was first described was that the hearing improvements reported were of too brief duration to be regarded as permanent and that in all

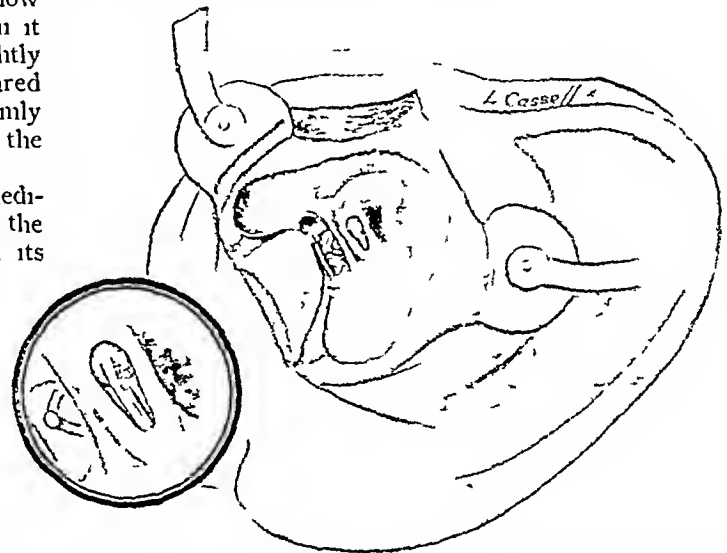


Fig 6—The completed fenestra in the ampulla of the bony horizontal semicircular canal as viewed through the binocular loop with a magnification of 2 diameters. Inset shows the fenestra as it appears through the binocular dissecting microscope with a magnification of 7 diameters. Note the membranous labyrinth running forward and dipping down to expand into the ampulla of the membranous canal which nearly fills the bony ampulla. Immediately below the ampulla may be seen the ankylosed stapes.

probability all or most of the new windows would eventually close.<sup>13</sup> This prediction proved to be partially correct in that many of the early cases originally reported by Lempert as showing a "permanent" hearing improvement<sup>1</sup> subsequently lost their improvement owing to closure of the window.<sup>8</sup> However, some of the early windows have now remained open for periods up to four years,<sup>8</sup> with a maintained hearing improvement, and in these cases it seems likely that the window and the hearing gain will remain indefinitely.

In evaluating the fenestration operation one's first task is to determine the permanency of the hearing improvements obtained. An analysis of results in 128 consecutive ears of 117 patients operated on by me between July 1938 and December 1941 shows that partial or complete closure of the new window with loss of the hearing improvement has thus far occurred in 31. In all these cases repeated audiograms taken

10 Fowler E P Jr Critique of Surgical Treatments for Deafness Canad M A J 13 546 552 (Dec) 1940

11 Campbell E H Further Experiences in Fenestration of the Labyrinth in Chronic Progressive Deafness Ann Otol Rhin & Laryng 40 387 395 (March) 1941

12 Lempert Julius Endaural Fenestration of External Semicircular Canal for Restoration of Hearing in Cases of Otosclerosis Summary Report of 120 Cases Arch. Otol 31 711 779 (May) 1940

13 Crowe S J Yearbook of Eye Ear Nose and Throat, 1938 Chicago Yearbook Publisher

every few weeks permit determination of the date of the beginning drop in hearing indicating closure of the window Table 1 summarizes these data and shows that in the majority of cases (77 per cent) closure

My results with the original Lempert technic are compared in table 2 with my results when constant irrigation and when irrigation and the microscope were added to the original technic With these modifications a probably permanent hearing improvement is obtained in better than 88 per cent of operations

TABLE 1—Time After Operation of Beginning Closure in Thirty-One Ears in Which the Fenestra Closed with Loss of the Hearing Gain

| 1st Month | 2d Month | 3d Month | 4th Month | 5th Month | 6th Month | 7th Month | 8th Month |
|-----------|----------|----------|-----------|-----------|-----------|-----------|-----------|
| 1         | 10       | 7        | 6         | 3         | 2         | 1         | 1         |

Should the new window close partially or completely with loss of the hearing improvement, it may be reopened by a second operation in which the skin covering the bony horizontal canal is elevated, the new

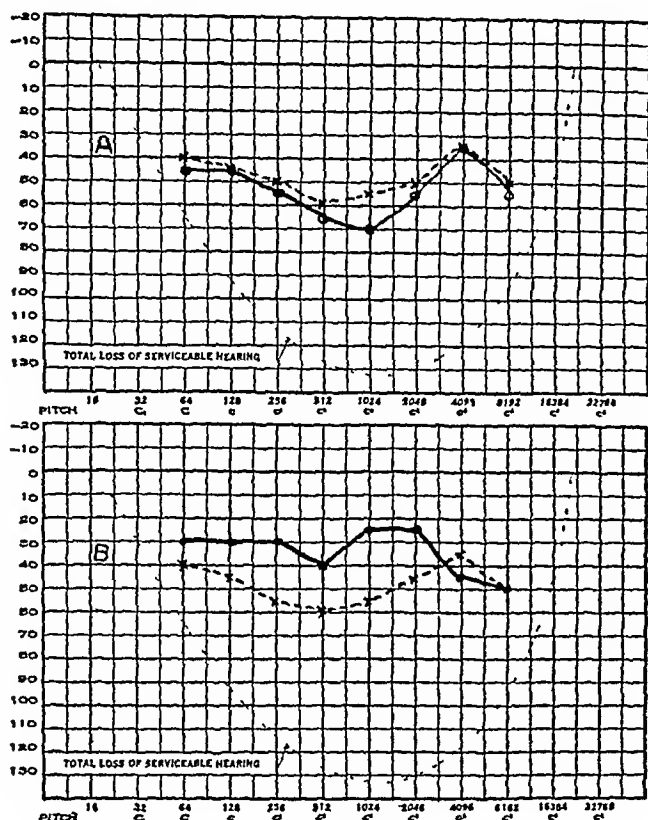


Fig 7 (case 52)—Audiogram of Miss H. F., aged 21, (A) one day before and (B) one year after fenestration. She regained her position as a school teacher after the operation. The solid line in this and the other audiograms indicates the hearing loss in decibels in the operated ear and the dotted line that in the unoperated ear.

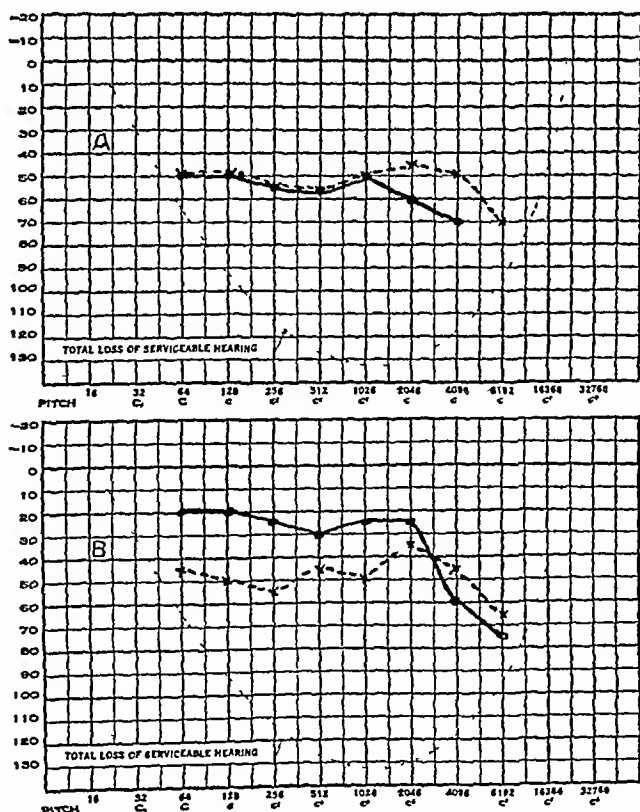


Fig 8 (case 53)—Audiogram of Miss H. W., aged 27, (A) two days before and (B) ten months after fenestration. She regained her position as a school teacher after the operation.

began within the first four postoperative months and that after the sixth postoperative month beginning closure as evidenced by a drop in hearing rarely occurred. From these data one may conclude that a hearing gain maintained for more than six months after the fenestration operation is probably permanent.

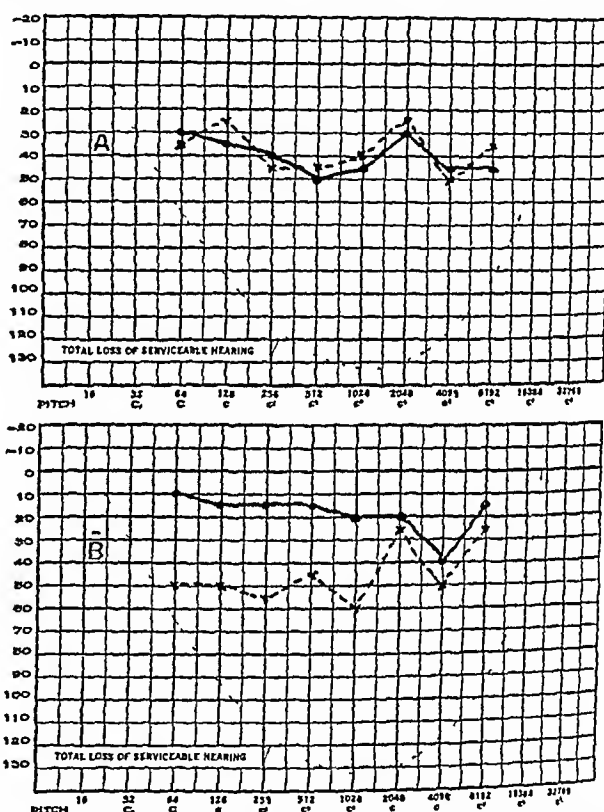


Fig 9 (case 38)—Audiogram of Mr. F. A., aged 28, (A) one day before and (B) one year after fenestration. He was passed by the Selective Service draft board as having "normal" hearing after the operation.

formed bony lid is removed and the skin flap is replaced. Revision of the original window was carried out on 17 ears, twice on 2 ears. A hearing improvement is now present in 16 of these 17 reoperated ears.

TABLE 2—Comparison of Hearing Results Six Months After Fenestration with Different Techniques

|  | Original Lempert Technique (14 Ears) | Constant Irrigation Added (29 Ears) | Irrigation and Microscope Added (14 Ears) |
|--|--------------------------------------|-------------------------------------|---|
| Hearing improved (more than 10 db gain for speech)     | 4 (28.6%)                            | 22 (75.8%)                          | 30 (100%)                                 |
| Hearing worse (more than 10 db loss for speech)        | 2 (14.3%)                            | 0 (0%)                              | 1 (7.1%)                                  |
| Hearing unchanged (within 10 db of preoperative level) | 8 (57.1%)                            | 7 (24.2%)                           | 13 (92.9%)                                |

Analysis of the present status of the hearing results in the 117 patients with otosclerosis operated on in the three and one-half year period (table 3) shows that 88.9 per cent now have a hearing improvement greater than 10 decibels for the conversational



frequencies 17 per cent have a further loss of more than 10 decibels while in 94 per cent the hearing is essentially unchanged. The average gain in the 889 per cent with a good hearing result is 26.5 decibels for the conversational frequencies. If one analyzes the hearing results in the 73 patients whose hearing has been tested six months or more after operation, an improvement, probably permanent, is found in 64 or 87.7 per cent, a further loss in 2, or 2.7 per cent, and no change in 7, or 9.6 per cent. The average decibel gain in the 65 patients with a probably permanent improvement is 25.7 decibels for conversational tones.

The practical hearing result for the patient after the fenestration operation will vary with the decibel gain for speech and with the amount of the preoperative hearing loss. Many of the patients had used an electrical hearing aid for periods of time up to twenty years before operation. With 2 exceptions all patients who received a lasting hearing improvement state that they

'stone deaf' with a loss of 93 decibels for speech in the operated ear and 85 decibels in the unoperated ear. She gained 28 decibels for speech in the operated ear, bringing it up to a 65 decibel loss. She states that her

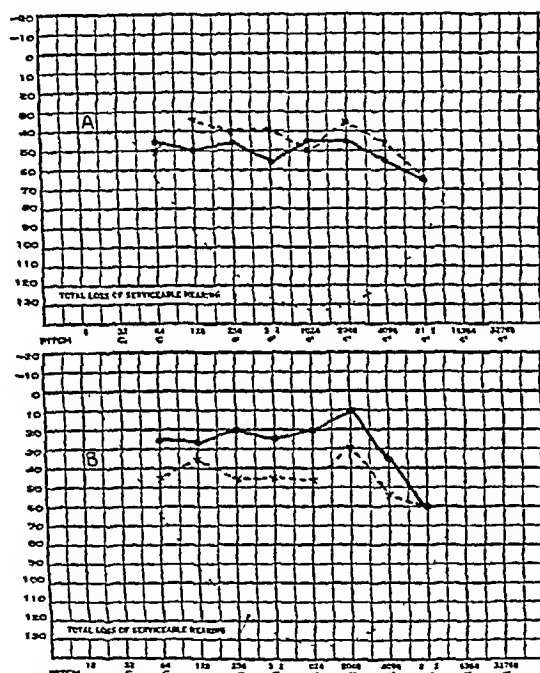


Fig. 10 (case 39)—Audiogram of Mr. R. S. aged 26 (4) three days before and (B) ten months after fenestration. He was passed by his Selective Service draft board as having normal hearing after the operation.

now hear better without than they could wearing the aid before the operation and that their present hearing is "natural" and free from the distortion and static of the hearing aid (figs. 11 and 12). One of the 2 exceptions was a patient who before the operation

TABLE 3—Present Status of the Hearing in 117 Consecutive Patients with Otosclerosis Who Have Had 128 Ears Fenestrated with 19 Revisions

|  | Patients      | Percentage |
|--|---------------|------------|
| Hearing improved   | 104           | 88.9       |
| Hearing worse in operated ear  | 2             | 1.7        |
| Hearing unchanged  | 11            | 9.4        |
| Average gain for speech frequencies (512-1704 cps) in the 104 patients with an improvement | 26.5 decibels |            |

had an average loss of 70 decibels for the speech frequencies in the operated ear and a loss of 46 decibels in the unoperated ear. The operated ear gained 20 decibels but is still slightly below the unoperated ear, and the patient still requires a hearing aid. The second exception was a patient who before operation was nearly

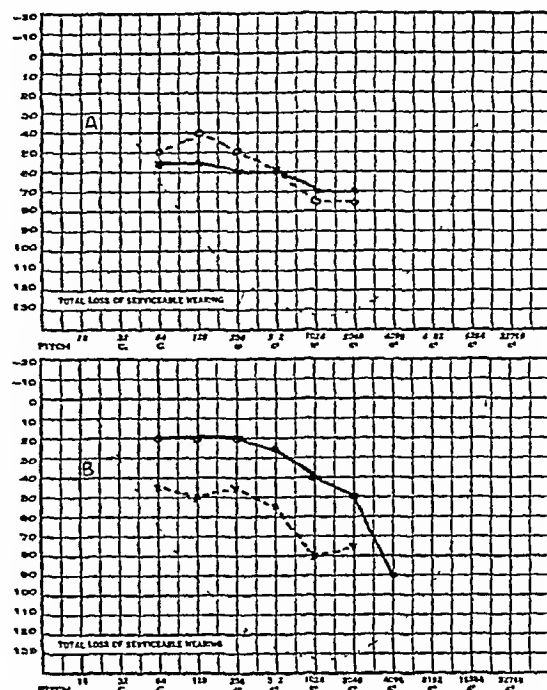


Fig. 11 (case 22)—Audiogram of Mr. S. E. D. aged 62 (4) two days before and (B) one year and five months after fenestration. He hears better after fenestration than he did for ten years with a hearing aid.

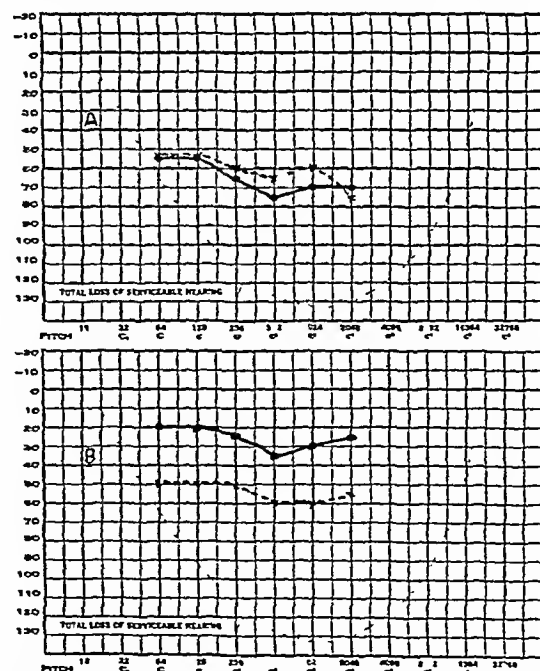


Fig. 12 (case 48)—Audiogram of Sister H. A. aged 52 (4) seven days before and (B) one year after fenestration. She hears better after fenestration than she did for twenty years with a hearing aid.

hearing now is about equal to but does not surpass her preoperative hearing when she wore her aid. She no longer uses her aid and is still quite hard of hearing though she can now hear loud conversation close at hand whereas previously she could scarcely hear the loudest shout into the ear.

Definite economic rehabilitation has occurred in many of the operated patients. For example, patients 52

(fig 7), 53 (fig 8) and 85 were school teachers who had been forced to give up their profession on account of their hearing impairment. They have all regained their positions and are now teaching school.

When the postoperative hearing level is raised to within 20 decibels of normal for the speech frequencies the patient will have sufficient hearing to be regarded as normal under practically all circumstances. For example, patients 38 (fig 9) and 59 (fig 10) were passed by their Selective Service draft board as having "normal" hearing six months after the fenestration.

When the postoperative hearing level is raised to within 30 decibels of normal the patient will be able to get along without difficulty in the majority of social and economic contacts. Of the 117 patients operated on the hearing loss has been restored to within 20 decibels of normal for the speech frequencies in 11 and to within 30 decibels of normal for speech in 52.

#### COMPLICATIONS

Including the 19 patients who had revisions and the 11 who had both ears operated on, a total of 147 consecutive operations were done on the 117 patients, with no fatalities and no serious complications. Minor complications in this series have consisted of transient facial paralysis in 4 cases beginning seven to ten days after the operation, with complete recovery in each case within one to two weeks, postoperative pulmonary atelectasis in 1 case which cleared promptly on change of position (seating the patient in a chair), hyperventilation with carbon dioxide and forced coughing.

Postoperative sterile labyrinthitis of varying degree is the rule after fenestration and is evidenced by dizziness, nystagmus, ataxia and depression in hearing lasting a few days to a week. In 2 of the 117 cases the hearing depression was permanent, amounting to a further loss of 18 decibels for the speech frequencies in 1 case and 13 decibels in the other. Since in each case the poorer hearing ear had been selected for operation, this further loss was not of serious consequence to the patient's useful hearing. In 2 other patients the dizziness has lasted in a mild form for more than a year, consisting of a sense of unbalance on sudden movements. As a rule the dizziness and ataxia disappear completely within the first three or four weeks after operation.

#### SUMMARY AND CONCLUSIONS

1 The fenestration operation offers the possibility of the partial restoration of impaired hearing, the result of stapes fixation.

2 The problem of the closure of the new window has been largely solved by the technic now being used.

3 The hearing after a successful fenestration operation generally surpasses that secured with a hearing aid (figs 11 and 12).

4 The fenestration operation is not always successful, and the hearing may be made worse in the operated ear. For this reason the poorer hearing ear should always be selected for operation.

5 A hearing improvement maintained for more than six months after fenestration may be regarded as probably permanent.

6 Properly done, the fenestration operation carries little risk to life, health or useful hearing.

7 With proper selection of cases and with the improvements in technic, 88.9 per cent of 117 patients operated on over a three and one-half year period now have a significant hearing improvement.

122 South Michigan Avenue

## DIABETES MELLITUS IN HARLEM HOSPITAL OUTPATIENT DEPARTMENT IN NEW YORK

A COMPARISON OF CERTAIN ETIOLOGIC FACTORS  
IN NEGRO AND WHITE PATIENTS

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Diabetes mellitus was formerly considered an uncommon disease in the Negro. This impression, once having been established, is hard to eradicate unless one is confronted with actual cases in a Negro community. The study now being reported certainly negates the idea of the rarity of this disease in the Negro race and probably indicates its prevalence to as great a degree as in the white race.

Harlem Hospital in upper Manhattan of New York City serves a population which is preponderantly Negro, with a fair percentage of Puerto Ricans of Negro extraction. The district extends east of St. Nicholas Avenue from One Hundred and Tenth Street on the south to the Harlem River on the north. It is estimated that there are 425,000 colored people in the five boroughs of New York City. This is 57 per cent of the total city population, 400,000 of whom are Negroes,<sup>1</sup> 200,000 of these in the Harlem district.

The past six years have shown a very definite increase in the number of diabetic patients treated in the outpatient department clinic as judged by the records. While the number of patients in the general medical clinic also has increased, the figures for the diabetic show a larger proportionate rise (table 1). Thus while there was approximately a 20 per cent increase in the new and referred patients in the general medical clinic in five years, the increase in the number of new diabetic patients registered was over two and one-half times the 1936 figure. The same proportion exists in the total number of diabetic patients registered in the clinic.

In 1936 there were approximately 500 diabetic patients who attended the diabetic clinic. By the end of 1939 there were approximately 1,500 diabetic patients on our rolls. The reasons for this increase in registration are not all apparent. One factor, although not the sole one, is the extra money for the special diets added to the allowance given relief "clients." This brings the diabetic to the clinic for special diets and so may account for some of the increase, but we do not see a proportionate increase in the general medical clinic, where special diets also are prescribed. That this increase in diabetes among the Negroes is not merely apparent is better evidenced by the mortality statistics<sup>2</sup> obtained from the Board of Health of New York City for the year 1937 (table 2).

There were more deaths charged to diabetes in 1937 than in any other preceding year. Table 3 shows that the diabetic death rate<sup>3</sup> has been increasing every year with the exception of 1935. In seven years the death rate has increased from 27.2 to 34.5, an increase of 27

From the Metabolic Service of Harlem Hospital. Dr. O. LaRotunda, Medical Director.

1 Board of Health Vital Statistics, 1938 ed. pp. 278-9.

2 New York Health Department Vital Statistics, 1937 ed. p. 1.

3 Health of New York City's Millions, 1938 ed. pp. 27-9.

per cent The greatest increase was in Negro females, 76 per cent, while white females increased 26 per cent, white males 23 per cent and Negro males 15 per cent

The diabetic death rate does not reach large proportions until 45 The main reason is the change in the method of classification which lists diabetes as the cause of death even though heart disease or nephritis is involved This adds to the diabetic death rate even though diabetes may be an associated disease rather than the actual cause of death

It is estimated that there are 424 000 colored people in New York City of whom approximately 400,000 are Negro This is 51 per cent of the total population Compared to these figures are those of Leopold in Baltimore for the year 1930 death rate, white 22.02 per hundred thousand (for diabetes) and colored 30.1 per hundred thousand

This study was based on 745 patients who attended the diabetic outpatient clinic with some regularity and for whom the diagnosis of diabetes mellitus was established and confirmed There were 639 Negroes, or 85.75 per cent, and 106 white persons, or 14.25 per cent, and 2 of other races, of the whole clinic group Of females 511, or 87 per cent, were Negroes and 68 or 13 per cent, white Of males 128 or 77 per cent, were Negroes and 38, or 23 per cent white The proportion

TABLE 1—Increase in Number of Patients in Medical Clinic and Diabetic Clinic at the Harlem Hospital Outpatient Department

| Year | Medical Clinic             |              | Diabetic Clinic            |              |
|------|----------------------------|--------------|----------------------------|--------------|
|      | New Patients and Referrals | Total Visits | New Patients and Referrals | Total Visits |
| 1935 | 9 200                      | 46 434       | 130                        | 2 900        |
| 1936 | 9 659                      | 61 014       | 213                        | 3 293        |
| 1937 | 10 340                     | 66 974       | 322                        | 5 327        |
| 1938 | 12 117                     | 84 313       | 187 (?)                    | 6 751        |
| 1939 | 12 043                     | 85 114       | 346                        | 6 876        |

of female Negroes to male Negroes is 4.1, or 80 per cent to 20 per cent Leopold<sup>4</sup> gave the proportion as 3½:1 The proportion of females to males among the white patients in this group was 64 per cent females and 36 per cent males The percentage of female white patients to male white patients in other series is 55.45 (Joslin<sup>5</sup>) and for female diabetic patients he quotes 57.4 per cent in his 15,000 diabetic patients

The distribution of Negroes according to age groups is given in table 4, and of white persons according to age groups in table 5 Thus there appears to be a larger percentage of Negroes in the groups 30-39 and 40-49 than among the white patients The latter have more diabetic patients in the fifth and sixth decades proportionately than the Negroes These figures broken up into sex distribution for each race are given in table 6

The percentage distribution for white males and white females according to age at examination corresponds with minor variations, to the figures given by Joslin<sup>6</sup>

According to our figures there is a greater percentage in the 30-39 and 40-49 groups among the Negro than among the white patients in both males and females As a whole the average female and male Negro diabetic patient is younger than the average white diabetic patient

#### AGE AT ONSET

The onset of diabetes in the Negro occurs at a much earlier age than among white persons In tables 7 and 8, analyzed by five year groups, one sees a definite spurt in the female diabetic patients at the age 35-39, with 15.1 per cent of the total female Negro group,

TABLE 2—Deaths in 1937

| Deaths from all causes in 1937                                |        |  |
|---|--------|--|
| Male  |        | 42 072                                     |
| Female  |        | 35 303                                     |
| White male  |        | 38 792                                     |
| White female  |        | 32 532                                     |
| Negro male  |        | 3 122                                      |
| Negro female  |        | 2 847                                      |
| This gives  |        | 11.0 white males per 1 000 of population   |
|   |        | 9.3 white females per 1 000 of population  |
|   |        | 15.9 Negro males per 1 000 of population   |
|   |        | 13.3 Negro females per 1 000 of population |
| Deaths from diabetes in 1937 2 269 = 2.9% of the total deaths |        |  |
| Of the diabetic deaths there were                             | Number | Rate per 100 000                           |
| White male  | 873    | 23.7                                       |
| White female  | 1 723  | 44.7                                       |
| Negro male  | 23     | 22.9                                       |
| Negro female  | 85     | 57.7                                       |

whereas the female white group is 5.1 per cent The age group 35-44 for the female Negro is 30.2 per cent and for the female white patient 18.7 per cent

The age at onset for white diabetic patients as given by Joslin<sup>5</sup> corresponds to that for white diabetic patients in our group aged 35-44 Thus there is a perceptible tendency for the onset of diabetes to occur at an earlier age group in the Negro than in the white race This is still more apparent when compared to Joslin's figures compiled from a larger white group than our own His tables show a percentage of 30.8 for female white patients aged 35-49, whereas our percentage is 45.9 for female Negroes aged 35-49, 15 per cent more than for the corresponding age groups of white patients

#### HEREDITY

In a race in which not until recently have there been adequate facilities for medical care and the economic level has frequently precluded the services of a phy-

TABLE 3—Diabetic Death Rate per Hundred Thousand by Color and Sex 1931 to 1939

| Year         | All Persons | White |        | Negro |        |
|--------------|-------------|-------|--------|-------|--------|
|              |             | Male  | Female | Male  | Female |
| 1931         | 27.2        | 19.2  | 35.6   | 19.9  | 37.7   |
| 1932         | 29.5        | 20.7  | 37.8   | 21.9  | 46.8   |
| 1933         | 30.1        | 21.2  | 37.5   | 21.4  | 59.4   |
| 1934         | 30.8        | 22.0  | 39.0   | 21.9  | 51     |
| 1935         | 30.2        | 20.4  | 39.4   | 17.7  | 53.5   |
| 1936         | 34.0        | 23.8  | 47.9   | 23.6  | 56.6   |
| 1937         | 31.5        | 23.7  | 44.7   | 22.9  | 57.7   |
| 1938         | 35.4        | 22.9  | 45.0   | 27.4  | 61.4   |
| 1939         | 33.8        |       |        |       |        |
| Total deaths | 2 935       | 970   | 1 965  | 29    | 117    |

sician until the very end, one cannot expect too much accuracy as to knowledge of cause of death of relatives Despite this we were able to obtain a positive history of diabetes in some other member of a family in 14.7 per cent of our female Negro patients The figures are given in table 9 The statistics as compiled from Joslin's clinic<sup>6</sup> show an incidence of diabetes in the

<sup>4</sup> Leopold E. J. Ann Int Med 5:285 (Sept.) 1931

<sup>5</sup> Joslin E. P. Treatment of Diabetes Mellitus ed. 6 Philadelphia 1937

<sup>6</sup> Joslin E. P. Treatment of Diabetes Mellitus table 10

families of his patients as 24.5 per cent. We believe that this incidence of heredity will rise as time goes on because of more accurate information and knowledge regarding the cause of death among relatives of Negroes. The figures for female Negro heredity and family history and for white heredity and family history are almost

TABLE 4—*Distribution of Negroes According to Age Groups*

| Age   | No. of Cases | Per Cent |
|-------|--------------|----------|
| 10-19 | 5            | 0.8      |
| 20-29 | 11           | 1.7      |
| 30-39 | 65           | 10.2     |
| 40-49 | 172          | 26.9     |
| 50-59 | 217          | 33.9     |
| 60-69 | 156          | 21.3     |
| 70-79 | 33           | 5.2      |
| Total | 639          |          |

alike, 14.7 per cent for Negro family history and 15.3 per cent for white family diabetes history.

The male Negro positive family history is 10.8 per cent, whereas for white men in a much smaller group it is 26.3 per cent. The positive family history in Negroes both male and female is 13.8 per cent and in white patients male and female combined it is 19.6 per cent.

These figures for hereditary and familial incidence of diabetes mellitus in the Negro race are sufficiently prominent to place heredity as an etiologic factor in diabetes mellitus in the Negro race.

#### OBESITY

Table 10 gives the weights for the four groups of diabetic patients at the time of admission to the clinic. For most of the patients it was difficult to obtain maximum weights and weights at onset, and for that reason an attempt to tabulate this information was abandoned.

Many factors are at work influencing the weights of the Negro population in this community. Dietary habits have been influenced by migration from the South to the North, and again a long period of economic depression certainly has been responsible for alterations in type and quantity of the food ingested. This probably accounts for the larger number of underweight female Negroes than underweight female white patients. The

are for overweight females 67.4, males 62.7, normal females 13.6, males 17.0, underweight females 10.0, males 19.4. Our female group, both white and Negro, is somewhat comparable to Joslin's group, 61 per cent in our group to an average of 67 per cent in his group.

#### SEVERITY OF DIABETES (INSULIN)

The diets prescribed vary between carbohydrate 100, protein 70, fat 70 and carbohydrate 200, protein 70, fat 70. The average diet is carbohydrate 135, protein 70, fat 70. The insulin requirements are given in table 11.

A comparison of both white and Negro female diabetic patients shows approximately the same proportion, about 25 per cent, carried without insulin in the two groups. The Negroes have more in the mild and moderate groups than do the white patients, and less in the severe groups. While the figures are not preponderantly conclusive, the Negroes seem to have a larger percentage in the mild groups than do the white patients.

#### DURATION OF DIABETES

Of female Negroes there were 520 with diabetes of one to thirty years' duration, the average being five and one-tenth years.

TABLE 6—*Sex Distribution According to Race*

| Age   | Negroes      |          |              |          | White Patients |          |              |          |
|-------|--------------|----------|--------------|----------|----------------|----------|--------------|----------|
|       | Female       |          | Male         |          | Female         |          | Male         |          |
|       | No. of Cases | Per Cent | No. of Cases | Per Cent | No. of Cases   | Per Cent | No. of Cases | Per Cent |
| 10-19 | 3            | 0.6      | 2            | 1.6      |                |          | 2            | 0.3      |
| 20-29 | 8            | 1.6      | 3            | 2.3      | 1              | 1.5      | 3            | 7.9      |
| 30-39 | 55           | 10.8     | 10           | 7.8      | 2              | 2.9      | 4            | 10.5     |
| 40-49 | 129          | 25.2     | 43           | 33.6     | 12             | 17.6     | 7            | 18.4     |
| 50-59 | 181          | 35.4     | 56           | 28.1     | 29             | 42.6     | 9            | 22.7     |
| 60-69 | 109          | 21.3     | 27           | 21.1     | 20             | 29.4     | 11           | 28.9     |
| 70+   | 26           | 5.1      | 7            | 5.3      | 4              | 5.9      | 2            | 5.1      |

Of female white patients there were 68 with diabetes of one to eighteen years' duration, the average being five and seven-tenths years.

Of male Negroes there were 68 with diabetes of one to twenty years' duration, the average being four and five-tenths years.

Of male white patients there were 39 with diabetes of one to twenty-eight years' duration, the average being seven and seven-tenths years.

The female white and Negro patients average about the same duration of diabetes. The male white average duration is seven and seven-tenths years, a much longer duration for white males than for Negro males.

#### COMMENT

In a disease like diabetes it is difficult to step in and draw sharp conclusions from a group of 639 patients compared to a much smaller white group, 106. However, the group is large enough and the patients are sufficiently cooperative to enable us to draw certain conclusions.

The apparent increase of diabetic registration in the clinic during 1935-1939 leads to the conclusion that diabetes mellitus in the Negro is on the increase. This is more real than apparent is evidenced by the increase in diabetic deaths throughout the city during a similar five year period. The increase in fatal diabetic deaths reached 76 per cent in 1937.

TABLE 5—*Distribution of White Patients According to Age Groups*

| Age   | No. of Cases | Per Cent |
|-------|--------------|----------|
| 10-19 | 2            | 1.9      |
| 20-29 | 4            | 3.8      |
| 30-39 | 6            | 5.7      |
| 40-49 | 19           | 17.9     |
| 50-59 | 38           | 35.8     |
| 60-69 | 31           | 29.2     |
| 70-79 | 6            | 5.7      |
| Total | 106          |          |

overweight group, strikingly enough, is the same in white and Negro females, 61.8 per cent to 61.4 per cent respectively. Also noteworthy is the greater proportion of overweight female Negroes to male Negroes, 61.4 per cent to 46.1 per cent.

Undoubtedly other endocrine deficiencies are present in the female. The Negro males show a 15 per cent higher incidence of obesity than white males, 46.1 per cent to 31.6 per cent. The percentages given by Joslin<sup>5</sup>

The sex distribution in the Negro is preponderantly female, 41 Leopold<sup>4</sup> found the proportion to be  $3\frac{1}{2}$  females to 1 male. The proportion of female white patients to male white patients in our series was approximately 2:1. Joslin<sup>5</sup> as previously reported, had 57.4 per cent females.

Another factor in which the Negro diabetic patient varies from the white diabetic patient is the age at examination. There seems to be a higher percentage of Negroes in the third and fourth decades than of white patients, 37.1 per cent of all Negro diabetic patients are in age group 30-49, whereas 23.6 per cent of the white patients are in this group. Joslin's figures for white patients and our figures for the same groups are approximately the same.

As in other degenerative diseases the onset of diabetes mellitus in the Negro comes at a much earlier age than it does in white patients. Boyce<sup>6</sup> in a recent article on gastric carcinoma, says "As a matter of interest it might be mentioned that 25 of 38 patients (with gastric carcinoma) under 40 years of age were Negroes" and substantiates Garther's statement that

TABLE 7—Age at Onset

| Age         | Female       |          |              |          | Male         |          |              |          |
|-------------|--------------|----------|--------------|----------|--------------|----------|--------------|----------|
|             | Negro        |          | White        |          | Negro        |          | White        |          |
|             | No. of Cases | Per Cent | No. of Cases | Per Cent | No. of Cases | Per Cent | No. of Cases | Per Cent |
| 0-4         | 0            |          |              |          |              |          |              |          |
| 5-9         | 1            | 0        |              |          |              |          |              |          |
| 10-14       | 0            | 0.0      |              |          |              |          |              |          |
| 15-19       | 0            | 0.0      |              |          | 1            | 0.8      | 1            |          |
| 20-24       | 4            | 0.8      | 2            | 3.4      | 2            | 1.6      | 0            |          |
| 25-29       | 15           | 3.0      | 1            | 1.7      | 3            | 2.4      | 2            |          |
| 30-34       | 34           | 6.7      | 0            | 0        | 14           | 11.1     | 1            |          |
| 35-39       | 70           | 13.1     | 0            | 0        | 12           | 9.5      | 5            |          |
| 40-44       | 70           | 13.1     | 8            | 10.6     | 22           | 17.5     | 6            |          |
| 45-49       | 78           | 15.7     | 14           | 20.7     | 19           | 15.1     | 3            |          |
| 50-54       | 83           | 16.7     | 1            | 1.6      | 16           | 12.7     | 5            |          |
| 55-59       | 67           | 13.5     | 7            | 11.9     | 17           | 13.5     | 4            |          |
| 60-64       | 36           | 7.2      | 6            | 10.2     | 9            | 7.1      | 3            |          |
| 65-69       | 20           | 4.0      |              |          | 10           | 7.9      | 2            |          |
| 70 and over | 2            | 0.4      | 2            | 3.4      |              |          |              |          |
| Total       | 436          |          | 30           |          | 176          |          | 37           |          |

this disease develops at an earlier age in the Negro than in the white subject. Although gastric carcinoma and diabetes mellitus are not related conditions, the comment on the origin in the Negro at an earlier age group is of interest.

Our statistics warrant a similar comment: diabetes mellitus begins in a much earlier age group in the Negro than it does in the white race: 30.2 per cent of Negroes from 35 to 44 years of age and 18.7 per cent of white patients in our series, compared to Joslin's 30.8 per cent of white patients from 35 to 49 years and our series of 45.9 per cent of Negro females from 35 to 49 years.

As previously stated the statistics on heredity and familial incidence must be considered as incomplete and as underestimating the true incidence. It is difficult to obtain an accurate family history in many cases both Negro and white considering the economic and social level of the clinic patients. Despite this the percentage of familial incidence is almost the same in our female Negroes as in our female white patients. Yet we know that in larger clinics of white patients where the source

of patients is of a higher economic and social level the hereditary factor is higher than our figures for female white patients indicate, viz. 14.7 of Negro family history and 15.3 per cent of female white family history.

Joslin<sup>5</sup> reports a 24.5 per cent incidence of diabetes in families of diabetic patients.

TABLE 8—Age at Onset, According to Joslin<sup>5</sup>

| Age      | Males  |          | Females |          |
|----------|--------|----------|---------|----------|
|          | Number | Per Cent | Number  | Per Cent |
| All ages | 314    |          | 3023    |          |
| Under 5  | 67     | 2.1      | 51      | 1.6      |
| 5-9      | 90     | 2.9      | 91      | 2.8      |
| 10-14    | 118    | 3.8      | 112     | 3.5      |
| 15-19    | 102    | 3.2      | 80      | 2.6      |
| 20-24    | 17     | 4.0      | 77      | 2.4      |
| 25-29    | 164    | 5.2      | 153     | 4.2      |
| 30-34    | 200    | 6.6      | 142     | 4.4      |
| 35-39    | 251    | 8.1      | 219     | 6.8      |
| 40-44    | 72     | 10       | 314     | 9.7      |
| 45-49    | 397    | 12.7     | 46      | 1.4      |
| 50-54    | 415    | 14.7     | 507     | 15.7     |
| 55-59    | 36     | 10.7     | 439     | 13.6     |
| 60-64    | 271    | 8.7      | 299     | 9.2      |
| 65-69    | 118    | 3.8      | 187     | 5.8      |
| 70-74    | 68     | 2.2      | 69      | 2.1      |
| 75-79    | 27     | 0.9      | 33      | 1.0      |

We are satisfied that heredity is a factor in the Negro as it is in the white race and that as time goes on the percentage in Negroes will rise as the result of more disseminated knowledge of deaths among the relatives.

The female Negro is no exception to the fact that obesity is common among the diabetic. In fact, the percentage for the two groups is almost the same, 61.4 for Negro females and 61.8 for white females. Male Negroes show 46.1 per cent overweight and male white patients 31.6 per cent. Joslin's figures give a slightly higher incidence for female white patients, 67.4 per cent, and 62.7 per cent for male white patients. Both white and Negro males show a high percentage who are underweight: 36.8 to 35.2. Undoubtedly economic factors explain the higher rate of malnutrition in our male clinic patients than in Joslin's group.

Judging by insulin requirements of our clinic patients, there appear to be more female diabetic patients in the mildly affected group of 1-20 units of insulin than white females: 34.4 to 23 per cent respectively. This makes the percentage of no insulin and insulin under 20 units in Negro women 59 and in white women 48.5 per cent. The percentage is much less for severely affected female

TABLE 9—Diabetes in Some Other Member of the Family

| Sex    | Race  | Number of Patients | No. Family History | Family History |         | Positive per Cent |
|--------|-------|--------------------|--------------------|----------------|---------|-------------------|
|        |       |                    |                    | Positive       | Unknown |                   |
| Female | Negro | 301                | 34                 | 73             | 64      | 14.7              |
|        | White | 59                 | 59                 | 9              | 0       | 15.3              |
| Male   | Negro | 170                | 117                | 14             | 0       | 10.8              |
|        | White | 33                 | 33                 | 10             | 0       | 26.3              |
| Total  | Negro | 61                 | 40                 | 87             | 64      | 13.8              |
|        | White | 97                 | 97                 | 19             | 0       | 19.6              |

Negro diabetic patients than it is for the white: 17 to 29. This seems to confirm the general impression that diabetes is milder in the Negro than it is in the white race. One should not get a false sense of security from these figures for diabetes mellitus certainly plays havoc with the Negro as judged by our hospital experience and by rising mortality statistics.

<sup>6</sup> Boyce, F. F. Carcinoma of the Stomach in a Large General Hospital. *J. A. M. A.* 117: 1670 (Nov. 15) 1941.



In our study of the duration of diabetes in the four groups, only the male white patient shows an average duration decidedly longer than the male Negro or female groups, seven and seven-tenths years for male white patients, about five years for females of both races and four and five-tenths years for male Negroes

SUMMARY AND CONCLUSIONS

- 1 The number of new and referred diabetic patients at the Harlem Hospital outpatient department increased two and one-half fold in the 1935-1939 period The total number of registered diabetic patients has tripled in the same period
- 2 The mortality for female Negro diabetic patients has increased 76 per cent in seven years, while for female white diabetic patients it has increased 26 per cent in the same period
- 3 Female Negro diabetic patients predominate 4 females to 1 male
- 4 The average female and male Negro is younger than the average white diabetic patient

TABLE 10—Weights of Diabetic Patients

| Sex                   | Number of Patients | Normal 5% | Underweight | Overweight |
|-----------------------|--------------------|-----------|-------------|------------|
| Female Negroes        | 511                | 20.2      | 18.4        | 61.4       |
| Female white patients | 68                 | 26.5      | 11.8        | 61.8       |
| Male Negroes          | 128                | 18.8      | 35.2        | 46.1       |
| Male white patients   | 38                 | 31.6      | 36.8        | 31.6       |

TABLE 11—Insulin Requirements

|               | Negro Females |          | Female White Patients |          |
|---------------|---------------|----------|-----------------------|----------|
|               | Number        | Per Cent | Number                | Per Cent |
| No insulin    | 122           | 24.5     | 15                    | 25.5     |
| 1-20 units    | 171           | 34.4     | 14                    | 23       |
| 21-40 units   | 121           | 24       | 14                    | 23       |
| 41 units plus | 83            | 17       | 16                    | 29       |
| Total         | 497           |          | 59                    |          |

- 5 The onset of diabetes is much earlier in the female Negro than in the female white patient
- 6 Heredity and familial incidence are factors in the Negro diabetic etiology
- 7 Obesity predominates and is just as common in the female Negro as it is in the female white diabetic patient Undernutrition is slightly higher in both male and female Negro diabetic patients than in white groups
- 8 The Negroes appear to have higher percentages in the noninsulin and mild diabetic groups than do corresponding groups of white patients
- 9 The duration of diabetes in the clinic patient is the same for Negro and white female diabetic patients, only the white male has had diabetes a longer time

350 Central Park West—811 Walton Avenue

Social Evolution—History shows, however, three prominent directions in which man's social evolution is proceeding (1) the invention and development of new techniques for supplying our wants, (2) the understanding of nature and apparently (3) the consideration of the rights of others There is no reason to suppose that a modern child brought up in a primitive community would differ in any of these regards from his primitive associates That is, the differences are not individual changes but social changes, occurring through the continued interaction of people on each other—Compton, Arthur H Science, Religion and a Stable Society, *Assn Am Coll Bull* 26 206 (May) 1940

DIGITALIS IN ARTERIOSCLEROTIC (CORONARY) HEART FAILURE

WITH NORMAL RHYTHM

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During the past twenty years, since the work of Janeway<sup>1</sup> and Christian<sup>2</sup> on the use of digitalis in heart failure with normal rhythm, the attitude toward the prognosis and treatment of myocardial insufficiency has been altered considerably Not so very long ago Parkinson and Clark-Kennedy<sup>3</sup> reported 100 unselected cases of severe congestive failure with normal rhythm and stated "This series has only been obtained by searching several large hospitals over a period of two years" They implied that the arrhythmias, especially auricular fibrillation with severe failure, were far more common Luten<sup>4</sup> and Marvin<sup>5</sup> administered digitalis in suitable large doses under properly controlled conditions to patients with advanced congestive heart failure, regular rhythm and considerable edema and noted improvement mainly in one group, that designated as "arteriosclerotic heart disease" Clinical improvement was noted also as the result of the use of digitalis in certain cases of heart failure with normal rhythm but without edema<sup>6</sup> The drug was considered of great benefit for patients with paroxysmal dyspnea and of some value for many patients with dyspnea brought on by exertion, both groups having a normal rhythm<sup>7</sup>

Stewart and his co-workers<sup>8</sup> delved further into the matter and concluded that digitalis decreases the cardiac size, which was interpreted as an effect on tone Gavey and Parkinson<sup>9</sup> generalized that digitalis is always indicated in congestive heart failure irrespective of the rhythm, but it is often inefficient, as it fails completely in about a third of the cases Harrison<sup>10</sup> considered the essential action of digitalis as consisting of an increase in the efficiency of the heart by diminishing dilatation, but Gold and Cattell<sup>11</sup> stated that the heart muscle is not overdistended in clinical heart failure Apart from the action of digitalis on the heart size during decompensation, there is also the question of the effect of the drug on the heart rate during congestive failure The consensus today seems to be that the drug is effective in heart failure with normal rhythm

The digitalis preparation used in this study was supplied by Faltz Davis & Co

1 Janeway T C The Comparative Value of Cardiac Remedies Arch Int Med 13 361 (March) 1914  
2 Christian H A Digitalis Therapy, Satisfactory Effects in Cardiac Cases with Regular Rate Am J M Sc 157 595 1919  
3 Parkinson J and Clark-Kennedy A E Heart Failure with Normal Rhythm, Quart J Med 19 113 1926  
4 Luten Drew Clinical Studies of Digitalis I Effect Produced by the Administration of Massive Dosage to Patients with Normal Mechanism Arch Int Med 33 251 (Feb) 1924  
5 Marvin H M Digitalis and Diuretics in Heart Failure with Regular Rhythm J Clin Investigation 3 521, 1927  
6 Gavey C J, Jones H W and Ince P Action of Digitalis in Cardiac Failure with Normal Rhythm, Quart J Med 21 135 1927  
7 Harrison T R Calhoun J A, and Turley J C Cardiac Failure XI Effect of Digitalis on the Dyspnea and on the Titulation of Ambulatory Patients with Regular Cardiac Rhythm Arch Int Med 48 1203 (Dec) 1931  
8 Stewart H J, Deurick J E, Crane A F and Wheeler C I Action of Digitalis in Uncompensated Heart Disease Arch Int Med 62 569 (Oct) 1938  
9 Gavey C J and Parkinson J Digitalis in Heart Failure with Normal Rhythm, Brit Heart J 1 27 1939  
10 Harrison T R Failure of the Circulation Baltimore W B & Wilkins Company ed 2 1939 p 386  
11 Gold Harry and Cattell, McKee Mechanism of Digitalis in Abolishing Heart Failure, Arch Int Med 65 263 (Feb) 1935

irrespective of the rate.<sup>12</sup> Wood<sup>13</sup> however stated that, while it is generally accepted that digitalis may be of benefit in cases of congestive heart failure with normal rhythm, there is disagreement as to the frequency of such benefit, as to whether the etiologic type of heart disease influences the response and as to the mechanism whereby the improvement is brought about.

In an effort to determine some of the problems involved a study was made of the use of digitalis in heart failure with normal rhythm in which the underlying heart disease was due to one of the four important etiologic factors (hypertension, rheumatic fever, syphilis or coronary arteriosclerosis). The etiologic groups were considered separately as it is my opinion that the factor underlying the heart disease does influence the response.<sup>14</sup> Therefore, in this study the effect of digitalis was investigated in an older group of patients with uncomplicated arteriosclerotic (coronary) heart failure and normal rhythm. A group of 51 unselected patients whose congestive heart failure was on this basis were treated and the responses analyzed. As far as I could myself determine, all were decompensated for the first time, and none had any disturbance of rhythm or conduction.

There were 43 men (84 per cent) and 8 women (16 per cent), whose ages ranged from 53 to 88, with an average age of 69.4 years. Those with a normal

TABLE 1—Percentage of the Age Groups at the Onset

| Ages   | Male | Female | Total | Per Cent |
|--------|------|--------|-------|----------|
| 53-60  | 0    | 1      | 1     | 1.9      |
| 61-70  | 26   | 6      | 32    | 62.9     |
| 71-80  | 15   | 1      | 16    | 31.3     |
| 81-88  | 2    | 0      | 2     | 3.9      |
| Totals | 43   | 8      | 51    | 100.0    |

rate had an average age of 69, while the ones with sinus tachycardia had an average age of 69.9 years (table 1). These cases with normal rhythm represent 32 per cent of all patients with arteriosclerotic heart failure, ranking second in importance to auricular fibrillation, which occurs in 44 per cent of heart disease due to this condition. There was no history of hypertension or any of its sequelae in any of the 51 patients. The systolic blood pressure varied from 100 to 140 in 79 per cent, was between 140 and 150 in 13 per cent, and was below 100 in 8 per cent. Ninety-eight per cent of the patients had a diastolic blood pressure below 90 mm of mercury, while in the other 2 per cent it was between 90 and 100 mm.

As to the size of the heart during congestive failure, in 91 per cent of the patients the left heart border was percussed 9 to 12 cm from the midsternal line in the fifth intercostal space. Allowing for a known personal error of approximately 1 cm on cardiac percussion, these hearts were considered to be only slightly to moderately enlarged. When compared with the average heart size when the underlying cause of the heart disease was hypertension, rheumatic fever or syphilis these hearts were much less enlarged. Enlargement of the right heart border beyond the right parasternal line in the fourth intercostal space was not noted by percussion in 93 per cent.

These patients were divided into two groups, those with a normal rate (61 to 99) and those with sinus tachycardia (100 to 150). If the effect of digitalis was mainly on the rate, then it was thought that the results should be somewhat similar in the two groups. Further, if it was the reduction in rate that brings about improve-

TABLE 2—Duration of Symptoms Previous to Use of Digitalis

| Duration                     | Normal Rate |              | Sinus Tachycardia |              | Totals |              |
|------------------------------|-------------|--------------|-------------------|--------------|--------|--------------|
|                              | Cases       | Mortal-ity % | Cases             | Mortal-ity % | Cases  | Mortal-ity % |
| 1 month or less              | 8           | 0            | 6                 | 50.0         | 14     | 21.0         |
| 1-2 months                   | 3           | 0            | 2                 | 50.0         | 5      | 20.0         |
| 2-4 months                   | 3           | 0            | 2                 | 50.0         | 5      | 20.0         |
| 4-6 months                   | 3           | 0            | 1                 | 0.0          | 4      | 0.0          |
| 6 months-1 year              | 6           | 16.0         | 1                 | 0.0          | 7      | 14.0         |
| 1-2 years                    | 4           | 0            | 3                 | 100.0        | 7      | 42.0         |
| 2-5 years                    | 2           | 0            | 5                 | 50.0         | 7      | 56.0         |
| Over 5 years                 | 2           | 50.0         | 0                 |              | 2      | 50.0         |
| Totals and average mortality | 31          | 6.4          | 20                | 60.0         | 51     | 27.0         |

ment and restores compensation, the results should be better in those with a sinus tachycardia. For purposes of analysis, the two groups were considered from various points of view.

## DURATION OF SYMPTOMS

A striking difference in the mortality of the two groups was noted even before the use of digitalis was considered. Those with a normal rate had a mortality of 6.4 per cent, and in those with sinus tachycardia it was 60.0 per cent (table 2). Regardless of whether the symptoms were of one month or of one to two years in duration before treatment with digitalis was started, this difference in mortality was apparent section by section.

## TYPE OF HEART FAILURE

The combined type of right and left sided failure, denoted by both the symptoms and the signs of systemic congestion, was present in 25 (49.1 per cent), while isolated failure of the left ventricle, denoted by symptoms and no signs of systemic congestion, was found in 26 (50.9 per cent) of the patients. Not only was there a decided difference in the mortality of these two groups (table 3) but there was an even greater difference between those with a normal rate and those with a tachycardia. Moreover among the patients with the combined type of failure, which has a less favorable

TABLE 3—Type of Heart Failure in Relation to the Mortality

| Type                         | Normal Rate |              | Sinus Tachycardia |              | Totals |              |
|------------------------------|-------------|--------------|-------------------|--------------|--------|--------------|
|                              | Cases       | Mortal-ity % | Cases             | Mortal-ity % | Cases  | Mortal-ity % |
| Combined ventricular failure | 12          | 8.3          | 13                | 76.0         | 25     | 44.0         |
| Left ventricular failure     | 19          | 5.2          | 7                 | 28.0         | 26     | 11.0         |

prognosis than isolated failure of the left ventricle, the mortality was eight and five-tenths times greater in the 13 with a tachycardia as compared with the 12 who had a normal rate.

## PERIOD OF USE OF DIGITALIS

The length of time required to restore compensation by treatment with digitalis offers prognostic significance, for the longer it takes to restore a patient the less favor-

12. Luten.<sup>15</sup> Christian.<sup>2</sup> Gavey and Parkinson.<sup>3</sup>

13. Wood P. The Action of Digitalis in Heart Failure With Normal Rhythm. Brit Heart J 2:132, 1940.

14. Flaxman Nathan. Unpublished data.

able the outlook Here again there was a distinct difference in the mortality of the two groups (table 4) Except for the two deaths among those with a normal rate, only 1 of the remaining 29 patients required more than a month to restore compensation, and 19 (65 per cent) of the 29 were fully compensated within two weeks after treatment with digitalis was started

CAUSES OF DEATH

Congestive heart failure was the most common cause of death (table 5) However, only one death in those with a normal rate was due to this cause This

TABLE 4—Period of Use of Digitalis to Restore Compensation

| Period          | Normal Rate |              | Sinus Tachycardia |              | Totals |              |
|-----------------|-------------|--------------|-------------------|--------------|--------|--------------|
|                 | Cases       | Mortality, % | Cases             | Mortality, % | Cases  | Mortality, % |
| 2 weeks or less | 20          | 5.0          | 10                | 50.0         | 30     | 20.0         |
| 3 weeks         | 7           | 14.0         | 4                 | 50.0         | 11     | 27.0         |
| 4 weeks         | 3           | 0.0          | 3                 | 66.0         | 6      | 33.0         |
| 6 weeks         |             |              | 1                 | 100.0        | 1      | 100.0        |
| 8 weeks         | 1           | 0.0          | 2                 | 100.0        | 3      | 66.0         |

occurred in a 67 year old woman with a history of six months' duration who had a combined ventricular failure when first seen and who failed to respond to adequate doses of digitalis within a period of three weeks when death occurred due to congestive heart failure Of the nine deaths due to this cause among those with a sinus tachycardia, all had combined failure at the time treatment was instituted There was one sudden death of a patient with sinus tachycardia, a man aged 60 who gave a history of dyspnea, cough and edema of three weeks' duration, with all the signs of systemic congestion On the eleventh day of treatment, when he appeared to be making a good recovery, sudden death occurred unexpectedly An autopsy revealed severe coronary sclerosis with a partial occlusion of the left coronary artery and myomalacia of the anterior wall of the left ventricle Without an autopsy this sudden death would have been considered due to overdigitalization, even though there were no clinical signs of such intoxication

COMMENT

As stated previously, our outlook has been altered considerably because we are seeing decompensated patients much earlier than in former years The time may come, although it is only fifteen years since there was such difficulty in finding cases of normal rhythm when the majority of decompensated patients will be seen early enough to institute treatment with digitalis while isolated failure of the left ventricle and normal rhythm are present Such cases respond well to digitalis and have the best prognosis, even though the underlying cause of the heart disease is on an arteriosclerotic (coronary) basis and the patient is advanced in years Digitalis exercises an action on the ventricular muscle which is beneficial independently of any particular cardiac mechanism and altogether aside from any effect on rate<sup>15</sup> This study on coronary heart failure substantiates the view If the effect were primarily on the rate, the results among those with tachycardia would have been better than among those with a normal rate Since the primary action of the drug is on the heart muscle, this secondarily may bring about a reduction in rate Moreover, there was little or no change in the

heart size among these patients, so that such a characteristic could not be attributed to digitalis

The increase in the size of the heart which occurs in congestive failure is a compensatory mechanism, but an adequate supply of oxygen is essential for hypertrophic changes to occur either in compensated or in uncompensated hearts Anoxemia of the muscle is brought about by one of two changes, which, however, may occur concurrently (1) alterations in the coronary arteries and (2) a great increase in muscle mass (hypertrophy) with a subsequent demand for a greater capillary blood supply, which in turn is usually compensated by enlargement of the heart In coronary heart disease the alterations in the arteries already exist which lead to anoxia of the muscle so that hypertrophy does not occur Besides, dilatation of the heart is not usually an unfavorable phenomenon but an adaptive mechanism by which the failing heart maintains its optimal capacity for work<sup>11</sup> Therefore, when the demands made on the heart both by the patient and by the anoxia of coronary atherosclerosis are too great, it dilates in order to work harder to bring more blood, and with it more oxygen to an already handicapped myocardium Finally the only compensatory mechanism that remains is an increase in rate In turn the tachycardia not only goads the weak muscle to more frequent contractions but deprives the already embarrassed myocardium of adequate nourishment

It has been suggested that under such conditions the slight to moderate increase in the cardiac size is not a compensatory mechanism but is due to an increase in the water content of the myocardium<sup>16</sup> Also, as stated by Boyer and Poindexter<sup>17</sup> the beneficial effect of digitalis in cardiac failure may be brought about in part by a cation-like action on the myocardium whereby potassium is maintained within the cell and cell hydration is improved This may account for the marked difference in the mortality of the two groups with normal rhythm In those with a normal rate the permeability of the muscle cell to vital electrolytes is altered but reversibility is still possible, while in those with a tachycardia which in itself has exhausted the heart muscle the cell permeability is so completely affected that there is much less chance of repair

TABLE 5—Causes of Death in Fourteen Cases

| Causes                   | Normal Rate |              | Sinus Tachycardia |              | Totals |              |
|--------------------------|-------------|--------------|-------------------|--------------|--------|--------------|
|                          | Cases       | Mortality, % | Cases             | Mortality, % | Cases  | Mortality, % |
| Congestive heart failure | 1           | 50.0         | 9                 | 75.0         | 10     | 71.0         |
| Coronary occlusion       |             |              | 3                 | 25.0         | 3      | 22.0         |
| Uremia                   | 1           | 50.0         |                   |              | 1      | 7.0          |
| Totals                   | 2           | 100.0        | 12                | 100.0        | 14     | 100.0        |

Some explanation is necessary as to the strength of digitalis used in this study because of a warning recently issued<sup>18</sup> There is no question that the official U S P XI powdered digitalis has a potency considerably greater than the U S P X digitalis employed prior to 1936 Difficulty has arisen not only because of the acceptance of the U S P XI unit by some but not by all of the nationally known pharmaceutical firms but because of

16 Gross H Water Content of the Myocardium in Hypertrophy and Chronic Congestive Failure J Lab & Clin Med 27: 899 1940  
17 Boyer P K and Poindexter C A The Influence of Digitalis on the Electrolyte and Water Balance of Heart Muscle Am Heart J 20: 586 1940  
18 Bland E T and White P D The Strength of Digitalis Clinical Use A Warning J A M A 117: 1243 (Oct 11) 1941

15 Luten Drew The Clinical Use of Digitalis Springfield, Ill., Charles C Thomas, 1936

the failure of those who have accepted the U S P XI unit to offer a suitable explanation of the change. The original container of the digitalis preparation used in this study was labeled on the front, as follows: "Each capsule represents 1 U S P Digitalis unit, 1 International Unit, 1 cc (15 minims) Tr Digitalis U S P XI." On the side of the container was this statement: "0.1 Gm (1½ grains) digitalis fat-free per capsule—approximately one cat unit per capsule." However, in the pamphlet that came with the container there was this statement: "The activity is determined physiologically by the method official in the U S P XI, and known as the Minimum Systolic Dose (M S D) Frog Heart Method or more commonly called the 'One hour frog heart method'."

Such labeling may be necessary to meet the requirements of the new food and drug laws, but to those of us in practice who actually use the contents of such containers it is very confusing. No 2 patients require the same amount of digitalis for either digitalization or maintenance and the dose for each is best considered in grains or in minims, regardless of the method used for standardization.

Bland and White<sup>18</sup> consider U S P XI powdered digitalis 33 to 50 per cent stronger clinically than that previously employed. In the treatment of congestive heart failure with normal rhythm on a coronary basis it should be considered at least 50 per cent stronger than the older digitalis. Previous to 1936 an elderly decompensated patient could readily be given from 4½ to 9 grains (0.3 to 0.6 Gm) of digitalis a day for the first three days with comparative safety, and after that the dose could be gradually reduced until compensation was reestablished. With the new digitalis it is no longer safe to give more than 3 to 4½ grains (0.2 to 0.3 Gm) for the first two days, and it is wise to have the medication omitted one day a week. In the elderly patient with coronary heart failure and a normal rhythm it may be homicidal to "push" digitalis for a rapid effect or in large doses. Toxic manifestations are common even in doses that were once considered moderate. In this series of 51 cases, larger doses of digitalis did not alter the outcome among those with sinus tachycardia and only made those with a normal rate more susceptible to a toxic reaction. For the action of digitalis is primarily on the myocardium and not on the cardiac pacemaker.

#### SUMMARY

1 The action of digitalis on 51 patients with arteriosclerotic (coronary) heart failure with normal rhythm was studied.

2 The patients were divided into two groups: those with a normal rate (31 or 61 per cent) and those with sinus tachycardia (20 or 39 per cent).

3 Digitalis was most effective on those with isolated failure of the left ventricle and a normal rate and least effective on those with combined ventricular failure and sinus tachycardia.

4 The action of digitalis is primarily on the myocardium and not on the cardiac rate as noted by the mortality of 6.4 per cent in those with a normal rate and 60.0 per cent in those with sinus tachycardia.

5 The use of increased amounts of the newer digitalis U S P XI only brought on early toxic reactions and had no effect on the mortality.

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## TIC DOULOUREUX OF THE NERVUS INTERMEDIUS

(SO-CALLED IDIOPATHIC GENICULATE  
NEURALGIA)

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As a result of his observations of herpes, plus reports of sensory change and pain accompanying the peripheral type of facial palsy, Hunt<sup>1</sup> first described what he called geniculate neuralgia. He drew a close parallel between the sensory and motor systems of the fifth and seventh cranial nerves and described a "geniculate zone" affected by pain or herpes, stating that in this condition the primary disorder was in the geniculate ganglion. He described this so-called "geniculate zone" as lying within a cone shaped area represented by the tympanic membrane, the walls of the auditory canal, the external meatus, the concha, the tragus, the antitragus and the antihelix. He said, however, that the ninth and tenth cranial nerves were also represented in this area.

In 1909 Clark and Taylor<sup>2</sup> reported a case of tic douloureux of the sensory filaments of the facial nerve. A woman aged 28 had for two years had severe paroxysmal pains just in front of the left ear. After approximately eight months the stabbing pain in front of the ear continued and in addition, a steady pain developed which was "deep in the ear and on the anterior wall of the external meatus." Because of the pain the patient was taking 12 grains (0.8 Gm) of morphine daily. A diagnosis of tic douloureux of the geniculate system of the facial nerve was made and on April 23, 1909, Taylor reflected a small osteoplastic flap so as to expose the lateral lobe of the cerebellum. The dura was opened, the region of the cerebellopontine angle was exposed and section of the facial nerve, the nervus intermedius and the upper fasciculus of the eighth nerve was done. The dura was closed tightly and the bone flap was replaced. The patient was relieved of her pain immediately but had a complete peripheral type of facial paralysis, this facial paralysis later cleared up. She was observed for a period as long as six years after operation and there was no recurrence of her pain. According to the report, all sensory examinations of the face and ear proved negative three days after operation. The former area of pain seemed to be "a little less sensitive."

Until 1933 this case was alone and undisputed in the literature. In that year, however, Reichert<sup>3</sup> reported a case in which there was similar pain. According to him there were paroxysms of "sharp, stabbing pain deep in the external auditory canal causing the patient to shriek out and grab her ear." There were also "itching of the upper anterior wall of the meatus aches and pains of the left side of the face, nose, eyeball and parieto-occipital area and sensitiveness in the mastoid and

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1 Hunt J. R. Herpetic Inflammations of the Geniculate Ganglion: A New Syndrome and Its Aural Complications. *Arch. Otolaryng.* 26: 371, 1907. Herpetic Inflammations of the Geniculate Ganglion: A New Syndrome and Its Complications. *J. Nerv. & Ment. Dis.* 34: 73, 1907. The Sensory System of the Facial Nerve and Its Symptomatology. *ibid.* 36: 321, 1909. A Further Contribution to the Herpetic Inflammations of the Geniculate Ganglion. *Am. J. M. Sc.* 126: 226, 1908.

2 Clark L. P. and Taylor A. S. True Tic Douloureux of the Sensory Filaments of the Facial Nerve. *J. A. M. A.* 53: 2144 (Dec. 25) 1909.

3 Reichert F. I. Tympanic Plexus Neuralgia. *J. A. M. A.* 100: 1744 (June 3) 1933.

pretragal regions” Since her symptoms were almost identical with the original case described by Clark and Taylor,<sup>2</sup> Reichert felt that this was a case of geniculate neuralgia, so under local anesthesia the cerebellopontine angle was exposed and the seventh and eighth nerves were touched. Pain in the auditory canal was produced

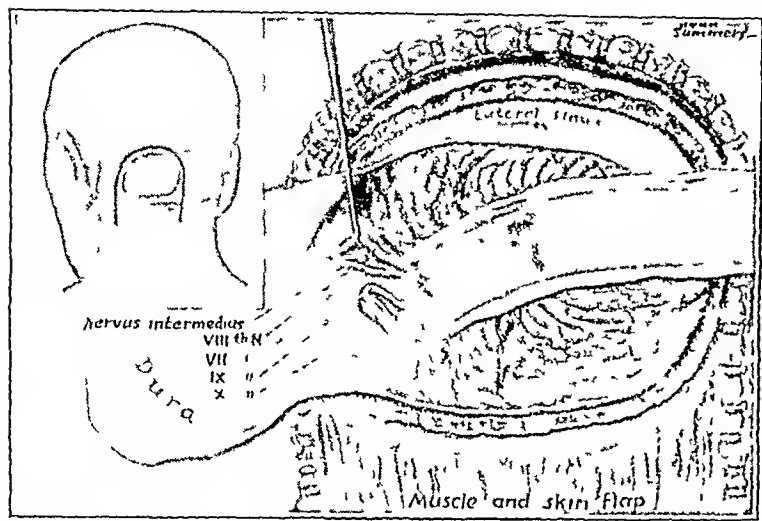


Fig 1—Exposure of the cerebellopontine angle, method of separation of nerves and section of nervus intermedius. Inset shows cutaneous incision and area of bone removal.

but it was not the tic pain. Touching the ninth nerve, however, did produce the characteristic tic-like pain, so this nerve was sectioned and the pain was completely relieved. No anesthesia of the ear or auditory canal could be demonstrated after operation, but there was the usual anesthesia of the pharynx that follows section of the glossopharyngeal nerve, which has been so well described by Dandy<sup>4</sup> and confirmed by other observers. From this one case Reichert concluded that the case previously reported by Clark and Taylor<sup>2</sup> “was diagnosed as a tic douloureux of the sensory filaments of the seventh nerve but was probably cured by the decompressive feature of the cerebellar operation rather than by section of the seventh nerve.” He also concluded that there were two types of glossopharyngeal neuralgia—“the common or complete tic douloureux of the glossopharyngeus is characterized by paroxysm of lancinating pain starting in the tonsillar fossa or base of the tongue, generally radiating deeply in the ear, accompanied by salivation and induced by swallowing, talking or other movements of the throat or tongue. The partial or Jacobson’s plexus tic douloureux of the glossopharyngeus is characterized by paroxysms of lancinating pain in and about the external auditory canal and is not induced by any movements of the pharynx or tongue and is not accompanied by salivation. This neuralgia has heretofore been considered as a geniculate ganglion neuralgia. Intracranial division of the glossopharyngeal nerve has cured both types of these neuralgias.” In attributing the cure in Clark and Taylor’s<sup>2</sup> case to the decompressive features of the cerebellar operation, Reichert evidently overlooked the fact that in his description of the procedure Taylor states specifically that the bone flap was replaced and the dura was resutured completely. This of course, would obviate any possibility of the operation serving as a cerebellar decompression.

Hunt<sup>5</sup> in 1937 reviewed the whole subject of geniculate neuralgia and admitted the validity of the statement

that pain in glossopharyngeal neuralgia may be referred only to the ear, but he asserted that more frequently the pain of glossopharyngeal neuralgia, which begins in the ear, is later referred to some other portion of the area affected by the distribution of the glossopharyngeal nerve. He agrees that Reichert’s conclusion in the case reported by him personally was justified, for the patient’s pain was entirely relieved and the tic-like pain was reproduced on manipulation of the ninth cranial nerve. He denies, however, that Reichert’s contentions in the case reported by Clark and Taylor were valid because he personally had seen the patient six years after the original operation, and at that time there had been no recurrence of pain. With Hunt’s last statement I would agree, and the following case report will bear out this contention, for here again a patient with severe tic-like pain referred to the ear has been freed of that pain by section of the nervus intermedius.

REPORT OF CASE

Miss E. M. was referred by Dr. Perry Duncan of Taylorville, Ill., on May 24, 1940. She complained of pain, shooting in character and always starting in the left ear. She had never had any infections in the ear but in November 1939 she had what she thought was an earache. In the beginning the pain was chiefly of a “lightning variety” in the ear, recurring at frequent intervals but with periods of several days without pain. She had been treated by several otologists without relief. Roentgenograms of her sinuses and of her mastoids were negative and no one had been able to find in the nose and throat any cause for the pain. On one occasion cocainization of the sphenopalatine ganglion apparently caused the pain to disappear for a short time, but repetition of this treatment did not influence the pain at subsequent dates. She stated specifically that the pain was not constant but would come and go spasmodically. She always described it as being deep in the ear, and at no time did she have pain in her throat, and the pain was never produced by swallowing. Occasionally she complained of headache, chiefly on the left side, and at infrequent intervals there would be some radiation of pain into the region around the left eye, but there was never any particular radiation of pain down the neck, and she never had the feeling of soreness deep in the tissues of her face, which has been previously described by other authors.

Neurologic examination at the time she was seen originally showed no abnormality of any importance. Her pupils were

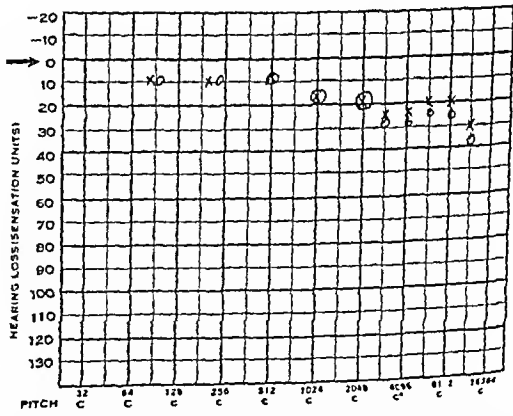


Fig 2—Hearing on the two sides approximately equal and attributable to the operation. (Audiogram made on the tenth postoperative day.)

regular and equal and reacted promptly to light. The reflexes were normal. The innervation of the face was equal on both sides, and hearing was equal in the two ears. There was no disturbance of sensation on either side of the face, the first branch of the trigeminal nerve was normally innervated and touching the posterior part of the face did not in any way produce the pain. The reflexes were present and equal. There were no pathologic reflexes. When she opened her mouth wide there seemed to be some relaxation of the temporomandibular joint, so she was referred to

4 Dandy, W. C. Glossopharyngeal Neuralgia (Tic Douloureux), Arch Surg 15: 198 (Aug) 1927.  
5 Hunt, J. R. Geniculate Neuralgia (Neuralgia of the Nervus Facialis), Arch Neurol & Psychiat 37: 253 (Feb) 1937.



James B. Costen<sup>6</sup> to see whether he felt that a pathologic condition of the temporomandibular joint might be responsible for the pain. For a number of months she was treated by Dr. Costen and by her dentist for relaxation of the temporomandibular joint, but without any relief. In October 1940 she reported at the request of Dr. Costen to say that she was no better. She was positive at that time that there was no

geniculate neuralgia was to operate under local anesthesia and have her complete cooperation. It was also explained that it might be necessary to sacrifice a part of the eighth and the motor root of the seventh nerve in order to relieve the pain, and to all of this she willingly agreed.

On Nov. 21, 1941, under local anesthesia, the usual unilateral cerebellar exposure was made on the left side. The bone over the left cerebellar hemisphere was removed, exposure of the lateral sinus being made above, going almost to the foramen magnum medially and extending as far laterally as the mastoid would permit. As soon as the removal of bone was sufficient, a small nick was made in the dura near the median line and the cisterna magna punctured to reduce the pressure. A small horseshoe shaped dural flap was reflected with the base toward the mastoid, and the left cerebellar hemisphere was gently retracted toward the midline after its surface had been protected with hot cotton. A retractor was then slipped in and the cerebellopontine angle was exposed.

The ninth nerve was tested first. When this nerve was touched the patient complained of severe pain in her throat with some radiation to the ear, but she said that it was not the typical tic pain. This procedure was repeated four times, and on three occasions she had pain only in the throat with no radiation to the ear, she was positive that it was not at all similar to the pain which she usually had. The bundle of nerves entering the internal auditory meatus was then touched. Immediately she complained of a severe pain in her ear which was identical in all respects to the pain that she had had previously. The eighth nerve was then picked up with a blunt hook, its cephalic half being touched first. Immediately the patient complained of extreme dizziness and said that the table was turning round. She became nauseated, so the nerve was released. A second attempt was made, and this time the caudal



Fig. 3—Face at rest showing no asymmetry

relationship between the pain in the ear and swallowing. She reasserted that the pain was a definite spasmodic pain which would come and go quickly and was practically always felt only deep in the ear. She did occasionally have some shooting pain in back of the ear, but she felt that this was merely a secondary radiation of the pain in the ear. Talking, eating, swallowing—nothing that she would do seemed to influence the pain and on many occasions it waked her from sleep. At that time she was put on large doses of vitamin B and was told to report back in two weeks. She reported back to the office at irregular intervals, always complaining of the same type of pain, and on Nov. 14, 1941 she was admitted to Barnes Hospital.

At this time her neurologic examination was still entirely negative. The blood Kahn reaction was negative, as were all laboratory tests. Roentgenograms of her skull showed no pathologic condition.

While the ears were being examined it was discovered that there was, on the left side, a very small area on the upper posterior quadrant of the external canal just lateral to the drum which when touched would reproduce the typical tic-like pain of which the patient complained. A small bit of wax was adherent at this spot and when this was removed very slight bleeding was produced. Cocainization of this bleeding area entirely relieved the pain as long as the effects of the cocaine were present, and during this time touching this spot did not reproduce the pain. As soon as the effects of the cocaine had subsided however the tic-like pain could be produced at will by stimulation of this small area of skin. Since the patient was entirely incapacitated by this pain surgery was decided on and she was told that the only certain method of differentiating between glossopharyngeal neuralgia and



Fig. 4—When patient is smiling the facial innervation is practically equal. The photographs reproduced here and in figure 3 were made on the tenth postoperative day.

half of the nerve was picked up causing the patient to complain of roaring in her ear, but there was no associated dizziness or nausea. In order to expose the nervus intermedius I had planned to split the eighth nerve in the direction of its fibers, as suggested by McKenzie<sup>7</sup> but I found that I was able to

6 Costen, J. B. A Syndrome of Ear and Sinus Symptoms Dependent upon Disturbed Function of the Temporomandibular Joint. *Ann. Otol. Rhin. & Laryng.* 43: 1 (March) 1934.

7 McKenzie, K. G. Intracranial Division of the Vestibular Portion of the Auditory Nerve for Meniere's Disease. *Canad. Med. Ass. J.* 34: 369 (April) 1936.

separate the seventh and eighth nerves by gently elevating the eighth nerve on a blunt hook, and by careful dissection I was able to separate the nervus intermedius from the facial nerve proper anteriorly and the eighth nerve posteriorly. When the nervus intermedius was touched the patient complained bitterly of the pain in her ear. After the motor root of the facial and the eight nerves had been carefully separated, the nervus intermedius was picked up with a blunt hook and was sectioned with a scalpel (fig 1). When this was done she cried out with pain, but the pain subsided immediately. The anesthetist was then instructed to touch the patient's external auditory canal with a cotton swab, running it in as far as the drum. The patient did not complain of any pain whatever. The cerebellum was then allowed to sink back into its normal position, the dural flap was completely resutured and the usual closure of the muscles, galea and skin with interrupted sutures of silk was carried out. At the end of the operation the patient had absolutely no evidence of weakness of the facial muscles on the left side and, so far as we could tell, her hearing was intact. Except for some intermittent vomiting for the first forty-eight hours, her postoperative course was entirely satisfactory.

Immediately after operation there was coarse nystagmus when she looked to the left. This persisted for about four days and then cleared up. There was at no time any sign of lacrimal deficiency.

On Nov 24, 1941 tests for taste sensation revealed the following. Over the anterior two thirds of the tongue on the left side taste for salt, bitter and sweet was absent. Over

The patient was discharged on the twelfth postoperative day. She was walking without any difficulty, the wound was well healed and there had been no recurrence of the pain. Innervation of the face was excellent (figs 3 and 4). The only evidence of facial weakness was a slight decrease in blinking which appeared on the eighth postoperative day.

December 17 the patient reported for a check-up. She was entirely free of the pain in her ear. There was not the slightest evidence of weakness of the muscles of the left side of the face, and sensory examination of the face, ear or superficial portion of the external auditory canal revealed no sensory loss. Careful sensory examination of the deeper portion of the auditory canal and the tympanic membrane on the left side by Dr J B Costen revealed a definite diminution in sensation to pinprick and to heat but no anesthesia. The former trigger area was not anesthetic, but touching it did not produce pain.

Tests of salivary secretion were repeated by Dr White. From the right or normal submaxillary and sublingual glands 0.115 Gm of saliva was produced in five minutes, while from the left side only 0.045 Gm was produced. From the right or normal parotid 0.48 Gm was collected and from the left 0.4 Gm (shown in the accompanying table).

Tests of lacrimal function were repeated by the department of ophthalmology with the same results as before, namely no diminution in tear secretion on the left side. Both lacrimal glands secreted at a rate higher than normal, but this was approximately equal on the two sides.

COMMENT

Objections will be raised to such an early report of this case, for obviously one cannot be sure but that a recurrence may take place. In my opinion, however, an early report is justified for in the first place this case together with the case of Clark and Taylor,<sup>8</sup> proves that "tic douloureux" of the nervus intermedius exists and may be cured by section of that nerve. Moreover, for the first time section of the nervus intermedius has been done without injury to the facial nerve or to the acoustic nerve. The final decision as to the nerve responsible for tic-like pain in the ear must be made by stimulation of the glossopharyngeal nerve and the nervus intermedius at operation. This, of course, makes it necessary that no anesthesia except local be used, for the cooperation of the patient is essential.

Second, an unusual opportunity is presented for study of the various functions of the nervus intermedius. The commonly accepted teachings are well summarized by Bing and Haymaker<sup>9</sup> as follows:

1. Fibers which stimulate tear secretion. In this case, no disturbance in lacrimation has been noted, so further studies are necessary.

2. Fibers which stimulate salivary secretion going to the submaxillary and sublingual glands. This function is borne out remarkably in this case, but further studies of the parotid and possible recovery of function by the submaxillary and sublingual glands are in progress.

3. Fibers transmitting taste from the anterior two thirds of the tongue. This function, also, is adequately proved.

The problem of the sensory field of the nervus intermedius is not definitely worked out in this case nor was it in the case of Clark and Taylor. Certainly there is no gross anesthesia of any part of the external ear nor, so far as I can determine, of the superficial portion of the external auditory canal. That the tympanic membrane and adjacent parts of the deep canal are sensitive on the sectioned side seems definite, but here again observations over a prolonged period are necessary and will be made.

Salivary Secretion (By Weight—Five Minute Period)

|             | Right (Normal)<br>Submaxillary and<br>Sublingual, Gm | Left Sub<br>maxillary and<br>Sublingual Gm |
|-------------|--|--|
| December 3  | 0.805  | 0.185                                      |
| December 17 | 0.115  | 0.045                                      |
|             | Right Normal Parotid                                 | Left Parotid                               |
| December 17 | 0.480  | 0.400                                      |

all the rest of the tongue it was quickly and accurately perceived. Sensation to touch, pain and temperature was everywhere normal.

Repeated sensory examinations by many observers failed to show any sensory deficit over the face, mouth, pharynx, tongue or any part of the external ear. Testing sensation in the auditory canal is a difficult task, but even at the site of the former trigger zone sensation was present but the pain was no longer produced by stimulation of this area.

November 29 examination by the otolaryngologists failed to show any definite sensory loss, though the drum on the left was much less sensitive than on the right. The sensitivity of the left drum was believed to be much less than in a normal person.

Audiometer tests on Dec 2 1941 showed the hearing to be equal on the two sides (fig 2). There was a loss of about 10 decibels in all tones of the conversational range and of about 20 decibels for the higher tones, but this was present in both ears, so there was no loss attributable to the operation.

Tests of salivary function were made by Dr D White of the dental department on Dec 3 1941 with the method described by Reichert and Poth.<sup>8</sup> The amount of saliva from the right and left sublingual and submaxillary glands was collected for a period of five minutes. From the right or normal side 0.805 Gm was produced. From the left side only 0.185 Gm was collected (shown in the accompanying table).

On December 3 the department of ophthalmology carried out the Schirmer test for lacrimal secretion. In the right eye the measurement was 17 and in the left eye 16, so there was no appreciable decrease. Clinically a tendency to dryness of the left eye was not noted at any time.

8 Reichert, F L and Poth, F J. Pathways for the Secretory Fibers of the Salivary Glands in Man. Proc Soc Exper Biol & Med 30: 973 (April) 1932 1935.

9 Bing Robert and Haymaker Webb. Compendium of Diagnosis in Lesions of the Brain and Spinal Cord ed 11 C V Mosby Company 1940 pp 15 15.

# SUMMARY

1 Tic douloureux of the nervus intermedius is a definite clinical entity but one rarely observed

2 Tic-like pain deep in the ear may be due to disorders of either the nervus intermedius or the glossopharyngeal nerve and the decision as to the nerve involved can be made only at operation This necessitates the use of local anesthesia so that stimulation of the nerves may be done

3 The nervus intermedius may be sectioned without injuring the main trunks of the seventh or eighth nerve

4 Accepted teachings as to salivary and taste functions of the nervus intermedius are borne out in this case

5 Teachings as to lacrimal function are not substantiated, and further studies are necessary

6 The sensory field is evidently very small, for in this case only hypesthesia of the tympanic membrane and adjacent portions of the external auditory canal has been produced

University Club Building

## Clinical Notes, Suggestions and New Instruments

### SALMONELLA DISPESTIFER INFECTION OF URINARY TRACT

W CAREY HENDERSON MD MASSACHUSETTS

J L T, a white man aged 49 was admitted to the Northampton-Acomack Memorial Hospital for treatment of an infection of the urinary tract He had been a patient in the same hospital two years previously, at which time he had a resection of the anus and the sigmoid colon for a constricting lesion During his first admission he had had numerous catheterizations and for a time carried an indwelling catheter He had excellent control of the colostomy

During the summer of 1941 he had mild urinary symptoms, such as slight burning occasional fever and fatigue He was active, however, and did not consider the symptoms of sufficient severity for him to go to bed for treatment Trial of various urinary antiseptics forcing of fluids and changes in reaction of the urine had little effect on the amount of pus and blood present This would vary from 30 to 100 pus cells per high power field of centrifuged urine The number of red cells present varied from 0 to 10

He was admitted to the hospital Dec 3, 1941 The general appearance was excellent The weight was a little greater than that at the time of operation two years before General examination showed him to be normal except for the colostomy, which functioned perfectly Catheterization showed no stricture, but there was a 2 ounce (60 cc) residue of urine, which contained many pus cells, free and in clumps, many bacteria and a few red cells The white cell count of the blood was 10 500 with 76 per cent polymorphonuclear leukocytes Remaining blood determinations gave entirely normal results Roentgenograms did not show stones in the urinary tract Culture of the urine showed *Salmonella dysenteriae*, whose identity was proved by the agglutination test

Treatment was given with sulfadiazine, 1 Gm every four hours for two doses, then 0.5 Gm every four hours for five days and 0.5 Gm every six hours for three days The fluid intake was moderately increased

On the third day of treatment the number of pus cells in the urine was reduced to 8 per high power field, and on the eighth day there was neither pus nor blood in the urine The patient was then discharged without medication He was seen three weeks later entirely free from symptoms and from pus in the urine

The source of the infection was not known The patient was a farmer and raised chickens but did not raise hogs

### A METHOD FOR THE SIMULTANEOUS ASPIRATION OF THE CONTENTS OF THE STOMACH AND THE FIRST PART OF THE DUODENUM

J EDWARD BERK MD MSc (Med) MARTIN E REHEFS MD AND J EARL THOMAS MD PHILADELPHIA

The difficulty of maintaining a tube in situ in the duodenal bulb can be appreciated only by those who have insisted on fluoroscopic control in every instance The irritability of this part of the duodenum is such that after varying intervals the tip of an ordinary tube is displaced either forward or backward None of the methods hitherto used to study the contents of the duodenal bulb<sup>1</sup> overcome this difficulty and still permit a free flow of stomach contents into the duodenum Furthermore, it is sometimes desirable to be able to make simultaneous extractions from the stomach and duodenal bulb in order that the contents of these contiguous parts may be compared We have been able to find records of only one investigation<sup>2</sup> utilizing a procedure which made this possible The observations reported, however, were incomplete in that they were limited for the most part to single specimens withdrawn one hour after the ingestion of the test meal

The method to be described was devised to supply a more satisfactory means of studying simultaneously the contents of

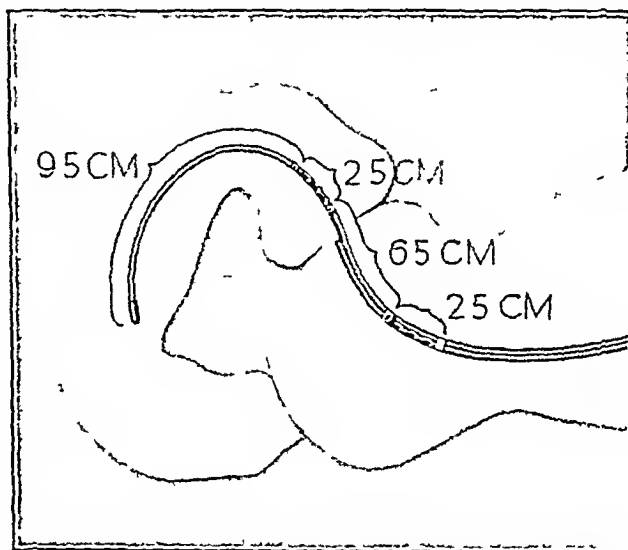


Fig 1—Relative positions and distances between tip markers and perforations of gastroduodenal tube

the stomach and of the duodenal bulb The arrangement adopted largely meets the objections raised to previous procedures It permits not only the successful intubation of the first part of the duodenum but also keeping the tube in place throughout the period of observation following a test meal

#### METHOD

A soft rubber, double lumen tube was constructed<sup>3</sup> with separate gastric and duodenal components modified from the type

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This is a portion of the thesis submitted by Dr Berk to the Faculty of the Graduate School of Medicine of the University of Pennsylvania in partial fulfillment of the requirement for the Degree of Doctor of Medical Science for graduate work in internal medicine

1 Einhorn Max A Simultaneous Gastrointestinal Aspiration Contributions to Medical and Biological Research New York Paul B Hoeber Inc 1 458 1919 Eyerik J B Comparative pH Values Within the Stomach Pylorus and Duodenum in Antacid Therapy Am J Digest Dis 7 431 (Oct) 1946 Morton

2 Morton C B Observations on Peptic Ulcer VI Preliminary Report of Clinical Experiments with Gastrointestinal Analysis Am J Med Sci 177 65 (Jan) 1929 Observations on Peptic Ulcer South Surg 3 316 (Dec) 1934

3 Made by the Davol Rubber Company Providence R I The cost of the tube was defrayed by a grant from the Golden Shovel Square Club

of tube used by Diamond and others in the study of pancreatic secretion<sup>4</sup>. A small, solid, stainless steel, nonperforated, bullet-shaped tip measuring 1.2 by 0.6 cm was inserted into the free end of the single channel duodenal portion of the tube. Nine and five-tenths cm (3¾ inches) proximal to the tip the duodenal limb was perforated over an area 25 cm in length. Six and five-tenths cm (2½ inches) oral to the most proximal duodenal

perforation the gastric limb was similarly perforated over an area 25 cm in length. Radiopaque bands of stainless steel were placed immediately above and below both lengths of perforations. The relative positions of the tip, markers and perforations are shown in diagram form in figure 1.

The subject following a twelve hour fast was seated and the tube introduced through the mouth. When approximately 45 cm of the tube had been swallowed the subject was placed before a vertical fluoroscope and the tube swallowed further until the metal tip was seen to point headward after sliding along the greater curvature of the stomach. In a few cases manipulation in this position so that

the greater curvature and the tube were carried upward by the examiner's left hand at the same time that a stroking movement of the stomach toward the pylorus was applied with the examiner's right hand succeeded in getting the tube to enter

additional 20 cm of tube slowly swallowed during a period of twenty to thirty minutes, after the manner usually employed in duodenal intubation. At the end of this time the position of the tube was again determined fluoroscopically. In a few instances it was found to have coiled on itself in the stomach and, therefore, had to be withdrawn and reswallowed. Including the instances of reswallowing, more than 95 per cent of the efforts to intubate the duodenum were successful.

The duodenal openings were assumed to be within the first part of the duodenum when the distal duodenal marker, as observed fluoroscopically, was about 0.5 cm below the apex of

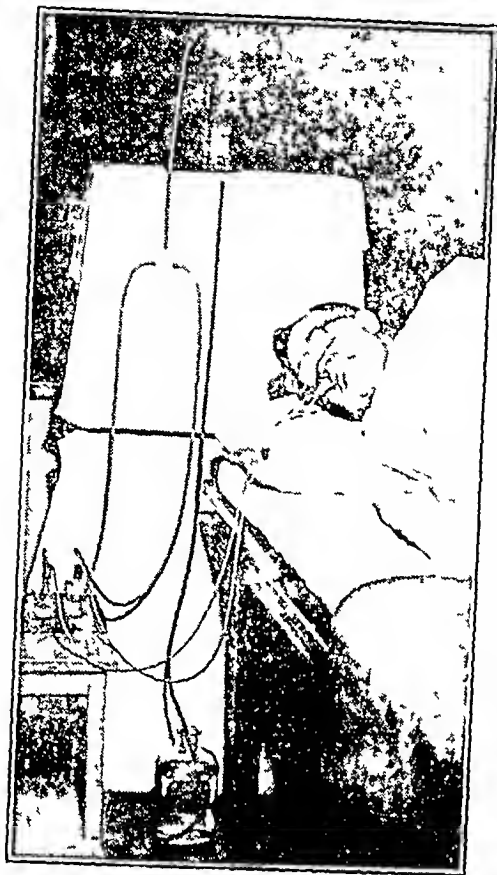


Fig 2—Apparatus used, showing the method of simultaneous collection of samples from the stomach and the first part of the duodenum.

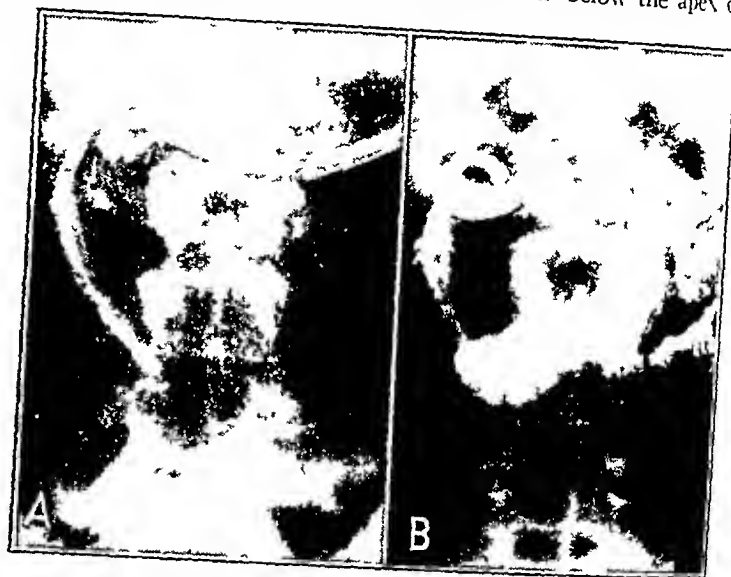


Fig 4—Normal duodenum. A, film taken at time of gastroduodenal analysis showing position of tube. B, film taken after injection of barium sulfate through the duodenal portion of the tube. Note outline of duodenal cap, in which duodenal markers may be seen.

the bend in the duodenal tube (fig 3B, fig 4A). When the tube was in this position the subject was returned to the table and placed again on the right side.

The tubes leading from the gastric and duodenal components were connected through separate Erlenmeyer flasks with a water suction bottle placed at such a height as to maintain a constant suction of 110 mm of mercury. A picture of the apparatus employed is shown in figure 2.

The position of the tube was checked fluoroscopically at frequent intervals.

Any change in its position was corrected at these times.

At the completion of the experiment the subject walked to the x-ray department (a walk of about 20 yards plus an elevator ride of six floors). Here the position of the tube was again ascertained fluoroscopically with the subject erect. In a small number of instances it had either regurgitated into the stomach or had moved farther into the duodenum. In the majority of instances, however, it was found unchanged in its position; it had occurred throughout the test period.

A roentgenogram was taken to show the position of the tube during the test (fig 3B, fig 4A). Barium sulfate was then injected through the duodenal portion of the tube and an attempt made to outline the

of the duodenal cap. A roentgenogram was then taken (fig 3C, fig 4B). A roentgenologist (Dr Melvin A. Dillman) examined all the films, comparing them with the film taken in the erect position in the previous gastrointestinal roentgen study (fig 3A) and localizing the duodenal markers with respect to the base of the duodenal

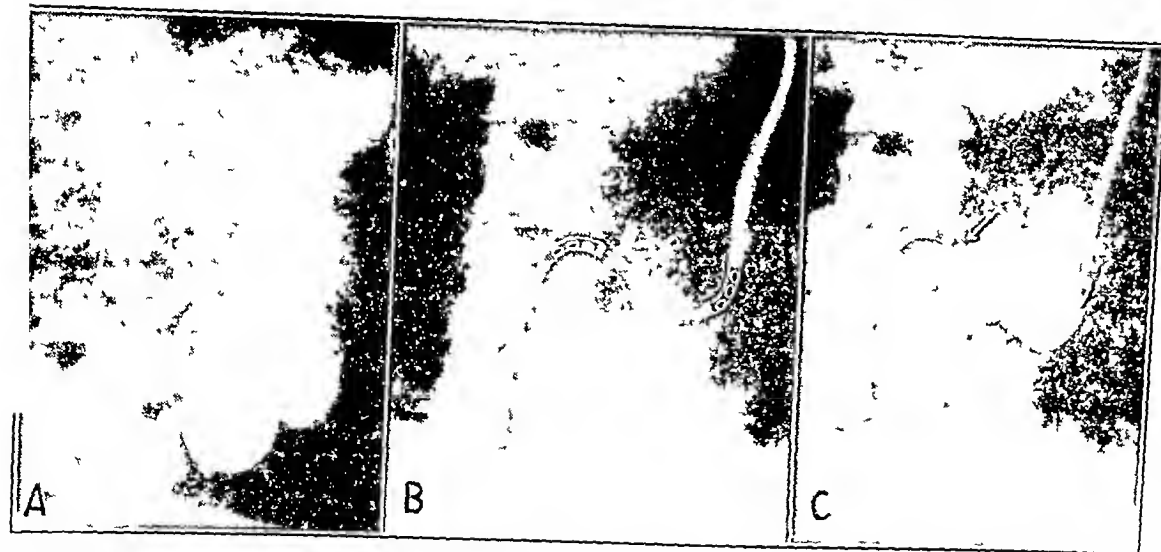


Fig 3—Duodenal ulcer. A, film taken in erect position at the time of barium sulfate meal study showing deformed duodenal cap with pseudodiverticulum formation. B, film taken at time of gastroduodenal analysis showing position of tube. Note position of tip markers and perforations. C, film taken after injection of barium sulfate through the duodenal portion of the tube. Arrow indicates relationship of proximal duodenal marker to base of cap.

the duodenum. In most instances the subject was next placed on the right side on a table adjacent to the fluoroscope and an

<sup>4</sup> Ågren, Gunnar and Lagerlöf, Henrik. The Pancreatic Secretion in Man After Intravenous Administration of Secretin. *Acta med* [Footnote 4 continued on next page]

cap. In this way proof was obtained as to whether or not the duodenal openings were actually within the first part of the duodenum.

## COMMENT

The success of this method depends on the fact that anchorage of the tube is secured by having the small solid tip pass well into the second portion of the duodenum, where, in most persons, it remains steadfast. It is by no means uncommon, however, for the tip to move on even though the tube is fixed at the mouth. Occasionally the tip and the tube may be regurgitated into the stomach, particularly if the subject should become nauseated. For these reasons, repeated fluoroscopic observations are essential.

We were obliged to utilize a vertical fluoroscope, but the use of a horizontal fluoroscope on which the subject could be placed and remain undisturbed throughout the entire test period would be desirable.

1025 Walnut Street

ELECTROMYOGRAMS IN DIAGNOSIS AND  
PROGNOSIS OF TETANUS

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In the absence of trauma the diagnosis of tetanus is easily overlooked, and even in the presence of an infected wound and obvious lockjaw the bacteriologic studies may be negative. Tetanus toxin is known to act on the skeletal muscle, causing contracture as a characteristic manifestation.<sup>1</sup> In local tetanus produced experimentally the action potentials of affected muscles have been shown to present constant activity with diphasic spikes.<sup>2</sup> This abnormal electrical activity is a specific effect induced by tetanus toxin and when demonstrated should be of diagnostic value. Consequently, in a case of suspected tetanus of obscure origin, electromyograms were taken from the affected muscles and a test devised to quantitate the abnormality present for the purpose of prognosis and to aid in following the course of progress.

## REPORT OF CASE

**History.**—A man aged 21 entered the Massachusetts Eye and Ear Infirmary Jan. 28, 1941, because of a discharging ear of two years' duration, with an acute exacerbation for two weeks. Diagnoses were made of mastoiditis, cholesteatoma and Bezold's abscess and a radical mastoidectomy was done the following day, with removal of the cholesteatoma and pus. No bacteriologic studies were done at this time. On the fifth postoperative day the patient complained of a stiff neck on the right side and some difficulty in opening the jaws which persisted in spite of local heat and massage. Roentgen examination of the cervical spine and temporomandibular joints was negative as were the determinations of blood levels for phosphorus, phosphatase chloride and carbon dioxide combining power. He was thought to have a muscular strain of the trapezius muscle and possible arthritis of the temporomandibular joints and was referred to the physical therapy department for treatment. There the diagnosis of tetanus was suspected, as he had trismus, contracture of the right trapezius muscle, hyperactive tendon reflexes and rigidity of the spinal muscles. Electromyograms were taken which confirmed the diagnosis and treatment was started on the advice of a surgical consultant. A total of 100,000 units of tetanus antitoxin was given parenterally within six hours. During the next three weeks there was gradual improvement.

Scandinavian J. 90:1 (1936) Comfort M. W. Tests of Pancreatic Function. J. A. M. A. 115:2044 (Dec. 14) 1940. Comfort M. W. and Osterberg A. E. Pancreatic Secretion in Man After Stimulation with Secretion and Acetylcholinesterase Inhibitors. Arch. Int. Med. 66:685 (Sept.) 1940. Diamond J. S. Siegel S. A. Call M. B. and Karlen S. H. The Use of Secretin as a Clinical Test of Pancreatic Function. Am. J. Digest. Dis. 36:66 (Aug.) 1939.

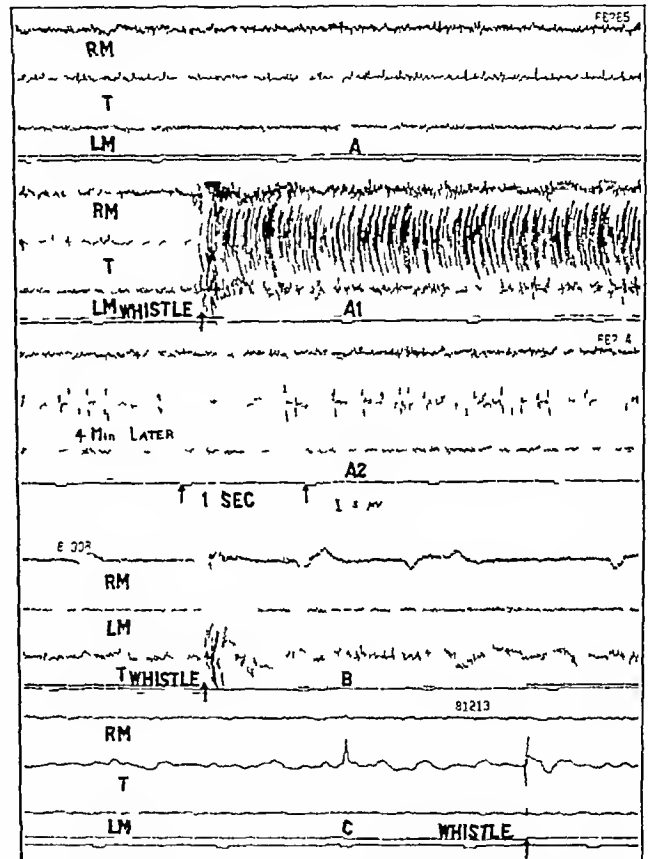
From the Department of Physical Therapy, Massachusetts General Hospital, Boston.

1. Karson S. W. Local Tetanus: A Study of Muscle Tonus and Contracture. Arch. Neurol. & Psychiat. 20:663-'01 (Oct.) 1928.

2. Harvill A. M. The Peripheral Action of Tetanus Toxin. J. Physiol. 96:345-362 (Aug. 14) 1939.

of the trismus and torticollis which was quantitatively shown by the electromyograms. He was then discharged with a clean mastoid wound. Two cultures taken from the draining wound before antitetanic treatment was started were negative for *Clostridium tetani*. Two months later he returned for plastic closure and clinically showed no evidence of tetanus at this time. Electromyographic studies also were negative.

**Electromyographic Tests.**—Electromyographic tracings<sup>3</sup> were obtained from the right trapezius and both masseter muscles with an ink-writing three-channel Grass electroencephalomyographic machine with bipolar surface electrodes. After maximum relaxation was secured recordings showed continuous electrical activity from all leads (A in the tracing), in contrast to normal muscle at rest, which shows no action potentials (C). To test for the presence of generalized tetanus, the effect of an external stimulus on the degree of spasm was determined by blowing a whistle near the patient. This



Electromyograms in tetanus. A, A1 and A2 tracings before treatment. A, continuous electrical activity in affected muscle with maximum relaxation. A1, decided increase in voltage after whistle is blown near patient. A2, slight increase in voltage persisting four minutes later. B, sixteen days later moderate discharge at rest only slightly increased by whistle. C, three months later no electrical activity at rest or after whistle as in any normal muscle at rest or after whistle. Time intervals and calibrations are the same in all tracings. R, M indicates right masseter; L, M left masseter and T, right trapezius.

definitely increased the voltage of the action potentials, although no change was observed clinically (A1). This increased activity persisted for four and a half minutes before the activity returned to the previous level (A2). The test was repeated sixteen days later at which time the trismus and torticollis had diminished. At this time the whistle produced no increase in the electrical activity but at rest there was persistent spontaneous discharge presumably due to persistent local tetanus (B). Two months later the electromyograms were normal at rest and were uninfluenced by the whistle (C). Voluntary movements produced the normal burst of diphasic spikes.

Dr. Robert S. Schwab, director of the Brain Wave Laboratory, cooperated in obtaining the electromyograms.



## COMMENT

The appearance of tetanus after an otherwise uncomplicated mastoidectomy is of interest because of its rare occurrence.<sup>4</sup> Tetanus was not suspected and consequently the diagnosis was not made for more than a week. Bacteriologic studies were not helpful, the only specific evidence of tetanus toxin being the presence of muscle contracture and the abnormal electromyograms. An increase of electrical activity following the whistle suggests that the central nervous system was affected as well as the muscles locally, indicating a more serious prognosis. The voltage of this abnormal electrical activity and the response to an external stimulus gave an objective quantitative index of the extent of local and general action of the toxin and a sensitive guide as to progress. The diagnosis of tetanus in the average case can readily be made on clinical grounds alone, but the electromyograms may prove of value in an obscure case, as in this instance. Although action potentials have been recorded from experimental tetanus, we have not found a previous report of the electromyograms from a patient with this disease.

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION  
OF THE FOLLOWING ARTICLE

HOWARD A. CARTER, Secretary

### THE RESPONSIBILITY OF MEDICAL SCHOOLS TO TEACH PHYSICAL THERAPY

EBEN CAREY, M.D.

Dean, Marquette University School of Medicine  
MILWAUKEE

The administrators of medical schools have a tremendous responsibility during these times of World War II. They now face an accelerated program to shorten the medical course from four to three years and demands for hours allocated for certain additional courses. These problems are presented in the face of an overcrowded medical curriculum which includes the present four years of educating medical students. We are faced both with a reevaluation and a reemphasis on basic essentials of teaching methods and of the content of the medical courses. During this period of stress it is not my desire to propose an additional burden but to point out the great need that our graduates have, who were yesterday our students, for practical instruction in the indications and contraindications of physical therapeutic methods.

Notwithstanding the venerable age of physical therapy and its many worthy uses, it gradually fell into disrepute, and at the time of our entry into World War I practically no instruction in this subject was given in any of the medical schools. One reason for this was its wide exploitation by quacks and charlatans, which caused conservative physicians to look on it with distrust. Others, overenthusiastic, made unwarranted and exaggerated statements as to its value, which further alienated members of the medical profession.

During World War I in 1917 and 1918 the urgent need of returning the wounded rapidly to the front lines or of rehabilitating them sufficiently for noncombatant duty brought about what might be termed the rebirth of physical therapy. The Surgeon General defi-

nitely amalgamated all the methods of physical therapy when he defined it as "physical measures such as are employed under physical therapy, including hydrotherapy, electrotherapy, mechanotherapy, active exercise, indoor and outdoor games, and passive exercise in the form of massage." Physical therapy thus became a definite entity with well defined branches.

For the vast work of convalescence and reconstruction it was necessary to secure trained personnel. Medical personnel, commissioned and enlisted, was hastily trained, all available physicians who had had experience in any of these branches being utilized. Reconstruction aides in physical therapy were appointed. These were not all nurses but were a group of young women who were well trained in their occupation and who, by their splendid work, insured the success of the newborn specialty. They either were graduates of normal schools of physical education or were college graduates who had majored in physical education, in addition, before being accepted in the Army they were given six weeks' intensive training in physical therapy.

Physical therapy as part of the practice of medicine has made considerable advance during the last twenty years. Systemic instruction in undergraduate and postgraduate schools, critical research in adequately equipped institutions and authoritative information issued periodically by the Council on Physical Therapy are gradually replacing objectionable propagandizing methods employed by commercial concerns. Yet in many parts of the country the profession as a whole does not evaluate properly the possibilities and limitations of physical measures. As a result there occur many errors of commission, such as the overenthusiastic and unwarranted uses of physical therapy procedures, and also errors of omission, for example, the exploitation of valuable measures by irregulars and lay persons instead of by qualified physicians.

Leading manufacturers in conference with physical therapy committees have subscribed to the principle that instruction in diagnosis and therapeutics belongs solely to the province of the medical profession. The only instruction that an ethical manufacturer can consistently offer to the profession is on the manipulation and care of some certain type of apparatus.

The maintenance of acceptable standards in compensation work may also receive attention. In some of the larger centers low grade industrial clinics and unscrupulous physicians have attempted to turn the wholesale use of physical measures into mere sources of revenue. The medical profession must be informed that in traumatic and other cases physical measures are to be employed only (1) after a complete diagnosis has been established, (2) when the existing pathologic or functional changes serve as an indication for physical therapy and (3) when physical therapy is applied efficiently on the basis of a definite prescription and continued no longer than it is really indicated. On the basis of these principles, cooperation with insurance carriers may be established and opportunities for good work by qualified and ethical physicians developed.

Well informed members of the medical profession have come to realize that physical therapy measures belong to the therapeutic armamentarium of the educated physician. That their efficiency, when applied in suitable cases with the proper technique, has been definitely established. It behooves leaders of medical states and counties to safeguard the interests of patients.

<sup>4</sup> Bishop, J. M., Du Bose, R. H., and Hamlin, F. E. Orogenous Tetanus, J. A. M. A. 98: 1546-1548 (April 30) 1932.

health and of the medical profession by encouraging or actively promoting educational work which will lead to a more widespread and more rational use of physical therapy by the medical profession in general

There is a growing consciousness on the part of the medical profession regarding this great value of physical therapy. This new outlook has been aided by the activities of the Council on Physical Therapy of the American Medical Association and its publications of conservative articles on this subject. These articles have been collected and published in the Handbook of Physical Therapy, the third edition of which appeared in 1939.

The Council on Medical Education and Hospitals of the American Medical Association has cooperated with the Council on Physical Therapy to advance the teaching of physical therapy to medical students. It is the duty of every medical school to teach the principles and application of medicine, surgery and physical therapy so that the medical profession may use all these measures to the best advantage. The foundation of this instruction is the proper teaching of the medical student.

Motion pictures may be obtained, free of charge on application to the Bureau on Exhibits of the American Medical Association, but because they are in great demand requests should be made for their use at least two months in advance. These pictures illustrate

- 1 Effects of Heat and Cold
- 2 Effects of Massage
- 3 Technic of Massage
- 4 Aids in Muscle Training
- 5 Underwater Therapy
- 6 Occupational Therapy

The value of physical therapy in internal medicine was stressed by Piersol<sup>1</sup> as follows:

It may be stated with little fear of contradiction that there is no field of therapeutics less understood and less frequently employed by internists than physical therapy. There are several reasons that account for this unfortunate state of affairs which has its inception in our medical schools. A survey of the curriculums of undergraduate as well as graduate medical courses reveals the fact that, if taught at all, but little time is devoted to the various aspects of physical therapy and that at best the courses available to students of medicine are inadequate and superficial. The average physician therefore approaches the practice of medicine knowing little about one of the oldest and most useful branches of therapeutics. Physicians as a rule because of their lack of understanding, evince little interest in acquiring a sound working knowledge of physical therapy. Furthermore the proper application of physical therapeutic methods requires not only time but a certain amount of manual dexterity. Since physicians have been loath to give of the former or to acquire the latter, the field of physical therapy has been neglected by the medical profession.

Hubbard has said "A man is usually down on that which he is not up on."

If physical therapy is to remain under the control of physicians and advance as it should along sound scientific lines the indifference which the internists as a group have displayed in the past must give way to an active interest in developing a constructive forward looking policy to improve the practice of and extend education in physical therapy.

Mock, Coulter, Pemberton and Krusen have repeatedly stressed simple therapeutic measures for home treatment which should be as definite as for drug therapy.

Mimeographed instruction sheets may be used for this purpose, and the Council on Physical Therapy will send, on request, samples of instruction sheets that may be used. In the present emergency the National Research Council has appointed a subcommittee on physical therapy to cooperate with and to advise the Surgeon Generals of the Army and Navy, the Veterans Administration and the Public Health Service in the use of physical therapy in government hospitals.

As an example of the need of instruction in physical therapy on the part of general practitioners, I may cite the demand for instruction manifested during the last two years at the exhibit on low back pain under the direction of Dr. Frank Ober at the annual meetings of the American Medical Association. A faculty of over fifty demonstrators has exemplified the methods of physical examination of the peripheral nerves and muscles, bones and joint range of motion, as well as simple physical therapeutic procedures of heat, massage, exercise, and passive and active motion. The doctor wants this knowledge because of the demands on the part of the public for this agency of relief and the neglect on the part of medical schools to emphasize this modality of treatment to its medical students.

This neglect is manifested in the fact that the most difficult course for the medical administrative officer to organize is the one on physical therapy. Dr. Piersol states that you may comb a great metropolitan center and still find little (organized) material to give students a constructive course along this line. As a nation, faulty posture is one of our outstanding shortcomings noted in draftees. Among those nations in which mass exercise has been in vogue for many years, youths have acquired good posture and are better prepared for military services. He also emphasizes that physical therapy, including those procedures used in heart disease, are adjuncts. Physical therapeutic aids will tend to shorten convalescence and increase the well-being of patients not only physically but also psychologically.

Our duty to medical students and the medical profession will not be fulfilled until each medical school formulates a teaching program in physical therapy. We owe this duty likewise to the public, because physical therapy is part of the art of healing.

The individual patient expects his doctor to relieve pain and suffering and to be a healer of the ills of the human body. The ethical methods of diagnosis and therapy employed by the physician do not concern the patient as long as relief is given. It is probably this relief to the patient which has been lacking in certain forms of diseases that has led to the rise of cults and quacks in reference to treatment of derangements of the locomotor apparatus. More original research is needed in this field but in spite of our lack of knowledge there is still ample evidence of the relief given to man by the use of physical agents. It is the duty of every administrative officer of a curriculum to see that the medical student has an opportunity to learn what is already known in this important field of physical therapy. The present national emergency is a challenge to each of us to see that physical therapy is no longer neglected in our medical curriculum for undergraduate medical students.

<sup>1</sup> Pierol, George M. The Value of Physical Therapy in Internal Medicine. J. A. M. A. 117: 182 (Nov. 29) 1941.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 16, 1942

## PHYSICIANS NEEDED IMMEDIATELY FOR THE ARMED FORCES

Under the heading of Medicine and the War in this issue of THE JOURNAL appears an official statement by General Hershey, director of the Selective Service System, relative to the recruitment of physicians for the United States Army Medical Corps. This statement, addressed to the state directors of the Selective Service System, discusses the new plan, already described in THE JOURNAL, whereby teams for the recruitment of physicians are established in the various states. Following a meeting in Omaha on May 8 the plan was extended also to all states west of the Mississippi River. In each state representatives of the Office of the Surgeon General of the Army, of the Adjutant General's Office and the state representative of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians will function as a team for the recruitment of physicians. They have authority to issue commissions in the grades of lieutenant and captain, immediately following physical examination. This step has been necessary because of the shortage now prevailing of five thousand physicians for the U S Army Medical Corps. No doubt physicians in more than adequate numbers will respond.

Never has there been any question of the patriotism of the medical profession! Any delay that has occurred up to now in enrolment has been associated with the desire of every physician to serve in the capacity for which he is best suited. The various techniques that have been developed for making such determination have apparently resulted in some delay by physicians in making themselves available prior to receipt of the enrolment form and questionnaire now in the hands of every physician. Already many thousands of these enrolment forms have been received in the office of the National Roster. The names of physicians who

select Army as first choice will no doubt soon be supplied to the state recruitment teams, they may then call on such physicians for immediate action. However, physicians must not wait for such call, they are needed now. They may apply for immediate commissioning to the state representatives of the Procurement and Assignment Service.

The circular issued by General Hershey calls particularly to the attention of the local boards of the Selective Service System the type of consideration to be given to claims by physicians for deferment because of dependency. Physicians who are commissioned as officers will, of course, have much more difficulty in sustaining a claim based on dependency than would those who are enlisted in ranks below that of lieutenant or captain.

As experience has developed, it becomes more and more apparent that many of the difficult problems associated with the recruitment of physicians are being solved. By a decision now prevailing, physicians who are not citizens may enlist in the United States Army and after three months of service may be made citizens. If the situation concerns a physician from abroad who is licensed to practice in one of the states, he may become a citizen by enlisting in the United States Army and after a period of three months may become a citizen and apply for a commission.

Today the situation is much more complicated than in the times of previous wars. A system of extended residencies and assistantships associated with qualification for the certificates of the boards in the various specialties now covers many young graduates in medicine. Especially needed at this time as a means of encouragement to such young men in offering their services to the armed forces is a definite action on the part of each one of the certifying boards indicating the extent to which it will accept military service as a part of the requirement for certification in a specialty of medical practice.

A meeting of the Committee on Medical Preparedness of the American Medical Association was held in Chicago on May 9. The Committee on Medical Preparedness considered many of the problems which now confront the medical profession in relation to an adequate supply of medical officers for the armed forces. The headquarters of the American Medical Association is giving its fullest cooperation to the Surgeon General and to the Office of Procurement and Assignment. The American medical profession has never failed in its response to the government of the United States when its members were needed in time of war.

## HISTOPLASMOSIS

Stimulated by the statements of Manson and Ross that kala azar probably existed in America, Samuel T. Darling began the search for Leishman-Donovan bodies in smears from the spleen, liver and bone marrow in all cases of splenomegaly that were examined post mortem at Ancon Hospital, Canal Zone, Panama. In 1905 Darling<sup>1</sup> encountered a patient with splenomegaly, emaciation, irregular fever, leukemia and anemia. The essential pathologic features found post mortem on this patient were "the invasion of endothelial cells in the smaller lymph and blood vessels and capillaries by enormous numbers of a small encapsulated micro-organism causing necrosis of the liver, with cirrhosis, splenomegaly, pseudogranulomas of the lungs, small and large intestines with ulceration of the latter, and necrosis of lymph nodes draining the infected viscera." The organism was round to oval and measured from 1 to 4 microns in diameter. After staining, the organism was seen to possess a refractile achromatic rim within which occurred a polymorphous chromatin nucleus, basophilic cytoplasm and achromatic spaces. The similarity to the Leishman-Donovan body of kala azar was striking. The organism differed, however, from the latter in the form and arrangement of its chromatin nucleus and in not possessing a blepharoplast. Darling regarded this as a protozoan parasite, he called it *Histoplasma capsulatum* and the disease produced by it histoplasmosis. Two additional cases were seen within the next nine months.

Reilly and Watson reported in 1926 from Minnesota the first case of histoplasmosis to be recorded in the United States. In 1928 Crumrine and Kessel reported a case from California. In 1934 Dodd and Tompkins<sup>2</sup> of Vanderbilt University School of Medicine reported a case occurring in a 6 month old infant born in Tennessee. This was the sixth case to be recorded in literature and the first to be diagnosed during life. Tompkins found the yeastlike parasite within large mononuclear cells in films of the peripheral blood stained by supravital methods. At the necropsy, material was obtained from which *Histoplasma capsulatum* was successfully cultivated by DeMonbreun of the Department of Pathology of the same school. DeMonbreun<sup>3</sup> succeeded in cultivating the invading organism both in the yeastlike form as it appears in the lesions and as a mycelium. The pathogenic phase of the fungus is the yeastlike form. DeMonbreun further succeeded in reproducing the disease in 2 monkeys by intravenous injection of 5 cc. of a broth suspension of a three day

culture from a blood agar slant. Three days before the animal died the parasites were found in large numbers within the mononuclear cells in smears of the peripheral blood. Necropsies revealed in each case enlargement of the spleen, liver and lymph nodes. Smears from these organisms and from the bone marrow showed enormous numbers of the intracellular parasites. The parasites were recovered in cultures of the tissues. The fungus thus complied with all of Koch's postulates and is therefore to be regarded as the etiologic agent in the 6 cases reported.

Meleney,<sup>4</sup> in a comprehensive review published in 1940, collected 19 reports of cases and 13 additional cases which have come to his attention but have not yet been reported. He calls attention to the fact that histoplasmosis or reticuloendothelial cytomycosis appears commonly as a systemic febrile disease similar to kala azar with a large liver and spleen, a septic temperature, anemia and leukopenia. In other cases lymph node enlargement may predominate simulating Hodgkin's disease, leukemia, lymphosarcoma or aplastic anemia. In still another group pulmonary symptoms may predominate, and infection is often complicated or superimposed on pulmonary or general tuberculosis. Pathologic alterations consist of an enlarged spleen and gray or white nodules in the lungs, liver, spleen, the intestine and the pulmonary and peritoneal surfaces. Henderson, Pinkerton and Moore<sup>5</sup> report a case of histoplasmosis in which the chief lesion was an ulcerative enteritis. A similar involvement was present in 8 of 25 carefully studied cases. Examination of stools in such cases may reveal the histoplasmas. The almost constant involvement of the mesenteric lymph nodes points, according to Henderson, to the gastrointestinal tract as the port of entry.

The parasites occur in various phagocytic cells as well as in the fixed reticuloendothelial cells of the liver and spleen. The site of predilection for the invasion by the yeastlike organism is the reticuloendothelial system. The bodies are found in the phagocytic cells in numbers of one to fifty. They may be found in thin smears of peripheral blood, by spleen, liver, lymph node or sternal puncture, and in biopsies from lymph nodes or cutaneous lesions.

Recently Humphrey<sup>6</sup> noted 5 cases of the disease in a limited area in Michigan. Within the year 1940, 9 cases occurred. Humphrey believes that the increase is actual and results from infection probably brought about by increased facilities for transport. The site of entry is uncertain, the skin has been suggested with possible bites or infestations by parasites as the mode of entry but the port most commonly accepted is the

1 Darling, Samuel T. A Protozoan General Infection Producing Pseudotubercles in the Lungs and Focal Necrosis in the Liver, Spleen and Lymph Nodes. *J. A. M. A.* 46: 1283 (April 28) 1906.

2 Dodd, Katherine and Tompkins, Edna H. A Case of Histoplasmosis of Darling in an Infant. *Am. J. Trop. Med.* 14: 127 (March) 1934.

3 DeMonbreun, W. A. The Cultivation and Cultural Characteristics of Darling's *Histoplasma Capsulatum*. *Am. J. Trop. Med.* 14: 93 (March) 1934.

4 Meleney, H. E. *Histoplasma* m. is (Reticuloendothelial Cytomycosis). *Am. J. Trop. Med.* 20: 603 (July) 1940.

Henderson, R. G., Pinkerton, Henry and Moore, L. T. *Histoplasma Capsulatum* as a Cause of Chronic Ulcerative Enteritis. *J. A. M. A.* 118: 885 (March 14) 1942.

6 Humphrey, Arthur A. Reticuloendothelial Cytomycosis. *Arch. Int. Med.* 65: 902 (May) 1940.

lungs. They appear to be the site of the oldest and most dense involvement. Henderson believes that the gastrointestinal route is perhaps the site of entry, especially in cases showing ulcerative lesions in the alimentary tract with mesenteric lymphadenopathy. The disease so far has been invariably fatal. Meleney believes that antimony preparations, not only the monogamic salts but the trivalent preparations such as fuadin, and the pentavalent preparations such as neostam, should receive particular attention in therapy.

## Current Comment

### REORGANIZING BRITISH MEDICAL SERVICE

A discussion of "A National Medical Service and Conditions of Medical Practice After the War" by Sir Henry Brackenbury, M.D., in the *British Medical Journal* for January 24, probably the last article written before his death, forecasts some of the problems which will affect the practice of medicine in Great Britain after the war. An anticipated reduction of 3,540,000 in the population of England and Wales by 1965 means that some 4,500 fewer practitioners will be required by that date, assuming the present average "doctor power" to be satisfactory. A rise in the income limit for admission to national health insurance and the expected inclusion of dependents will bring some 80 to 85 per cent of the population under that system. The impoverishment by war taxation of the uninsured will still further restrict the scope of private practice. As a result of contemplated extension of the school medical service, "unless efforts, contrary to past experience, are successful, practitioners will lose contact with most children and young persons before their entry to the national health insurance system or even up to 18 years of age." In view of these facts "it is clear that opportunities for purely private practice—whether general, consultant or specialist—of a remunerative character are likely to be greatly curtailed and that all classes of practitioners must be prepared to accept some measure of contractual practice under the supervision of the Ministry of Health." It was Sir Henry's belief that the basis of any scheme of medical service would be the general practitioner and that it would be organized "on the general lines of the national health insurance scheme." This would not preclude, he thought, the widest reconsideration of the terms and conditions of service for practitioners or of the removal of many of the functions of the "approved societies" or even their abolition, or of changing the methods of financing the scheme. It does, however, "imply the continuance of at least four principles so far as the medical profession is concerned. These are (1) the right of any and every registered practitioner to take part in the service if he so choose, (2) the right of free choice between patient and doctor within reasonable territorial and numerical limits, (3) the position of the practitioner as an independent unit in the service not subject in his purely professional judgments to any lay authority or to any medical superior officer, (4) remuneration approxi-

mately proportional to the responsibility undertaken." Probably a number of services would be added to the present general practitioner service. "Such would be (1) a maternity and infant welfare service for expectant mothers, women during and shortly after childbirth, and infants up to 2 years of age, (2) a school medical service for children and young persons attending school full time, (3) a special diseases service, as for tuberculosis, venereal diseases, cancer and, possibly, rheumatism, (4) an industrial medical service dealing with the conditions of those engaged in certain industries, (5) a consultant medical service, (6) a hospital medical service comprising institutions for resident medical treatment of all kinds." On the administrative side Sir Henry saw the abolition or reduction in influence not only of the approved societies but also of a wide variety of minor local and often overlapping organizations, with which would come a unification and centralization of authority in regional and sometimes national bodies. This, he said, would require higher qualifications for medical officers of health and this, in turn, might involve important changes in medical education. Thus, as American "slanguage" would say, "comes the revolution." These are parlous times. The patterns are being designed for the world of the future. The message of Sir Henry Brackenbury sounds the "alert" for American medicine.

### TUBERCULOSIS AMONG MEDICAL STUDENTS

Pulmonary tuberculosis is one of the great occupational hazards of medical students and nurses. Indeed, in the 1938 report of the Association of Medical Students Committee on Student Health an average tuberculosis rate of 7 per cent in all medical schools was estimated, although less alarming figures are obtained from several of the medical schools at which control studies have been made. A 0.2 per cent incidence has been reported from Cornell, a 0.4 per cent case rate at Columbia and similarly low figures at Stanford, Wisconsin and Yale and other schools with well established health programs. The success of these control programs, Weinerman and Coe<sup>1</sup> believe, points the way toward which all student health services must strive. The first emphasis of the controlled program must be on prevention, with the effort principally directed toward the environment and contact with patients or laboratory materials. The living and eating conditions of the students should be supervised and maintained at standards compatible with good health in order to elevate the levels of student resistance. Proper opportunities for recreation and exercise should be provided. In addition, due precautions should be taken to eliminate any potential reservoir of infection in restaurant, boarding house and hospital personnel and in necropsy and laboratory rooms to prevent the escape of tubercle bacilli. Tuberculin testing should be performed on admission to medical school and at intervals thereafter. It must be recognized likewise that periodic

<sup>1</sup> Weinerman, E. R., and Coe, F. O. The Control of Tuberculosis Among Medical Students with Additional Reference to Student Nurses, *Journal of the American Medical Association* 62: 115 (April) 1942.



examination is the only sure method of recognition of the disease. The entire problem has become especially pressing in the light of the speed up program of medical education which may be expected to influence students to take short cuts in maintaining their resistance. In this battle to maintain health the Tuberculosis Committee American Student Health Association,<sup>2</sup> is assuming a valuable role.

### IMPROVEMENT OF HEALTH IN TWENTY-FIVE YEARS

The health of the American people is essential in the war effort. Fortunately the country has never been better fortified in this regard than it is today. A succession of noteworthy discoveries in medical science and developments in public health have prepared us better for the hardships and vicissitudes of modern warfare than we were twenty-five years ago. The experience among industrial policyholders of the Metropolitan Life Insurance Company<sup>1</sup> proves that the adjusted death rate has been reduced slightly more than 50 per cent in the course of the last quarter century. This reduction has appeared in practically every important cause of death. Indeed the diseases of childhood and infancy have been virtually eliminated as a cause of death within this period thus resulting not only in a substantial saving of life at early ages but also the sparing of many disabling sequels of these diseases to young people living today. The death rate from tuberculosis among industrial policyholders has been reduced to about one-fifth that of 1917, the mortality from syphilis is less than half of what it was in 1917. Similar trends have been manifest for pneumonia, maternal mortality and appendicitis. For motor vehicle accidents, however, the rate has more than doubled since 1917—the one notable exception. The experience of this large group of industrial policyholders may be considered generally applicable to the nation as a whole.

### STUDENT SECTION

With its appearance in this issue the Student Section of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION is being temporarily discontinued. The tremendous demands placed on the time of the medical student because of the accelerated program and the great requirement for space in the columns of THE JOURNAL necessary because of the war effort seem to make it inadvisable to continue to carry this section at least until after the war shall have ended. The Board of Trustees at a recent session gave careful consideration to the problem. It was then decided to omit the Student Section as here indicated. Nevertheless, it is hoped to publish in the news columns of THE JOURNAL all items of importance relating to medical education, particularly as affected by the war. Incidentally, more than four thousand medical students regularly subscribe to THE JOURNAL.

### GASOLINE RATIONING AND MOTOR TRAVEL TO ATLANTIC CITY CONVENTION

Physicians who plan to travel by automobile to the annual session at Atlantic City should keep in mind that a gasoline rationing program became effective on May 15 in states along the eastern seaboard. The ration area includes the states of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, that part of Florida east of Apalachicola, the District of Columbia, and the city of Bristol, Tenn. Subject to certain exemptions not pertinent to physicians who will attend the convention, no person in the rationed area will be able to buy gasoline without a ration card. Three basic classes of cards are issued. The class A card will entitle the holder to purchase such minimum supplies of gasoline as may be publicly announced by the Office of Price Administration. Such cards are issued generally where the motor vehicle is used solely for pleasure. Persons customarily using their cars in driving to and from and in the course of their gainful occupation to an extent greater than would be permitted by the basic allotment given on A cards will be issued B-1, B-2 or B-3 cards, depending on the amount of gasoline for which they show a need. An X card, permitting the acquisition of unlimited quantities of gasoline, is issued to physicians and nurses and certain others included in this preferred category on the basis of a certification by the applicant that the motor vehicle for which the gasoline is desired is used entirely or almost entirely in connection with the professional duties of the applicant. Stated in the language of the Application for Gasoline Ration Card X (form OPA R-506) the physician applicant must certify that the gasoline will be used in a motor vehicle "for rendering medical services." Physicians who practice in the rationed area will no doubt have made application for and received their X ration card by now. The Office of Price Administration advises that these cards will be usable to procure gasoline in any state in the rationed area and may be used in connection with attendance at the Atlantic City session. Physicians coming into the rationed area will find it necessary, in order to procure gasoline, to obtain a ration card from a local rationing board in that area. Such boards, it is understood, will be conveniently located in all communities. In making plans to attend the convention by automobile physicians should keep these conditions in mind. Ration cards cannot be obtained in advance by mail, application must be made personally by the physician. While advice received from Washington would indicate that little delay may be anticipated in obtaining the cards, local conditions and reactions may interfere with an expeditious handling of the application. In view of all the circumstances and taking into consideration the difficulties incident to the replacement of automobile tires, physicians from a distance should give serious consideration to using means of transportation other than the automobile to attend the convention.

<sup>2</sup> Eleventh Annual Report of the Tuberculosis Committee American Student Health Association (for the Academic Year 1940-1941) Journal Lancet 62:125 (April) 1942.

<sup>1</sup> Statistical Bulletin Metropolitan Life Insurance Company 23 March 1942.

# MEDICINE AND THE WAR

*In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession*

## OCCUPATIONAL DEFERMENTS OF DOCTORS, DENTISTS AND VETERINARIANS

The following memorandum (I-420) was sent to all state directors by Lewis B Hershey, director of the Selective Service System, Washington, D C This amendment involves a change from Corps Area Committee of Procurement and Assignment Service to separate state chairmen for medical doctors, dentists and doctors of veterinary medicine and also a change with respect to the consideration of dependency in classifying such registrants

### NATIONAL HEADQUARTERS

### SELECTIVE SERVICE SYSTEM

21ST STREET AND C STREET N W

WASHINGTON, D C

January 28, 1942

Amended 4/28/42

MEMORANDUM TO ALL STATE DIRECTORS (I 363)  
LOCAL BOARD RELEASE (89)

SUBJECT Occupational Deferments of Medical Doctors, Dentists and Doctors of Veterinary Medicine (III)

1 Information previously distributed by this headquarters clearly indicates an overall shortage of medical doctors, dentists and doctors of veterinary medicine in the nation Since war was declared, the shortage of these professional men has become acute It is now manifest that every qualified doctor, dentist and veterinarian must serve where he can render the greatest professional service to the nation

2 In order to accomplish this purpose, the President, by executive order, has formed the Procurement and Assignment Service This service was formed primarily for the purpose of gathering and making available information with respect to

the supply of qualified practitioners in the fields of medicine, dentistry and veterinary medicine, with a view of securing the most effective allocation of medical manpower as indicated by the requirements of the armed forces, civilian needs and industrial medicine

3 To work with the headquarters of the Procurement and Assignment Service there has been appointed for each state and the District of Columbia a state chairman for medical doctors, a state chairman for dentists and a state chairman for doctors of veterinary medicine These state chairmen will secure information concerning their respective professions and will give advice regarding the allocation of medical manpower

4 When considering the classification of any registrant who is a qualified medical doctor, dentist or doctor of veterinary medicine, the director of Selective Service desires that local boards, through the state director, shall consult with the respective state chairman of the Procurement and Assignment Service

5 In considering the classification of a registrant who is a qualified medical doctor, dentist or doctor of veterinary medicine, the local board may, if it finds such registrant should not be deferred for reasons other than dependency, take into consideration the pay and allowances which such registrant would receive in the event he is commissioned in the armed forces In practically all instances the pay and allowances of such registrant, if he was commissioned as an officer, would be sufficient to eliminate the question of dependency

6 For the convenience of the state director and the local boards, the names and addresses of the respective state chairmen of the Procurement and Assignment Service are listed here with

| Medical  | Dental  | Veterinary Medical  |
|--|---|---|
| ALABAMA<br>Dr B F Austin, 519 Dexter Avenue,<br>Montgomery                       | Dr C B Bray, Amer Cast Iron Pipe Co<br>Birmingham   | Dr R S Sugg School of Vet Medicine<br>Ala Polytech Inst, University |
| ARIZONA<br>Dr Charles S Smith,<br>Nogales  | Dr W A Baker, Professional Building,<br>Phoenix   | Dr T B Jones, 105 Capitol Building,<br>Phoenix                      |
| ARKANSAS<br>Dr W R Brooksher, 602 Garrison Avenue<br>Fort Smith                  | Dr I M Sternberg, Merchants Bank Bldg,<br>Fort Smith  | Dr Joe S Campbell, Route 4,   |
| CALIFORNIA<br>Dr Harold A Fletcher, 490 Post Street,<br>San Francisco            | Southern<br>Dr Kenneth Ruedy, 3780 Wilshire Blvd,<br>Los Angeles<br>Northern<br>Dr J W Leggett, 490 Post Street,<br>San Francisco | Dr Joseph M Arburua, 26 Fell Street,<br>San Francisco               |
| COLORADO<br>Dr John Amessee, 624 Metropolitan Bldg,<br>Denver                    | Dr E M Silverberg, 809 Republic Building,<br>Denver   | Dr Floyd Cross Colorado State College,<br>Fort Collins              |
| CONNECTICUT<br>Dr Creighton Barker, 258 Church Street<br>New Haven               | Dr Louis R Siegal, 750 Main Street,<br>Hartford   | Dr Edwin Irtunen, 993 North Main Street<br>West Hartford            |
| DELAWARE<br>Dr William H Speer, 917 Washington St,<br>Wilmington                 | Dr William Stewart, Medical Arts Building<br>Wilmington   | Dr Harry McDaniel Jr, State Bldg of Agr,<br>Dover                   |
| DISTRICT OF COLUMBIA<br>Dr T X McGovern, 1835 Eye Street N W,<br>Washington, D C | Dr George Albert Smith, 1835 Eye St N W,<br>Washington, D C   | Dr A E Wight, Bureau of Animal Industry,<br>Washington, D C         |
| FLORIDA<br>Dr Edward Jelks, Box 1018,<br>Jacksonville                            | Dr E C Lunsford, 2742 Biscayne Blvd,<br>Miami   | Dr J L Ruble, 1600 North Orange Ave,<br>Orlando                     |
| GEORGIA<br>Dr Edgar H Greene, 875 W Peachtree St<br>N E, Atlanta                 | Dr R H Murphy, 920 Persons Bldg, Macon  | Dr J M Sutton, Sylvester  |
| IDAHO<br>Dr T M Cole, Caldwell   | Dr J E Bennett, Idaho Falls   | Dr Arthur P Schneider, Director, Bureau<br>Animal Industry Boise    |
| ILLINOIS<br>Dr Harold M Camp, 2245 South Main St,<br>Monmouth                    | Dr William I McNeil, 59 East Madison St,<br>Chicago   | Dr A E Bott, Corn Belt Laboratories E.<br>St Louis                  |

| Medical   | Dental   | Veterinary Medical   |
|---|--|--|
| INDIANA<br>Dr Charles R Bird 23 E Ohio St Indianapolis  | Dr H T Berkey Wayne Pharmacal Bldg Fort Wayne  | Dr Charles C Dobson New Augusta  |
| IOWA<br>Dr T F Suchomel 305 2d St Cedar Rapids  | Dr John Voss Voss Bldg Iowa City   | Dr A R Menary, 1721 Blake Blvd Cedar Rapids  |
| KANSAS<br>Dr F L Loveland 109 W 9th St Topeka   | Dr John W Richmond Huron Bldg Kansas City  | Dr R R Dykstra Kansas State College Manhattan  |
| KENTUCKY<br>Dr Arthur T McCormack 620 S 3d St Louisville  | Dr E C Hume 746 Francis Bldg Louisville  | Dr Arthur J Kay, 517 Murray St Frankfort   |
| LOUISIANA<br>Dr C Grenes Cole 921 Canal St New Orleans  | Dr Larry Dupuy 837 Maison Blanche Bldg New Orleans   | Dr E P Flower Box 24, Baton Rouge  |
| MAINE<br>Dr John G Towne 135 Main St Waterville   | Dr Giles C Grant 655 Congress St Portland  | Dr P R Baird 52 Pleasant St Waterville   |
| MARYLAND<br>Dr Charles W Maxson 1211 Cathedral Street Baltimore   | Dr T J Bland Medical Arts Building Baltimore   | Dr A L Brueckner, College Park   |
| MASSACHUSETTS<br>Dr Reginald Fitz 319 Longwood Avenue Boston  | Dr Andrew J Rafferty 390 Main Street Worcester   | Dr Harrie W Peirce 100 Nashua Street, Boston   |
| MICHIGAN<br>Dr P R Urmonst 916 Washington Avenue Bay City   | Dr J O Goods II Second Natl Bank Bldg Saginaw<br>Send copies of all publicity and correspondence to<br>Mr H C Gerber Jr Executive Secretary<br>Michigan State Dental Soc Olds Tower Bldg Lansing | Dr B J Killham Michigan State College East Lansing   |
| MINNESOTA<br>Dr William F Brasch 102 Second Street Rochester  | Dr J P Werrick Medical Arts Building Room 1015 Minneapolis   | Dr C E Cotton 3145 Portland Avenue Minneapolis   |
| MISSISSIPPI<br>Dr T M Dye Box 295, Clarksdale   | Dr George P Evans Standard Life Building Jackson   | Dr E S Brashier State Veterinary and Executive Officer Mississippi State Live Stock Sanitary Board Jackson |
| MISSOURI<br>Dr Robert Mueller 3115 South Grand Ave, St Louis  | Dr R J Rinehart Kansas City Western Dental College Kansas City   | Dr S W Haigler 7645 Delmar Boulevard St Louis  |
| MONTANA<br>Dr Herbert Caraway 115 North 28th Street Billings  | Dr D H McCauley 9 First Avenue Laurel  | Dr W J Butler Care of Capitol Station Helena   |
| NEBRASKA<br>Dr A A Conrad 416 Federal Securities Bldg Lincoln   | Dr Lawrence A Donahoe 1128 City National Bank Bldg Omaha   | Dr W T Spencer Livestock Exchange Bldg Omaha   |
| NEVADA<br>Dr C W West 120 N Virginia St Reno  | Dr G C Steinmiller Masonic Temple Reno   | Dr Edward Records University of Nevada Reno  |
| NEW HAMPSHIRE<br>Dr Deering G Smith 77 Main St Nashua   | Dr William H Putney 85 Pleasant St Concord   | Dr R W Smith State House Concord   |
| NEW JERSEY<br>Dr Chas H Schlichter 31 Clinton St Newark   | Dr E C Stillwell 815 Bloomfield Ave Glen Ridge   | Dr A W Smith 8 Longview Road Livingston  |
| NEW MEXICO<br>Dr L B Cohenour 221 Central Ave Albuquerque   | Dr M R Chapin El Moro Bldg Gallup  | Dr S W Wiest Box 75 Santa Fe   |
| NEW YORK<br>Dr Henry W Cave 107 E 67th St New York  | Dr William McG Burns 80 Hanson Place Brooklyn  | Dr Albert L Brown Route 1 Adams  |
| NORTH CAROLINA<br>Dr Hubert B Haywood 127 W Hargett St Raleigh  | Dr H O Lineberger 804 Professional Bldg Raleigh  | Dr William Moore State Veterinarian Raleigh  |
| NORTH DAKOTA<br>Dr L W Larson 221 5th St Bismarck   | Dr A O Schjeldahl 523 1/2 5th Ave Valley City  | Dr R E Shigley 710 2d St S E Minot   |
| OHIO<br>Dr Robert Conard 1005 Hartman Theater Bldg Columbus   | Dr Frank C Starr 150 E Broad St Columbus   | Dr D C Hyde 1700 Arlington Ave Columbus  |
| OKLAHOMA<br>Dr Henry H Turner 1200 North Walker Oklahoma City   | Dr A C Seids 1200 North Walker Oklahoma City   | Dr L J Allen 1610 North Ellison Oklahoma City  |
| OREGON<br>Dr Wilson Johnston 1020 S W Taylor St Portland  | Dr N L Zimmerman Medical Dental Bldg Portland  | Dr Fred W Lange 835 Belmont Street Salem   |
| PENNSYLVANIA<br>Dr Charles H Henninger 500 Penn Avenue Pittsburgh<br>Dr William L Estes Jr 314 W 4th Street Bethlehem | Dr R H Nones 1930 Chestnut St Philadelphia   | Lieut Col Ernest W Hogg V C 20 Darling Street Wilkes Barre   |
| RHODE ISLAND<br>Dr Halsey DeWolf 199 Thayer Street Providence   | Dr E C Elliott 615 Union Trust Building Providence   | Dr J S Barber 560 Pleasant Street Pawtucket  |
| SOUTH CAROLINA<br>Dr W J Presley Due West   | Dr E W Shepard Andrews Building Spartanburg  | Dr R A Mays J C Calhoun State Office Bldg Columbia   |
| SOUTH DAKOTA<br>Dr William Du coin Webster  | Dr R W Ellis Salem   | Dr D L Cotton Beresford  |
| TENNESSEE<br>Dr W C Dixon 706 Church Street Nashville   | Dr Lawrence T Kennedy Medical Arts Bldg Knoxville  | Dr M Jacob University of Tennessee Knoxville   |
| TEXAS<br>Dr Holman Taylor 1404 West El Paso St Fort Worth   | Dr J E Robinson Medical Arts Building San Antonio  | Dr T O Booth 2002 W T Wagoner Bldg Fort Worth  |
| UTAH<br>Dr Alfred C Cullister 54 East South Temple St Salt Lake City  | Dr C O Robinson Medical Arts Building Salt Lake City   | Dr W H Hendrick 1-19 East 17th South St Salt Lake City   |

| <i>Medical</i>                                    |  | <i>Dental</i>  | <i>Veterinary Medical</i>                                 |
|---|--|--|---|
| <b>VERMONT</b>                                    |  |  |   |
| Dr Benjamin F Cook, 46 Nichols St, Rutland        |  | Dr Maxwell L Jameson, 69 Pine St, Burlington           | Dr A A Mortimer, 27 Central St, Randolph                  |
| <b>VIRGINIA</b>                                   |  |  |   |
| Dr Hugh H Trout, 1301 Franklin Road, Roanoke      |  | Dr J H John, Medical Arts Bldg, Roanoke                | Dr I D Wilson, Virginia Polytechnic Institute, Blacksburg |
| <b>WASHINGTON</b>                                 |  |  |   |
| Dr Raymond Zeeh, 509 Olive Way, Seattle           |  | Dr L L Foot, Medical and Dental Bldg, Seattle          | Dr M O Barnes, 203 Federal Bldg, Olympia                  |
| <b>WEST VIRGINIA</b>                              |  |  |   |
| Dr Robert K Buford, 1031 Quarrier St, Charleston  |  | Dr I J Kral, 1017 First National Bank Bldg, Huntington | Dr H M Newton, P O Box 1721, Charleston                   |
| <b>WISCONSIN</b>                                  |  |  |   |
| Dr R E Fitzgerald, 2750 N Teutonia Ave, Milwaukee |  | Dr Charles Brumann, 408 West Greenfield Ave Milwaukee  | Dr W Wisnicky, University of Wisconsin, Madison           |
| <b>WYOMING</b>                                    |  |  |   |
| Dr George H Phelps, 1606 Capitol Ave, Cheyenne    |  | Dr L C Hunt, 308 W 3d Ave, Cheyenne                    | Dr H D Port, 304 Capitol Bldg, Cheyenne                   |

## WAIVER OF PHYSICAL DEFECTS FOR LIMITED SERVICE OFFICERS

The Surgeon General of the U S Army announced April 3 the following policies of his office concerning recommendations for waiver for limited service officers. These policies were announced in order that the provisions of AG-210 31 (12-19-41) RP-A Jan 7, 1942, may be carried out in a uniform manner.

### 1 a Considered acceptable for limited service

(1) Overweight to 25 per cent above average weight for age and height, and even greater degrees of overweight, provided the individual is not decidedly obese and provided that because of his special training in civil life he is peculiarly fitted to fill a particular technical assignment in the Army, and underweight to 15 per cent below ideal weight, provided chest x-ray examination is negative for pulmonary pathologic conditions and other chronic disease is carefully excluded.

(2) Any degree of uncorrected vision, provided it is corrected with glasses in possession of the examinee to 20/20 in one eye and to 20/40 in the other and provided that no organic disease of either eye exists.

(3) Blindness or corrected vision below 20/40 in one eye with vision 20/200 corrected with glasses in possession of the examinee to 20/20 in the other, provided there is no organic disease in the better eye and no history of cataract or other disease in the more defective eye which might be expected to involve the better one, and provided that in case of ophthalmosclerosis the individual is fitted with a satisfactory prosthesis.

(4) Complete color blindness.

(5) Hearing 5/20 in each ear for low conversational voice, or complete deafness in one ear with hearing 10/20 or better in the other, provided the defect is not due to active inflammatory disease and is stationary in character.

(6) Chronic otitis media, inactive, with perforation of membrana tympani, provided there is a trustworthy history of freedom from activity for the preceding five years.

(7) Old fracture of the spine or pelvic bones which has healed without definite deformity, provided there is a trustworthy history of freedom from symptoms during the preceding two years.

(8) Loss of one hand, one forearm, or one lower extremity below the junction of the middle and lower thirds of the thigh, provided the lost member is replaced with a satisfactory prosthesis.

(9) Pes planus, pes cavus or talipes equinus, provided the condition is not more than mildly symptomatic, does not interfere with normal locomotion and has not interfered with the individual's vocation in civil life.

(10) History of osteomyelitis following fracture, provided x-ray examination indicates complete healing and the condition has been asymptomatic for the preceding five years.

(11) Joints fixed or limited in motion, provided the condition is the result of injury and is nonsymptomatic.

(12) History of excision of torn or detached semilunar cartilage of knee joint, provided there is normal stability of the joint and a period of one year with complete freedom from symptoms has elapsed since the operation.

(13) Residuals of anterior poliomyelitis, without pronounced deformity or loss of function, originating two years or more prior to examination.

(14) Varicose veins, moderate, without edema or discoloration of skin.

(15) History of gastric or duodenal ulcer, provided there is a trustworthy history of freedom from activity during the preceding five years and provided that the gastrointestinal roentgenogram at the time of examination is negative.

(16) Incomplete inguinal hernia.

(17) Small asymptomatic congenital umbilical hernia.

(18) Absence of one kidney, provided its removal has been necessitated by other than tuberculosis or malignancy and the other kidney is normal.

### b Considered unacceptable for any service

(1) History of malignant disease within preceding five years.

(2) Active tuberculosis of any organ and inactive pulmonary tuberculosis except as described in paragraph 2a.

(3) Syphilis, except adequately treated syphilis as described in paragraph 2b.

(4) Old fracture of the skull with bony defect greater than 2 cm in longest diameter or with history of accompanying mental or neurologic complications.

(5) Instability of any of the major joints.

(6) History of metastatic osteomyelitis with prolonged or recurrent drainage, regardless of duration.

(7) Arthritis of the atrophic (rheumatoid) type.

(8) Any cardiovascular condition which disqualifies for general military service.

(9) History of gastroenterostomy, gastric resection, intestinal anastomosis or operation for intestinal obstruction.

(10) History of prostatectomy or transurethral resection of prostate or of prostatic hypertrophy of any degree.

(11) Chronic endocrine disease except mild hypothyroidism or mild Froehlich's syndrome.

(12) Diabetes mellitus of any degree or renal glycosuria.

(13) History of any psychosis.

(14) History of severe psychoneurosis at any time, or psychoneurosis of any degree if it has been recurrent or has shown symptoms within the preceding five years.

2 The following may be recommended for general military service with waiver.

a Individuals with minimal inactive lesions of primary or reinfection type pulmonary tuberculosis. These lesions may consist of

(1) Calcified residues of lesions of the intrathoracic lymph nodes, provided none of these exceed an arbitrary limit of 1 cm in diameter and the total number does not exceed five.

(2) Calcified lesions of the pulmonary parenchyma, provided the total number does not exceed ten, one of which may equal but not exceed 1 cm in diameter, but none of the remainder may exceed 0.5 cm in diameter.

(Note: The lesions described in (1) and (2) should appear sharply circumscribed, homogeneous and dense. Measurements refer to standard 14 by 17 inch direct projection roentgenograms.)

(3) Small fibrotic parenchymal lesions represented in a roentgenogram as sharply demarcated strandlike or well circumscribed small nodular shadows not exceeding a total area of 5 sq cm provided acceptance is deferred until subsequent examination.

demonstrates that the lesions are stationary and are not likely to be reactivated. The minimum period of time to determine this is six months. It must be recognized that either progression or regression of the lesions indicates activity.

b Individuals with confirmed position serologic tests for syphilis with no clinical evidence of the disease, with convincing histories of a trustworthy diagnosis of syphilis or with reliable histories of treatment for the disease on serologic or clinical grounds, provided

(1) That a negative spinal fluid since infection and treatment has been reported from a trustworthy source,

(2) That in infections estimated to be of less than four years' duration, at least thirty to forty arsenical and forty to sixty insoluble bismuth injections or their equivalent, with a minimum total of seventy-five injections, have been given, with approximate continuity (no rest periods or lapses) during the first thirty weeks of treatment, and

(3) That except as further qualified, in infections estimated to be over four years' duration at least twenty arsenical injections and forty to sixty insoluble bismuth injections or their equivalent, with a minimum total of sixty injections, have been given in alternating courses, rest periods between consecutive courses not exceeding eight weeks being allowable.

In infections of unknown duration it shall be presumed for classification purposes that those of individuals under 26 years of age are of less than four years' duration and over 26 years of more than four years' duration.

(Note: For the determination of treatment the signed statement of acceptable treatment sources administering it with total number of doses of each drug and approximate calendar dates of administration and available laboratory and clinical data shall be required as evidence.)

c Overweight to 20 per cent above average weight for age and height, and underweight to 12.5 per cent below ideal weight, provided chest x-ray examination is negative for pulmonary pathologic conditions and other chronic disease is carefully excluded.

d Insufficient incisor or masticating teeth, provided the mouth is free from extensive infectious processes and the examinee is wearing satisfactory dentures.

e Pilonidal cyst or sinus, provided there is no palpable tumor mass, no evidence of purulent or serous discharge and no history of previous discharge or inflammation.

f History of healed fracture with bone plates, screws or wires used for fixation of fragments still in situ, provided x-ray examination shows no evidence of osteomyelitis and no rarefaction

of bone contiguous to the fixative materials, that such fixative materials are not so located that they will be subjected to pressure from military clothing or equipment, and that one year has elapsed since their application.

g History of operation or of injection treatment for inguinal or small ventral hernia, provided examination three months or more following operation, or following the last injection, shows a satisfactory result.

h History of unilateral renal calculus, provided the condition has been asymptomatic for the preceding three years, urine examination is negative and roentgenologic examination (flat plate) of both kidneys is negative.

i Absence of the spleen, provided its removal has been necessitated by a crushing injury.

j History of cholecystectomy, provided the condition has been asymptomatic for the preceding two years.

3 The action of the reviewing medical authority should indicate on the Report of Physical Examination W D, A G O Form No 63, that cognizance has been taken of any defects which do not meet the standards set forth in AR 40-105, but for which waiver is recommended by a notation as follows:

'Recommend acceptance for general military service with waiver of (here record the defect or defects), or

Recommend acceptance for limited service only with waiver of (here record the defect or defects).'

4 It should be understood that this communication sets forth the policy of this office with regard to recommendations for waiver in the case of applicants for appointment and officers of the Reserve components under consideration for extended active duty. It is not intended that officers already in active service shall be recommended for appearance before retiring boards because of defects which would be considered disqualifying according to the policies set forth. The recommendations of disposition boards of general hospitals will be based on the principle that officers should be retained on active duty as long as they are capable of rendering efficient service unless they have conditions not incident to the service which are likely to progress to incapacity and eventually result in retirement in line of duty. The findings of disposition boards should clearly indicate that the officer under consideration is physically fit for limited service only when such is the case.

By order of the Surgeon General

JOHN A ROGERS,  
Colonel Medical Corps,  
Executive Officer

## TWENTY-SEVEN MEDICAL RECRUITING BOARDS

According to the *Army and Navy Journal* the War Department has released the names of members of twenty-seven recruiting boards in states east of the Mississippi River who will commission medical officers. The recruiting boards for states west of the Mississippi will be announced at a later date following completion of arrangements by Lieut Col James R. Hudnall M C, in the office of the Surgeon General and Lieut Col Sam F. Seeley, M C, of the Procurement and Assignment Service.

Members of the state boards are:

Alabama—Lieut Col A R Nichol Infantry and Major G C Woodruff M C.  
Connecticut—Major E E Williams M C and Capt H F Moore Infantry.  
Delaware and Southern New Jersey—Major A B van Raalte Adjutant General's Department and Capt R H Lowe M C.  
Maryland and District of Columbia—1st Lieut E B Sirota M C and 1st Lieut Samuel T Fisher Infantry.  
Florida—Major W E Murphree M C and Major J J Laird Infantry.  
Georgia—Lieut Col B G Owens M C and Capt Thomas H Folk Infantry.  
Illinois—Lieut Col R L Olmstead M C and Major John F Cardner Infantry.  
Indiana—Capt J H Miller Infantry and Capt Clarence E Northrup M C.  
Kentucky—Capt H J Brinker M C and Capt H C Lockhart Adjutant General's Department.

Louisiana—Major George R Benton M C and Capt J H Fox Infantry.  
Maine—Capt W P Weber M C and 1st Lieut R C Maxant Infantry.  
Massachusetts—Lieut Col Alexander Marble M C and Capt T J Quinn Infantry.  
Michigan—Lieut Col Paul T Priestly Infantry and Major John J Slevin M C.  
Mississippi—Major C D Mitchell M C and Capt William C Edgeworth Infantry.  
New Hampshire—Capt E L Wiemers M C and 1st Lieut R G Vedeler Cavalry.  
New York (northwestern)—Col Arthur T Boettcher Infantry and Major Edward K Reid M C.  
New York (southern) and New Jersey (northern and central)—Major William D Thornton Infantry and Capt J J McMahon M C.  
North Carolina—Major McKinnon Carmichael Infantry and Major Roy C Tatum M C.  
Ohio—Major Lewis W Cellio M C and 1st Lieut H S Wilson Adjutant General's Department.  
Pennsylvania—Major Gerald M Fluegel M C and Major E A Curran.  
Rhode Island—Lieut Col G W Well M C and 2d Lieut Paul M Fontaine.  
South Carolina—Lieut Col W C Goley M C and Major William Phillips Infantry.  
Tennessee—Lieut Col R C Rieburg Field Artillery and Capt R B Christman M C.  
Vermont—Major F E Lewis M C and 1st Lieut Henry E Dohler Cavalry.  
Virginia—Capt R M Jacobson M C and Capt John B Clark Infantry.  
West Virginia—Capt Richard D Farnack Cavalry.  
Wisconsin—Lieut Col Amorv A Miller Infantry and Capt Norman L Sheebe M C.



### DAYTON SPECIALIST UNIT ORDERED OVERSEAS

Medical Specialist Unit No 57, U S Naval Reserve, composed of physicians from Dayton, Ohio, which was one of the first units of this kind to be called to active duty and stationed at a naval hospital in this country, has been ordered overseas. The officers comprising the unit are Comdr Walter M Simpson, internist, and Lieut Comdrs Marion W Coleman, urologist, Harry R Huston, surgeon, Jerome Hartman, orthopedist, Lawrence F Patterson, dental surgeon, James L Sagebiel, neuropsychiatrist and Lieuts Norman J Birkbeck, roentgenologist, Thomas P Sharkey, alternate internist, and Paul L Yordy, anesthetist. According to the *Ohio State Medical Journal* this unit was organized in 1935 by Commander Simpson at the request of the Surgeon General of the Navy.

### TWO NEW REAR ADMIRALS

President Roosevelt has approved the promotion to rear admiral of Capts Dallas G Sutton and Charles W O Bunker of the U S Navy Medical Corps. Captain Bunker, who is at present in command of the Navy Medical School, Washington, D C, graduated from Cornell University in 1905 and joined the Navy as assistant surgeon two years later. He served with the Navy in European waters during the first world war and later on the U S Hospital Ship *Relief* and at the naval hospitals in New York and Washington. Captain Sutton, who at present is in command of the Norfolk Naval Hospital, Portsmouth, Va, graduated from George Washington University School of Medicine in 1906 and was appointed assistant surgeon in the Navy in 1907. He has served on the U S Hospital Ship *Relief*, the U S S *Mellville*, at the naval hospitals at Pensacola, Fla, and Great Lakes, Ill, at the Naval Academy, Annapolis, Md, and was formerly in command of the Navy Medical School.

### STATE HEALTH DEPARTMENT FOLLOWS UP REJECTEES

In a program to rehabilitate selective service men deferred on account of tuberculosis, the Illinois state health director, Dr Roland R Cross, announces that so far out of 594 men deferred for tuberculosis in Illinois since November 1940 the state health department has found only 21 who previous to their deferment had been reported to the state health department as having had tuberculosis. The health department has arranged to reexamine the entire remaining group through Medical Advisory Board No 39 in order that the active tuberculous cases may be cared for through the usual channels and the men with inactive lesions referred to their own physicians for medical supervision. Dr Cross said that a man is not acceptable to the army for active military duty if he has five or more calcified spots on his lungs, however, such men can safely carry on ordinary civilian activities without undue fear of relapse.

### GRADUATION AT CARLISLE BARRACKS

Two hundred and sixty-six officers of the medical department of the army graduated from the Medical Field Service School at Carlisle Barracks, Pa, May 2, after completing two months' field training. The ceremonies were held in the post theater at Carlisle Barracks, which is one of the oldest army posts in this country. The address was made by Brig Gen Addison B Davis, Assistant Surgeon General of the Army. The class represented forty states, the District of Columbia and Haiti and comprised one hundred and seventy-one officers of the medical corps, sixty-two of the dental corps, twelve of the veterinary corps and twenty-four of the medical administrative corps. The class also comprised two hundred and fifteen reserve officers, thirty-nine National Guard officers, and twelve regular army officers, and the various ranks were represented from second lieutenants to lieutenant colonels. This was the twelfth class to graduate at Carlisle Barracks. Another class of officers began this course of instruction on May 9.

### COMMISSIONS FOR DENTAL AND VETERINARY STUDENTS

Physically qualified male citizens of the United States above the age of 18 years who are bona fide accepted matriculants at approved dental or veterinary schools in the United States may now be appointed as second lieutenants, Army of the United States, Medical Administrative Corps. Officers so appointed will not be ordered to active duty until eligible for appointment as first lieutenant in the Dental or Veterinary Corps of the Army. Applications and accompanying papers must be forwarded by the dean of the dental or veterinary school to the commanding general of the corps area in which the school is located, together with a certified statement that the applicant is a bona fide accepted matriculant in dentistry or veterinary medicine at the institution.

Dental and veterinary students so appointed will be discharged for the convenience of the government, under the following circumstances:

- (a) Discontinuance of dental or veterinary education
- (b) Matriculation at an unapproved school of dentistry or veterinary medicine
- (c) Failure to complete successfully the four year course of dental or veterinary instruction
- (d) Failure to secure appointment in the dental or veterinary corps of the Army within three months after completion of the prescribed four year course of dental or veterinary instruction

### CHANGES IN ARMY CORPS AREAS

The following changes have been made by the War Department in the states composing the various U S Army corps areas. Louisiana has been taken from the fourth corps area and placed in the eighth corps area, Colorado has been taken from the eighth corps area and placed in the seventh, and Arizona has been taken from the eighth corps area and placed in the ninth corps area. The corps areas as now constituted comprise the following states:

|                      |                |               |
|----------------------|----------------|---------------|
| <i>First</i>         | South Carolina | Iowa          |
| Maine                | Alabama        | Kansas        |
| Vermont              | Georgia        | Missouri      |
| New Hampshire        | Mississippi    | Arkansas      |
| Rhode Island         | Florida        | Wyoming       |
| Massachusetts        | <i>Fifth</i>   | Colorado      |
| Connecticut          | Ohio           | <i>Eighth</i> |
| <i>Second</i>        | West Virginia  | New Mexico    |
| New York             | Indiana        | Oklahoma      |
| New Jersey           | Kentucky       | Texas         |
| Delaware             | <i>Sixth</i>   | Louisiana     |
| <i>Third</i>         | Wisconsin      | <i>Ninth</i>  |
| Pennsylvania         | Illinois       | Washington    |
| Virginia             | Michigan       | Montana       |
| District of Columbia | <i>Seventh</i> | Oregon        |
| Maryland             | North Dakota   | Nevada        |
| <i>Fourth</i>        | South Dakota   | Utah          |
| Tennessee            | Minnesota      | California    |
| North Carolina       | Nebraska       | Idaho         |
|                      |                | Arizona       |

### HAWAII MEDICAL JOURNAL

The January 1942 issue of the *Hawaii Medical Journal* is the first volume of this periodical published since the Japanese raid on Pearl Harbor. Most of the articles have to do with the medical experiences immediately following December 7 and with the methods of treatment of air raid injuries carried out at the results of treatment, there is also an illustrated chart of various warfare gases pointing out how to detect their presence, their physiologic effect, how to protect against them, treatment and other general instructions. The observations comprise not only those made at the U S Naval Hospital at Pearl Harbor and the Tripler General Hospital, Fort Shafter, but also some of the civilian hospitals in Honolulu.

### OHIO PHYSICIANS ON BATAAN PENINSULA

Among the physicians who were known to be on the Bataan Peninsula in the Philippine Islands with General Wainwright were Major C G Jackson of Kenton and Lieut David P. of Columbus, graduates of Ohio State University School of Medicine in 1931 and 1935, respectively.

# ORGANIZATION SECTION

## OFFICIAL NOTES

### ATLANTIC CITY SESSION

#### Transportation to Atlantic City

Fellows desiring to attend the Atlantic City session are urged to purchase transportation immediately

## MEDICAL LEGISLATION

### MEDICAL BILLS IN CONGRESS

*Change in Status*—H R 4476 has passed the Senate, providing for sundry matters affecting the military establishment. As passed by the Senate, this bill retains an authorization for the employment of interns in army hospitals who are graduates of or have successfully completed at least four years' professional training in reputable schools of medicine or osteopathy, at not to exceed \$720 per annum. An amendment agreed to by the Senate continues in force the provisions of this bill during the present war and for six months after the termination of the war, or until such earlier time as the Congress by concurrent resolution or the President by proclamation may designate.

*Bills Introduced*—The President has submitted a supplemental estimate of appropriation for the Public Health Service, amounting to \$5,420,000 for the fiscal year 1943. Of the amount included in the estimate, \$5,000,000 will be used by the Public Health Service to undertake directly in defense areas measures to control mosquitoes in connection with the suppression of malaria and to control dog flies near Eglen and Tyndall airfields and a school of flexible gunnery in Florida. The remainder of the estimate, \$420,000 will be used to con-

tinue a program, for which an allotment from the President's emergency fund has been made, to provide sufficient reserves of blood plasma in two hundred hospitals to meet any wartime contingency caused by enemy action which may necessitate blood transfusions to civilians. H R 7042, introduced by Representative Celler, New York, contemplates amendment of the United States Employees' Compensation Act so as to provide compensation for air raid wardens and other civilian defense workers who suffer traumatic injury while engaged in an approved course of training or while performing civilian defense duties. H R 7029, introduced by Representative Sparkman, Alabama, proposes numerous amendments to the Soldiers' and Sailors' Civil Relief Act of 1940, to provide further relief for persons in military service. Among other proposed changes, the bill would extend the provisions of the act relating to leases to cover premises occupied for professional, business, agricultural or similar purposes in any case in which (a) such lease was executed by or on the behalf of a person who, after the execution of such lease, entered military service and (b) the premises so leased have been occupied for such purposes, or for a combination of such purposes, by such person or by him and his dependents.

### DISTRICT OF COLUMBIA

*Change in Status*—H R 6362 has been reported to the House of Representatives, proposing to impose an annual registration requirement on persons licensed to practice the healing art in the District of Columbia. The annual registration fee will be \$2. The bill proposes further to amend the healing arts practice act so as to provide that all expenses incident to criminal prosecutions and to supervision and investigation with a view to criminal prosecution shall be paid from the fees collected under the act. Heretofore such expenses have been paid from appropriations in the same manner as the expenses of other criminal prosecutions and supervisory work and investigations incident thereto are paid.

## WOMAN'S AUXILIARY

### District of Columbia

The Woman's Auxiliary to the Medical Society of the District of Columbia met in the Medical Society Building on January 14 with Mrs. Caryl Burbank the president, presiding. The guests included Mrs. William L. Walters, president of the Woman's Auxiliary to the Dental Society of the District of Columbia. Miss Mabel T. Boardman of the American Red Cross. Major Julia O. Flikke of the Army Nurses Corps, Miss Sue S. Dauser and Mesdames Ross T. McIntire, Robert E. Hoyt, James Magee, Shelly U. Marietta, S. S. Adams, Hugh S. Cumming, Merritt W. Ireland, Thomas Parran, Walter Reed, Charles Edward Riggs, P. S. Rossiter, William M. Sprigg, Edward R. Stitt, D. P. Hickling and Cline N. Chipman. It is planned to present the glee club of Duke University in a concert in March. The proceeds will be placed in the educational fund. A first aid course under the sponsorship of the American Red Cross is being held in the medical society's library. Fifty-four auxiliary members are enrolled.

### Michigan

The Bay County auxiliary held an open meeting on January 7. Dr. John Sheldon of the University of Michigan Hospital, Ann Arbor, gave an illustrated lecture on "The Modern Concepts of Allergic Diseases." Over two hundred persons attended.

The Kent County auxiliary met on January 14. The auxiliary decided to organize a class to take the Red Cross course in home nursing and also voted to invest part of its benevolence fund in seven defense bonds of the \$100 denomination. L. E. Murphy of the Federal Bureau of Investigation spoke on the F. B. I. in Relation to Defense.

### Minnesota

The Ramsey County Auxiliary Red Cross unit was organized recently with Mrs. Harvey Beek and Mrs. John Madden in charge. It meets at Hope Church, St. Paul and makes surgical dressings and bandages and does sewing and knitting.

### Texas

The Bexar County auxiliary voted to dispense with all social functions for the year and to give the money used ordinarily for decorations and for tips to the Red Cross fund.

The auxiliary gave a party in the recreation room of the Bexar County Medical Society on January 8 for fifty soldiers and twenty-five student nurses.

Two first aid classes are conducted four times each week for members of the auxiliary. Many members are making surgical dressings.

The Nine Counties (Medina - Uvalde - Maverick - Valverde - Edwards - Real - Kinney - Terrell - Zavala) auxiliary was reorganized, Dec. 12, 1941, at Uvalde, with fourteen members and guests present. Mrs. E. W. Covle, fourth vice president of the state auxiliary, Mrs. Max E. Johnson and Mrs. M. J. Cooper of San Antonio assisted in the reorganization. The following officers were elected: Mrs. E. C. Bourdon, Uvalde, president; Mrs. T. M. Johnson, Del Rio, vice president; Mrs. George E. Merritt, Uvalde, secretary-treasurer and Mrs. A. P. Utterback, Bracketville, reported. Because of the great distances between homes of members of the auxiliary the organization will limit activities to war and Red Cross work.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH)

ADDITIONAL MEDICAL COLLEGE NEWS AND ARTICLES APPEAR IN THE STUDENT SECTION, PAGE 299

### ARIZONA

**State Medical Meeting at Prescott, May 25-30**—The Arizona State Medical Association will hold its annual meeting at the Hassayampa Hotel in Prescott, May 25-30, under the presidency of Dr. W. Paul Holbrook, Tucson. The host will be the Yavapai County Medical Society. The speakers at the opening session will include the mayor of Prescott and the governor. The preliminary program lists the following speakers, among others:

Dr. Walter Bauer, Boston, Arthritis  
Dr. Noble Wiley Jones, Portland, Ore., Arteriosclerosis  
Dr. Verne C. Hunt, Los Angeles, Lesions of the Stomach  
Dr. Howard P. House, Los Angeles, Diseases Related to the Middle Ear  
Dr. Frank Himmman, San Francisco, Urologic Conditions in Women  
Dr. William A. Boyce, Los Angeles, Anesthesia and Procedure of Safety in Eye Operations  
Dr. Alfred J. Ridges, Salt Lake City, Ethmoiditis, Common Colds  
Dr. Isaac H. Jones, Los Angeles, Ear Conditions in General Medicine

Most of the program has been divided into symposiums and panel discussions, one of which will be devoted to silicosis and other industrial dust diseases. Drs. Leroy U. Gardner, Saranac Lake, N. Y., Anthony J. Lanza, Washington, D. C., and Donald E. Cummings, B. S., Denver, will be among the speakers.

### CONNECTICUT

**Industrial Health Forum**—The industrial health and safety committee of the Manufacturers Association of Connecticut, Inc., and the state medical society sponsored their first industrial health forum at the New Haven Lawn Club, New Haven, May 7. One session was devoted to a discussion by personnel managers on employee health problems. Speakers on the program included:

William M. Grafer, D.Sc., U. S. Public Health Service, Bethesda, Md., **Sickness Among Industrial Workers—Bottleneck in the Offense Program**  
T. O. Armstrong, industrial relations manager, Westinghouse Electric & Manufacturing Company, Springfield, Mass., **Experiences with an Industrial Health Program**  
Walter S. Paine, manager, engineering and inspection department, Aetna Life Insurance Company and the Aetna Casualty and Surety Company, Hartford, **Benefits from an Adequate Health Service**  
George R. Cowgill, Ph.D., associate professor of physiological chemistry, Yale University School of Medicine, New Haven, **Nutrition—Its Value to the War Program**  
Dr. George K. Pratt, medical director, Connecticut Society for Mental Hygiene, New Haven, **Solving Personal Problems**  
Dr. Crit Pharris, industrial hygiene physician, state department of health, Hartford, **Meeting the Health Needs of Individual Plants—Minimum Facilities**

Dr. Victor G. Heiser, New York, consultant, committee on healthful working conditions, National Association of Manufacturers, addressed the dinner session on "Industrial Health and the War Problem."

### DISTRICT OF COLUMBIA

**Doctors Hospital Accepts Group Patients Until End of Contract**—Doctors Hospital, Washington, has reached an agreement with Group Hospitalization, Inc., to admit subscribers until March 31, 1943, when the hospital will withdraw as a full participating institution in the hospitalization plan, according to the *Washington Star*, May 6. The decision was announced after a conference between officials of the two groups. Under the agreement the hospital will accept hospitalization subscribers whether the contract is existing, a renewal or a new one until the expiration of the contract on March 31. The arrangement settles a dispute made public on April 24, when the hospital announced it would not renew its contract as of next March 31 and also refused to care for any new persons signing up in the interim or any whose contracts have expired and been renewed (THE JOURNAL, May 9, p. 195).

### FLORIDA

**Dr. Munch Convicted on Fraudulent Mail Charge**—Dr. George A. Munch, at one time secretary of the old Florida Eclectic Examining Board, was sentenced on April 9 to serve five years in the penitentiary by Federal Judge Akerman.

Newspapers reported that Dr. Munch and Robert F. McFall, Williston attorney, were convicted on charges of using the mails to defraud the Florida medical examining board of fees for licensing physicians. McFall was sentenced to serve three years. Both men, who had been at liberty under bail, were taken into custody. Two naturopaths, who had pleaded *nolo contendere* to complicity in the scheme to defraud the medical board, were given two year suspended sentences and placed on probation for a two year period. They are Lyle P. Johnson, St. Petersburg, and Julio G. Lopez, Tampa. Johnson was named as a defendant in the indictment with Dr. Munch and McFall. The government charged that Johnson had bought an illegal certificate to practice medicine in Florida from Dr. Munch, through the assistance of McFall. Lopez and Munch were named as co-defendants in another indictment, which charged that Lopez had obtained an illegal medical certificate from Munch. In 1927 Munch stood trial with other defendants on a charge of using the mails to defraud in connection with the sale of medical diplomas and licenses. At that time he was sentenced to the federal prison at Atlanta for a term of five years and to pay a fine of \$1,000. Dr. Munch is now 80 years of age. His license to practice medicine in Florida has been revoked and reinstated on various occasions.

### GEORGIA

**New Professor of Internal Medicine**—Dr. Eugene A. Stead Jr., instructor in medicine, Harvard Medical School, Boston, has been appointed to head the department of internal medicine at Emory University School of Medicine, Atlanta, newspapers reported on March 15. Dr. Stead graduated at Emory in 1932. He will devote his entire time to educational and research activities, it was stated.

**Municipal Health Center Building Dedicated**—The city of Savannah dedicated its new health center building, March 25. The three story building was constructed at a cost of \$100,000 as a joint city-WPA project and houses all of the official and nonofficial or voluntary health agencies incorporated into the organization known as the Savannah Health Center, directed by the city and county health department. The principal address at the dedication was delivered by Dr. Harry S. Mustard, director of the De Lamar Institute of Public Health, Columbia University, New York. Mayor Thomas Gamble in his address reviewed progress made in the field of health services in Savannah since the appointment of the first health officer in 1790. A commemorative plaque was unveiled as a part of the exercises.

### ILLINOIS

**New Health Center Building**—Ground was broken for the new Champaign-Urbana Health Center building on April 20. The unit, which will cost \$40,000, is the completion of a plan adopted when the district was organized in 1937, it was reported.

**Northwestern Alumni Luncheon**—The alumni of Northwestern University Medical School will hold a luncheon during the meeting of the Illinois State Medical Society in Springfield, May 20, at the Christ Church Parish House, 611 East Jackson Street. It will be necessary to register for the luncheon planned for 12:30.

**Personal**—Friends and colleagues of Dr. Marion K. Bowles, Joliet, gave a dinner in her honor recently in recognition of her many years of service to the community. The occasion also marked her retirement from the Joliet Township Health School Board, of which she has been a member for many years. She has served as president of the board six times. Dr. Bowles was formerly secretary-treasurer of the Western Grundy Counties Medical Society. She graduated at Northwestern University Woman's Medical School, Chicago, in 1911.

### CHICAGO

**Award Fellowship in Rheumatic Fever**—Dr. Roy L. Hayes of the Children's Memorial Hospital has been awarded the Morris Fishbein Jr. Fellowship for research on rheumatic fever. The fellowship is financed by a memorial fund established in honor of the late Morris Fishbein Jr., to carry out research in some phase of cardiovascular disease. The recipient of the fellowship is chosen by the trustees of the Chicago Association of Physicians. Dr. Hayes graduated at the University of Illinois College of Medicine in 1939. She will pursue her research at the Children's Memorial Hospital.

**Society News**—Among others, Dr. Owen H. Wangensteen, Minneapolis, addressed the Chicago Surgical Society, May 1, on "The Surgical Aspects of Peptic Ulcer"—The Chicago Orthopedic Society was addressed, April 10, in the Palmer House by Drs. John J. Fahey on "Circulation of the Head of the Femur" and Mauley A. Page, "Calcaneal Fractures Involving Articular Surfaces."

**Dr. Oliver-Gonzalez Wins Ricketts Prize**—Jose Oliver-Gonzalez Ph.D., Mr. and Mrs. Frank Logan fellow in bacteriology, department of bacteriology, Division of Biological Sciences, University of Chicago has been awarded the Howard Taylor Ricketts Prize for his research on "Dual Antibody Basis of Acquired Immunity in Trichinosis." Dr. Oliver-Gonzalez is a native of Puerto Rico. He received his B.A. degree at the University of Puerto Rico in 1938 and his M.A. and Ph.D. degrees at the University of Chicago in 1939 and 1941, respectively. The recipient of the Ricketts Prize is announced every year on May 3 the anniversary of Dr. Ricketts' death.

**Special Meeting of Institute of Medicine**—The Institute of Medicine of Chicago will hold a special meeting at the Palmer House, May 22, under the chairmanship of Dr. Andrew C. Ivy. The speakers will be Drs. Arnold Lazarow, winner of the 1941 Joseph A. Capps Prize for medical research, on "Particulate Glycogen: A Submicroscopic Component of the Guinea Pig Liver Cell, Its Significance in Glycogen Storage and the Regulation of Blood Sugar," Paul H. Holinger, "Kodachrome Visualization of the Physiology and Pathology of the Bronchi and Esophagus," and Jay M. Garner, Winnetka, Ill., and Jerrold Peerman, Nesselrode, Evanston, Ill., "Interesting Proctoscopic Observations in Color."

## INDIANA

**New Officers of Tri-State Association**—Dr. Howard H. Cummings, Ann Arbor, Mich., was elected president of the Northern Tri-State Medical Association at its annual meeting in Fort Wayne, April 7, succeeding Dr. Lyman T. Rawles, Fort Wayne. Dr. E. Benjamin Gillette, Toledo, Ohio, was reelected vice president. Dr. Floyd R. A. Carter, South Bend, was reelected secretary and Dr. Oscar P. Klatz, Findlay, Ohio, was chosen treasurer.

**Election of State Medical Board**—Dr. Hobart C. Rudick, Evansville, was elected president of the state board of medical examiners at the recent annual meeting, succeeding Dr. William C. Moore, Muncie, who was elected secretary. Dr. Jesse W. Bowers, Fort Wayne, who had been secretary, resigned from the board to become medical commander at Fort Benjamin Harrison, newspapers reported. Other officers of the board include Dr. Norris E. Harold, Indianapolis, vice president, and C. B. Blakeslee, D.O., Indianapolis, treasurer.

**Postgraduate Courses in Pediatrics**—A series of lectures on pediatrics, sponsored by the Perry County Medical Society in cooperation with the bureau of maternal and child health of the Indiana State Board of Health, opened in Cannelton on April 29 to continue each week until June 10. Dr. Walter R. Springston, Evansville, is the instructor. Two courses in obstetrics consisting of four lectures each, opened in Plymouth, April 20, and in Washington, April 28, under the auspices of the Marshall and Tri-County medical societies, respectively. Dr. Carl P. Huber, associate professor of obstetrics, Indiana University School of Medicine, Indianapolis, is giving the lectures.

## IOWA

**State Medical Election**—Dr. Lee R. Woodward, Mason City, was chosen president-elect of the Iowa State Medical Society at the recent annual session in Des Moines. Dr. Frank P. Winkler, Sibley, was installed as president. Other officers include Drs. Walter A. Sternberg, Mount Pleasant, and Walter D. Abbott, Des Moines, vice presidents, and Robert L. Parker, Des Moines, secretary-treasurer. Des Moines was selected as the place for the 1943 annual session.

**Annual Renewal Fees Due Before June 1**—All licenses to practice medicine and surgery in Iowa expire annually on June 30. To renew such a license a licensee must make a written application to the state department of health before June 1, enclosing the renewal fee of \$1. If a license expires by reason of the licensee's failure to renew it, it can be reinstated without reexamination only on the recommendation of the state department of health and the payment of the overdue fees.

## LOUISIANA

**Meeting of Urologists**—The fourth annual session of the Louisiana Urological Society was held at the St. Charles Hotel, New Orleans, April 30, under the presidency of Dr. Henry W. E. Walther, New Orleans. The speakers included:

Dr. Harry C. Knight, New Orleans, president, assistant surgeon, U.S. Public Health Service, Disease Control During the War Effort.  
Dr. Donald C. Maleholm, Clifton, Kan., major, U.S. Army, Report of Urologic Section of a General Hospital.  
Dr. James E. Gill, Washington, D.C., captain, U.S. Navy, Urology in the Navy.  
Dr. Alfred I. Folsom, Dallas, Texas, The Female Obstructing Prostate.  
Dr. Ansel M. Caine, New Orleans, Modern Trends in Anesthesia as Applied to Transurethral Procedures.  
Dr. Pierre Jorda, Kahle, New Orleans, Treatment of Prostatic Carcinoma and Metastases with Stilbestrol.  
Dr. Henry J. Lindner, New Orleans, The Effect of Castration in Metastatic Carcinoma of the Prostate.  
Dr. Robert F. Sharp, New Orleans, Aneurysm of the Renal Artery.  
Dr. John G. Menville, New Orleans, Gas Formation in Renal Abscess.

## MINNESOTA

**Society News**—Dr. William P. Sadler, Minneapolis, spoke on "Ectopic Pregnancy" before the Minnesota Academy of Medicine recently. The Minnesota Pathological Society was addressed April 7, in Minneapolis, by Dr. Alvin F. Coburn, New York, on "Role of Hemolytic Streptococcus in the Pathogenesis of Rheumatic Fever." Dr. Thomas Addis, San Francisco, gave a Mayo Foundation Lecture recently in Rochester on "The Treatment of Glomerulonephritis."

**Olmsted County Accredited in Tuberculosis Control**—Olmsted County has been awarded a certificate of accreditation by the Minnesota State Department of Health and the Minnesota State Medical Association in their joint program to accredit counties showing a tuberculosis mortality rate of less than 10 per hundred thousand of population and a record of less than 15 per cent reactors to the tuberculin test among the state's high school seniors. Olmsted County was the second in the state to achieve this honor. Lincoln County having been the first. Special ceremonies in Rochester will mark the presentation of the certificate on May 22 with Dr. Henry F. Helmholz, Rochester, president of the Olmsted County Public Health Association, presiding. Dr. Chester A. Stewart, professor of pediatrics and director of the department, Louisiana State University School of Medicine, New Orleans, will be the principal speaker.

## NEBRASKA

**New Public Health Personnel**—Dr. Vernon M. Winkle, Norfolk, has been named director of health unit number 1 covering Scottsbluff, Morrill and Banner counties and temporary director of health unit number 3 comprising Lincoln and Keith counties. Dr. Reuben Mutnick, New York, has been named director of the Dodge-Saunders defense area according to *Better Health*. Dr. William E. Holmes, Omaha, has been added to the state health department staff as medical health officer but at the time of this report had not been assigned to a unit.

## NEW JERSEY

**Personal**—Dr. Henry A. Davidson, editor of the *Journal of the Medical Society of New Jersey*, Trenton, has been ordered to active duty at the Army Medical Center in Washington, D.C.—Dr. Edward J. Ill, Newark, has been made a life emeritus member of the state publication committee of the Medical Society of New Jersey; he was first a member for one year beginning in July 1906 and has been continuously a member since July 1910.

## NEW YORK

**Personal**—Dr. Augustus J. Hambrook, Troy, has been appointed medical consultant in the Troy department of public welfare, a new position provided for in the 1942 city budget effective January 1.—Dr. Arthur E. Soper, Brentwood, has been named superintendent of the Kings Park State Hospital, Kings Park; he has been on the staff of the Pilgrim State Hospital, Brentwood, since 1932.

**Food Poisoning Traced**—A recent outbreak of food poisoning in an upstate city has been attributed to hollandaise sauce in which large numbers of hemolytic *Staphylococcus aureus* were found. The outbreak was traced to a restaurant. About five hours after ingestion of the meal the illnesses were characterized by profuse vomiting, purging and prostration. There were no deaths.



**Public Health Laboratories Meeting**—The twenty-sixth annual meeting of the New York State Association of Public Health Laboratories will be held in Schenectady, May 18, under the presidency of Dr. Francis F. Harrison, Cooperstown. Among the speakers will be Florence M. Varley and Dr. Frederick R. Weedon, Jamestown, on "The Use of Frozen Guinea Pig Serum in the Complement Fixation Test for Syphilis", Dr. Dorothy B. Chamberlin and Dr. William Kaufmann, Albany, "Meconium Ileus, a Clinicopathological Syndrome of Newborn Infants", Dr. Francis W. Porio, Ogdensburg, "Trichinosis," and Dr. Alan R. Moritz, Boston, "Integration of Medicolegal Pathology with Public Health Work."

#### New York City

**Dr. Geiling to Give Harvey Lecture**—Dr. Eugene M. K. Geiling, professor of pharmacology, University of Chicago School of Medicine, will deliver the eighth and last Harvey Society Lecture of the current series at the New York Academy of Medicine on May 21. His subject will be "The Comparative Anatomy and Pharmacology of the Pituitary Body."

**Exhibit Traces History of Hospital**—Special ceremonies on April 29 marked the opening of an exhibit at Mount Sinai Hospital which shows the history of the institution since 1852. The exhibit is a feature of the ninetyeth anniversary celebration of the hospital and consists of modern scientific displays, old time instruments and mementoes of medical pioneering and of service in United States wars. The main section of the exhibit will depict the development of the hospital against the background of contemporary, general and scientific history. The hospital has planned a year of celebration of its founding, including special lectures and other events.

**Jean Perrin Is Dead**—Jean Perrin, French physicist, winner of the Nobel Prize in 1926 and former president of the French Academy of Science, died April 17 in Mount Sinai Hospital, aged 71. Dr. Perrin, who was a member of the faculty of Paris University for many years, came to this country a few months ago. He had retired before the war but was in Paris when the war started. According to the New York Times through the cooperation of the faculty of Wilson College, Chambersburg, Pa., he was able to come here. The Nobel Prize in physics was awarded to Dr. Perrin for work on brownian movement kinetics, which dealt with so-called brownian particles. He was also honored for his work on the role of radiation in chemical reactions. He was educated at the Ecole Normale, Paris. He was founder of the department of physicochemistry at the Sorbonne and in 1938 was named president of the high committee for scientific research by the French government. Dr. Perrin was living with his son Francis Perrin, visiting professor of physics and mathematics at Columbia University.

**Violations of Marriage Examination Law**—On April 23 the New York Times reported that an investigation of irregularities in the marriage license bureau has disclosed indications that physicians are violating the law requiring a premarital examination by giving the couples only blood tests and not making physical examinations. William B. Herlands, commissioner of investigation, recommended that the department of health and the "organized medical profession" immediately undertake "appropriate educational and disciplinary steps necessary for the proper enforcement of the premedical examination law," the Times stated. Two employees of the marriage license bureau and one in the health department were ordered suspended as a result of the investigation. Herlands' report indicated instances of alleged "steering" of couples to certain physicians in the neighborhood of the bureau and the department. The report also said the inquiry has disclosed the possibility of "blood tests by proxy" because, it alleged, the physician named had accepted a blood specimen sent from another city as that of a woman and given her a medical certificate.

#### OHIO

**Emeritus Professors**—The title of professor emeritus was recently conferred on Dr. Mark A. Brown, professor of medicine, University of Cincinnati College of Medicine, Cincinnati, and Dr. Emerson A. North, professor of psychiatry. Dr. Brown has been professor at the school since 1900. Dr. North's retirement was noted in THE JOURNAL, January 17, page 240.

**Gifts for Research**—Funds totaling more than \$30,000 for research at the University of Cincinnati College of Medicine, Cincinnati, were accepted at the March meeting of the board. These gifts included \$9,500 from an anonymous donor for the Heart Station Fund in the department of internal medicine,

\$3,500 from an anonymous donor to the Porter Fund in Obstetrics, \$2,400 from the National Advisory Cancer Council to the department of surgery "to improve the present method of diagnosis and treatment of cancer," \$1,200 from the Lederle Laboratories, Inc., to the department of biologic chemistry and \$1,500 from an anonymous donor to the Craig Yeiser Fund in the department of preventive medicine.

#### OREGON

**Refresher Courses in Pediatrics and Obstetrics**—The Oregon State Medical Society and the state board of health are cooperating in a series of lectures on pediatrics and obstetrics. The program will be offered in the form of panel discussions by Oregon physicians. Dr. Henry Close Hesselbarger, Chicago, assistant professor of obstetrics and gynecology, University of Chicago School of Medicine, will be the guest lecturer. The series was given on May 11 at Ontario, May 12 at Baker, May 13 at Pendleton, May 14 at The Dalles, May 15 at Bend and will be given on May 18 at Lakeview, May 19 at Klamath Falls, May 20 at Medford, May 21 at Grants Pass, May 22 at Marshfield, May 25 at Astoria, May 26 at Portland, May 27 at Salem and May 28 at Eugene.

#### PENNSYLVANIA

**Industrial Hygiene Division**—Dr. Joseph Shilen, Pittsburgh, has been appointed head of the division of industrial hygiene of the state department of health, Harrisburg. He succeeds Dr. William B. Fulton, Harrisburg, who was appointed chief of the division of health in the U. S. Bureau of Mines. Dr. Shilen graduated at George Washington University School of Medicine, Washington, D. C., in 1916.

**Society News**—Dr. Michael M. Wolfe, Philadelphia, addressed the Luzerne County Medical Society, Wilkes-Barre, March 18, on "Indications for Plastic Surgery."—Dr. Adam C. Williamson, Pittsburgh, addressed the Mercer County Medical Society at Grove City, April 7, on "General Problems of Obstetrics in General Practice."—Dr. Herbert T. Kelly, Philadelphia, addressed the Lancaster City and County Medical Society in Lancaster, March 4, on "The Modern Science of Nutrition and Nutritional Deficiency."—The Lebanon County Medical Society was addressed in Lebanon recently by Dr. Franklin L. Payne, Philadelphia, on "Significance of Abnormal Vaginal Bleeding."—Lloyd M. Jones, professor of physical education, Pennsylvania State College, State College, addressed the Centre County Medical Society, Bellefonte, recently on physical fitness.

#### SOUTH CAROLINA

**State Medical Meeting in Columbia**—The ninety-fourth annual meeting of the South Carolina Medical Association will be held at the Columbia Hotel, Columbia, May 19-21, under the presidency of Dr. George M. Truluck, Orangeburg. The preliminary program lists the following speakers:

Dr. Vivian P. Patterson, Chester, General Practice in China  
Dr. William A. Smith, Charleston, Disseminated Circumscribed Pityriasis  
Dr. William L. Pressly, Due West, The Procurement and Management Service  
Dr. William Halsey Barker, Baltimore, The Sulfonamides  
Col. David N. Waller Grant, U. S. Army Medical Corps, Office Chief of Air Corps, Washington, D. C., Military Aviation  
Dr. Walter R. Mead, Florence, Diagnostic Significance of Various Types of Pain in the Back  
Dr. Dargun S. Pope Jr., and William A. Hart, Columbia, Treatment of a Pericardial Cyst  
Dr. Madison Hines Roberts, Atlanta, Graft Septic Membranes and Special Reference to Treatment of Influenza Membranes  
Dr. John J. Moorhead, New York, Experiences at Pearl Harbor

Mr. Joseph B. Hyde, Charleston, will be the exchange speaker of the South Carolina Pharmaceutical Association. The annual banquet will be addressed by Brig. Gen. Lewis B. Hershey, director, Selective Service System, Washington, D. C., Wednesday evening. The alumni luncheon of the Medical College of the State of South Carolina, Charleston, will be held on Wednesday afternoon at the Wade Hampton Hotel.

#### TENNESSEE

**Kellogg Foundation Grant to Meharry College**—A grant of \$250,000 has been given to Meharry Medical College, Nashville, by the W. K. Kellogg Foundation, Battle Creek, Mich., to finance an educational program in medicine, dentistry and nursing, newspapers announced on April 15. Fifteen thousand dollars will be made available annually for five years.

**Funds Approved for Hospital Construction**—The general assembly provided a bond issue of \$500,000, the proceeds of which are to be used for the construction of a tuberculosis hospital in Tennessee. The act providing the



authorizes the erection of a commission to make application for a grant of funds from the federal government to supplement the local funds and to select the location for the hospital.

**Changes in Health Personnel**—Dr Vernon W Foster, Savannah, Ga., has been placed in charge of the newly created health unit of Henry County. Dr Foster is on loan from the U S Public Health Service. Dr Horace M Roberson, health director for Bledsoe and Sequatchie counties, has been named to a similar position in Rhea and Meigs counties, succeeding Dr Hollis C Miles. Davton who resigned to return to private practice in Cincinnati, it is reported.—Dr Loyd D Farragut, Jackson, has resigned as director of the Madison County Health Unit to enter army service.

### GENERAL

**Dinner for Columbia Alumni at Atlantic City**—A dinner to be given by the alumni of Columbia University College of Physicians and Surgeons will be held Wednesday, June 10, at 7:30 p. m. at the Hotel Claridge, Atlantic City, rather than at 9 p. m. as was announced in THE JOURNAL, May 2, page 44.

**Tufts Alumni Meeting**—The secretary of the Tufts Medical Alumni Association, Dr Harry Blotner, Boston, writes that the Tufts medical alumni will hold their luncheon meeting at the Ambassador Hotel in Atlantic City, Wednesday, June 10, during the period of the annual session of the American Medical Association.

**Changes in Strength in Mercurial Ointments**—The Committee of Revision of the Pharmacopeia of the United States of America announces that certain changes have been made in the strengths of U S P mild mercurial ointment (blue ointment) and U S P ammoniated mercury ointment (white precipitate ointment). The change was made to conserve limited stocks of mercury on purely therapeutic grounds and was necessitated by war emergency conditions.

**New Bulletin on Science**—The executive committee of the American Association for the Advancement of Science has authorized the publication of an eight page monthly, *A A A S Bulletin*, to be edited by the permanent secretary, Forest R. Moulton, Ph.D., Washington, D. C. The new bulletin will be sent to each member of the association, the subscription price to be included in the annual dues. The association announces that the meeting planned during the week of June 22 at Ann Arbor has been canceled. However, the group will meet in New York on December 28.

**Officers of National Health Council**—Dr George S. Stevenson, medical director of the National Committee for Mental Hygiene, New York, has been elected president of the National Health Council to succeed Dr Kendall Emerson, managing director of the National Tuberculosis Association who becomes vice president and chairman of the executive committee. Other officers elected are Dr William F. Snow, general director of the American Social Hygiene Association, treasurer, and Mrs. Eleanor Brown Merrill, executive director of the National Society for the Prevention of Blindness, secretary.

**Accidental Deaths Increase**—Accidental deaths reported to workmen's compensation commissions in twenty-six principal industrial states totaled 8,381 in 1941 as compared with 7,732 in 1940. The largest increase was reported in Connecticut with 93 deaths in 1941 against 49 in 1940. Increases ranged downward from the Connecticut figures to 2 per cent for both Illinois and Minnesota. New York, one of the outstanding industrial states, recorded a 6 per cent drop. Other state commissions which received fewer reports of accidental deaths in 1941 were Georgia with a 7 per cent decrease, Vermont with a 14 per cent drop and West Virginia with a 15 per cent decrease.

**Yellow Fever Volunteer Dies**—John H. Andrus, who received congressional recognition for volunteering in the yellow fever experiments in Cuba in 1900-1901, died in the Naval Hospital, Philadelphia, aged 62. Mr. Andrus was one of a group of volunteers for experiments carried out under the late Drs. Walter Reed, James Carroll, Jesse W. Lazear and Aristides Agramonte. Mr. Andrus was a private in the hospital corps. He volunteered for the experiments and was infected with yellow fever at Camp Lazear by the injection of blood from a yellow fever patient. He became sick on Jan. 28, 1901, and was discharged on April 24, 1902. Congress in 1929 awarded him a gold medal and authorized a pension of \$125 a month.

**Academy of Tuberculosis Physicians**—The annual session of the American Academy of Tuberculosis Physicians will be held at the Hotel Dennis, Atlantic City, June 8-9 under the presidency of Dr. Oscar S. Levin, New York. The program will include the following speakers:

Dr. Leo L. J. Hardy, Chicago: Gastroscopic Findings in Far Advanced Pulmonary Tuberculosis.  
Dr. Morris Moore, St. Louis: The Chorioallantoic Membrane of Chick Embryos and Its Response to Inoculation with Some Mycobacteria.  
Dr. Samuel J. Hurwitz, San Francisco: Use of Gold Needle in Artificial Pneumothorax.  
Dr. Carl W. Tempel, major, U. S. Army, Washington, D. C.: Pneumoperitoneum: Its Place in Collapse Therapy.  
Dr. Zoltan Galambos, Chicago: Antituberculous Immune Substances in the Cellular Elements of the Blood in Arrested Pulmonary Tuberculosis.  
Dr. Jacob Werne, New York: A Study of the Frequency of Tuberculosis in a Population Dying of Violence.

**American Psychopathological Association**—The thirty-second annual meeting of the American Psychopathological Association will be held at the Hotel Statler, Boston, May 17-18, under the presidency of Dr. Roscoe W. Hall, Washington, D. C. Included among the speakers will be:

Dr. Lowell S. Selling, Detroit: Psychopathology and Nutrition.  
Dr. Edward J. Kempf, New York: The Significance of the Plasticity of Man for the Medical and Social Sciences.  
Dr. Helen Flanders Dunbar, New York: Personality Types Associated with Cardiovascular, Diabetic and Accident Syndromes.  
Dr. Bernard C. Glueck, Jr., Ossining, N. Y.: Psychopathological Reactions and Electric Shock Therapy.

The association will hold two joint sessions with the American Psychiatric Association on "Morale and Military Psychiatry" and "Psychiatry and the U. S. Navy." The annual dinner will be addressed by Ernest A. Hooton, Ph.D., professor of anthropology, Harvard University, Cambridge.

**Fatal Bicycle Accidents**—The Metropolitan Life Insurance Company has reported that about 1,100 persons were killed in bicycle accidents in 1941, nearly one fourth more than in 1940. About 900 lives have been lost through these accidents annually since 1936. In 1932, before the strong revival of recreational bicycling, there were only about 450 deaths. Of the 1,100 fatalities to cyclists last year, more than 900 resulted from injuries sustained in collisions with automobiles. Others were charged to falling off the bicycle, running into trees, curbs or other fixed objects and running into street cars. A number of pedestrians also were struck and fatally injured by bicycles. Among adult male insured persons between the ages of 20 and 64, the death rate in bicycle collisions with automobiles of 63 per million persons in 1941 was the highest in the seventeen years on which data are available. Each year boys in the age group of 10 to 19 are the most frequent victims. In the years 1936 to 1941 the annual death rate of bicycle-automobile collisions was 32.5 of insured boys from the ages of 10 to 19. Bicycle fatalities were relatively infrequent among insured girls and women.

**Ear, Nose and Throat Meeting**—The forty-eighth annual session of the American Laryngological, Rhinological and Otolaryngological Society, Inc., will be held at the Chalfonte-Haddon Hall, Atlantic City, N. J., June 1-3, under the presidency of Dr. James A. Babbitt, Philadelphia. Among the speakers will be:

Dr. George M. Coates, Philadelphia: The Nasopharynx.  
Dr. Paul A. Campbell, major, medical corps, Randolph Field, Texas: Otolaryngologic Problems of Aviation in World War II.  
Dr. Albert C. Furstenberg, Ann Arbor, Mich.: Neurologic Lesions Which Influence the Sense of Smell: A Clinical and Pathologic Study.  
Dr. Carl H. McCaskey, Indianapolis: Chronic Nonspecific Recurring Parotitis.  
Dr. Harrington B. Graham, San Francisco: Keratosis of the Larynx.  
Drs. Louis H. Clerf and Francis J. Braceland, Philadelphia: Functional Aphonia.  
Dr. Gordon B. New, Rochester, Minn.: The Treatment of Congenital Cysts of the Larynx.  
Drs. Samuel J. Crowe and John E. Bordley, Baltimore: The Use of the Sulfonamide Drugs and Gramicidin in Otolaryngology.  
Dr. Edmund P. Fowler, New York: Control of Head Noises: Their Illusions of Loudness and Timbre.

**War Production Fund to Conserve Manpower**—A group of leading corporation executives has organized the War Production Fund to Conserve Manpower under the auspices of the National Safety Council. According to a release the War Production Fund resulted from a proclamation of President Roosevelt calling on the National Safety Council to mobilize the nation's volunteer resources against a rising accident toll that last year claimed the lives of 101,500 persons, permanently disabled 350,000, injured 3,750,000 workers and deprived industry of 460,000,000 man-days of labor. Studies made by the National Safety Council indicate that industry was deprived by accidents of 10 per cent more man-days last year than in 1940, and the first month of this year showed a continuing rise as compared with the corresponding month of

1941 In twelve states the death toll from occupational accidents alone showed increases in 1941 ranging from 25 to 77 per cent. The new setup would work toward the installation of safety programs in many of the 171,000 industrial plants now lacking them and the nation's 15,000,000 industrial workers would be educated to safety. It is estimated that the expanded safety program will cost 5 million dollars and the War Production Fund has undertaken the responsibility of financing the project through enlisting the support of the nation's major industrial and business corporations. Mr. William A. Irvin, New York, director of the board of the U. S. Steel Corporation, is chairman of the War Production Fund.

**American Rheumatism Association**—The ninth annual meeting of the American Rheumatism Association will be held at Chalfonte-Haddon Hall, Atlantic City, N. J., June 8, under the presidency of Dr. Loising T. Swaim, Boston. The following program will be presented:

Drs. Paul L. Boisvert, New Haven, Conn., James D. Trask, New Haven, Martin Henry Dawson and Francis F. Schwenker, New York. Epidemic Rheumatic Fever.

Capt. Ruskin M. Lhamon, U. S. Navy, Lieut. Robert W. Huntington, Jr., U. S. Navy Reserve, Washington, D. C., Drs. Stafford M. Wheeler and Thomas Duckett Jones, Boston. An Epidemic of Hemolytic Streptococcus Infection and Rheumatic Fever Among Naval Trainees.

Dr. Granville A. Bennett, Boston. Comparison of the Pathology of Rheumatic Fever and Rheumatoid Arthritis.

Dr. Theodore B. Byles, Boston. Rheumatoid Arthritis and Rheumatic Heart Disease in a Series of Autopsied Cases.

Dr. Warren T. Vrugliun, Richmond, Va., Food Allergy as a Possible Factor in Subacute Recurrent Arthritis.

Drs. Alfred O. Ludwig, Charles L. Short and Walter Bruer, Boston. The Spinal Fluid Protein in Rheumatoid Arthritis.

Drs. Readie Garfield Snyder, Willard Haywood Squires, John Wilfrid Forster and Cornelius Horace Traeger, New York. The Treatment of Arthritis with an Agent Containing Massive Doses of Vitamin D.

Dr. John G. Kuhns, Boston. The Treatment of Arthritic Contractures of the Knee.

Drs. Edward T. Rosenberg, Archie H. Biggenstoss and Philip S. Hench, Rochester, Minn., An Analysis of the Manner of Death Among Thirty Patients with Rheumatoid Arthritis.

Dr. Charles L. Steinberg, Rochester, N. Y., The Tocopherols (Vitamin E) in the Treatment of Primary Fibrositis.

The annual dinner will be addressed by Brig. Gen. Charles C. Hillman, Washington, D. C.

**Meeting of Chest Physicians**—The eighth annual meeting of the American College of Chest Physicians will be held at the Hotel Dennis, Atlantic City, June 6-8, under the presidency of Dr. Benjamin Goldberg, Chicago. Among the speakers will be:

Drs. Raul F. Vaccarezza and Alvaro E. Bence, Buenos Aires, Argentina. Results Obtained from the Examination of Partitioned Lung Areas.

Dr. William A. Hudson, Detroit. Management of Pulmonary Cavities.

Dr. Hans E. Schiffrbauer, Los Angeles. Traumatic Rupture of the Diaphragm Simulating Pulmonary Tuberculosis. Transpleural Repair.

Drs. Chevalier L. Jackson and John Franklin Huber, Philadelphia. Applied Anatomy of the Tracheobronchial Tree and a System of Bronchial Nomenclature.

Dr. Robert W. Keeton, Chicago. Adequacy of Diabetic Management in the Presence of Infection.

Dr. Oscar Auerbach, New York. Pulmonary Tuberculosis Secondary to the Rupture of Cold Abscesses into the Lung.

Dr. Herman L. Kretschmer, Chicago. Diagnosis and Treatment of Renal Tuberculosis.

Military affairs will be discussed on June 7 by:

Brig. Gen. Charles C. Hillman, Washington, D. C., Tuberculosis in the Army.

Commander Robert E. Duncan, Washington, D. C., Tuberculosis in the Navy.

Dr. Roy A. Wolford, chief of the tuberculosis division, U. S. Veterans Bureau, Washington, D. C., Present Status of the Tuberculosis Problems in the U. S. Veterans Bureau.

Dr. Herman E. Hilleboe, passed assistant surgeon, U. S. Public Health Service, Washington, D. C., Tuberculosis Control in National Defense.

Dr. Esmond R. Long, Philadelphia. Relationship Between the National Research Council and Our Four Medical Services.

A joint session with the American Broncho-Esophagological Association will be held on June 8 with the following speakers: Drs. Paul H. Holinger, Chicago, on "Kodachrome Visualization of the Physiology and Pathology of the Tracheobronchial Tree", Louis H. Clerf and Carl J. Bucher, Philadelphia, "Adenoma (Mixed Tumor of the Bronchus)", Ralph C. Matson, Portland, Ore., "Bronchoscopic Aids in Chest Surgery" and Joseph W. Peabody, Washington, D. C., "Bronchoscopic Aids in Medical Conditions Within the Chest".

## LATIN AMERICA

**New Journal on Hygiene**—The *Boletín del Departamento de Higiene de la Provincia de Córdoba* has recently made its appearance. The first issues include original articles, excerpts from Brazilian lectures, a section on laws and miscellaneous articles covering hygiene and public health in Brazil. The headquarters of the new publication are at Boulevard Junin 507, Córdoba, Argentina.

**Honor Memory of Havana Physician**—On Sept. 22, 1941 a tablet was unveiled to honor the memory of the late Dr. Raimundo de Castro y Allo, professor of clinical medicine at the Faculty of Medicine of the University of Havana for twenty-five years. He was the head of the clinic of Hospital Mercedes for several years, president of various medical societies, delegate to several medical congresses and author of numerous articles and books. He died in 1902.

## FOREIGN

**British Medical Journal Comments on Paper Restriction**—The *British Medical Journal*, in a recent editorial comment, discusses the progressive limitation of the paper supply in relation to the gradually reduced size of the *Journal*. The editorial points out that the Scandinavian sources of material for paper making were cut off in April 1940. The continued drastic curtailment in paper rations will be met in the future by the printing of fewer pages and the use of smaller type. It is pointed out that "since this is a professional organ of information and opinion, owned by the members and not run for profit, the advertisement pages have to fare far worse under the axe than the editorial pages." The editorial reads in part as follows:

The British Medical Association, unlike the proprietors of all new papers and of most periodicals, cannot compensate for dwindling paper supplies by materially cutting down circulation because it is bound to send a copy of its *Journal* every week to each of the 40,000 members. Every effort will be made to economize space and to secure an adequate amount of paper, but readers and contributors must help us to make the best of a bad situation and be prepared for disappointments. The generous space given to correspondence will have to be curtailed which means fewer and shorter letters. Every one in these days is putting up with things he never thought to endure, and we look confidently to members of the B. M. A. to exercise forbearance. As for conciseness, it has become a major virtue in all who put pen to paper.

## Government Services

### Appointments in Hospital Service

Dr. Dean A. Clark, New York, U. S. Public Health Service, has been appointed head of the hospital section of the medical division of the Office of Civilian Defense and also head of the new emergency medical section in the public health service which will administer the hospital program jointly with the Office of Civilian Defense. *Modern Hospital* further reports that Mr. Harry N. Hooper, superintendent of Cincinnati General Hospital, has been granted a leave of absence to serve as consultant in hospital administration to the medical division.

### Dr. Turner Assigned as Chief of Venereal Disease Control

Dr. Thomas B. Turner, professor of bacteriology, Johns Hopkins University School of Hygiene and Public Health, Baltimore, and lieutenant colonel in the medical reserve corps of the U. S. Army, has been called into active service as chief of the subdivision of venereal disease control in the surgeon general's office. He has been in charge of the division of venereal disease control at the school of hygiene and public health, where he was assigned as a staff member of the International Health Division of the Rockefeller Foundation. He graduated at the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, in 1925. About 100 specially trained venereal disease control officers are being assigned as assistant to the surgeon in each army division, to each corps area and department, to each army headquarters, to general headquarters and to a camp of 20,000 or more troops to carry forward the comprehensive program to reduce loss of the army through venereal disease. In the civilian communities, the officers will cooperate with all agencies concerned with control of these diseases to insure the effective repression of prostitution and the adequate quarantine and treatment of infected civilians as a measure to prevent infection. Cooperation will be carried out with the Bureau of Medicine and Surgery of the U. S. Navy, the Social Protection and the U. S. Public Health Service of the Federal Government, the federal bureau of investigation, health enforcement agencies of states and smaller political divisions, and certain unofficial agencies such as the American Social Hygiene Association, according to *Social Hygiene News*.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

March 28, 1942

#### More Men, Women and Physicians Called Up

The operation of the national service acts has been extended to men from the age of 18 to those who have not reached 46 and to women who have reached the age of 21 but not that of 31. Previously the higher age limit for men was 41. Women are joining in the war effort to such an extent that already five million are registered. They are employed in services auxiliary to the fighting forces, in munition works, in nursing and welfare work, in civil defense and in other services required in the war effort. Girls of 16 and 17 are shortly to be registered under a youth scheme and those of 18 and 19 for purposes of record in order to complete the picture of our woman power, which is being mobilized on a scale hitherto unparalleled.

The women of the country, as well as the men, are now conscripted. The first medical examination of women conscripts has been held at four London centers. The women were all in the 20-21 age group. Most of them will be enrolled for auxiliary military service. They were placed in four grades: 1. Fit in every way. 2. Fit, but not for strenuous work. 3. Not fit for uniformed service but liable for civilian work of national importance. 4. Completely unfit. Most of the girls were placed in the first two grades. They were examined by three physicians (two men and one woman). Each had the right to claim examination by a woman only, but this was seldom done. The medical examination was thorough.

It is found necessary to extend the field for the recruitment of physicians and dentists, additional numbers of which are required in the armed forces. The arrangements which exist for their recruitment below the age of 41 are to be extended to 46. Each case will be reviewed by the Central Medical War Committee or the Dental War Committee and their local committees, which take into account the needs of both armed forces and the civil population.

#### Precautions Against Typhus Fever

On the continent of Europe typhus has proved a war scourge but so far has not spread to Britain. Elaborate precautions, however, are being taken. At the suggestion of the Ministry of Health the authorities in London have arranged the measures to be taken in case of an outbreak. The London County Council has provided for the use of one of its hospitals. Five London southwestern boroughs have drawn up a joint plan. As a preliminary twelve members of the Kensington public health staff have been immunized against typhus, protective clothing has been provided and they are being trained in dealing with clothing from typhus patients and with contacts. Kensington already has the plant for the delousing of furniture and clothing. If a case of typhus is diagnosed the health officer will immediately order the necessary measures. A van manned by a team wearing protective clothing will go to the house and remove bedding and clothing in stout bags, and the premises will be fumigated. Contacts will be deloused and taken in special transport to a delousing station. To prevent the introduction of typhus into the country a close watch is kept by health officers at ports and airports. Special mobile diagnostic and sanitary teams are being trained and organized. Arrangements for confirmatory diagnosis by experts have been made. Plans similar to those described have been made by other local health authorities for prompt isolation, hospital treatment and disinfection. Finally there is a general intensification of delousing and cleansing of verminous conditions for which local authorities have been given additional powers.

#### The Problem of Feeding Europe After the War

Dr Geoffrey Bourne of the University Laboratory, Oxford, discusses in a recent issue of *Nature* the question: What foods should be held ready to rush to Europe after the war? All the occupied countries, as well as the belligerents, are rationed. In some the bread ration is high: 80 ounces a week in Germany and 85 ounces in Denmark. In others the ration is low: 50 ounces in Italy, 55 in Belgium, 30 in Greece. Starvation must occur unless the deficiency is made good by other foods. Thirty ounces of bread a week provides only 300 calories a day. If there are not other foods to supply the calories, the position is serious. One way is by fat and potatoes. But in most of the countries fats are rationed and in some potatoes. In Belgium and Italy the fat ration is very low:  $3\frac{1}{2}$  ounces a week, in France it is 4 ounces. In view of the deficiency of calories, the French were urged to drink more wine. But they did this to such effect that wine is now rationed. The following estimates have been made of the number of calories per head available daily: Germany 2,900, Norway 2,500, Italy 2,400, Bohemia 2,300, unoccupied France 2,160, occupied France 2,100, the Netherlands 2,250, Belgium and Luxembourg 1,870. Figures cannot be given for Greece and Poland but the conditions are known to be very bad. The foregoing figures are probably optimistic.

Food also is deficient in quality. There is deficiency of protein and vitamins, which will probably have a serious effect on growing children. The decrease in the consumption of milk, cheese and butter means a reduction in the supply of vitamins A and D and riboflavin. Restriction of fruit means deficiency of vitamin C unless compensated by vegetables. Norwegians, Greeks and Poles are probably suffering from a mild form of scurvy. At the end of the war Europe will probably suffer from an absolute lack of food and deficiency of first class protein, vitamins A, C and D and calcium.

Dr Bourne recommends wheat as the first food to be rushed to Europe after the war and dried milk, whole or skimmed as the second. As dried whole milk does not keep well it would be better to supply dried skimmed milk and turn the fat into dehydrated butter, which keeps well. As supplies of these foods will probably be insufficient, there should be ready a store of extra fats such as whale oil, and of protein in the form of dried meat and fish. Soya bean flour could also be stored for adding to wheat flour to augment the protein value of the bread. Synthetic vitamin C or citrus fruit concentrate also should be supplied. Second, we must plan for the continued feeding of Europe, which means planning not only of European but of world agriculture. This was discussed by the agriculturist Sir John Orr at the British Association Conference of 1941.

#### Reform in Teaching Anatomy

It is the experience of most medical practitioners that at their medical schools they were taught many details of anatomy which they have long forgotten. Five teachers of anatomy have published in the *British Medical Journal* a joint letter on the subject. They say that the usual curriculum of anatomy is partly determined by ideas no longer valid. Much is concerned with topographic details important only to the surgical specialist. A curriculum should be planned to provide the best possible education for the general practitioner. Such a training should provide a sound educational approach to any branch of anatomy and a foundation on which the minutiae of applied anatomy for clinical specialization can be built up at a later stage in special courses of instruction. It is far more important that a student should be well acquainted with general anatomic principles than that he should memorize facts of which a large proportion are likely to be of no practical value. Anatomic teaching must cover the whole realm of macroscopic and microscopic structure and for the proper comprehension of structural organization histology should be taught in direct relation to the study of

gross structure and of embryology and histogenesis. Embryologic study should direct attention to morphogenic mechanisms rather than to the descriptive details of developmental stages. Great importance should be attached to courses of instruction, combined with practical study on general principles of structural organization, with special reference to processes of tissue differentiation, growth and repair, structural adaptation in response to functional requirements, and the influence of mechanical, hormonal and other factors in the induction of structural modifications. It has been shown in some schools that courses can be so arranged that all students in the same year study the same part of the body at the same time. Lectures on the anatomy of the living body, radiologic anatomy, histology and embryology can then be planned so as to deal with the part which is being dissected, allowing a much clearer correlation than in the usual curriculum. Lastly, students should be given more instruction on the postnatal growth of the body and its relation to nutritional, hormonal and other factors. A course of lectures on human genetics would be an appropriate sequel to embryology.

#### Wheat for the Starving Greeks

In the House of Commons, Mr Dalton, minister of economic warfare, stated that the government had always refused to allow foodstuffs to be shipped through the blockade and thus relieve the enemy of the responsibility for feeding the peoples whom he had enslaved. But the governments of Britain and the United States had viewed with increasing dismay the appalling conditions in Greece. Despite the ability to do so, the German government had done practically nothing to meet the situation created by the pillage and extortion of its armies in the spring of 1941. Britain and the United States were prepared to authorize the shipment of 8,000 tons of wheat to Greece to be applied under the auspices of the International Red Cross in relief of the present emergency. This is in addition to the permitted shipments from Turkey of foodstuffs. The governments of Britain and the United States continue to maintain that it is incumbent on the enemy to feed the occupied countries.

#### The Bread Controversy

There was no shortage of bread, but eggs, fish and winter supplies of milk were short. Referring to wholemeal bread, increasing the extraction of flour to 85 per cent saved shipping and had nutritive advantages but reduced the supply of animal feeding stuffs and thus of milk, meat and eggs. In the debate Sir Ernest Graham-Little (dermatologist) stressed the value of wholemeal bread, of which he has been the leading propagandist since the subject has become topical. Sir William Bragg (ex-president of the Royal Society) had said that we should go back to it. It contained twice as much iron as white bread, ten times as much vitamin A and three times as much vitamin B. Graham-Little attacked the expensive project of the government to vitaminize white bread. He did not think that the people would resent compulsion to eat whole wheat, which was more nutritious and would save shipping. There was anxiety in the medical profession at the incidence of deficiency diseases. The wholemeal loaf was discredited because its production to specification was not enforced. The production of white bread should be prohibited.

#### Medical Relations with Russia

The struggle of Russia against the invaders has aroused admiration in this country and movements to help in every possible way. The Red Cross fund raised by Mrs Churchill now exceeds \$7,500,000. A committee presided over by Sir Alfred Webb-Johnson, president of the Royal College of Surgeons, for providing surgical instruments has met with a good response. Instruments valued at \$15,000 have been sent by donors who

do not require or can spare them. The instruments were in such good condition that less than 10 per cent required repair. For the purchase of medical supplies a subcommittee is advising Mme Maiskiy, wife of the ambassador. During the last three months x-ray sets, autoclaves and other equipment have been sent in seventy large cases, some weighing a quarter of a ton. For the committee a book reviewing British war medicine is being compiled by Sir Philip Manson-Bahr and Mr G F Home and is being translated into Russian by physicians who have volunteered for the work.

#### Arthroplasty of the Hip Joint

At the annual meeting of the British Orthopedic Association Prof P D Wilson of New York reviewed the history of arthroplasty of the hip joint and dealt with the two methods now employed: fascial interposition with a history of twenty years and vitalium cups with a history of three or four years. He reported 39 cases, in which 45 arthroplasties had been performed, of which he had followed up 41. Of these fascial implantation was performed in 12 and the cup method in 28. In both forms of operation the best results were obtained when there was solid bony ankylosis. Periarticular scarring and adhesions were less than when there was fibrous ankylosis. Statistics tended to show a slightly better result from fascial interposition, but this was counterbalanced somewhat by the simpler technic and easier recovery when vitalium cups were used. Poor results with these occurred largely in the group of arthritic patients. The best results were obtained in conditions the result of trauma or septic necrosis. By means of the vitalium cup a wider range of use was established in old unreduced congenital dislocations.

#### Society for the Study of Child Health

A number of health officers and others have sent a letter to the *Times* stating that it has become evident that present knowledge of the factors affecting child health and our present means for maintaining it are inadequate. They think the time is ripe for the formation of a planning group in this branch of applied medicine. The object would be to study child health and explore the possibilities of improving the general health of children, with particular regard to social and environmental factors, nutrition and the better organization and coordination of agencies for child care. Such a group would be organized on regional lines so as to facilitate the meeting of members for discussion and would have a central body to correlate the findings and suggestions of the subgroups. Membership would not be confined to the personnel of the health services but would be open to all actively concerned with or interested in the objects of the group, including private physicians, dentists, teachers, nurses and students. No society of this kind has ever existed before, though it might be claimed that the subject comes within the scope of the Section for the Study of Disease in Children of the Royal Society of Medicine. But there the standpoint is that of the pediatrician, while here it is that of the health officer and the field is narrowed to prevention.

#### Psychologic Testing for the Army

A new development in the army is the General Service Corps, in which recruits undergo their basic training and the corps for which they are best suited is determined. The main factors are physical health, general intelligence, special aptitudes and a standard of attainment, which are all tested. The most difficult factor to assess is personality, but it is hoped to devise a test for this. A directorate of personnel selection has been set up and it is assisted by an advisory committee of psychologists, composed of Prof J Bever, Dr C S Myers, Prof I G Bartlett and Prof C L Burt. Care was taken to try out tests against practical results before they were introduced. The

recruits for an armored formation were tested and a list was made of the men found unsuitable for service with tanks. After three months the list was compared with practical experience and found to agree within 5 per cent of error.

There are three filters. First a general intelligence test is given on recruiting, second, during training misfits are combed out and transferred, third, the men most suitable for training as officers are sifted out. The last is based to some extent on German experience and is directed to ensuring that a leader is more intelligent and has quicker reactions and more personality than his men. Education and book knowledge play only a small part in intelligence tests, which are directed to determining the mother wit of the recruit. For example he is given a book containing a series of diagrams from which a section has been removed and he is asked to complete them from a number of alternatives.

### BUENOS AIRES

(From Our Regular Correspondent)

March 15, 1942

#### The Chair of History of Medicine

The Chair of History of Medicine of the Faculty of Medical Sciences of the University of Buenos Aires was established in 1937 with Dr. Juan Ramon Beltran as professor. Dr. Beltran wrote a book on the first medical society of Argentina and published it before the chair was established. The society was formed during the last few years of the colonial period. It was made up of physicians who organized the work to be carried on for the general care of the sick in hospitals and in towns with a large number of soldiers and who were regarded as the highest authorities of the country in administration of health and hygiene. The most important aims of Dr. Beltran and his group are (1) to have complete records of the development of medical history in Argentina with monographic and bibliographic data of all those who were concerned with it, (2) to organize an index with biographic and bibliographic data of Argentinean pioneers and of workers on medicine during the last few years and (3) to organize a museum for the history of medicine. Some of the work of the chair has been published during the last few years in four volumes which were issued with the name of 'Publicaciones de la Catedra de Historia de la Medicina'. The volumes contain historical studies and research by well known Latin American historians. Volume 2 contains articles by Beltran entitled 'Introduccion al estudio de la historia de la Medicina', 'Sintesis historica de la Academia Nacional de Medicina de Buenos Aires', 'Estudios especiales sobre el Colegio de San Fernando de Lima' and 'Epistolario of Miguel Gorman' who was the most popular physician of the first medical society of La Plata. Some important articles in the other three volumes are 'La medicina entre los Mayas' by Maximo Soto Hall, 'Historia de la anestesia' by Marquez Miranda, 'La fundacion de la Casa de Expositos' by Alonso.

La organizacion colonial del hospital de mujeres en Buenos Aires by Anibal Ruiz Moreno and articles on the work carried on by Ramon y Cajal by Ara, on the work carried on by Semmelweis by Beruti on epidemics in Buenos Aires by Besio Moreno and on the work carried on by Nicolas Monardes by Torres Revello. The collection of articles in these volumes is of great importance.

#### New Journal on History of Medicine

The first issue of the *Revista Argentina de Historia de la Medicina* which is the official organ of the society Ateneo de la Historia de la Medicina of Buenos Aires, was dated January 1942. It contains the following articles: 'Primeros Estudios de Medicina en Cuba' by Horacio Abascal, 'Rosas el Dictador en Argentina' by Beltran and 'Historia de la Medi-

cina en Argentina' by Sigerist. It contains also an article on 'Jade of China' by Juan Marin and several commentaries and notes on the history of medicine. This journal will appear three times a year.

### Personals

The society Ateneo de Historia de la Medicina of Buenos Aires recently appointed as honorary members Tricot Roger, founder and honorary president of the International Society of the History of Medicine, Laignel-Lavastine of the Faculty of Medicine of Paris, Paul Diepgen of the University of Berlin, Esmond R. Long, president of the American Association of the History of Medicine, Prof. Henry E. Sigerist of the Johns Hopkins University School of Medicine, Carlos Enrique Paz Soldan of the University of San Marcos, Lima, Juan B. Lastres of the Faculty of Medicine of Lima, Gregorio Marañon, noted for Spanish researches on endocrinology, Carlos Martinez Duran of Guatemala, Alfonso Pruneda of Mexico, Horacio Abascal of Havana, Alfredo Monteiro, Mariano de Andrade, Raul Jobin Bittencourt and A. Barboza Viana of Rio de Janeiro, Raul Briquet, Edmundo Vasconcelos and Alvaro Guimaraes Filho of São Paulo, Brazil, Raul Laitao da Cunha, dean of the National University of Rio de Janeiro, and Jose Arce, ex-dean of the Faculty of Medical Sciences of Buenos Aires.

### BUCHAREST

(From Our Regular Correspondent)

Dec 27, 1941

#### Precautionary Measures Against Foot and Mouth Disease

Although foot and mouth disease has not been reported in this country for a long time, the Ministry of Health addressed a circular to all sanitary authorities pointing out that the disease appears to have been introduced in the past through private slaughter houses in which the disease was not recognized. Not only the slaughter house was involved but all places where the meat from it was deposited, prepared or exposed for sale. The parts of the animals requiring special examination are the head, tongue and feet. Cattle, sheep, goats and pigs may be affected and the disease is transmissible to human beings to whom, however, danger to life therefrom occurs only in exceptional cases. The disease in animals is compulsorily notifiable to the police—in villages to the district veterinary surgeon whose duty it is to pass the notification to the competent authorities. The disease may be transmitted to man through milk, butter and cheese or by inoculation through wounds in the hands and arms and may cause in man fever and digestive troubles, vesicles on the lips, fingers, arms, inside the mouth, pharynx and conjunctivas, salivation, nausea, offensive breath, pains in the limbs and swelling of the cervical glands. The technical name of the disease is epizootic eczema and the virus appears in concentrated form in the vesicles and saliva of those affected.

A special circular was sent to medical officers of health and to parish physicians with instructions as to isolation, differential diagnosis and treatment. The circular describes a case in which the infection of foot and mouth disease was localized to the eye. In this case contact was by shaking hands. Conjunctivitis developed and severe ciliary injection followed. The cornea was free. The inner third of the superior palpebral margin suppurated and was covered with a semiaherent membrane. Both eyelids were considerably edematous and there were large firm, slightly sensitive glands below the angle of the chin and in the neck. Treatment consisted of local applications of mercuric bichloride 1:4000 and 2 per cent preparation of colloidal silver and silver oxide stabilized by derived egg albumin (collargol) administered almost every hour. Within eight days the eyes and mouth healed as well as the cutaneous nodules. Recovery was complete.



## Deaths

**Shirley Wilmotte Wynne**, New York, Columbia University College of Physicians and Surgeons, New York, 1904, medical inspector, city department of health, from 1907 to 1911, assistant registrar from 1911 to 1915, chief of the division of statistical research from 1915 to 1920, assistant to the commissioner of health from 1920 to 1924, director of hospitals from 1924 to 1926, deputy commissioner from 1926 to 1928 and commissioner of health from 1928 to 1933, formerly professor of preventive medicine, New York Polyclinic Medical School and Hospital, consulting physician Willard Parker Hospital and the Midtown Hospital, at one time trustee of the New York State Hospital for Incipient Tuberculosis, Otisville, N Y, president of the Children's Welfare Federation, aged 59, died, April 19, in St Luke's Hospital of acute appendicitis with peritonitis

**Frank Breckenridge Earle**, La Grange, Ill, College of Physicians and Surgeons of Chicago, 1885, member of the Illinois State Medical Society, joined the staff of his alma mater in 1885 with the title curator of museums, in 1888 became lecturer on practice of medicine, in 1889 assistant to the chair of practice, in 1894 lecturer on obstetrics, from 1895 to 1902 professor of obstetrics, from 1901 to 1913 secretary of the college, and from 1903 until September 1914 professor of pediatrics, when he was made professor emeritus, served during World War I, aged 81, died, March 6, in Eustis, Fla, of arteriosclerosis and bilateral pyonephrosis

**Edwin Abe Baumgartner** Ⓢ Newark, N Y, Washington University School of Medicine, St Louis, 1919, member of the American Association of Pathologists and Bacteriologists, fellow of the American College of Physicians, instructor of anatomy at the University of Wisconsin, Madison, 1911-1912, University of Minnesota, Minneapolis, from 1912 to 1914 and instructor and later associate in anatomy at his alma mater from 1914 to 1919, associate pathologist, Clifton Springs (N Y) Sanitarium from 1921 to 1932, since 1932 director, Newark State School and county laboratory, aged 54, died, March 15, in the Clifton Springs Sanitarium of a streptococcal infection

**Ralph Merle Carter** Ⓢ Green Bay, Wis, Rush Medical College, Chicago, 1908, past president of the State Medical Association of Wisconsin, member of the Western Surgical Association, Clinical Orthopaedic Society, American Academy of Orthopaedic Surgeons and the American Association for the Surgery of Trauma, fellow of the American College of Surgeons, served during World War I, attending orthopedist, St Vincent's, Bellin Memorial and St Mary's hospitals, aged 58, died, March 24, of coronary thrombosis

**Henry George Lampe**, Chicago, College of Physicians and Surgeons, School of Medicine of the University of Illinois, 1901, was associated with the Veterans Administration, Hines, Ill, from July 1923 to March 1928, formerly local surgeon, health officer and assistant surgeon, Illinois Central System, served during World I, aged 62, on the staff of the Illinois Central Hospital, where he died March 5, of coronary thrombosis and hypertensive heart disease

**Hallward Martin Blegen** Ⓢ Warren, Minn, University of Minnesota College of Medicine and Surgery, Minneapolis, 1909, past president of the Red River Valley Medical Society, surgeon for the Great Northern and Soo railways, coroner of Marshall County, president of the Warren board of education for twenty years, on the staff of the Warren Hospital, aged 56, died, March 26, in the University Hospital, Minneapolis, of Addison's disease

**Walter Erastus Spicer**, Jackson, Mich, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1884, member of the Michigan State Medical Society, formerly on the staff of the Manhattan Eye, Ear and Throat Hospital, New York, and the Children's Hospital, Randall's Island, N Y, aged 86, died, March 8, in the W A Foote Memorial Hospital of a fractured hip received in a fall on an icy sidewalk

**Maurice Duane Bird** Ⓢ Marinette, Wis, Rush Medical College, Chicago, 1896, formerly secretary of the Marinette-Florence Counties Medical Society fellow of the American College of Surgeons, consulting surgeon St Joseph's Hospital,

Menominee, Mich, on the staff of the Marinette General Hospital, served as surgeon for the Chicago, Milwaukee, St Paul and Pacific Railroad, aged 69, died, March 13, of heart disease

**George Artemas Brown**, Barre, Mass, College of Physicians and Surgeons, medical department of Columbia College, New York, 1883, member of the Massachusetts Medical Society and the New England Society of Psychiatry, physician and owner of the Elm Hill School for Feebleminded for many years, for many years member of the school committee, aged 83, died, March 14, of chronic myocarditis

**Ralph Ellis Murrell** Ⓢ Lieutenant Colonel, M C, U S Army, Washington, D C, St Louis College of Physicians and Surgeons, 1917, entered the medical corps of the U S Army as a first lieutenant Oct 31, 1919, served during World War I, was commissioned a captain May 5, 1921, a major May 7, 1930 and a lieutenant colonel May 7, 1938, aged 50, died, February 2, of cerebral hemorrhage

**Harry Fletcher White** Ⓢ Medical Director, U S Public Health Service, New York, University College of Medicine, Richmond, Va, 1908, was commissioned an assistant surgeon in the U S Public Health Service in 1913, passed assistant surgeon in 1917, surgeon in 1921, senior surgeon in 1933 and medical director since 1939, stationed at Ellis Island, N Y, since 1937, aged 57, died, January 23

**William Creighton A Garvin** Ⓢ Binghamton, N Y, Columbia University College of Physicians and Surgeons, New York, 1903, member of the American Psychiatric Association and the American Psychopathological Association, superintendent of the Binghamton State Hospital, formerly superintendent of the Kings Park (N Y) State Hospital, aged 68, died, April 3, of cerebral thrombosis

**Heber J Sears**, Salt Lake City, Harvey Medical College, Chicago, 1905, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906, member of the Utah State Medical Association, formerly professor of hygiene and sanitation at the University of Utah School of Medicine, aged 80, died, February 24, in Beverly Hills, Calif, of acute dilatation of the heart

**Robert Robinson Armstrong**, Passaic, N J, University of the City of New York Medical Department, New York, 1895, member of the Medical Society of New Jersey, served during World War I, surrogate of Passaic County, formerly member of the city board of health and board of education, at one time county physician, aged 69, died, April 6, of carcinoma of the mouth

**Max Robert Dinkelspiel** Ⓢ New York, Jefferson Medical College of Philadelphia, 1902, associate editor of the *Merck Manual of Therapeutics* and *Materia Medica*, at one time on the editorial staff of the *Philadelphia Medical Journal* and *Therapeutic Monthly*, translator of several volumes of Nadel's series of medicine, aged 66, died, March 13, of coronary heart disease

**Charles W Moseley**, Greensboro, N C, Baltimore Medical College, 1893, member of the Medical Society of the State of North Carolina, aged 76, on the staffs of the Wesley Long, St Leo's, L Richardson Memorial and Sternberger hospitals, charter member of the staff of the Piedmont Memorial Hospital where he died, March 7, of pneumonia

**Henry Woodul Smith**, Roodhouse, Ill, College of Physicians and Surgeons of Chicago, 1894, member of the Illinois State Medical Society, formerly member of the state legislature, at one time mayor and member of the board of education, aged 75, died, March 12, in Our Saviour's Hospital, Jacksonville, of carcinoma of the liver

**John Henry Rosenberg**, Prineville, Ore, University of Oregon Medical School, Portland, 1897, member of the Oregon State Medical Society, mayor of Prineville, served during World War I, formerly member of the state board of health, aged 67, died, February 24, in St Charles Hospital, Portland, of coronary embolus

**Henry S Stearns**, New York, University of the City of New York Medical Department, New York, 1884, member of the Medical Society of the State of New York, in 1905 president of the Medical Society of the County of New York, aged 80, died, April 2, of senility

**Joseph Warrick Clifford** Ⓢ Worthington, Ind, Graduate College of Eclectic Medicine and Surgery, Atlanta 1892, Affiliate Fellow of the American Medical Association, at one time county coroner, aged 79, died, March 26, in the Methodist Hospital, Indianapolis

George Boyd Dyche, Wheaton, Ill., Northwestern University Medical School Chicago, 1897, formerly associate professor of medicine at his alma mater, at one time on the staff of the Community Hospital, Geneva, aged 69, died, March 16, of carcinoma of the colon

Howard Russell Hansell, Sharon, Conn., University of Pennsylvania School of Medicine, Philadelphia 1927, member of the Connecticut State Medical Society, on the staff of the Sharon Hospital, aged 40, died, March 6, of acute myocarditis and arteriosclerosis

Hugh Ratcliffe Inksater, Calgary, Alta., Canada, University of Toronto Faculty of Medicine, 1930, was called to active duty as a captain in the Royal Canadian Army Medical Corps July 8, 1941, aged 35, was killed in an accident, January 18 while overseas

James Arnold Bledsoe, Port Arthur, Texas, University of Louisville (Ky.) Medical Department 1915 served with the British government during World War I and was awarded the Distinguished Service Cross, aged 53, died, March 7, of heart disease

Harry Randolph Spickhermon, North Henderson, Ill., College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois 1898, aged 68, died in March at St Mary's Hospital, Galesburg, of pneumonia and emphysema

Emanuel Taft @ Chicago University of Illinois College of Medicine Chicago, 1932 formerly on the staff of Mount Sinai Hospital, on the visiting staff of the Lutheran Deaconess Hospital, aged 33, died, March 1, in the Michael Reese Hospital

Waldemar Alfred Christensen, San Francisco, Kentucky School of Medicine Louisville 1896, formerly first lieutenant in the medical reserve corps of the U. S. Army, aged 71, died February 6, of coronary sclerosis and hypertrophy of the prostate

Anthony John Boucek, Pittsburgh, Western Pennsylvania Medical College, Pittsburgh 1890, member of the Medical Society of the State of Pennsylvania on the staff of St John's General Hospital, aged 73, died March 8, of coronary heart disease

Edward Miers @ Des Plaines Ill. Kentucky School of Medicine Louisville, 1905, National Medical University, Chicago 1907, on the staff of St Mary of Nazareth Hospital, Chicago aged 65 died March 14 of heart disease

Ernst Lohnberg @ San Francisco Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultät Bonn Prussia Germany, 1911, aged 57, died February 14 of cerebral hemorrhage and hypertensive cardiovascular disease

Paul Menken Eicks, Grenloch N. J., University and Bellevue Hospital Medical College New York 1927 resident physician on the staff of the Camden County Hospital, aged 40 died March 6 of diabetes mellitus

Howard Draper Speakman, Pau France University of Pennsylvania Department of Medicine Philadelphia, 1881 formerly on the staff of the Manhattan Eye and Ear Hospital New York, aged 83 died March 9

Manfred Mayer Zachart, New York, Friedrich-Wilhelms-Universität Medizinische Fakultät Berlin Prussia, Germany, 1922 member of the Medical Society of the State of New York aged 46, died February 17

John Knox McLeod, Sydney, N. S. Canada Bellevue Hospital Medical College, New York 1883, served during World War I for many years medical health officer of Sydney aged 78 died February 19

Emery Wilbur Brooks, Muncie, Ind. Barnes Medical College St Louis 1901 served during World War I, aged 66 died March 30 in the Veterans Administration Facility Marion of cerebral hemorrhage

S. Clarence Swartz, Philadelphia Hahnemann Medical College and Hospital of Philadelphia 1909 on the auxiliary staff of the Sacred Heart Hospital, Allentown Pa., aged 57, died March 9, of heart disease

Axel Thorsten Larson, Chicago Northwestern University Medical School Chicago 1925 member of the Illinois State Medical Society aged 58 died March 14, in Tucson Ariz., of rheumatic heart disease

George Leonard Haefele, Cleveland Western Reserve University Medical Department, Cleveland 1885, served during World War I, aged 78, died, February 13, of cerebral hemorrhage and arteriosclerosis

George Herman Tuttle, South Acton Mass. Harvard Medical School, Boston, 1891, member of the Massachusetts Medical Society, aged 76, died, April 2, in the Massachusetts General Hospital, Boston

Ernest A. Dieckmann, Keosauqua, Ill., Missouri Medical College St Louis 1897 aged 73, died, March 10, in the Alton (Ill.) State Hospital of cerebral arteriosclerosis and fracture of the neck of the femur

John Morris Markley, Schwenkville, Pa., University of Pennsylvania Department of Medicine, Philadelphia 1898, member of the Medical Society of the State of Pennsylvania, aged 71, died, March 15

James Leon Harrington, Amherst, Mass., Jefferson Medical College of Philadelphia, 1903, member of the New England Dermatological Society, aged 63, was found dead March 3, in a hotel at Boston

Robert Weber, Yorktown, Ill. College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907, aged 64, hanged himself in February while in Los Angeles

Jefferson Davis Bradfield, Washington, D. C., Georgetown University School of Medicine, Washington 1891 formerly diagnostician in the District health department, aged 74, died, March 7

Harry Miller Anderson, Allentown, N. J., University of Pennsylvania Department of Medicine, Philadelphia, 1898, served during World War I, aged 65, died, March 3, of myocarditis

William Janowski Bernis, Buffalo, Harvard Medical School, Boston, 1907 member of the Association for Research in Nervous and Mental Diseases, aged 66, died, March 3 of myocarditis

John William Thomason @ Huntsville, Texas University of Virginia Department of Medicine Charlottesville 1885, fellow of the American College of Surgeons, aged 77, died, March 4

Mark Allen Gier, Elgin Ill., Jenner Medical College Chicago 1909, served during World War I, formerly on the staff of St Elizabeth Hospital, Chicago, aged 65, died, March 2

Julius Bernard Nelson, Long Beach Calif., St Louis University School of Medicine 1904, veteran of the Spanish-American War and World War I, aged 71, died, February 1

Evan Moody Gavin, Stafford Springs, Miss. University of Alabama School of Medicine 1910, state senator, served during World War I aged 55, died March 18, in Jackson

Thomas Hiller Dreher, St Matthews S. C. College of Physicians and Surgeons Baltimore 1891, aged 80, died, March 1 in the Tri-County Hospital, Orangeburg of uremia

Francis Xavier McNamara, Cleveland, Cleveland Medical College, 1897 University of Wooster Medical Department Cleveland 1904, aged 67 died February 24, of angina pectoris

Edward Whittier, Albion N. Y., University of Buffalo School of Medicine, 1889 aged 76 died March 9 in the Arnold Gregory Memorial Hospital of coronary occlusion

Frank J. Robinson @ Fairfield, Maine Long Island College Hospital Brooklyn 1875, an Affiliate Fellow of the American Medical Association aged 92, died, February 14

William Chahan, Springfield Mass. Johns Hopkins University School of Medicine Baltimore 1935 aged 32, was found dead in bed March 10 in a hotel in Allentown Pa.

John J. Kiefer, Westpoint Neb. St Louis College of Physicians and Surgeons 1897 aged 72 died February 16 in the St Joseph Home and Hospital of heart disease

Curt H. Weis, Lampas Idaho Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultät Bonn Prussia, Germany 1938 aged 33 died recently in San Francisco

William Michael Maloney @ Los Angeles Cornell University Medical College New York 1924 on the staff of the Queen of Angels Hospital aged 61 died February 28

Ernst Steinitz @ New York Schlesische-Friedrich-Wilhelms-Universität Medizinische Fakultät Breslau Prussia Germany, 1904 aged 60 was found dead February 1

**Charles Fremont Turney**, Columbus, Ohio, Starling Medical College, Columbus, 1880, formerly member of the city council and school board, aged 85, died, February 20

**John Henry Meyhaus**, Sioux City, Iowa, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900, aged 69, died, March 6

**Harry Cockerille Blair**, Elkins, W Va, University of Louisville (Ky) Medical Department, 1911, served during World War I, aged 56, died in March

**William Joseph Riordan**, Wallingford, Conn, Baltimore Medical College, 1909, member of the Connecticut State Medical Society, aged 56, died in March

**Joseph Burch Davis**, Huntington Park, Calif, Chicago Homeopathic Medical College, 1894, aged 72, died, February 10, of coronary heart disease

**Henry Roland Niles**, Los Angeles, Detroit College of Medicine, 1894, aged 72, died in February of carcinoma of the ureter and cirrhosis of the liver

**Frank Oscar Burk** Ⓢ Davenport, Iowa, State University of Iowa College of Medicine, Iowa City, 1907, aged 67, died, March 10, in the Mercy Hospital

**Thomas P Bodkin**, San Francisco, Cooper Medical College, San Francisco, 1893, aged 74, died, February 26, of nephrosis and coronary sclerosis

**Oscar Clarence Kessler**, Elkland, Mo, Ensworth Medical College, St Joseph, 1888, aged 82, died in February at a hospital in Springfield of nephritis

**Rex Lewis Ross**, Santa Monica, Calif, Jefferson Medical College of Philadelphia, 1916, served during World War I, aged 56, died, February 9

**Samuel D Houston** Ⓢ Polo, Ill, Chicago Physio-Medical Institute, 1886, aged 84, died, March 10, in the Hinsdale (Ill) Sanitarium and Hospital

**William Henry Peer**, Flushing, N Y, University of the City of New York Medical Department, New York, 1888, aged 74, died, February 22

**James Jorgen Clausen**, Kansas City, Mo, College of Physicians and Surgeons of Chicago, 1891, aged 76, died, March 4, of carcinomatosis

**Ford Nelson Jones**, New Orleans, University of Michigan Homeopathic Medical School, Ann Arbor, 1908, aged 59, died, March 4, of heart disease

**Frank Charles Baecht**, Grafton, Ill, Beaumont Hospital Medical College, St Louis, 1895, served during World War I, aged 77, died in March

**Jerome Harvy Hunter**, Chicago, Meharry Medical College, Nashville, Tenn, 1921, aged 53, died, March 21, of pneumococcal meningitis

**Edward Ellsworth Campbell**, Douglas, Ariz, Chicago Homeopathic Medical College, 1890, aged 80, died, March 24, of chronic myocarditis

**Daniel Gott Hastings** Ⓢ Rochester, N Y, Harvard Medical School, Boston, 1888, aged 80, died, March 21, of arteriosclerosis and nephritis

**Ezra Wainford Longnecker**, Dayton, Ohio, Medical College of Ohio, Cincinnati, 1884, aged 82, died, March 5, of cerebral hemorrhage

**Alexander Anderson Sutherland**, Blubber Bay, B C, Canada, Trinity Medical College, Toronto, Ont, 1891, aged 76, died in January

**Wiley Clayton Nedrow** Ⓢ Friendsville, Md, University of Louisville (Ky) Medical Department, 1907, aged 58, died, March 9, of uremia

**John K Suckow**, Los Angeles, University of Southern California College of Medicine, Los Angeles, 1905, aged 69, died, February 3

**James A Miller**, Garrettsville, Ohio, Homeopathic Hospital College, Cleveland, 1886, aged 82, died, March 8, in Phoenix, Ariz

**Charles Ignatius Anders** Ⓢ Old Fort, Ohio, University of Wooster Medical Department, Cleveland, 1894, aged 72, died, March 8

**Rasselas Wagner**, Los Angeles, Missouri Medical College, St Louis, 1879, aged 86, died, February 18, of acute parotitis (nonepidemic)

**Arthur Lee Chapman**, Courtland, Miss (licensed in Mississippi in 1890), aged 64, died, February 14, of carcinoma of the bladder

**Samuel Michael Clurman**, New York, University and Bellevue Hospital Medical College, New York, 1900, aged 74, died in March

**George Monroe Cobb**, Ector, Texas, University of Tennessee Medical Department, Nashville, Tenn, 1895, aged 73, died in March

**Daniel H Crawford**, Charleston, W Va, Hahnemann Medical College and Hospital, Chicago, 1890, aged 76, died February 28

**William Marion Lauffer**, North Irwin, Pa, Western Pennsylvania Medical College, Pittsburgh, 1891, aged 78, died, February 24

**John P Hornig**, Cedarburg, Wis, Wisconsin College of Physicians and Surgeons, Milwaukee, 1901, aged 76, died, February 28

**Walter Carlton Bidelsbach** Ⓢ Waco, Texas, University of Texas School of Medicine, Galveston, 1918, aged 49, died, February 15

**Irving Edwin Brainard**, Wallingford, Conn, Yale University School of Medicine, New Haven, 1902, aged 64, died, February 13

**Ralph Motheral**, Hanford, Calif, Vanderbilt University School of Medicine, Nashville, Tenn, 1903, aged 64, died, February 13

**Henry Jefferson O'Brien**, Los Angeles, Medical Department of Hamline University, Minneapolis, 1895, aged 72, died, January 28

**Joseph Henry Mowers**, Shippensburg, Pa, University of Maryland School of Medicine, Baltimore, 1878, aged 87, died, February 7

**Edgar E Hodges**, Little Rock, Ark, University of Arkansas School of Medicine, Little Rock, 1906, aged 62, died, February 7

**Frank Eubank Booker**, Halifax, Va, Medical College of Virginia, Richmond, 1898, aged 67, died in March of cerebral hemorrhage

**Frederick Ackerman**, New York, University and Bellevue Hospital Medical College, New York, 1904, aged 62, died, March 18

**Joseph Ray Anderson**, Louisville, Ky, University of Louisville (Ky) Medical Department, 1893, aged 71, died, March 26

**Ignatius Michael Jarzynski**, Cleveland, Western Reserve University School of Medicine, Cleveland, 1914, aged 54, died, March 11

**Frank Barnard Sutliff**, Sacramento Calif, Albany (N Y) Medical College, 1878, aged 89, died, February 11, of coronary occlusion

**John Lorin Aird** Ⓢ Manhattan Beach, Calif, University of Colorado School of Medicine, Denver, 1926, aged 42, died, March 9

**Edward Atkinson** Ⓢ Niantic, Conn, University of Vermont College of Medicine, Burlington, 1893, aged 80, died, March 5

**Peter Beemer Davenport** Ⓢ Colesville, N J, New York University Medical College, New York, 1897, aged 72, died, March 8

**Chester Eugene Blackman**, Bridgeport, Conn, Long Island College Hospital, Brooklyn, 1897, aged 69, died, February 16

**John Robert Irwin**, Cobourg, Ont, Canada, University of Toronto Faculty of Medicine, 1902, aged 63, died January 12

**Joseph Harrison Riley**, Lexington, Ky, Louisville Medical College, 1898, aged 68, died, February 22, of cerebral hemorrhage

**Thomas E Shepard**, Tulsa, Okla (licensed in Oklahoma under the Act of 1908), aged 73, died, March 9, of pneumonia

**Howard Kenneth Shrom** Ⓢ Detroit, Jefferson Medical College of Philadelphia, 1924, aged 41, died in March

**Robert Bonney** Ⓢ Boston, Harvard Medical School, Boston, 1898, aged 83, died, March 22, at the City Hospital

## Bureau of Investigation

### SOME MISCELLANEOUS MEDICAL FRAUDS

#### A Variety of Schemes Debarred from the Mails

Fraud orders issued by the Post Office Department have frequently been the subject of extensive articles by the Bureau of Investigation in these pages of THE JOURNAL. Following are brief abstracts of some fraud orders not dealt with previously.

**Crampton's Products Inc.**—A James W. Crampton of Buffalo used this trade style in selling a mail-order pile cure known as Crampton's Pile Lene Suppositories. This seems to be the person who as James E. Crampton had originally conducted a similar business in connection with F. J. Lipinski, the two men trading as Grant Laboratories, Buffalo, and putting out something they called J. E. C.'s Rectal Remedy. As the result of a complaint that was filed against them by the Federal Trade Commission for representing their nostrum as a competent treatment for piles or hemorrhoids, these persons signed a stipulation with the Commission around July 1, 1937, in which they promised to discontinue the misrepresentations for their product and also to cease using the word "Laboratories" until they should actually be operating one. Whether Lipinski remained in the business is not clear, but the records do show that the name J. E. C.'s Rectal Remedy was changed to Crampton's Pile Lene Suppositories and marketed under the trade style Crampton's Products Inc. of Buffalo. The next government agency to take action was the Post Office Department, which objected to the representations that Pile Lene would quickly cure and give total relief from hemorrhoids regardless of the severity or duration of the disorder on the ground that such claims were fraudulent. Crampton made a general denial of the charges but put in no appearance at the hearing held on Dec. 2, 1940, when he was to have been present to show cause why a fraud order should not be brought against him. At that hearing the government's witnesses were the Post Office inspector who had investigated the case as well as a qualified medical expert and a government chemist. The latter testified that the treatment consisted of suppositories each averaging 1.96 Gm. in weight and containing 0.48 gram of the alkaloids of celandine and mullein in a tallow base. One suppository was to be taken at night and another the next morning until at least two weeks after all signs of hemorrhoids had disappeared. The medical witness testified that although these suppositories might produce a mild analgesic effect due to the depressant action of the ingredients on the nerve endings and mucous membranes with which they came in contact, the correct treatment of hemorrhoids was one based on the causative factors and a proctoscopic examination of the patient. He further stated that mild cases might be treated palliatively by the use of any lubricating substance to produce temporary relief but that to obtain complete relief or cure and prevent recurrence surgical procedures or the injection of sclerosing substances would be necessary. Accordingly the Post Office declared the Crampton scheme to be a swindle and debarred it from the mails by means of a fraud order issued Dec. 21, 1940, against Crampton's Products Inc. and their officers and agents.

**Regina's Herbatorium.**—From New York the concern that did business under this name promoted Lapidar through the mails by representations which the Post Office considered false and fraudulent. Among these were that the nostrum would dissolve and remove gall kidney and bladder stones, relieve and overcome epilepsy, prevent apoplexy, restore full and normal use of limbs to all persons who have suffered apoplectic attacks and prevent or overcome dizziness, cold feet, stiff limbs, faulty circulation, arteriosclerosis, carbuncles, skin diseases, blindness, baldness and swelling of the glands or limbs and do "some other things." It was shown also that the promoters sent inquirers circular matter describing not only Lapidar but several hundred other products which the same concern sold. Accordingly the Post Office ordered Regina's Herbatorium to show cause on Aug. 11, 1941, why it should not be the subject of a fraud order. The concern replied that it had forwarded the memorandum of charges and letter of citation to the Lapidar Company at Chino, Calif., which supplied it with Lapidar and the accompanying literature in the hope that the Lapidar Company would revise the objectionable advertising claims. The Post Office replied that as Regina's Herbatorium solicited remittances under its own name any fraud order issued would cover that name even if the Regina concern did not prepare its literature. Then came a letter to the Post Office from one C. P. Von Herzen of Los Angeles who stated that he was the attorney for Robert Mauer, owner of the Lapidar Company. He attempted to justify the literature and urged that no fraud order be issued with respect to the Lapidar product. No one representing Regina's Herbatorium appeared at the hearing of this case. There it developed that statements on the labels supplemented by chemical analysis and microscopical examination made by the Food and Drug Administration showed that Lapidar consisted of tablets weighing 1.4 grains each and containing licorice oil of anise, tansy herb, cascara bark, mumi, mullein, rhamnus, parietaria, dictamnus, sceselin, la erpitum, pumipinella, ononis, echinops, potentilla aurea, galicobdolon, tanacetum, scolopendrium, herniaria and other roots and barks. The chemist also testified that in seventeen of the tablets he found a trace of alkaloid. The directions were to take 5 to 10 tablets four times a day on an empty stomach. An expert medical witness for the government testified that this mixture had no therapeutic value beyond that of a laxative and would not overcome or cure the conditions for which it was sold. Hence it was held to constitute a swindle on the public and on Nov. 25, 1941, a fraud order was issued against the name Regina's Herbatorium debarring it from further use of the mails.

**The Champlon Institute.**—Under this title a Mrs. M. H. Champlon of Los Angeles was engaged in the mail order sale of a course of what she called simple scientific exercises for various eyesight defects. The Post Office implied that she might be the Mrs. Maud Champlon listed in the Los Angeles city and telephone directories as an astrologist. The treatment that Mrs. Champlon promoted was based on the preposterous theory that eye exercises cure far sightedness, myopia, old age eyes and astigmatism, restore normal vision and 'perfect sight' to persons afflicted with the eye defects mentioned and others without the necessity for wearing glasses. In fact some of the advertising stated: "The Champlon system is based upon the principles set forth by the Famous Dr. W. H. Bates in his book for doctors, 'The Cure of Imperfect Sight by Treatment without Glasses.' (Readers of THE JOURNAL are of course familiar with the Bates buncombe which was dealt with at some length in the issue of Oct. 13, 1923, page 1301.) For a mere \$3—which Mrs. Champlon pointed out was far less than the cost of properly fitted glasses—one could obtain the lessons and exercise chart with the assurance that you will always be able to look back to this as a red letter day in your life this day when you took the first step toward regaining normal vision. The scientific testimony presented by a government witness at the hearing of this case showed that exercises of the type prescribed by Mrs. Champlon are not new but that on the contrary their effects, limitations and possible benefits are well defined, that some exercises have a proper place when after careful examination and diagnosis of the patient's eyes there is found an imbalance of the extraocular muscles which may be benefited by certain selective exercises. The witness further testified, however, that the Champlon lessons evidently are based on the false theory that all defects of vision are due to imbalance or impairment of the extraocular muscles. It was shown that attempts by persons having hyperopia, myopia, presbyopia, astigmatism or combinations of these disorders to discard their glasses and employ the Champlon treatment might bring about unnecessary eyestrain, headaches, inflammation or other undesirable symptoms. As a result the Post Office declared that the misrepresentations made for the Champlon Eye Athletics System for Developing Perfect Eye Sight constituted a fraud and on April 4, 1941, the Champlon Institute and its officers and agents were debarred from further use of the mails.

**The Great Christopher Corporation and the Alright Specialty Company Ltd.**—According to the Post Office Department one Emil H. Funk started the first named concern in Buffalo and later added his wife and his son-in-law, Leo G. Dale, to his staff. Among the nostrums they put out were King's Ointment, Christo Hair Dressing (or Scalpolene) and Alright Shampoo-Shaving Cream (or Reliable Shampoo-Shaving Cream). Because of unwarranted claims made for these products Funk was cited by the Post Office in January, 1938, to show cause why a fraud order should not be issued against his business. Funk and Dale for their own protection then executed and filed with the Post Office an affidavit in which they agreed to discontinue the use of the mails in the sale of their preparations. It was learned, however, that Funk and Dale continued to answer inquiries regarding their hair growing treatment from Buffalo but directed inquirers in this country to send their orders to Stevensville, Ontario, Canada, where they were filled by a person whom they employed for that purpose and who appears to have operated as the Alright Specialty Company. Since these facts were evidence that Funk and Dale had not abided by the terms of their affidavit filed in March, 1938, but had continued the sale of the products through the mails, the Post Office on Sept. 17, 1941, ordered Funk to show cause on October 15, why a fraud order should not be issued against him and the two firm names that he used. After a postponement to October 27, Funk's attorney notified the Post Office that his client would not put up a defense but would consent to the issuance of a fraud order against him. At the hearing on October 27, the government produced an expert medical witness and also a chemist who had analyzed some of Funk's products. The latter reported the following composition:—King's Ointment, zinc oxide, 18.66 per cent; sulfur, 9.6 per cent; phenol, 2.45 per cent; volatile oils, 0.82 per cent; and traces of boric acid and camphor in an ointment base. Christo Hair Dressing, essentially sulfur, 5.5 per cent; salicylic acid, 0.68 per cent; resorcin, 0.60 per cent; and crude oil in a base of perfumed petrolatum. Alright Shampoo-Shaving Cream, white perfumed cream soap. King's Ointment was represented as a cure for leg sores, eczema and rectal irritation. Christo Hair Dressing and Alright Shampoo-Shaving Cream were claimed to produce a new crop of hair on shiny bald heads when used as directed. There was also mention of three additional nostrums which the government chemist apparently did not analyze: Kimo Tablets (to supply iron to the system), Asthma Remedy and something named more specifically, Indian Remedy for Asthma. In addition Funk sold formulas for preparations supposed to remedy heart disease, portitis, stomach disorders, lost manhood, gonorrhea and catarrh. The government's expert medical witness in this case pointed out the dangers involved in attempting to treat oneself for a good many of these conditions and also the worthlessness of patent medicines in such treatment. On Dec. 8, 1941, the Post Office issued a fraud order against the Great Christopher Corporation of Buffalo and its officers and agents, including E. H. Funk, President, and E. H. Funk, Manager, and the Alright Specialty Company Ltd. and its officers and agents of Stevensville, Ontario, Canada. In this connection it is interesting to note that Funk, at least for a time, did business under still another name, The Reliable Specialty Corporation, Buffalo, and that on Aug. 13, 1938, the Federal Trade Commission, after several hearings, ordered this concern to cease and desist from misleading and exaggerated representations in connection with the sale of certain patent medicines. The ones named in the order were Dr. King's Ointment, Scalpolene, Reliable Herb Tablet, Beat Sall Iron Compound Tonic Tablets, Reliable Anti-Stout Tablet, Reliable Cold Tablet, Rosola Anti-cup Powder, Reliable Herb Tea, Egyptian Asthma Remedy, Reliable Rheumatic Remedy and Great Christopher Corn and Callus Remedy.



## Correspondence

### CONTAGIOUSNESS OF ACUTE ANTERIOR POLIOMYELITIS

Contagiousness through direct personal contact in epidemic and nonepidemic periods of acute anterior poliomyelitis is regarded by many departments of public health as a settled fact. The quarantine laws, however, as to the length of isolation applicable to contacts of this disease vary in states, counties and cities. The student of epidemiology is frankly at a loss in interpreting quarantine laws except from a legal point of view, and perhaps all such laws should be remodeled in order to meet modern epidemiologic methods and knowledge. The degree of contagiousness or, better termed, the infectivity rate, as determined by secondary cases, which can be attributed to contact, varies in epidemic and nonepidemic periods of acute anterior poliomyelitis. Moreover, the epidemiologic and clinical evidence appears definite and almost conclusive that the infectivity rate due to contact is far less in acute anterior poliomyelitis than in any other communicable disease. Perhaps the fact that the inciting agent is a filtrable virus possessing no unusual degree of viability, and whose entry into the body is generally considered the nasopharynx, may be the determining factor in the limited contagiousness due to direct personal contact. The health official in times of elevated epidemic indexes is confronted with the closing of schools or delaying of the opening and the closing of swimming pools, theaters, churches and the like to children of susceptible age.

The beneficial effects of any one of these allegedly important quarantine or preventive measures, even when they are put into operation in their entirety, appear to be decidedly controversial. Therefore the conclusion of Casey (Observations of an Epidemic of Poliomyelitis, *Science* 95:359 [April 3] 1942) in describing a recent epidemic of poliomyelitis that "human travel was a major factor in the spread of the disease from neighborhood to neighborhood" deserves attention from health officials. Furthermore, the additional conclusion that "eighty per cent of the poliomyelitis patients had probably visited or been visited by a prior poliomyelitis patient" is one of observation only and not especially corroborative.

In the 1934 outbreak of this disease in San Francisco (Geiger, J. C., Becker, G. H., and Gray, J. P. Acute Anterior Poliomyelitis, *THE JOURNAL*, Aug. 4, 1934, p. 342; Geiger, J. C. Acute Anterior Poliomyelitis. The Possibility of the Spread as a Result of Direct Personal Contact—A Study of 385 Contacts, *California & West Med* 48:245 [April] 1938) 181 close personal contacts of 68 proved cases were carefully studied. The 181 contacts were followed for at least six weeks by epidemiologists and the public health nurse. The disease developed in only 2 of the contacts. Ten of the remaining contacts showed at various periods of the time elevations of temperature, sore throat, muscular pains and malaise, but careful clinical observation and laboratory examination eliminated all as having clinical acute anterior poliomyelitis.

Despite the findings of Casey, the epidemiologist must seek a more definite answer as to the modes of spread of this disease or accept the evidence that the population immunity is not an inconsiderable factor, since acute anterior poliomyelitis affects very few persons in a community in comparison with other communicable diseases. It is unfortunate that departments of public health usually possess meager or no information as to the source or route of infection in cases reported, especially in epidemic periods.

J. C. GEIGER, M.D., San Francisco

### VENOGRAPHIC DIAGNOSIS OF THROMBOPHLEBITIS OF THE LOWER EXTREMITIES

*To the Editor*—In the April 4 issue of *THE JOURNAL* appeared an article entitled "The Venographic Diagnosis of Thrombophlebitis of the Lower Extremities" by Dr. Arnold Starr and his associates. The authors describe a method of visualizing the deep venous system of the lower extremities as an aid in the diagnosis of thrombophlebitis. The technic that they use involves the injection of diodrast into a deep vein behind the external malleolus, which is found after making a small incision. This method is that of G. Bauer, who described it for the first time in the *Acta chirurgica Scandinavica*, published in 1940.

The studies made by Starr and his associates are interesting and significant, but I should like to call attention to a somewhat similar method of visualizing deep venous thrombosis which I published in 1939. This article entitled "Unilateral Enlargement of the Lower Extremities Accompanying Varicose Veins, with Roentgen Studies of 'Deep Venous Block,'" was published by the *American Journal of Roentgenology and Radium Therapy*. It described a simplified method of visualizing the deep venous system by the injection of the same reagent, diodrast. The difference between the two methods is simply in the choice of the vein for the injection.

The method that I described consisted of injection into any superficial vessel, while Starr cuts down on a deep vein for his injection. It is true that with my method the normal deep venous tree is not visualized, but in cases of block the deep vessels show up beautifully with this simple technic. It is also true that when no superficial vein can be found the more involved technic of Bauer and Starr is of value. The point I wish to make, however, is that a prior technic which has been adequately described in the literature should in my opinion be mentioned in an article which merely refines an already existing method of treatment.

H. I. BIEGELEISEN, M.D., New York

### USE OF SULFONAMIDE SOLUTIONS IN THE NOSE

*To the Editor*—I read in *THE JOURNAL*, March 21, a communication from Dr. Walter D. Klestadt and a reply to this communication by Dr. Russell Fletcher concerning the use of sulfonamide solutions in the nose, and in view of the fact that there is some controversial discussion I should like to add something from my experience on the use of a solution of sodium sulfathiazole in the nose.

After publication of Dr. F. M. Turnbull's article last year I began using a 5 per cent solution of sodium sulfathiazole by means of nasal tamponage. These packs were inserted, for the most part, in the middle meatuses following the application of 5 per cent cocaine and were left in place from fifteen to thirty minutes. The frequency of treatment varied with different patients, sometimes daily, sometimes several days apart.

I have used this solution on more than 300 patients, and I have had more than seventy-five applications over a period of six months. These patients were observed closely and at no time have I detected any sloughing of the nasal mucosa. True, there were some patients who did not tolerate the drug as was manifested by reactions resembling an allergic rhinitis following its use. For the most part, patients were impressed with the fact that there was very little reaction following treatment. There was less turgescence of the nasal mucosa hours later than they had experienced from other treatments.

We found that when the solution had been made up a few days it became quite irritating, as evidenced by much turgescence a few minutes after application. This



also corroborated by patients who were given solutions to use in the prescribed atomizers at home. One woman, in particular, had considerable nasal discomfort when she went back to using the spray after having had it for a previous cold about a month before.

I found the solution effective in certain types of sinusitis, namely those cases in which there is considerable thick, purulent secretion with a tendency to stickiness and crusting of the nasal mucosa. I have also used it in the Proetz displacement treatment but did not observe that it had any particular value used in this way over tamponage. Its use in cases of acute rhinitis, namely the so called acute cold, were in general quite disappointing. It seemed to offer no short cut or quick relief for the symptoms of this well known malady.

My main object in writing this letter, however, was to say that if the use of sodium sulfathiazole in the nose has produced sloughing, I have failed to observe it.

FORREST W. MFRICA, M.D., Lakewood, Ohio

### RESUSCITATION IN ASPHYXIA

*To the Editor*—I noted with interest the article entitled "Resuscitation in Advanced Asphyxia" by Drs. George L. Birnbaum and Samuel A. Thompson and Mr. Eugene Ostrow which appeared in *THE JOURNAL* on April 18. I approached this with an open mind and with the hope that I might find new information. However, having read the text carefully, I feel obliged to challenge its subject matter and what would appear to be its implications.

As to the subject matter, I refer the reader to page 1364 line 7, either a specially fitted face mask and pharyngeal airway or a special tracheal catheter with rubber inflation cuff to prevent leakage. This casual reference to the basic approach to the technic advocated is not scientific. Any one at all familiar with the mechanical operation of a suck and blow apparatus is fully aware that it can operate only in an airway of guaranteed patency. Therefore, just what was the preparation of the airway in the experiments referred to and on which findings was the relative value of each technic measured?

Such an approach certainly does not serve to clarify a problem which the authors find confused. If the authors intend to go into subsequent detail, it would seem out of order to present the body of their observations and conclusions without prefacing them with the technical approach, which if placed at the end of the matter is not likely to be read.

Page 1367 line 17. When respiration has been restored and acts out of step with a mechanical resuscitator, it indicates the successful return of spontaneous respiration and it is time to desist from the use of mechanical resuscitation.

Theory and practice agree that to employ a practice known to be dangerous (inhibiting spontaneous rate and rhythm) in this case a matter of life and death and not merely a question of esthetic rhythm is meddlesome to say the least. Furthermore if this spontaneous respiration is inhibited, how can it warn the operator to desist?

Finally is it possible that the authors have missed the point of the need of muscle tone in artificial respiration? This, of course has to do only with the recoil of the chest in the prone pressure technic following compression. It has nothing to do with spontaneous expiration following insufflation. In this instance a person at rest can be as flaccid as a collapsed toy balloon. The chest empties itself because it has been stretched not because it possesses muscle tone. A thawed cadaver two weeks old will demonstrate a perfectly good expiration following insufflation. Suction is not needed to accomplish this.

The implications of this presentation should it be felt, have been tempered by a clear reference differentiating the laboratory

dog from the clinical patient. In ordinary laboratory reports this differentiation is apparent and confusion does not occur. In this presentation, however, there seems to be no hesitation in passing from the laboratory to the clinic and back again, implying the same values in the two. The implication read into this presentation by the average reader may be expected to be somewhat as follows: "Here is an article, a scientific article, from a research laboratory which keeps on repeating that the suck and blow technic, by a named apparatus, is the best technic, and here are figures to prove it. All we have to do is to get ourselves a suck and blow apparatus and our asphyxial problems will be at an end."

If there is confusion in the field of asphyxia, it is due to just this sort of gratuitous overlapping of laboratory and clinic without regard for the theoretical and practical gulf which separates the two. Because of the ease with which an exact knowledge and the correct treatment of the needs of a particular case may be avoided, by placing all responsibility on a mechanical robot, the prevention of asphyxial death is now and threatens to remain on the low level of commercial competition. Resuscitation apparatus should be regarded as a means to an end—the simpler it is, the safer it is. The care of the asphyxiated has not followed the classic formula "Follow the physiologic indications." Until it does, confusion will continue.

PALUEL J. FLAGG, M.D., New York

### TOXIC EFFECTS OF FUADIN AND ANTIMONY AND POTASSIUM TARTRATE

*To the Editor*—In the *South African Medical Journal* Nov. 8, 1941, page 440, E. Ross Marshall of New York is reported to have said, in comparing antimony and potassium tartrate with fuadin (*J Nat Med* 33:105 [May] 1941) that fuadin is the better drug since it is less toxic. As it is much less toxic, almost no untoward symptoms are noted from its use. Similar statements have been made in regard to the use of antimony in the treatment of leprosy.

No thoughtful reader can think that a 6 per cent solution is as 'toxic' as a powder containing from 36 to 39 per cent of the same drug, and an equivalent amount of the two solutions reveals that the solution of antimony and potassium tartrate is free of the undesirable effects of the pyrocatechol compounds.

Estimates of cure are difficult in instances in which extensive parasitic diseases may account for a raised eosinophil count and in infections with *Schistosomum mansoni* whose escaping ova are few especially in cases of old infection or when most of the worms are males but evidence is still needed to show that less than 0.5 Gm of antimony will effect a permanent eradication of all the schistosomes from an infected person and there is a widespread danger of resting content with the disappearance of symptoms which may easily be procured by any antimony compounds.

F. GORDON CRAWSTON, M.D. (CANTAB),  
Durban Natal South Africa

### SIR D'ARCY POWER

*To the Editor*—With the approval of his son Air Commodore Power I am collecting material for a life of the late Sir D'Arcy Power. I shall be grateful if any of your readers who possess letters from Sir D'Arcy or other relevant material will be kind enough to send me copies. Originals lent would be copied and immediately returned.

W. R. LEFANEL,  
Lincoln's Inn Fields,  
London W.C.2

Librarian Royal College of Surgeons

## Medical Examinations and Licensure

### COMING EXAMINATIONS AND MEETINGS

#### BOARDS OF MEDICAL EXAMINERS

##### BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in *THE JOURNAL*, May 9, page 221

##### NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS *Parts I and II* Various centers, June 22-24 *Part III* Various centers, June or July Exec Sec, Mr Everett S Elwood, 225 S 15th St, Philadelphia

##### EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY *Oral Part II* Atlantic City, June 6-7 Sec, Dr Paul M Wood, 745 Fifth Ave, New York

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY *Oral Groups A and B* Cleveland, Jan 14-15, 1943 Final date for filing application is Dec 7 *Written* Various centers, Nov 16 Final date for filing application is Oct 5 Sec, Dr C Guy Lane, 416 Marlboro St, Boston

AMERICAN BOARD OF INTERNAL MEDICINE *Written* Oct 19 Final date for filing application is Sept 1 Sec, Dr William S Middleton, 1301 University Ave, Madison, Wis

AMERICAN BOARD OF NEUROLOGICAL SURGERY *Oral* New York, May 12-13 Sec, Dr R Glen Spurling, 404 Brown Bldg Louisville, Ky

AMERICAN BOARD OF OPHTHALMOLOGY *Oral* Baltimore June 6 and Philadelphia, June 8 Sec, Dr John Green, 6830 Waterman Ave, St Louis

AMERICAN BOARD OF ORTHOPAEDIC SURGERY *Oral and Written* Chicago Jan 9-10 Final date for filing application is Nov 1 Sec, Dr Guy A Caldwell, 3503 Prytanis St, New Orleans

AMERICAN BOARD OF PATHOLOGY *Oral and Written* Richmond Va, Nov 9-10 Final date for filing application is Sept 1 Sec, F W Hartman, Henry Ford Hospital, Detroit

AMERICAN BOARD OF PEDIATRICS *Written* Locally, Sept 18 *Oral* Chicago Nov 2-3 Final date for filing application is July 1 Sec, Dr C A Aldrich, 707 Fullerton Ave Chicago

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY New York, December Final date for filing application is Oct 1 Sec, Dr Walter Freeman, 1028 Connecticut Ave N W, Washington, D C

AMERICAN BOARD OF UROLOGY If a sufficient number of applications are received an examination will be held in the east at the same time or shortly after one of the national meetings Sec, Dr Gilbert J Thomas 1409 Willow St, Minneapolis

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Right of Sanipractor or Optometrist to Render the Care to Be Provided Indigent Senior Citizens at State Expense**—An initiative measure (No 141) adopted by the electorate of Washington in November 1940 provides senior citizen grants, that is, stated monthly cash payments to indigent senior citizens of the state Section 15 of the measure provides

In addition to Senior Citizen Grants, the department (Social Security) shall provide for those eligible medical, dental, surgical, optical, hospital and nursing care by a doctor of recipient's own choosing,

One Martin, an eligible senior citizen, requested authorization from the local agency charged with the administration of the law for treatment by a certain licensed sanipractor, a practitioner of a method of drugless healing legalized within restricted limits by state law His application was denied and, in accordance with the provisions of the law, he appealed to the department of social security, state of Washington, which likewise refused his application The superior court, Thurston County, however, reversed the order of the department and, in effect, ordered the department to authorize the treatment of Martin by the sanipractor, and the department appealed to the Supreme Court of Washington

The question here for decision, said the Supreme Court, is the meaning to be given the word "doctor" as used in the section of the law quoted The department contends that, by the use of that term, it was the intention to allow the recipient to have only such treatment as could be administered by a regularly licensed medical practitioner On the other hand, Martin contends that it was the intention to give the recipient the right to choose any one authorized to give treatment, such as drugless healing, within the scope of the license which had been issued

to such practitioner If, continued the court, the contention of the department should be sustained, then the words in the statute "hospital and nursing care" would have so meaning This is made obvious by assuming that the act had used only those words and that it had read as follows "Additional Care In addition to Senior Citizen Grants, the department shall provide for those eligible hospital and nursing care by a doctor of recipient's own choosing" A statute should not be given an interpretation which would make it an absurdity when it is susceptible of a reasonable interpretation which would carry out the manifest intent of the legislature Further, a statute should be so construed that, if it can be prevented, no clause, sentence or word shall be superfluous, void or insignificant The drafters of the law here in question and the people who voted for the measure undoubtedly intended that every word used in section 15 should have some meaning It was intended, by the use of the word "doctor," to include any person who was authorized to practice any of the healing arts specified, so long as such practitioner did not exceed the scope of his license or certificate

The Supreme Court, accordingly, in effect, ordered the department to authorize treatment by the sanipractor at the expense of the state

In a similar decision handed down the same day in *O'Neil v Department of Social Security*, the Supreme Court also ordered the department, for the reasons stated in the Martin decision, to authorize optical care to be rendered another senior citizen by a licensed optometrist—*Martin v Department of Social Security*, 121 P (2d) 394, *O'Neil v Department of Social Security*, 121 P (2d) 396 (Wash, 1942)

**Malpractice Failure to Instill Silver Nitrate Prophylactic into Eyes of Newborn Baby**—The plaintiff, an infant 1 year of age, by his next friend, instituted a malpractice action against the physician defendant for loss of his eyesight due to "gonococci infection," allegedly caused by the failure of the physician, who attended at his birth, to instill a silver nitrate prophylactic in his eyes At the conclusion of the evidence a motion by the physician for a peremptory instruction in his favor was overruled and the jury returned a verdict in favor of the plaintiff From a judgment on the verdict, the physician appealed to the Court of Appeals of Kentucky

The motion of the physician for a peremptory instruction in his favor was based essentially on two contentions, namely (1) that negligence on his part had not been established and (2) that the evidence did not show that the negligence, if any, was the proximate cause of the injuries suffered by the plaintiff The court believed, however, that the evidence conclusively established negligence on the part of the physician The physician admitted that he did not place silver nitrate or any other prophylactic in the eyes of the plaintiff either at birth or any time thereafter It appeared that the plaintiff was born about 5 o'clock in the morning and that when the physician attended the birth he had an old bottle of nitrate of silver which had crystallized, and the physician was "afraid to use it" He discussed the matter with the mother and told her that because of the hour the drug store was not open and it had never been infected with gonorrhea it was not imperative to use silver nitrate but that if she had ever had the disease he would write a prescription, which could be filled at the drug store when it opened and be used in the eyes of the child He returned later in the day to visit the mother but did not bring any silver nitrate with him Physicians called by the plaintiff testified that it is the recognized practice of the medical profession in communities and neighborhoods similar to that involved in this case to drop silver nitrate in the eyes of a child immediately after delivery A physician, said the court, liable for an injury to his patient resulting from want of required care and skill or from omission to use reasonable care and diligence in his treatment of the patient The standard of knowledge, skill and required care which physicians must possess and exercise is such reasonable and ordinary knowledge, skill and diligence as physicians in similar neighborhoods and surroundings ordinarily use under like circumstances The evidence that the physician failed to place a prophylactic in the eyes of the newborn child is sufficient conclusion to establish negligence on his part in the light of the law

dicted medical testimony that in all localities physicians ordinarily use silver nitrate or some other prophylactic in the eyes of a child at birth and that reasonable care and diligence require such to be done.

As to the second contention involved in the physician's motion for a peremptory instruction in his favor, namely that the evidence did not show that the negligence of the physician, if any, was the proximate cause of the injuries, the court likewise thought that the evidence as to causation was sufficient to submit that issue to the jury. It appeared that the father of the plaintiff had become infected with gonorrhea some two years before the birth of the plaintiff, and while a microscopic examination made of a smear taken from the mother about ten days after the child's birth was reported to have been negative, the evidence was such as to indicate that the child had become infected from the mother at birth. There was evidence that forty-eight hours after birth the plaintiff's eyes became irritated, that twenty-four hours later they became very red and that on the fourth day after birth pus appeared in both eyes. Ten days after birth the child was pronounced totally blind from gonococcal infection. The physician made some attempt by the evidence he introduced to imply that the gonococcal infection in the child may have been due to handling after birth by the father or by a maid, who at the time seemed to have been infected with a chronic case of gonorrhea. The evidence seemed to indicate, however, that neither the father nor the maid touched the child until after the infection had set in. Further evidence, said the court, as to the existence of the infection at the time of birth is the fact that both eyes of the infant were infected. That condition in reason would be more apt to exist if the infection were obtained from the mother at birth than if it were contracted after birth from an outside agency. If the infection had appeared in but one eye, such fact would have inclined the mind to the opinion that the infection had come from an outside source. The fact that there is evidence that the infection could have come from the maid or from the father after the child was born merely raises an issue of fact for the determination of the jury, whose decision, once made, becomes final and binding on the appellate court. The court accordingly concluded that the trial court properly submitted the case to the jury.

However in view of a remark made by the counsel for the plaintiff, which indicated that counsel for the defendant represented an insurance company, the Court of Appeals found it necessary to reverse the judgment and remand the case for a new trial.—*Walden v. Jones*, 158 S. W. (2d) 609 (Ky., 1942).

**Malpractice Alleged Failure Timely to Aspirate Infected Hip Joint**—The plaintiff, on Feb. 18, 1936 entered a small hospital operated by the physician defendant for treatment of pneumonia and was discharged as convalescent on March 7. Shortly after discharge he complained to the physician of aching joints and medication was prescribed. Thereafter the patient's 'trouble localized or settled in his left hip.' On April 23, after a thorough physical examination, the physician made a tentative diagnosis of 'acute infection, arthritis of left hip precipitated by trauma.' Roentgenograms of the hip made at that time showed 'normal bone texture, no evidence of periosteal thickening and no sign of cartilage destruction.' Two days later, on the physician's suggestion the patient again entered the hospital. He was put to bed and a Buck's extension was applied to the leg. Treatment that was given the patient between that date and May 29 consisted of the extension of the limb for about two weeks, constant heat, Oxorte B tablets, and other medication to induce sleep or relieve pain. Other roentgenograms were taken. During this time the patient complained constantly of severe pain. On May 29 the physician explored the hip joint with an aspirating needle and withdrew pus, which contained pneumococcus germs. That afternoon the physician made a posterior incision and established drainage. Thereafter the patient remained at the hospital under treatment until August 14, during which period drainage was maintained, the wound was dressed ultraviolet and infra-red rays were applied, the limb was again extended for a period, some irrigation was attempted and medicine was given to relieve pain. On August 14 the

patient was taken to a large clinic where by examination and roentgenograms it was discovered that the cartilage of the left hip had been destroyed. While in that clinic the sinus of infection was curetted, drainage maintained and a spica cast applied. The patient was discharged August 27 and thereafter visited the clinic in January, March and October 1937, during which visits different casts were applied. The drainage had not ceased until sometime before the last trip in October 1937. By that time the hip joint had fused and there was practically no motion in it, and as an end result the patient had a stiff hip and an impaired knee. Eventually the patient brought suit against the physician defendant for malpractice, asserting in substance that the physician defendant was negligent in that although he had determined that the patient was suffering from an infectious arthritis on April 23, 1936 he failed to aspirate the hip and establish drainage until May 29, 1936. At the close of the patient's evidence, the trial court directed a verdict in favor of the physician and the patient appealed to the Supreme Court of South Dakota.

Because, said the Supreme Court, the central issues of this case, namely negligence and its causal connection with the injury suffered by the patient turn on scientific questions that laymen are not qualified by learning or experience to answer, the patient was required to establish those elements by the testimony of expert witnesses. To establish these elements the patient called two physicians. One of these experts testified that a physician would want to be certain that there was pus before he aspirated or opened a hip joint. The other physician was careful to predicate his testimony on the assumption that the attending physician knew that he was dealing with a septic hip. In view of these facts said the court there is room for grave doubt as to the sufficiency of the evidence produced by the patient to warrant an inference of negligence on the part of the physician. However, it is unnecessary for us to determine that issue and we assume, but do not decide, that there is sufficient evidence in the record to support an inference of negligence in failing to establish drainage from the hip at an earlier stage of the treatment. Even so continued the court, the evidence must be sufficient to establish a causal connection between the assumed negligence of the physician and the lamentable resulting condition of the patient's hip. The standard of treatment established by the testimony of the physicians called to testify by the patient included drainage of the infected area as soon as the physician was certain of its septic condition. However, one of the experts addressing himself to the nature of the patient's malady, testified that 'there is little hope of preserving joint motion even with early drainage, and such an infection is very difficult to treat and very slow in healing.' Further, both of the physicians called by the patient treated the patient during the final period of his illness and gave direct testimony as to his condition. Speaking from personal knowledge of his case, they asserted that they discovered nothing in his condition which indicated neglect on the part of the defendant physician. In other words, both of these physicians viewed the patient's unfortunate condition as an expected result of the infection. The most that can be gathered from the evidence as bearing on the issue of causation is that early drainage and exact classification of the attacking organism improves the prognosis. Thus the record discloses that testimony of the physician witnesses called by the patient attributed the patient's ultimate condition to either of two possible causes, and only if the injury to the patient resulted from one of those causes—namely negligence on the part of the physician—would the physician be legally liable. As was said by the Supreme Court of Minnesota in *Jates v. Gamble* 198 Minn. 7, 268 N. W. 670.

In negligence cases and especially in malpractice cases proof of causal connection must be something more than consistent with the plaintiff's theory or how the claimed injury was caused. The burden is on plaintiff to show that it is more probable that the harm resulted from some negligence for which defendant was responsible than in consequence of something for which he was not responsible. An inference, continued the court that it is more probable that the patient's impairment resulted from the defendant's assumed negligence than from

the normal ravages of the infection is without substantial support in the expert testimony and is therefore without substantial support in the evidence. Such an inference would rest on speculation and conjecture and a verdict based thereon could not stand.

The Supreme Court accordingly concluded that the trial court had not erred in directing a verdict in favor of the physician—*Lohn v Watson*, 2 N IV (2d) 6 (S D, 1942)

**Malpractice Unjustifiable Detention of Patient in Hospital After Operation**—The plaintiff, in this action against the defendant physician, alleged that she entered the Claxton Hospital, a private hospital operated by the defendant for the purpose of undergoing an operation for the removal of a tumor by the defendant, that the operation was successful and that the plaintiff was advised that she would be able to leave the hospital in about twelve days. On the eleventh day, it was further alleged, the defendant forcibly administered an injection into her arm which "doped and dumfounded her faculties" and rendered her unable to move, and similar injections were made thereafter at intervals, necessitating a stay in the hospital for over four months. This was done by the defendant, it was alleged, in conspiracy with relatives of the plaintiff, one of whom was a physician, who desired to obtain control of the plaintiff's property. As a result, the plaintiff alleged that she was damaged to the extent of more than \$3,500. The defendant's demurrers to the petition were sustained by the trial court and the action was dismissed. The plaintiff then appealed to the court of appeals of Georgia, division No 2.

The defendant contended that the plaintiff's petition embodying the aforementioned allegations failed to state a cause of action. The court held that the defendant had a twofold duty toward the plaintiff, first as a physician employed to perform an operation and second as the operator of a private hospital in which the plaintiff became his patient. In his capacity as a physician, the defendant was required to exercise such reasonable degree of care and skill as was needed to accomplish the plaintiff's recovery. Instead of ministering to her in such a way as to facilitate her recovery of good health, it was alleged that she was forced by the defendant, through consultation and conspiracy with others, to submit to injections "of dope or other powerful drug," and that this rendered her incapable for several months of resisting the unlawful practices named. "Where a surgeon enters into an agreement with a person merely to perform a certain operation, and the surgeon, in violation of the contract, goes farther, without an emergency, and performs another operation which is unauthorized by the agreement, or by an emergency necessitating the additional operation, and injury results to the patient, the surgeon cannot relieve himself from liability by showing skill and care in the other operation." *Perry v Hodgson*, 168 Ga 678, 148 S E 659. The court of appeals admitted that it was sometimes necessary for a physician to administer a drug to a patient. The plaintiff alleged, however, that the injection was only for the purpose of frustrating her recovery rather than aiding it. Thus, even though the operation and the subsequent injection were each successfully and skillfully performed, the court of appeals concluded that if the allegations were true the defendant did not measure up to the degree of care and skill required of him on behalf of his patient. In his capacity as owner of the private hospital in which the plaintiff was a patient continued the court, the defendant was required to exercise such reasonable care in looking after and protecting the patient as the patient's condition required. If the defendant conspired with other persons to delay the plaintiff's departure from the hospital and administered drugs to the plaintiff in furtherance of that conspiracy, he failed to use such care as was necessary properly to supervise the plaintiff and adequately protect her interests. The court therefore concluded that the allegations of the plaintiff's complaint clearly charged the defendant with malpractice and that the trial court erred in sustaining the demurrers and in dismissing the action—*Lord v Claxton*, 8 S E (2d) 657 (Ga, 1940).

## Society Proceedings

### COMING MEETINGS

- American Medical Association, Atlantic City, N J, June 8-12 Dr Olin West, 535 North Dearborn Street, Chicago, Secretary
- American Association for the Study of Allergy, Atlantic City, N J, June 8-9 Dr J Harvey Black, 1405 Medical Arts Bldg, Dallas Texas Secretary
- American Association for the Study of Gonorrhea, Atlanta, Ga, June 13 Dr Thomas C Davison, 478 Peachtree St NE, Atlanta, Ga Secretary
- American Association for the Surgery of Trauma, Boston, June 4-6 Dr Gordon M Morrison, 520 Commonwealth Ave, Boston Secretary
- American Association of Genito Urinary Surgeons, Hershey, Pa May 29-29 Dr Charles C Higgins, 2020 East 93d St, Cleveland, Secretary
- American Association of Oral and Plastic Surgeons, New York, May 28-30 Dr Frederick A Figi, 102 Second Avenue SW, Rochester, Minn, Secretary
- American Broncho Esophagological Association, Atlantic City, N J, June 8-9 Dr Paul H Holinger, 700 North Michigan Blvd, Chicago, Secretary
- American College of Chest Physicians, Atlantic City N J, June 6-8 Dr Paul H Holinger, 500 North Dearborn St, Chicago, Secretary
- American Dermatological Association, Hot Springs, Va, May 31-June 4 Dr Harry R Foerster, 208 East Wisconsin Ave, Milwaukee, Secretary
- American Diabetes Association, Atlantic City, N J, June 7 Dr Cecil Striker, 630 Vine Street, Cincinnati, Secretary
- American Gastroenterological Association, Atlantic City, N J, June 8-9 Dr J Arnold Barger, 102 Second Ave SW, Rochester, Minn Secretary
- American Gynecological Society, Skutumpah, June 15-17 Dr Howard C Taylor Jr, 842 Park Ave, New York, Secretary
- American Heart Association Atlantic City N J June 5-6 Dr Howard B Sprague, 50 West 50th St, New York Secretary
- American Human Serum Association Atlantic City, N J, June 8 Dr William L Wheeler, 348 West 22d St, New York, Secretary
- American Laryngological Association, Atlantic City, N J May 29-31 Dr Charles J Imperatori, 108 East 38th St New York Secretary
- American Laryngological, Rhinological and Otolological Society Atlantic City N J, June 13 Dr C Stewart Nash, 277 Alexander St, Rochester N Y Secretary
- American Medical Women's Association, Atlantic City, N J, June 6-7 Dr Ada Chree Reid, 102 East 22d St, New York, Secretary
- American Neurological Association, Chicago, June 4-6 Dr Henry A Riley, 117 East 72d St, New York, Secretary
- American Ophthalmological Society, Hot Springs, Va, June 13 Dr Eugene M Blake 303 Whitney Ave, New Haven Conn, Secretary
- American Orthopedic Association, Baltimore June 3-6 Dr Charles W Peabody 474 Fisher Bldg Detroit Secretary
- American Otolological Society, Atlantic City, N J, May 28-29 Dr Isidor Friesner 101 East 73d St, New York Secretary
- American Physiotherapy Association Lake Geneva Wis June 28-July 1 Miss Evelyn Anderson, Stanford University Calif Secretary
- American Proctologic Society, Atlantic City, N J, June 7 Dr William H Daniel 1930 Wilshire Blvd Los Angeles, Secretary
- American Psychiatric Association, Boston, May 18-22 Dr Winifred Overholser, St Elizabeths Hospital, Washington, D C, Secretary
- American Radium Society, Atlantic City, N J June 8-9 Dr Axel A Arneson, 4952 Maryland Ave, St Louis, Secretary
- American Society of Clinical Pathologists, Philadelphia, June 5-7 Dr Alfred S Giordano, 531 North Main St South Bend, Ind, Secretary
- American Therapeutic Society, Atlantic City, N J, June 5-6 Dr Osceola B Hunter, 1835 Lye St NW, Washington D C, Secretary
- American Urological Association, New York, June 14 Dr Clyde I Deming, 789 Howard Ave New Haven Conn Secretary
- Arizona State Medical Association Prescott May 25-30 Dr W Warner Watkins 15 East Monroe St, Phoenix Secretary
- Association for the Study of Internal Secretions Atlantic City N J June 8-9 Dr Henry H Turner, 1200 North Walker St, Oklahoma City Secretary
- Connecticut State Medical Society Middletown, June 3-4 Dr Creighton Barker 258 Church St, New Haven, Secretary
- Illinois State Medical Society, Springfield May 19-21 Dr Harold W Camp 224 South Main St, Monmouth, Secretary
- Maine Medical Association Poland, June 21-23 Dr Frederick R Carter 142 High Street Portland Secretary
- Massachusetts Medical Society, Boston, May 26-27 Dr Michael A Tighe, 8 Fenway, Boston Secretary
- Minnesota State Medical Association, Duluth June 28-July 1 Dr B F Souster, 493 Lowry Medical Arts Bldg, St Paul Secretary
- Montana Medical Association of, Missoula July 8-10 Dr Th Walker, 206 Medical Arts Bldg, Great Falls, Secretary
- National Gastroenterological Association, New York June 3-5 Dr Randolph Manning 1819 Broadway, New York Secretary
- New Mexico Medical Society Santa Fe, June 25-28 Dr I B C 221 W Central Avenue, Albuquerque, Secretary
- New York State Association of Public Health Laboratories Corning May 18 Miss Mary B Kirkbride New Scotland Ave, Albany Secretary
- North Dakota State Medical Association Jamestown May 18-21 Dr L W Larson 221 Fifth St, Bismarck Secretary
- Pacific Northwest Medical Association Portland Ore June 1-4 Dr C W Countryman, 407 Riverside Ave, Spokane Secretary
- Rhode Island Medical Society, Providence, June 3-4 Dr V Buffum 122 Waterman St Providence Secretary
- Society of Surgeons of New Jersey Montclair May 27 Dr V Mount, 21 Plymouth Street, Montclair Secretary
- South Carolina Medical Association, Myrtle Beach May 15-16 Julian P Price, 105 West Cheves St Florence Secretary

## Current Medical Literature

### AMERICAN

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#### American J Orthodontics and Oral Surgery, St Louis

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Osteomyelitis Arising from Periodontium R H Ivy and T J Cook Philadelphia—p 86  
Acute Monocytic Leukemia Case S P Mallett and W C Guralnick Boston—p 95  
\*Sulfathiazole Therapy in Cellulitis of Face and Neck C B Kayne West New York N Y—p 98  
Clinical Use and Toxic Reactions of Sulfonamide Compounds C F Garvin Cleveland—p 102  
Halitosis in Relation to Oral Diagnosis B B Crohn New York—p 109

**Adenocarcinoma of Maxilla**—Thoma reports 5 cases of adenocarcinoma of the maxilla and discusses the invasive character of the tumor and its tendency to recur after operation and to extend into the paranasal sinuses. Osseous and visceral metastasis may occur. Therefore adenocarcinoma should receive prompt and radical treatment by a wide excision including the adjacent bone and followed by irradiation. Local recurrences are common and should be dealt with immediately or the prognosis will be poor.

**Sulfathiazole Therapy in Cellulitis**—Kayne employs the following treatment for early cellulitis. He applies cold compresses externally for fifteen minutes of every hour for the first twenty-four to forty-eight hours. Wet warm compresses externally when definite fluctuation is anticipated and when it is desirable to hasten pointing of the abscess, and irrigation with a hot 12 per cent solution of sodium sulfate. Magnesium sulfate sometimes causes patients to complain of nausea besides sodium sulfate is more hygroscopic. The treatment of cellulitis with definite abscess formation is early incision drainage and irrigation at home with a 50 per cent urea solution. A dressing saturated in urea should be applied and changed every day until the abscess is evacuated. Urea eliminates fetid odor and aids liquefaction. Prompt and energetic treatment with sulfanilamide is imperative for patients who have a persistent temperature of 102 F or more after incision and treatment with sulfathiazole for those who appear toxic and may have a secondary streptococcal or staphylococcal infection. Rest in bed is important. Patients given sulfathiazole should be under constant supervision. If a high temperature continues even though the infection is receding and the general condition is improving treatment with sulfathiazole should be withdrawn. Such reactions as nausea vomiting headache or dizziness are common but not alarming. If vomiting is severe the drug should be given in milk or rectally. The patient with advanced diffuse suppurative cellulitis with systemic complications especially if

bacteremia is present, should have the benefit of intravenous infusion of saline and dextrose solutions, sulfathiazole, blood transfusion and neocarsphenamine. Sulfathiazole and urea have proved beneficial adjuncts in the treatment of cellulitis of the face and neck.

#### Archives of Internal Medicine, Chicago

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- Calcification of Pancreas A B King and J M Waghelstein Baltimore—p 165  
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\*Capsular Polysaccharide in Blood of Patients with Pneumococcal Pneumonia Detection Incidence Prognostic Significance and Relation to Therapy S C Bulantz P F de Gara and J G M Bullock New York—p 191  
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\*Coccidioid Arthritis Report of Case in Which Ankles Were Involved and Condition Was Unaffected by Sulfanilamide and Roentgen Therapy E I Rosenberg M B Dockerty and H W Weverding Rochester Minn—p 238  
\*Edema with Unexplained Hypoproteinemia Syndrome of Defective Formation Serum Proteins in Absence of Loss and Lack of Protein and Demonstrable Hepatic Disease D A Ryland San Francisco—p 251  
Destructive Osseous Lesions in Early Syphilis F W Reynolds and H Wasserman Baltimore—p 26  
Diseases of Nutrition Review of Certain Recent Contributions H R Butt W A Leary and R M Wilder Rochester Minn—p 277  
Diseases of Metabolism Review of Certain Recent Contributions Alice G Hildebrand and E H Rynearson Rochester Minn—p 344  
**Capsular Polysaccharide in Blood of Patients with Pneumonia**—Bulantz and his associates determined the circulating capsular polysaccharide in the blood of 135 patients treated for pneumococcal pneumonia. In earlier studies it was observed that the presence of free polysaccharide, which is more rapidly detectable than bacteremia, makes the prognosis grave. To determine the presence of circulating capsular polysaccharide, 0.5 cc of a patient's serum is placed into each of three 10 by 75 mm pyrex tubes and 0.5 cc of the optimal dilution of homologous type specific rabbit antibody solution is added to the first tube, 0.5 cc of a heterologous rabbit antibody solution to the second tube and 0.5 cc of physiologic solution of sodium chloride to the third tube. Six additional positive and negative control tubes are prepared. All tubes are centrifuged at 2000 revolutions per minute for thirty minutes. When capsular polysaccharide is present in the serum a precipitate appears in the first tube but not in the second and third. The controls yield the expected results. Circulating capsular polysaccharide was present in the blood of 16 of the 135 patients, 11 had type III, 3 type VII and 2 type VIII pneumococcus pneumonia, an incidence of 17.9 per cent for the three types of pneumococcus. There were 16 deaths in the total series 10 among the 16 in whose serum capsular polysaccharide was present. Pneumococci of type III form large capsules and produce large quantities of capsular polysaccharide. The poorer response to serum therapy of infection (7 of the 11 patients died) caused by this pneumococcus as compared with the response of infection due to other types of pneumococci may be due to this characteristic. It is also possible that the carbohydrate of type III pneumococcus is less firmly bound to the organism than is the carbohydrate of other types of pneumococci. The increased fatality rate among the patients with a positive reaction for circulating capsular polysaccharide is not correlated with the number of lobes involved. It has been demonstrated that the growth inhibition and the pneumococidal action of sulapyridine in vitro is not affected by the addition of capsular polysaccharide. Accordingly the mechanism by which capsular polysaccharide increases the fatality rate must be sought in the effect of that substance on the immune mechanisms important to recovery. Capsular polysaccharide has been demonstrated to be specifically antiphagocytic and therefore specifically to inhibit phagocytosis to make avirulent pneumococci virulent and to augment the virulence of virulent organisms. The effectiveness of sulapyridine in pneumococcal infection results from its bacteriostatic action and from the immune substances which develop during the disease. An increase of capsular polysaccharide in the blood of the patient with pneumococcal pneumonia may be accom-



panied by "neutralization" of antibodies. Furthermore, Tunnicliffe suggested that the phagocytosis that sulfapyridine promotes in cultures of plain broth but not in cultures of dextrose broth may be related to an increased concentration of capsular polysaccharide in the cultures of dextrose broth, as compared with the concentration in those of plain broth. Specific antibody should be administered to patients in whom circulating capsular polysaccharide is detected so as to neutralize the anti-immune effects of the latter.

**Coccidioidal Arthritis**—Rosenberg and his co-workers report the third case of coccidioidal infection encountered at the Mayo Clinic. A man aged 25 came to the clinic with pain and swelling of both ankles of a year's duration. He had worked in the San Joaquin Valley for four years previous to the onset of his illness, when he had a dry cough, generalized aches, headache and increase of temperature up to 104 F. After three days of fever a generalized rash appeared on the face, trunk and extremities. A low grade fever persisted. Four months later a number of red, indurated lesions appeared on the dorsum of each hand and on the outer aspect of the left thigh. The lesions persisted for two or three weeks, were slightly painful and healed without leaving scars. A month later the patient returned to work, although he continued to have a low grade fever in the afternoon. Three days after his return to work swelling appeared about the left foot and ankle, with pain on weight bearing, and one week later the right foot and ankle swelled and became painful. In a year pain on weight bearing became intolerable and the patient had to stop working. Laboratory studies at the clinic did not reveal any striking abnormalities. His condition bore a resemblance to tuberculosis, but the history and the bilateral involvement were atypical. The posteromedial aspect of the right ankle was incised, and part of a sac filled with cheesy necrotic material was removed for examination. The wound healed by primary intention. Search with high magnification disclosed large, double contoured, refractile bodies containing minute, rounded, sporelike forms. A diagnosis of coccidioidal granuloma was made. The spore filled "capsules" contained the organism *Coccidioides immitis*. Sulfanilamide and roentgen irradiation over the ankles proved ineffective. At the time of the patient's dismissal from the clinic his condition seemed to be essentially unaltered.

**Edema with Unexplained Hypoproteinemia**—Rytand discusses the occurrence of edema with hypoproteinemia apparently due to defective protein formation in the serum in a young woman with no apparent loss or lack of protein and without a hepatic or renal disorder. Four similar cases have already been reported. The syndrome, an inexplicably defective formation of serum proteins, may be but an exaggerated expression of the varying abilities of different persons to form serum protein, while ordinarily loss of protein or nitrogen is required to unmask such differences, here the defect appears spontaneously. Although some plasma protein is formed in the liver, the bone marrow (or the reticuloendothelial system) may be another site

## Archives of Neurology and Psychiatry, Chicago

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- Eucphritis with Intracellular Inclusion Bodies. Clinicopathologic Study. A J Akelutis and L J Zeldis. Rochester, N Y—p 353
- Variations in Electroencephalogram Associated with Electric Shock Therapy of Patients with Mental Disorders. B L Pacella, S E Barrera and L Kalinowsky, New York—p 367
- Changes in Brain After Electrically Induced Convulsions in Cats. B J Alpers and J Hughes. Philadelphia—p 385
- Experimental Pharmacology of Postencephalitic Parkinson's Disease. J Loman, P G Myerson and A Myerson, Boston—p 399
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- Orthostatic Hypotension. Report of Case. S T Laufer, Halifax N S—p 160
- Sequelae of Intraspinal Anesthesia. G D Stanley, Calgary, Alta—p 164

**Inefficacy of Sulfapyridine in Influenza**—Adamson and Flett observed that the sequence of events in patients with uncomplicated influenza treated and not treated with sulfapyridine is not dissimilar. Of 68 men from the active service forces with influenza, 42 were and 26 were not given sulfapyridine. The epidemic occurred during nine days. All the patients were given full bed care, and treatment was started on the first day in 6, on the second day in 30 and on the third day in 32. The pulse rate and the elevated temperature both had fallen to normal by the sixth day in the two groups of patients. However, since pneumonia due to secondary bacterial invasion is the chief complication in influenza, it is justifiable to prescribe prophylactic doses of sulfapyridine or sulfathiazole for all patients with influenza. 0.5 Gm three or four times a day will inhibit the growth of secondary invaders, and if this dose is given only to four days toxic effects will rarely occur.

**Septicemia**—McLellan and Goldbloom suggest that some of the recent improvement in the mortality rate from staphylococcal septicemia is the result of the more frequent diagnosis of mild cases. Depending on conditions there is likely to be a considerable variation in the percentage of deaths in different institutions. A possible individual prognostic basis, with rare exceptions applicable to the authors' cases, was that a patient who had a history of a recently healed staphylococcal infection or in whom the infection was well localized and the colony count on blood culture was low survived, while a patient with no such history or with a spreading infection and a high colony count died. The patient whose history of localization and colony count were contradictory fell in the intermediate group, either he survived or his death was delayed. The lives of patients who might otherwise have died were possibly saved by the intensive treatment of 1 with antitoxin and of the 6 with antitoxin and sulfathiazole. However, of 33 patients early treated 17 died and 16 survived, and therefore it is that the localization and healing of an infection are the two determining points for the prognosis. The experimental value of antitoxin, antibacterial serum and the sulfonamides is discussed, and it is suggested that these be considered in therapy in human disease.

## Cancer Research, Baltimore

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- Does Estrogen Substitution Materially Inhibit Pituitary Gonadotropic Potency? C G Heller Detroit Emily J Heller and E L Sevringhaus Madison Wis—p 309
- Percutaneous Potency of Esterified and Nonesterified Estradiol E Oppenheimer R R Greene Chicago and M W Burrill Summit N J—p 317
- Occurrence of Urinary Calculi in Inbred Strain (C5H) of Mice Treated with Estrogen J R Schenken E L Burns and W M McCord New Orleans—p 344

**Excretion of Steroids and Cancer**—Pearlman analyzed the pooled urine of men with carcinoma of the intestine and of the bladder and the pooled urine of women with carcinoma of the breast and of the uterus and the urine of men and women without cancer for the 17-ketosteroids. The results show that noncancerous persons of either sex have a higher total 17-ketosteroid output and a definitely higher output of digitonin precipitable hydroxyketones than do cancerous persons. Furthermore, men without cancer excrete roughly twice as much of the 17-ketosteroid compounds as do women without carcinoma. This ratio held for all the fractions studied. On the other hand men and women with cancer tend to excrete approximately the same amount of neutral 17-ketosteroids. This was equally true for all the fractions analyzed.

## Georgia Medical Association Journal, Atlanta

31 39-78 (Feb) 1942

- Types of Sterility in Female That Are Amenable to Treatment E H Greene Atlanta—p 39
- Nephroptosis Pelviographic Study Clinical Features and Surgical Treatment S J Sinkov M F Fowler Atlanta and E P Niecey Knoxville Tenn—p 43
- Suppurative Processes In and Around Kidneys S A Kirkland Atlanta—p 54
- When to Operate for Urinary Calculi R Bell Thomasville—p 58
- \*Epidemic Pleurodynia C B Fulghum Milledgeville—p 63
- Traumatic Conditions of Wrist I G Hodgson Atlanta—p 66

**Epidemic Pleurodynia**—Fulghum states that, between July 15 and Sept 1, 1940, 28 cases of epidemic pleurodynia a rare or unrecognized condition in the South, occurred in Milledgeville and Baldwin County, Ga. The age of the patients varied from 13 months to 64 years. The cause of the disease is unknown. The intravenous injection of blood taken from patients in various stages of the disease to volunteers failed to reproduce the disease. The examination of stained blood films did not reveal any plasmodia. Every patient had pharyngitis. The symptoms suggest involvement of the diaphragm or the intercostal muscles, as the pain roughly follows the diaphrag-

matic attachment to the thoracic wall. The sudden onset, character and location of the pain, the short high fever and the recurrent paroxysms constitute a clinical picture not difficult to recognize. Complete recovery is invariable. Morphine is required to relieve pain. Codeine and acetylsalicylic acid are of little use in controlling pain. Quinine, thought to be specific, was extensively used but did not alter the course of the disease.

## Journal of Clinical Endocrinology, Springfield, Ill

2 65-136 (Feb) 1942

- \*Simmonds' Disease Clinical Study with Review of Literature Differentiation from Anorexia Nervosa by Statistical Analysis of 595 Cases 101 of Which Were Proved Pathologically R F Escamilla and H Lissner San Francisco—p 65
- Quantitative Variations of Pancreatic Islet Tissue in Mixed Series of Cases W Susman Manchester England—p 97
- \*Clinical Studies with Male Hormone V Therapeutic Use of Pellets of Testosterone Propionate J E Howard and H J Jewett Baltimore—p 107
- Modifying Influence of Presence of Testicular Tissue on Efficacy of Testosterone Pellets in Treatment of Eunuchoid Patient R C Grauer and M Alexander Jr Pittsburgh—p 111
- Clinical Results Obtained with Sublingual Administration of Methyl Testosterone Menopausal Therapy C A Joel Basel Switzerland—p 116
- Subjective Symptoms and Therapeutic Response in Control of Estrogen Progesterone Therapy in Menstrual and Reproductive Disorders P F Schneider Evanston Ill—p 120
- Weekly Urinary Pregnanediol Determinations Throughout Last Seven Months of Pregnancy in Two Cases of Primary Sterility P F Schneider Evanston Ill—p 123
- Adrenal Tumor in Female Infant with Hypertrichosis Hypertension Overdevelopment of External Genitalia Obesity but Absence of Breast Enlargement F C Neff G Tice G A Walker and N Ockerblad Kansas City Kan—p 125
- Pituitary Antagonists in Treatment of Bronchial Asthma Estrogenic Therapy in Asthma E E Beard and W P Garver Cleveland—p 128

**Simmonds' Disease**—Escamilla and Lissner collected data on 595 cases suggesting Simmonds' disease through an exhaustive search of the literature, correspondence and their personal experience. In 101 of these the diagnosis was established both clinically and pathologically, and in 158 the clinical picture seemed typical but either the patients are still living or necropsy was not done. Many of the 158 may have been instances of anorexia nervosa. Of the rest of the cases, in 180 one or more of the cardinal clinical signs were lacking, in 43 the diagnosis seemed doubtful, in 15 destructive lesions of the pituitary body but no typical clinical signs were present, in 14 typical clinical signs but a normal pituitary were present and in 84 data were insufficient for classification. For purposes of comparison, 20 typical cases of anorexia nervosa were included. The most difficult problem is in differentiating between true Simmonds' disease and anorexia nervosa. Severe loss of weight and a low basal metabolic rate in a young unmarried woman who has never been pregnant favors the diagnosis of anorexia nervosa. A decided improvement or a return to normal health as a result of psychotherapy or after any treatment available at present (including endocrine therapy) further suggests this diagnosis. A claim of cure in any case of true Simmonds' disease is open to doubt unless a pituitary tumor has been removed successfully. Severe loss of weight, amenorrhea and a low basal metabolic rate in a woman of more than 30 years whose symptoms follow a postpartum hemorrhage and collapse or whose sella turcica is deformed or contains calcification and in whom in the course of the disease axillary and pubic hair is lost warrant a clinical diagnosis of Simmonds' disease. Psychopathic disturbances favor the diagnosis of anorexia nervosa but do not exclude Simmonds' disease.

**Testosterone Propionate Pellets**—Howard and Jewett implanted in the infrascapular region of 15 patients with hypogonadism uniform machine made testosterone propionate pellets. Absorption was rather rapid for the first few days after implantation, amounting to as much as 3 or more mg a day from each 200 mg pellet. After this, presumably with capsule formation absorption steadied down to a surprisingly constant daily rate between 0.5 and 1 mg, and this rate continued for many days, falling gradually until the pellet became very small. The dose must be individualized. Thus for a patient whose requirement for an adequate subjective effect is a minimum of 4 mg a day five pellets would be sufficient for a considerably shorter time than would be required for a patient whose required dose is

3 mg a day. Therefore, in a patient in whom five pellets have become inadequate in four or five months an adequate absorption level can be provided by implanting two more pellets. When a new implant is considered, seven or eight pellets might be more suitable than five. The five 200 mg pellets have been subjectively adequate for all the authors' patients to date for at least and usually more than three months. During the first week considerably more androgen is absorbed than is necessary, but no harmful results have been observed. The patients who have had implantation, injection and oral therapy have, with a single exception, preferred pellet therapy by implantation.

### Journal of Experimental Medicine, New York

75 247-354 (March) 1942

- Studies on Mechanism of Immunity in Tuberculosis. Fate of Tubercle Bacilli Ingested by Mononuclear Phagocytes Derived from Normal and Immunized Animals. M. B. Lurie, with collaboration of P. Zappasodi, Philadelphia—p. 247
- Serologic Reactivity of Hydrolytic Products from Silk. K. Landsteiner, New York—p. 269
- Synthesis of Inositol in Mice. D. W. Woolley, New York—p. 277
- Quantitative Chemical Studies on Complement or Alexin. IV. Addition of Human Complement to Specific Precipitates. M. Heidelberger and M. Mayer, New York—p. 285
- Effect of Undernourishment on Susceptibility of Rabbit to Infection with Vaccinia. D. H. Sprunt, Durham, N. C.—p. 297
- Reaction of Peripheral Blood Vessels to Angiotonin, Renin and Other Pressor Agents. R. G. Abell, Philadelphia, and I. H. Page, Indianapolis—p. 305
- Human Allergy to Mammalian Serums. F. A. Simon, Louisville, Ky.—p. 315
- Studies on Lymphogranuloma Venereum. I. Development of Agents in Yolk Sac of Chicken Embryo. G. Rike and Helen P. Jones, New Brunswick, N. J.—p. 323
- Serologically Reactive Polysaccharides Produced Through Action of Bacterial Enzymes. I. Dextrin of *Leuconostoc Mesenteroides* from Sucrose. E. J. Hehre and J. Y. Sugg, New York—p. 339

### Journal of Investigative Dermatology, Baltimore

5 1-48 (Feb) 1942

- Studies with Antigens. VII. Preparation and Properties of Concanatins of House Dust Allergen. C. H. Boutner and B. G. Efron, New Orleans—p. 7
- Electrophoretic Skin Studies. I. Reaction to Common Grasses. H. H. Shulkrut, New York—p. 11
- Individual Action and Summation Effects of X Radiation and Commonly Used Dermatology Preparations on Skin of Albino Rabbit. F. L. Cormier, Montreal, Canada, and W. W. Bryan, London, Ont., Canada—p. 15
- Further Studies in Arsphenamine Hypersensitivity in Guinea Pigs. III. Investigations on Chemical Specificity of Skin Hypersensitivity of Guinea Pigs to Old Arsphenamine. W. Frei, New York—p. 29
- Experimental Blastomycosis in Mice. J. M. Hitch, Raleigh, N. C., with technical assistance of Jane S. Sharp—p. 41

### Journal of Lab and Clinical Medicine, St. Louis

27 569-704 (Feb) 1942 Partial Index

- Production of Pyrogen by Some Bacteria. Co. Tai and M. H. Schrift, New York—p. 569
- Intestinal Vascular Sclerosis. J. Feisen, New York—p. 576
- \*Multiple Primary Malignant Lesions. J. L. Tullis, New York—p. 588
- Intravenous Use of Sucrose Ringer's Solution to Produce Maximal Diuresis. H. F. Helmholtz and J. L. Bollman, Rochester, Minn.—p. 606
- Variations of Serum Magnesium in 52 Normal and 440 Pathologic Patients. V. G. Hauray and A. Cantarow, Philadelphia—p. 616
- Absorption of Stilbestrol and Theelin from Cysts of Sesame and Peanut Oils. F. E. Emery, C. S. Matthews and E. L. Schwabe, Buffalo—p. 622
- Histaminase. Further Laboratory Studies. M. Vaisberg, Baldwin, N. Y.—p. 628
- \*Id. Results of Treatment by Intramuscular Injection. M. Vaisberg, Baldwin, N. Y.—p. 635
- Regional and Seasonal Variations in Serum Cholinesterase of Human Beings and Dogs. R. W. Lackey and D. Slaughter, Dallas, Texas—p. 640
- Values for Acetylcholine Esterase in Blood Serum of Normal Persons and Patients with Various Diseases. H. R. Butt, M. W. Comfort, T. J. Dry and A. E. Osterberg, Rochester, Minn.—p. 649

**Multiple Primary Malignant Lesions.**—Tullis reports 21 instances of multiple primary malignant lesions encountered at necropsy in 1,044 consecutive cases in which a malignant lesion was present. Each lesion possessed generally recognized malignant characteristics, the microscopic pattern of each was a distinct entity, metastasis having been ruled out as far as possible. Three of the forty-four lesions noted were sarcomas and forty-one were carcinomas. Twenty lesions involved the gastrointestinal system, two the skin, five the liver, four the prostate,

three the pancreas, three the lung, two the uterus and two the kidney. Metastasis from at least one of the lesions was present in 14 cases and metastasis from both lesions in 3. No metastasis could be found in 7. Seventeen of the patients were men and 4 were women, with an average age of 58.4 years. The average age is slightly above that for patients with single malignant lesions, thus lends credence to the opinion that the malignant tumor that appears late in life is less rapidly lethal than the one that appears early and that, being less rapidly lethal, such a tumor does not cause death before a second lesion develops.

**Histaminase by Intramuscular Injection.**—Vaisberg gave intramuscular injections of histaminase to 19 allergic patients. The usual maximal dose was 10 cc of histaminase solution prepared from fresh hog kidneys. At first the injections were given twice a week and later, if improvement ensued, once a week. All the patients were first tested to eliminate sensitivity to pork. As a tentative conclusion the author points out that the histaminase therapy may prove of value for resistant serum sickness, idiopathic pruritus and heat and cold allergy. It may be of limited value for neurodermatitis. Its effect on simple asthma was unpredictable, and it had no effect on vasomotor rhinitis, dermatographia, migraine and chronic urticaria. It was not tried in hay fever. Various lines of evidence lead to the impression that something other than the enzyme in histaminase is responsible for the improvement. Much more clinical work must be done with a potent, highly purified histaminase before any therapeutic claims for histaminase alone can be established.

### Journal of Nervous and Mental Disease, New York

95 133-264 (Feb) 1942

- Psychoneurosis in Hospital for Mental Disease. Statistical Study of 100 Men and 100 Women. C. B. Farr and Genevieve M. Stewart, Philadelphia—p. 133
- Comparative Treatment of "Reversible" Psychoses. Preliminary Report. B. Skorodin, Peoria, Ill.—p. 146
- \*Sleep Paralysis. B. W. Lichtenstein and A. H. Rosenblum, Chicago—p. 153
- \*Vitamin B and E Therapy in Tabes Dorsalis. Preliminary Report on Use of Wheat Germ Oil, Vitamin B Complex and Intraspinal Administration of Thiamine Chloride. S. Stone, Manchester, N. H.—p. 163
- Intracranial Hematoma with Ipsilateral Hemiplegia and Ipsilateral Third Nerve Palsy. Case. I. C. Sherman and S. Krumholz, Chicago—p. 176
- \*Sensory Disturbances Following Insulin Treatment of Psychoses. K. Stern, T. E. Dancey and F. L. McNoughton, Montreal, Canada—p. 183
- Analysis of Disappointing Results with Metrazol in Treatment of Certain Depressions. C. W. Osgood, Wauwatosa, Wis.—p. 193

**Sleep Paralysis.**—Lichtenstein and Rosenblum report a case in which sleep paralysis occurred in the first period of sleep with the patient completely paralyzed and unable to speak or move. Respiration was apparently unimpaired and continued as in sleep. The paralysis was described by Pavlov as a manifestation of localized sleep, with the motor centers "asleep" and "consciousness" awake. Sleep paralysis is frequently associated with narcolepsy, and attempts by some patients to ward off an attack precipitate an attack of helplessness. However, sleep paralysis accompanying natural sleep is a benign condition, probably resulting from a dissociation of the components of sleep. It should be differentiated from familial periodic paralysis. The patient should be assured that although the disorder is alarming, it is always of short duration and does not result in permanent paralysis or any other disease. Usually just a slight suggestion suffices to dispel sleep paralysis.

**Vitamins B and E in Tabes Dorsalis.**—Stone and Dancey report the results of the treatment of 18 patients with tabes dorsalis who had previously received intensive arsenical and heavy metal therapy without arrest of the progress of the disease. Sixteen of the patients were given thiamine hydrochloride intraspinally in addition to oral therapy with both vitamins. The patients received artificial fever therapy also during the spinal and oral therapy, and their improvement was noted. The patient who received no intraspinal therapy had no improvement. The patient who received no intraspinal therapy had ten inductothermy treatments one year previously, two concentrated arsenical and bismuth injections and oral vitamin complex therapy. No improvement occurred until vitamin B was administered simultaneously with the vitamin E. The rate of gain was less spectacular than that of patients

intraspinal treatment also but the improvement was definite after six weeks of treatment. Three patients with paraplegia showed some temporary improvement only while receiving intraspinal medication. The diplopia of a patient did not disappear after fever treatment and chemotherapy but was relieved by the first intraspinal injection of thiamine hydrochloride. His gait and disturbances of the bladder showed most improvement after he was given oral vitamin E and B therapy. Gastric crisis was not relieved when intraspinal medication was given during a crisis. Intraspinal and oral medication abolished gastric crisis of 1 patient for nearly a year; this patient returned to remunerative work. The intraspinal and oral treatment reduced but did not abolish the frequency of gastric crisis, and lightning pains were improved but did not disappear. Pupillary changes remained fixed, and abolished tendon reflexes did not return after treatment. The sense of vibration reappeared in several patients, and various paresthesias have either disappeared or have become a source of little discomfort.

**Sensory Disturbances Following Insulin Therapy**—According to Stern and his co-workers, a disturbance of the senses of taste, touch and smell were observed in 10 of 103 patients in the course of and for some months after insulin shock therapy. When sensory disturbances were observed the patients were given brewers yeast, but it is difficult to determine whether recovery was due to this therapy, as in 1 patient transient numbness and paresthesia were relieved by the administration of carbohydrate as soon as the patient awoke. A possible vascular cause for the disturbances particularly those of the extremities, must be considered. The problem seems to be similar to that of the damage to the central nervous system following hypoglycemia. Until more is known about the actual mechanism of sensory changes, insulin shock therapy should be supplemented by large doses of the vitamin B complex, which should be continued after the insulin course is completed.

### Medical Annals of District of Columbia, Washington 11 1-40 (Jan) 1942

- Practical Treatment of Common Neuroses J C Yaskin Philadelphia —p 1  
Use of Blood Substitutes by Armed Forces L R Newhouser and D B Kendrick Washington—p 12  
Surgery in the Office C S White Washington—p 16  
Chronic Constrictive Pericarditis Successfully Treated Surgically W M Yater and W D Claudy Washington—p 19

### Michigan State Medical Society Journal, Muskegon 41 85-172 (Feb) 1942

- Vesicular and Vesiculopustular Eruptions of Hands and Feet Diagnosis and Treatment S W Becker Chicago—p 111  
Symptoms and Therapy of Autonomic Dystonia G W Slagle Battle Creek—p 119  
Mental Disorders as Cause of Rejection in Michigan Registrants Study of 340 Cases H A Furlong Myra E Hilpert and C H Greve Ann Arbor—p 123  
De Office in Anesthesia W Bourne Montreal Canada—p 129  
Observations on Use of Glasses A Cowan Philadelphia—p 134

### Minnesota Medicine, St Paul 25 81-160 (Feb) 1942

- Present Status of Surgery of Accessory Nasal Sinuses C E Connor St Paul—p 97  
Minnesota's Experience with Human Encephalitis Caused by Equine Type of Virus in 1938 C M Eklund and A Blumstein Minneapolis —p 103  
Metastatic Brain Abscesses G N Ruhberg St Paul—p 108  
Advantages and Limitations of Certain Practical Adjuncts in Diagnosis of Diseases of Heart F A Willus Rochester—p 113  
Results of Lowman Operation for Paralysis of Abdominal Muscles G A Williamson J H Moe St Paul and W C Basom Rochester —p 117  
Diagnosis of Activity of Pulmonary Tuberculosis R Davies Nopeming —p 120

**Encephalitis**—Eklund and Blumstein discuss the extensive epizootic of equine encephalomyelitis that occurred in Minnesota in 1938. 23,686 horses were reported as affected and 47 cases of encephalitis in human beings were reported to the Minnesota Department of Health. The onset in 36 cases took place between August 13 and September 20. The serum of 21 patients was tested for neutralization of the western virus. Fourteen of the specimens neutralized the virus, two neutralized

the St Louis virus and one showed moderate protection after standing in the ice box for two years. The distribution of patients whose serum neutralized the western virus was predominantly rural. The ages of these 14 patients varied from 1 month to 66 years. The typical onset was sudden, with headache and fever, and drowsiness appeared in a day or two. In the mildly affected patient no further symptoms appeared. In the more severely affected, drowsiness progressed to stupor, at times alternating with considerable restlessness. The sensorium became cloudy and there was disorientation in all fields. In about a week the temperature usually began to drop and a few days later the patient's condition began to improve. A stiff neck and, less frequently, tremors were practically the only physical signs. The acute phase of the illness lasted two to three weeks. Most of the patients had complete amnesia for the period of their severe illness. Examination of the spinal fluid revealed an increase of cells, the counts ranged from 30 to 400 cells. Seven of nine differential counts showed a predominance of lymphocytes and two a predominance of polymorphonuclear cells.

### New England Journal of Medicine, Boston

226 251-290 (Feb 12) 1942

- Diagnosis of Coronary Artery Disease H M Marvin New Haven Conn—p 251  
Abdominoserotal Hydrocele Review of Literature and Report of Case G C Prather Boston—p 255  
Use of Dilantin Sodium in Bronchial Asthma Preliminary Report M H Shulman Salem Mass—p 260  
Toxic Reactions Following Sulfonamide Treatment C S Keefer Boston—p 266

226 291-322 (Feb 19) 1942

- Recurrent Pylonephritis During Pregnancy G C Prather and W Sewall Boston—p 291  
Perineal Phlegmon S. R. Mueller Boston—p 298  
Psychiatry Neuroses in War V P Williams Boston—p 302

**Bronchial Asthma**—Shulman used phenytoin for the treatment of bronchial asthma in 7 children from 3 to 14 years of age. The patients had repeated frequent, acute attacks of asthma and a constantly "wheezy" respiration, that is, intractable asthma that had not responded to the accepted routine treatment. Each patient was first given 0.03 Gm of the drug morning and night. If after one week of therapy with this dose symptoms still persisted, the patient was given 0.03 Gm of the drug three times a day. The dose was increased by 0.03 Gm daily at intervals of one week until there were no attacks of asthma and no wheezing on moderate exertion. From 0.1 to 0.2 Gm of phenytoin usually kept the patient free from symptoms. After an adequate dose was arrived at 6 patients remained consistently free from attacks of bronchial asthma. The children were able to engage in normal athletic and social activities. Lack of parental cooperation and understanding was an important factor in the case in which benefit was not complete. There was a distinct change in the personality of 3 children, they became less irritable, their mentality improved and they were much easier to live with. A stubborn eczema of 2 children, which had persisted since infancy, cleared to a remarkable degree while the patients were being treated with phenytoin.

### Northwest Medicine, Seattle

41 39-76 (Feb) 1942

- Treatment of Patient with Irritable Colon H J Tumen Philadelphia —p 42  
Diagnosis and Treatment of Intestinal Obstruction with Special Reference to Miller Abbott Tube D Metheny and H V Hartzell Seattle —p 49  
Amebiasis in Yakima Valley P J Lewis and J H Low Yakima Wash—p 52  
Venereal Lesions of Vulva Differential Diagnosis A F Lee Seattle —p 57  
Fibroma of Tunica Vaginalis Testis W G Schulte Salt Lake City —p 60  
Difficulties Encountered in Appendectomy J A Duncan Seattle —p 63  
Vitamin B<sub>1</sub> in Heart Disease Cases of Adult and Child Resembling Acute Rheumatic Fever O J Morehead Ritzville Wash—p 63

**Amebiasis**—Lewis and Low state that the microscopic examination over a period of five years of five hundred and eighty-six wet and stained smears of stools disclosed amebas in one hundred and twenty-six, an incidence of 21.5 per cent.



*Endameba histolytica* accounted for 57.14 per cent and *Endameba coli* for 26.19 per cent of the infected stools. The following factors probably explain the high incidence of amebiasis in and about the Yakima Valley: 1. The urban water supply of Yakima is purified by the chlorination sedimentation method, which is known to be ineffective against amebic cystic contamination. 2. Most of the rural water supply is derived from cisterns filled at intervals with irrigation water. 3. The unusually large number of orientals inhabiting the Yakima Valley, among whom the incidence of amebiasis is notoriously high, particularly in "carrier" form, is a contributing factor. The most common abdominal symptoms in the locale are flatulence and abdominal discomfort, and the most common constitutional symptoms are fatigue and nervousness. Suitable and varied treatments result in apparent cure in 90 per cent of cases.

### Pennsylvania Medical Journal, Harrisburg

45 417-544 (Feb) 1942

- \*Ruptured Uterus At or Near Term. Report of 105 Cases. J. H. Dugger, Philadelphia—p. 437
- \*Chemotherapy in Upper Respiratory Tract Infections. F. W. Davison, Danville—p. 443
- Röntgen Irradiation in Treatment of Inflammations. E. P. Pendergrass and P. J. Hodes, Philadelphia—p. 447
- Colic in Babies. J. M. Higgins, Sayre—p. 455
- Diagnosis and Treatment of Seborrheic Dermatitis. F. Amshel, Pittsburgh—p. 457
- \*Liver Toxicity in Anesthesia. Its Surgical Importance. L. M. Morrison and W. A. Swalm, Philadelphia—p. 460
- Report on 10,000 Pentothal Sodium Anesthetics. G. J. Thomas, Pittsburgh—p. 467
- Fractures of Skull and Associated Brain Injuries. D. P. Walker, Bethlehem—p. 473
- Significance of Calcification in Gallbladder. S. P. Perry and J. W. J. Carpender, Sayre—p. 477
- Clinical Study of Therapeutics of Pneumonias of Infancy and Childhood with Special Reference to Chemotherapy. H. A. Agerty, Merion Station—p. 482

**Ruptured Uterus**—Dugger analyzes the 105 cases of rupture of the uterus encountered among 318,103 live births and stillbirths in the county of Philadelphia during the last decade, an incidence of 1 ruptured uterus in 3,029 births. Only 1 of the 16 primigravidas recovered. All patients who had had seven or more pregnancies died. Most recoveries, 34 of 59, occurred among mothers who had had one to three previous pregnancies. There were only 6 other recoveries. The pregnancy terminated at or after the thirty-sixth week in 85 cases, and rupture occurred in 12 between the thirty-first and the thirty-fifth week, in 6 between the twenty-sixth and the thirtieth week and in 2 between the twenty-first and the twenty-fifth week. Fifty-six, or 86.1 per cent, of the deaths followed operative delivery. Internal podalic version was most frequently associated with rupture of the uterus. Fifty-five, or 84.6 per cent, of the deaths were preventable through improvement in the technical skill and judgment of the obstetrician, prompt and competent consultation in the presence of abnormal conditions, the termination of some vaginal or abdominal deliveries when rupture threatened, immediate laparotomy with hysterectomy or repair of a rupture when it had occurred (as the risk from infection is probably less than the danger from shock and hemorrhage) and the prompt and appropriate treatment of shock and hemorrhage.

**Chemotherapy in Infections of Upper Respiratory Tract**—From the results of the treatment of 50 patients with severe infection of the upper respiratory tract by the usual method and of 50 others who in addition were given one of the sulfonamide drugs, Davison concludes that: 1. The sulfonamide drugs are of value in severe acute sinusitis, tonsillitis, nonsuppurative cervical lymphadenitis and cellulitis of the neck. 2. To obtain maximal benefit the drug must be used in the first forty-eight hours of the disease and in an adequate dose. 3. The sulfonamide drugs should not be used for the treatment of ambulatory patients. 4. Frequent blood counts and urinalyses must be done. 5. Treatment with the sulfonamide drugs does not take the place of transfusion in streptococcal infections or of surgical drainage when tissue necrosis or suppuration is present.

**Liver Toxicity in Anesthesia**—Morrison and Swalm present a quantitative study of the postoperative hepatic function of patients after nine types of anesthesia. 1. The function of a normal liver under spinal anesthesia showed the least impairment and the most rapid return toward normal. The concentration of bile salt was depressed to only 760 mg on the first day, and by the seventh day it reached the minimal normal concentration, 1,500 mg. 2. Spinal anesthesia produced, in the presence of a pathologic condition of the liver, an average concentration of 480 mg of bile salt. Seventeen days later the average maximal concentration, 730 mg, was reached. 3. Combined ether anesthesia in the presence of a normal liver produced an average concentration of 520 mg on the first postoperative day, and in seven days the normal minimum, 1,500 mg, was reached. 4. In patients given combined ether anesthesia in the presence of a pathologic condition of the liver the average concentration was 250 mg on the first postoperative day, and only in eleven days did the level of bile salt reach that of the patients given spinal anesthesia. 5. Patients with a normal liver who were given evipal intravenously and underwent minor surgical procedures showed normal hepatic function immediately after the anesthesia as well as subsequently. 6. The hepatic function of patients with a normal liver who were given avrim with amylene hydrate rectally was definitely abnormal or depressed on the first and third postoperative days. 7. The hepatic function of patients with a normal liver who were given cyclopropane was not affected. 8. The postoperative hepatic function of patients with a normal liver who were given nitrous oxide anesthesia was normal on the first and subsequent postoperative days. 9. On the first and subsequent postoperative days the hepatic function of patients with a normal liver who were given spinal anesthesia was normal, as measured by the concentration of bile salt in the urine. Further study revealed that chloroform anesthesia as used for obstetric delivery is definitely toxic to the liver and can cause toxic hepatitis or subacute hepatic necrosis. The anesthetic should be used with utmost caution for obstetric delivery because of the slight impairment in hepatic function that occurs during pregnancy.

### South Carolina Medical Assn Journal, Florence

38 31-56 (Feb) 1942

- Cystinuria—Cystine Calculi. J. J. Ravenel and J. C. Aull, Charleston—p. 31
- Observations of Certain Plastic Surgical Procedures. G. T. McCutcher, Columbia—p. 35
- George Washington's Health Record. B. S. Harwood, Camp Creek—p. 39

### Southern Surgeon, Atlanta, Ga

11 79-152 (Feb) 1942

- Kentucky's Early Lithotomists. M. J. Henry, Louisville, Ky—p. 79
- \*Treatment of Retained Testicle. C. Rieser, Atlanta, Ga—p. 90
- Sulfanilamide in Treatment of Peritonitis. M. B. Davis, Nashville, Tenn—p. 99
- Fractures of Bones in Hand and Foot. W. M. Hayes, Hamilton, O—p. 105
- Intestinal Stenosis in Infants. J. D. Hancock, Louisville, Ky—p. 113
- Indications for Surgery in Diseases of Thyroid. M. Thompson, Louisville, Ky—p. 118
- Treatment of Recurrent Multilocular Cyst of Pancreas. Case Report. F. K. Boland Jr., Atlanta, Ga—p. 126
- Sclerosing Osteomyelitis of Garre. W. M. Ewing, Louisville, Ky—p. 132
- Treatment of Varicose Veins of Lower Extremities. E. Duncan, Louisville, Ky—p. 134
- Acute Perforated Diverticulitis of Sigmoid. Case Report. R. I. Sanders, Memphis, Tenn—p. 139

**Retained Testis**—Rieser cites a case of bilateral intra-abdominal testes in a boy of 17 and states that the case illustrates that intra-abdominal testes rarely descend spontaneously. Even at 17 the physiologic and psychologic improvement that the boy experienced as a result of surgical intervention proves that the operation was warranted. Glandular therapy, the author concludes, before the age of puberty is questionable and at puberty it is unnecessary. It has no harmful effect on a normally situated testis but a definite degenerative effect on the retained testis, and it may produce harmful constitutional changes. For cryptorchism associated with the Froehle syndrome glandular therapy is indicated before puberty.



FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted  
Low Single case reports and trials of new drugs are usually omitted

Brain, London

64 197-304 (Dec) 1941

- Phantom Limb and Body Shape G Riddoch—p 197  
Cerebral Electrical Changes in Experimental Concussion D Williams and D Dennison Brown—p 223  
Component Reflexes of Micturition in Cat Part III T J F Barrington—p 239  
Visual Disorientation with Special Reference to Lesions of Right Cerebral Hemisphere W R Brain—p 244  
Akinetic Mutism with Epidermoid Cyst of Third Ventricle with Report on Associated Disturbance of Brain Potentials H Cairns R C Oldfield J B Pennybacker and D Whitteridge—p 273  
Note on Clinical Anatomy of Veins with Special Reference to Spinal Veins H A Harris—p 291

British Journal of Ophthalmology, London

26 45-92 (Feb) 1942

- Education of an Ophthalmic Surgeon A Loewenstein—p 45  
Glass in Anterior Chamber T C Summers and H Hobbs—p 54  
Etiology of Obscure Case of Retrobulbar Neuritis Rosa Ford—p 56  
Tonic Pupil Syndrome P W Leathart—p 60  
Significance of Lesion of Optic Nerve G J Dixon—p 64

British Medical Journal, London

2 99-136 (Jan 24) 1942

- Effect of Hemorrhage on Red Cell Size and Red Cell Distribution G L Brown J A R Miles Janet M Vaughan and L E H Whitham—p 99  
Treatment of Rheumatoid Arthritis in Children D Roden—p 102  
Observations on Breech Delivery L G Higgins—p 105  
\*Diagnosis of Back Pressure Kidneys in Cases of Enlarged Prostate A F Kraus—p 109

Renal "Back Pressure" and the Enlarged Prostate—

On the basis of examining approximately 500 cases of enlarged prostate by intravenous urography Kraus concludes that prostatectomy to be successful must restore the normal evacuation of the urinary bladder decompress renal back pressure and cause the normal tonus and peristalsis of the renal pelvis and the ureter to reappear. The patient suffering from an enlarged prostate which has led to renal damage can be considered as 'cured' only if transurethral resection or some other procedure has achieved this. If postoperative intravenous urography of patients considered cured by transurethral resection reveals that satisfactory decompression of renal back pressure has not taken place, sooner or later suprapubic or perineal prostatectomy will lead in the radical surgical treatment of the enlarged adenomatous prostate. If it can be proved that hemiprostatectomy decompresses the kidney (when only one kidney is damaged) on the side of the adenoma, this conservative method will be preferable to radical procedures. The surgeon who performs a two stage suprapubic prostatectomy runs fewer risks than the operator who trusts functional tests which do not reveal dormant urinary infection and/or a grossly impaired ureteral peristalsis. These two factors can be evaluated only by intravenous urography, and that is why prostatectomy still seems a too hazardous operation. With intravenous urography renal back pressure can be diagnosed and too early prostatectomy excluded. With the aid of intravenous urography it is possible to recognize that the enlarged prostate is not only an obstacle to micturition but also an obstacle to normal ureteral peristalsis and tonus.

Journal of Neurology and Psychiatry, London

4 163-296 (July-Oct) 1941

- Sulfanilamide and Sulfapyridine in Experimental Cerebral Wounds. E H Botterell E A Carmichael and W A Cone—p 163  
Congenital Form of Amaurotic Family Idiocy R M Norman and N Wood—p 175  
Imprecision for Position of Eyelids on One Side L H Rubinstein—p 191  
Local Extension of Nerve Fibers into Denervated Areas of Skin G Weddell L Guttman and E Guttman—p 206  
Potassium and Muscular Disorders J N Cumings—p 226  
Effect of Prothigmine on Urinary Excretion of Potassium in Normal Subject J N Cumings—p 235  
Traumatic Subdural Effusions A A McConnell—p 237  
Significance of Abnormal Electroencephalogram D Williams—p 257

Lancet, London

1 95-128 (Jan 24) 1942

- Experimental Wounds Treated with Cod Liver Oil and Related Substances L Dann A Glucksmann and Katharine Tansley—p 95  
Dental Fluorosis and Caries in London Children Margaret M Murray and Dagmar C Wilson—p 98  
Recurrent Neutrophil Agranulocytosis B E Barsby and H G Close—p 99  
Percentiles for Intelligence Quotients P Slater—p 101  
Glandular Fever with Jaundice A B Carter—p 102  
Id S Gold—p 103  
\*Relapsing Fever H S Stannus and M Bendit—p 103  
Paratyphoid Fever Case Treated with Sulfapyridine F Muller—p 104  
Urinary Calcium in Nutrition Surveys Sulkowitch Test G C Linder and J M Latsky—p 105  
Crush Fractures of Os Calcis C H Gray—p 106

Relapsing Fever—As war, famine and epidemic diseases are bound together and relapsing fever (mothered by the louse) is a common scourge, Stannus and Bendit report its occurrence in a Belgian aviator who was admitted to the French Hospital on July 30, 1941 with a temperature of 103 F and a pulse rate of 84. He did not complain of any symptoms, and except for a dirty tongue and constipation abnormal physical signs were not present. The rise of temperature had been accompanied by shivering, and its fall to 98 F the next day was associated with profuse sweating and exhaustion. The temperature was normal four days later, remained so for a week and then began to rise. On the basis of a history of a previous febrile attack on July 13 which lasted for five days a diagnosis of relapsing fever was made and confirmed by examination of a blood film. No treatment was given. The patient's history revealed that he was shot down at the time of the Belgian collapse, escaped to France, entered Spain in an attempt to reach Portugal, was imprisoned in Spain from Oct 26 to Nov 10, 1940 then sent to a concentration camp from which he escaped on Feb 7, 1941, made his way back to unoccupied France, remained there until June 15, when he crossed to Spain, evading capture, and reached Lisbon on July 13, when he had his first attack of fever. During his wanderings and imprisonment he had suffered great privation. All the inmates of the prison were lousy. The patient does not recall being bitten by ticks. The incubation period of relapsing fever is commonly six to ten days but may be much shorter or longer. It is therefore probable that he was infected in Spain. The lack of severe symptoms is characteristic of the disease encountered in Spain, which is transmitted by ticks (*Ornithodoros maroccanus* and *exoticus*). It seems possible that the case is one of endemic relapsing fever, with the tick as the vector, rather than one of the epidemic type carried by the louse.

Medical Journal of Australia, Sydney

1 33-62 (Jan 10) 1942

- Galactose Tolerance Test in Thyrotoxicosis T E Wilson—p 33  
\*Arterial Hypertension Symptom of Intracranial Tumors F Morgan and A Schuller—p 44  
Eye Diseases Found in Tasmania Eight Year Survey J B Hamilton—p 45

1 63-94 (Jan 17) 1942

- Attempted Suicide J McGeorge—p 67  
Dangers of National Salaried Medical Service A E Brown—p 74  
Simple Safeguard in Feeding of Premature Infants Kate Campbell—p 76

1 95-124 (Jan 24) 1942

- Sciatica Its Causes and Treatment A Juett—p 95  
Fractures of Radius and Ulna H A Sweetapple—p 97  
Treatment of Gas Gangrene W H Smith—p 100  
Driving Under the Influence R Ashburner—p 102  
Id R Lucas—p 103  
Id J McGeorge—p 105

Arterial Hypertension—Morgan and Schuller present 2 cases which illustrate that cerebral tumors may be associated with a high arterial hypertension. The lesion of 1 of the patients a man of 43 was a meningioma in the posterior fossa and of the other 1 a boy of 19 an astrocytoma in the supratentorial space. The blood pressure of the 2 patients returned to normal after the tumors were resected completely.

## Arch Urug de Med, Cir y Especialid, Montevideo 19 357-476 (Oct) 1941 Partial Index

- Peripheral Circulatory Insufficiency Collapse or Shock B Moia —p 357  
Placenta as Inhibiting Factor of Version by External Maneuvers A Turenne —p 394  
\*Brucellosis and Tuberculosis P Purriel, A A Praggio and R Risso —p 401  
Kymographic Oscillations in Insufflation of Uterine Tubes A Stabile —p 406  
Results of Investigations on Digestive Allergy in Gastroenterologic Practice B Varela Fuentes and P Recarte —p 416

**Brucellosis and Tuberculosis**—According to Purriel and his collaborators a considerable literature exists on brucellosis and tuberculosis. It has been pointed out that brucellosis may be mistaken for tuberculosis, that the two concur and that the tissular and humoral reactions caused by them are similar. Brucellosis can take on the aspects of tuberculosis and simulate miliary tuberculosis, meningitis and various types of extrapulmonary tuberculosis. Some observers insisted that the endocrinologic state of patients with brucellosis favors the appearance or exacerbation of tuberculosis. "Brucellosis makes the bed for tuberculosis." The authors investigated the index of tuberculous infection in workers of meat packing plants, in whom infection with *Brucella bovis* had been detected by means of the intradermal reaction of Burnet, the tuberculous morbidity in workers infected with brucellosis and the tuberculous morbidity in workers who had had brucellosis. They concluded that the index of tuberculous infection is only slightly higher in workers infected with *Brucella bovis* than in the other workers of the meat packing plants. The tuberculous morbidity in the brucella infected employees was lower than that in the employees without brucella infection. The tuberculous morbidity in workers who had had brucellosis was not greater than that in the other employees. In a case in which tuberculosis and brucellosis coexisted, brucellosis was completely cured and there was no aggravation of tuberculosis. The authors disagree with the postulates that "brucellosis makes the bed for tuberculosis" or that tuberculosis is always aggravated in persons in whom brucellosis develops.

## Medicina, Buenos Aires

### 2 117-254 (Jan) 1942 Partial Index

- \*Pulmonary Lesions of Malignant Lymphogranulomatosis M R Castex, A Pavlovsky and J Valotta —p 117  
Inactivation of Estrogenic Substances in Organism E Fels —p 140  
Pulmonary Atelectasis Caused by Aspiration of Residual Air A Bence and A Lanari —p 152  
\*Action of Bile on Acceleration of Jejunoileac Passage R Q Pasqualini and A J Burlando —p 174

**Pulmonary Lesions in Malignant Lymphogranulomatosis**—Castex and his collaborators report observations on 340 cases of malignant lymphogranulomatosis (Hodgkin's disease). A large number of the patients were under observation for only a short time, 74 were followed up during the whole course and 73 are undergoing treatment at present. In only 16 cases was invasion of the lung demonstrated in the roentgenogram. The pulmonary lesion was visualized from the beginning in only 3 of the cases.

**Action of Desiccated Hog Bile on Accelerated Jejunoileac Passage of Food**—Pasqualini and Burlando analyzed manifestations of accelerated jejunoileac passage in 100 cases. The general symptoms were emaciation, asthenia, fatigability, insomnia, mild fever, nervousness and mental depression. Digestive symptoms were manifested by anorexia, epigastric pain, eructations, heartburn, hyperchlorhydria, nausea, vomiting, periumbilical pain, meteorism, constipation or diarrhea. Vasomotor or neurovegetative symptoms were facial flushing, sweating, despondency, palpitations, dizziness and headaches. Examination of the feces disclosed lipolytic, amylolytic and proteolytic insufficiency and the presence of abundant cellulose. Blood analysis revealed macrocytic anemia. Paresthesias and anesthetic zones were noted in the extremities. In all cases the jejunoileac passage of food was much accelerated. Administration of desiccated bile to healthy persons caused a moderate retardation of the normal passage of the jejunoileac contents. In patients with accelerated passage the desiccated bile affected a considerable slowing of the jejunoileac passage

of food, so that the roentgenograms showed a normal behavior of the intestinal contents. Continued administration of bile to patients with accelerated jejunoileac passage counteracted the clinical manifestations.

## Memórias do Instituto Butantan, São Paulo 15 1-432 1941 Partial Index

- \*Observations on Antidiphtheritic Immunity J P do Amaral —p 131  
**Antidiphtheritic Immunity**—Do Amaral administered diphtheria anatoxin to 517 children from 6 to 14 years of age. The anatoxin was administered subcutaneously in doses of 0.1 and 15 cc at intervals of fifteen days. Four children exhibited a general and local reaction of general malaise, fever for twenty-four or forty-eight hours and local inflammation. In these cases the single injection which causes a general and a local reaction produces protection of the same degree as that which is obtained by the total treatment of three injections as given to nonhypersensitive children. The natural and acquired immunity was verified in 98 children and 55 children, respectively, by means of Kellogg's biologic test, performed before and three months after the injections. Natural immunity was found in 18 of 98 children. The specific anatoxin contents three months after vaccination were of high titers in 55 tested children. The results showed acquired immunity of high degree in all cases. Diphtheria anatoxin is harmless and of great antigenic power.

## Archiv für die gesamte Physiologie, Berlin 244 145-308 (Dec 31) 1940 Partial Index

- Reflex and Central Action of Carbon Dioxide on Respiration K Gellwitzer Meier and E Lerche —p 145  
Effect of Starvation and of Intestinal Contents on Dextrose Resorption of Small Intestine of Normal and Adrenalectomized Rats N Hamar —p 157  
Twenty Four Hour Rhythm of Dextrose Resorption Capacity of Small Intestine N Hamar —p 164  
Methodics of Physiology of Stimulation and Technic of Registration with Aid of Electron Tubes and Cathode Ray Oscillographs W Holzer —p 205  
\*Action of Thymus Hormone on Larvae of Cold Blooded Animals Bomskov and G Kückes —p 246  
Determination of Smallest Quantities of Acetylcholine in Pulmonary Specimen of Frog M Corsten —p 281  
Production of Diluting and Gliding Saliva by Exclusive Stimulation of Chorda Tympani as Example of Selective Stimulation of Sympathetic Nerves H Hellauer and M Schneider —p 292

**Action of Thymus Hormone on Larvae of Cold Blooded Animals**—Bomskov and Kückes demonstrated that the diabetogenic hormone of the anterior pituitary is a thymotropic hormone which stimulates the production of a hormone in the thymus. This hormone is a lipid substance. Bomskov and his collaborators isolated it and explained its action. Their observations indicate that the thymotropic hormone of the anterior pituitary is probably identical with the growth hormone. From this it was deduced that the growth action of the pituitary is effected by way of the thymus. Bomskov and Kückes were able to demonstrate on frogs that the specific thymus hormone is capable of eliciting the same manifestation which other investigators had obtained in the feeding of fresh thymus to the larvae of cold blooded animals. The weight and the longitudinal growth of the frogs increase, and there are changes in the external form, such as spherical shape of the trunk, widening of the caudal fin and extremely dark pigmentation. The most important characteristic of the animals treated with thymus hormone is a complete inhibition of subsequent administration of thyroid. Whereas untreated control animals of the same spawn respond to the feeding of thyroid in the same known manner, tadpoles that have been treated with thymus hormone do not respond, neither shape, weight nor length of the animals is altered by the administration of thyroid. The antagonistic action of the thymus hormone on the thyroid is corroborated by the results of experiments conducted by Bomskov and Spiegel, who ascertained that in the basal metabolism of warm blooded animals also the thymus hormone acts as an antagonist of the thyroid. The results obtained with the fresh thymus substance, and it is suggested that the effects on the larvae of cold blooded animals are specific for thymus hormone.

# THE STUDENT SECTION

of the

Journal of the American Medical Association

*Devoted to the Educational Interests and Welfare of Medical Students, Interns and Residents in Hospitals*

SATURDAY, MAY 16, 1942

## The Medical Student of Today

In America we are blessed by living in a country richly endowed, a nation producing 100 billion kilowatt hours of energy a year, or work equal to the human power of one-half billion men working eight hours a day. So never sell America short, no matter what happens in the rest of the world. What of the medical student? His greatest asset is health. Nothing can take its place. A smooth, efficient human machine is something devoutly to be wished and to guard. There are a method of living and a system of life which are conducive to that state. This demands systematic planning of work and recreation and exercise and diet and the avoidance of all factors which induce or favor disease. The modern student rarely learns to allocate these essentials in their proper places.

The next great asset is to become a master workman. Today we see fear abroad. There is only one thing that cannot be taken away from you and that is what you store up in your forebrains—the knowledge of your profession. No matter what the future, medicine is an essential commodity because it deals with the only real common denominator which determines the destinies of the world, and that is mankind itself.

These buildings are dedicated to the study of man. You are to be entrusted with the lives of men, women and children. Our business is to prepare you for that task. Some of the mistakes you will make in later life you can trace to your omissions in the classroom.

I have a few suggestions.

Have a plan. Where do you expect to go? Lay a course and stick to it now. In the first two years you should master the fundamentals, in the last two years you use those fundamentals. You must master them. How beautifully the pieces of the jigsaw puzzle fit together when the

whole course is mastered. You will learn modern medicine. It was my privilege to have as teachers Vidal, who discovered the Vidal reaction, Laveran, who discovered the malarial parasite, Roux, one of the assistants of the immortal Pasteur, and a number of those great men who in the latter part of the last century welded some of the links to make the mighty thing called medicine today, but none of them possessed the weapons against disease that you will possess.

Begin now the student habit. Medicine is rich with adventure. The impenetrable jungle is giving up its secrets day by day. Some day the spark may jump from a book or a magazine or a teacher and ignite you, and then suddenly you realize that you too have some of those qualities which made other men great in their chosen fields.

You never know what you can do until you try. The great French neurologist Pierre Marie pointed out that none of us use the full capacity of our minds. He said that many of the cells were in a state of atrophy from disuse. Nearly every great man I have known has had some physical infirmity or some mental complex to overcome before he could bring his full faculties into play.

Medicine today is founded on all that has gone before. Chemistry has not hesitated to knock at the very principle of life itself. Physics has not hesitated to shatter the atom. The electron microscope and the spectroscope foreshadow new things. We cannot afford to remain static. He who charts his course and will not allow himself to be diverted and uses every energy to reach his goal will rarely fail. Energy, dissatisfaction with existing conditions, a ceaseless striving after perfection reward the toiler with more muscle, more strength to climb.

There are few successes without some failure and few failures without some successes. To one man failure spells the end of everything, to another it only serves to spur him on. Few

jobs fail to respond to the ceaseless biting off piece by piece

Finally a great school has first morale, then discipline and, last but not least, loyalty. Morale implies self respect and a healthy mind in a healthy body. Discipline implies respect to constituted authority and a consciousness of the purpose of our work, loitering in the hallways, putting your feet on the benches, talking when some one else is talking, residents who sit at the table when the Chief enters, nurses who are careless and noisy, patients who are unkempt,

beds poorly made, wards littered with apparatus no longer needed, histories incoherent and illegible, all attest lack of discipline. In the absence of the Chief, the resident is literally the subchief and so responsible for discipline and order.

To paraphrase a British statesman in his finest hour, we shall fight disease wherever we find it by every means in our power, in the hills, in the country, in the homes. We shall learn all the methods of organized science to combat disease. We must never falter.

## The Psychologic Examination

In medical school the student receives careful training in the technic of making a physical examination. Inspection, palpation, percussion and auscultation become almost second nature to him. He spends many hours in learning the methods of chemical examination as applied to the fluids of the body. But about the technic of the psychologic examination of the patient he is taught practically nothing. In medical practice he soon finds that it is often as necessary to make a psychologic examination as it is to make a physical examination, but because of his lack of training and his unfamiliarity with the technic of a formal procedure he can do so only haphazardly.

Many physicians do not even know that there is an established technic of psychologic examination, although it has been in use by psychiatrists for forty years under the misleading title of the "mental examination." Now that physicians in other fields of medicine are more generally aware of the necessity for psychologic examinations and the usefulness of a standard procedure, it seems appropriate to give the widest possible circulation to any scheme which has proved useful.

The psychologic examination used in psychiatry is based on the assumption that there are certain intellectual, emotional and behavior patterns characteristic of the individual which can be observed, recorded and compared with those of other persons, and the concurrences and dis-

crepancies indicated. Some of the reactions can be measured approximately, others of them quite accurately. The order in which data are collected and the details investigated in the exploration of the various fields of mental activity have varied in different psychiatric clinics. A scheme has been worked out over a period of twenty years at this clinic. The procedure has been changed many times, in fact, it is constantly being modified and, we hope, improved.

For the sake of completeness the entire procedure of examination and testing is given. These are only suggestions, and the examiner must use his judgment in modifying them for the individual patient. Although the outline should be followed rigorously in recording and organizing the data, it is rarely practicable to follow it systematically in obtaining them. It is generally best to begin by asking the patient to tell how he came to be there and from this go on to the life story, later filling in omissions in the family history, developmental history, school history and the vocational, sexual and religious history.

In actual practice the young psychiatrist in training carries through the entire investigation as outlined. The inexperienced examiner will need to take specific notes regarding his observations and the data supplied by the patient, but the experienced examiner may be able to record mentally sufficiently vivid and accurate impressions to enable him to dispense with note taking and rely on his memory when he later dictates the material.

The introduction to an outline of procedure for determination of the mental status of the psychiatric patient by Drs. William C. Menninger, Karl A. Menninger and Robert P. Knight, published in the Bulletin of the Menninger Clinic, July 1941.

## DO YOU KNOW WHAT PHYSICIAN—

Was the first Surgeon General of the United States Navy and the fifth chief of the Bureau of Medicine and Surgery?  
(The answer will be found on page 305)

## Medical College News

### Air Raid Precautions at Harvard

All the resident students at Harvard Medical School, Boston, have been assigned to posts at the school or at some nearby hospital in the plan of preparation against possible air raids. According to *Pulse*, March 9, which the New England Regional Committee of the Association of Internes and Medical Students just started publishing, the duties assigned to the Harvard students in this precautionary program range from that of roof watcher to first aid worker with regular drills scheduled. All third and fourth year medical students have already qualified as first aid instructors.

### Student Finances and the Accelerated Course

Now that summer sessions in many schools will keep students from the usual summer gainful employment, the New England region of the Association of Internes and Medical Students sent questionnaires to medical students of Boston to learn how many would need financial help in order to continue their summer studies. Four hundred and twenty-one students of the freshman, sophomore and junior classes returned the questionnaires and of these 60 per cent said they would require on an average \$360 more than they had to carry on. These students made on the average during the last summer vacation \$320.

### Yale's First Wartime Doctors

The majority of the fifty-one members of the graduating class at Yale University School of Medicine, New Haven, Conn., are already registered for military service and expect to be in active duty with the armed forces after completing the year of internship allowed by the Army and Navy. Yale's first wartime doctors have already received internship appointments to hospitals in fifteen states, Dean Francis G. Blake announced May 1. Yale University School of Medicine will embark on an accelerated year-round program, beginning June 29, when the entering class will be increased by 20 per cent to help meet the war emergency. At least sixty students will be admitted to the school in June instead of the customary fifty.

### Indiana Cancels Postgraduate Courses

According to the Indianapolis *Star*, the Indiana University Medical School, Indianapolis, has canceled all but one of the postgraduate courses held each spring at the University Medical Center for the duration of the war. Dean Willis D. Gatch is reported to have said that, although hundreds of general practitioners have been attending these courses each spring, the committee in charge agreed that the demands being made on the profession as a result of the war situation make it impractical to continue the courses at this time. The one postgraduate course which has not been canceled is the annual course for specialists in eye, ear, nose and throat diseases, which is attended annually by physicians from widely separated sections of the country.

### Annual Undergraduate Day at Pennsylvania

The University of Pennsylvania School of Medicine, Philadelphia, held its annual Undergraduate Medical Association Day on April 9. The entire school day was given over to special addresses and student research reports. Among others, Dr. O. H. Perry Pepper spoke on the medical student and the war, Dr. Franklin C.

McLean of the University of Chicago on "War Gases," and Dr. Carl J. Wiggers of Western Reserve University School of Medicine, Cleveland, on "Recent Developments in the Study of Shock."

### More British Medical Students Study in the United States

Again the Rockefeller Foundation has offered twenty-five studentships to medical students in England to enable them to take part of their clinical courses in medical schools in the United States and Canada. While the object primarily is to help students in schools which have been bombed during the war, applications from all medical schools in England, Scotland, Wales and North Ireland may be made. The studentships are for two years or possibly a shorter period in special cases and, subject to satisfactory progress, cover all tuition fees, maintenance and so on but not the cost of travel to and from America. The students must return to their own country to take their final examination. The successful candidates for the twenty-five studentships will probably leave England in August, although applications were to have been in not later than April 25, accompanied by a full and confidential report by the dean, a medical certificate and a roentgenogram of the chest. Candidates must be willing to comply with certain conditions as regards vaccination.

According to the *British Medical Journal*, the medical schools at the following universities are prepared to take one or two of these students: California, Chicago, Cincinnati, Columbia, Cornell, Duke, Harvard, Illinois, Iowa, Johns Hopkins, McGill, New York, Pennsylvania, Rochester, Stanford, Toronto, Tulane, Vanderbilt, Washington, Western Reserve, Wisconsin and Yale.

An item concerning the first group of British medical students who came to the United States to study was published in the Student Section on Dec. 27, 1941, page 2288.

### Winners of the Schering Award

The Association of Internes and Medical Students has announced the following winners of the 1941 Schering Award: Fred Feldman '42, Albany Medical College, and Cesare Lombroso Jr. '42, Johns Hopkins Medical School, have been awarded first and second prize, respectively, Elizabeth L. Brown '44, Albany Medical College, and Clarence Denton '44, Long Island College of Medicine, have been awarded third prize. The subject of the competition was "The History of Endocrine Research."

This award was established by the Schering Corporation and is conducted by the Association of Internes and Medical Students. It provides two tuition scholarships of a year and a half year, respectively, for the best papers on some aspect of endocrinology submitted by medical students in the United States or Canada. In this contest, papers were submitted by students representing twenty-four medical schools.

The committee of judges included Drs. Edward C. Hamblen, Duke University School of Medicine, Roy G. Hoskins, Memorial Foundation for Neuro-Endocrine Research, Harvard Medical School, Herbert M. Evans and Hans Lissner, University of California Medical School, Ernest P. McCullagh, the Cleveland Clinic, Emil Novak, University of Minnesota School of Medicine and College of Physicians and Surgeons, Elmer L. Scoville, University of Wisconsin Medical School,



Ephraim Shorr, Cornell University Medical College and the New York Hospital, and Fried C Koch, Ph D, and Carl R Moore, Ph D, University of Chicago

#### Speed Instruction at Western Reserve

In conformity with the nationwide movement to speed medical instruction so as to prepare more physicians for the urgent needs created by the war, Western Reserve University School of Medicine, Cleveland, announced early in the year that it would eliminate the summer vacation and begin its next session on June 22 and then start new classes at intervals of about nine months for the duration of the emergency. An extensive study of the situation indicates that four continuous sessions of thirty-six weeks, arranged as semesters, appear necessary and sufficient to maintain the desirable standards. In the first, second and third years, these comprise thirty-two weeks of instruction, two examination weeks and a recess of two weeks at the end of the second semester. The fourth year consists of thirty-five weeks of clinical clerkships and a week for commencement. The entire course would thus be completed in one hundred and forty-four weeks. New classes according to this plan would begin on June 22, 1942, March 1, 1943, Nov 8, 1943, July 17, 1944 and March 26, 1945. The entire program will be subject to change with developments. In view of the various programs of acceleration adopted by the undergraduate colleges, it is impossible to devise an integration of premedical and medical courses that would be universally applicable without any interruption. However, the elasticity of the electives in the undergraduate courses should make it possible to complete the subject requirements, if they are planned well in advance. The bachelor degree requirement may be waived during the emergency in the case of exceptional students who have completed at least three years of college work.

#### New Chapters of Sigma Xi

Three new chapters of the society of the Sigma Xi, national honorary society for the promotion of research in science, were installed during March. In the installation of a chapter on March 14 at Utah State Agricultural College at Logan, John G Kirkwood, professor of chemistry at Cornell University, gave an address on "The Structure of Liquids."

At the Illinois Institute of Technology, Chicago, March 25, a chapter was installed with Ross A Gortner of the University of Minnesota, president of Sigma Xi, and George A Baitzell, Yale University, secretary of Sigma Xi, as the installing officers. The day was marked by a general assembly of students, inspection of laboratories and an installation dinner at which H A Bethe of Cornell University spoke on "Energy Production in Stars."

A Sigma Xi chapter was installed with appropriate ceremonies on March 24 at the Louisiana State University, Baton Rouge.

#### Louisiana University

Joseph T Stansfield '42 was elected president of the Louisiana State University Society of Medical Sciences at the last meeting of the school year, May 7, Francis L Ware '42, vice president, and George B Payne '42, secretary-treasurer. The faculty adviser elected was Dr Karl Dickens of the department of medicine. The chairman of the banquet that followed the meeting was the outgoing president of the society, Connie I Hood Jr '41. At a recent meeting, Louis Lazar was chosen the outstanding senior member of the organization, the textbook "Pharmacological Basis of Thera-

peutics," by Goodman and Gillman, was presented to him by the society at a banquet, February 4. At the meeting of the society, March 9, papers on "The Therapeutic Uses of the Vitamins" were presented by Philip Dann, Herbert Tucker, George Whitman and R V Marlin. The discussion was opened by Dr John LaDue of the department of medicine. The society was addressed, March 16, by Mr Francis LaTard on "History of Hernia Repair," followed by a motion picture on the surgical repair of hernia and a discussion by Dr Hugh C Ilgenfritz, the organization's faculty adviser. Gordon Peek was elected president of the student body of the Louisiana State University School of Medicine, New Orleans, for the present year.

#### Wayne to Build a Student Center

The board of education of Detroit on March 24 approved a competitive program for an architectural design and campus arrangement for the proposed extension of the Wayne University campus and for the selection of an architect for a student center building. A group of five persons, including three architects, will select the winning design. There will be cash awards totaling \$4,000, and the winner of the student center building portion of the contest, who may or may not have been awarded one of the other prizes, will receive \$2,275, which will be a payment on account of the total of 5 per cent which the person will receive after construction begins. The first block in the proposed expansion of the university campus is already under condemnation. The actual construction, however, of the student center building will await the termination of the war. Wayne University officials have had the expansion program under discussion for several years. This program is independent of the one being considered for the proposed Wayne University Medical Center.

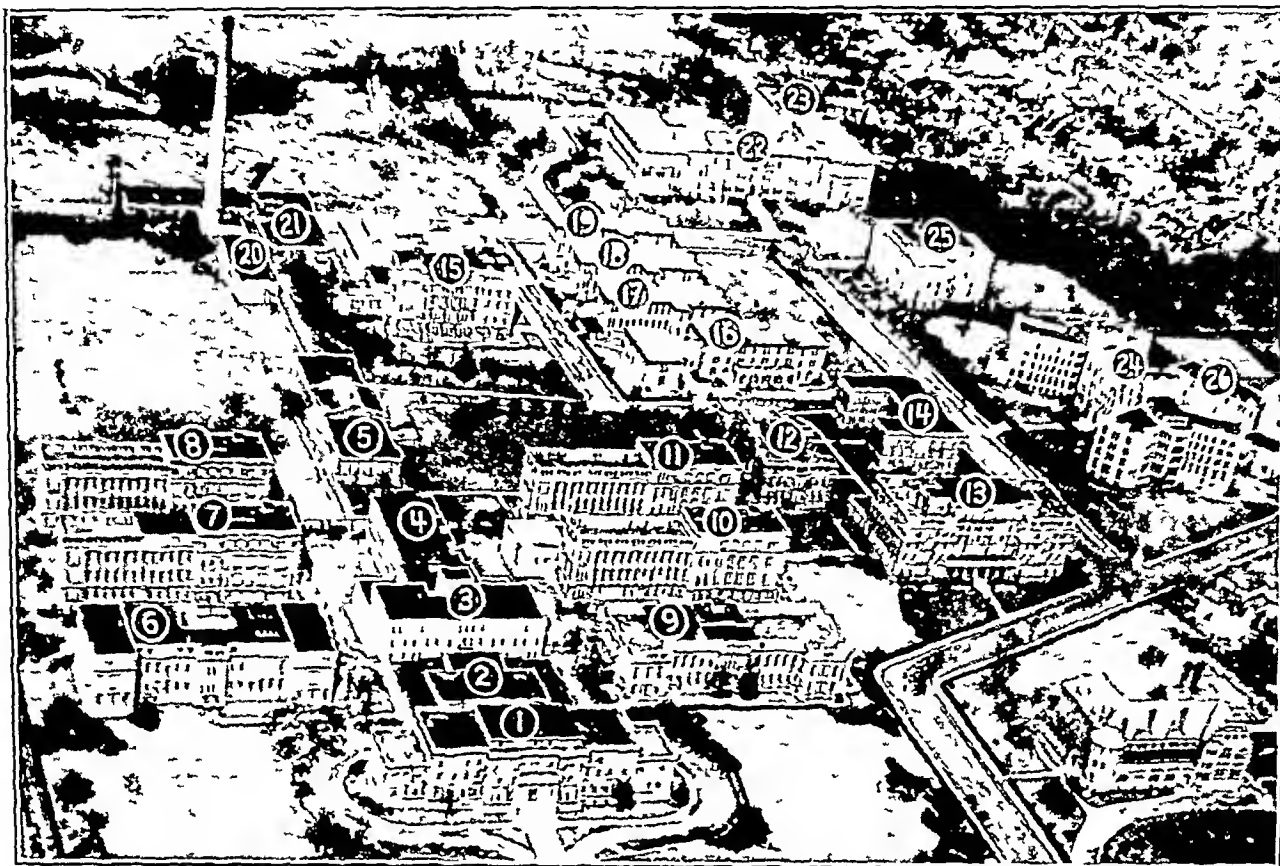
#### Harvard Awards Scholarships

Harvard Medical School, Boston, announced the award of scholarships and fellowships to the following medical students, April 9, totaling \$6,100.

To Robert Paine, Memphis, Tenn., the David Williams Chever Scholarship. To Sheridan S Evans, Iuka, Ill., the Charlotte Greene scholarship. To Lyndon R Barnett, North Stratford, N H., Albert C Biegel, Denver, Edward L Burwell, Porterville, N Y., Harvey R Butcher, Adrian, Mo., John W Harris, Allston, Mass., Felix Heimberg, Dorchester, Mass., Peter J Koeniger, Woodhaven, N Y., Paul J R Schlessinger, Pawtucket, R I., Chandler A Stetson Jr, Brunswick, Maine, Arthur W Trott, Wollaston, Mass., and Edward P Wallace, Newton Center, Mass., the George Haven Scholarships. To John E VanderLaan, M D, Muskegon, Mich., the Jeffrey Richardson Fellowship. To Walter E Knox, McCook, Neb., the James Jackson Cabot fellowship. To John M Weller, Ann Arbor, Mich., the George Cheyne Shattuck Memorial Fellowship. To Arthur C Guyton, Oxford, Mass., the Charles Lindbergh Ware Memorial fellowship. To Israel H Schenker, New York, the John Ware Memorial Fellowship. To Robert L Berg, Spokane, Wash., Avram S Goldstein, New York, Irving M London, Malden, Mass., and Roger W Morrison, Pittsburgh, the DeLamar Student Research Fellowships.

#### Lecture at North Carolina

Dr George W McCoy, director of the department of preventive medicine and public health, Louisiana State University School of Medicine, New Orleans, during the week of February 16-20 lectured on leprosy and tularemia at the School of Public Health at Chapel Hill, N C.



## UNIVERSITY OF CINCINNATI HOSPITAL GROUP

(Numbers 1 to 21 Inclusive, Buildings of Cincinnati General Hospital)

- |  |  |   |  |
|--|--|---|--|
| 1 Administration Building                          | 9 Pediatrics Pavilion                        | 14 Nurses Dormitory                       | 23 Kettering Laboratory of Applied Physiology of the College of Medicine |
| 2 Receiving Ward                                   | 10 Obstetrics and Internal Medicine Pavilion | 15 Institute of Pathology                 | 24 Children's Hospital   |
| 3 Outpatient Dispensary of the College of Medicine | 11 Obstetrics and Internal Medicine Pavilion | 16 17, 18 19 Contagious Diseases Hospital | 25 The Christian R. Holmes Hospital of the College of Medicine           |
| 4 Operating Pavilion                               | 12 Psychiatry Building                       | 20 Dormitory                              | 26 Pediatric Research Foundation of the Children's Hospital              |
| 5 Service Building and Dining Room                 | 13 Nurses Home and Dormitory                 | 21 Power Plant and Laundry                |  |
| 6 Surgical Specialties                             |  | 22 College of Medicine Building           |  |
| 7 Surgical Pavilion                                |  |   |  |
| 8 Surgical Pavilion                                |  |   |  |

## University of Cincinnati College of Medicine

Although its early history goes back to 1819 when the Medical College of Ohio was founded, the University of Cincinnati College of Medicine, as such, dates from 1917. The Medical College of Ohio united with the Miami Medical College in 1857. The schools separated in a few years but again united in 1909 under the name of the Ohio-Miami Medical College, and this school in 1917 became the University of Cincinnati College of Medicine.

The plant of the University of Cincinnati College of Medicine includes the college-hospital group of buildings, the Children's Hospital, the Chronic Disease Hospital and the Hamilton County Tuberculosis Hospital. The Children's Hospital is a complete unit for the practice and teaching of pediatrics, its medical director is the professor of pediatrics in the college of medicine. The Children's Hospital Research Foundation, which is a gift from the late William Cooper Procter, has extended the research and teaching facilities of the department of pediatrics. At the Hamilton County Tuberculosis Hospital, all senior students receive instruction in the treatment of tuberculous patients. At the Chronic Disease Hospital of Hamilton County 7 miles north of the medical college a course in geriatrics is offered as an elective to the senior class.

The Cincinnati General Hospital, the buildings of which are shown in the illustration (No. 1 to No. 21

inclusive) occupies 27 acres of ground. The chief of staff is the dean of the college of medicine. The hospital staff comprises members of the faculty of the college of medicine. The Holmes Hospital is a memorial to the late Dr. Christian R. Holmes under whose influence and leadership the campaign to build a new city hospital and medical college was carried out. The Holmes Hospital provides for the care of private patients and its professional privileges are restricted to the faculty of the college of medicine. Among the other facilities of the school is the Longview Hospital for the Insane, where classes in psychiatry are conducted during the first three months of each year. The Child Guidance Home is also used for teaching psychiatry. The medical school is represented on the Council of Social Agencies and is intimately associated with all the welfare organizations of Cincinnati.

Several libraries are available to medical students, the library of the College of Medicine, the library of the Cincinnati General Hospital one of the finest collections in the Midwest, the general library of the University of Cincinnati, the Library of the Children's Hospital Research Foundation, the Library of the William G. Merrell Company, the Charlotte R. Fischer Library and the Library of the Biological Chemistry Department. The Lloyd Library, which is available to research workers, is the private library of the late Dr. John Uri Lloyd and Mr. C. G. Lloyd, which con-

tains more than 30,000 volumes, many on pharmacology and pharmaceutical chemistry

Candidates for admission to the freshman class of the University of Cincinnati College of Medicine must have finished three years of college work. Students who are legal residents of Cincinnati are charged \$485 tuition a year, students who are not legal residents of the city are charged \$535. A person is not considered a resident unless he has been a bona fide resident of the city for one year preceding the date of his enrolment. A student remains a nonresident even though he has been in the city one year so long as his parents have not established residence in Cincinnati. There is also a student activity fee of \$10 for freshmen who do not possess an undergraduate degree, a breakage fee for freshmen and sophomores of \$15 and for juniors \$10. Each student at the beginning of the first semester of the freshman year must provide himself with a microscope.

The faculty has 462 members, of whom 147 are professors, associate and assistant professors and 315 instructors.

The college of medicine, while a part of the municipal university, does not receive any funds from taxation, it is dependent on the income from its endowment and from tuition fees for its budget.

#### Washington University

The seventh annual Leo Loeb Lecture, sponsored by the chapter of Phi Beta Pi fraternity at Washington University School of Medicine, St. Louis, was delivered, March 23, by Dr. John H. Musser, professor of medicine at Tulane University School of Medicine, New Orleans, on "The Heart That Is Getting Old." The psychology seminar group at this school was addressed on March 16 by Heinrich Kluver, Ph.D., of the University of Chicago, on "Recent Investigations on Brain Mechanisms and Behavior," illustrated with moving pictures.

The summer quarter will begin on July 11 for the freshmen, who will then continue on into the fall quarter without vacation. The upper three classes will register on June 13 and will have brief vacations in August and September.

#### Course in Medical Physics at California

The University of California has instituted a course in medical physics for undergraduate students, designed to teach the medical and biologic aspects of the sciences growing out of the atom smashing cyclotron and to teach research men in various fields how to use this new scientific tool. The course is given under the auspices of the department of physics, and the lecturers are members of the Radiation Laboratory staff. A new Medical Physics Building in which scientists experimenting with cyclotron products will work is nearing completion on the Berkeley campus. The cyclotron was developed at the University of California.

#### Indiana Fraternity Sponsors Lecture

The chapter of Nu Sigma Nu fraternity at Indiana University Medical School, Indianapolis, sponsored a lecture at the James Whitcomb Riley Hospital which was delivered by Dr. Charles G. Johnston of Detroit on "Control of Distention in the Therapy of Intestinal Obstruction." Preceding the lecture a dinner was given in honor of Dr. Johnston, the faculty members and presidents of the medical fraternities and the following guests: Dr. Maynard A. Austin of Anderson, president of the Indiana State Medical Association, and Dr. Carl H. McCaskey, Indianapolis, president-elect.

#### Alpha Omega Alpha at Cornell

The chapter of Alpha Omega Alpha, honorary medical society, at Cornell University Medical College, New York, held its initiation banquet, March 12, at the Hotel Wellington. Dr. Thomas H. Ham of the Boston City Hospital spoke on "Pathological Mechanisms in Hemolytic Anemia." The following were elected members of the society this year:

O. Whitmore Burtner Jr., New York  
Bruce M. Esplin, Miami Beach, Fla.  
William A. Geohagan, Dayton, Ohio  
Vincent A. Goiman, Kingston, N. Y.  
Culton C. Hunt Jr., New York  
Katherine W. Swift, Whitinsville, Mass.  
W. Francis Whitmore, Amityville, N. Y.  
Robert D. Deans, Ridgewood, N. J.  
Francis S. Greenspan, Perth Amboy, N. J.

#### History of Medicine Society at Tulane

The History of Medicine Society at Tulane University of Louisiana School of Medicine, New Orleans, held its ninth annual meeting in Hutchinson Memorial Auditorium on May 6, together with the Medical Library Association. Dr. Abraham Levinson of Chicago gave an address on "Medical Medallions." At the banquet of the History of Medicine Society preceding this meeting H. S. Mayerson, Ph.D., of the department of physiology at Tulane spoke on "Cultural Pursuits of the Physician." The Rudolph Matas prize for the best student essay was presented by Dr. B. Bernard Weinstein to J. V. Schlosser, a senior, and the Lemann Prize for the best student discussion to Winston C. Hibner, a senior. Dr. Harold Cummins of the department of anatomy spoke on the history of medicine. Walter Trautman Jr. was toastmaster.

#### The Wyckoff Lectures

Dr. Richard P. Strong, professor emeritus of tropical medicine, Harvard Medical School, Boston, delivered the fifth series of the John Wyckoff Lectures at the New York University College of Medicine, New York, March 24-25, on "Tropical Diseases and the War." The lectures were established by the Phi Delta Epsilon fraternity in 1937 in memory of the late Dr. John H. Wyckoff, who at the time of his death was dean of New York University College of Medicine.

#### Annual Undergraduate Day at George Washington University

The Undergraduate Medical Association of George Washington University School of Medicine, Washington, D. C., held its fourth annual student day meeting for the presentation of student research on April 18. All medical classes were suspended in favor of the meeting. The guest speaker was Major W. Randolph Lovelace, Medical Corps, U. S. Army, director of physiologic research and consultant in surgery, Army Air Corps, who discussed the medical aspects of high altitude flying.

#### Charter Members of Honorary Society

Seven senior students of Wayne University College of Medicine, Detroit, in recognition of their scholarship, have been named charter members of the newly installed chapter of Alpha Omega Alpha, honorary medical society. Those named are John G. Bielawski, Richard E. Bower, Herbert W. Devine, James R. Dols, Charles J. France, Donald B. Jury and Donald R. Simmons. Future membership in the society will come from the senior class each June, the highest ranking 10 per cent being eligible.

### Harvard Students Survey Curriculum

A committee of students from all classes at Harvard Medical School, Boston, under the chairmanship of senior student Tom Perry and sophomore student Jack Cannon, has been gathering constructive student criticism of courses to aid the faculty in making changes in the curriculum. Some years ago a curriculum survey was made by a group of students. The results were welcomed by the faculty and many of the courses ordered changed to conform with the student opinion.

### Fraternity Sponsors Snow Miller Lectures

Dr Edgar M End, Wauwatosa, Wis., instructor in physiology at Marquette University School of Medicine, delivered the fifteenth annual William Snow Miller Lecture on March 24 in the Service Memorial Institute, University of Wisconsin Medical School, Madison, under the auspices of Phi Beta Pi. His subject was "Recent Advances in Our Knowledge of Respiration and Their Application in Respiration Therapy."

### Dr Herbert Evans to Deliver Sigma Xi Lectures

The society of the Sigma Xi, of which George A Butsell, Yale University, New Haven, Conn., is secretary, announces that Dr Herbert M Evans, director of the Institute of Experimental Biology, University of California, Berkeley, will deliver a Sigma Xi lecture on the pituitary gland in about nineteen colleges and universities between March 24 and May 18.

### Dr Spies Lectures to Premedical Students

Under the auspices of the University of Alabama chapter of Alpha Epsilon Delta, national honorary pre-medical fraternity, Dr Tom D Spies of the University of Cincinnati College of Medicine recently lectured on "Pellagra and Other Diet-Deficiency Diseases in the South" before the students at the University of Alabama, University. Dr Spies is head of a research group now working at Hillman Hospital, Birmingham, Ala.

### Larger Freshman Class at Wayne

Wayne University, Detroit, announces that the college of medicine, which usually has no summer session but operates on a straight academic year system, will admit a new freshman class June 22, with provisions for seventy-five entering students instead of the customary sixty-five. Medical students will begin another academic year early in 1943.

### Lecture to Premedical Students

The premedical students at the Louisiana State University, New Orleans, were addressed recently by Dr Beryl I Burns, dean and professor of anatomy at Louisiana State University School of Medicine, New Orleans, on "the Position of Premedical Students in Relation to the National Emergency." The lecture was sponsored by the honorary premedical fraternity Beta Tau Mu.

### The McCoy Lectureship

Dr Arno B Luckhardt, professor of physiology at the University of Chicago School of Medicine was the speaker at the annual McCoy lectureship at Louisiana State University School of Medicine, New Orleans, February 15. The subject was "William Beaumont and the Medical Epic of the Northwest Territory." This lecture, in honor of Dr George W McCoy, is sponsored by the local chapter of Phi Beta Pi.

### Increased Enrolment at Indiana

The freshman class at Indiana University School of Medicine, Bloomington, is said to be the largest in several years. The class selected last spring by a committee of twelve faculty members numbered one hundred and forty, an increase of ten to help meet the demands being made on the medical profession by the defense program.

### New York University

The Student Council of New York University College of Medicine, New York, has established a periodical called *Newsletter*, in which it was said that the council has established a committee on defense activities, with representatives from each class and organization in the medical school. The committee will act as a liaison to bring together ideas on student defense and to put approved plans in operation.

### Senior Wins Award

George D Cummings, a senior at Wayne University College of Medicine, Detroit, has won the annual Walter J Wilson I Award for his paper entitled "Natural Immunity to Diphtheria," which was based on the incidence of diphtheria among children in state institutions. This award is presented annually to the Wayne student whose paper based on original research is adjudged the best for the year.

### "DO YOU KNOW WHAT PHYSICIAN"

Following is the answer to the question appearing on page 300.

William Maxwell Wood (1809-1880). An act of Congress of March 3, 1871 provided that the "chiefs of the Bureaus of Medicine and Surgery shall have the relative rank of commodore, while holding said position, and shall have respectively the title of surgeon general." Dr Wood was born in Baltimore and appointed assistant surgeon in the Navy in 1829. According to Capt Louis H Roddis, M C, U S Navy, in his paper in the *Military Surgeon*, March 1942, Dr Wood served in the Navy during the period concerned with the suppression of piracy, the slave trade, the Seminole War and the Mexican and Civil wars. His book "Wandering Sketches" gave an account of his travels. He was appointed chief of the Bureau of Medicine and Surgery by President Grant in 1869 and was retired for age on May 27, 1871. He continued to hold office as surgeon general until October 25 of that year and after ceasing to be surgeon general was employed until April 1, 1873 as medical inspector general of hospitals and fleets. Dr Wood had a vigorous intellect, force of character, strong common sense and perseverance for any measure likely to improve the well-being of officers and men of the Navy. Among other tours of foreign duty he accompanied a squadron of naval vessels in 1856 concentrated at Hong Kong to protect American interests. An attack was made on the forts below Canton, China. Dr Wood cared for the wounded after this engagement in a hospital in Hong Kong, where it was necessary to land marines to protect the wounded. At this time the European owner of a bakery attempted to poison the people of Hong Kong by placing arsenic in bread that was made in his bakery. Thousands were thus poisoned, but Dr Wood escaped as he ate bread from another source. All his patients became ill with arsenic poisoning, but none of them died. Dr Wood died at his home in Owings Mills in Baltimore County, Md.

Adios



## Book Notices

**What Are the Vitamins?** By Walter H Eddy, Ph D, Professor of Physiological Chemistry, Teachers College, Columbia University, New York. Cloth Price, \$2.50. Pp 247, with illustrations. New York: Reinhold Publishing Corporation, 1941.

To a large extent investigators have not been kind to their readers. In a rapidly developing field particularly it is often impossible for a practitioner to obtain the information he wants without the sacrifice of an inordinate amount of time and energy. For the persons who desire to acquire a working knowledge of the vitamins, the present book will be useful. There are brief summaries of each of the important vitamins and there are selected references in the bibliography of each chapter. The value of the book is enhanced by the inclusion of a table of the vitamin values of foods and by a list of different vitamin units and their equivalence. There also is a list of vitamins that have been chemically identified and those which have been characterized on the basis of physiologic evidence but which have not yet been isolated or identified chemically. The author has succeeded in the difficult task of condensing the story of the vitamins without sacrifice of accuracy.

**Aids to Anæsthesia** By Major Victor Goldman L R C P, M R C S, D A, Anæsthetist, Queen Mary's Hospital Stratford. Cloth Price, \$1.75. Pp 235 with 58 illustrations. Baltimore: Williams & Wilkins Company, London: Baillière, Tindall & Cox, 1941.

This pocket size manual is published as a contribution to a "students' aid series" for "English students in grouping and committing to memory subjects upon which they are to be examined," while offering to the English general practitioner a means of "brushing up" on a special subject. The preparation of an abbreviated or "outline" treatise on any subject is recognized as one of the most difficult tasks in medical writing. Major Goldman is to be congratulated on having covered a great deal of ground in this new addition to the students' aid series. For the American physician, who in the present world conflict may be assigned to duty in anesthesia with British forces, this addition to the series will prove invaluable. It offers briefly and in an easily assimilable form information as to differences in methods for the relief of pain current in British practice. Popular technics are described in detail. The appendix contains useful tables of equivalents and other data highly practical and time saving, especially to an American physician not familiar with British practice and British nomenclature. Minor variations in the concepts of fundamental principles and of technical applications held by British physicians, as compared with American, are evident. However, the sentence at the beginning of the preface, quoted from an American physician, "No anesthetic agent is safer than the person who employs it," probably expresses the feeling of all anæsthetists everywhere. Styles in the details of practice, like those in women's hats, vary with different seasons and different countries. As an aid to anæsthetists in either civil or military practice in America, Goldman's book will prove of limited value. The anæsthetist practicing in the United States will, however, appreciate it as an invaluable reference work which will answer questions arising in the course of his reading of current literature of British origin.

**Gynaecological Operations** By J Lyle Cameron M D, F R C S, F A C S, Senior Gynaecological Surgeon, Royal Waterloo Hospital, London. Cloth Price \$5.50. Pp 200 with 26 illustrations. New York & London: Oxford University Press, 1941.

The author states that the purpose of this book is "to present the technic of gynecologic operations as clearly and concisely as possible, giving the indications and contraindications and pointing out difficulties, dangers and complications against which the surgeon must be warned." This he has accomplished, if it can be accomplished, in the close space of two hundred pages. The use of radium is not discussed, but other ordinary gynecologic procedures are dealt with in proper proportion. One wishes more illustrations had been possible. This is a good

book, there is no doubt of that. It is harder to decide just whom the book will be good for. An experienced gynecologist will hardly require it, a student gynecologist needs a more extensive treatise. It is too advanced for medical students or nurses. The volume may be especially useful to the general surgeon who wishes a quick review of some gynecologic procedure before undertaking it.

**The Public Health Nurse in Action** By Marguerite Wales, R N, F A P H A, Nursing Education Consultant, W K Kellogg Foundation, Battle Creek, Michigan. With a foreword by Lillian D Wald. Cloth Price \$2.75. Pp 437, with illustrations. New York: Macmillan Company, 1941.

This tells what public health nursing is by a series of case studies drawn from all the varied types of service—maternity, infant and preschool, school, communicable diseases, tuberculosis, orthopedic, venereal disease, industrial and the care of the chronically ill. Under each special service discussed there is an analysis of the problem and the progress made to date toward its solution. This discussion is made graphic by the inclusion of well told case stories. The responsibilities of the public health nurse to the family in its entirety are stressed, and each case story emphasizes her effort toward attaining the objective of greater family independence, social and economic. In every instance the case stories are success stories and, while the author points this out in her introduction, one cannot but get a feeling of the Horatio Alger as one reads. Perhaps after Dr Derryberry's various treatises on the subject, this emphasis on accomplishment is heaven sent.

**The Avitaminoses: The Chemical, Clinical and Pathological Aspects of the Vitamin Deficiency Diseases** By Walter H Eddy, Ph D, Professor of Physiological Chemistry, Teachers College, Columbia University, New York, and Gilbert Daikdorf M D, Pathologist to the Grasslands and Northern Westchester Hospitals, Westchester County, New York. Second edition. Cloth Price, \$4.50. Pp 519, with 69 illustrations. Baltimore: Williams & Wilkins Company, 1941.

In this edition the material has been brought to date and the book has been considerably enlarged. The material on the vitamin B complex alone now covers about a hundred and fifty pages. There is included a section on vitamin K. The appendix includes descriptions of methods of studying the avitaminoses. There are tables of vitamin values of food. It should be a useful volume for those wishing a fairly concise statement of the chemistry and pathology of the vitamins.

**A History of Medical Psychology** By Gregory Zilboorg M D, in collaboration with George W Henry M D. Cloth Price, \$5. Pp 666 with 21 illustrations. New York: W W Norton & Company, Inc, 1941.

There have been many histories of neurology and psychiatry but few with the scope of this volume. Indeed, its more than six hundred pages and its somewhat involved approach to the subject make it primarily a work of reference for those especially interested in the field rather than for the general reader. Obviously, of greatest importance is the evaluation of the Freudian technic and the author's plea for tolerance in relation to new discoveries in this field. The volume is supplemented by a brief consideration of organic mental diseases by Dr George W Henry.

**Principles and Practice of Biological Assay** By James M Dill, Ph D, Department of Pharmacology, College of Pharmacy, University of Washington, Seattle. Third revision. Paper Price, \$1.75. Pp 100 with illustrations. Seattle: University of Washington, 1940.

In this mimeographed manual designed for student use, are provided instructions for the assay of cardiac stimulants, cardiac depressants, epinephrine, ergot preparations, posterior pituitary, insulin, local anesthetics, autonomic drugs, opiate, central nervous system stimulants and vitamins. The appendix provides some information on the methods for the determination of blood sugar and the examination of tissues for fat.

**Photometric Clinical Chemistry** By William S Hoffman Ph D, Professor of Physiological Chemistry, The Chicago Medical School, Chicago. Cloth Price \$3. Pp 254 with 27 illustrations. New York: William Morrow & Company, 1941.

This book provides a description of blood chemical determinations with the use of the Cenco-Sheard Sanford spectrophotometer. It should be of value to those who use this instrument.



## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

### SEA WATER ENEMAS

To the Editor—I have been told that a person's fluid balance can be maintained by retention enemas of sea water. Could you furnish references or opinions on this subject?

Richard F. Holford, M.D., Fort McPherson, Co.  
First Lieutenant, M.C., U.S. Army

ANSWER—The salt content of sea water varies somewhat with the area from which it is taken, especially in relation to parts of the ocean near the entrance points of large rivers, but it is a distinctly hypertonic solution approximating a 3 per cent saline solution. From present knowledge of osmosis one would deduce that if sea water was introduced into the rectum and colon it would be abstracted from the body in states of health and dehydration. In the *British Medical Journal* (1 220 [Feb 16] 1918) Mr. Morley Roberts gave a view on the subject held by him since 1910, namely that sea water given by rectum might give up water to the body. His ideas were unsubstantiated by either experimental or personal observations, and his reasoning is untenable in the light of present day knowledge. However, he buttressed his contention by a recital of the personal experience of a Mr. R. Graham during a transatlantic voyage in 1916. The history of Mr. Graham's fast supplemented by rectal instillation of sea water is given without detail and of course without control. In *Surgical Treatment*, by J. P. Warbasse (Philadelphia and London, W. B. Saunders Company, vol. III, p. 58) this reference is cited and the ideas are restated without further proof of the soundness of the facts. In order to test this theory the following experiment was carried out. A healthy man aged 26 began a total fast and was kept under constant conditions of temperature and humidity. On the second day he experienced mild thirst and much hunger. The urinary output was 440 cc. On the third day there were severe thirst and dryness of the throat and the output of urine was 325 cc. in twenty-four hours. The nonprotein nitrogen level was 46.9. At noon slow proctoclysis of 1,000 cc. (1,024 Gm.) of artificial sea water was given. Within thirty minutes he complained of abdominal cramps. Infusion was stopped, and he expelled 346 Gm. of liquid material. There remained in the enema can 694 Gm. of fluid. (Part of this was reflux from the rectum.) At 3 p.m. the subject was more comfortable, and a second attempt was made with him in the knee-chest position, 250 cc. (266 Gm.) of sea water being instilled slowly into the rectum. Within fifteen minutes the subject had cramping abdominal pain and expelled 266 Gm. of liquid material containing a small amount of solid feces. Thirst continued and became worse. Analysis of the fluid expelled from the rectum showed it to be more dilute than that injected. The experiment was concluded by the subject and the conclusion derived from it was that there was no selective absorption of water from sea water administered by rectum to a subject in a moderate state of true dehydration produced by fasting and abstinence from water. This conclusion bears out current views on the diffusion of fluids and electrolytes through a permeable membrane.

### HEALTH HAZARD FROM TRINITROTOLUENE

To the Editor—I have had a number of inquiries from my patients regarding the likelihood of any injury, temporary or permanent, because of their contact with trinitrotoluene while working at the munition plant. Could you enlighten me on the subject? Edwin R. Talbot, M.D., Joliet, Ill.

ANSWER—Trinitrotoluene or TNT, is a high explosive with definite toxic properties. Workers in contact with trinitrotoluene may be poisoned if conditions are favorable for the absorption of this substance through the skin or through the respiratory passages. Dermatitis is not infrequent but usually is not especially severe. Mild poisoning produces such symptoms as headache, gastric disturbances, nausea and cyanosis. Blood changes, especially red cell abnormalities and anemia, are said to be the most reliable indication of incipient poisoning. Toxic jaundice and more rarely aplastic anemia were responsible for many deaths among trinitrotoluene workers in the first world war.

Persons who have a history of liver disease, anemia, bronchitis or asthma should not as a rule be allowed to work where

there is exposure to trinitrotoluene. It is most important that trinitrotoluene workers avoid alcohol.

Sometimes the damage to the liver does not show up for several months after exposure has ceased, but as a rule there is no permanent injury to health which does not become apparent during or shortly after the exposure.

The majority of large munitions plants in this country are aware of the health hazard from trinitrotoluene and are controlling it by preventing the absorption of excessive amounts and by frequent medical examinations of employees. The probability of workers in such plants becoming seriously poisoned by trinitrotoluene is not great.

Another explosive which is frequently handled in munitions plants is trinitrophenylmethylnitramine, commonly called tetryl. It is not believed that this substance causes systemic poisoning, but it is extremely irritating to the skin and workers with it frequently suffer a high incidence of dermatitis.

Further information on this subject can be obtained from the Division of Industrial Hygiene of the U. S. Public Health Service.

### References

- Roberts, Harry M. The TNT Health Hazard. *Brit. M. J.* 2 647 (Nov. 8) 1941.  
Minot, George R. Blood Examinations of Trinitrotoluene Workers. *J. Indust. Hyg.* 1 301 (Oct.) 1919.  
Voegtlin, Carl; Hooper, Charles W. and Johnson, J. M. I. Trinitrotoluene Poisoning—Its Nature, Diagnosis and Prevention. *Bull. 126 Hyg. Lab. U. S. P. H. S.* September 1920, pp. 7-182.

### USE OF NEGRO BLOOD FOR BLOOD BANKS

To the Editor—I have observed recently considerable agitation about the alleged discrimination against Negroes with regard to the use of their blood for the so-called blood banks for war purposes. Is there any definite basis in serology, pathology or hematology for the aversion to the use of their blood? Is the greater incidence of syphilis in the Negro race a factor in this aversion? Is present knowledge sufficiently complete with reference to all the blood elements for one to be able to say without contradiction that the use of Negro blood for blood banks is 100 per cent safe? S. Robert Thou, M.D., Brooklyn.

ANSWER—Numerous chemical and serologic investigations have yielded no evidence that the blood of one race can be distinguished from that of another. Manosloff (*München med. Wchschr.* 72 2186 [Dec. 18] 1925), a Russian investigator, devised for the differentiation of races a chemical test of the blood based on oxidation reactions, color changes in dyes serving as indicators. He and his colleagues claimed that they were able to distinguish by this method the blood of Russians, Jews and Ukrainians, but subsequent investigations by other workers have failed to substantiate their conclusions. The test was not applied to distinguish Negroes and Caucasians. This particular problem has been investigated chiefly by immunologists. Bruck (*Berl. klin. Wchschr.* 44 793, 1907) stated that by means of complement fixation tests he could distinguish the serum of a Caucasian, a Negro, a Malayan, a Chinese and an Arab. His experiments were repeated by many investigators, especially Marshall and Teague (*Philippine J. Sc.* 3 357, 1908), Fitzgerald (*J. M. Research* 21 41, 1909) and Landsteiner and Miller (*J. Exper. Med.* 42 841 [Dec.] 1925), none of whom could corroborate his data. Using the serum of a Caucasian, a Negro, a Japanese, a Negro and a Tagalog as antigens for comparison, Marshall and Teague could find no difference among them. Fitzgerald, in similar experiments, used the serum of a Caucasian, a Japanese and a Negro and obtained results that led him to say that "the existence of specific (serologic) differences has not been proven." Landsteiner and Miller, on repetition of Bruck's experiments, stated that if serologic differences exist between Negroes and white persons they are much smaller than those between man and the anthropoid apes. The significance of this statement is shown by the difficulty experienced by Nuttall in distinguishing between the primates and man by means of the precipitin test. In a review Landsteiner wrote that the only serologic peculiarities observed are those concerning isohemagglutinins and that these are not such as to demonstrate the existence of slight but regular differences by which the race of an individual could be ascertained but have only statistical significance and deal with the frequency of certain properties. In this respect these serologic qualities are comparable to more or less distinguishing but not always constant attributes of a race like the color of the eyes or hair or body weight. Wiener (*Blood Groups and Blood Transfusion*, Springfield, Ill., Charles C. Thomas, 1938) reached a similar conclusion as to the general failure to disclose race specific antigens. He stated: "Attempts have also been made to produce sera which would serve to differentiate the blood of different races of the human species. Thus far all attempts have failed." There is therefore no factual basis for the discrimina-

tion against the use of Negro blood or plasma for injection into white people. Since syphilitic blood is eliminated from use for this purpose by thorough serologic testing, the rate of syphilis in Negroes is of no concern in this connection. The transfusion of Negro blood into white persons and that of white persons into Negroes has been repeatedly performed in civil practice without any evidence of harm or aversion on the part of the recipients. The present agitation arises from the inopportune publication of orders prohibiting the inclusion of Negro plasma in the proposed military plasma bank. The aversion perhaps represents the persistence of the ancient folklore that one's personality is closely associated with one's blood. Frequently used clichés, such as "noble blood," are remnants remaining in the language from a day when such superstitions were more prevalent than they now are. Blood transfusions were originally practiced with the blood of stockyard animals. This practice was discontinued, not because of an aversion to the source of the blood, but because of severe and frequently fatal intravascular reactions. Patients repeatedly receive into the veins serum from rabbits, horses, sheep and other lower animals. These substances are received with an equanimity that is completely inconsistent with the aversion often associated with the injection of blood as much like that of the recipient as two substances can be.

#### A VAT FOR CADAVERS

*To the Editor*—I am having considerable difficulty keeping a cadaver preserved, since I have been unable to get a vat which is leakproof. I lined one with sheet metal and painted this sheet metal with Kodacoat on the advice of the Eastman Kodak Company. I was informed that Kodacoat is capable of withstanding chemical action of all kinds, but I found that this is an error. The Kodacoat lasted only a short time, and the metal beneath was shortly attacked and as a consequence my solution is blackened and ultimately I shall lose it. What is the best and cheapest method of making a vat?

M D, Texas

*ANSWER*—About the only material, apart from porcelain or glass lined metals, that will withstand corrosion by embalming or preserving fluids for cadavers is monel metal with the joints welded or soldered with hard solder. If a tank made of heavy sheet monel is strengthened by outer iron braces riveted to the sides, the rivets must be monel also, since galvanized iron or even heavy tin will eventually scratch through and rust.

The embalming fluid, however, should contain no formaldehyde or the cadaver may turn green (copper and nickel salt). The most satisfactory embalming fluid consists of equal parts of phenol (crystals), glycerin and denatured (without formaldehyde) ethyl alcohol.

Three to 5 per cent (crystals) in tap water is satisfactory as a preserving fluid. This solution will gradually darken but need not be renewed oftener than once a year, provided the monel cover fits fairly well.

#### BLOOD ALCOHOL DETERMINATION OF DRUNKENNESS

*To the Editor*—I should appreciate some information regarding findings in blood alcohol determination. What would be considered the line of demarcation between sobriety and drunkenness? Could a finding of 10 to 15 mg per cubic centimeter (0.10 to 0.15 per cent) be so considered? Would a finding of 3.25 mg per cubic centimeter (0.325 per cent) in the blood be considered as "very drunk"? Since alcohol produces stimulation and then depression, would you consider one who remains in an excitable state, with his memory still functioning after a five hour bout of drinking and able to attack ten armed men with his bare fists, as being under the influence of drugs, such as cocaine or marijuana, along with the alcohol?

Albert V. Anderson, M.D., Fort Devens, Mass

Captain, M. C., U. S. Army

*ANSWER*—There is no distinct line of demarcation between sobriety and drunkenness. However, there is a broad band of alcoholic percentage below which demonstrable alcoholic influence is unlikely and above which such influence is universal.

The American Medical Association Committee for the Study of problems of Motor Vehicle Accidents has recommended the following interpretation of the results of chemical tests for alcohol:

1. Although there is no minimal figure which can be set at which there will be absolutely no effect from alcohol, the committee recommends that persons with a concentration of alcohol of less than 0.05 per cent by weight in blood or its equivalent in urine, saliva or breath should not be prosecuted for driving while under the influence of alcoholic liquor.

2. All persons show a definite loss of that clearness of intellect and control of themselves which they would ordinarily possess when the concentrations are above 0.15 per cent in the blood or its equivalent in other body fluids or breath and should therefore be considered as under the influence.

3. When the alcohol concentrations are between 0.05 and 0.15 per cent in the blood, a great many persons will be under the influence of alcohol, but the committee recommends prosecution only when the circumstances and results of physical examination give definite confirmation of such influence.

An individual harboring 0.325 per cent of alcohol is unquestionably and definitely under the influence, although he may be able to coordinate well enough to engage an enemy vastly superior in numbers and equipment. The attack might be all the more effective because of the apparent sobering effect due to the increased secretion of epinephrine during the excitement. However, there can be no doubt that the aggressor's judgment is decidedly faulty in accepting such odds.

It is true that other drugs, particularly marijuana, might contribute to the man's recklessness, but the alcohol alone could account for his "courage."

#### TUMOR OF THE EYELID

*To the Editor*—A Negro woman aged 19 with a positive Wassermann reaction has an enlargement about the size of an almond kernel in the inner half of the right upper eyelid. This tumor-like structure is soft, and on one's placing a finger tip on it a thrill, synchronous with the pulse, is distinctly noted, in fact, the thrill is so pronounced that it suggests a sensation that might be produced by an electric current. The enlargement has not increased in size within the last several months, and it does not occasion any more discomfort or inconvenience than would arise from partial ptosis. The condition appears to be an arteriovenous aneurysm, but the vessels of the lids are normally so small that I am wondering if this is possible.

S. J. Lewis, M.D., Augusta, Ga.

*ANSWER*—If the enlargement mentioned is confined to the lid and has no visibly enlarged vessels leading into it on the skin or conjunctival side it is most unlikely that it is an aneurysm. It seems most likely that it is a chalazion. Such granulomas are common in the Negro race and reach a large size. The thrill synchronous with the pulse is probably transmitted through the lid from the globe, and the nodule may amplify the feeling of thrill. It should be possible to feel the thrill when placing the finger on the globe through the lid at some distance from the nodule, as pulsation of the globe with the pulse is not very rare and is due to pulsation of vessels in the orbit. It is possible that the nodule is a syphilitic granuloma, but these growths are rare in the lid. If it is a chalazion it should show a slightly lighter area on the tarsal surface along a meibomian gland. Incision and curettage of the nodule through the conjunctiva should completely remove the swelling if it is a chalazion.

#### ALCOHOL PACKS FOR INFECTED WOUNDS

*To the Editor*—What is the difference in effect on living tissue of ethyl alcohol and isopropyl alcohol? I am using Ochsner's solution of a diluted solution of alcohol and boric acid as a moist pack in treating infections. Can I use isopropyl alcohol, for instance in the form of Mifflin's Bathing Compound, interchangeably with grain alcohol in these solutions for moist packs on open wounds?

M.D., Minnesota

*ANSWER*—The use of ethyl alcohol in wounds is a procedure of doubtful wisdom. The stronger solutions which are bactericidal are painful and injurious, the weaker solutions (Ochsner's solution contains about 30 per cent ethyl alcohol) have little or no germicidal action in wounds, yet they may be capable of precipitating tissue proteins, stimulating inflammatory reaction and delaying the process of repair.

Propyl alcohol is equally objectionable. In vitro and on skin it possesses somewhat greater antibacterial power than analogous solutions of ethyl alcohol, but it is not known whether this is so in infected wounds also. Theoretically, the very qualities on which the superiority of propyl alcohol depends—ability to precipitate proteins, fat solvency and low surface tension—render it the more harmful to the tissues of wounds.

Neither ethyl nor propyl alcohol, used in the form of moist packs, approaches the ideal in the treatment of infected wounds which is to eliminate the infectious micro-organisms with injury to the tissues or retardation of healing.

#### POSSIBLE DEATH FROM "ETHER CONVULSIONS"

*To the Editor*—In Queries and Minor Notes in The Journal, March 14, 1947, appeared a letter regarding ether convulsions. I noticed that in the answer it stated there was no specific treatment for this condition. On more than one occasion I have seen Dr. John Lundy, the head of the department of anesthesia in the Mayo Clinic, meet just such a situation with the intravenous use of pentothal sodium, which promptly relieves the convulsions. In each instance, the patient went on to an unremarkable recovery. I thought this might be of some interest in view of the fact that, although ether convulsions are not common, they are of a serious nature uncommon as is seemingly appreciated.

Lester R. Chouny, M.D., Portia, C.

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## THE ORIGIN OF CANCER IN MAN

WILLIAM CRAMER, M.R.C.S., D.Sc., Ph.D.  
ST. LOUIS

The title of my paper might be expressed more simply by the question "Why does a patient get cancer?" This is a question which must have come often to your mind. If a patient presents himself or herself at an early stage of the disease when the growth is still small, the feeling or the seeing of a tumor may have been the very first sign of the disease. There may be no other symptoms, not even pain, the patient is apparently in good health, there is no previous history of any disease or trauma; the disease appears like a "bolt from the blue."

The early workers in cancer research laboratories had the same experience. They kept large numbers of young mice or of rats together in big cages on the same diet. After a while one of these animals, which had never been subjected to any experimental procedure, would suddenly develop a malignant growth; then in a second and later perhaps in a third animal a tumor would appear, while the bulk of the animals, though kept under identical conditions in the same cage and on the same food, would complete the natural span of their lives free from cancer. It was thus taken for granted that cancer arises suddenly in a previously normal tissue, and it was this sudden, unexpected and apparently capricious appearance of the disease which gave to it the aspect of a grim mystery. It also gave rise to the conception that the origin of cancer was to be found at the time of the first appearance of a malignant cell.

The attention of students of cancer thus became riveted on the investigation of the nature of the malignant cell as the one and only problem in the etiology of cancer, which became limited to an explanation of the unrestricted growth of the cancer cell. Since it was proved conclusively by the early work on the transplantation of spontaneous tumors in animals that this unrestricted growth was due to a change lying entirely within the cell and was not brought about by growth stimuli acting on the cancer cell from without, the solution of the cancer problem seemed to be confined to an explanation of this intracellular change. And since it seemed justifiable to assume that this intracellular change is the same in whatever tissue or organ it occurs, cancer appeared to be, from the etiologic

point of view, a single disease and the nature of this intracellular change was spoken of as "the cause of cancer." Various lines of attack on the nature of this intracellular change have been followed, but this problem still awaits a solution. What has completely changed the aspect of the cancer problem and opened up new ways and means of attacking it is the recognition that cancer does not arrive suddenly and that the intracellular change represents only one aspect of a very complex problem.

One of the characteristic features of the disease is its age incidence: cancer increases rapidly in almost geometrical progression as age advances. This was explained formerly by the assumption that senile tissues are particularly prone to the cancerous change. When it became possible to produce cancer experimentally, by a variety of carcinogenic agents, it was found that cancer can be induced as readily in a young organism as in an old one. The senility of an organism does not, therefore, account adequately for the characteristic age incidence of the disease. The explanation must be sought elsewhere. It lies in the fact that the intracellular change represents the culmination of a process which occupies a long period of time. This period—the period of induction—is not the same for different species of animals if expressed in units of astronomical time. But there is a striking similarity if we express the results in units of biologic time, that is to say, in equal fractions of the natural life span of each species. The production of cancer by coal tar requires on the average six months in a mouse and fifteen years in man. With a life span of two years for a mouse and seventy years for man, six mouse months represent one fourth of the life span of a mouse and fifteen human years nearly one fourth of the life span of man. During this long period of induction the tissue on which the carcinogen acts undergoes a series of pathologic changes involving among other things increased cell division. Eventually this altered tissue passes into a condition in which a few cells within this altered tissue undergo, sooner or later, an irreversible intracellular change which transforms them into malignant cells. When this happens the scene changes from the exterior to the interior of the cell.

## THE ORIGIN OF CANCER: PROXIMATE AND REMOTE CAUSES OF CANCER

The irreversible intracellular change, when it has once occurred, persists within the cell even after the carcinogenic agent has been withdrawn. The recent work on experimental carcinogenesis has thus in no way changed the fundamental conception that the autonomous infiltrative growth of the cancer cell is a property residing within the cell. On the contrary, it has confirmed and extended it. But it has made

From the Barnard Free Skin and Cancer Hospital.  
Read before the St. Louis Medical Society, March 3, 1942, on the occasion of the presentation to Prof. Leo Loeb of the Award of Merit and the Gold Medal of the Society.

Dr. Cramer is research associate, the Barnard Free Skin and Cancer Hospital, St. Louis, and late senior member of the Research Staff, Imperial Cancer Research Fund, London, England.

it clear that the expression "the cause of cancer," which was used previously, has become meaningless. As far as the birth of a new race of cells—the cancer cells—has its immediate origin in an intracellular change, this change may be called the proximate cause of cancer. But since this change occurs most frequently—if not always—in a tissue which has undergone pathologic changes as the result of having been exposed to the action of a carcinogenic agent, we must take account of this more remote origin of cancer by distinguishing the "remote causes" of cancer from the "proximate cause" or causes. Eventually, when more is known about the nature of the intracellular change, we may be able to understand the connection between these two problems. At present they have to be treated as two separate and distinct problems requiring a different technical approach and involving different biologic conceptions. The experimental study of the remote causes of cancer has made it possible to interpret a number of hitherto obscure features concerning the origin of cancer in man and to open up ways and means by which this problem can be attacked in the human subject. Since the etiology of cancer involves a consideration of a plurality of remote causes, the term "remote causal factors" seems preferable. These may be conveniently divided into four groups, which will now be discussed briefly. They are

- 1 Carcinogenic agents
- 2 The precancerous condition
- 3 Susceptibility
- 4 The time factor

#### CARCINOGENIC AGENTS

The carcinogenic agents which have so far been identified differ greatly in their nature. They may be chemical substances, physical agents such as roentgen rays, radium rays or ultraviolet light rays, or gross parasites such as *Taenia crassicolis* in rats, *Bilharzia* in man. The chemical substances, of which about one hundred and seventy have been identified, fall into two groups: (1) substances foreign to the physiologic economy of the body and not formed by it normally and (2) substances normally formed by the body and possessing definite physiologic functions. Examples of the first group are tar, dibenzanthracene, benzpyrene and methylcholanthrene. These different chemical substances, which have a mildly toxic effect on the animal organism, vary greatly in their carcinogenic potency. They are locally carcinogenic for the skin when applied to it. When injected subcutaneously they are also locally carcinogenic for connective tissue. They also produce cancer locally at the site of their application in a number of internal organs, including the stomach, intestine and mamma. They may also produce cancer remotely in the lungs, either when applied to the skin or when injected subcutaneously. To this group belong also a number of organic dyestuffs, such as butter yellow, which when ingested with the food are specifically carcinogenic for one organ, the liver, but not for other organs. The fact that some of the chemical substances known to induce skin cancer in man, such as tar, shale oil and radiations, also induce skin cancer in mice and other species of animals is evidence of the essential similarity of the experimental disease to the disease as seen in man. Although a large number of chemical carcinogens have been synthesized, their mode of action is still obscure. A systematic investigation organized by Dr. E. V. Cowdry is now under way in the Barnard Hospital in St. Louis. One result obtained so far

which has a bearing on the etiology of cancer in man is that the exposure of a tissue to the carcinogenic agent need not necessarily be long continued and unremittent, as has been generally assumed. A few isolated exposures to a powerful carcinogenic agent, separated from one another by long intervals of time, can be effectively carcinogenic.<sup>1</sup> Under special conditions even a single exposure of the skin to a chemical carcinogen is sufficient so to alter the epithelium as to send it on its way to the development of cancer.

In contrast to this group is the group of carcinogenic hormones, such as the estrogens. They are formed in the body and fulfil definite physiologic function. They may be either the actual hormones normally present or organic substances having a different chemical constitution but possessing the same physiologic properties. This means that their carcinogenic effect is tied up with their physiologic action. They are specifically carcinogenic for a group of organs not exposed to agencies coming from without but influenced physiologically by these hormones, organs such as the mamma, the uterus, the prostate and the thymus. They are not carcinogenic for the skin.

Quite recently a number of facts have come to light which indicate that there is a fundamental difference in the mode of action of the chemical carcinogens on the skin and that of the estrogenic hormones on the mamma. The former, which, as already stated are foreign to the physiologic economy of the body and have a mildly toxic effect on the organism, induce at their first application an injury to the cells of the skin followed by an excessive regeneration. The resultant epithelial hyperplasia is, therefore, an indirect effect. The estrogenic substances, on the other hand, induce a hyperplasia of the mammary epithelium as a normal response of a tissue to its physiologic chemical stimulus. The subsequent development of cancer in the mamma is dependent on the presence of a substance of a high molecular weight, the exact nature of which has not yet been identified. This substance is transmitted from its mother to the individual animal immediately after birth in the milk. This is the so-called "milk factor" of Bittner.<sup>2</sup> This milk factor is stated to be present only in strains with a high incidence of spontaneous mamma cancer, it is absent in strains with a low incidence.

While the presence of this milk factor is essential for the induction of cancer in the mamma by estrogenic substances, cancer can be made to develop in that organ in the absence of the milk factor if a chemical carcinogen such as methylcholanthrene is locally applied to the mammary gland. For Strong<sup>3</sup> has shown that by this technic cancer can be induced in the mamma of mice belonging to a strain in which breast cancer never develops spontaneously in the females and cannot be induced experimentally in the males by estrogen. Ex hypothesi, the milk factor is absent in such a strain. It follows from this that the origin of cancer in the mamma and the same organ, the mamma, can be due to widely varying combinations of remote causal factors. But one fact stands out, whatever the combination of remote causal factors may be and whatever the time has to elapse before the action of these factors

- 1 Cramer, William, and Stowell, R. E. *Cancer Research* 1: 155, 1941.
- 2 Bittner, J. J. *Am. J. Cancer* 36: 44, 1939; *J. Nat. Cancer Inst.* 1: 155, 1940.
- 3 Strong, L. C. and Williams, W. L. *Cancer Research* 1: 155, 1941.



on a given tissue culminates in the development of cancer. What occurs during that period? This leads directly to a consideration of the second item on our list.

#### THE PRECANCEROUS CONDITION

During the prolonged period of induction necessary for a carcinogenic agent to elicit cancer, the tissue on which these agents act undergoes a pathologic change and it is in this altered tissue that eventually a malignant condition develops in a sharply circumscribed area. In the two tissues in which experimental carcinogenesis has been studied most extensively—the skin and the mamma—this alteration consists as far as the epithelium is concerned, in hyperplasia, which in the skin becomes visible to the naked eye frequently though not always, in the form of papillomas. But it must not be assumed from this that every form of hyperplasia is a precancerous condition or that a papilloma must necessarily develop into a carcinoma. There are, as we shall see, in man certain atrophic conditions of the epithelium which have been recognized as precancerous. The significance of the precancerous condition will be discussed again later.

#### THE HOST FACTOR OF SUSCEPTIBILITY

When carcinogenic agents are applied to the skin of animals they do not produce their carcinogenic effect uniformly, in some animals cancer appears earlier than in others, and in some individuals cancer does not appear at all. These differences become even more well defined when estrogenic hormones, which are carcinogenic for the mamma, are applied to inbred strains differing in their spontaneous incidence of mammary cancer. The ovarian follicular hormone, which may produce 100 per cent of mammary cancer in the males of one particular strain with a high incidence of spontaneous mamma cancer in the females, may produce no carcinogenic effect at all in the males of another strain in which cancer never develops spontaneously in the mamma. There is, therefore, a factor residing in the host and transmitted to it from its parents which determines the efficacy of a carcinogenic agent. This factor is designated by the intentionally vague term susceptibility. By applying the methods of genetics<sup>4</sup> to the cancer problem it has been demonstrated among other facts that the factor of susceptibility does not extend to all organs of an individual but is restricted to one particular organ. Thus it is possible to produce by inbreeding a strain of mice with a very high incidence of spontaneous cancer of the mamma, indicating a high degree of susceptibility to cancer in the mamma. But the skin of the animals belonging to such a strain is not necessarily more susceptible to the carcinogenic action of a chemical carcinogen.

The relationship between the two factors susceptibility and carcinogenic agent can be expressed crudely by a simple equation of two variables,  $A$  and  $S$ , and a constant,  $C$

$$A \times S = C$$

In such an equation the one variable increases as the other diminishes. If  $A$  represents the carcinogenic agent,  $S$  the susceptibility and the constant  $C$  the carcinogenic effect, the equation expresses the fact that cancer can arise in an organism either with a high susceptibility and a weak carcinogenic stimulus or with a low susceptibility and a strong carcinogenic stimulus. The equation reads therefore

$$\text{Carcinogenic Agent} \times \text{Susceptibility} = \text{Carcinogenic Effect}$$

<sup>4</sup> Little C. C. A Review of Progress in the Study of the Genetics of Spontaneous Tumor Incidence. *J Nat Cancer Inst* 1: 72-1941

#### THE TIME FACTOR

There is yet a third variable which enters into the etiology of cancer, the factor of time. A considerable period of time is necessary for a carcinogenic agent to induce cancer even in a susceptible animal, and this prolonged period varies inversely with the strength of the carcinogenic stimulus and with the degree of susceptibility. It is shortest when a strong stimulus is applied to a highly susceptible animal, and it is very long when the two other variable factors have low values. This can be expressed by the equation

$$\text{Time (Carcinogenic Agent} \times \text{Susceptibility)} = \text{Carcinogenic Effect}$$

This means that the appearance of cancer at an early age indicates a strong carcinogenic stimulus or a high degree of susceptibility or a combination of the two. If, on the contrary, the carcinogenic stimulus has been weak or intermittent or/and if the degree of susceptibility has not been high, cancer will develop at later age periods. The longer the individual lives, the greater is the chance that a product of carcinogenic stimulus and susceptibility too weak to elicit cancer in early middle age will become effectively carcinogenic. This accounts for the rapid increase in the cancer incidence rate with advancing age.

#### THE ETIOLOGY OF CANCER IN MAN. CANCER A MULTIPLICITY OF DISEASES

Cancer in man may be considered as an experiment carried out by nature on the human species. But in this case we see only the end results of the experiment. In order to trace the various factors which have taken part in this experiment we must adopt a "follow-down system." The follow-up system, with which we are all familiar, enables us to determine the results of treatment. It tells us nothing about the origin of the disease. The follow-down system is only now beginning to be developed. It attempts to trace the disease in man back to its origins in the light of the knowledge gained from the experimental analysis of the disease in animals.

The first thing to bear in mind in such investigations is the great variety and variability of the etiologic factors. They are different for different organs, and even for one and the same organ there may be a variety of ways in which the several factors are present in combination. We must recognize that from the point of view of the remote causes cancer is a multiplicity of diseases in man as it is in animals. In order to trace the various etiologic factors, the vast bulk of data concerning human cancer has to be broken down into separate groups. I shall try to illustrate this point by discussing briefly the following groups:

- Primary liver cancer
- Hereditary factors
- Social factors
- Precancerous conditions
- Gastric cancer
- The hormonal etiology of breast cancer

#### PRIMARY CANCER OF THE LIVER

This disease is very rare in Europe and in this country. It is often found in the natives of the Far East and of South Africa,<sup>5</sup> and, where accurate statistical observations have been available, it has been found that the liver is the organ most frequently affected by cancer. This difference has until recently been a remarkable and puzzling phenomenon. Here is the explanation.

<sup>5</sup> The literature is reviewed by Shear M. J. *Am J Cancer* 29: 269, 1937.



Japanese investigators<sup>6</sup> found that primary liver cancer could be induced in mice and rats by adding certain azo dyes, such as butter yellow, to the diet. Such dyes are used in the artificial coloring of foodstuffs. When the experiments were repeated in European and American laboratories, liver cancer did not develop as readily or failed to appear altogether. Further investigation showed that this discrepancy was accounted for by the fact that the stock diet of the animals in Japan consisted of rice and carrots, while in European and American laboratories the stock diet was more varied and built around wheaten cereals as the basic foodstuff. This difference reflects of course general differences

TABLE 1—Proportionate Cancer Mortality in Sibs of Basal Patients with Cancer, Analyzed by Organs (Waalder)

| Percentage Incidence of Cancer in General Population |    | Lip |    | Other Sites |    |    |    | Stomach, Liver, Esophagus |    |    |    | Uterus, Breast and Ovaries |    |    |   | Prostate |   |
|--|----|-----|----|-------------|----|----|----|---------------------------|----|----|----|----------------------------|----|----|---|----------|---|
|  |    | BP  |    | BP          |    | BP |    | BP                        |    | BP |    | BP                         |    | BP |   | BP       |   |
|  |    | ♂   | ♀  | ♂           | ♀  | ♂  | ♀  | ♂                         | ♀  | ♂  | ♀  | ♂                          | ♀  | ♂  | ♀ | ♂        | ♀ |
| 17   | 17 | 17  | 17 | 23          | 22 | 22 | 32 | 32                        | 33 | 24 | 30 | 23                         | 37 | 46 | 9 |          |   |

BP = basal patient

in the respective diets consumed by different races of man in different parts of the world. Further experimental analysis by Rhoads and his collaborators<sup>7</sup> demonstrated that the two dietetic factors responsible for the difference were casein and a vitamin—riboflavin—belonging to the B complex. When these two substances are added to a diet of rice and carrots, butter yellow does not induce liver cancer.

In the story of cancer research this recent analysis of the etiology of liver cancer is one of the most interesting chapters and it is worth while to consider it in some detail. We have here again two remote causes—a carcinogenic agent—butter yellow—and the susceptibility of the liver to that agent. But in this case the susceptibility factor is not inherited or transmitted from the parent but is dependent on conditions acting on the organism from without—namely the diet. We have here also a striking demonstration of the close similarity existing between the etiologic factors determining the development of cancer in man and in animals. It is true that we have not yet identified the carcinogenic agent responsible for the prevalence of primary liver cancer among the natives of the Far East, but the dietary factor predisposing the liver, and only the liver, to the development of cancer is the same for rats and for human beings. It is therefore justifiable to conclude that liver cancer, as it occurs among the natives of the Far East, can be prevented by dietetic measures.

FAMILIAL INCIDENCE OF CANCER IN MAN

When this subject was first studied, the total incidence of cancer of all organs was made the basis of all investigations. For reasons which will become evident, such investigations failed to reveal any pronounced differences of the cancer incidence between persons with and persons without a family history of cancer.

In two more recent investigations carried out independently by Wassink<sup>8</sup> in Amsterdam and by Waaler<sup>9</sup>

in Norway the material collected by them was further analyzed according to the organ incidence. Since these two investigations are not readily accessible they will be discussed in some detail.

The basis of the material used for such investigation were persons known to suffer or to have suffered from cancer of the various organs. These are called the "basal patients." The next step was to collect information about the incidence of cancer in the near relatives of the basal patients—either the brothers and sisters—"sibs" for short—or brothers, sisters, parents, aunts and uncles. It thus became possible to determine first whether the near relatives of persons with cancer of the one organ develop cancer more frequently than does the rest of the population (table 1).

The figures show that the sibs of male basal patients with lip cancer do not suffer from cancer more frequently than the general population. There is a definite increase for the sibs of basal patients with cancer of the esophagus and stomach, and in this group there is a definite sex difference, the brothers of female patients with cancer of the esophagus or stomach showing the lowest frequency in this group. A remarkably high incidence is found among the sisters of basal female patients with cancer of the female sex organs but not among the brothers, and among the brothers of basal male patients with cancer of the prostate but not among the sisters. A second important finding was that in this population of sibs, cancer developed at a much earlier age (table 2).

The next step was to see whether the organ incidence in the cancerous relatives of basal patients suffering from cancer of one particular organ, e.g. the mamma, was the same as it is in the general population, which would indicate a general susceptibility to cancer of all organs, or whether it was different from that of the general population. Waaler found that in cancer of the mamma an inherited susceptibility affects mainly the female relatives (as seen in table 1) and in those female relatives mainly the "homotope organ"—the mamma (table 3).

TABLE 2—Proportionate Cancer Mortality in Sibs of Basal Patients with Cancer, Analyzed by Age Groups (Waalder)

|                    | Males in Age Groups |     |     |     |     | Females in Age Groups |     |     |     |     |
|--------------------|---------------------|-----|-----|-----|-----|-----------------------|-----|-----|-----|-----|
|                    | 40-                 | 50- | 60- | 70- | 80- | 40-                   | 50- | 60- | 70- | 80- |
| General population | 11                  | 20  | 22  | 14  | 5   | 16                    | 22  | 21  | 19  | 1   |
| Sibs               | 16                  | 42  | 27  | 18  | 5   | 49                    | 47  | 30  | 1   |     |

That is to say, among 100 cancerous women whose sister is afflicted with cancer of the breast—the breast patients—45 women would have cancer of the breast while in 100 cancerous women whose sisters—the breast patients—had cancer in some organ other than the mamma, only 16 women would have cancer of the breast. This proportion (16 per cent) of breast cancer in the total organ incidence approximates that found in the general female population.

A strikingly similar result was obtained by Waaler in the Netherlands (table 4).

This table is given here because it illustrates an important point, namely the chance of a development of cancer incurred by the close relatives of basal patients with breast cancer. This is a question frequently asked by relatives of cancer patients. In Wassink's study there are 660 women as basal patients with breast

6 Sasaki, T., and Yoshida, T. Virchows Arch f path Anat 295 175, 1935.  
7 Kensler, C. J., Sugiyura, K., Young, N. F., Halter, C. R., and Rhoads, C. P. Science 93 308, 1941. Sugiyura, K., and Rhoads, C. P. Cancer Research 1 3, 1941.  
8 Wassink, W. F. Genetica 17 103, 1935.  
9 Waaler, G. H. M. Ueber die Erblichkeit des Krebses, Norske Videnskaps Akademi Oslo, 1931.

cer Only 207 of these women had a history of cancer in other members of the family, so that as many as 453 of these basal patients had no relatives with cancer of any organ. But in the 207 basal patients with cancerous relatives the incidence in the relatives of breast cancer was remarkably high. Among the 192 cancerous female relatives more than one half had breast cancer, namely 112 women while in the general population of Dutch women breast cancer affects only about 10 per cent of all cancerous women.

These relationships, observed in the human subject, harmonize remarkably well with those arrived at from the experimental side. For sites such as the lip or the

chief medical officer to the registrar general of England, has demonstrated that this relationship extends far beyond the skin and beyond occupational cancer and applies also to the upper part of the alimentary tract. His analysis was carried out on the male population in England, which he divided into five social classes. Studying the cancer incidence for a number of separate organs he found that in the organs exposed to exogenous carcinogens which in addition to the skin include the alimentary tract from the mouth down to and including the stomach the cancer incidence was highest in the lowest social class and fell with a regular diminution through the other social classes to show the lowest incidence in the highest social class. In the group of organs not exposed to agencies coming from without, a group which includes the lower alimentary tract, the incidence of cancer was approximately equal in the different social classes. These results are important both from theoretical and from practical points of view. They show as a general proposition that the etiologic factors concerned in cancer of the upper alimentary tract are different from those operative for the lower alimentary tract. Their practical importance lies in the inference that the high incidence of cancer of the upper alimentary tract is related to the mode and habits of life of the lower social classes. This relationship may be called 'social cancer.' I have said earlier that cancer in man is an experiment carried out by nature on man. But occupational cancer is really an experiment carried out by man in his ignorance on himself. When the study of experimental carcinogenesis demonstrated the fact that in some occupations man exposed himself to chemical substances which were carcinogenic for the skin of animals, occupational cancer became a preventable disease. Social cancer is also an experiment carried out by man in his ignorance on himself, and with increasing knowledge of the exogenous factors involved it should, like occupational cancer, become a preventable disease.

We have here another example of the value of breaking up the available data concerning human cancer into

TABLE 4—Incidence of Cancer of All Organs and of Breast in Relatives of Patients with Breast Cancer (Hassink)

|   |             |
|---|-------------|
| Number of basal patients with breast cancer                 | 600 females |
| Number of these basal patients having relatives with cancer | 207 female  |
| Number of relatives with cancer of all organs               | 301         |
| Females   | 192         |
| Males   | 109         |
| Number of relatives with breast cancer                      | 112 females |
| Number of relatives with cancer of organs other than breast | 189         |
| Females   | 89          |
| Males   | 100         |

groups if we wish to obtain an insight into the remote causal factors determining the incidence of cancer in man. Previous investigations on the incidence of cancer in different social classes had failed to yield differences which statisticians considered to be significant. But when each site is considered separately a definite relationship comes to light.

Social cancer affords a clue to the nature of the etiologic factors for cancer of these sites. It even suggests the possibility of preventing the disease. If the mode and habits of life of the lower social classes could be corrected so as to bring them up to the standard of the higher classes it is justifiable to expect that a considerable diminution in the incidence of cancer of the upper alimentary tract would result.

TABLE 3—Percentage Cancer Incidence in Hamotopie and Heterotopie Organs in Sisters

|   | Of Basal Patients with |        |           |        |
|---|------------------------|--------|-----------|--------|
|   | Cancer Other Than      |        | Cancer of |        |
|   | Mamma                  | Uterus | Mamma     | Uterus |
| Cancer appeared in 100 cancerous sisters in | 16                     | —      | 45        | —      |
| Mamma                                       | —                      | 8      | —         | 35     |
| Uterus                                      | —                      | —      | —         | —      |

skin sites exposed to agencies acting from without the incidence of cancer is predominantly determined by the absence or presence of a carcinogenic agent coming from without—the 'exogenous carcinogenic agents.' For organs not exposed to the same extent to agencies acting from without but subject to hormonal influences leading to carcinogenesis such as the mamma and the uterus—the 'endogenous carcinogens' as we may call them—the incidence of cancer is governed largely by intrinsic factors of susceptibility. For such organs as the esophagus and the stomach which are exposed to agencies coming from without the development of cancer depends on both factors—the presence of exogenous carcinogenic agents and the existence of an intrinsic inherited susceptibility of which either the one or the other may predominate.

We have just seen how the incidence of cancer is affected in a population selected in such a way that the intrinsic factor of susceptibility predominates. How can we go about to select a population in which the incidence of cancer is governed by the presence of exogenous carcinogenic agents? This brings us to the next section.

#### SOCIAL FACTORS IN CANCER

For organs exposed to carcinogenic agents coming from without 'exogenous carcinogens' the incidence of cancer is determined largely by the presence or absence of the exogenous carcinogens. This is clearly demonstrated by occupational cancers. Cancer of the scrotal skin is rare among the general population but relatively frequent among the chimney sweeps and among the cotton spinners in England who are exposed to the mineral oil used for lubricating the spindles the so-called 'mule spinners' cancer.' In these occupations the carcinogen induces scrotal cancer. It does so only in a fraction of the individuals exposed to the carcinogenic agent namely in those persons with a high susceptibility to skin cancer, but even these persons would not have developed scrotal cancer if they had not engaged in those particular occupations. The occupation determines the incidence. A statistical analysis carried out nearly twenty years ago by Stevenson,<sup>10</sup>

<sup>10</sup> Stevenson, T. H. C. Registrar General's Decennial Supplement England and Wales 1921 Part II London 1924.

This would apply also to the stomach. Cancer of the stomach is responsible in most European continental countries for one half or more of the total cancer mortality. In this country it can be estimated to kill on the average 150 persons every day of every year. It presents a problem which cannot be easily investigated in animals, because in almost all species of animals gastric cancer is very rare and it has been difficult up to now to induce it experimentally with any degree of regularity. For investigations on the etiologic factors we are, therefore, dependent at present mainly on clinical and pathologic observations on man. For such investigations the conception of the existence of precancerous conditions on the basis of which cancer develops has been particularly helpful. Before discussing the etiologic factors for cancer of the stomach in man, I shall have to consider briefly the general meaning of the precancerous condition.

#### PRECANCEROUS CONDITIONS IN MAN

Let me recall that, when a carcinogenic agent is allowed to act on a tissue, a considerable period of time elapses before the development of a malignant condition manifests itself. During the prolonged preparatory period the tissue undergoes a pathologic change.

The conception of a precancerous condition is not new. It was first formulated many years ago by dermatologists for certain pathologic skin conditions and it was then defined as a condition in which cancer arises subsequently with a high degree of frequency. For man that definition still holds good. In human cancer it is, necessarily, a purely empirical definition and is not based on morphologic criteria, as is cancer itself. It is easy to understand why it should have been formulated by dermatologists. For in the skin the whole process of carcinogenesis is visible to the naked eye. It was later recognized also for some other organs visible to inspection, such as the tongue or the vulva. But these examples were considered by many as pathologic curiosities and not as visible examples of a general phenomenon preceding cancer. In fact, such a generalization has been contested even in recent years—and sometimes contested with some heat—by writers who claimed to speak with authority on cancer. But since it has been demonstrated experimentally that carcinogens, to produce their effect, require a prolonged period of time during which the tissue on which they act undergoes a series of pathologic changes, and since, as explained previously, the characteristic age incidence of spontaneous cancer in man and in animals finds an explanation in this long period of induction, the existence of a precancerous condition has established itself as a fairly general phenomenon in the origin of cancer. It has encouraged clinicians and pathologists to search for such conditions in different organs.

It should be noted that the precancerous condition is not necessarily represented by an epithelial hyperplasia, as in experimental skin cancer. It may be an epithelial atrophy. There are quite a number of atrophic conditions which have been found empirically to be precancerous, such as radiation dermatitis, kraurosis vulvae and the atrophic undescended testicle. Whether an epithelial hyperplasia as such or an epithelial atrophy as such are precancerous depends on the conditions by which they were produced. In the gastric mucosa three precancerous conditions have been identified: one, a gastric polypus, is hyperplastic, the two others are atrophic in nature—a gastric ulcer and chronic atrophic gastritis.

#### THE ORIGIN OF CANCER OF THE STOMACH

The stomach is in man the organ most frequently affected by cancer. In this country about 30 per cent of the total recorded mortality from cancer is represented by the recorded mortality from gastric cancer. I intentionally use the expression "recorded mortality," because there is reason to believe that gastric cancer is grossly underdiagnosed and that the actual incidence of gastric cancer is much higher. I also use intentionally the terms "mortality from gastric cancer" and "incidence of gastric cancer" as synonymous in order to bring home the fact that the percentage of patients with gastric cancer that are cured by operation is depressingly low. Even in the best clinics it does not exceed from 3 to 5 per cent of all patients. These unsatisfactory results have engendered in the medical profession a pessimistic outlook on the disease. But in view of the outstanding frequency of this form of cancer it is clear that we cannot hope materially to diminish the total cancer mortality unless there is an improvement in the results of the treatment of gastric cancer, and there are now reasons for a less pessimistic outlook. In making this statement I do not presume to offer a personal opinion. I rely on statements made by men better qualified by personal experience to judge than I am. I refer particularly to the views expressed at the recent conference on gastric cancer organized by the National Advisory Council on Cancer in October 1940 and reported in the *Journal of the National Cancer Institute* in February 1941 and to the monograph by E. M. Livingston and G. T. Pack "End Results in the Treatment of Gastric Cancer," published in 1939.<sup>11</sup> Briefly summarized, the argument runs as follows: Gastric cancer can be cured in from 30 to 40 per cent of those cases which come to the surgeon at a stage when the disease is operable and before wide dissemination has occurred. This amounts at present to about 15 per cent of all cases of gastric cancer diagnosed as such. Gastric cancer is admittedly difficult to diagnose at this stage, and the low percentage of successful treatment is due mainly to the fact the great majority of patients—about 85 per cent—reach the surgeon at a stage at which the disease has become inoperable. On this point Livingston and Pack have this to say: "The medical practitioner, the consultant and the radiologist may play precisely as great a practical role as the expert surgeon through their influence on the most important single item, that of high operability rates." And again: "The operability rate among patients with gastric cancer may be looked upon as an index of medical efficiency in the management of the disease. The role of the medical practitioner equals or even exceeds the importance of the role of the skilled surgeon." One reason for a more hopeful outlook is the improvement in modern methods of diagnosis. A second reason is the possibility of recognizing the existence in patients of precancerous conditions. A third reason is the significance of a family history of gastric cancer. The question may be raised whether the recognition of a precancerous condition in the gastric mucosa of a person with a family history of gastric cancer should not justify immediate surgical intervention. Lastly there is the fact that carcinomas of the gastric mucosa vary greatly in their tendency to metastasize, so that some types of gastric carcinoma may reach a considerable size before they develop metastatic growths.

<sup>11</sup> See also Cooper, W. A. "The Problem of Gastric Cancer," *M. A.* 116: 2125 (May 10) 1941.

The importance of the pathologic conditions in the gastric mucosa which may lead to cancer raises the question of their etiology. A chronic atrophic gastritis, which is the condition most frequently preceding cancer, may be brought about by a variety of conditions. They can be summarized as chemical, mechanical or biologic insults to the gastric mucous membrane. An example of a biologic insult which may be an etiologic factor in gastric cancer is represented by defective oral hygiene or, in plain English, a "dirty mouth." This leads to defective mastication and to the continued swallowing of infected matter. These considerations rob the etiology of cancer of the stomach of the mystery which has been believed to surround it and they direct attention to factors which are so frequent and familiar that they might be called banal. It is probably this group of etiologic factors which is responsible for "social cancer," i. e. the higher incidence among the lower social classes of cancer of the upper alimentary tract. In most people these insults to the gastric mucous membrane will not go beyond an atrophic gastritis or possibly an ulcer, but in individuals with an inherited susceptibility to gastric cancer they eventually induce cancer. There is so far no convincing statistical evidence that the excessive consumption of alcohol is an important factor in inducing gastric cancer, but Wassink has brought evidence that it is of etiologic significance for the pharynx and esophagus.

#### A HORMONAL ETIOLOGY OF CANCER OF THE MAMMA AND OF SOME OTHER ORGANS

The discovery that cancer can be induced by a number of chemical substances foreign to the physiologic economy of the body—that is to say, substances not formed by the body—has made it possible to understand the development of cancer in man in such an organ as the skin, which is exposed to agents coming from without. But how does cancer arise in organs not so exposed? A hormonal etiology of cancer of the breast was first predicated by Leo Loeb<sup>12</sup> twenty-three years ago. It has been demonstrated experimentally for organs, such as the mamma, the uterus and the thymus that substances formed in the body and having hormonal functions may be carcinogenic for these organs. At first sight the fact that a hormone can induce cancer seems startling. But on consideration it solves a difficulty. That cancer can be induced in the exposed sites by the action of carcinogenic agents which play no part in the physiologic economy of the organism is easy to understand. The difficulty was to conceive how cancer can arise in organs and tissues not accessible to the action of such exogenous carcinogenic agents. The experimentally established fact that a substance formed in the body and circulating in the blood stream is carcinogenic for at least some of these unexposed organs, the mamma, the uterus, the prostate and the thymus, resolves this difficulty. But it raises at the same time a new problem. If a hormone can act as a carcinogen for a certain organ why does not cancer develop in every individual?

We know that the strength of the carcinogenic agent—in this case the estrogenic hormone—is one factor. Observations on different strains of mice give no evidence that the females of the high cancer strains secrete more estrogen than those of low cancer strains. But the estrogenic hormone of the ovary is functionally integrated with the hormones of the other endocrine

organs.<sup>13</sup> Some of these act synergistically, e. g. a hormone from the adrenal cortex, others antagonistically, e. g. a hormone from the anterior pituitary. As a result of this endocrine integration, alterations in the functional activity of some endocrine organs other than the ovary may lead to an endocrine imbalance either in the direction of reinforcing the action of the estrogen or in the opposite direction of antagonizing it. In the maintenance of this endocrine balance for the female sex hormone the pituitary gland and the adrenal glands take a leading part. Adrenalectomy makes the animals resistant to the effect of the estrogenic hormone.<sup>14</sup> Ovariectomy, if performed at birth, leads after a long time interval to a nodular hyperplasia of the adrenal cortex in strains of mice with a high incidence of spontaneous breast cancer but not in low cancer strains. The adrenocortical hyperplasia is followed by development of the mamma which may proceed to cancer.<sup>15</sup> A remarkable feature of this phenomenon is that it applies also to male animals, in which castration soon after birth may lead to a nodular hyperplasia of the adrenal cortex and even to mammary cancer.<sup>16</sup> It is conceivable, then, that a disturbance of the endocrine balance in a direction enhancing the functional activity of the estrogenic hormone such as an adrenal cortical adenoma, may be an etiologic factor for breast cancer. The association of such changes in the adrenals with spontaneous mammary cancer in animals has been recorded by Bagg<sup>17</sup> in rats and by Greene<sup>18</sup> in rabbits. Instead of a cortical hyperplasia a degeneration of the adrenal medulla has been found to be associated in some strains with a high incidence of breast cancer.

#### COMMENT

This is only a brief outline of the various etiologic factors concerned in breast cancer. But it is sufficient to show that a new field for clinical and pathologic observations has been opened. The presence of a family history of breast cancer is an extremely valuable aid in the early diagnosis especially when the clinical or pathologic evidence is doubtful. Another problem of practical importance requiring solution is the question whether patients with breast cancer and a family history of breast cancer are more likely to develop a second primary tumor in the other breast. Further a thorough examination of the adrenals and the pituitaries at autopsies of patients dead of breast cancer and with a family history of breast cancer may reveal a group in which there is an association between breast cancer and abnormalities of these endocrines.

#### CONCLUSION

I began this lecture by asking the question: Why does a patient get cancer? We have been told often enough, even in recent times, that this question cannot be answered until the problem has been solved of the nature of the proximate cause of cancer—that is the nature of the intracellular changes by which a normal cell is transformed into a cancer cell. This belief engenders a pessimism which hinders further progress. The point I have tried to make in this lecture is that there is no longer a central problem of cancer on the

12. A detailed discussion of these relationships may be found in Cramer, William. *The Sex Hormones and the Endocrine Balance*. M. I. de Leon Goldsmith Lecture Bull. New York Acad. Med. 1-3, 1941.

13. Cramer, William and Horning, E. S. *Lancet* 1, 192, 1939.

14. Woolley, G. Fekete, E. and Little, C. C. *Proc. Soc. Exper. Biol. & Med.* 45, 796, 1940.

15. Woolley, G. Fekete, E. and Little, C. C. *Endocrinology* 28, 341, 1941.

16. Bagg, H. J. and Hagopian, F. *Am. J. Cancer* 35, 173, 1939.

17. Greene, H. S. *N. J. Exper. Med.* 70, 1-7, 1939.



solution of which further progress depends. In fact, it is an error to think in terms of a central problem of cancer. From a correlation of the results obtained by the study of experimental carcinogenesis in animals with clinical and pathologic observations and with statistical investigations on cancer in man, it has become evident that there is a multiplicity of etiologic factors and that the etiology of cancer in man, as in animals, has to be considered as a separate problem for each organ.

In this way we are now beginning to trace cancer in man down to its various sources of origin. What is more, we are entitled now to consider the possibility of preventing several forms of cancer in man by attacking the disease at its origin instead of remaining on the defensive until the disease has attacked man. Further progress along these lines is possible by the same collaboration of the laboratory worker with those concerned with the study of cancer in man, which forty years ago established the curability of cancer in its early stage.

Washington and Theresa avenues

### RENAL CHANGES IN A CASE OF SULFADIAZINE ANURIA

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DETROIT

Early in the treatment of pneumonia with sulfapyridine and sulfathiazole, attention was drawn to the side effects of those drugs on the kidney. Complications involving the urinary tract have been caused by obstruction of the ureters, kidney pelvis, calices and tubules by crystals of the acetylated form of the drug and secondly by toxic effects of the drugs on the kidney tissue. Changes noted in renal tissues were cloudy swelling and desquamation in the tubules.

Such changes were noted by Smith and Delaney,<sup>1</sup> who have recently reported 5 cases of pneumonia in which renal complications developed following treatment with sulfapyridine and sulfathiazole. Two patients

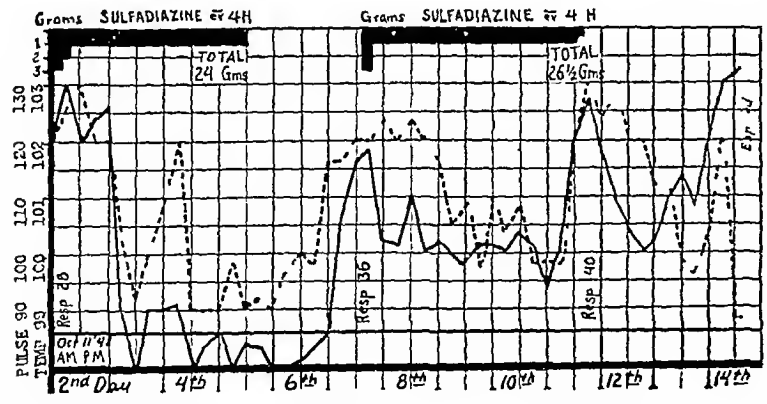


Fig 1—Clinical course of patient who received sulfadiazine for type III pneumococcus pneumonia

failed to survive and came to postmortem examination. In the first instance sulfapyridine was administered. Pathologic examination of the kidneys showed definite degenerative changes confined largely to the convoluted tubules. The second patient suffered from chronic

glomerulonephritis, contracted pneumonia and was treated with sulfathiazole. Postmortem examination showed cloudy swelling and desquamation in the tubules, in addition to those changes typical of glomerulonephritis. A third patient, a woman, suffered with anuria following sulfathiazole therapy. She recovered but



Fig 2—Sulfadiazine uroliths in the renal pelvis. Note ulceration of the adjacent pelvic epithelium with underlying zone of inflammatory reaction. Deposits of acetylated drug in the renal tubules in nearby area.

follow-up studies of the renal function suggested persistent evidence of minor tubular damage, although there was a complete restoration of glomerular function.

Early work on absorption, excretion and toxicity of the newer drug sulfadiazine by Feinstein,<sup>2</sup> Plummer<sup>3</sup> and others suggested that the drug would have the desirable qualities of sulfapyridine and sulfathiazole and at the same time fewer of the undesirable side reactions. Experimentally sulfadiazine was absorbed promptly after oral administration and gave relatively high blood concentrations, there was less acetylation and less toxic reaction on body tissue, especially in the urinary tract. The drug moreover, was just as efficient as sulfapyridine and sulfathiazole in controlling infection caused by pneumococci. Sulfadiazine was found to leave the blood stream slowly, elimination was largely through the kidneys.

Although published reports have appeared in the literature of series of sulfadiazine treated pneumonia patients, only 2 instances of anuria following the use of the drug have been noted. In his series of 44 cases Finland<sup>4</sup> reported renal colic, hematuria and anuria in 1 case, the patient responded to ureteral catheterization. A second case of anuria following sulfadiazine therapy for infection of the urinary tract was reported by Thompson,<sup>5</sup> his patient also recovered following ureteral catheterization.

The following report is that of a patient who received sulfadiazine for type III pneumococcus pneumonia. Administration of the drug was followed by renal manifestations characterized by hematuria, albuminuria,

From the Department of Medicine, Henry Ford Hospital.  
1. Smith, F. J. and Delaney, J. H. Kidney Complications in the Chemotherapy of Pneumonia. *Trans Am Clin & Climatol A* 57: 112, 1941.

2. Feinstein, W. H., Williams, R. D., Wolff, R. T., H. Evelyn and Crossley, M. L. Toxicity, Absorption and Effect of Activity of 2 Sulfonil Amidopyrimidine (Sulfadiazine). *Bull J Hopkins Hosp* 67: 427-456 (Dec) 1940.  
3. Plummer, Norman, Liebmann, James, Solomon, Saul F. W. H., Kalkstein, Mennasch and Ensworth, H. A. Chemotherapy Combined Chemotherapy and Serum in the Treatment of pneumonia. *J A M A* 116: 2366-2371 (May 24) 1941.  
4. Finland, Maxwell, Strauss, Elias and Peterson, O. L. Sulfadiazine. Therapeutic Evaluation and Toxic Effects on Febrile and Forty Six Patients. *J A M A* 116: 2641-2647 (June 14) 1941.  
5. Thompson, G. J., Herrell, W. E., and Brown, A. F. Sulfadiazine Therapy. *Proc Staff Meet Mayo Clin* 16: 177-182 (24) 1941.



sulfadiazine crystals in the urine, urinary suppression and azotemia followed by death. A pathologic study of the kidneys was obtained in this instance.

#### REPORT OF CASE

J. H., a Polish man aged 64, was admitted to the Henry Ford Hospital Oct 11, 1941 and died October 23. For years he had suffered from bronchial asthma. He had remained at home for one week prior to admission because of fever, malaise and a cough productive of large amounts of thick yellowish phlegm. The day before admission the temperature rose to 104 F and there was a chill with an associated pain in the anterior part of the chest.

The patient was slender and was obviously ill, with a temperature of 102 F, a pulse rate of 120 and a respiratory rate of 28. The lips and finger nails were cyanotic. His cough was productive of yellowish sputum. Examination of the chest showed impairment bilaterally over the lower lung fields with suppression of breath sounds; there were numerous moist rales. The blood pressure was 125 mm of mercury systolic and 65 diastolic. The abdomen was moderately distended.

The admission leukocyte count was 23,000, with 91 per cent polymorphonuclear cells. The urine was the color of light straw with a specific gravity of 1.018 and contained a trace of albumin. Microscopic examination revealed 1+ finely gran-

The blood sulfadiazine level was 12 mg per hundred cubic centimeters. The nonprotein nitrogen level had risen to 79 mg per hundred cubic centimeters and the urine contained 3+ sulfadiazine crystals and 4+ erythrocytes. The patient was given supportive treatment including oxygen, dextrose and saline solutions intravenously and small blood and plasma



Fig 4—Section under high power showing uroliths deposited in kidney parenchyma.

transfusions. For forty-eight hours preceding death the urinary output ceased and the blood nonprotein nitrogen rose to 131 mg per hundred cubic centimeters. The blood sulfadiazine level had dropped to 4.9 mg per hundred cubic centimeters. Permission for pathologic study of the kidneys only was granted. Necropsy was performed one hour post mortem by Dr. M. O. Alexander.

#### PATHOLOGIC EXAMINATION

The right kidney weighed 290 Gm and the left 305 Gm. The capsule of each kidney presented opaque areas but stripped with ease showing smooth purplish surfaces except for a few small cysts. The cut edges rolled, indicating the presence of edema. The cortex of the right kidney averaged 8 mm in width, that of the left 7 mm. The cortices and pyramids on each side were colored a light purplish gray while the latter contained linear vascular striations. The renal pelvises were not dilated and their lining surfaces were grayish red and congested. The pelvises contained a large amount of light



Fig 5—Sulfadiazine uroliths deposited in the peripelvic adipose tissue. Note dark zone of inflammatory reaction nearby.

brown, gritty material which on analysis contained 92 per cent acetylated, 6 per cent free sulfadiazine and 6 per cent protein.<sup>6</sup> The bladder contained about 50 cc of urine. The mucosa of the ureters and bladder appeared normal.

On section the capsule showed no evidence of inflammatory reaction. The glomeruli appeared normal except for slight engorgement of the capillaries. The periglomerular space was

<sup>6</sup> Chemical analysis on dry weight was done by the Bratton-Marshall technique.



Fig 3—Section under high power showing ulceration of epithelial lining of renal pelvis adjacent to acetylated drug deposit in kidney pelvis. Note zone of intense inflammatory reaction with associated hemorrhage, necrosis and polymorphonuclear and small round cell infiltration.

ular and 2+ coarsely granular casts. Sputum examination by the Neufeld rapid method yielded numerous type III pneumococci.

The patient was started on sulfadiazine (fig 1). He was given an initial dose of 3 Gm followed by 2 Gm in four hours, then 1 Gm every four hours thereafter. On the third hospital day the blood sulfadiazine level was 86 mg per hundred cubic centimeters and the temperature had returned to normal. Examination of the chest showed persistent impairment bilaterally with showers of medium moist rales in both impaired areas. The leukocyte count had decreased to 5,000. The urine contained 3+ sulfadiazine crystals and 3+ albumin. The blood nonprotein nitrogen was 34.5 mg per hundred cubic centimeters. Because the temperature had returned to normal and because of the urinary conditions and low leukocyte count sulfadiazine was discontinued; a total of 24 Gm had been given.

On the fifth hospital day the leukocyte count had risen to 24,350 cells per cubic millimeter with 84 per cent polymorphonuclear cells. The temperature rose to 101.6 F and there were physical signs of an extension of the pneumonic process in the right lung. Sulfadiazine was again started with an initial dose of 3 Gm, followed by 1 Gm every four hours. When the patient had received 26.5 Gm of the drug in the second course it was stopped because of an alarming decrease in the urinary output as is shown in the accompanying table. The total amount of the drug given was 50.5 Gm.

free of cellular content. Blood vessels in the medullary portion of the kidneys were very congested. An area of intense inflammation with extensive necrosis adjacent to the pelvis was noted. Here only was the renal tubular structure entirely destroyed.

Microscopic examination showed drug deposits in the pelvis of the kidney. Immediately adjacent to the drug deposit the epithelial lining of the pelvis was ulcerated. Beneath the ulcerated areas was an area of intense inflammatory reaction and necrosis, with extensive hemorrhage, polymorphonuclear and round cell infiltration. The remaining tubular epithelium was essentially intact except for certain areas which contained drug deposits and desquamation and swelling of the tubular epithelium.

Uroliths surrounded by polymorphonuclear and small round cells were present within the renal pelvis and in several areas occupied the marginal zone of necrotic tissue. Numerous uroliths appearing to have a crystalline structure were present in the renal pelvis and within the urinary papillae.

#### COMMENT

The histologic appearance of the kidneys in this case in which sulfadiazine therapy resulted in anuria resembled that produced experimentally by Antopol and his

Plummer and McLellan<sup>9</sup> and Stryker<sup>10</sup> referred to the occurrence of sulfapyridine calculi within the renal pelvis and calices but noted no zone of surrounding intense cellular reaction. Stryker and others<sup>11</sup> have also described the collection of plugs of sulfapyridine within the renal tubules.

The case herein presented showed many sulfadiazine uroliths in the renal pelvis and renal papillae with an associated necrosis and inflammation in the surrounding tissue. There was some swelling and desquamation in the tubules, some of which contained deposits of the drug. In areas adjacent to the drug deposits, renal tubular structure was entirely destroyed. Hematuria was an accompanying clinical evidence of crystalluria.

This case does not illustrate a favorable result in the sulfadiazine therapy of pneumonia. The total amount of the drug given was not optimal. Cystoscopy and irrigation of the ureters was not performed initially when there was a diminution of the daily urinary output, and later, when anuria occurred, the precarious condition of the patient made this procedure of doubtful

*Sulfadiazine Intake and Urinary Output*

| Day of Disease | Fluid Intake, Cc | Sulfadiazine Administration |          | Blood Sulfadiazine Level, Mg per 100 Cc |                              | Urine Output, Cc | Urine Crystals Sulfadiazine | Blood Nonprotein Nitrogen * | Comment                | White Blood Cells | Differential Polymorphonuclears |
|----------------|------------------|-----------------------------|----------|---|------------------------------|------------------|-----------------------------|-----------------------------|------------------------|-------------------|---------------------------------|
|                |                  | Number Doses                | Total Gm |   |                              |                  |                             |                             |                        |                   |                                 |
| 2              | 5,150            | 6                           | 9        |   | Invol 4 x                    | 300              | 0                           |                             | Dehydrated, semistupor | 31,600            | 90%                             |
| 3              | 4,750            | 6                           | 6        | 8.6                                     | Invol 1 x                    | 750              | 3+                          | 34.5                        | Perspiring freely      |                   |                                 |
| 4              | 3,450            | 6                           | 6        | 6.6                                     | 1 spec lost                  | 950              | 0                           |                             | Perspiring freely      | 5,000             |                                 |
| 5              | 3,030            | 3                           | 3        | 8.1                                     |                              | 525              | 0                           |                             |                        |                   |                                 |
| 6              | 3,050            | No drug during 50 hr        |          | 4.6                                     | Up to bathroom specimen lost |                  |                             |                             | Perspiring freely      | 8,150             | 80%                             |
| 7              | 3,600            | 3                           | 5        |   | 2 specimens lost             | 600              | 0                           |                             |                        | 24,350            | 84%                             |
| 8              | 3,750            | 6                           | 6        | 9.4                                     |                              | 1,950            | 0                           |                             | Hiccups                | 20,800            | 84%                             |
| 9              | 3,850            | 6                           | 6        | 12.2                                    |                              | 1,650            | 3+                          |                             |                        | 11,900            | 82%                             |
| 10             | 3,750            | 6                           | 6        | 10.2                                    |                              | 950              | 4+                          |                             |                        |                   |                                 |
| 11             | 3,600            | 4                           | 3½       | 12.0                                    |                              | 405              | 3+                          |                             |                        | 13,000            | 92%                             |
| 12             | 3,900            | 0                           | 0        | 14.2                                    |                              | 830              | 3+ & RBC                    | 79.0                        | Perspiring             | 21,850            | 94%                             |
| 13             | 3,200            | 0                           | 0        | 6.8                                     |                              | 360              | 1+ & RBC                    | 115.6                       | Skin dry               |                   |                                 |
| 14             | 1,200            | 0                           | 0        | 4.9                                     |                              | 0                |                             | 131.0                       | Died 2:56 p m          |                   |                                 |

\* Note rising nonprotein nitrogen level

associates<sup>7</sup> with sulfonamide drugs. Rats given single lethal doses of sulfathiazole or sulfapyridine showed an accumulation of precipitated noncrystalline free drug within the urinary tract. On the other hand, in animals in which sulfonamide administration was prolonged resulting uroliths were composed of acetylated drug. The authors used the term "calcifying nephrosis" to describe the reaction in the tissue zone adjacent to the drug deposits. Special staining demonstrated calcium deposition not only in the zone adjacent to the tubules but also within the lumen. Intense inflammatory changes and extensive necrosis occurred in tissue surrounding the drug deposit when the accumulations were not removed by irrigation within twenty-four hours.

Recently Gross, Cooper and Hagen<sup>8</sup> reported occurrence of urolithiasis in rats given sulfadiazine and postulated that this complication would also be observed in man. They concluded that crystal deposition took place almost exclusively within the renal tubules. They commented on the absence of hematuria because of the fan-shaped, rounded contour of the crystals and also on the absence of tissue trauma because of imprisonment of crystals within the tubular structures.

therapeutic value. Impending renal complications may be suggested by the failure of the urinary output to increase as clinical improvement occurs.<sup>12</sup>

#### CONCLUSIONS

1 Sulfadiazine therapy for type III pneumococcal pneumonia in a man resulted in urinary suppression and death.

2 Postmortem examination was limited to a study of the kidneys.

3 In the portions of kidney tissue adjacent to deposits of acetylated sulfadiazine, tissue damage was in evidence. Changes noted were ulceration through the epithelium lining the renal pelvis, with an associated area of intense inflammatory reaction and necrosis. The precipitated drug was also noted in the renal tubules; some tubules were swollen and desquamated.

4 There is need for early ureteral catheterization and pelvic lavage when one is confronted with renal complications associated with sulfadiazine therapy.

9 Plummer, Norman, and McLellan, Frederick. The Production of Sulfapyridine Renal Calculi in Man Following Administration of Sulfapyridine. *J A M A* 114: 943-946 (March 16) 1940.

10 Stryker, W. A. The Nature of the Renal Lesion in Sulfapyridine Therapy. *J A M A* 114: 953-954 (March 16) 1940.

11 Antopol, William, and Robinson, Harry. Urolithiasis as a Complication After Oral Administration of 2 (Sulfanilamide) (Sulfapyridine). *Proc Soc Exper Biol & Med* 40: 423-431 (1941).

12 Don, A. H., Flippin, H. F., Reinhold, J. G., and Schwartz, J. Caused by Sulfapyridine Therapy. *Canad M A J* 12: 27 (Jan) 1939.

7 Antopol, William, Lehr, David, Churg, Jacob, and Sprinz, Helmut. Changes in the Urinary Tract and Other Organs After the Administration of Three Sulfanilamide Derivatives. *Arch Path* 31: 592-602 (May) 1941.

8 Gross, Paul, Cooper, F. B., and Hagen, M. L. Urolithiasis Medullaris Camentosa Caused by Sulfadiazine. *Am J Clin Path* 2: 882-890 (Dec) 1941.

VENOUS ANGIOMAS OF SKELETAL  
MUSCLE

REPORT OF FOUR CASES

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An angioma may be defined as a tumor mass composed of vascular channels and spaces (arterial, venous, capillary or lymphatic), nearly always of benign nature arising in various areas of the body. There is divergence of opinion as to the nature of these growths. By some they are considered as true tumors and it is well known that they may grow and exhibit the characteristics of a malignant neoplasm. By others, however, they are looked on as a simple malformation—a mass of “swollen blood vessels”—in some instances, at least clearly related to injury. Their course is variable, many remaining stationary some actually disappearing spontaneously. Though the majority are congenital in origin they often do not produce symptoms until the age of late childhood or early adult life.

The features of angiomatous malformations in different regions of the body have been adequately covered in the literature. Davis and Kitlowski<sup>1</sup> and subsequently Jenkins and Delaney<sup>2</sup> reviewed in detail the subject of angiomatous tumors of skeletal muscle, bringing up to date reports from the literature on some 250 cases. The classic monograph of Cushing and Bailey<sup>3</sup> published in 1928, dealt extensively with blood vessel tumors arising in the brain. In 1930 Bucy and Capp<sup>4</sup> made a comprehensive study of primary hemangiomas of bone, recording their observations in a series of 8 cases and emphasizing particularly the roentgenologic aspects. Pierson, Farber and Howard<sup>5</sup> reported a case of multiple hemangiomas of bone, probably of congenital origin. Other contributions in the recent literature include the study of Matas<sup>6</sup> on arteriovenous angioma of the arm with metastases, of Hampton and Sampson<sup>7</sup> on angioma of the tympanic cavity, of Oughterson and Tennant<sup>8</sup> on angiomatous tumors of the hands and feet and of Kevorkian<sup>9</sup> on hemangioma of the uterus. The recorded cases of angiomas of the skin and their treatment are legion.

Our purpose in this communication is to report 4 cases of angioma of skeletal muscle that have recently come under our observation, emphasizing particularly their roentgenologic characteristics. While this condition is not of extreme rarity, it occurs infrequently, and many are unfamiliar with the clinical and roentgeno-

logic features. The latter, because of the presence of phleboliths in the angioma, are almost pathognomonic. Once the condition has been encountered it is not likely, subsequently, to present any difficulty in diagnosis.

**CASE 1**—*Venous angioma of the right arm just above the elbow. Recurrent attacks of pain and swelling for thirteen years. Diagnosis by roentgen examination confirmed by injection of diadrasol. Roentgen therapy.*

M. L., a housewife aged 23, was referred to us in October 1940 by Dr. John Thompson because of pain and swelling in the region of the right elbow. At the age of 10 she first became aware of trouble with this elbow in association with an infection which she thinks was a cold. Her elbow was “stiff,” swollen and painful at that time. The condition persisted for about two weeks and was called inflammatory rheumatism. Ever since then on two or three occasions each year the patient had had an episode of pain, swelling and stiffness in the elbow lasting two to five days. The arm also seemed to be somewhat stiff and troublesome at times during rainy weather. She had had none of this for nearly two years until the present episode and though there had always remained some slight residual swelling in the elbow, there had been no persistent pain in it and she had been able to carry suitcases or heavy weights

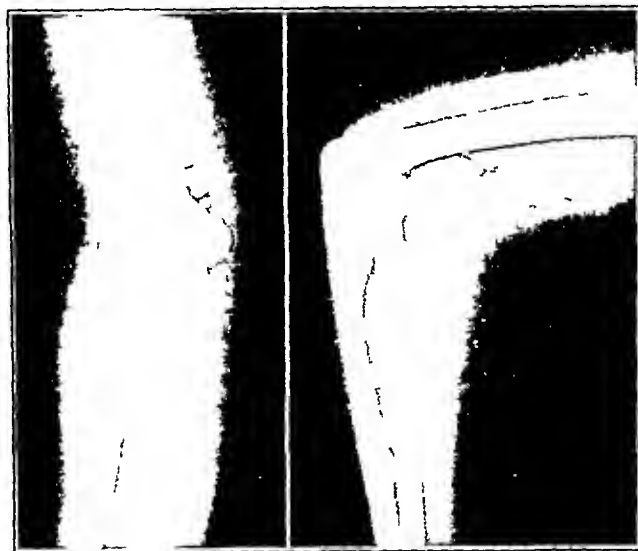


Fig. 1 (case 1).—Multiple phleboliths in the noncircumscribed angioma above the elbow joint. The bones are normal.

with her arm extended. About three weeks before without any trauma or other precipitating cause, the arm at the elbow became swollen over a period of three or four days. The patient applied hot applications and a liniment and the swelling subsided somewhat though tenderness and pain on motion persisted. She at first took sulfanilamide, and this seemed to have some good effect.

During the latter part of this three week illness she had had pain in both knees and in the posterior aspect of both heels. This pain had been very bad at times, necessitating her staying in bed but had subsided following salicylate therapy. She had had elevation of temperature as high as 102 F during the acute stage of her illness.

The right arm showed a moderate fusiform swelling in the region of the elbow, maximal over the joint and extending 3 or 4 cm below and 6 or 7 cm above. The arm was least painful with the elbow flexed at about 110 degrees. There was extreme pain on motion of the joint which made it impossible to determine the extent of limitation of motion. There was no evident discoloration of the skin. Nothing other than moderate tenderness and some increase in local temperature could be made out on palpation. No bruit was audible over the swelling. Except for some pain on motion of the knees tenderness over the attachment of the Achilles tendon and moderate generalized pallor of the skin and mucous membranes, the rest of the physical examination was negative. The tem-

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<sup>1</sup> Davis, J. S. and Kitlowski, E. A. Primary Intramuscular Hemangiomas of Striated Muscle. *Arch. Surg.* 20: 39 (Jan.) 1930.

<sup>2</sup> Jenkins, H. P. and Delaney, P. A. Benign Angiomatous Tumors of Skeletal Muscles. *Surg., Gynec. & Obst.* 55: 464 (Oct.) 1932.

<sup>3</sup> Cushing, Harvey and Bailey, Percival. Tumors Arising from the Blood Vessels of the Brain. Springfield, Ill. Charles C. Thomas, 1928, p. 219.

<sup>4</sup> Bucy, P. C. and Capp, C. C. Primary Hemangioma of Bone with Special Reference to Roentgenologic Diagnosis. *Am. J. Roentgenol.* 23: 1 (Jan.) 1930.

<sup>5</sup> Pierson, J. W., Farber, George and Howard, J. E. Multiple Hemangiomas of Bone. Probably Congenital. *J. A. M. A.* 116: 2145 (May 10) 1941.

<sup>6</sup> Matas, Rudolph. Congenital Arteriovenous Angioma of the Arm. Metastases Eleven Years After Amputation. *Ann. Surg.* 111: 1021 (June) 1940.

<sup>7</sup> Hampton, A. O. and Sampson, D. A. Roentgen Diagnosis of Angioma of the Tympanic Cavity. *Am. J. Roentgenol.* 41: 25 (Jan.) 1939.

<sup>8</sup> Oughterson, A. W. and Tennant, Robert. Angiomatous Tumors of the Hands and Feet. *Surgery* 5: 73 (Jan.) 1939.

<sup>9</sup> Kevorkian, A. Y. Hemangioma of the Uterus Treated with Roentgen Rays. *New England J. Med.* 223: 1 (July 4) 1940.

perature was normal, the pulse rate, 90. The red blood cell count was 3,780,000, the white count 6,200.

An x-ray film (fig 1) taken a short time before the patient was seen showed the unusual condition evident in the illustration, namely, multiple dense rounded shadows in the soft tissues above the elbow, several of them laminated, the largest one about 6 mm in diameter. These were recognized as phleboliths, their presence in this region indicating a venous angioma. There was no evidence of disease of the joint itself or of the bones. (Even with this added information, one could not palpate any nodules in the swelling above the elbow.)

With continuance of local heat to the arm and salicylates, the patient made a prompt recovery, the discomfort disappearing in her lower extremities within a few days, the pain, tenderness and swelling in her arm gradually subsiding over a period of a week. At the end of this time the patient had no complaints referable to her arm other than her inability to straighten it beyond about 160 degrees, and pain on relatively slight traumatization. It was believed that this attack, similar in kind to the others she had had intermittently over a period of ten years, but of much greater intensity, represented an inflammatory reaction in the venous channels of the angioma, probably a thrombophlebitis. The nature of the trouble in her knees and ankles was not clear. This, she repeatedly attested, was the first time any joints other than the right elbow had ever been involved during an attack. It was thought possibly to represent a toxic reaction in the knee joints and at the site of attachment of the achilles tendon.

Several weeks after the patient had recovered, in an effort to substantiate the diagnosis of angioma, an injection of Diodrast Compound Solution (50 per cent diodrast)<sup>10</sup> was made in a vein on the medial side of the wrist with a tourniquet applied high up on the upper arm. X-ray films (figs 2 and 3) showed the extraordinary plexus of veins making up the angioma and several large venous lacunae near the periphery. These, furthermore, showed the extent of the angioma and made clear the difficulties that would be encountered in attempting excision of the tumor. Because of the size and location of the lesion

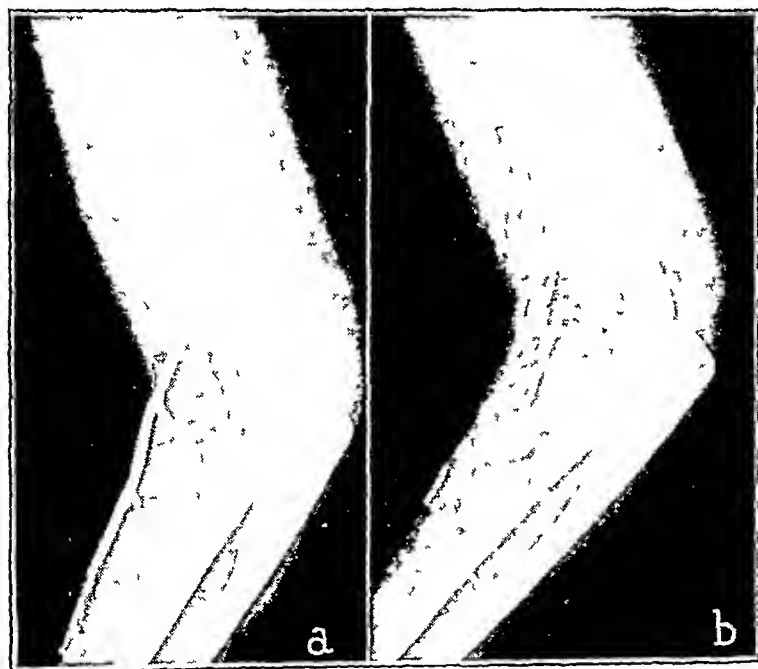


Fig 2 (case 1)—Lateral view during injection of diodrast after injection (a) of 10 cc, (b) of 20 cc. Note large lacunae and extensive anastomosis of venous channels.

plus the patient's objection to any operative procedure, roentgen treatment was carried out. The rationale of this therapy is based on the known effect of roentgen irradiation on angiomas in the skin and those in the brain, as seen, treated and followed up in Dr Cushing's service. The factors used and the doses given were as follows: 200 kilovolts, 50 cm skin-target distance, 0.5 mm of copper and 1 mm aluminum filter, 18 milliamperes current, constant potential full wave rectification.

Treatments were given twice a week beginning November 4 and ending November 29. Each treatment was of three minutes' duration (200 roentgens) and the fields were alternated medially and laterally, including all of the demonstrably abnormal vessels. The total dose was 800 roentgens to each of two surfaces over the tumor.

There was no clearcut objective or subjective improvement following this treatment. When examined several weeks after the last treatment, the patient stated that she had experienced no discomfort in her arm, save for slight pain in the region of the elbow if she attempted to straighten out the arm by force. The right elbow region still showed a slight fusiform swelling with some increase in local skin temperature. The most noticeable swelling was just lateral to the olecranon process. Over this area the skin showed a faint bluish discoloration, and there was a soft, nontender jelly-like mass palpable just beneath the skin. No nodules could be felt, and, again, no bruit was audible.

As a means of evaluating the effect of roentgen therapy a second injection with diodrast was made three and a half months after the last roentgen treatment. During this interval the patient had been symptomless, no obvious change in the appearance of her arm had taken place. Figure 4 indicates the condition of the angioma at this time. With the same amount of diodrast injected, there appeared to be a much less extensive anastomosing plexus of blood channels. Encouraged by this apparent improvement, we have carried out a second series of roentgen treatments with the same dosage as before. The treatments were completed on April 21, 1941, without any apparent effect. Except for two minor attacks of pain and stiffness since that time the patient has been free from symptoms other than pain on forced extension of the elbow beyond 160 degrees.

**CASE 2—Venous angioma of the left arm just above the elbow, previously diagnosed fatty tumor. Persistent nontender swelling for sixteen years. Diagnosis by roentgen examination. Surgical excision.**

S. J., a woman aged 32, single, was referred for an x-ray examination of the left elbow by Dr William T. Green, who gave permission to publish the details in this report. The patient stated that at about the age of 16 she became aware of a small swelling just above the left elbow on the inner aspect of the arm. A small mass of tissue was removed from this area which she was led to understand was a "fatty tumor." The operative wound healed normally. During the subsequent years a slight nontender swelling had persisted in this region which would ache at times after she had exercised her arm, though never so as to incapacitate her. For three or four years the skin over this swelling had occasionally exhibited a variable degree, so she thought, of bluish discoloration. Some two weeks before being seen there had occurred, without obvious cause, a dull aching pain just above the elbow. There were also associated twinges of pain radiating down the forearm from the hand to the little finger. She had suffered no loss of strength or limitation of motion in the arm, but she considered the swelling to be larger than usual.

Examination revealed a soft, slightly tender mass approximately 7.5 by 2 cm in size just above the inner aspect of the left elbow. The skin over the mass had a faint bluish discoloration, and within it could be felt several small hard nodules.



Fig 3 (case 1)—Anteroposterior view following injection of 20 cc of diodrast showing, better than the lateral view, the extent of the angioma, lacunae and component vessels.

<sup>10</sup> The Winthrop Chemical Company, Inc., New York supplied the Diodrast Compound Solution used in this study.



Pressure did not produce pain locally or along the course of the ulnar nerve. There was no limitation of motion or abnormal mobility. No murmur could be heard over the mass.

X-ray examination of the elbow (fig 5a) showed a smoothly outlined oval tumor just above the medial condyle of the humerus measuring 1.5 by 6 cm in size. Within the tumor were multiple phleboliths of varying size and density. The tumor was considered, because of these a venous angioma. A film of the other elbow showed no variation from normal.

Gaseous anesthesia was administered and with a tourniquet applied above the tumor dissection was carried through the deep fascia. The tumor was found to be made up of a mass of blood vessels invading the triceps muscle and growing around the ulnar nerve. A clean dissection was carried out which necessitated opening the nerve sheath, and it was possible for the operator to remove what he considered to be the entire tumor. Postoperatively the patient experienced numbness of the fourth and fifth fingers of the left hand with loss of power to abduct these fingers. This persisted for several days but gradually cleared up entirely. The wound healed by first intention.

The tumor showed on gross pathologic examination muscle and connective tissue containing several phleboliths measuring up to 7 mm in diameter. Sections of the tissue revealed that it was a cavernous hemangioma containing organizing thrombi.

The patient has had no recurrence of any trouble during the two and a half years since operation. Roentgenograms taken at the end of this interval (fig 5b) show complete disappearance of the phleboliths and normal soft tissues and bones in the region of the elbow.

**CASE 3—Venous angioma of left forearm and hand with involvement of phalanges and metacarpal bones. Enlarged veins of fingers, hand and forearm since birth. Periodic swelling following exercise. Diagnosis by roentgen examination. Roentgen therapy.**



Fig 4 (case 1)—Anteroposterior view following injection of 20 cc of diodrast three and one half months after roentgen irradiation. Note the apparent decrease in the intercommunicating vessels. (Compare with fig 3.)

R. M., a youth aged 18, a stenographer, was first seen in the surgical service of this hospital in 1929 complaining of a painful swelling of the left hand and forearm with subcutaneous hemorrhages on the palmar surface. It had been noted a few weeks after his birth that there were numerous enlarged veins on the palmar surface of the three medial fingers of the left hand and on the palm and ventral surface of the left forearm. These caused no particular difficulty but as the patient grew up he noticed that following the use of his arm in such activities as heavy lifting, shoveling or rowing a boat the arm and hand would exhibit painful swelling that would persist for varying periods of time. On one occasion after the administration of diphtheria antitoxin there had been much swelling. The enlargement necessitating his present admission had come on four days before following the handling of some heavy boxes. The arm and hand in addition to being swollen had seemed to turn a bluish red and he had noted considerable pain on moving the fingers or wrist. There had been no throbbing and no general constitutional symptoms. There was no history of any similar trouble in other members of his family.

The patient was large and muscular. Physical examination apart from the left arm and hand showed no significant abnormality. The left arm from the elbow down was swollen, reddish blue, distinctly warm to the touch and tender. In the hand the swelling involved the palm and the palmar surface of the three medial fingers. The dorsal surface and the thumb and

index finger were not noticeably affected. There were minor subcutaneous hemorrhages in the swollen parts. The radial pulses were equal. Enlarged veins were noted by one observer in the left axilla. The appearance of the arm and hand is shown in figure 6. Laboratory studies of the urine and blood, including bleeding and clotting time, were normal. During his weeks stay there were occasional mouth temperatures of 99.4 and 99.6 F. X-ray examination (figs 7 and 8) showed

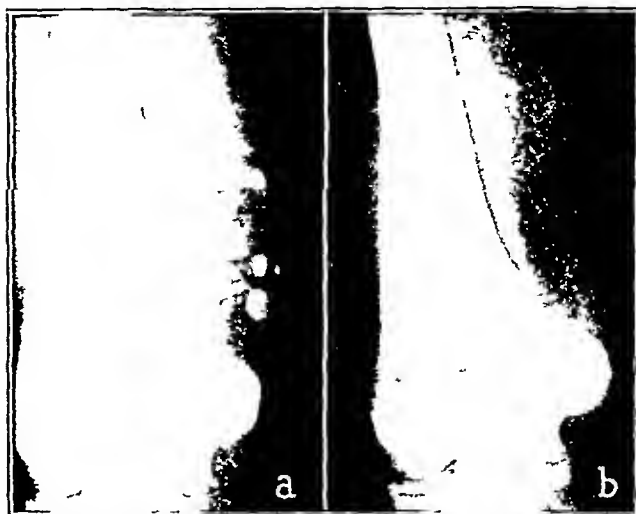


Fig 5 (case 2)—Multiple phleboliths of varying size and density completely removed by operation. a before and b two and one half years after surgical excision of circumscribed angioma.

multiple phleboliths of various sizes in the left forearm and palm (none in a control film of the right arm). Several of the bones of the hand showed a peculiar honeycombed appearance, particularly the second phalanx of the fifth finger, less marked in all three phalanges of the ring finger and slight in the third, fourth and fifth metacarpals. The other bones appeared normal. These findings were considered indicative of an angioma of the left forearm and hand and a similar type of lesion in several of the bones.

The arm was treated for a week by elevation and hot soaks with resulting reduction in the swelling, discoloration and tenderness. Further diminution was evident when the patient was seen again a month later for discussion as to the most advisable therapy. The condition was considered a congenital venous hemangioma of the forearm and hand, far too extensive to allow for surgical excision. The periodic swelling was looked on as the result of venous stasis probably with associated inflammatory reaction (thrombophlebitis). Treatment by roentgen irradiation was undertaken, the patient receiving five double treatments of 700 roentgens in each series, two of them only to the fifth finger and three series to the entire forearm and hand over a period of ten months. The treatments were given with medium voltage (140 kilovolts), 40 cm target-skin distance and 0.25 mm of copper filter. No definite improvement was noted from this, and treatments were therefore discontinued.

The patient was lost sight of during the twelve year interval, having moved meanwhile to a distant locality. He has recently informed us by letter that there is no apparent change in the condition of the hand and arm. On occasions when he may bruise or use it excessively there may be swelling which is mildly painful. This, he adds, is the way it acted in the past. X-ray films secured this year through Dr. E. L. Voke of Akron, Ohio, show a diminution in the number of phleboliths in the forearm, one additional one in the palm and considerable improvement in the bone lesions.

**CASE 4—Venous angioma of sole of right foot with symptoms of four years' duration and development of phleboliths during this interval. Diagnosis by roentgen examination. Surgical exploration. Roentgen therapy.**

W. F. B., a grocery clerk aged 20, was first seen in the surgical outpatient department at the age of 16 complaining of pain in the longitudinal arches of both feet, especially the



right There was no history of trauma or infection Examination showed only bilateral pronation and some swelling and tenderness over both calcaneoscaphoid regions An x-ray film showed no apparent variation from normal There was improvement with strapping, foot exercises and a heel lift to both shoes He was lost sight of but returned after four years, stating that he had had occasional discomfort in the sole of the right foot with walking but that for three months, without obvious cause

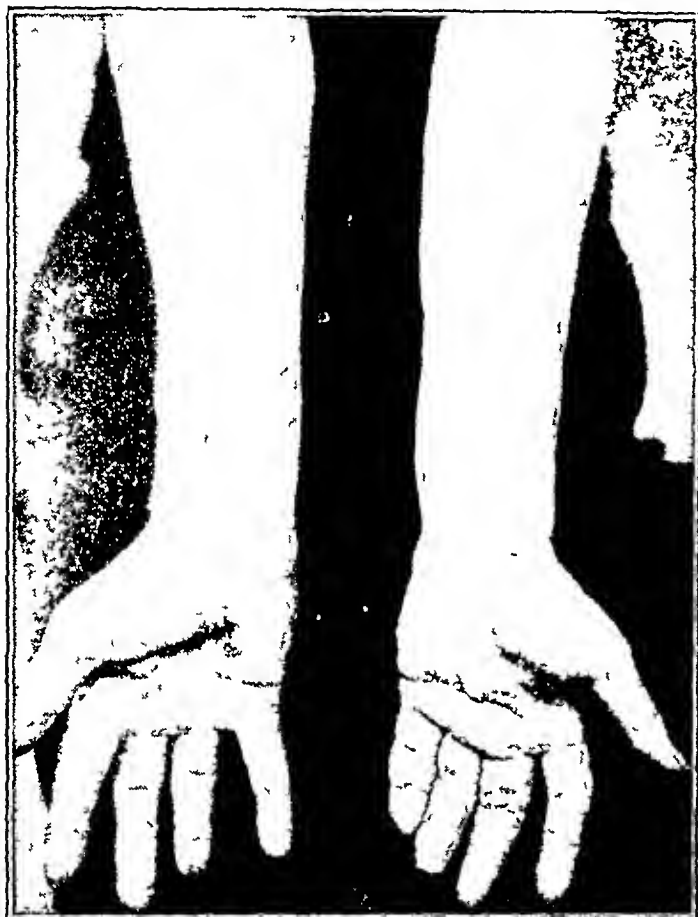


Fig 6 (case 3)—Appearance of forearms and hands, showing swelling and blotchy discoloration of the palm and three medial fingers of the left hand

for aggravation, there had been rather severe pain in the same region, with a persistent ache in the foot even when he was quiet in bed On examination there was evident swelling of the sole of the foot with tenderness on moderate pressure over the midportion but no discoloration of the skin The patient was unable to plantar flex his toes normally The left foot appeared normal except for slight pronation An x-ray examination at this time (fig 9) showed a diffuse slight swelling involving almost the entire extent of the longitudinal arch with two rounded dense shadows in the middle part of the swelling which were thought to be phleboliths Because of these, a presumptive diagnosis of venous angioma was made

Under spinal anesthesia an exploratory operation was carried out which revealed an obvious angioma composed of large tortuous vessels contained in strands of dense connective tissue occupying the so-called second muscle layer of the foot It was judged too extensive for dissection A small piece of tissue removed for microscopic study was unsatisfactory The operative wound healed normally

Following operation the patient received roentgen therapy daily for ten days, the dosage employed being the same as that in case 1, the total dose being 1,000 roentgens to each of two surfaces over the tumor When seen six weeks after this treatment he reported very definite improvement, stating that he experienced pain in the foot only after running and that this lasted for only a few minutes The appearance of the foot was unchanged

#### COMMENT

These 4 cases serve to illustrate the course and some of the features of venous angiomas In each of the first 3 instances there was a history of swelling of the arm noted since childhood, with periodic episodes of

pain, tenderness and increased swelling The diagnosis in each of these cases was established by the roentgenologic demonstration of sharply defined calcified phleboliths within the tumor This finding clarified in the first case what had been looked on as a recurrent, monoarticular arthritis, in the second, as a fatty tumor of the arm In case 4 the finding of phleboliths in the second x-ray examination which were not present four years previously made evident the nature of the swelling in the foot

The occurrence of phleboliths, particularly in the veins of the pelvis, is, of course, extremely common and their recognition by roentgenologic examination is an almost daily experience The phleboliths result from the deposition of calcium in organized thrombi attached to or within the wall of the vein A number of these calcified shadows in x-ray films in areas of the body where there is normally no plexus of veins is indicative of an abnormal collection of venous channels and is to all intents and purposes pathognomonic of a venous angioma While this fact is well known to experienced roentgenologists and is described in standard textbooks on x-ray interpretation,<sup>11</sup> it is not a condition of common enough occurrence to be recognized generally Where the mass of vessels is sharply circumscribed, as in case 2, a definite tumor mass may be outlined within the surrounding muscle In other cases the malformation may extend diffusely through the tissues so as not to be recognizable as a localized tumor There may, of course, be no phleboliths present, in which case the roentgenologic examination may show no more than a swelling or tumor of the soft tissues

One may summarize the general facts concerning venous angiomas of skeletal muscle as follows They occur with about equal frequency in the two sexes In the great majority of instances the malformation is noted during childhood or early adult life, a fact which indicates their probable congenital origin Just how much trauma has to do with their development is not clear In some instances, doubtless it does no more than call attention to a preexisting lesion, perhaps by initiating a reaction leading to thrombosis within the veins and cavernous spaces of the tumor It is certainly true that patients are commonly made aware of their angioma following minor injury There is no doubt that motion plays a big role in the growth of the tumor<sup>12</sup>



Fig 7 (case 3)—Widely scarred forearm. The bones are normal

<sup>11</sup> Holmes G W and Ruggles H E Roentgen Interpretation, 6 Philadelphia Lea & Febiger, 1941 p 21

The tumor may occur in any striated muscle. The fact that 3 of our 4 patients had theirs in the arm emphasizes unfairly this site for the tumor. In the large series reported<sup>2</sup> the upper arm was the site of location in 22 instances compared to 59 in the thigh, 39 in the lower leg, 36 in the chest and 26 in the forearm. The most frequently involved muscle was the



Fig 8 (case 3)—Phleboliths in the palm and honeycombed appearance of several phalanges and metacarpals due to angiomas in these bones

quadriceps extensor. The size of the tumor varies from 1 to 2 cm up to a mass 10 to 12 cm in diameter or larger. Microscopic study shows enlarged venous channels and cavernous spaces, some lined by a single layer of epithelium and some showing considerable thickening of the intima or adventitia. These contain either normal blood or thrombi, with or without calcification. There may be deposition of considerable fibrous connective tissue and the remains of striated muscle fibers are commonly present showing various stages of degeneration.

The symptoms complained of will vary from none at all to those of considerable magnitude. Pain is the commonest in some instances related to muscular movement (which may be impaired), in others, arising from nerve pressure and following a sensory nerve distribution. Paresthesias and numbness, and periodic or constant swelling are common. The physical attributes of the tumor likewise differ according to its size and location. There is occasionally fixation of the overlying skin and the latter may be warm to the touch and may exhibit some degree of bluish discoloration. The mass often is soft, jelly-like and movable, sometimes quite firm and fixed. As already noted, it may be fairly sharply localized when encapsulated or may be diffuse. The phleboliths at times are easily palpated. Rarely are pulsations or bruits to be made out unless there are free arteriovenous communications.

The differential diagnosis will include the common tumors which have some of these physical character-

istics, namely lipomas, fibromas and so on as well as quite dissimilar conditions—cold abscess, hematoma, dermoid and even aneurysm. The diagnosis is not always easy, and the true nature of the lesion often is recognized only at operation. Three procedures are helpful in clarifying the diagnosis:

- 1 Exploratory puncture with aspiration of normal blood

- 2 The intravenous injection of radiopaque solution, as used in case 1. This measure is of particular help in diagnosis when phleboliths are not present. It is of value in demonstrating the extent of the angioma and may also assist in determining the effect of roentgen therapy. Obviously it is applicable only when the angioma is so located that a tourniquet can be placed proximal to the tumor to prevent the immediate dissemination of the injected material into the general circulation.

- 3 Most helpful of all, roentgen examination. On the x-ray film the venous angioma may show as a distinctly outlined mass (case 2) or simply as a diffuse soft tissue swelling (cases 1, 3 and 4). The characteristic and practically pathognomonic finding is the presence of phleboliths. These appear as small, dense, smoothly outlined areas heavily calcified, either round or slightly oval, often showing concentric laminations. As noted, they are commonly seen in the pelvis, particularly in elderly people, more frequently in women than in men, and also in the spleen. The calcified shadows in the spleen are usually smaller, rounded and not laminated and may be interpreted as calcified tubercles or calcified infarcts, which they may be on occasion. The pentastomum, a parasitic arthropod, may lodge in the spleen and undergo calcification, forming nodules the size of a pea, commonly mistaken for phleboliths. Phleboliths are occasionally seen singly in the lower part of the legs of elderly patients, especially if varicose veins are also present. When three or more phleboliths are seen grouped together in an unusual location such as an extremity or the chest or abdominal wall, the logical conclusion is that one is dealing with an abnormal collection of veins, usually, of course, a venous angioma.

The differential diagnosis from other calcified bodies is usually quite easy, owing to their characteristic size,



Fig 9 (case 4)—Right foot four years after original complaint of pain showing phleboliths in the sole of the foot not present four years previously

shape, structure and density. Droplets or particles of metallic substances used in medication, such as bismuth or mercury, are definitely more opaque to the x-rays, more irregular in distribution, not laminated and nearly always found in the buttocks. Calcified parasites rarely are confused with phleboliths, the trichiniasis parasite being too small to show by x-ray except in excised pieces of muscle. The cysticerci, when calcified are

smooth in outline but oval, measuring 2 to 4 mm in width by 8 to 10 mm in length. They are not as dense as phleboliths, are finely granular in appearance and do not show a laminated structure. They are rarely present in groups, being widely scattered throughout the body. The guinea worm (*Diacunculus medinensis*) frequently calcifies but is not in any way similar to phleboliths and is seen only in India, Asia and some parts of Africa.<sup>12</sup> Lymph nodes, arteries, tubercles, infarcts, abscesses, uterine fibroids, dermoids and hydatid cysts may undergo calcification but are not of the size, shape or distribution to be confused with phleboliths. Calcinosi interstitialis and myositis ossificans are irregular and streaky in distribution. The former frequently is limited to the skin and subcutaneous tissue, the latter may be limited to one muscle or one group of muscles and tendons. They are not at all similar to calcified phleboliths.

The treatment most generally advised for angiomas of this type is surgical excision. Removal when feasible should be carried out as early as possible to reduce the danger of functional impairment of the part and prevent the growth or extension of the tumor. Surgical excision is not always simple, indeed at times is impossible because of the extent of the angioma (as in cases 3 and 4). Difficulties commonly encountered in surgical removal arise from the extension of the angioma so that it involves important neighboring structures such as nerve trunks, which may be damaged during the dissection of the tumor. Hemorrhage of appreciable magnitude may occur in the course of operative removal, as happened in the case reported by Jenkins and Delaney.<sup>2</sup> They state that hemorrhage "of considerable moment" occurred during surgical excision in 38 of the cases reviewed by them. Venous angiomas are rarely supplied by a single large vessel, so that ligation has not proved a successful form of therapy in inoperable cases. According to Davis and Kitlowski, such measures as long continued compression of the angioma or the injection of sclerosing or coagulating fluids have not been satisfactory. These authors also question the effectiveness of roentgen and radium treatment. Our experience with roentgen irradiation of angiomas of this type has been limited and, in the main, disappointing. The results noted in the cases reported in this paper, in which surgical excision did not seem advisable, have not been striking except in case 4. Certainly there is less effect in this type of angioma than in angiomas of the brain and skin, which often show very good response to irradiation. This may be due to the difference in size of the vessels involved. The smaller and more embryonic in type the vessels are, the more readily they are affected by irradiation.

#### SUMMARY

In 4 cases of venous angioma of skeletal muscle the diagnosis was made by the x-ray demonstration of phleboliths in the tumor. The finding of multiple phleboliths in areas of the body where normally no plexus of veins exists is practically pathognomonic of a venous angioma.

The value of a radiopaque material in delineating the extent of the tumor was illustrated in 1 case.

The treatment of choice is early surgical excision. Roentgen therapy may be of benefit and should be tried in instances in which surgical excision is inadvisable or impossible.

## THE USE OF MICROCRYSTALS OF SULFATHIAZOLE IN SURGERY

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In certain procedures it is desirable to inject neutral suspensions of the sulfonamides through fine hypodermic needles. Usually this is not possible with suspensions of the drugs currently available because of the large size and irregular shapes of the crystals. Dr. B. F. Souders and Dr. S. Brand Rose independently suggested that the crystals might be comminuted by sonic vibration. Direct vibration of suspensions of the preformed crystals produced no measurable effect, but an indirect procedure involving sonic agitation has been developed which reduces the crystal size sufficiently to permit passage through 26 gage needles.

Essentially, the preparation of the microcrystalline sulfonamides consists in the neutralization, at low temperature, of a solution of a sodium salt of the drug, the reacting mixture being kept in violent agitation by sonic vibration or by some suitable high speed mixing device. The size of the resulting crystals may be regulated within wide limits by controlling the speed of admixture or the temperature of the reactants or both. The microcrystals are fairly uniform in size, and aqueous suspensions of the material in concentrations up to about 30 per cent by weight are stable and show but little tendency to settle out.

A 20 per cent suspension of the microcrystalline drug in water or salt solution has the consistency of thick cream or magnesia magma. On the other hand, the water may be removed by filtration or centrifugation and the sediment dried to a fine powder. Both wet and dry preparations have physical properties of probable advantage in restricted therapeutic procedures.

It is obvious that the saturation level of a drug in tissue fluids will be the same no matter what the original crystal size, but the rate of attaining that level in the case of a substance of low solubility such as sulfathiazole is dependent on the total solid surface presented to the fluid and therefore on the size of the drug particles. When applied locally, the rate of solution of large crystals may be too low to maintain a saturation level in the adjacent tissue. On the other hand, the same amount of sulfathiazole, finely divided, may have a sufficiently high rate of solution to maintain saturation in nearby fluids, or even to maintain a fairly high systemic blood level for several hours.

As a reasonable approximation, it is probably safe to assume that the occurrence of a high sulfathiazole level in the blood of an experimental animal after local implantation of the drug indicates that much higher concentrations exist in the immediate vicinity of the depot. Therefore we have compared the rates of absorption into the blood stream of the microcrystals and the untreated macrocrystals in a series of experiments on dogs and rabbits after implantation of the drug both intramuscularly and intradermally.

The microcrystalline sulfathiazole used in this study was prepared by the French Laboratories of Philadelphia, supplied by and the work aided by a grant from the French Laboratories of Philadelphia.

From the Johnson Research Foundation and the Surgical Department of the Philadelphia General Hospital, the Hospital of the University of Pennsylvania and the United States Naval Hospital at Philadelphia.

muscularly and intra-abdominally. The average blood levels were considerably higher for the micro than for the macro preparations especially during the first few hours after administration. These data were obtained on a total of 23 rabbits 15 of which received micro-sulfathiazole intraperitoneally and 8 of which received macrosulfathiazole by the same route. The dose in each instance was 500 mg per kilogram of body weight and the drugs were in the form of 20 per cent aqueous suspensions.

Similar differences in absorption have been observed in a series of rabbits which received the same amount of the two types of drug suspension intramuscularly, but the absolute level in the blood was much lower in both cases than those which resulted from intra-abdominal implantation. No gross local reactions were observed in any of these animals, and it was not possible to locate the site of the implantation on dissection of the muscle ten days subsequent to the injection.

A similar difference in the rate of absorption of the two drugs has been observed in a series of 10 dogs. However, all of these results should be regarded as preliminary to a more extensive study, the results of which must await completion of more experiments. No inference should be drawn at present beyond the apparent fact that the microcrystalline sulfathiazole is absorbed from local depots more rapidly than is the same drug in macrocrystalline form.

Although sulfanilamide received early and deserved recognition as a local application in the prophylaxis and treatment of infections, its action against many of the contaminating organisms was less effective than had been hoped for. Experimental and clinical observations have shown it to be only weakly effective against staphylococci, colon bacilli and the gas gangrene organisms. In war wounds treated with sulfanilamide, those not responding well were found to be heavily infected with staphylococci.<sup>1</sup>

Sulfathiazole, however, appears to be an ideal compromise. It is effective in proper concentrations not only against the streptococcus but also against the staphylococcus, the colon group *Pseudomonas aeruginosa*, *Proteus vulgaris*, *Clostridium perfringens*, *Clostridium septicum* and *Clostridium oedematiens* and even in a measure against the tetanus bacillus.<sup>2</sup>

These are the common organisms causing local infections. They are also the common contaminating organisms in acute traumatic wounds. Pirlaski, Meleney and Spaeth,<sup>3</sup> in a recent paper on the bacterial flora

TABLE 1—Cultures Found in Two Hundred Traumatic Wounds

|                       | Per Cent |
|-----------------------|----------|
| Staphylococcus albus  | 81       |
| Staphylococcus aureus | 52       |
| Streptococci          | 50       |
| Clostridia            | 23       |
| Enterobacilli         | 24.5     |

of 200 traumatic wounds, reported cultures which may be summarized as in table 1.

The use of sulfathiazole locally has considerable experimental and clinical support. The most voluminous literature from the experimental side concerns infections with the organisms of gas gangrene. The

consensus<sup>4</sup> seems to be that sulfathiazole is the most effective of the sulfonamide drugs, although Bliss, Long and Smith<sup>2</sup> believe that sulfadiazine may be a little better.

It is agreed by most writers that sulfathiazole is highly effective against staphylococcal infections,<sup>5</sup> this even in the presence of pus and slough. Kennedy,<sup>6</sup> Kev,<sup>7</sup> Hawking<sup>8</sup> and Brunner and Schlappfer<sup>9</sup> have

TABLE 2—Solubility of Sulfanilamide and Sulfathiazole in Saline Solution and in Serum

|               | Solution in Saline at 37 C<br>Mg/100 Cc | Solution in Serum at 36 C<br>Mg/100 Cc |
|---------------|---|--|
| Sulfanilamide | 1 500                                   | 1 500 ±                                |
| Sulfathiazole | 104                                     | 184                                    |

urged its prophylactic use in traumatic and surgical wounds. The latter authors<sup>7</sup> report 109 wounds of varying degrees of depth and extent in which only the ragged edges of the wound were excised and sulfathiazole powder was applied. The wounds healed without inflammatory reaction, and recovery was not delayed. Sulfathiazole applied locally does not produce necrosis in experimental wounds and only very slight depression of fibroblast formation.<sup>10</sup> We have confirmed this observation in experimental wounds and clinically. In the abdominal cavity, Throckmorton<sup>11</sup> found that powdered sulfathiazole did not cause peritoneal damage but was grossly visible in agglutinated masses in the omentum three to six days later.

The chief theoretical disadvantage against the use of sulfathiazole is its tendency to clump and form insoluble masses which may act as foreign bodies in the tissues. As compared to sulfanilamide the drug is much less soluble in watery solution (saline) or in serum (table 2).<sup>10</sup>

The relatively low solubility in some respects may be an advantage in that the drug persists in the wound for four or five days. These results made Hawking<sup>10</sup> conclude that "probably the optimum combination of high concentration plus sufficient duration is by sulfathiazole," when compared with sulfanilamide, sulfapyridine or sulfadiazine.

#### CLINICAL RESULTS

The clinical results to be reported must be looked on as clinical impressions, they may be criticized on the basis of their small number. Nevertheless our reactions to the use of the microcrystalline drug have been so favorable that they seemed worth while mentioning. We have had considerable experience with

4 McIntosh, James and Selbie, F. R. Chemotherapy of Gas Gangrene. *Lancet* 1 240 (Feb 22) 1941. Reed, G. B. and Orr, J. H. Chemotherapy in Experimental Gas Gangrene. *ibid* 1 376 (March 22) 1941. Hawking, Frank. Prevention of Gas Gangrene Infections in Experimental Wounds by Local Application of Sulfonamide Compounds and by Sera. *Brit. M. J.* 1 263 (Feb 22) 1941. Blh, Long and Smith.<sup>2</sup>

5 Spink, W. W. and Paine, J. R. Local Use of Sulfathiazole in Treatment of Staphylococcal Infections. *Preliminary Report*. *Minneap. Med.* 23 615 (Sept) 1940. *abstr. J. A. M. A.* 115 1488 (Oct 26) 1940.

6 Kennedy, R. H. The Treatment of Fresh Wounds. *Connecticut M. J.* 6 914 1942.

7 Kev, J. A. The Use of the Sulfonamides in Clean Operative Wounds. *South. M. J.* 35 55 58 (Jan) 1942.

8 Hawking, Frank and Piercy, I. F. Blood Concentrations After Local Application of Sulfathiazole to Wound. *Brit. M. J.* 1 311 (April 5) 1941.

9 Brunner, W. and Schlappfer, E. Local Application of Sulfathiazole in Treatment of Accidental Trauma. *Schweiz. med. Woch. chr.* 71 213 (March 8) 1941.

10 Hawking, Frank. Local Concentration of Sulfonamide Compounds Inserted into Wound. *Lancet* 1 786 (June 21) 1941.

11 Throckmorton, T. D. The Peritoneal Reaction to Local Sulfanilamide Compound. An Experimental Study. *Proc. Staff Meet. Mayo Clin.* 16 223-225 (July 2) 1941.

1 Mitchell, G. A. C., Legie, N. J. and Handley, R. S. Casualties from the Western Desert and Libya. *Lancet* 1 713 (June 7) 1941.

2 Blh, Eleanor A., Long, J. H. and Smith, Dorothy G. Chemotherapy of Experimental Gas Gangrene and Tetanus Infection. *Chemo. War. Med.* 7 19410 (Nov.) 1941.

3 Pirlaski, I., Meleney, I. L. and Spaeth, W. J. C. Bacterial Flora of Acute Traumatic Wound. *Surg. Gyne. & Obst.* 72 28-33 (Jan) 1941.



the use of sulfanilamide and ordinary sulfathiazole powder in wounds and local infections, and it is on the basis of this comparison that our clinical impressions are formed.

The microcrystalline sulfathiazole was used in the form of a powder and as a suspension in saline. The latter preparation, which in 10 or 20 per cent strength looks and behaves somewhat like magnesia magma, was used to be introduced into the abdomen or into larger cavities of wounds or abscesses. It can be easily injected through needles or with a syringe and catheter through small wound openings so as to reach all parts of a cavity. This ease of introduction and the avoidance of clumping are the chief advantages of the preparation. The crystalline powder was dusted over the surface of superficial wounds and infections with a powder blower or lightly spread with a cotton swab.

#### USE IN TRAUMATIC WOUNDS

We have used the microcrystalline sulfathiazole in 30 traumatic wounds. From 0.5 to 4 Gm. of the powder or suspension was introduced according to the size of the wound. All wounds were seen and treated within twenty-four hours, most of them within eight hours. Four of the wounds were complicated by division of tendons and three by compound fractures. The wounds were treated by a thorough mechanical cleansing, tendons were sutured with silk and, except in 5 cases, the wounds were sutured primarily and dressed with an immobilization dressing. The sutured wounds healed by primary intention in every case, and the crushed and contused wounds which could not be sutured healed without any evidence of infection. Evidence of a foreign body reaction from the implanted drug did not develop in any wound. During the same period two traumatic wounds, one in which there was a severed tendon, were treated in the same way but without sulfathiazole. One of these became infected and had to be opened and allowed to heal by secondary intention.

#### USE IN INFECTIONS

In 57 local infections, abscesses, carbuncles, felons and similar lesions we have implanted the microcrystalline sulfathiazole, usually in the powder form. In these wounds it was easier to compare the use of the ordinary powder with the microcrystalline form. In some cases these two preparations were used at alternate dressings and applied in the same way. When dressed on the third or fourth day after implantation of the drug there was definitely more clumping of the ordinary powder than of the crystalline form. However, it must be admitted that in several cases in which the ordinary powdered drug was used with wet saline dressings there was no evidence of caking when the dressings were removed.

The critical result to be expected from the local use of sulfathiazole is marked by the rapid and almost complete subsidence of the suppurative process. The infections were incised, pus was evacuated and the abscess cavity was dusted with the microcrystals followed by gauze packing, or the cavity was packed with gauze impregnated with the suspension of microcrystals. When the packing was removed on the third or fourth day the wounds were clean and granulating with a minimum of slough. Necrosis of fascia and tendon prolonged the suppurative process in a few cases.

The cultures in 18 cases showed staphylococci and in 7 showed streptococci. The effect of the drug seemed to be equally good against these two organisms. The

drug did not seem to free the abscess cavity of the infecting organisms because they could be recovered in repeated cultures, but the organisms seemed to be avirulent, and skin grafts could be applied with a complete take in several instances.

In 5 of these cases the infection was gangrene of the toes. In each instance a local amputation with implantation of sulfathiazole powder every third day resulted in healing without spread of the infection or gangrene.

There was a noticeable absence of the edematous hypertrophic granulations frequently seen when sulfanilamide crystals are applied to a granulating surface over a period of time.

#### MICROCRYSTALLINE SULFATHIAZOLE IN BURNS

Our experience with the use of sulfathiazole in burns has been rather limited, but the results have been so striking that they are worthy of mention. The burns have been treated by excision of the burned areas and blebs and the application of powdered sulfathiazole by a powder spray. The burned areas were then covered with moist saline dressings which were moistened every three hours with a syringe. Except for the first twenty-four hours, when the pain was relieved by morphine, the burned areas were painless. The same applications were made until healing was complete. In these cases, the absence of unhealthy granulations so frequently seen with applications of sulfanilamide was noticeable. In spite of a large burned area, the blood level of sulfathiazole was never more than a trace.

#### THE INTRA-ABDOMINAL APPLICATION OF MICROCRYSTALLINE SULFATHIAZOLE IN SUSPENSION IN SALINE SOLUTION

We have introduced the suspension of microcrystals into the abdomen in 19 instances. The amounts have varied from 4 to 14 Gm. of the drug. The operations performed were exploratory laparotomy two, enterotomy one, gastric resection three, for carcinoma of the large bowel or rectum seven, for acute pancreatitis one, for appendicitis four and for intestinal fistula one.

When the suspension is introduced into the abdomen, it rapidly spreads over the surface of the intestine and omentum. It has not produced any untoward effect in any case, if the clinical course of the patient is an indication of an adverse reaction. The drug is found in the blood in measurable amounts as early as three hours after its implantation and is still demonstrable at sixty hours.

#### PRACTICAL POINTS IN THE USE OF SULFATHIAZOLE POWDER OR SUSPENSION

In wounds that are to be sutured it is well to insert the sutures before the sulfathiazole is introduced and to tie them after its application. The presence of the powder in the wound somewhat masks the anatomic structures.

In traumatic wounds, bleeding should be stopped as completely as possible before the drug is introduced.

In abscess cavities the drug should not be dumped into the wound but should be dusted over the surface in a thin layer followed by plain gauze, or the gauze may be impregnated with the powder or suspension. Petrolatum gauze should not be used. The implantation of sulfathiazole does not contraindicate the use of wet dressings and, in infections with much slough, its action seems to be enhanced by their use.

We have made no effort to sterilize either the microcrystalline powder or the suspension and have not seen an infection arise from this practice.



## - SUMMARY

Microcrystals of sulfathiazole can be prepared by crystallization of the drug as it is violently agitated by sonic vibration. The crystals so formed may be made into a saline suspension or into powder form for use in surgical lesions.

The small size of the microcrystals permits a rate of solution which appears to be more rapid than that observed with the usual sulfathiazole powder.

We believe that sulfathiazole is superior to sulfanilamide powder as a local application in traumatic wounds and infections because it is effective against a wider range of the organisms usually found and because it exerts its effective action over a longer period of time.

The results with the local use of the microsulfathiazole in 30 traumatic wounds and 57 cases of infection have been favorable. It was used in suspension in the abdomens of 19 patients with no untoward results. The tendency of the micropreparation to clump or cake is much less than with the usual preparation of sulfathiazole powder.

## TREATMENT OF INFLUENZAL MENINGITIS WITH SULFADIAZINE

## PRELIMINARY REPORT

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Recent advances in chemotherapy have opened a more hopeful outlook on the treatment of bacterial meningitis. The usual failure of influenzal meningitis to respond favorably to the sulfonamide drugs that have been employed stands in sharp contrast to numerous recoveries which have been reported following the chemotherapy of other forms of purulent meningeal infection. It is true that sulfanilamide and sulfapyridine, used either alone or in conjunction with antiserum, have produced isolated cures, but Aleman,<sup>1</sup> who has recently reviewed the literature and her clinical experience with influenzal meningitis, stated "Every form of treatment reported in the literature is discounted by those who have seen failures, and by actual statistics where a large number have been reported."

Although anti-influenzal horse and rabbit serums have improved the prognosis of influenzal meningitis, data collected from the literature do not permit us to regard these serums with enthusiasm. The efficacy of the new concentrated antibody solution remains to be determined.<sup>2</sup>

The frequent failure of serotherapy, sulfanilamide, and sulfapyridine to influence influenzal meningitis favorably led us to seek a more effective chemotherapeutic agent. Apparently this was found in sulfadiazine. This drug is reported to have a low toxicity, to be secreted readily into the cerebrospinal fluid and to undergo relatively little acetylation. Furthermore, owing to its ready absorption and slow excretion, high blood

concentrations are sustained with comparative ease.<sup>3</sup> Theoretically, these properties should make this drug particularly suitable for the treatment of purulent meningitis.

The results obtained through the use of sulfadiazine and relatively few spinal punctures in the treatment of 7 young children with influenzal meningitis at Charity Hospital during the past few months have been so gratifying that we feel it worth while to make a preliminary report at this time.

Two of the 7 patients who received sulfadiazine died. One death (of patient 7) occurred during the performance of a cistern puncture and apparently the surgical procedure rather than the meningeal infection was responsible for the fatal issue. The other death (of patient 6) occurred after premature cessation of sulfadiazine therapy and contraction of chickenpox. Of the 5 survivors who have been discharged from the hospital all have remained well without residual symptoms after a follow-up period of four months. The temperature curves of 4 of the patients who recovered are portrayed in the accompanying chart. One of the patients who died and 3 of those who recovered were treated exclusively with sulfadiazine, while the other patient who died and 2 who recovered received anti-influenzal serum in conjunction with the drug. A detailed report of these cases will now be presented.

## REPORT OF CASES

CASE 1—B. B., a 3 year old white girl weighing 37 pounds (17 Kg.), was admitted to Charity Hospital at 6 p. m. on Dec. 8, 1941. The parents stated that the child had been well except for a slight head cold for one week prior to admission. At 10 a. m. on the day of admission she had a chill which was followed by fever. Drowsiness and stupor then ensued.

The past history revealed that the patient contracted measles at the age of 1 year and a nonspecific dysentery in June 1941, from both of which she made a complete recovery.

Physical examination on admission revealed that the child was well nourished and well developed and was stuporous; she was lying quietly in bed with both legs flexed. The rectal temperature was 102.6 F., pulse rate 120 and respiratory rate 35. The ear drums appeared normal and the mastoids roentgenographically were normal. A slight nasal discharge and a mild redness of the posterior pharynx were present. The neck was rigid and Kernig's and Brudzinkski's signs were positive. Examination of the lungs disclosed dulness to percussion with increased breath sounds and crepitant rales in the right upper lobe. The heart sounds were normal. The deep reflexes were slightly increased.

A spinal tap done on admission showed a cloudy fluid. The globulin level was increased, chlorides were 750 mg. and sugar 30 mg. per hundred cubic centimeters. The cell count was 12,000, 95 per cent of which were polymorphonuclear cells. Gram-negative pleomorphic bacilli were seen on smear, which on culture proved to be *Hemophilus influenzae*. Blood culture taken at the same time was likewise positive for the influenzal bacillus. The red blood cell count was 3,950,000, hemoglobin 55 per cent (Sahli) and white blood cell count 15,000 with 90 per cent polymorphonuclear cells. The urine was normal.

Sulfadiazine was started on admission. An initial dose of 30 grains (2 Gm.) was given by stomach tube followed by a maintenance dose of 2 grains (0.13 Gm.) per pound (450 Gm.) of body weight daily divided into six equal doses and admin-

From the Department of Pediatrics of the Louisiana State University School of Medicine and Charity Hospital.

<sup>1</sup> Aleman, Ruth. Influenzal Meningitis. New Orleans M. & S. J. 93 (July) 1940.

<sup>2</sup> Alexander, H. F. Treatment of Bacterial Meningitis. Bull. New York Acad. Med. 17: 100-111 (Feb.) 1941.

<sup>3</sup> Fern, O. H., William, R. D., Wolf, R. T., Hasting, E., Evelyn, and Croley, M. L. The Toxicity, Pharmacology and Chemotherapeutic Activity of 2-Sulfanilamidobenzimidazole (Sulfadiazine). J. All. John Hopkins Hosp. 67: 427-46 (Dec.) 1940. Reinold, J. C., Thomsen, H. I., Schwartz, Leon and Dorn, A. H. The Absorption, Distribution and Excretion of Sulfadiazine in Man. Am. J. Med. Sci. 101: 10-11 (Jan.) 1941. Sadik, F. I. L. and Tredway, T. B. Observations on the Absorption, Excretion, Distribution and Acetylation of Sulfadiazine in Man. Yale J. Biol. & Med. 13: 9-6 (March) 1941. Trevel, C. L., Nye, P. A. and Long, P. H. Studies on Sulfadiazine. II. The Clinical Use of Sulfadiazine in the Treatment of Infectious Diseases. The J. Pharmacol. & Exptl. Ther. 69: 1-11 (Oct.) 1941.

istered every four hours. This dose was continued for nine days, at which time it was reduced to  $1\frac{1}{2}$  grains (0.1 Gm) per pound of body weight daily until the drug was discontinued nineteen days after it was started. A total of 80 Gm of sulfadiazine was given.

The patient's stupor deepened into coma the day after admission. The following day she was sitting up in bed eating and feeling much better. Three days after admission the child was afebrile. Her course is indicated in the chart by the solid line. Seven days after she was started on sulfadiazine therapy the spinal fluid was clear and the culture was negative. At this time, the drug level in the spinal fluid was 11 mg per hundred cubic centimeters of free sulfadiazine, while the blood level was 17 mg per hundred cubic centimeters. Only two spinal punctures were done. Small blood transfusions were also given. The patient was discharged twenty-three days after admission. She was seen in the outpatient clinic on two occasions with no complaints and presented no evidence of residual cerebral damage, having been afebrile throughout a period of five weeks since discharge.

CASE 2—R S, a 3 year old white boy weighing 30 pounds (13.6 Kg) was admitted to the hospital on Nov 27, 1941 complaining of fever, stomach-ache and severe headache. At

Dec 1, 1941. On this date, four days after therapy was instituted, the spinal fluid culture was negative for influenzal bacilli.

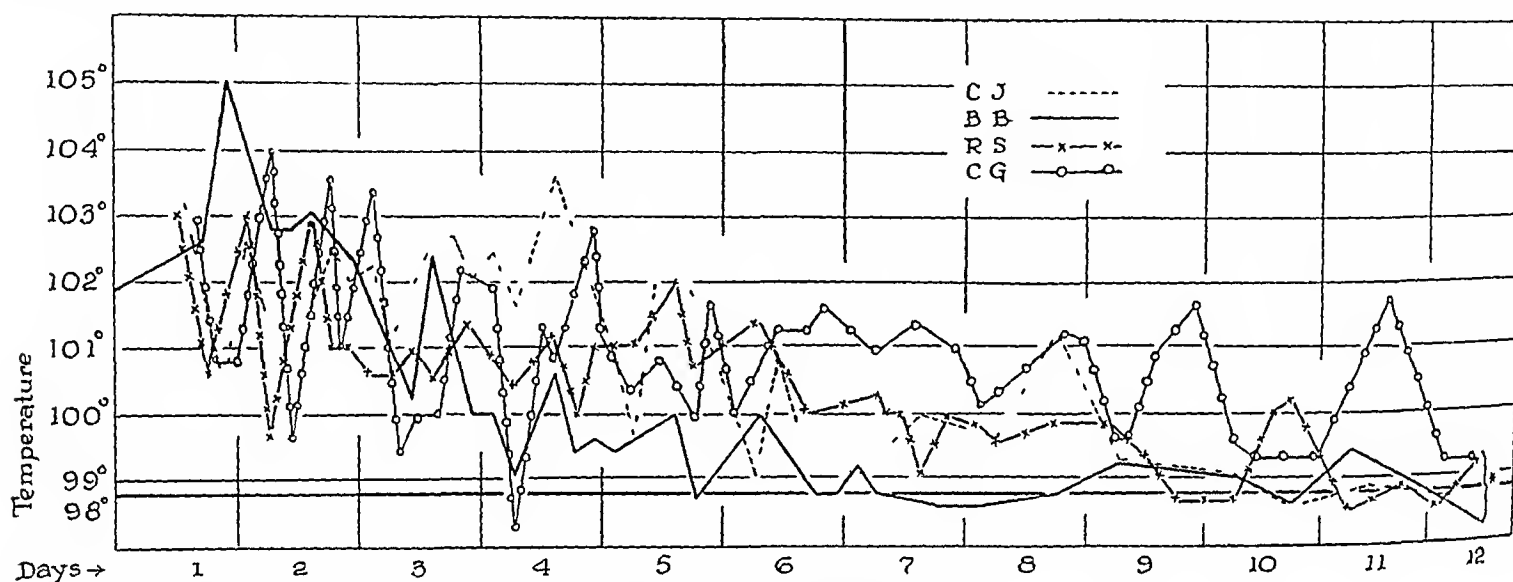
Coma subsided in two days, and the patient became afebrile nine days after the drug was started. His course is indicated in the chart by the crosses and dashes. He was discharged from the hospital twenty-four days after admission.

CASE 3—C J, a 15 month old Negro boy weighing 18 pounds (8.2 Kg) was admitted to the hospital on Dec 12, 1941 with a two day history of fretfulness, restlessness, inability to sit up or walk, fever, stiffness of the neck and back and bulging of the anterior fontanel. The past history was irrelevant.

The child was malnourished, maldeveloped and anemic. A yellow purulent discharge was found in the right auditory canal. The left drum was normal. The neck was rigid and the anterior fontanel was tense and bulging. Harsh breath sounds were heard over the left side of the chest.

Spinal tap done on admission disclosed a cloudy fluid containing 2,750 cells, chiefly polymorphonuclears. Gram negative bacilli were seen on smear which on culture proved to be *Hemophilus influenzae*.

Sulfadiazine 18 grains (1.2 Gm) was given initially by stomach tube. The maintenance dose was  $1\frac{1}{2}$  grains (0.1 Gm)



\* Subsequent temperatures remained normal in all four cases

Temperature curves of 4 patients with influenzal meningitis treated with sulfadiazine

8 a. m. on the day of admission he went to bed, and his mother had not been able to arouse him up to the time of admission.

The past history was unimportant except for pertussis, which the child contracted in 1940. On physical examination the patient was fairly well nourished and well developed and was in a comatose condition. The rectal temperature was 103 F, the pulse rate 122 and the respiratory rate 20. The eyes and ears were normal and roentgenograms of the mastoids were negative. The heart and lungs showed nothing abnormal. The neck was rigid and Kernig's sign was positive.

Spinal tap on admission showed cloudy fluid under increased pressure. Globulin was increased, sugar was reduced to 35 mg per hundred cubic centimeters, the cell count was 4,700 with 98 per cent polymorphonuclear cells. Smears from the spinal fluid revealed gram-negative bacilli. Both blood and spinal fluid cultures were positive for *Hemophilus influenzae*. The red blood cell count was 4,500,000, and the white blood cell count was 14,500 with 93 per cent polymorphonuclear cells. Routine urinalysis was negative.

On admission the patient received 30 grains of sulfadiazine followed by a daily maintenance dose of 1 grain (0.065 Gm) per pound of body weight for seven days, then  $\frac{1}{2}$  grain (0.03 Gm) per pound daily for five days,  $\frac{1}{3}$  grain (0.02 Gm) per pound daily for two days and, finally,  $\frac{1}{4}$  grain (0.016 Gm) per pound of body weight daily for five days. The drug was administered by stomach tube during the comatose stage. A total of 28 Gm of sulfadiazine was given. The blood level of free drug was 138 mg per hundred cubic centimeters on

per pound of body weight daily for seven days, then 1 grain per pound daily for seven days and finally  $\frac{1}{2}$  grain per pound daily for ten days. A total of 30 Gm was administered. On December 15 the drug level in the blood was 25 mg per hundred cubic centimeters, while the spinal fluid level was 15 mg per hundred cubic centimeters.

The condition was complicated by bronchopneumonia on the left side of the chest, which was confirmed by roentgen examination. Both the meningitis and the pneumonia responded well to chemotherapy, the temperature returning to normal eight days after admission. His course is indicated in the chart by the dashes. The spinal fluid culture was negative on December 15 and again shortly before discharge on Jan 2, 1942, twenty-two days after admission.

CASE 4—C G, an 8 month old Negro boy infant weighing 18 pounds (8.2 Kg), was admitted to the hospital on Dec 2, 1941 with a fever and stiff neck of two days' duration. Examination revealed rigidity of the neck, a bulging and tense anterior fontanel and positive Kernig's sign. The spinal fluid was cloudy, containing 3,000 cells, largely polymorphonuclear. Smear and culture showed the presence of gram negative bacilli positively identified as *Hemophilus influenzae* type I.

The patient received an initial dose of 18 grains of sulfadiazine followed by a maintenance dose of 2 grains per pound of body weight daily until the drug was discontinued on Jan 1, 1942 after nineteen days of administration, at which time the white blood cell count had dropped from 15,000 to 3,700. The child received a total of 46 Gm of the drug in addition to

60 cc of intravenous anti-influenzal rabbit serum daily for the first two hospital days and 30 cc intravenously daily for the subsequent five days. Frequent small blood transfusions were also given.

The patient appeared much unimproved clinically three days after therapy was started although pursuing a febrile course until the eleventh day of admission. His course is indicated in the chart by the circles and dashes. The spinal fluid was clear on January 9, although culture was still positive for *Hemophilus influenzae*. When spinal puncture was repeated on January 20, the culture was sterile and cytology normal. The infant was discharged January 23 and has remained well for a period of sixteen weeks following discharge. The leukocyte blood count returned to normal five days after drug therapy was discontinued. Unfortunately sulfadiazine levels were not determined.

**CASE 5—B W**, a 2 year old Negro girl weighing 30 pounds (13.6 Kg), entered the hospital on Jan. 4, 1942 with a history of having had a cold for one week. On the day of admission a chill developed which was followed by fever. The mother noted that the child had been drowsy the entire day.

It became normal. She was discharged as completely recovered forty seven days after admission.

**CASE 6—M L**, a 5 month old Negro girl infant weighing 11 pounds (5 Kg), entered the hospital on Dec. 29, 1941 because of infected third degree burns of both legs and the left arm of three days' duration. She was being treated in the surgical service with continuous saline compresses. Diarrhea developed Jan. 6, 1942 which required parenteral fluids and blood transfusions. The diarrhea was checked on January 10. Since admission the patient ran a septic type of temperature ranging from 100 to 104 F rectally. On January 14 a bilateral myringotomy was done and purulent material obtained from both ears. Unfortunately this material was not cultured. On January 19 the child appeared much worse than she had previously. Three days later stiffness of the neck and a bulging fontanel were noted. The drainage from the ears had stopped by this time.

A spinal tap done on January 22 revealed a cloudy fluid containing 3,000 cells with 90 per cent polymorphonuclear cells. Numerous short gram-negative bacilli seen on smear were identified on culture as *Hemophilus influenzae*.

Summary of Available Data on Seven Patients with Influenzal Meningitis Treated with Sulfadiazine at Charity Hospital

| Patient | Age         | Weight Pounds | Sulfadiazine       |                        |            | Total Dose Grams | Free Drug Level |                        | Spinal Fluid Culture                     | Days of Temperature Elevation | Number of Spinal Taps | Comment   |
|---------|-------------|---------------|--------------------|------------------------|------------|------------------|-----------------|------------------------|--|-------------------------------|-----------------------|---|
|         |             |               | Initial Dose Grams | Grains per Pound Daily | Days Given |                  | Blood Mg/100 Cc | Spinal Fluid Mg/100 Cc |  |                               |                       |   |
| B B     | 3 yrs       | 37            | 30                 | 2 1/2                  | 9          | 90               | 17              | 11                     | Negative at 7th day                      | 3                             | 2                     | Complete recovery   |
| P S     | 3 yrs       | 30            | 30                 | 1 1/3                  | 7          | 23               | 13.8            |                        | Negative at 4th day                      | 9                             | 2                     | Complete recovery   |
| C J     | 15 mo Negro | 18            | 18                 | 1 1/4                  | 7          | 30               | 25              | 15                     | Negative at 3d day                       | 8                             | 3                     | Complete recovery   |
| C G     | 8 mo Negro  | 18            | 18                 | 2                      | 10         | 46               |                 |                        | Positive at 12th day negative at 23d day | 11                            | 3                     | 270 cc serum intravenously complete recovery                                  |
| B W     | 2 yrs Negro | 30            | 22 1/2             | 2                      | 10         | 92               | 19.3 to 25      | 10                     | Negative at 5th day                      | 19                            | 4                     | Serum 60 cc intravenously complete recovery                                   |
| M L     | 7 mo Negro  | 11            | 11                 | 2 1/2                  | 9          | 48               | 20.7            | 9.7                    | Negative at 5th day positive at 22d day  | ?                             | 3                     | Complicated by bull's chickenpox premature cessation of therapy relapse death |
| C K     | 7 mo        | 14 1/2        | 15                 | 2                      | 1          | 15               |                 |                        |  | 1                             | 4                     | 300 cc serum intravenously died during cistern tap                            |

Physical examination on admission revealed that the child was acutely ill and in stupor. A mild rigidity of the neck was the outstanding positive finding. Spinal tap gave a cloudy fluid containing 9,600 cells, predominantly granulocytes. The chloride level was 795 mg per hundred cubic centimeters, the sugar level was 54 mg per hundred cubic centimeters and smear and culture were positive for *Hemophilus influenzae*.

On admission the patient received 60 cc of anti-influenzal serum intravenously. At the same time an initial dose of 22 1/2 grains (1.5 Gm) of sulfadiazine was given, followed by a maintenance dose of 2 grains per pound of body weight daily for nineteen days and 1 gram per pound of body weight daily for one week. A total of 92 Gm of sulfadiazine was given over a period of twenty-six days. In spite of this large dose there was no evidence of depression of either the white or red blood cells which were carefully followed.

The blood level of free sulfadiazine was 25 mg per hundred cubic centimeters on January 9. The next day the drug level was 20 mg and 10 mg per hundred cubic centimeters in the blood and spinal fluid respectively. Blood levels on January 21 and January 29 were 215 and 193 mg per hundred cubic centimeters. The spinal fluid culture was negative on January 12.

The patient was much improved clinically twenty-four hours after institution of therapy. She sat up in bed and ate fairly well although she continued to have a septic type of temperature ranging from 100 to 102 F rectally until January 23 when

Sulfadiazine was promptly started with an initial dose of 11 grains (0.7 Gm), followed by a maintenance dose of 3 1/4 grains (0.25 Gm) every three hours for nine days, then 3 1/4 grains every four hours for twenty-one days. The spinal fluid sulfadiazine level on January 23 was 7.2 mg of free drug per hundred cubic centimeters. The culture at this time was still positive for influenza bacilli. On January 27 the blood level was 207 mg while the spinal fluid level was 9.7 mg per hundred cubic centimeters. The spinal fluid culture at this time was negative although the cell count was 240.

The patient was convalescing well except for the burn and a septic type of temperature ranging from 100 to 102 F. Spinal puncture done on Feb. 5, 1942 was normal both as to cells and as to culture. Sulfadiazine was inadvertently omitted on February 11 and 12, and on the following day the child contracted chickenpox. The blood and spinal fluid drug levels on February 13 were 239 mg and 195 mg per hundred cubic centimeters respectively and the cerebrospinal fluid cell count was 3,200 mostly granulocytes. From this time on in spite of intensive chemotherapy the course was rapidly downhill and the child died on February 23 fifty-six days after admission to the contagious disease service. An autopsy revealed basilar meningitis, bilateral mastoiditis and left lateral sinus thrombosis.

**CASE 7—C K**, a 7 month old white girl weighing 14 1/2 pounds (6.6 Kg) was admitted to the hospital on Dec. 28, 1941. The child presented a history of a chill followed by fever on Christmas eve. On Christmas day the patient became drowsy

and stiffness of the neck developed. Coma developed on the day of admission.

Physical examination on admission revealed that the infant was comatose and had an acutely inflamed throat, purulent right otitis media and rigidity of the neck. A consolidation in the right upper lobe was interpreted as bronchopneumonia by roentgen examination.

A spinal tap done shortly after admission disclosed cloudy fluid with *Hemophilus influenzae* on culture. The child was given an initial dose of 15 grains of sulfadiazine followed by a maintenance dose of 5 grains (0.3 Gm) every four hours. Sixty cc of anti-influenzal serum was given intravenously for three days, then 30 cc intravenously daily until the time of death. Frequent blood transfusions were also given. Since the patient continued to have a septic temperature ranging from 100 to 103 F, a cistern puncture was being done on Jan. 4, 1942, at which time the infant suddenly ceased breathing. Death was due apparently to respiratory failure. An autopsy was not done.

A summary of the essential data presented in the 7 cases is shown in the accompanying table.

#### COMMENT

Various reports have emanated from Charity Hospital reviewing the cases of influenzal meningitis. Tripoli<sup>4</sup> in 1936 stated that 20 cases of influenzal meningitis seen from 1925 to 1934 were all fatal. Aleman<sup>1</sup> in 1940 reported that from 1935 to 1939 inclusive 27 cases were treated with no recoveries. Bryan and Musser<sup>5</sup> in 1941 remarked that for the past five years there had been 57 cases of influenzal meningitis treated with two recoveries. Forty-five of these cases occurred in children under 3 years of age with one recovery, this being in an infant 11 months old which they reported in detail. This patient received intensive treatment with large doses of sulfapyridine and anti-influenzal serum, forty-eight spinal punctures, numerous blood transfusions and complement intraspinally.

These reports reveal how gloomy the outlook for influenzal meningitis may be. The superior results that were secured with sulfadiazine in our small series of 7 cases seen within the past few months at Charity Hospital are extremely gratifying. Stupor and coma disappeared within thirty-six to forty-eight hours in all instances which responded favorably, and the spinal fluid cultures became sterile in an average of five days (range three to twenty-three days<sup>7</sup>) after the institution of drug therapy.

The series is too small to permit final conclusions. Nevertheless, the dramatic response to sulfadiazine of 5 out of 7 patients under 4 years of age can hardly be attributed to chance. One fatality which occurred is unfortunate, since recovery might have ensued if cistern puncture had not been done. We feel that this fatal issue can be attributed with reasonable certainty to the surgical procedure employed. Premature cessation of drug therapy in the other fatal case is also unfortunate.

Because of its easy absorption, low toxicity, ready secretion into the cerebrospinal fluid, relatively small degree of acetylation, slow excretion, its property of remaining in the blood stream in high concentration and its superior bacteriostatic properties against the common pyogenic organisms, sulfadiazine would seem to be the drug of choice to use in purulent meningitis. Our experience lends some support to this view. All

our patients tolerated the drug well. No vomiting or nausea was encountered, and the only toxic condition referable to the drug was a moderate degree of leukopenia which developed in 1 case. Furthermore, relatively high and sustained concentrations of sulfadiazine in the blood and cerebrospinal fluid were obtained with ease. These factors combined with the observed recovery of 5 of our 7 patients indicate to us that sulfadiazine is particularly efficacious in the treatment of influenzal meningitis.

The intravenous use of the sodium salt recommended by Long and Marshall<sup>6</sup> in meningitis was not utilized in this study, since excellent absorption occurred when sulfadiazine was administered orally or by stomach tube. Theoretically, the intravenous administration would seem advisable in order to build up high blood and spinal fluid concentrations rapidly. In the future we plan to give an initial dose of sodium sulfadiazine by this route.

It is unfortunate that sulfadiazine levels in the blood and spinal fluid were not followed closely in our series of patients. It is significant, however, that the blood concentration of the free drug under maximum dosage was always above 10 mg per hundred cubic centimeters and was sometimes as high as 25 mg per hundred cubic centimeters, with an average of 20 mg. Spinal fluid concentration of the drug in the cases in which this was determined ranged from 9.7 to 15 mg per hundred cubic centimeters. We are inclined to attribute our recent success in treating influenzal meningitis chiefly to the relatively high cerebrospinal fluid levels of sulfadiazine that were obtained.

Spinal punctures and drainage were done infrequently in our series because of the prompt clinical improvement of all patients who recovered. Our experience indicates tentatively that influenzal meningitis can be treated successfully without resort to frequent spinal punctures when sulfadiazine is given in liberal amounts.

Our experience with these few cases also seems to indicate that sulfadiazine alone was just as efficacious as the combined treatment with anti-influenzal serum. Previous unfavorable experience with serum therapy leads us to presume that the important factor in the recovery of our 5 cases was the new drug.

As far as we are aware there are no reports in the literature relative to the use of sulfadiazine in influenzal meningitis.<sup>6a</sup> Long<sup>7</sup> and others<sup>8</sup> fail to recommend the new drug in the treatment of this condition owing perhaps to the recency of its introduction and to the scarcity of reported cases. Further studies by other investigators for purposes of confirming or properly evaluating our results are to be desired.

It is tentatively suggested that during the acute stage of influenzal meningitis large doses of the drug should be administered so that the blood levels are always above 10 mg per hundred cubic centimeters, the free drug, preferably 15 to 20 mg per hundred cubic centimeters, and that the spinal fluid drug level is maintained around 10 mg per hundred cubic centimeters.

<sup>6</sup> Marshall, E. K., Jr., and Long, P. H. Intravenous Sodium Sulfapyridine, *J. A. M. A.* **112**: 1671-1675 (April 27, 1942).

<sup>6a</sup> Since this article was submitted for publication a review has been reported (Scott, E. P., and Bruce, J. W. *J. Pediatr.* **20**: 4, [April] 1942).

<sup>7</sup> Long, P. H. Clinical Use of Sulfonamide Compounds in the Treatment of Infections, *Northwest Med.* **10**: 311 (1941).

<sup>8</sup> Finland, Maxwell and Dingle, J. H. Treatment of New England *J. Med.* **225**: 825-832 (Nov. 20, 1941). *Mexican J. Med.* **1**: 1-10 (Feb. 1941). *Keefer, C. S.* The Treatment of Meningitis, *M. Clin. North America* **25**: 1287-1315 (Sept. 1941).

<sup>4</sup> Tripoli, C. J. Bacterial Meningitis. A Comparative Study of Various Therapeutic Measures, *J. A. M. A.* **106**: 171-177 (Jan. 18, 1936).

<sup>5</sup> Bryan, M. S., and Musser, J. H. Influenzal Meningitis. The Successful Treatment of a Case in an Infant, *New Orleans M. & S. J.* **94**: 188-190 (Oct. 1941).

meters or higher. We believe that after an apparent cure has been obtained the patient should be maintained on reduced doses of the drug for at least two additional weeks.

#### SUMMARY

Seven children under 4 years of age with influenzal meningitis have been treated at Charity Hospital in the past few months with sulfadiazine. Five of these patients have been discharged as cured and have remained well without residuals during a follow-up period of four months. Three of these recoveries occurred with drug therapy alone, while the other 2 patients received both antiserum and the drug. Two fatalities occurred in young infants 7 and 5 months old respectively, one following a cistern puncture and the other after a prolonged course complicated by severe infected burns, chickenpox and bilateral mastoiditis with left lateral sinus thrombosis.

Clinical response to sulfadiazine was most dramatic and prompt in all cases in which recovery occurred.

Very few spinal punctures and drainages were performed.

Leukopenia, which developed in 1 patient, was the only toxic condition encountered that can be attributed to the drug.<sup>9</sup>

### DIFFUSE COLLAGEN DISEASE

#### ACUTE DISSEMINATED LUPUS ERYTHEMATOSUS AND DIFFUSE SCLERODERMA

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The thesis of Morgagni that diseases reside in certain organs of the human body has dominated pathologic anatomy and clinical investigation for centuries. Every diagnostic endeavor was directed toward establishing the fundamental organ disease. No doubt, this working hypothesis has been the cornerstone on which rests the edifice of modern medicine.

The great advance of medicine throughout the nineteenth century is essentially founded on the method of correlating observations made in the hospital ward with those at the postmortem table. This clinicopathologic concept was further advanced by the recognition of an interdependence and unity of certain organs to form organ or tissue systems. Diseases of the hemopoietic or of the reticuloendothelial system represent such an extension of the scope of organ pathology. Nevertheless one cannot justly maintain that an essential site is established in every disease. A number of acute infections and intoxications do not produce characteristic or even significant lesions in any organ. Pathologic anatomy cannot therefore make any fundamental contribution, the exact nature of these maladies will be disclosed only by investigations into etiology and the examination of functional derangements. Another difficulty with the theory of Morgagni arises from the fact

that in certain maladies, such as rheumatic fever, apparently unrelated organs are the sites of the morbid process.

Recent anatomic investigations of disseminated lupus erythematosus have offered a similar problem in that conspicuous gross and microscopic changes were observed in various organs such as the heart, kidneys and skin. The question arose as to which of these organ changes were of primary and fundamental significance—in other words, which represented the seat of the disease, in the sense of Morgagni.

For rheumatic fever it has been shown by Klinge<sup>1</sup> that the pathognomonic involvement of the joints and of the heart is initiated by a characteristic alteration of the connective tissue followed by a specific granulomatous phase, the Aschoff nodule. Subsequent detailed investigations by this author and his school have revealed that the morbid process in rheumatic fever is not limited to these sites but affects the connective tissues throughout the body.

The apparently heterogeneous organ lesions in disseminated lupus erythematosus have similarly been shown to be the result of a fundamental alteration of the collagenous tissues. These collagen alterations are in most individual observations more widespread and conspicuous than those in rheumatic fever, affecting with particular frequency the collagen framework of the heart and of small blood vessels and capillaries, especially those of the kidneys. The connective tissue of the mediastinum and of the retroperitoneal space may also be affected by the morbid process. It is reasonable, therefore, to consider these maladies as systemic diseases of the connective tissues. The justification for the concept of a systemic disease of the connective tissues depends on the actual existence of a connective tissue system.

A system is, in the biologic sense, according to definition, an assemblage of organic structures composed of similar elements and combined for the same general functions. The connective tissue proper can then justly be regarded as a system because it consists throughout the body of an association of similar cellular and fibrillar elements held together by a third component, an amorphous ground or cement substance. The colloidal nature of this ground substance has been stressed by Schade.<sup>2</sup> Obviously these elements are combined not only for the general function of support but also for other fundamental functions. Interposed between the parenchymal cells and the canalicular blood and lymph spaces of the body, the connective tissues not only serve as the site of transfer of metabolites but most actively serve the body economy in other ways, for example, by the regulation of salt and water balance. An understanding of the colloidal nature of the extracellular portion of the connective tissues is necessary to an analysis of these functions. The same knowledge is imperative for an appreciation of the responses of the connective tissues in degeneration and inflammation. Until recently, approach to these morbid processes has been almost entirely in terms of the cellular reaction within the connective tissues. However, the participation of the fibers and ground substance may occasionally overshadow the cellular reaction. For example, in some persons an injury of the connective tissue results

<sup>9</sup> The Tulane and Independent Services of Charity Hospital gave permission for inclusion of their cases in this report. From the Laboratories of the Mount Sinai Hospital, New York.

<sup>1</sup> Klinge I. *Ergebn d. allg. Path. u. path. Anat.* 27: 1, 1933.  
<sup>2</sup> Schade H. *Die physikalische Chemie in der inneren Medizin*. Dresden & Leipzig: Theodor Steinkopff, 1927.



in the excessive production of collagenous fibers and ground substance known as keloid

We first became aware of the disorder of the connective tissue as a system in our studies of disseminated lupus erythematosus.<sup>3</sup> The apparent heterogeneous involvement of various organs in this disease had no logic until it became apparent that the widespread lesions were identical in that they were mere local expressions of a morbid process affecting the entire collagenous tissue system. The most prominent of these alterations is fibrinoid degeneration—a descriptive morphologic term indicating certain well defined optical and tinctorial alterations in the collagenous fibers and ground substance. The straightening and thickening of the collagen fibers, their apparent friability, their intense eosinophilia and refractibility, together with visible increase in the ground substance can be due only to a profound physicochemical aberration of the colloid state of the connective tissues.

A similar widespread alteration of collagen has also been noted in certain cases of diffuse scleroderma.<sup>4</sup> Here, however, the collagen disturbance is manifest not only as fibrinoid degeneration but also as an increase in the bulk and density of the connective tissue. On the other hand this sclerosing type of lesion has also been observed in disseminated lupus erythematosus (spleen, pericardium, retroperitoneal tissues). It is evident, then, that fibrinoid degeneration and collagen sclerosis are the morphologic expression of different phases of a disturbed colloidal collagen system.

In these two diseases morphologic alterations may in the individual case be indeed striking. But even here the changes are hardly crucial enough to account for the profound clinical debasement and death of the patient. This is even more impressive in some cases in which the characteristic morphologic indexes of a systemic collagen disturbance are discoverable only after the most minute search. How can one account for such a discrepancy? It is unlikely that other tissue alterations have been overlooked or not comprehended. In the fully developed case the morphologic signs of implication of the collagenous tissues are quite clear. The fact of total involvement of the collagen tissue system is also clear. Can we assume, therefore, that a derangement of the colloidal state of the entire collagenous system exists though it cannot consistently be revealed by our histologic methods? Such an assumption has already been made by MacCallum<sup>5</sup> in the analysis of a case of acute scleroderma occurring in an 18 year old boy. Furthermore, the spectacular clinical state observed in sclerodema adultorum (Buschke) can be accounted for only by a similar assumption. The hardening of the skin in this disease is far out of proportion to the demonstrable histologic alteration. Moreover, the clinical reversibility of the condition lends credence to the view that the alteration is due to a transient colloidal imbalance within the collagenous tissues.

With these considerations in mind, it must become quite clear that one may regard the connective tissues of the body as a whole as a well defined, widely dispersed colloidal system liable to a variety of injuries. We are concerned here only with those processes which

affect the system in its entirety. Among these are acute disseminated lupus erythematosus and certain cases of diffuse scleroderma. There are, indeed, other morbid processes which, when analyzed, are also found to affect the connective tissue system. However, to identify this system as the seat of certain diseases is by no means to identify these diseases with one another or even to relate them. This would be an unjustifiable oversimplification.

Klinge<sup>1</sup> has charted most completely the widespread involvement of the connective tissues in rheumatic fever. Here too the seat of the disease is found in the connective tissues of the body as a whole, although those of the heart exhibit the greatest disturbance. There is in rheumatic fever, as in disseminated lupus erythematosus and in diffuse scleroderma, not only widespread involvement of the connective tissues but also similar alteration of the extracellular components of these tissues—fibrinoid degeneration. However, there are such clearcut differences in the localization and evolution of the characteristic lesions in these diseases that they must be strictly separated. Thus the glomerular lesions in disseminated lupus erythematosus and in diffuse scleroderma are never seen in rheumatic fever, the vascular lesions in the latter rarely achieve such intensity as in the former diseases. Finally, and most important, the development of a specific granulomatous phase—the Aschoff nodule—occurs neither in disseminated lupus erythematosus nor in diffuse scleroderma.

Roessle<sup>6</sup> and Jaeger<sup>7</sup> have proposed that fibrinoid degeneration of collagen is a characteristic and constant morphologic feature of diseases of allergic or "pathergic" background and have proposed that such diseases (rheumatic fever, periarteritis nodosa and thromboangiitis obliterans) may be considered in a single group designated as the "rheumatische Formenkreis." Masugi and Ya-Shu,<sup>8</sup> therefore, having found fibrinoid degeneration widespread within the blood vessels in a case of diffuse scleroderma, suggested that this disease also fell into the same category. This, we believe, is both unjust and unwise. In the first place there has been no universal acceptance of the allergic nature of rheumatic fever, the prototype of the group. Secondly, although it has been shown experimentally (Gerlach,<sup>9</sup> Klinge<sup>10</sup>) that hyperergic inflammation is characterized by fibrinoid degeneration of collagen, the converse does not necessarily follow, that widespread fibrinoid degeneration always indicates a state of hypersensitivity. We know that local fibrinoid degeneration of collagen is found in a variety of states not related to hypersensitivity. It is reasonable to assume, therefore, that widespread collagen degeneration may also be the result of causes other than hypersensitivity. In fact, the predominant incidence in females of acute disseminated lupus erythematosus and diffuse scleroderma speaks against hypersensitivity as the sole mechanism.

Until now an inordinate preoccupation with immaterial cause has shut the door to an analysis of the fundamental changes within the connective tissues considered as a colloid system. The connective tissues having been established as the seat of certain diseases, it remains for the investigator to explore this system with the methods available to the biophysicist and the chemist.

3 Klemperer Paul Pollack, A. D., and Baehr George. Pathology of Disseminated Lupus Erythematosus, Arch Path 32 569 (Oct) 1941

4 Pollack, A. D. Visceral and Vascular Lesions in Scleroderma, Arch Path 29 659 (June) 1940, article in preparation

5 MacCallum, W. G. Tr A Am Physicians 41 190 1926

6 Roessle, R. Virchows Arch f path Anat 258 1 1936  
Klin Wehnschr 15 809 1936  
7 Jaeger, E. Virchows Arch f path Anat 261 26 1936  
8 Masugi, M., and Ya-Shu. Virchows Arch f path Anat 261 26 1936  
9 Gerlach, W. Virchows Arch f path Anat 261 26 1936  
10 Klinge I. Beitr z path Anat u z allg Path 8 1 1936

# MYCOTIC ENDOCARDITIS

## REPORT OF A CASE

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Endocarditis due to fungi is an exceedingly rare clinical entity. Joachim and Polayes<sup>1</sup> described a case of subacute endocarditis with systemic mycosis (moniliasis) in a drug addict and referred to another case in which autopsy revealed evidence of mycotic endocarditis. The following case, also in a drug addict, is similar in many respects to that of Joachim and Polayes and is considered worthy of reporting because of its apparent rarity, and because of its possible public health importance since these cases occurred in drug addicts.

A white man aged 49 was admitted to the United States Public Health Service Hospital on May 11, 1940 for treatment of drug addiction (heroin) which dated from 1914. His previous medical and personal history showed nothing relevant to the present report. Physical examination on admission was negative except for many missing and some artificial teeth, defective vision and hemorrhoids. Serologic tests for syphilis were reported positive on two successive examinations after admission. He received six weekly injections of bismuth beginning June 25 and two injections of arsphenamine beginning August 13. The patient had no complaints until the afternoon of August 26, at which time he suddenly became mentally confused and what appeared to be hemiplegia on the right side developed. He was then admitted to the neuropsychiatric service. He did not lose consciousness. Neurologic and psychiatric examinations revealed considerable clouding of the sensorium especially in the fields of orientation, memory, retention and recall. There was a partial nominal aphasia together with an inability to write spontaneously with retention of ability to spell and copy. There was a right lower facial weakness on voluntary innervation, deviation of the tongue to the right on protrusion and a right upper monoparesis which was more severe in the hand. The abdominal reflexes were likewise diminished on the right side and the plantar response was absent on the right. In addition the patient exhibited a moderately severe anemia and clubbing of the fingers and toes. The spleen was considerably enlarged. Examination of the heart revealed a loud apical systolic murmur transmitted to the axilla with regular rhythm and sounds of good quality. The temperature was about 38.5 C (101.5 F) for the first few weeks of the illness following this there was an afebrile period of about two weeks.

Urinalysis was essentially negative; a blood count disclosed rather severe anemia of the secondary type. Lumbar puncture yielded a clear, colorless fluid with normal pressure and normal menometric responses. Laboratory examination of the fluid revealed 80 cells of which 71 per cent were polymorphonuclear.

Protein was 0.32 Gm per liter, the reaction for sugar was negative, as were the Kahn and the Kolmer test. The colloidal gold curve was 0001100000. A recheck on the blood serum reaction revealed a 4 plus Kahn, 2 plus Kline exclusion, doubtful Kline diagnostic and positive Kolmer reaction.

The patient's aphasia disappeared almost completely after a few days and there was decided improvement in the sensorium. The other neurologic and physical conditions remained essentially the same. Lumbar puncture was repeated on September 18 and the following results were obtained: cell count 18 predominantly lymphocytes, protein 0.26 Gm per liter, sugar too low to be read, Kahn and Kolmer reactions negative, colloidal gold test 1122100000, chlorides 706 mg per hundred cubic centimeters. A roentgenogram of the chest was reported to be negative except for a slight prominence in the region of the pulmonary conus. The differential diagnosis at this time was between cerebrovascular syphilis with thrombosis of the left middle cerebral artery and embolism of the same vessels secondary to the cardiac mitral disease. Treatment consisted of iodides by mouth, bismuth, general supportive therapy, iron and liver extract.

In spite of these measures the patient grew progressively weaker and although no new local symptoms appeared and his course was almost constantly afebrile the possibility of subacute bacterial endocarditis was entertained. Blood cultures were taken on two occasions and yielded in both instances a yeastlike growth which was subsequently demonstrated to be *Candida* (*Monilia*) *parakrusei*. Culture of the spinal fluid yielded no organisms of any kind. On October 29 petechial hemorrhages were discovered in the right lower eyelid and in the right retina.

Although the patient's focal neurologic signs improved somewhat his general condition grew progressively worse. Transfusions of 500 cc of citrated whole blood were given on October 30 and November 15 without any improvement. Lumbar puncture was done again on October 23 and the spinal fluid, which was clear, showed 10 cells (90 per cent lymphocytes), protein 0.20 Gm per liter, sugar positive, chlorides 691 mg per hundred cubic centimeters and culture negative for yeast or other organisms. Repeated blood cultures, however, continued to yield the yeastlike organism. *Streptococcus viridans* was not found. A mouse inoculated intraperitoneally with a culture of the yeastlike organism died on the eleventh day, and cultures of its brain and peritoneal washings yielded the same yeastlike organism. On October 31 urinalysis revealed 3 plus albumin and occult blood. Yeast cells were seen in the urine and cultured therefrom. His blood nonprotein nitrogen at this time was 30.9 mg and sugar 95 mg per hundred cubic centimeters. Intravenous pyelography showed nothing abnormal except ptosis of both kidneys.

About this time the patient began to exhibit a septic type of temperature curve, the peaks varying from 38 to 39.5 C (100.4 to 103.1 F). The blood count, however, continued to show anemia (hemoglobin 65 per cent, red blood cells 3,430,000) and normal white count (7,000 to 9,000) with slight neutrophilic predominance (70 to 75 per cent). Iodides up to 1 drachm (4 Gm) of saturated solution of potassium iodide three times a day and 1 Gm of sodium iodide intravenously twice daily were given without effect. Sulfathiazole (1 Gm first dose followed by 0.5 Gm every four hours thereafter) was given from November 6 to November 11 inclusive. The temperature dropped but since the patient grew much weaker and the white count dropped to 2,500 this treatment was discontinued. Numerous petechiae appeared over the extremities and back and the patient gradually became semistuporous. Neurologic examination was negative except for weakness in the right lower part of the face, some spasticity of the right upper extremity and a positive Hoffman sign on the right. The deep reflexes were now depressed symmetrically throughout. On November 20 the patient was difficult to arouse but conscious and well oriented after being aroused. The breath sounds were muffled and respirations were labored. There was pitting edema of

<sup>1</sup> From the United States Public Health Service Hospital Lexington Ky, and National Institute of Health, Bethesda Md.  
<sup>2</sup> Joachim, Henry, and Polayes, S. H. Subacute Endocarditis with Systemic Mycosis (Monilia). *J. A. M. A.* 11: 20-28 (July 20) 1940.

the hands and feet (although the patient had been digitalized), and numerous rales were found throughout the right lung. The white count was 26,700 with 75 per cent polymorphonuclear leukocytes and the temperature was normal (later subnormal). The patient's condition became rapidly worse and he died about 4 p m November 22.

The clinical diagnoses were (1) drug addiction (heroin) without psychosis, (2) cardiac disease, valvular, mitral stenosis,



Fig 1—Appearance of vegetation, grossly indistinguishable from the vegetations seen in bacterial endocarditis

sis, (3) heart disease, endocarditis, subacute bacterial (?) yeast (?), (4) embolism, cerebral, multiple, due to heart disease, (5) syphilis, tertiary, latent (?), (6) perforation, septum of perichondrium and cartilage of nose, (7) pneumonia, lobular, right, (8) pericarditis with effusion, acute, due to heart disease

#### POSTMORTEM EXAMINATION

There were many areas of petechial hemorrhage into the skin, especially on the legs and hands. Some of these were pustular.

The lungs were mottled with reddish discoloration throughout, but more especially in the lower lobes. On cross section blotchy areas of moist, rather soft consolidation were seen. Blood tinged frothy fluid exuded from the cut surface. Although both lungs showed these changes, they were more pronounced and more extensive in the right lung. Histologic Report: "The moderately congested parenchyma showed many medium sized areas, often surrounding pus-filled bronchi, with alveoli distended by fibrinocellular exudate in which neutrophils predominated, lymphocytes and macrophages being present in small numbers. The latter usually contain granular brown pigment. Most of the remaining alveoli contained a few erythrocytes, little serum and few leukocytes."

The pericardium was distended with fluid. Blood aspirated from the heart yielded a yeastlike organism on culture. The pericardium was smooth and glistening throughout. The heart was not enlarged. There was some subepicardial scarring along the arterial tree and some not adjacent to the larger vessels. The musculature and valves of the right side of the heart were grossly normal. The aortic valve and the musculature of the left side of the heart were grossly normal. There was a large friable vegetative growth measuring about 3 by 3 cm attached to the mitral valve (fig 1). The valve leaflets were greatly thickened and the chordae tendineae were thickened and shortened. Histologic Report: "The mitral valve leaf was about 2 mm thick near its base, gradually becoming thicker as it extended downward parallel to the ventricular endocardium for a distance of 8 mm and here fused with mural endocardium, the two structures merging in a 10 by 15 mm fibrous scar. The scarred valve showed focal areas of necrosis

infiltrated by many macrophages and few neutrophils and lymphocytes. Some of these foci abutted on thrombosed thin walled vessels. The valve surface was covered by a thick, firmly adherent layer of fibrinocellular exudate which contained small to medium size dense clumps of spores, usually near the surface. There were a few isolated spores, some in phagocytes, some free in the fibrin. They were gram negative, 12 to 25 microns in diameter, having a moderately distinct basophilic limiting membrane and lightly basophilic structureless central area and contained one or two deeply basophilic, usually eccentric granules. The auricular endocardium adjacent to the base of the mitral valve showed fibrous thickening, was covered by a thin layer of fibrin and was infiltrated by few to many lymphocytes. The myocardium showed slight patchy interstitial lymphocyte, plasma cell and neutrophil infiltration. The epicardium showed slight patchy fibrosis."

The spleen was considerably enlarged (weight 770 Gm). The capsule was smooth but stripped with some difficulty. Toward the posterior pole and situated somewhat inferiorly there was an old organized infarct. In several other places there were more recent, rather firm, reddish, irregularly shaped infarcts of varying size and stage of organization. Histologic Report: "There was a subcapsular area, 15 mm by 10 mm, of hemorrhagic infarction with slight marginal fibroblast proliferation and collagen deposition. The red pulp showed a slight diffuse increase in numbers of medium size and large lymphoid cells, a few scattered neutrophils and macrophages, the last occasionally exhibiting erythrophagia. Follicles were medium size and their reticulum cells were swollen and had homogeneous oxyphilic cytoplasm." Histologically the bone marrow showed that "erythropoiesis and granulocytic maturation appeared moderately depressed."

The left kidney showed no gross abnormality other than rather general reddish mottling in the cortex, which possibly represented multiple minute infarcts. The right kidney contained an infarct 15 by 30 mm in its upper pole. Histologic Report: "The moderately congested parenchyma showed few small subcapsular and subcortical, triangular and stellate areas of fibrosis with tubular atrophy, glomerular fibrosis and slight lymphocyte infiltration. Many collecting and convoluted tubules contained hyaline and granular casts. Medulla contained many small, radially elongated abscesses. Both cortex and medulla showed slight patchy interstitial fibrosis, and small arteries



Fig 2—Area of softening involving the superior portion of the kidney and the adjacent lateral portion of the internal capsule

showed moderate sclerosis. In the cortex there was a 10 by 25 mm area of infarction showing moderate peripheral fibrosis. Scattered throughout this necrotic tissue there were many densely scarred foci in which atrophic tubules and fibrous glomeruli were recognizable."

The calvarium was removed and a sample of cerebrospinal fluid was aspirated and yielded the yeastlike organism on culture. The meninges were moderately distended by a turbid fluid. The pial vessels were moderately dilated.

leptomeninges were slightly opaque and adherent over the superior longitudinal sinus bilaterally. The base of the brain and the vessels of the circle of Willis were grossly normal. Coronal sections were made at intervals of 1 cm. On the left side at the level of the insula there was a yellowish necrotic area of softening measuring 20 by 8 by 15 mm (fig 2) involving the superior portion of the putamen and the adjacent lateral portion of the internal capsule. The lumens of several small branches of the middle cerebral artery in the neighborhood of the softened area were occluded and slightly distended by clotted blood, giving the appearance of antemortem thrombosis or embolism. In the region of the right parieto-occipital sulcus, just below the gray matter, there was a hemorrhagic area about 2 cm in diameter. The other regions presented no pertinent abnormalities. Histologic Report: "There were several types of lesions, the most significant being two small areas of softening in different stages of degeneration. The most recent lesion, occurring at the junction of the white matter and cortex, showed a central blood clot containing hematoidin margined by an ill defined zone of stringy fibrillary material, and moderate numbers of lymphoid and foam cells, external to this the brain showed a broad, poorly defined zone infiltrated by many hypertrophied astrocytes. Another block showed an older linear necrotic spongy area from which all nerve cells had disappeared, surrounded by a narrow zone of slightly spongy brain tissue and many hypertrophied astrocytes. Besides these areas of softening smaller lesions occurred. Many vessels showed perivascular infiltration by lymphocytes, plasma cells and few macrophages, the latter often contained a small amount of granular pigment stained green with eosin methylene blue. Near apparently occluded capillaries in brain parenchyma there were small areas of destruction in ground substance with few microglia and astrocytes. Occasionally, chiefly in the gray matter, there were sharply defined granulomatous lesions composed of about a dozen closely packed mononuclear and epithelioid cells. No definitely recognizable spores were seen."

#### MICROLOGIC REPORT

In identification of species of *Candida* the laboratory procedures followed at the National Institute of Health include a study of the colony characteristics and microscopic morphology on acid dextrose agar, deeply inoculated cornmeal agar plates, and sometimes blood agar. The character of the growth in acid dextrose broth after incubation at 37.5 C for forty-eight hours and the fermentation reactions under the conditions outlined by Martin and his associates<sup>2</sup> are also carefully observed. For the identification of the strain described here, levulose and raffinose were included in addition to the sugars used by those investigators. Langeron and Guerra's monograph<sup>3</sup> was also consulted for descriptions of species of *Candida*.

In subcultures made when the fungus was first received two types of colonies differing slightly in appearance were observed. The two types were isolated and carefully compared. They differed slightly in the amount of gas formed in dextrose and levulose fermentation tubes and in the amount of sediment deposited on the sides and at the bottom of the tube in broth cultures, but these differences were not significant.

On acid dextrose agar (modified Sabouraud's agar—dextrose 4 per cent, neopeptone 1 per cent, agar 2 per cent, pH 5.5) the fungus forms bluish white, glistening slightly raised colonies with entire margins. In acid dextrose broth incubated at 37.5 C for forty-eight hours no surface film or ring was formed. The broth was clear and a flocculent deposit settled on the sides and at the bottom of the culture tube. On blood agar plates incubated at 37.5 C for ten days colonies were gray, smooth, glistening low dome shaped, 2 to 3 mm in diameter, with entire borders. Colony characteristics of species of *Candida* on

blood agar, in our experience, have not paralleled those described by Martin and his associates.

On cornmeal agar plates yeastlike growth was not conspicuous, but the few yeastlike cells on the agar surface appeared slightly brownish under the microscope, resembling similar cells of *Candida albicans*. Hyphal growth was greatly restricted, no grossly visible zone of hyphae appearing along the streak in cornmeal agar. Microscopically the hyphae were short and profusely branched, clusters of short stubby branches being borne in some cultures. These clusters also suggested some resemblance to *C. albicans*, but unlike most strains of that species hyphal growth was greatly restricted and no chlamydospores were produced. In petrolatum sealed sugar containing broth, incubated at 37.5 C for ten days, acid and small amounts of gas were produced in dextrose and levulose, neither acid nor gas in sucrose, lactose, maltose and raffinose. The organism was not pathogenic for rabbits even in large doses. Some animals were given repeated intravenous inoculations but lesions were not apparent when the animals were killed. Sections of the heart valves of repeatedly inoculated rabbits were normal.

The characteristics of this strain of fungus, as outlined, are those of *Candida parakrusei* (*Monilia parapsilosis*).

There are slight differences between this strain and some published descriptions of the species, as well as between different published descriptions. Some strains of *C. parakrusei*, for example, produce hyphae on cornmeal agar more freely and some produce a faint ring at the surface of dextrose broth when tubes are heavily inoculated. Some discrepancies are no doubt due in part to slight differences in culture mediums and in technique of handling. The actual differences between strains and the changes which are sometimes observed in a given strain over periods of time when in laboratory culture are, however, proof of a degree of instability clearly manifested also in other species of *Candida*.

This strain has been compared with three other strains of *C. parakrusei* also isolated from drug addicts with subacute endocarditis and sent to this laboratory for study and identification. The first strain was submitted by Dr S. H. Polayes, whose report of the case has been mentioned. A final report on this case is being published.<sup>4</sup> Two strains were received from Dr Milton Helpert and Dr A. S. Weiner, one of these having been very recently isolated. These strains were essentially alike in fermentation reactions and morphology, the differences previously mentioned being too slight to suggest any need for specific separation. The Lexington strain was also compared with a strain of *C. parakrusei* furnished by Dr Rhoda Benham. That strain presented some morphologic differences which could have been due to mutations occurring during its maintenance as a stock culture. A fifth fungus isolated from subacute endocarditis, the patient in this instance also being a drug addict, was received for identification from Dr Thomas M. Peery, George Washington University School of Medicine, who will report the case. This fungus differed from *C. parakrusei* by fermenting with gas production sucrose and raffinose as well as dextrose and levulose. There were also important morphologic differences, and the organism was identified in this laboratory as *Candida guilliermondii*.

#### COMMENT

It is extremely interesting that within the past two years 5 cases of mycotic endocarditis should be recognized in drug addicts, 4 being due to *C. parakrusei* and 1 to a related fungus, *C. guilliermondii*. It is obviously more than mere coincidence that all the patients were drug addicts who took heroin intravenously. The question arises whether *C. parakrusei* is a common contaminant of heroin or of its adulterants. Joachim and Polayes reported that in their case an organism similar

<sup>2</sup> Martin D. S., Jone C. P., Yao K. F. and Lee L. E. Jr. *Practical Classification of the Moniliae*. J. Bact. 34: 99-129 (July) 1937.

<sup>3</sup> Langeron Maurice and Guerra Paul. *Nouvelles recherches de mycologie médicale*. Ann. de parasitol. 16: 36-84 (Jan. 1) 1921; 179 (March 1) 429-46 (Sept. 1) 481-85 (Nov. 1) 1925.

<sup>4</sup> Polayes S. H. and Erwin C. W. Final Report on the Identification of the Organism of the Irregularly Reported Case of Subacute Endocarditis and Systemic Mycosis (Mycosis). J. A. M. A. 117: 135-137 (Nov. 1) 1934.



to the one isolated from blood was isolated from the container which had held the patient's heroin.

An attempt was made by one of us (C. W. E.) at the National Institute of Health to learn whether *C. parakius* is a common contaminant of heroin or its adulterants. Eleven samples of heroin were obtained from Dr. J. Walter McDonald of the Drugs Disposal Committee, Bureau of Narcotics. These samples, according to the analyses recorded on the packages, contained as adulterants sugar (specific sugar not specified), cinchona alkaloids, mannitol, starch, brucine, procaine, quinine, sucrose, procaine hydrochloride, lactose or sucrose or some combination of these. Repeated attempts to isolate *Candida* in cultures from the heroin samples failed, although cultures of several other fungi were obtained. The number of samples tested was not large, but we believe that the samples are representative as to source and adulterants, and the failure to isolate *Candida* probably indicates that it is not a common contaminant of heroin. It would seem possible that the source of the organism in these cases was a contaminated batch of heroin which was rather widely distributed among drug addicts.

Another possible source of the fungus is the patient's skin. Langeron and Guerra state that this species is frequently found on the surface of the skin, especially about the nails, without, however, causing onychia or paronychia. Castellani isolated it from sputum. Martin and his associates isolated it from the vagina, throat, sputum and skin. Since the fungus may, therefore, be present on the skin and mucous membranes, it is possible that these patients introduced the fungus into the vein by accident at the time the drug was administered by them.

The question of primary bacterial endocarditis with superimposed mycotic infection is raised by Joachim and Polayes. There is no evidence that bacterial infection played any role in our case, and the clinical picture, which so closely resembles their case, appears to be characteristic of the disease.

Of especial interest in this case are the neurologic manifestations. Clinically, these indicated a focal brain lesion and, in view of the discovery of a yeastlike organism in the blood, suggested the possibility of torulosis. Subsequent mycologic studies, however, showed that the etiologic agent did not resemble *Torula histolytica*. As Jacobson<sup>5</sup> has pointed out, this type of infection can give rise to almost any type of neurologic picture, although usually signs of meningitic involvement predominate. The spinal fluid appeared to be characteristic of mycotic infection of the central nervous system in general.<sup>6</sup> Subsequent to this patient's death, Anderson<sup>6</sup> reported a series of 4 cases of brain abscess due to fungous infection, in 2 of which the cerebrospinal fluid findings closely resembled those in this case except that the cell counts were higher. Hence it would seem that the presence of a mild increase in the cell count with diminution in the sugar content is characteristic of cerebral, particularly meningeal, fungous infections as distinguished from meningitides of bacterial origin, in which the cell count is usually much higher and polymorphonuclear leukocytes predominate in the acute stage.

As molds of various sorts are often the bane of the clinical pathologist, the first thought—we might even say accusation—was that our culture mediums had become contaminated. We feel that this source of error was definitely ruled out in our case by meticulously checking all mediums and steps in the clinical laboratory technic, but we wonder whether other cases may not have been missed by us and by other laboratory workers by discarding such cultures as contaminations.

#### SUMMARY AND CONCLUSION

The case of mycotic endocarditis in a drug addict with postmortem observations and mycologic study illustrates the necessity of taking into consideration the possibility of mycotic infections in those cases in which the clinical picture of subacute bacterial endocarditis cannot be confirmed by the demonstration of *Streptococcus viridans* in the blood stream or in an atypical neurologic condition resembling a vascular accident of obscure etiology. It should also be suspected in what may seem to be torulosis when difficulty is encountered in positively identifying the organism. In such cases, examination of the cerebrospinal fluid, with particular reference to the quantitative sugar content and the cell count, may lead to the correct diagnosis.

An unusual organism does not necessarily indicate poor laboratory technic.

#### END RESULTS IN REMOVAL OF BLADDER NECK OBSTRUCTION

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In a perusal of the voluminous literature on the subject of the treatment of bladder neck obstruction, whether by suprapubic or perineal prostatectomy or by transurethral resection, one finds that all phases of the subject have been considered, and some of them in great detail, with the possible exception of a discussion of the end results. A good deal of argumentation is to be found in the present day literature relative to the pros and cons, that is, the arguments for and against resection in the treatment of bladder neck obstruction. But an equal amount of emphasis has not been placed on the essential aspect of the treatment, which is the relief of the obstruction. Relief of the obstruction results in cure, therefore, relief of the obstruction is the objective that must be attained because unless the obstruction is completely relieved, no matter which method of operation is employed, one fails to cure the patient. On the other hand, when the obstruction has been completely removed a cure automatically follows.

I know of no more critical way of evaluating the end result than to determine whether or not the patient still has residual urine. It is to be remembered that a small amount of residual urine may be present at the time the patient leaves the hospital. I am sure that every urologist has seen these small amounts disappear without further treatment. However, one should not blind oneself to the fact that the residual urine may disappear, especially if it is more than a small amount, and that another resection is in order. With more experience the need for a second resection becomes less frequent except in the very large prostates where obviously obstructing tissue cannot all be re-

<sup>5</sup> Jacobson, H. P. *Fungus Diseases*. A Clinical Mycological Text. Springfield, Ill., and Baltimore: Charles C. Thomas, Publisher, 1932, pp. 253-369.

<sup>6</sup> Anderson, G. C. *Fungus Infections of the Brain*. *Arch. Surg.* 42: 379-386 (Feb.) 1941. Levin, E. A. *Torula Infection of the Central Nervous System*. *Arch. Int. Med.* 59: 667-683 (April) 1937.



at one sitting I have seen 2 and 3 ounces of residual urine disappear. On the other hand, if it does not disappear I think the patient should have a second resection especially if symptoms persist and the urine remains turbid. In my experience, when the obstruction has been completely removed the symptoms for which the resection was done disappear and the urine gradually becomes clear. Local treatment is rarely indicated. What should be remembered is that the prostatic bed after resection does not heal readily and that in some cases the healing process is prolonged. I have examined a few patients some twelve weeks after resection and have found that healing was not complete.

In an occasional case the symptoms may persist because of an associated prostatitis, that is infection in the prostatic bed. More frequently, however, they are due to a preceding infection in the seminal vesicles. These conditions call for the usual form of treatment.

This paper is based on a study of examinations made in an unselected series of 144 cases in order to determine whether residual urine was present. In the accompany-

Residual Urine in 144 Cases

| Amount of Residual Urine | 1st Series per Cent | 2d Series per Cent | Pre sent Series per Cent |
|--------------------------|---------------------|--------------------|--------------------------|
| None                     | 66.0                | 75.82              | 78.472                   |
| 11-20 cc                 | 16.11               | 12.08              | 13.888                   |
| Total                    | 82.41               | 87.90              | 92.360                   |
| 21-30 cc                 | 6.22                | 6.95               | 2.777                    |
| 31-40 cc                 | 1.83                | 0.53               | 0.694                    |
| 41-50 cc                 | 2.19                | 0.73               | 0.694                    |
| Over 50 cc               | 7.32                | 3.76               | 3.471                    |
| Total                    | 99.97               | 99.87              | 99.996                   |

ing table the results obtained are presented. The results obtained in studies already published<sup>1</sup> are also included. A review of the charts shows several interesting facts.

1. A gradual definite increase in the number of patients who had no residual urine, that is, from 66.3 per cent in the first series up to 78.47 per cent in the third series of cases studied.

2. A reduction in the percentages of those having 11 to 20 cc of residual urine from 16.11 per cent in the first series to 13.88 per cent in the third series.

3. A definite increase in the sum total of these two groups, namely 82.41 per cent in the first series, 87.90 per cent in the second series and 92.36 per cent in the third series.

4. A pronounced reduction in the patients who had from 21 to 30 cc, namely 6.22 per cent in the first series, 6.95 per cent in the second series and 2.77 per cent in the third series.

5. A decided reduction in the patients who had from 31 to 40 cc, namely from 1.83 per cent in the first series to 0.694 per cent in this series.

6. A reduction in the patients who had 41 to 50 cc, namely from 2.19 per cent to 0.694 per cent.

7. A definite reduction in the patients with more than 50 cc, from 7.32 per cent in the first series to 3.47 per cent in the present series.

122 South Michigan Avenue

## Clinical Notes, Suggestions and New Instruments

### TRAUMATIC RUPTURE OF THE THORACIC DUCT WITH CHYLOTHORAX

A BRIEF REVIEW OF THE LITERATURE

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Traumatic rupture of the thoracic duct with chylous effusion into the pleural cavity is a condition so rare that the reporting of an additional case seems warranted.

The first authentic case of traumatic chylothorax was reported in 1875 by Quincke.<sup>1</sup> In 1933 Mouchet<sup>2</sup> collected 43 published reports of authentic cases and in 1937 Bauersfeld<sup>3</sup> collected 5. Since his article was published 11 additional cases have been reported, 2 by Shackelford and Fisher,<sup>4</sup> 1 each by Strauss<sup>5</sup> Beatty,<sup>6</sup> Brown,<sup>7</sup> Szajna,<sup>8</sup> Fujita,<sup>9</sup> Everhart and Jacobs,<sup>10</sup> Cellan-Jones and Murphy,<sup>11</sup> Matson and Stacy<sup>12</sup> and Hoyer,<sup>13</sup> totaling 59 reported cases.

The thoracic duct originates anterior to the body of the second lumbar vertebra as the cisterna chyli. It ascends through the posterior mediastinum between the aorta and the azygos vein, emptying into the left subclavian vein at its junction with the internal jugular vein. The duct conveys the products of fat digestion in the form of lymph laden with fat, or chyle, from its site of formation in the intestine, to the blood stream at the rate of 130 to 195 cc an hour.

Chylothorax is the result of a break in the continuity of the thoracic duct due to direct or indirect trauma or from processes which obstruct or partly destroy the duct. Trauma that is insufficient to cause fractures may result in an increased intraductal pressure causing the duct to burst. The average length of time that elapses between the accident, the latent period and the onset of symptoms is four days. However, in this case, twenty-seven days intervened between the date of injury and the second admission to the hospital.

The symptoms of chylothorax are progressive dyspnea, cyanosis, shock and signs of pleural effusion. The most important clinical features are the latent period, the repeated reaccumulation of fluid within the chest after aspiration and a gradual progressive emaciation which frequently ends in death.

Chylous fluid is a milky, noncoaguable, opalescent fluid containing fat. It is alkaline in reaction and has a specific gravity of 1.012 or higher.

In cases of traumatic chylothorax, surgical intervention with ligation of the duct below the tear or an attempt to repair the rent has resulted in a mortality rate of 100 per cent. Con-

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<sup>1</sup> Quincke, Heinrich. Ueber fetthaltege Transsudate. Hydrops chylusus und Hydrops adiposus. *Deutsches Arch. f. klin. Med.* 16: 121-139 (June) 1875.

<sup>2</sup> Mouchet, Alain. Le chylothorax traumatique. *J. de chir.* 42: 386-399 (Sept.) 1933.

<sup>3</sup> Bauersfeld, E. H. Traumatic Chylothorax from Ruptured Thoracic Duct. *J. A. M. A.* 109: 1618 (July 5) 1937.

<sup>4</sup> Shackelford, R. T. and Fisher, A. M. Traumatic Chylothorax. *South. M. J.* 31: 766-775 (July) 1938.

<sup>5</sup> Strauss, Abraham. Chylothorax Due to Bullet Wound of Thoracic Duct and Syndrome of Traumatic Chylothorax. *J. Thoracic Surg.* 3: 539-551 (June) 1936.

<sup>6</sup> Beatty, O. A. Chylothorax. Case Report. *J. Thoracic Surg.* 6: 221-225 (Dec.) 1936.

<sup>7</sup> Brown, V. L. Traumatic Rupture of the Thoracic Duct with Bilateral Chylothorax and Chylous Ascites. A New Operation. Report of a Case. *Arch. Surg.* 34: 120-128 (Jan.) 1937.

<sup>8</sup> Szajna, M. Ein Fall von Chylusfluigkeit in der Pleurahohle. *Wien. klin. Wchnschr.* 50: 1460 (Oct. 22) 1937.

<sup>9</sup> Fujita, K., Bando, T. and Sugishita, J. Ein Fall von Chylothorax traumaticus. *Arch. Jap. chir.* 16: 229 (March 1) 1939.

<sup>10</sup> Everhart, J. K. and Jacob, A. H. Chylothorax. Review of the Literature and Report of a Case in a Newborn Infant. *J. Pediat.* 15: 58-62 (Oct.) 1939.

<sup>11</sup> Cellan-Jones, C. J. and Murphy, William. Traumatic Chylothorax. *Brit. M. J.* 2: 590 (Nov. 2) 1940.

<sup>12</sup> Matson, R. C. and Stacy, J. W. Traumatic Chylothorax. *Dis. Chest.* 6: 332-336 (Nov.) 1940.

<sup>13</sup> Hoyer, A. Chylothorax. *Scand. Med. J.* 1940 (Jan. 4) 1941.

<sup>1</sup> Kretschmer, H. L. Transurethral Resection. *Ann. Surg.* 104: 917 (Nov.) 1936. Technique and End Results in Transurethral Prostatic Resection. *S. Clin. North America* 29: 177 (Feb.) 1944.

servative treatment by aspiration of the chylous fluid carries a fatality rate of 50 per cent

Oeken<sup>14</sup> and Bauersfeld<sup>3</sup> advocate the intravenous injection of the aspirated chyle. Our patient was treated by this method

#### REPORT OF CASE

**History**—F McL, a white man aged 60, unmarried, was admitted to the First Medical Service of the Boston City Hospital Nov 12, 1937. He was in an alcoholic stupor and unable to give a reliable history.

On Oct 16, 1937, the patient had been admitted to a surgical service of this hospital. At that time he was also in an alcoholic stupor with contusions of the back and a lacerated scalp. Roentgenograms of the chest showed an incomplete fracture of the left tenth rib. The patient stated that he had fallen down a flight of stairs immediately prior to his admission to the hospital. He remained in the hospital nine days during the first six of which he had an intermittent temperature to 101.2 F. Thereafter his course was uneventful and he was discharged with a diagnosis of incomplete fracture of the left tenth rib and acute alcoholism.

**Physical Examination**—The patient was well developed and well nourished and in no apparent distress. There was an alcoholic odor to his breath.

The temperature was 97.8 F, the pulse rate 100 and the respiratory rate 20.

The head and neck were normal.

The lower half of the right side of the chest, anteriorly and posteriorly, showed absent tactile fremitus, flatness and decreased breath and voice sounds. Breath sounds were increased in the left midchest anteriorly. No rales or friction rubs were heard.

The heart was not enlarged, the sounds were of fair quality. There were no murmurs or thrills. The rhythm was regular, A<sub>1</sub> being greater than P<sub>2</sub>. There was no peripheral sclerosis. The blood pressure was 140 systolic and 90 diastolic.

The abdomen, skeleton, reflexes and extremities were all normal.

The admission laboratory report showed that the urinalyses were negative, the hemoglobin 78 per cent Sahli and the white blood count 10,850. The Hinton reaction was negative and the nonprotein nitrogen 34.

A roentgenogram of the chest taken twelve hours after admission showed fluid in the lower half of the right side of the chest. The same day, because of pain in the chest and dyspnea, a thoracentesis was done. Thirty-one hundred cc of milky fluid was removed. The fluid on standing separated into an upper creamy layer and a lower thinner portion. Four days later it was again necessary to remove the fluid, which had reaccumulated in the right side of the chest. As the needle entered the pleural cavity the fluid spurted forth, gushing with each inspiration. On this occasion 3,500 cc was withdrawn. A roentgenogram taken immediately after the removal of fluid showed only a fracture of the left tenth rib.

During the patient's stay in the hospital 18,400 cc of the fluid was removed, the indications for thoracentesis being pain in the chest, dyspnea or cyanosis. Immediate relief from these symptoms followed each withdrawal of fluid.

There was a constant loss of the products of metabolism as well as fluid in the removed chyle. A total protein of 5 mg per hundred cubic centimeters, albumin 2.4 and globulin 2.6 (ratio of 0.92), and cholesterol of 125 on November 17 fell to a total protein of 2.7 and cholesterol of 103 on November 26. The fluid removed was milky, did not coagulate, was alkaline in reaction with a specific gravity of 1.016, total protein 3.1, albumin 2.4, globulin 0.7 and fat 1.8.

The patient was placed on a low fat, high carbohydrate, high protein diet but despite this lost weight rapidly. In an endeavor to decrease the flow of chyle through the duct a pneumothorax was done. Fluids were limited by mouth but were given by hyperdermoclysis or intravenously. On November 22 he was given 1,000 cc of chyle intravenously, he also received 1,500 cc on November 26 and 1,000 cc on November 27. Despite treatment, he became extremely weak and emaciated and died suddenly November 29, his eighteenth day in the hospital.

#### AUTOPSY REPORT

The autopsy report was made by Dr Paul Crehan and revealed the following points of interest.

Surfaces of the peritoneal cavity were smooth and glistening, there was no free fluid.

When the right pleural cavity was punctured with a needle, air escaped, the diaphragm receded and the liver assumed its normal position. In the right side of the chest there was 4,900 cc of moderately thin, gray-yellow fluid. The right lung was completely collapsed. The left pleural cavity was not remarkable, there was no free fluid and the surfaces were smooth and glistening.

The pericardial cavity was not remarkable, the surfaces were smooth and glistening and there was about 35 cc of clear serous, straw colored fluid present.

The right lung weighed 370 Gm and the left 440 Gm. The right lung was a dull gray, collapsed and completely atelectatic.

The thoracic duct was carefully dissected in its entire length and freely exposed. India ink was injected slowly into the cisterna chyli, flowed up the duct and escaped into the pleural cavity through a small "puncture-like" opening in that portion of the duct lying over the upper portion of the twelfth thoracic vertebra. The ninth and tenth ribs on the left side showed evidence of recent fractures about 4 cm from the head of the ribs. No fracture or evidence of fracture of the vertebrae was found.

## Special Article

### INDISPENSABLE USE OF NARCOTICS

*[Now that the sources of supply for narcotics have been largely shut off, their use in medical practice must be confined to the absolutely indispensable. In 1931 THE JOURNAL published a series of articles entitled "The Indispensable Use of Narcotics", these articles were collected and published in book form. This material is now republished—revised, rearranged and shortened—to guide physicians in the present attempt to confine the use of narcotic drugs to an irreducible minimum.—ED.]*

#### USES AND ABUSES OF NARCOTICS

Properly speaking, cocaine is not a narcotic. Although one of the most dangerous habit forming drugs and included under the Harrison Narcotic Act, it will not be considered here. Opium and its derivatives are the only narcotic drugs to be discussed. Opium itself is a complex substance containing some twenty alkaloids, only four of which, however, are of practical importance, namely morphine, codeine, narcotine and papaverine. Morphine has four actions on which its therapeutic uses depend. 1. In small amounts it is a depressant to the pain perceiving centers of the cerebrum. 2. In somewhat larger doses it depresses the intellectual functions and thereby exerts a somnifacient effect. 3. It is a depressant to the respiratory center, in small doses lessening its response to irritation and in larger doses reducing the amount of air moved. 4. It tends to lessen glandular activity, probably affecting, to a greater or less degree, all the secretions of the body except the sweat. 5. The older writers also ascribed to it an important effect in diminishing the contractility of the unstriated involuntary muscles, especially of the intestine, but recent investigation indicates that this action may be stimulating rather than depressing peristalsis.

Narcotine, which is the next most abundant after morphine, despite its name is not narcotic. It exerts neither analgesic nor sleep producing effects.

14 Oeken. Ein Fall von Zerrissung des Ductus thoracicus infolge Brustquetschung, München med Wchnschr 55: 1182-1183 (June) 1908.

Its most important action is a stimulation of the medullary centers governing respiration. In this it is directly antagonistic to morphine.

Papaverine has a feeble narcotic action, its dominant effect being to lessen the irritability of unstriated muscle. Like narcotine, it is stimulant to the respiratory center. It has been recommended in various spasmodic conditions of the involuntary muscles, such as asthma or colic. It is a relatively feeble drug, requiring about a grain (0.065 Gm.) to produce sensible effect on a man and is present in opium in such small amount (about 0.5 to 1 per cent) that it can play only a minor part, if any, in the effect of opium.

Codeine is similar in its general actions to morphine, although much weaker. It has relatively slight action on pain perception or intellection and is much less liable to give rise to an addiction. Ordinarily opium yields from 1 to 2 per cent of codeine.

The therapeutic purposes for which opium is used may be considered under six heads: (1) locally, (2) as an analgesic, (3) as a somnifacient, (4) as a respiratory sedative, (5) as a sudorific, (6) for its effect on the intestine.

As an assuager of pain morphine stands unrivaled at present by any other drug or combination of drugs. Nevertheless it is used more frequently and in larger quantities than is necessary and often to the detriment of the patient. By the use of other anodynes the physician can often contrive to get along with surprisingly small quantities of opiates. The decision as to whether or not to use morphine in any given case should be based on three factors: the severity of the pain, its probable duration and its underlying cause. One of the most difficult problems of therapeutics that the physician has to face is the alleviation of pain in certain chronic diseases, such as arthritis or neuritis, which may be so intense as to demand an opiate and yet promises to be of such long duration that it is likely to lose its anodyne power and to present great risks of causing addiction. Physicians may, by the exercise of more thought in practicing, do much to avoid censure in relation to narcotic addiction. In this endeavor the substitution, whenever possible, of nonhabit forming drugs for morphine or other opium alkaloids is of paramount importance. When narcotics are indispensable, however, no more should be administered than is necessary to achieve the desired end. Patients requiring daily administration should be seen often by the physician, and the amount of drugs ordered or supplied should not exceed that required by the patient until seen again. The independence of administration on the part of nurses should be strictly limited to prescription, and any change in treatment should be in writing. The patient should never be informed of the nature of the drug used or of the dose administered. The patient should never be permitted to administer the drug hypodermically to himself. Use of the drug should be discontinued immediately when no longer required. If craving has resulted, close supervision and appropriate treatment should be maintained until the patient has been rendered entirely independent of the drug.

#### USE UNDER THE HARRISON NARCOTIC ACT

The Harrison Narcotic Act covers only one class of narcotic drugs: opium and its derivatives and preparations. It covers also coca leaves and derivatives and preparations of them which are not narcotics. Registration of every practitioner who uses narcotic drugs professionally is mandatory under this act. A practitioner can lawfully administer, dispense and pre-

narcotic drugs to only such patients as are under his professional care. The act does not limit specifically the quantity that may be used or the time during which their use may be continued and requires only that the dosage be consonant with proper professional practice. It places no restriction on the form in which narcotic drugs may be administered. The administration, dispensing and prescribing of narcotic drugs for the sole purpose of satisfying the cravings of an addict are not within the bounds of professional practice. It is not, however, unlawful under the act to attempt to cure narcotic addicts of their addiction even though narcotic drugs are used in the attempt. If they are so used, the dosage from day to day should be accurately recorded. A practitioner should not administer, dispense or prescribe narcotic drugs for a stranger unless it is an obvious necessity, as in the case of a severe accident.

A practitioner can lawfully administer narcotic drugs personally to his patients hypodermically, by mouth or otherwise in any form or amount with such frequency and for such period of time as may be justified by good professional practice. A practitioner is not required by law to keep a record of the narcotic drugs he administers or dispenses to a patient on whom he personally attends, although such record can do no harm if administration of such drugs is lawful, whereas its absence may prove embarrassing. The practitioner may lawfully dispense narcotic drugs personally to his patients, but a too extensive resort to dispensing may justify a suspicion that the dispenser is only catering to narcotic addicts. Under no circumstances should a greater quantity of narcotic drugs be dispensed than the minimum required by existing conditions. The quantity should not exceed the quantity necessary to provide for the patient until he is to be seen again by the practitioner. If any greater quantity is called for, it should be provided through a prescription so that the entire transaction may be a matter of record.

A prescription for narcotic drugs need not show the ailment or injury for which it is given. Every prescription, however, must contain the patient's full name and address and the prescriber's signature, address and registration number. It must be written in ink, with an indelible pencil or on a typewriter, and must bear the full signature of the prescriber. It must be dated and signed on the day on which it is written. The act does not require a practitioner to keep a record of his prescriptions for narcotic drugs. A prescription for a narcotic drug cannot lawfully be refilled unless it is for one of the so-called exempt preparations or calls for a mixture in which the narcotic content does not exceed the narcotic content allowed by law in such preparations. The person who violates any provision of the Harrison Narcotic Act is liable to fine of not more than \$2,000 or imprisonment for not more than five years or both. Failure to pay the required tax (registration fee) within the time limit prescribed by the act adds a penalty of 25 per cent to the tax when it is paid. Under the laws of some states, conviction of violation of the Harrison Narcotic Act is a ground for suspension or revocation of a license to practice medicine.

#### NARCOTICS IN THE PRACTICE OF MEDICINE

That opium or its derivatives are indicated in certain diseases and contraindicated in others nearly all will admit, but as to specific use there are many physicians whose opinions differ and the question remains in doubt.

All will agree as to the indispensability of morphine in the hopeless cases of carcinoma, regardless of the primary site. In cases of inoperable or extensive carcinoma of the uterus, prostate, bowel, tongue, stomach or breast, with or without generalized metastases, morphine is without peer and its judicious use in relieving pain constitutes one of the greatest services the physician can render. Not only is the patient relieved of pain but the euphoria that results is a blessing, and death, which otherwise might be almost intolerable, may be made easy and comfortable.

In another group of diseases, accompanied by pain and designated by colic, morphine is the drug of choice. In this group may be included the cases with biliary, renal or lead colic. Some one of the general anesthetics, as chloroform or ether, may give the desired relief but not without the necessity of maintaining a more or less complete anesthesia to obtain muscular relaxation, with the probability of a return of the pain as soon as the anesthesia is discontinued. Accompanying renal, hepatic, pulmonary or cardiac pathologic conditions may constitute a contraindication to the use of either of the mentioned anesthetics. Except in a few cases the use of morphine is considered only a palliative measure, as renal and biliary colic are essentially surgical, while the relief in lead colic will be required only for a comparatively short time.

The further discussion of the subject may best be accomplished by considering the various diseases according to the anatomic systems. Certain cardiovascular diseases, particularly those accompanied by pain, should be mentioned. Acute pericarditis, if the pain is severe, may fail to respond to any therapeutic effort short of the administration of morphine hypodermically, to be repeated as required. Perhaps the rheumatic type, in the acute plastic stage, is the form most frequently accompanied by severe pain, although any type may belong in the group.

Difference of opinion may exist as to the necessity of employing morphine in the arteriospasmotic type of angina pectoris. While it is true that most of the cases will respond to some of the vasomotor drugs, there are instances requiring one or more doses of morphine. In the coronary occlusion type of angina, whether embolic, obliterative or thrombotic, morphine becomes imperative. In this type the anginoid attacks are prone to be severe and protracted, without much, if any, expectation of relief from the vasomotor dilators.

In the pleuropulmonary group, some of the diseases and symptoms will require consideration. Although acute plastic pleurisy, either primary or secondary to pulmonary disease, with its excruciating pain and dyspnea, responds to some extent to immobilization by adhesive straps and physical therapy, too often the desired relief is obtained only by single or repeated doses of morphine.

Acute spontaneous pneumothorax, accompanied by pain and dyspnea, requires temporary relief by morphine until other therapeutic measures can be employed.

In pulmonary diseases, certain symptoms may predominate and endanger life. Pulmonary hemorrhage from any cause, particularly the massive form, accompanied by fear and anxiety, may be much relieved or benefited by a preliminary or repeated injection of morphine, this to be followed by the usual recognized therapeutic efforts depending on the underlying pathologic condition. The dyspnea of far advanced pulmonary tuberculosis may well be classed with the

hopeless cases of carcinoma, in which some relief and comfort may be had during the final days or hours. Much relief and comfort may be had in the dyspnea of primary or secondary cancer of the lung. The same is true in some cases of aneurysm compressing the trachea or a bronchus.

In the gastrointestinal group, gastric and rectal carcinoma of the inoperable and hopeless type have already been considered. The pain in gastric and duodenal ulcers, when present, will usually respond to ulcer management and does not require special analgesics. In the event of perforation, the treatment is surgical, but as a palliative measure a single or repeated hypodermic of morphine may be advantageous.

The bowel diseases, as acute enterocolitis, spastic and ulcerative colitis, diverticulitis, appendicitis and the various forms of dysentery, require their own individual form of therapy and rarely constitute a cause for special analgesics or opiates. Usually the cramps, pains and irregular bowel action in spastic colitis, on a bowel management with tincture of belladonna, will be relieved, but occasionally the cramps or a profuse diarrhea can be controlled only by doses of an opiate, preferably camphorated tincture of opium. If the diarrhea is the predominating complaint, powdered opium may give the best results, as the powder is more slowly absorbed in the intestinal tract. With the increased knowledge of the different types of dysentery there has necessarily been an improvement in the therapy. Many of the older drugs have been discarded. As in spastic colitis, when diarrhea is particularly pronounced and uncontrollable by other means, powdered opium may be of service. Rectal tenesmus, regardless of the cause, can be best controlled or relieved by rectal suppositories containing powdered opium or morphine.

Of the remaining mentioned diseases, appendicitis is surgical and often ulcerative colitis and diverticulitis also are best treated surgically. Rarely, if ever, is an opiate required or justified.

Some mention should be made of typhoid and the former practice of prescribing morphine or opium in the treatment of complicating bowel hemorrhages. As the bleeding is usually due to the ulceration of the bowel, there is always the question of accompanying or developing perforation. When morphine or opium is prescribed, the symptoms and signs may be so modified as to make the differential determination more difficult or even impossible.

While the cerebrospinal group includes a considerable number of diseases, only a small minority of them can justly claim the indispensable therapeutic use of opium or its derivatives. It is in the symptomatic treatment of the various psychoses, and in neurotic psychoneuroses, hysteria and insomnia, that the newer hypnotics are of such indispensable service. Even in the acute manias and in delirium tremens it is only after the bromides and chloral hydrate, paraldehyde and the newer hypnotics have failed that an opiate is permissible. It should be emphasized again that the employment of opium or its derivatives for their hypnotic effect alone is open to question.

As to the spinal diseases, special mention should be made of tabes dorsalis with tabetic crises and higher pains. The use of morphine to relieve these conditions should be the last resort, as dependence and morphine addiction are easily produced.

Peripheral neuritis, local or multiple, is usually secondary to some primary pathologic condition.

neuritis may be of the alcoholic or arsenical type, perhaps due to a focal infection or a compression, as in spinal caries or a cervical rib. In each individual case the therapeutic efforts should be concentrated in an effort to relieve the primary cause.

The opium or codeine treatment of diabetes mellitus has no longer been in vogue since the advent of insulin, but not infrequently there is an associated diabetic neuritis. When the pains are severe and do not subside on diabetic therapy, occasional doses preferably of codeine or even of morphine may be required.

Some narcotic preparations have been extensively employed in the treatment of coughing. Narcotics, however, are often misused in the treatment of coughing by those who fail to bear in mind the variety of causes producing coughing, diagnostic uses of coughing, the services it performs and its disadvantages and dangers. The underlying basis of the cough must be borne in mind in all rational treatment. The productive cough should not be interfered with, unless it does more harm than good. Morphine should not be used for a cough when simple means suffice, and there are available a great many other means of controlling most types of cough. The cough reflex is depressed by relatively small doses of morphine. The exact dose necessary for the relief of coughing cannot be stated because irritation of the respiratory tract gives rise to strong stimuli, and the stronger the stimuli the greater is the depression of the center necessary to abolish the reflex that such stimuli would induce. The dose necessary, therefore, varies widely and in some cases may be as little as  $\frac{1}{80}$  grain (2 mg). One should never direct that the single dose of morphine for a cough be repeated at stated intervals without regard for the varying needs of the patient from hour to hour and from day to day. The dose should always be reduced to the least amount as alleviation of the symptoms permits.

Morphine often causes dryness of the mouth and throat. It has been suggested that the apparent diminished secretion of mucus in bronchitis may be due to greater absorption of water but it seems probable that the action is central. This may be partially overcome by the simultaneous use of nauseants when they are not otherwise contraindicated, and the simultaneous use of morphine and apomorphine has been suggested. The popular Brown Mixture contains  $\frac{1}{100}$  grain (0.2 mg) of morphine in the form of camphorated tincture of opium, and  $\frac{1}{65}$  grain (1 mg) of antimony and potassium tartrate in the average dose of 4 cc (1 fluidrachm). Morphine is said to have the advantage over codeine of causing some relaxation of the bronchial muscles, which is useful when the passages are greatly obstructed by an accumulation of mucus. This advantage, however, is usually slight compared to the many advantages of codeine.

The actions of codeine resemble those of morphine in general, but they differ in certain essentials. Codeine is less actively depressant to the higher parts of the brain and to the respiratory center, and it is more actively stimulating to the cord and, with large doses, even to the respiratory center. This probably partially explains why codeine sometimes proves unsatisfactory in the treatment of coughs, and it suggests that failure can often be avoided by a careful regulation of the dose especially if it is used in connection with other measures for lessening a cough. It is almost universally admitted that codeine relieves a cough nearly as well as morphine.

#### USE OF NARCOTICS IN SURGERY

The use of habit forming drugs in surgery may be divided into three parts: (1) the preoperative and diagnostic period; (2) the operation with its preparatory and recovery phases; and (3) the care of patients with inoperable disorders, including those cases of cancer in which surgery is inadvisable. The preoperative period should properly be spoken of as the "study period." It is the time when a proper diagnosis should be made, and, although it may necessitate innumerable tests, the principal requirement is that the patient during this period be kept as uninfluenced by drugs as possible. Pain is one of the chief diagnostic signs, and, if the diagnostician is robbed of its significance through the careless and often too free use of morphine and its derivatives its aid is removed. Those who have seen patients with abdominal or intracranial disease rendered so comfortable and even drowsy that all complaints have disappeared know the danger of the premature use of drugs. Furthermore, in the presence of head injuries administration of narcotics may be actually dangerous. However, if the investigative period is indicated for the clarification of the diagnosis, it should be carried out as expeditiously as possible, for to subject a patient to continuous pain over any great period of time is a decided reflection on one's diagnostic acumen. In the excruciating pain of smooth muscle colic, as seen in patients with renal and biliary calculus, the use of morphine would seem to find full justification. In this group of disorders however, the administration of atropine and the application of heat may prove efficacious, and this therapy deserves wider usage.

It is in the field of traumatic surgery that morphine again assumes an important role, and because of its ready availability, ease of administration and relatively certain and rapid action it is almost indispensable. Here the likelihood of the manifestation of its one objectionable feature is reduced to a minimum. Military surgery would be almost impossible without morphine. In cases of severe trauma this drug not only brings the necessary relief from suffering but, if shock intervenes, constitutes one of the chief therapeutic weapons. In such conditions morphine should be given promptly in sufficient dosage to avoid frequent repetition.

Morphine, either alone or combined with other synergistic drugs, continues to be the most universally satisfactory type of preoperative medication. For this purpose in recent years some of the newer barbiturate derivatives have proved satisfactory substitutes, and their use, even when not substituted for morphine preoperatively, can result in a material saving in the quantities of opiates employed.

After an operative ordeal it is of paramount importance to reduce the discomfort of a patient to a minimum, morphine should not be spared to accomplish this end but it should not be employed indiscriminately. Frequently the patient's discomfort may be due to quite tangible conditions, such as position, an unnecessarily tight dressing or urinary or intestinal distention, these can be dealt with specifically rather than symptomatically by the injection of morphine although to follow the former course necessarily involves slightly more effort on the part of those in attendance. In the first twenty-four to seventy-two hours following many major procedures the patient should receive sufficient morphine to keep him comfortable, provided an honest effort has been made to ascertain that his discomfort cannot be corrected by some simple remedial measure. Here



again, no doubt, in certain instances, other sedatives may be substituted for morphine, but in general such substitutions, with the possible exception of codeine, prove unsatisfactory. A further contraindication to large quantities of morphine after operation is that this drug may add a degree of atony to the intestine which proves undesirable, particularly if there was a pre-existing tendency in this direction.

One should also mention the other drugs—heroin, codeine and ethylmorphine hydrochloride—which have their devotees. Ethylmorphine hydrochloride may have its uses in ophthalmology. There are instances when codeine can be substituted for morphine quite effectively, and one should always consider this possibility, particularly in view of the almost complete absence in this drug of any tendency to the production of addiction. When administered by mouth, it may be combined advantageously with some of the coal tar derivatives.

#### NARCOTICS IN OBSTETRICS AND GYNECOLOGY

Sedatives are used during pregnancy, labor and the puerperium. During pregnancy the most common indication for narcotic medicines is the prevention of abortion. Rest in bed, combined with morphine or other preparations of opium, has saved numerous pregnancies from disaster. A combination of chloral with bromides has been used, but it is not nearly as effective. When an acute abdominal condition develops during gestation or an operation is performed at this time narcotics are particularly indispensable to allay uterine action which might expel the ovum.

Certain cases of chorea gravidarum do not respond to the usual remedies, and a combination of morphine and scopolamine may have to be exhibited for temporary sedation. The same may be said of psychoses.

Pregnancy does not contraindicate the exhibition of narcotics for any purpose that demands them. Although the effect of morphine on the unborn child has been a controversial question, the consensus appears to be that the child does not suffer except from an overdosage that would endanger the mother. However, cases are on record in which, it is said, the excessive unwarranted use of morphine during pregnancy has shown effects on the child. Chloral and chloroform pass over to the fetus, but any possible deleterious action has been considered as of secondary importance during pregnancy. The barbituric acid preparations also have widespread application in pregnancy.

During labor, opium preparations are invaluable. However, the routine administration of narcotics in labor, as demanded by hysterical magazine writers and as practiced by many overenthusiastic accoucheurs, has resulted in and is yet causing numerous deaths of newborn children and also a certain number of maternal deaths. On the other hand there is a real and scientifically proved ground for the scientific administration of narcotics during labor. The process of human childbirth is commonly pronounced to be a natural, harmless function, but accoucheurs know that, while this may have been the original intention of nature the modern woman can seldom be brought through the ordeal without some physical damage to her body, that often she cannot be got through alive, and that frequently the shock to her nervous system leaves permanent injury.

Labor is often protracted, especially in primiparas, and exhaustion of the mother may delay the process so long that infection may creep in. Here a hot pack and a rectal infusion of chloral, with a hypodermic of some opium preparation, will rest the uterus as well as the

nervous system and preserve the heart and the life forces of the patient. When she awakes, the activity of the uterus is resumed with new energy and a stubborn cervix ("rigid os") often becomes supple and dilatable in the meantime.

Only in the rarest cases is the pain of the second stage bearable by a courageous woman. It is not possible to abolish all pain, but one can and should mitigate it.

Narcotics are said to lengthen the first stage of labor and to affect the child adversely if given in the second stage. Both statements are true, but only when the drugs are improperly administered. Given at the right time and in proper dosage, the child is not endangered and the mother is made more resistant to exhaustion, acidosis, shock and postpartum hemorrhage. By preserving her strength in a prolonged first stage, narcotics actually shorten the second and forestall difficulties in the third. Even the puerperium is more smooth and convalescence more rapid, and infection is less likely.

There are few occasions for the use of narcotics in the lying-in period. After-pains are almost never so severe as to require them, the barbituric acid preparations sufficing to procure sufficient relief. A combination of codeine and acetylsalicylic acid is rarely found necessary. Naturally, any complication of the puerperium that would require narcotics for its own sake must be so treated at this time. Ordinary cases of wakefulness are well handled with a barbiturate. In the sleeplessness that is an obstinate condition in cases of puerperal infection there is no drug as efficacious as morphine, and in the diarrheas of sepsis it must also be used. To rest the bowels in cases of peritonitis it affords the patient much relief.

In general, what is said of the use of morphine and its derivatives in surgery applies equally well to the practice of gynecology. For the postoperative pain and abdominal symptoms morphine is indispensable, and the narcotic often saves life by its sedative influence on the bowel. For the treatment of chronic gynecologic diseases morphine has only limited uses and should be dispensed with as much as possible with the exception of incurable cancer.

#### NARCOTICS IN LOCAL ANESTHESIA

The ideal method of performing operations on a conscious patient without mental or physical discomfort requires a balanced use of sedatives, analgesics and anesthesia. Premedication to local anesthesia aims to diminish psychic reactions and painful sensations. In minor ambulatory procedures it is not necessary, before major surgical operations the restless night, fear and anxiety not only exhaust the patient but may cause definite bodily changes. Ordinarily sedatives of the barbituric acid series are sufficient for this purpose. The most frequent causes of toxic symptoms after local anesthesia are excessive premedication, error in the concentration of the solution of local anesthetic used, inadvertent intravenous or intraspinal injection and individual hypersensitivity to cocaine, procaine hydrochloride or other local anesthesia.

#### ABUSES OF NARCOTICS AND ADDICTION

The problem of narcotic addiction merits the attention of physicians for many reasons and at this time in particular results in an enormous diversion of narcotic drugs from their field of proper employment. Narcotics may be defined as agents that have a direct relation of the central nervous system to external as well as internal conditions of the body. They

freeing the mind more or less from the thrall of the senses, and therein lies their value as well as their danger. It is the "ease and ignorance" with which one may be relieved of a great multiplicity of symptoms by means of narcotics that makes their use an ever present temptation to patient and physician alike, and it is only by patients forswearing self medication and by physicians adopting certain definite rules regarding their employment that the abuse of narcotics can be guarded against.

Thus, narcotics should never be employed to remove a diagnostically indispensable symptom. As an illustration the old and well worn warning against the use of opium in appendicitis at once comes to the mind. In a case of appendical colic, for instance, in which operation may or may not be required, the administration of an opiate may, by the comfort it gives, create the impression that the patient is getting well and obscure the fact that inflammation is setting in and perforation is threatening or has occurred, and immediate operation is required to save life. One may relieve the pain of a strangulated hernia or an intussusception by an opiate and even check the vomiting, so that it may seem that all is well when, as a matter of fact, the patient's death is commencing with necrosis of the bowel.

Nothing is easier than to remove the results of fatigue—headache, backache, nervous irritability, insomnia—by narcotics, nothing is worse unless the fatigue is due merely to temporary overexertion. When the excessive strain is habitual and the demand for the relief of its ill effects also becomes habitual and is gratified, one is driving head on to a serious wreck. A rest treatment is needed, not dope. It is unfortunate that the term "rest cure" has become so intimately associated with the famous Weir Mitchell prescription. It should be recognized that there may be all sorts and degrees of rest treatment. For instance a regular after dinner nap is one of these, and it will often do the distracted and harassed housewife or business man more good than any amount of medicine.

Formation of habit should be the ever present specter to inspire fear of prescribing narcotics in chronic or recurring ailments, unless there are malignant conditions or limited tenure of life to make the habit relatively unobjectionable. Especially should physicians, dentists, nurses and pharmacists make it their inviolable rule never to prescribe narcotics for themselves for from among these classes is recruited a large contingent of those who become afflicted with the habitual use of narcotics. Some narcotics, as opiates and alcohol, are intrinsically habit producing. They operate in creating the notorious craving, partly by being most efficient antagonists to the disagreeable after-effects produced by the agent itself, and partly by causing mental deterioration. But all narcotics are liable to be habit forming, by reason of their very efficiency in relieving symptoms and their inability really to cure any disease. Therefore, as soon as the effect of the agent wears off the original condition asserts itself, demanding relief. Whenever, therefore, a narcotic is employed it should merely be as an adjunct to the real curative treatment. It is only when cure is impossible that the narcotic habit may be a lesser evil than unrelieved suffering. In any case an extensive range of knowledge of the many available narcotics should permit a choice of the least objectionable and yet most efficient agent for the particular patient to be relieved, and opiates should be appealed to only as a means of last resort.

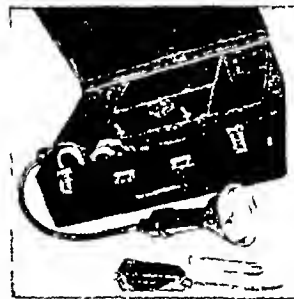
## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT H. A. CARTER Secretary

### STITT COLD ULTRAVIOLET LAMP, MODEL S, ACCEPTABLE

Manufacturer Charles Stitt, 1944 Beachwood Drive, Hollywood, Calif

The Stitt Cold Ultraviolet Lamp, Model S, is a portable unit of the general class of "cold" or low pressure ultraviolet generators, using a gas discharge at high voltage in a fused quartz tube containing low pressure mercury vapor and argon gas. Two generators are provided, one a general body applicator consisting of 6 mm quartz tubing in the form of an Archimedes spiral 50 cm long mounted in a metal reflector 8 cm in diameter, and the other an official applicator of twin bore quartz tube. The complete assembly, which includes the applicators, a 6 volt dry cell by which they may be operated when 110 volt alternating current is not available, cables, two pairs of goggles and a dispenser containing 3 yards of rayon sleeving is mounted in a portable carrying case and weighs 25 pounds. Following are data supplied by the firm.



Stitt Cold Ultraviolet Lamp Model S

**Therapeutically**—The lamp produced the following intensity of ultraviolet light between 200 and 3200 angstroms, measured by the photometer at the specified distance:

|                                      |                            |
|--------------------------------------|----------------------------|
| Body lamp on AC at 4 inches          | 2 400 microwatts per sq cm |
| Body lamp on DC at 4 inches          | 1 000 microwatts per sq cm |
| Official on AC at $\frac{1}{4}$ inch | 3 600 microwatts per sq cm |
| Official on DC at $\frac{1}{8}$ inch | 1 800 microwatts per sq cm |

The spectral distribution was measured by the ultraviolet photometer and found to be in percentage of the total energy in wavelengths less than 3,300 angstroms:

|                                   |     |
|-----------------------------------|-----|
| Between 2 000 and 2 600 angstroms | 97% |
| Between 2 600 and 3 000 angstroms | 7%  |
| Between 3 000 and 3 200 angstroms | 1%  |
| Between 3 200 and 3 300 angstroms | 1%  |

At 4 inch spacing on the body lamp, the calculated minimum perceptible erythema times from photometer measurements were fifteen seconds on alternating current and twenty-nine seconds on direct current.

The extrapolated photometer readings give the minimum perceptible erythema time for the official unit as ten seconds on alternating current and twenty seconds on direct current at  $\frac{1}{8}$  inch spacing.

Physiologic tests on untanned abdominal skin confirmed these observations within the limits of experimental observation. The results of such tests give the minimum perceptible erythema time as follows:

|  |                              |
|--|------------------------------|
| Body lamp AC at 4 inches               | 10 seconds no erythema       |
| Body lamp AC at 4 inches               | 20 seconds definite erythema |
| Body lamp DC at 4 inches               | 20 seconds no erythema       |
| Body lamp DC at 4 inches               | 30 seconds definite erythema |
| Official lamp AC at $\frac{1}{4}$ inch | 5 seconds no erythema        |
| Official lamp AC at $\frac{1}{4}$ inch | 10 seconds definite erythema |
| Official lamp DC at $\frac{1}{8}$ inch | 10 seconds no erythema       |
| Official lamp DC at $\frac{1}{8}$ inch | 20 seconds definite erythema |

**Mechanically**—The lamp appeared well designed, light in weight and it should have good durability if handled with the care usually accorded ultraviolet lamps.

**Electrically**—An electrical switch is provided by which exposures may be timed up to four and one-half minutes. Power consumption on alternating current was fourteen watts for the body lamp and thirteen watts for the official unit. During a two hour heat test no part of the lamp or transformer became unduly heated.

The direct current power consumption was eleven watts with either burner.

The dry cells are said to last twenty hours when operated continuously

The Council's investigation revealed the following

*I Official Applicator*—Erythema tests showed that the ultraviolet output of the lamp is sufficiently intense to be acceptable. A spool of tubular artificial silk ribbon is supplied, which is slipped over the applicator to prevent burning of the orifice of a cavity that is to be irradiated. It is a simple matter to slip over the applicator a fresh piece of tubing for each patient.

*II Cold Ultraviolet Hand Lamp*—Radiometric measurements were made at a distance of 24 inches (61 cm) from the front edge of the circular quartz tubing forming the burner of the hand lamp. The intensity was 36 microwatts per square centimeter, which complies with the minimum requirements for acceptability by the Council. The Council voted to accept the lamp for inclusion in its list of accepted devices.

## Council on Foods and Nutrition

THE COUNCIL ON FOODS AND NUTRITION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT FRANKLIN C BING, Secretary

### ANNUAL MEETING OF THE COUNCIL ON FOODS AND NUTRITION

The annual meeting of the Council on Foods and Nutrition held at the Association headquarters on March 6 was attended by the following members

|                     |                     |
|---------------------|---------------------|
| Dr Franklin C Bing  | Dr Howard B Lewis   |
| Dr George R Cowgill | Dr James S McLester |
| Dr C A Elvehjem     | Dr Irvine McQuarrie |
| Dr Morris Fishbein  | Dr Tom D Spies      |
| Dr Philip C Jeans   | Dr Russell M Wilder |
| Mr Culver S Ladd    |                     |

Drs McLester and Lewis were reelected Chairman and Vice Chairman of the Council, respectively. Among the topics given consideration at the meeting, the following items may be of interest to physicians, manufacturers and others.

*Scope of the Council*—In harmony with the instructions of the Board of Trustees, the Council has been devoting its facilities more and more to the study of broad nutritional problems and for this reason has been obliged to restrict its activities in connection with the approval of the labeling, advertising and composition of individual brands of many meritorious food products. During the last year a general plan has been formulated whereby the Council continues to give consideration primarily to special purpose foods, foods intended for the feeding of infants, and foods that have been nutritionally improved by the addition of vitamins, minerals and other dietary essentials.

Attention was given to the specific problems presented by enriched flour and enriched bread. The Council has been active in the development of these improved foods and believes that it would be to the interests of the health of the people if consumers would demand such products in place of ordinary white flour and white bread. During the last year, regulations regarding the composition and labeling of enriched flour have been developed. It is expected that the Food and Drug Administration soon will announce similar regulations regarding enriched bread. There are many hundreds of millers in the country and approximately thirty thousand bakers, the difficulty of reviewing the labels and advertising of all commercial products is at once apparent. The Council decided not to undertake consideration of individual brands of bread for acceptance or to continue to give consideration to individual brands of ordinary flour or enriched flour. It was decided instead to prepare suitable statements about the nutritive value of enriched bread and enriched flour and to try to develop a method whereby members of the food industry would be able to quote, if they so desired, the opinion of the Council on the nutritional properties of these products. A committee was appointed by the Chairman to formulate appropriate statements regarding the nutritional significance of enriched flour and enriched bread.

*Problems Presented by General Advertising*—The Council is aware of the difficulties involved in the consideration of so-called

educational advertising about foods. By insisting that advertising material is reasonably accurate prior to publication, the Council believes that it is accomplishing a public service that no other organization has been able to undertake. It was emphasized, however, that on such material it should be required at all times that an explanatory statement accompany the seal whenever displayed, this statement being to the effect that the nutritional claims in the particular advertisement have been reviewed by the Council and declared acceptable. It was also decided that the Council should sponsor more reports reviewing the scientific and medical literature on some of the foods which are extensively advertised, with a view to presenting a complete and balanced discussion of the nutritional merits and limitations of these foods.

*Publications of the Council*—The book on the vitamins which was sponsored jointly by the Council on Foods and Nutrition and the Council on Pharmacy and Chemistry now is out of print. It was decided after thorough discussion that no new edition or new series of articles on vitamins should be contemplated at the present time. The Council now has under way a new series of articles on foods and nutrition which the Editor thought could be published in THE JOURNAL beginning in June or early summer. This series of articles will be collected in book form later as a Handbook of Nutrition.

The book *Accepted Foods and Their Nutritional Significance*, published at the very end of 1939, has been received with approbation. While it was decided that no new edition would be attempted at the present time, the Council is planning to issue a supplement to bring the description of accepted articles up to date.

Consideration was given also to other possible methods of bringing to the attention of physicians the newer knowledge of foods and nutrition, particularly with a view to keeping the profession informed of dietary problems under war conditions.

*Exhibits of the Council*—The popularity of last year's exhibit on nutritionally improved flour and bread has encouraged the Council to develop another exhibit which will give consideration to nutritional deficiencies, to newer methods of diagnosis of the conditions and to the principles involved in the selection of an adequate diet. The Council voted to prepare an exhibit on these subjects in cooperation with the Food and Nutrition Board of the National Research Council. The Council's Committee on Exhibits consists of Drs Spies, Wilder and McLester.

*The Conservation of Vitamins, Especially Vitamin A*—It is well known that the supply of fish liver oils as sources of vitamin A must be conserved. The Council reviewed Limitation Order L-40 issued by the War Production Board. A significant part of the vitamin A supply is used in the fortification of foods, in particular oleomargarine. The Council voted to continue to give consideration to this problem with a view to assisting the governmental agencies to conserve the supply of vitamins for well established needs.

*Mixed Vitamin Preparations*—The Council considered a report prepared by several members of the Cooperative Committee on Vitamins and concerned with the rational use of poly-vitamin mixtures. It was decided that the report with some modifications should be sent to the Council on Pharmacy and Chemistry for further consideration.

*Pantothenic Acid and Pyridoxine in Foods*—These two substances are included among the members of the vitamin B complex. Their significance in human nutrition still remains to be determined. Experimental work with animals indicates that these substances together with biotin and choline may be of great importance. Safety lies in the ingestion of a variety of natural foods, selected so as to meet the requirements of an adequate diet. There may be a real problem of providing some of the less well known vitamins in restricted diets. The Council concluded that it would be desirable to continue to give careful consideration to developments in this field, particularly because restricted diets that may be used over long periods of time may be deficient in one or more of the known ingredients of natural foods.

*Vitamin D Milk*—The Council has been requested to express an opinion about the desirability of fortification of milk with 400 U S P units of vitamin D to each quart.

contains 8 fluidounces of milk. This would mean that the child would receive in such milk a full daily allowance of vitamin D, but only a fraction of the daily requirements for calcium.

The milk would contain in each quart 1600 U S P units, and the Council has a policy of not accepting any vitamin D milk for which claims are made for more than 400 U S P units of vitamin D to the quart.

The so-called penny milk program first was tried in the schools in Chicago in June 1940. The milk is sold to school children at a price of 1 cent for each half pint. It is served between meals. The sale of this low priced milk is made possible through a three way subsidy undertaken by the federal government, the milk dealers and the producers. In order that schools may be eligible to receive such milk, it is necessary that a considerable proportion of the school children come from homes where the income is comparatively low.

In considering the question it was mentioned that 8 fluidounces of milk is not an adequate intake of milk and that unless there is a sufficient intake of calcium such as can be provided by more milk, the consumption of adequate amounts of vitamin D may be of little value. However, children consuming penny milk might and should receive additional milk at home, and the chances were that such milk would not be fortified with vitamin D. For this special type of product, therefore, the Council voted its approval of including as much as 400 U S P units of vitamin D in 8 fluidounces.

The Council also reviewed a report on newer evidence regarding the vitamin D requirements of man. One firm has made a request that the Council accept milk that has been fortified with more than 400 U S P units of vitamin D to the quart. While milk with 600 or even 800 units of vitamin D to the quart would not be detrimental, the Council still believes that 400 units of vitamin D to the quart represents reasonable fortification in the light of present knowledge. The newer evidence on the value of larger amounts of vitamin D in the prevention of dental caries is of great interest but it is not considered conclusive enough to warrant the Council changing its decision.

**Breakfast Cereal Foods**—There are many prepared breakfast foods on the market. Few of these products have been standardized by regulations promulgated by official governmental agencies. The Council, therefore, believes it can render a service by giving particular attention to these items, especially with regard to the addition of vitamins and minerals to them. It was mentioned that breakfast cereal foods are consumed to but a slight extent, so that at most a product supplies not more than about 5 per cent of the total calories, whereas a staple food such as bread may supply 17 per cent or more of the total calories. Should a manufacturer desire to improve the nutritive value of his product, however, the Council believes that it is proper to do this within reason. The Council has accepted breakfast cereal foods that can be considered as general purpose foods when they have been fortified with moderate amounts of salts of calcium, iron and thiamine. A value now has been adopted for maximum restoration of breakfast cereal foods with riboflavin. An acceptable breakfast cereal food may contain in a quantity which will also supply 100 calories as much as 75 mg of calcium, 15 mg of iron, 0.25 mg of thiamine and 0.1 mg of riboflavin. Except for calcium these figures represent approximately the maximum amounts present in an ounce of either whole wheat, oats or corn.

**Foods Fortified with Several Vitamins and for Which Broad Nutritional Claims are Made**—A number of products recently have been marketed which represent a mixture of vitamins or minerals or both with other substances of some food value. Representations made for these products usually are extremely broad. It was decided that these products as well as others which are fortified to an extent beyond that which is acceptable for general purpose foods will be considered by the Council as special purpose foods and their acceptability judged on that basis. This means briefly that in the labeling and in the advertising it will be necessary to state exactly the composition of the product and the special use for which the product is intended.

**Commercially Canned Strained and Chopped Foods**—These products largely are intended for the feeding of infants although to some extent they may be used for special diets for adults.

The number of these products has multiplied tremendously within the last year or two. Many of the mixtures that have been compounded seem to have been formulated on principles that were not at all related to nutrition. Claims for mixtures containing as many as ten or more ingredients seem to be predicated on the false assumption that babies have peculiar tastes which need to be catered to. Color and taste in foods may be items of importance to the adult, but they have no special significance to the baby. A government order restricting the use of tin for cans permits the canning of strained and chopped foods intended for infant feeding provided the manufacturer packed that same food during 1941. This for the time being would tend to prevent the increase in the number of items that are formulated, although they still can be packed in glass.

The Council took no action on this matter but believes it is desirable to emphasize to manufacturers that multiplicity of items may limit the value of the products simply because there is greater chance that some ingredient is included that some persons cannot tolerate well. The basic principles that manufacturers should follow is, first, that the food produced be safe and, second, that it conserve the original nutritional value of the product to as high a degree as possible.

The question has been asked the Council whether fortification of canned strained or chopped foods intended for the feeding of infants would be acceptable. The Council is aware of no evidence at the present time that such a procedure would be desirable. The Council concluded that fortification of canned strained or chopped foods intended for the feeding of infants was not warranted in the light of present knowledge.

**Other Topics**—There was discussion also of recent developments which indicate the desirability of including vitamins in solutions intended for parenteral feeding. Brief reports were made of studies now under way of the stability of iodine in iodized salt, a report on the nutritive value of butter, and of diets for therapeutic purposes. In the discussion of the latter topic it was emphasized once again that reducing without medical advice may be dangerous and cannot be sanctioned by the Council.

**Mixed Juices**—Fruit and vegetable juices commercially produced have been on the market for a number of years and they have a well deserved place as sources of fluid, of sugar or other substances having food value and especially of vitamin C. Recently there has been developed a number of mixtures which consist essentially of tomato juice diluted with the juice of other vegetables. In most instances these mixtures are decidedly inferior to ordinary tomato juice in vitamin C content and probably in carotene content as well. After full discussion of the problems involved, the Council adopted the decision that it could not approve of the production of mixed juices of inferior nutritional value.

**Sugar, Candy and Carbonated Beverages**—There was considerable discussion of the nutritional problems presented by these products, which as a class comprise an appreciable proportion of the average caloric intake. It was decided that the views of the Council should be made the subject of a special report to be published later.

**Saccharin as a Substitute for Sugar in Foods**—This question has come to the fore again because of restrictions on the use of sugar. Saccharin is not a food and it is excreted unchanged. Small doses appear to produce no ill effects, but larger doses such as 15 Gm daily may cause gastrointestinal disturbances. It is hardly likely that this much saccharin ever would be consumed in one day because on the basis of sweetness it would be equivalent to 1½ pounds of sugar. The Council reiterated its views that indiscriminate use of saccharin is not advisable and that its presence in any food product should be clearly indicated to consumers.

**Sorbitol as a Substitute for Sugar in Foods**—This polyhydric alcohol, formerly a rare substance is now commercially produced in considerable quantities. The compound appears to have no injurious effect on animals when given in small amounts. Evidence about its dietary value or lack of toxicity in human beings is somewhat uncertain. The Council adopted the decision that the evidence of the food value of sorbitol at present is inadequate to warrant its endorsement as a constituent of foods.



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SATURDAY, MAY 23, 1942

## EFFECT OF SULFONAMIDE DRUGS ON NATURAL IMMUNITY

Although the therapeutic value of sulfonamide derivatives is now generally recognized, the effects of these drugs on the normal immunologic responses of patients is still being studied. Wood and Long,<sup>1</sup> for example, demonstrated specific mouse protective antibodies in the serums of 10 out of 12 pneumonia patients who had been treated with sulfapyridine, they concluded that the drug had not inhibited normal specific antibody formation in these patients. Similar results were reported by Edwards, Kircher and Thompson,<sup>2</sup> who studied dermal reactions to homologous capsular polysaccharides in patients with pneumonia who had been treated with this drug. In contrast with these favorable results, Kneeland and Mulliken<sup>3</sup> detected specific precipitins for homologous capsular polysaccharides in but 27 per cent of their patients treated with sulfapyridine and concluded that sulfapyridine seriously diminishes normal specific antibody formation. Similar unfavorable results were reported by Bukantz and de Gara,<sup>4</sup> who demonstrated homologous type specific precipitins in but 30 per cent of their convalescent pneumonia patients who had been treated with drugs of the sulfonamide type.

In order to harmonize this conflicting evidence, Curnen and MacLeod<sup>5</sup> of the Rockefeller Institute recently made careful parallel tests of the acquired immunity of "treated" and "untreated" rabbits inoculated with nonviable pneumococcus vaccines. Groups of 20 or more carefully selected rabbits were each given intravenously a single injection of 1 cc of heat killed type I pneumococcus vaccine, corresponding to 10 cc of an eight to ten hour broth culture of the micro-organism. Approximately half of the animals had received 0.5 Gm

of sulfapyridine by stomach tube at eight to twelve hour intervals for three days prior to the vaccination. The oral therapy was continued for twenty-four to forty-eight hours after the intravenous injection. Blood drawn at daily intervals showed adequate gastrointestinal absorption of the drug. The therapy was discontinued twenty-four to thirty-six hours before immunologic tests were made.

At intervals of forty-eight, seventy-two and ninety-six hours after vaccination, both "treated" and "untreated" rabbits, together with an equal number of normal nonvaccinated controls, were tested by an intradermal injection of 0.2 cc of a 1:5000 dilution of an eight to ten hour blood broth culture of highly virulent type I pneumococci. This injection was invariably fatal for the normal controls, causing a high sustained fever (104 F or more), extensive edema, ecchymosis and necrosis at the site of injection, and an early and progressive bacteremia, with death taking place within six days. In control nonvaccinated rabbits which had received sulfapyridine, the course, severity and termination of the disease were identical with this.

One group of vaccinated animals which had not received sulfapyridine was tested at the end of forty-eight hours, at which time they showed a well developed partial postvaccination immunity. The dermal lesion was reduced in severity and the fever and bacteremia were less pronounced, both usually terminating in about two days. In but 20 per cent of these rabbits did the disease terminate fatally. Still further reductions in clinical severity were noted in a second group of rabbits tested at the end of seventy-two hours. By the end of ninety-six hours all vaccinated rabbits had acquired a practically "solid" immunity, but 1 of the 12 animals of this group showing a distinct dermal lesion and but 4 developing a slight transient fever. None of the animals of this group developed bacteremia, and there were no deaths. Tests with type II pneumococci showed that this postvaccination immunity is type specific.

Within the limits of the experimental error parallel tests of vaccinated rabbits treated with sulfapyridine gave identical results. 80 per cent protection from fatal results within forty-eight hours, a 90 per cent reduction in mortality by the end of seventy-two hours and a 100 per cent or "solid" immunity by the end of ninety-six hours. The authors conclude from the data that under the conditions of their experiment sulfapyridine exerted no demonstrable effect on the development of postvaccination pneumococcus immunity.

Serums obtained from the same rabbits were tested for the development of type specific precipitins, agglutinins and mouse protective antibodies. Serums of untreated and sulfapyridine treated rabbits were, but one exception, free from demonstrable antibodies until ninety-six hours after vaccination. Of the ninety-six hour serums obtained from 22 "untreated" rabbits 18 protected mice against 100 minimum lethal

<sup>1</sup> Wood, W. B., Jr., and Long, P. H. *Ann Int Med* **13** 612 (Oct) 1939

<sup>2</sup> Edwards, J. C., Kircher, T. E., Jr., and Thompson, L. D. *Proc Soc Exper Biol & Med* **42** 539 (Nov) 1939

<sup>3</sup> Kneeland, Yale, Jr. and Mulliken, Barbara. *J Clin Investigation* **19** 307 (March), 735 (Sept) 1940

<sup>4</sup> Bukantz, S. C., and de Gara, P. F. *J Immunol* **39** 195 (Sept) 1940

<sup>5</sup> Curnen, E. C., and MacLeod, C. M. *J Exper Med* **75** 77 (Jan) 1942



and 17 against 1,000 minimum lethal doses of homologous living pneumococci. Only 13 of these serums contained demonstrable type specific agglutinins, and in but 2 of them were there demonstrable type specific precipitins. Practically identical percentages were obtained in the titration of the ninety-six hour post-vaccination serums from animals which had received sulfapyridine. These identical percentages in the "treated" and "untreated" groups show that the development of circulating antibodies is not influenced by previous and concurrent administration of sulfapyridine.

Of particular significance is the fact that an 80 per cent effective tissue immunity as determined by intradermal test is developed at least forty-eight hours before the appearance of demonstrable antibodies. Of the serologic tests the mouse protection titer is by far the most sensitive and the precipitin test the least reliable. Taking into account the different technics used by the earlier clinicians, their apparently contradictory evidence can be readily harmonized. Apparently sulfonamide therapy does not prevent or delay the development of an effective convalescent, type specific immunity to pneumococci. Recovery of sulfonamide treated pneumonia patients is apparently intimately associated with the development of an active immunity.

#### PERSONNEL FACTORS IN THE NATIONAL HEALTH SURVEY

The controversies over the national health survey of 1935 and 1936 seem especially warranted now that C. C. Lienau<sup>1</sup> has published a statement on the selection, training and performance of the national health survey field staff. This study shows that exceptional but not wholly successful efforts were made to secure competent enumerators and to train them for the work. The selections were unfortunately confined largely to WPA clients. Intelligence and ability tests were used in selecting the staff and, as far as possible, only persons formerly engaged in clerical work were employed. Ninety-five per cent of the enumerators had a high school or college training.

Full recognition is given to the fact that "'measurement of ability' is not the finished technic that facile present use of the term seems to imply." There was a rather careful supervision and checking of return schedules. The question of the extent to which the tests of intelligence and ability selected a force that collected accurate information is the essential element in determining the accuracy of the returns.

The paper by Lienau postulates that the qualifications of the enumerators and therefore the accuracy of the tests used in selecting them can be measured by the relative number of illnesses reported. The

application of the tests brings out some facts of great significance in judging reliability of the entire survey. For instance the number of illnesses reported per thousand households increased steadily with the age, the education and the standing in the tests of intelligence and ability. It also varied widely according to previous occupation. Real estate and insurance agents reported 847 illnesses per thousand and teachers 833, whereas trained nurses found but 556. These figures are for female enumerators only. Male teachers found 891 illnesses per thousand households and "engineers, chemists and draftsmen" 427. This comparison is "from enumerations of more or less parallel population groups, by enumerators of differing honesty and tendency toward omission or error." It is also "supposed that net underenumeration of illness characterizes the average enumerator."

It would seem that the supervisors graded the enumerators by these standards and that it is at least possible that promotion and employment depended to some degree on the number of illnesses reported. This, of course, is not the conclusion of the paper under discussion, but a range of reported illnesses "from 427 to 900 with an average of 597 per household" would seem to raise a question not only as to the accuracy of the enumerator but as to the reliability of the study. This conclusion receives support from the statement that "it seems probable that enumerators who persisted in reporting smaller than average quantities of illness per schedule would presently receive special attention from the supervisor."

#### Current Comment

##### KELLOGG FOUNDATION AIDS IN THE EMERGENCY

The accelerated educational program in medical schools has brought particularly to the student of limited means many new responsibilities. Already there has been indication that some young men who have progressed far in their medical educational career are having difficulty in financing the program in which time is not available for earning while learning. In this emergency the W. K. Kellogg Foundation has come to the rescue by offering to each one of nearly one hundred and fifty schools of medicine, dentistry, public health and nursing in this country and Canada \$10,000 a year to be used for loans to students and scholarships. The foundation is satisfied to leave the matter of scholarships entirely in the hands of the school to use whatever machinery is customary and proper for administration. Indeed, it is planned to set up loan funds so that payments on loans will be made to the school and thus provide a continuing or revolving fund. It is expected only that the scholarship shall be granted on the basis of scholastic ability char-

<sup>1</sup> Lienau, C. C. The Selection, Training and Performance of the National Health Survey Field Staff. *Am. J. Hyg.* 34: 110 (Nov.) 19-1

acter and need of the applicant in comparison with other applicants. The only restriction suggested is that the scholarship should not amount to more than \$500 to any one student in any one year. This is a real contribution to medicine in the war effort. The medical profession may well express its appreciation of the plan and its motivation.

### PURKINJE AND THE ORIGINS OF OPHTHALMOSCOPY

Ophthalmologists and medical historians credit von Helmholtz with the invention of the ophthalmoscope. According to Garrison, "ophthalmology and surgery of the eye were put on a scientific basis mainly through the labors of Helmholtz. 'Helmholtz has opened a new world to us,' exclaimed von Graefe." Castiglioni, in his *History of Medicine*, states "A new era in the history of ophthalmology began with Helmholtz's invention of the ophthalmoscope in 1850. This great invention made possible for the first time the examination of the retina during life and opened up the whole physiology and pathology of the eyegrounds." Now a recent issue of the *Archives of Ophthalmology* offers a statement by Dr. William Thau.<sup>1</sup> "From the available evidence it clearly appears that the interior and the background of the eye of both animals and man were first observed by Johannes Evangelista Purkinje, who made enormous contributions to the sciences, including medicine, and who thus far has not been equaled in the field of ophthalmologic research." Dr. Thau offers in support of this revelation the following quotation from a speech by Heidenhain<sup>2</sup> on the occasion of the centenary of Purkinje's birth:

John Evangelist Purkinje, founder of microscopic anatomy in Germany, first to elevate physiology to the rank of an independent natural science, is hardly known and rarely recalled. One of his treatises, indeed the most outstanding in the field of sense organs, was almost totally ignored. But it is obvious that Purkinje was given more to the stimulation of thought than to following up productively what he had thought out and noticed. Thus it has happened that a great number of most important facts described in his papers were forgotten, to be rediscovered by other persons after many decades. What a sensation was caused when, in the 50's, Helmholtz discovered the eye mirror on which all modern ophthalmology is based. This instrument serves to illuminate the interior of the observed eye, so that the eyeground, which ordinarily is dark, may become visible. Purkinje described for this purpose almost exactly the procedure which thirty years later Helmholtz used. Nowhere in the literature have I found an allusion to Purkinje's discovery.

Not satisfied with this evidence, Dr. Thau succeeded in gaining access to the original copy of Purkinje's thesis in Latin. The following is quoted from an English version of it:

The clearness or turbidity of the vitreous body is recognized from without on lateral illumination and inspection by determining whether the color of the pupil is normal or cloudy according to the previously mentioned methods applying to the aqueous humor and lens. But I also had a chance to see the interior of the eye where the vitreous body is located when,

wearing myopic lenses, with candle light coming from far back, I examined the eye of a dog in order to learn about the nature of the shine which often marvelously emanates from the eyes of dogs and cats. Lo! Whenever I observed the eye of the little dog from a certain direction, that light seemed to be thrown back, until I discovered that the light is reflected from the hollow surface of the lens into the eye and then returned. When the experiment was immediately repeated with human beings the same phenomenon occurred, indeed, the whole pupil lit up in a beautiful orange color. Being still uncertain about the location of the reflected light, I constructed an artificial eye, which I filled with water, either clear or turbid to some degree, and the light shining through revealed both the background and the nature of the fluid. Thus, from now on practically no membrane or liquid content of the eye will escape the properly reflected light or the scrutinizing eye, and if practitioners, spurning the painstaking inquiry of physiologists, will not disdain or fear this [method], they will find it useful in ocular diagnosis.

Further proof of the priority of Purkinje's discoveries may be found, according to Thau, in some of the older German reference books. This information does not in the least detract from the stature of Helmholtz as a scientist or from the credit due him for devising and constructing the ophthalmoscope. However, as he himself stated (Thau, p. 315):

The real discoverer is he who had the original idea. Experiments, it is true, are also necessary, but it is easier to institute those than to find the idea, and experiments can be made by any one else.

By Helmholtz's own criterion, therefore, the credit for the origin of the ophthalmoscope should go to Purkinje.

### IS LONGEVITY INHERITED?

To determine the actuarial basis of the common belief that age is determined to a large extent by heredity, Dublin and Marks<sup>1</sup> analyzed the records of some seventy thousand persons insured by the Metropolitan Life Insurance Company for whom complete and accurate data of length of life were available concerning them and their ancestors. It is concluded that this study points broadly to a positive relationship between the longevity of parents and offspring, but this holds true only when the parents were still living when the insurance was written. This raises the further question of whether longevity in these cases is really due to inheritance or to environmental conditions. Death of the parents and consequent breaking up of the home create a risk of early death that seems more than to offset any inherited factor. The greater importance of environment is further demonstrated by the fact that the maximum difference in expectation of life due to heredity at the age of 20 does not exceed three years while there has been an average gain of about five years recorded among men of the same age in the general population during this century. "Certainly, on the basis of conditions in the world today," the study concludes, "the environmentalists have distinctly the better of the argument in so far as relates to the question of longevity."

<sup>1</sup> Thau, William. Purkinje. A Pioneer in Ophthalmoscopy, *Arch Ophth* 27:299 (Feb.) 1942.

<sup>2</sup> Heidenhain, Rudolf. Allgemeine Sitzung der schlesischen Gesellschaft für vaterländische Kultur am 17. December 1887 zur Feier des hundertjährigen Geburtstages von Joh. Ev. Purkinje, *Jahresb. d. schles. Gesellsch. f. vaterl. Kult* 65:1, 1887.

<sup>1</sup> The Inheritance of Longevity—A Study Based on Life Insurance Records by Louis I. Dublin, Ph.D., Third Vice President and Secretary and Herbert H. Marks, Metropolitan Life Insurance Company, New York.

# MEDICINE AND THE WAR

*In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession*

## THE YOUNG MEDICAL OFFICER GOES TO WAR

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The recent spate of papers and lectures on the treatment of war wounds of different parts of the human body by learned specialists brings to mind the rather amusing contrast between my own pre-World War imaginings and the realities. The specialists may indeed carry on their specialties in some base hospital far behind the lines, but the world of the young regimental medical officer is a very different thing indeed. In those far off days I imagined myself rushing from wound to wound on a shell swept battlefield, splendidly doing my duty in the face of the foe. In actual fact I did or saw very little of that noble work.

The great lesson that every medical officer must know first, foremost and all the time, is that his job is to keep the fighting ranks full, i. e. to keep fit men fit, physically and mentally, and to get slightly sick or wounded men back to the ranks as quickly as possible. After that he may attend to his more humanitarian duties, to tend, comfort and evacuate the severely wounded and the permanently disabled.

The astonishingly varied nature and wide range of the medical officer's work may be partly illustrated and perhaps more interestingly explained by telling something of my own experiences, which were fairly typical and in no way unusual.

Soon after graduation I joined the British Royal Army Medical Corps in June 1915. For some days we were taught army medical drill, stretcher drill and how to ride a horse—none of which I have done since. Sixteen days after joining the army I was on a transport for active service, destination unknown. Not until we approached the strait of Gibraltar did it become pretty obvious that the Dardanelles or our bases in Egypt would see us next.

For the purposes of this article, the remainder can be divided into five periods or phases, each concerned with a different kind of medical work.

### EGYPT—AN OVERSEAS BASE

Owing to the urgency for reinforcements for Gallipoli in July 1915, many green troops had arrived in Egypt unvaccinated, un inoculated and still wearing heavy English uniforms. These men were sent to desert camps for hardening. Here the troops suffered from heat, were bored and found themselves too close to these large Eastern cities with all their evils. Medical officers soon realized that they required all their ingenuity and all their experience of men to deal with difficulties in a world with which they themselves

were unfamiliar. Light cool uniforms had to be obtained (later even these were discarded) though no general order had been given for that purpose, so that much personal work and interviews with minor officials and officers had to be done. An early discovery was that the higher the rank of the officer the more easy he was to deal with, when he realized that one was also trying to do his best and that indeed nearly all the loose talk about "brass hats" is nonsense. The only people who made difficulties were newly joined junior officers still full of self importance or perhaps trying to cover up a lack of confidence and experience. Troops had to be vaccinated, which led to trouble with battalion commanders intent on men continuing their training and practicing bayonet fighting on the eighth and ninth days when arms were sore and tempers short. This often required much diplomacy, for, although a blustering medical officer had army regulations to back him up, better results were often obtained by persuasion than by an appeal to higher-ups.

At this time Alexandria and Port Said were crammed with transports and battleships—British, Australian, French, Russian and Italian—and lusty fellows ashore for the first time in weeks mixing with the older arrivals from the desert camps. There were also men of the Indian army, giant dignified Sikhs and the terrible little kilted Ghurkas called the Indian Highlanders. Gonorrhea and a particularly virulent form of syphilis were rife. To make these cities out of bounds was next to impossible and likely to lead to trouble so the job fell on the medical officers straining their ingenuity to the utmost. Medical officers organized games, concerts, clubs and movies, for which the Y. M. C. A. provided the materials. In the cities there were also the social requirements for the men on leave to be attended to. In the camps the main medical work consisted in attending to discharging ears, measles, eye infections and dysentery, but operations—unless essential for the life or the efficiency of the soldier—were avoided on account of the difficulty of asepsis. There were also the treatment of convalescents returned to their units, and the planning and supervision of graduated training. Requiring judgment not possessed by many were the duties of the medical boards, on which we younger men often sat as junior members to pass on the fate of convalescents—men to be returned to duty, men to be invalided back to England, Australia or India, men unfitted for full service but fit for other employment. In a total war every man can be usefully employed. Before we learned wisdom many breakdowns occurred and these failures cluttered up the camps. In addition large convoys of hospital ships from Gallipoli kept discharging thousands of wounded and even more sick (especially dysentery) into Alexandria, Port Said and Cairo, where large hotels and

public buildings had been commandeered by the Medical Corps for use as hospitals. In a smaller way medical officers soon learned to utilize whatever was nearest for their purposes—buildings of all kinds for hospitals, for measles and for venereal patients.

One of my acquaintances summarized our duties thus: one third of the time preventing men getting sick, one third treating sick and wounded and one third finding out what use could be made of the partially disabled.

#### HOSPITAL SHIPS—LINES OF COMMUNICATION

The time soon came for those of us now fast becoming "old hands" to move up. Unknown to us, but suspected, a new attack was being prepared on the Turkish positions on the heights of Gallipoli. That would mean heavy casualties and therefore many hospital ships. Unfortunately instead of medical officers and nurses being allocated to their ships in Egypt and thus giving them an opportunity to convert their ex-cattle boat or ex-cargo tramp into something like a hospital ship, all were bundled into one transport and sent straight to the Greek island of Lemnos, a few short miles off the Gallipoli coast. Next day was Sunday, August 8, the day of the "big push" and the fiercest battles of the campaign. All day long we watched the heavy bombardment of the heights by the big naval guns, the burning villages and grass fires. All day long we watched the wounded pouring in from the collecting points on the beaches. Only late in the day were we allowed inshore to help or relieve the other doctors and to give them a chance to get their first rest in two or three days. My first duties were those of an orderly, carrying food, hot tea, making myself useful in any way possible. Suddenly six of us were ordered to another ship, an ex-cattle boat, supposed to carry 600 sick and wounded. Without any opportunity to make arrangements for the disposal of our patients, we arrived on board to find 1,100 patients, lying anywhere and everywhere all over all decks, men with dysentery lying alongside men with compound fractures of the femur, without beds, without operating facilities and without medical supplies except for what we carried on our persons or found in the much outdated army medical panniers. Once again we made the best use of what was nearest to hand. Temporary latrines, several scattered on each deck, were erected for the dysentery patients. Emergency measures were improvised to prevent infection of food by the innumerable flies. Army antiseptics were discarded, and wounded limbs soaked in buckets, gasoline cans or any other receptacle which could be made to contain enough sea water and fresh water, half and half. This last, which we believe we were the first to use under similar circumstances, gave excellent results and cut down sepsis. All operations, cut to the absolute minimum, were performed in a hastily improvised operating room on the hatchway. Screening nets and cloth covers were placed on all doors leading to mess rooms, against the opposition of the ship's captain, an old time skipper, who had never seen "such dam' nonsense before." Two or more determined doctors can sometimes convince even an old sea captain. Only four men were buried at sea.

Many similar voyages were made from Gallipoli to various ports—Alexandria, Port Said, Malta, Naples

and Gibraltar—where our human cargoes were discharged. Often in spite of precautions, one or more of our medical officers would also be left behind. Occasionally there were variations. Once we were called to the rescue of a torpedoed transport with fifteen hundred Australian troops on board or scattered over the water in boats, rafts or other floating matter. Rescue work, treatment of injuries, exposure and shock provided a lively day. On another occasion a sharp storm at night drove patients crowding the top deck of an overcrowded ship into whatever shelter they could find. In spite of our best efforts to locate and move everybody in a storm on a dark night and without lights (lights of course being forbidden in submarine infested waters) the next day found many badly weakened men under lifeboats and in odd corners to which they had crawled for shelter. Soon after an intolerable stench located others with terribly swollen limbs and gas gangrene. That also was a lively day. We buried more men at sea than usual on that voyage. On other voyages neither doctors nor nurses had beds and slept where they could.

#### LEMNOS—ADVANCED BASE

Several of the Greek islands were used for advance supply depots, rest camps and as hospitals for the slightly wounded or sick. Of these the chief were Lemnos, Imbros and Samothrace. With a lull in the fighting toward the end of 1915 many of us were ordered ashore to man the rest camps and hospitals. All of these were in tents, with no beds but thin mattresses spread on the ground. However interesting Lemnos might be from a legendary and historical point of view, it is a God forsaken, treeless, rocky and dusty hole to live in. A few ancient Greek villages composed of rough stone houses, windmills, and bullocks drawing primitive plows were the only signs of life. Food and water were scarce until the navy erected a huge condenser. Flies were everywhere, so that one used both hands to convey food from plate to mouth, one hand acting as a fan. The wind was violent. One soldier wrote:

Is this the soft Aegean wind  
Which Byron wrote about?  
It blows the milk (!) from out your tea,  
The laces from your boots.

(The exclamation mark is mine.) The loose soil became clouds of dust, and when the rains came it changed to feet of mud. Tent supports could not stand upright and hospital tents collapsed on patients. With an eye to the future, however, I was able to "secure" (by methods that might not bear inspection) a number of iron bars, which, driven deep into the island kept my own tent and those of my patients upright when the others were down. The sight of my snug tent did not improve the temper of a mud caked colonel, who entered with oaths bubbling from the mud around his face. Winter, without wood for fires, brought more privations. Medical work on the island was mostly concerned with small wounds, supervising the work of rest camps (where, curiously, men who had stood down like flies when the tension relaxed) and the care of the thousands of Egyptian, Greek and cooler labor employed on the "roads" and wharves. There was also the daily sick parade for "walkers," the

rounds for "stretchers" the discharge of the fit to their units and the incapacitated to Egypt or England, medical boards inspection of food water, latrines refuse, camp and lines and finally initiating and managing concerts and games. Even the selection of songs was a job. Hymns made men homesick and restless. The bawdier songs let off steam.

Finally I became a patient myself and was returned to England on the *Aquitania*, now a splendidly fitted out hospital ship with all comforts.

#### BATTALION MEDICAL OFFICER—DOVER, ENGLAND

Although at first it seemed rather a waste to send an officer with war experience to a battalion of newly raised raw recruits, the wisdom soon became apparent. Many of the bright young graduates of our medical schools then and now, considered themselves a little too good to be "only a battalion medical officer." They preferred to be with a surgical or other specialist team in a big base hospital. I can tell these bright young men right now that they will learn little either as men or as surgeons in a big base hospital. But as a battalion medical officer they will learn vast numbers of things not taught in medical school. The battalion M O should be a man of experience wise among men and something of a doctor, lawyer, father, mother, parson or priest and friend all in one. He has medical charge (and more) of young men taken from civil life, homesick and lovesick, rebellious or sullen, adventurous or timid and what not, who have to be molded into a fighting force. Not only their physical needs but their mental and spiritual needs are his business. In a civilian army bumptious young officers, full of self importance, can drive recruits nearly to rebellion. A wise medical officer who has the great advantage of direct access and responsibility to the colonel only can often by the right word at the right time, ease serious difficulties between men and officers without apparent interference or sticking his neck out. A little talk sometimes to a miserable soldier, a word here to an officer can do wonders, especially if the doctor already has the prestige of overseas service. These things do not appear in the army manuals but are important nevertheless. It does not lower the prestige of a medical officer to carry the rifle and pack of a footsore soldier on a heavy march, as I have done on many an occasion. When the men know that the doctor is their friend and dependable the morale of that battalion is high. It cannot be too strongly emphasized that the battalion doctor should be a man of self reliance (he works alone), cool calm, with professional judgment and judgment of men and, above all, common sense and humor. During this period I served with infantry, coast artillery and antiaircraft artillery, had charge of a garrison hospital ward, had the responsibility of choosing men fit for overseas, vaccinated some 10,000 men, had troubles with medical boards who persisted in sending me men utterly unfit to march or carry a pack, trained men in the use of gas masks and became a minor expert on scabies, lice, corns and gonorrhea. One of my embarrassments as a young officer was having to advise men often older in years and sin than myself, to avoid loose women and liquor or, if they could not how to use the army "antivenereal" packets. By great good fortune I discovered an ex-Salvation Army officer, persuaded the colonel to let me have him,

and installed him in charge of the prophylactic "wash-out," where he was very happy distributing literature to his "patients."

#### BASE HOSPITAL—LONDON

Toward the end of the war I was transferred to the Fifth London General Hospital (St Thomas's Hospital) in the heart of London and opposite the Houses of Parliament. In the grounds there had been built a number of large wooden wards each holding from forty to eighty-eight beds. Here we had about 1,000 military patients, almost wholly with compound fractures. One ward was given over wholly to vascular wounds, and to this ward, by special arrangement through the War Office, came all such cases from France. In charge was Major General Sir George Makins then president of the Royal College of Surgeons of England, and I had the good fortune to be his military "resident." In addition I had a small ward of my own and was a member of the Royal Flying Corps (now R A F) Medical Board for recruit officers. On certain nights it was also my duty to meet all hospital trains coming to London stations with sick or wounded from France or elsewhere and to allocate "walkers," "sitters" or "stretchers" to the various hospitals or, if they were very ill, to take them there myself. The work differed little from that in any city hospital, the only diversion being air raids. At that time London was raided on many occasions. With the lighter bombs then in use, patients in the ferro-concrete buildings of city hospitals were safe. (The heavier bombs of 1940, however, have since wrecked a large part of St Thomas's hospital.) For patients in the wooden huts, matters were different. It was therefore our immediate duty in air raids to move all the latter into the permanent buildings—beds, Thomas's splint and traction apparatus and all—no mean order. Many of these men were shell shocked and highly nervous. Our second duty therefore was to prevent any panic. Immediately or before patients were wheeled into the central halls music, songs and games were started at once by key men. One man banged out some bawdy tunes on the piano. Others sang. The louder the better. Others threw craps or dice. Hilarious party anyhow. If you listened you heard, behind all this the crash of bombs and the even more unsteady-roar of the antiaircraft 12 pounders situated in parks and vacant lots all over the city. Here indeed the medical officer was the key man. As was his behavior or bearing, so was that of the party. Under no circumstances must he be scared or at any rate show that he was. Later, perhaps, when the raid was over and the patients were back in their wards, he might feel a little shaky, but usually with civilian dead and wounded now arriving at the hospital he had to help the civilian interns and residents and had little time to show it. When that job was finished all was well—and so to bed.

#### CONCLUSION

Of experiences under fire I have not written, partly because my own experience was small and partly because much has already been written by others. I have tried to present instead those other duties in camp, hospital ship, training depot, base hospital and advanced base which have not, so far as I know, been described elsewhere, so that others perhaps might be helped by those of us who have gone before.



## COMMISSIONS FOR MEDICAL STUDENTS

1 The War Department on May 8 granted authority to corps area commanders to waive the provisions of paragraph 5, AR 140-33 and paragraph 7b, AR 605-10, for the appointment as second lieutenant, Army of the United States (Medical Administrative Corps), of physically qualified male citizens of the United States above the age of 18 years who are bona fide accepted matriculants at approved medical schools within or without the United States. Officers so appointed will not be ordered to active duty until eligible for appointment as first lieutenant, Army of the United States (Medical Corps).

2 a Appointment will be made without reference to an examining board as prescribed in paragraph 20 c, AR 140-5, and without reference to procurement objectives.

b Appointment will be made without a report of physical examination (WD AGO Form No 63). Authority is granted to waive the provisions of Section VI, AR 605-10.

c Applications and accompanying papers as prescribed in AR 605-10 (except report required by paragraph 10a (2)(b)), as amended, will be forwarded by the dean of the medical school to the commanding general of the corps area in which the school is located, together with a certified statement that the applicant is a bona fide accepted matriculant in medicine at the institution.

d Students attending schools outside the limits of the United States will be charged with the responsibility of proper notification to the deans of the respective schools in order that the applications and accompanying papers as prescribed in paragraph 2 c (above) are forwarded to the commanding general of the corps area of permanent residence of the student.

e Officers appointed under the provisions of this letter will be discharged for the convenience of the government under the following circumstances:

- (1) Discontinuance of medical education
- (2) Matriculation at an unapproved school of medicine
- (3) Failure to complete successfully the prescribed full course of medical instruction

(4) Failure to secure appointment in the Army of the United States (Medical Corps) within one year after completion of the prescribed full course of medical instruction.

f The Surgeon General will maintain adequate records to assure timely application for appointment as first lieutenant, Army of the United States (Medical Corps), and to assure that individuals are promptly reported to the Adjutant General for discharge as provided above.

3 Properly certified applicants for and qualified students at approved schools of medicine, dentistry or veterinary medicine who already hold Reserve commissions in other arms or services will not be ordered to active duty until they:

a Come within the provisions of 2 e (1), (2), (3), or (4) above, or

b Successfully complete the prescribed full course of medical instruction, in which latter event they may be appointed in the Medical Corps, Army of the United States, in the grade of first lieutenant.

4 Properly qualified students will be invited to submit applications for appointment, final approval in each case to be made by the commanding general of the corps area in which the properly qualified student maintains permanent residence. The commanding general of each corps area is granted the authority to make such appointments.

5 Notice of appointment will be in the following form:

Date

Subject Temporary Appointment

To 2d Lieut John Henry Doe, MA-AUS, A 0-0,000,000  
549 North Blank Street, New York, N Y

1 By direction of the President you are temporarily appointed and commissioned in the Army of the United States, effective this date, in the grade and section shown in address above.

Your serial number is shown after A above. You will not perform active duty under this appointment until expressly ordered to active duty by competent authority.

2 This commission will continue in force during the pleasure of the President of the United States for the time being, and for the duration of the present emergency and six months thereafter unless sooner terminated.

3 There is enclosed herewith a form for oath of office which you are requested to execute and return promptly to the agency from which it was received by you. The execution and return of the required oath of office constitute an acceptance of your appointment. No other evidence of acceptance is required.

4 This letter should be retained by you as evidence of your appointment, as no commissions will be issued during the war.

6 Each appointee will be in the Arm and Service Assignment Group. On each copy of notice of appointment except the original a notation "A & S A G" will be placed in the lower left hand corner.

10 If an appointment is declined or canceled, the record will be filed at corps area headquarters and no report made to this office or to that of the Surgeon General.

11 Department commanders will, in general conformity with this letter, submit to this office individual recommendations for appointment.

12 The letter from this office of Feb 11, 1942, AG 2101 Med-Res (1-26-42)RB-A, Subject "Commissions for Medical Students," is rescinded except paragraph 5 thereof.

By order of the Secretary of War

J A ULIO,  
Major General,  
The Adjutant General

## FEDERAL FUNDS TO ESTABLISH RESERVE OF BLOOD PLASMA

On April 11 the sum of \$292,500 was allotted from the "Emergency Fund for the President" to the U S Public Health Service to establish reserves of liquid, frozen or dry blood plasma or serum albumin for the treatment of casualties resulting from enemy action. Grants will be made to public and private hospitals located not more than 300 miles from ocean or gulf coast under regulations which have now been promulgated by the Public Health Service (*Federal Register* 7 3448 [May 9] 1942).

To be eligible for a grant, a public or private hospital located not more than 300 miles from ocean or gulf coast must have a capacity of not less than two hundred beds, exclusive of bassinets, or two or more smaller hospitals totaling two hundred beds may submit a cooperative project, one of the participating hospitals being designated as the grantee. Furthermore the hospital must be on the approved list of the American College of Surgeons and the hospital register of the American Medical Association and must have on its professional staff a physician whose qualifications are the equivalent of those required by the American Board of Pathology for its diplomates.

A grant will cover a period of not more than twelve months following the approval of the plan, or not beyond June 30, 1944, and may be used for the purchase of equipment necessary for the preparation of liquid or frozen plasma, reconditioning of minor alterations of existing quarters, necessary traveling and subsistence allowance of \$6 a day to cover a training trip, if required, of not more than one week for the physician doing the blood and plasma project. No funds made available under a grant may be used for the payment of blood plasma. Plans for a project must first be submitted to the Chief Medical Officer, Office of Civilian Defense, and must be approved by the Public Health Service.

A plan must contain information as to the number of beds in the hospital applying for a grant, classified as follows:

to use, the name and qualifications of the physician who will direct the plasma project, a description of any present blood and plasma project, the type and amount of plasma reserve which the hospital desires to prepare, the delivered price of equipment necessary to complete the existing facilities for preparing the plasma, such items to be numbered and described in accordance with the equipment inventory in "A Manual on Citrated Normal Human Blood Plasma," issued by the Office of Civilian Defense or equivalent approved substitute equipment, the cost of materials or labor, if any, needed for adapting existing quarters to the needs of the blood plasma project, and the salaries, if any, to be paid additional personnel until the plasma reserve has been prepared.

The hospital must agree to build up a plasma reserve of at least 1 unit per bed within three months after delivery of the necessary equipment. A unit of plasma is described in the regulations as that amount derived from 500 cc of citrated whole blood, consisting of about 250 cc of liquid plasma. The agreed amount of plasma reserve must be maintained for use without charge and only for the treatment of casualties caused by enemy action. The reserve must be released for use in other local hospitals for this purpose on order of the local chief of Emergency Medical Service, or for transfer within the state on order of the state chief of Emergency Medical Service, or for transfer from one state to another on the order of the regional medical officer, Office of Civilian Defense. Liquid plasma must be kept from being outdated by replacement of

older by newer plasma. Replaced units may be utilized for current needs of the hospital in the treatment of its regular patients, provided the plasma reserve shall not be allowed to fall below the stated minimum.

All plasma must be prepared in accordance with manuals of the Office of Civilian Defense, prepared by the Subcommittee on Blood Substitutes of the National Research Council. The hospital must agree to continue the project for its current need after the expiration of the federal grant and to maintain for the duration of the war the minimum stated reserve. Thereafter the reserve may be used by the hospital without restriction. A record must be kept of all blood donors, including their blood types, to expedite obtaining donors for emergencies, and any blood plasma project must at all times be subject to inspection by authorized representatives of the Surgeon General of the United States Public Health Service.

Payments will be made on a reimbursement basis for expenditures made in accordance with the approved budget, and application for reimbursement must be notarized and addressed to the Chief Medical Officer, Office of Civilian Defense. Each hospital will be required to submit periodic reports, including clinical abstracts of any untoward experiences encountered in the use of plasma for the duration of the war.

To augment the federal fund thus made available for blood and plasma projects, a supplemental estimate of appropriation has been submitted to Congress by the President, recommending an additional \$420,000 for a continuation of the program.

#### JOINT STATEMENT BY OFFICE OF CIVILIAN DEFENSE AND AMERICAN RED CROSS

To secure unity of effort and avoid duplication of facilities in meeting civilian needs arising from enemy action this statement is issued by the Office of Civilian Defense and the American National Red Cross for the guidance of defense councils and Red Cross chapters.

It is the responsibility of local defense councils to see that adequate provision is made for all services required in the event of bombing or other enemy attack. During an emergency period the commander of the Citizens' Defense Corps will exercise control over all such services.

With respect to emergency medical services and emergency feeding, housing and clothing, provision should be made in each community in conformity with the following principles:

##### EMERGENCY MEDICAL SERVICES

During bombing or other enemy attack, all services are directed from the control center in charge of the commander of the Citizens' Defense Corps. Responsibility for the care of those injured as a result of enemy action rests with the Emergency Medical Service of the Citizens' Defense Corps under the direction of the chief of the Emergency Medical Service.

Red Cross chapters assist the Emergency Medical Service by (a) recruiting and training volunteer nurses' aides, who will be utilized by the Emergency Medical Service at base and casualty hospitals, casualty stations and first aid posts, (b) furnishing lists of persons trained in first aid to be enlisted by the Emergency Medical Service as members of its stretcher teams, (c) providing dressings, bandages and supplementary equipment as the chapter may decide in consultation with the chief of Emergency Medical Service, (d) equipping and operating emergency ambulances to be assigned to the Emergency Medical Service and to serve under its direction, (e) providing supplementary transportation for walking injured and for Emergency Medical Service personnel. During the emergency period ambulances and motor units assigned to such transportation service will be under the direction of the chief of Emergency Medical Service or the transport officer. The Emergency Medical Service of the Office of Civilian Defense will not be duplicated by the Red Cross but will be utilized by the Red Cross in natural disasters.

##### EMERGENCY FEEDING, HOUSING AND CLOTHING

In the joint statement dated April 17, 1942 of the Office of Defense Health and Welfare Services and the American Red Cross it is agreed. With respect to the emergency period dur-

ing which special facilities must be made available to meet emergency needs without notice, the Federal Security Administrator will look to the local facilities and resources of the American Red Cross to provide food, clothing and temporary shelter. These services will be provided locally during an emergency period by the Red Cross under the control of the commander of the Citizens' Defense Corps in accordance with detailed plans to be worked out jointly by the commander, the Red Cross chapter and the public welfare authority.

Defense councils should avoid duplication of these facilities. Where an Emergency Food and Housing Corps has already been organized and equipped to the satisfaction of the commander of the Citizens' Defense Corps, its function should be coordinated with the functions of the public welfare authorities and the Red Cross chapter and if possible consolidated.

After the emergency period the appropriate public agencies are expected to undertake the care of civilians in accordance with plans developed in conjunction with the Office of Defense Health and Welfare Services and the Federal Security Administrator. Funds will be made available for this purpose by the federal government through the Federal Security Administrator. Local welfare agencies and Red Cross chapters should be guided in their relationships by the agreement signed on April 17, 1942 by the Office of Defense Health and Welfare Service and the American Red Cross.

All Red Cross volunteers enlisted in the emergency feeding and housing service and all other Red Cross volunteers who are to be in service during and following bombing or other enemy action, will register with the local Civilian Defense Volunteer Office. The cards of all such registrants are to be marked so as to show that these volunteers are in Red Cross service. In order to obtain necessary freedom of movement during and immediately after enemy action, Red Cross personnel certified to the commander by the chapter for emergency feeding, housing and clothing services will be furnished with identification cards issued to Citizens' Defense Corps personnel and will be authorized to wear the official armband.

This statement supersedes the joint statements of Sept. 4 and Dec. 22, 1941.

NORMAN H. DAVIS, Chairman,  
American Red Cross  
Approved May 18, 1942

JAMES M. LANDIS, Director  
Office of Civilian Defense

# ORGANIZATION SECTION

## REGISTRATION OF DIATHERMY APPARATUS ORDERED BY FEDERAL COMMUNICATIONS COMMISSION

All possessors of apparatus designed, constructed or used for generating radio frequency energy for therapeutic purposes, described generally as diathermy apparatus, must register each such device with the Federal Communications Commission in Washington, D C, by June 8, under Order No 96, promulgated by the commission on May 18. Any person who wilfully violates any provision of the order or who falsifies any information required to be furnished to the commission becomes subject to a fine of not more than \$10,000 or imprisonment for not more than ten years, or both, and any unregistered apparatus may be confiscated.

Application for registration must be on forms obtainable from the commission in Washington or from any of its field offices. Individual applications must be made for each set of diathermy apparatus to be registered, and physicians should keep this in mind when requesting application forms. The executed forms must be forwarded to the secretary of the Federal Communications Commission in Washington. On receipt of an application, if the commission finds that sufficient and reliable information has been furnished, a nontransferable certificate of registration will be issued to the applicant, which must be conspicuously affixed to the apparatus for which it is issued.

Any person or organization hereafter in any manner coming into possession of apparatus required to be registered must apply for a certificate of registration within fifteen days after obtaining such apparatus. If registered apparatus is transferred, sold, assigned, leased, lent, stolen, destroyed or otherwise removed from the possession of the registrant the commission

must, within five days, be notified of that fact and the name of recipient of the diathermy apparatus be furnished to the commission if such person is known to the registrant.

According to a news release issued by the commission, this order does not apply to persons owning sun lamps, infra red lamps or ultraviolet ray devices. It applies only to apparatus generating electromagnetic energy at any frequency between the limits of 10 kilocycles and 10,000 megacycles. Apparatus in the possession of the United States government, its offices or agents, or apparatus which is under contract of delivery to the United States government is not subject to the registration order.

This order is a wartime security measure and its promulgation follows a determination previously reached by the Office for Emergency Management, Defense Commission Board, in Order No 4, that the national security and defense and the successful conduct of the war demand that the government have knowledge of all persons who possess apparatus equipped for the transmission of radio frequency energy. Diathermy apparatus may not only interfere with radio reception but can be easily converted into short wave radio transmitters and thus may be used to furnish valuable information to the enemy.

Application forms for the registration of diathermy apparatus may be obtained from the Federal Communications Commission in Washington, D C, or from any of the field offices of the commission listed. Physicians should apply immediately to the nearest office for an application form to cover each unit of diathermy apparatus possessed.

### Field Offices, Federal Communications Commission

| District No | Address   | City           | District No | Address  | City            |
|-------------|---|----------------|-------------|--|-----------------|
| 1           | Inspector in Charge, Federal Communications Commission, Customhouse, 7th Floor,   | Boston         | Suboffice   | Radio Inspector, Federal Communications Commission, 307 U S Customhouse and Court house Bldg, Union and F streets,           | San Diego Calif |
| 2           | Inspector in Charge, Federal Communications Commission, 748 Federal Building, 641 Washington Street,                        | New York       | 12          | Inspector in Charge, Federal Communications Commission, 328 Customhouse,   | San Francisco   |
| 3           | Inspector in Charge, Federal Communications Commission, Room 1200, New U S Customhouse, 2d and Chestnut streets,            | Philadelphia   | 13          | Inspector in Charge, Federal Communications Commission, 805 Terminal Sales Building,   | Portland Ore    |
| 4           | Inspector in Charge, Federal Communications Commission, Fort McHenry,   | Baltimore      | 14          | Inspector in Charge, Federal Communications Commission, 808 Federal Office Building  | Seattle         |
| 5           | Inspector in Charge, Federal Communications Commission, Room 402, New Post Office Bldg,                                     | Norfolk Va     | 15          | Inspector in Charge, Federal Communications Commission, 504 Customhouse,   | Denver          |
| 6           | Inspector in Charge, Federal Communications Commission, 411 Federal Annex,  | Atlanta, Ga    | 16          | Inspector in Charge, Federal Communications Commission, 208 Uptown Post Office and 1ed Cts Bldg, 5th and Washington streets, | St Paul         |
| Suboffice   | Radio Inspector, Federal Communications Commission, Box 77 (208 Post Office Bldg),  | Savannah, Ga   | 17          | Inspector in Charge, Federal Communications Commission, 809 U S Court House,   | Kansas City Mo  |
| 7           | Inspector in Charge, Federal Communications Commission, P O Box 150 (312 Fed Bldg),   | Miami, Fla     | 18          | Inspector in Charge, Federal Communications Commission, 246 U S Courthouse,  | Chicago         |
| Suboffice   | Radio Inspector, Federal Communications Commission, 203 Post Office Building,   | Tampa, Fla     | 19          | Inspector in Charge, Federal Communications Commission, 1029 New Federal Building  | Portland        |
| 8           | Inspector in Charge, Federal Communications Commission, 308 309 Customhouse,  | New Orleans    | Suboffice   | Radio Inspector, Federal Communications Commission, 541 Old Post Office Building   | Cleveland       |
| 9           | Inspector in Charge, Federal Communications Commission, Room 404, Federal Bldg,   | Galveston, Tex | 20          | Inspector in Charge, Federal Communications Commission, 526 Federal Building,  | Indianapolis    |
| Suboffice   | Radio Inspector, Federal Communications Commission, Box 1527 (329 Post Office Bldg),  | Beaumont, Tex  | 21          | Inspector in Charge, Federal Communications Commission, Aloha Tower,   | Honolulu T H    |
| 10          | Inspector in Charge, Federal Communications Commission, P O Box 5373 (500 U S Terminal Annex Bldg),                         | Dallas, Tex    | 22          | Inspector in Charge, Federal Communications Commission, P O Box 2987 (322 323 Federal Building),                             | San Juan, P R   |
| 11          | Inspector in Charge, Federal Communications Commission, 539 U S Post Office and Court house Bldg, Temple and Spring streets | Los Angeles    | 23          | Inspector in Charge, Federal Communications Commission, P O Box 1421 (78 Shattuck Building),                                 | Juneau Alaska   |

### OFFICIAL NOTES

#### THE ATLANTIC CITY SESSION

#### Atlantic City Civic Groups Invite Physician Members

The Local Committee on Arrangements for the annual session of the American Medical Association in Atlantic City announces a meeting of the combined civic groups of Atlantic City for

visiting physicians who are members of Kiwanis, Rotary, Exchange, Reciprocity and similar organizations at Hatteras Restaurant, June 9, at 12 30 p m. Dr Perrin H Lee, Johns Hopkins University Medical School will speak on 'Medical Science in the War Effort'.

## MEDICAL LEGISLATION

### DISTRICT OF COLUMBIA

*Change in Status*—H R 6362 has passed the House, imposing an annual registration requirement on persons licensed to practice the healing art in the District of Columbia. The registration fee will be \$2.

### MEDICAL BILLS IN CONGRESS

*Change in Status*—S 2025 has passed the Senate and House of Representatives proposing to readjust the pay and allowances of personnel of the army, navy and marine corps coast guard, coast and geodetic survey and Public Health Service. When this bill was considered on the floor of the House Representative Costello, California offered an amendment to the section of the bill pertaining to the appointment of commissioned officers in the army as follows: Provided, That nothing in this section shall preclude the appointment of commissioned officers for service in the Medical Corps in the Army of the United States

made in part from among graduates of reputable schools of osteopathy, who are licensed or eligible for license under state law to practice medicine, or osteopathy, as the case may be, and who are otherwise qualified under such regulations as the President may prescribe." The proposed amendment was rejected.

*Bills Introduced*—H J Res 312, introduced by Representative Barden, North Carolina, proposes to authorize an additional appropriation of \$1,000,000 for the fiscal year of 1943 for expenditure in carrying out the provisions of an act to provide for the promotion of vocational rehabilitation of persons disabled in industry or otherwise. H R 7089, introduced by Representative Brooks, Louisiana, would direct the Secretary of War to take such action as may be necessary, and as may be possible in view of the number of registered pharmacists serving in or whose services are available to the army, to assure that a registered pharmacist is placed in charge of each army dispensary or similar establishment from which drugs are dispensed.

## WOMAN'S AUXILIARY

### Arkansas

Mrs William Hibbitts, program chairman for the Woman's Auxiliary to the American Medical Association conducted a quiz at the January meeting of the Bowie and Miller counties medical auxiliary at the home of Mrs R R Kirkpatrick. The quiz, entitled "To Be Informed" was prepared for auxiliaries to be used throughout the United States. The questions pertained to politics, public relations, the American Medical Association and its auxiliaries. For correct answers, members were awarded prizes from a "grab bag."

### Georgia

The Woman's Auxiliary to the Baldwin County Medical Society held a meeting at the home of Mrs L P Longino in Milledgeville. Mrs Richard Binion, president, presided. Col Kyle T Alfriend talked on world conditions.

The Woman's Auxiliary to the Fulton County Medical Society held its January meeting in the new Academy of Medicine in Atlanta. Mrs Murdock Eguen, president, presided. Dr Sam Guy, head of the department of chemistry at Emory University, talked on the part science is playing in the war.

The new Academy of Medicine was dedicated recently. The woman's auxiliary had charge of serving a turkey dinner to 500 guests and members, Mrs Eustace Allen, Mrs Crawford Barnett, Mrs Hal Davison and Mrs W W Anderson ably assisted by their committees having charge. Mrs Murdock Eguen, president, and various chairmen from the auxiliary, assisted the Fulton County Medical Society with the decorations and equipping of the building.

Various auxiliaries over the state observed Doctor's Day on March 30, this occasion being one on which members of the profession both living and dead are honored. A Georgia woman, Mrs C B Almand, of Winder first originated Doctor's Day, and it was first observed by her auxiliary, that of Barrow County, in 1933. In 1934 the state auxiliary adopted the idea and in 1935 through the efforts of Mrs J Bonar White of Atlanta then national first vice president the Woman's Auxiliary to the American Medical Association accepted it. It was on March 30, 1842 that Dr Crawford W Long, a Georgia physician administered the first ether anesthetic at his office in Jefferson. Mrs Y Harris Yarbrough of Milledgeville, is state chairman of Doctor's Day. The observance calls for some act of kindness, gift or tribute to the medical profession.

### Iowa

On January 19 members of the Woman's Auxiliary to the Pottawattamie County Medical Society entertained at a dinner to honor physicians who had practiced in the county for forty years or more. The dinner was held in Council Bluffs. Mrs William R Hornaday of Des Moines state president addressed the auxiliary on February 16 in Council Bluffs. The Objec-

tives of the Auxiliary." Officers for 1942 are Mrs Grant Augustinc, president, Mrs Robert S Moth, vice president, Mrs John P Cogley, secretary, and Mrs Sydnor D Maiden, treasurer.

### New Jersey

Through the generosity of Dr and Mrs Wells P Eagleton of Newark there was recently added to the Academy of Medicine of Northern New Jersey a new building. This means that in addition to holding its meetings at the academy, the Essex County auxiliary may now do so in its own rooms. A meeting room and lounge are for the use of the auxiliary members. A streamline kitchen holds the promise of many nice parties. The Red Cross Roll Call for Essex County has just been completed, and the auxiliary's booth was responsible for getting 498 new memberships. Members worked on the Community Chest drive and also on the sale of stamps for the Prevention of Tuberculosis League. Many members are active on the local Defense Council. Mrs Frank Bien, program chairman of the Essex County auxiliary, has a plan for those programs which are nonmedical, one of the program committee will read a five minute paper written by a local physician on a medical subject. This was tried out with success at the last meeting.

### New York

Columbia County auxiliary at the business meeting in Hudson, January 27, donated \$10 to the Red Cross war fund drive.

At the last meeting of the Fulton County auxiliary Mrs Alfred Madden, state legislative chairman, spoke on "What Physicians Wives Can Do in the State Program of Medicine." After the meeting the members did Red Cross work.

The outstanding project of the Oneida County auxiliary for the year is "blood typing." Within the group there are two first-aid units.

The Nassau County auxiliary sponsored a nutrition forum in February.

A general plan of defense work is being carried on by Onondaga County. At the last meeting, Mrs James R Wilson gave an outline on "Organized Housewives." The March meeting will be an heirloom party. In April Dr Louis H Bauer will speak on "Nutrition."

### Wisconsin

Mrs W T Clark and Mrs T J Snodgrass gave reports of the state meeting held recently in Madison. The meeting was conducted by the president, Mrs H E Kasten Beloit.

The Woman's Auxiliary to the Brown-Kewaunee-Door County Medical Society met at the home of Mrs L D Quigley, Green Bay, recently. Twenty-five members were present. Dr Mary Allen of the Bureau of Maternal and Child Health of the state board of health spoke on her work in child health centers.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH)

### ALABAMA

**Dr Austin Appointed State Health Officer**—Dr. Burton F. Austin, Montgomery, has been chosen state health officer to succeed the late Dr. James N. Baker, Montgomery. Dr. Austin, who had been acting health officer, is a native of Marl and graduated at the University of Alabama School of Medicine, University, in 1917. He served in the U. S. Army in France in the first World War and in 1920 joined the state department of health as health officer of Morgan County and later served as health officer of Madison County and district health officer in charge of thirty north Alabama counties. In 1935 he was named director of the state bureau of hygiene and nursing, now the bureau of maternal and child health, a position he held at the time of Dr. Baker's death last November.

### CALIFORNIA

**Portrait of First President of State Society**—The California Medical Association has been given a portrait of Dr. Benjamin Franklin Keene, one of its founders and first president. The picture is the gift of Mrs. J. E. Hays, Atlanta, Ga., granddaughter of Dr. Keene, who is state historian and director of the state department of archives and history. Dr. Keene, originally of Georgia, was one of seventy-six members of the profession from sixteen counties of central and northern California who met at Sacramento on March 12, 1856 to form a state society. Dr. Keene, state senator from El Dorado County, was elected president. He died the following September.

**Will Provides for Tuberculosis Foundation**—The establishment of a foundation for the prevention and treatment of tuberculosis has been provided for in the will of Charles H. Hastings in memory of his father, Charles Cook Hastings. The will stipulates that the Charles Cook Hastings Home be built either on "several large parcels of property near Beaumont, Calif., Banning, Calif., or on the Mesa Alta Ranch, near Pasadena, which is also Hastings property. The will instructs the executors to build a sanatorium to be conducted and maintained on a charitable basis. The Hastings estate is reported to amount to more than two million dollars. After payment of annuities to friends and servants, the entire estate will go to the foundation.

### CONNECTICUT

**Sesquicentennial Celebration of State Society**—The Connecticut State Medical Society will observe its one hundred and fiftieth anniversary at Wesleyan University, Middletown, June 3-4. Included among the speakers not mentioned in THE JOURNAL, February 21, page 655, are

Dr. Albert H. Miller, Providence, R. I., New England, The Cradle of Surgical Anesthesia  
Dr. Henry S. Ruth, Merion Station, Pa. Trends in Spinal Anesthesia  
Dr. George M. Lewis, New York Recent Advances in Practical Mycology  
Dr. Walter Guernsey Frey Jr., New York, Elisha North, Pioneer Connecticut Ophthalmologist  
Dr. Warren B. Davis, Philadelphia, Deformities of the Face and Their Correction  
Dr. Harry D. Sonnenschein, New York Office Procedures for Foot and Ankle Diseases  
Dr. Charles Bradley, East Providence, R. I. Diagnostic and Therapeutic Aspects of the Problem of Behavior Disorders in Children  
Mr. John J. Bloomfield, National Institute of Health, Bethesda, Md., War's Influence on Industrial Medicine  
Dr. James H. Biram, Hartford Treatment of Industrial Burns with Sulfathiazole  
Dr. John C. Whitehorn, Baltimore, Psychiatry as a Basic Medical Science  
Dr. Paul P. Swett, Bloomfield History of Orthopedic Surgery in Connecticut  
Dr. Harry E. Stewart, New Haven Physical Therapy in War Injuries  
Dr. Edwin Parker Hayden, Boston, Anerobic Perianal and Perirectal Infections  
Dr. Lewis G. Cole, New York Reminiscences of the Early Days of Roentgenologic Diagnosis

One session will be devoted to "Medicine of the Present and the Future." On the second day there will be a "historical meeting." Dr. Logan Clendening, professor of clinical medicine and history of medicine, University of Kansas School of Medicine, Kansas City, Kan., will deliver the oration of the day on "Opposition to Change as a Contribution to Social Progress." The anniversary dinner will be addressed by Col. Fred W. Rankin, President-Elect, American Medical Association.

### ILLINOIS

**Society News**—At the annual meeting of the Mercer County Medical Association, April 14, at Aledo, Dr. Norbert C. Baiwasser, Moline, spoke on "Diagnosis and Treatment of Cutaneous Maligancies."—Dr. Donald K. Hibbs, Chicago discussed "Urology in General Practice" before the Adams County Medical Society on March 10.

**New Tuberculosis Officers**—Dr. Frederick M. F. Mervner, Peoria, was reelected president of the Illinois Tuberculosis Association at its annual meeting in Danville, April 18. Other officers include Drs. William J. Bryan, Rockford, and Arthur S. Webb, Glen Ellyn, vice presidents, and John P. Denby, Carlinville, treasurer. Mary B. Meade, D.D.S., Carlinville, is secretary.

**Subsidized Tumor Diagnostic Service**—The state department of health has opened another state subsidized tumor diagnostic service at the Burnham City Hospital in Champaign. This is the fourth project of its kind to be established by the state department of health in cooperation with local county medical societies. Similar projects are now under construction at DuQuoin and Ottawa.

### Chicago

**Alumni Banquet**—The medical division of Northwestern University Alumni Association will hold its seventy-fifth annual faculty-alumni reunion dinner in the grand ballroom of the Knickerbocker Hotel, May 29, at 6:30 p.m.

**Refugee Wins Right to Take Examination to Practice**—A writ of mandamus to force the state department of registration to permit Dr. Martha Rosin, a refugee physician from Germany, to take an examination for a license to practice medicine was issued on May 13 by Circuit Judge John Prystalski, according to the Chicago Tribune. Dr. Rosin is 38 years old and came here in 1940. In February 1941 the Illinois board ruled that no application for examination to practice medicine would be accepted from graduates of foreign schools. Dr. Rosin claims to have graduated at the University of Freiburg in 1930. She is reported to have applied for citizenship.

**Amante Rongetti Leaves Prison**—Amante Rongetti was released from the Joliet Penitentiary on May 9 after serving the maximum period under his sentence with full time off for good behavior, newspapers report. In 1930 Rongetti was sentenced to prison for from one to fourteen years for manslaughter on a charge of causing a death through an illegal operation. He began his sentence on Oct. 17, 1931, having been found guilty of violation of the Harrison Narcotic Act. The U. S. Supreme Court denied the plea of Rongetti for a review of the Illinois Supreme Court decision affirming his conviction on a charge of manslaughter. In Rongetti's first trial he was sentenced to death. When the supreme court granted a new trial he was found guilty of manslaughter. This verdict was set aside at the third trial followed. His license to practice medicine was revoked by the state department of registration and education May 4, 1932, on the ground of his conviction of manslaughter.

### MASSACHUSETTS

**Institute for Hospital Administrators**—The Second New England Institute for Hospital Administrators will be held at Harvard Medical School, Boston, June 15-25, under the chairmanship of Dr. Charles F. Wilinsky, executive director and superintendent, Beth Israel Hospital, Boston. This year the emphasis will be placed on the role of hospitals in the war. The institute will be conducted by the American College of Hospital Administrators, the New England Hospital Association in cooperation with hospital associations of the New England states, New York, New Jersey and Pennsylvania, with Harvard Medical School, Boston University School of Medicine and Tufts College Medical School, all in Boston.

**Dr. Walter Cannon to Retire**—Dr. Walter B. Cannon, George Higginson professor of physiology at Harvard Medical School, Boston, will retire with the title emeritus on September 1. Dr. Cannon was born in Prairie du Chien, Wis., in 1871 and graduated at Harvard Medical School in 1894. He was instructor in zoology there from 1899 to 1900 in physiology from 1900 to 1902 and assistant professor from 1902 to 1906. He has held his present professorship since 1906. Many honors have been accorded to Dr. Cannon during his teaching career, including honorary degrees, prizes and memberships in special societies. He received the Distinguished Service Medal during the World War. In 1939 he was elected president of the American Association for the Advancement of Science.



## MISSISSIPPI

**Courses on Nutrition**—The state extension service and the department of home economics of the Mississippi State College, State College through the state nutrition committee, are sponsoring a series of three one day nutrition meetings for three successive months in all the counties of the state

**Changes in Health Officers**—Dr John W Dabbs, formerly health officer of Geneva County, Ala, has been named health officer of the Oktibbeha County Health Department at Starkville —Dr Revis A Brannon Jr, Utica, has been named director of the southeastern health district covering George, Green, Stone and Perry counties —Dr George E Riley, Jackson, has been named health officer of Clay County, with offices in West Point —Dr Victor P Genge is the new director of the Lafayette County health department succeeding Dr Thomas L Owings, Oxford, who resigned to enter private practice in Alabama —Dr Joe H Price, formerly district health officer, McLeansboro, Ill, has been appointed health officer of Tishomingo County, succeeding Dr William R Armstrong, Iuka who has entered army service

## NEW JERSEY

**Society News**—The Society of Surgeons of New Jersey will hold its spring meeting May 27 at Montclair clinics will constitute the day's program An evening dinner will be addressed by Circuit Judge Joseph G Wolber, Montclair —The Cumberland County Medical Society was addressed on April 14 at Millville by Dr George Wilson, Philadelphia on 'Shock Treatment in Mental Disease' —Dr George F Hoch New York, discussed Treatment of Urinary Tract Infection before the Passaic County Medical Society on May 14 in Paterson

## NEW YORK

**State Society Endorses Insurance Plans**—The house of delegates of the Medical Society of the State of New York has approved and voted to 'sponsor and support in every manner possible three corporations in the state offering medical insurance to subscribers according to the New York Times The groups that were given endorsement are the Western New York Medical Plan, Inc, of Buffalo Medical and Surgical Care Inc Utica, and Medical Expense Fund of New York Inc of Brooklyn, which are said to have conformed to the principles prescribed by organized medicine for the protection of the interest of both the public and the profession in the organization and operation of medical insurance' The resolution acknowledging the society's action was adopted without a dissenting vote

**Cancer Teaching Day**—June 18 has been designated 'cancer teaching day' in Buffalo with sessions at the Hotel Statler The sponsoring agencies are the Medical Society of the County of Erie, University of Buffalo School of Medicine Eighth District Branch of the New York State Medical Society New York State Medical Society and the division of cancer control of the state department of health The speakers will be

Dr Chevalier L Jackson Philadelphia Cancer of the Larynx—Early Diagnosis and Criteria for the Selection of Methods of Treatment  
Dr George F Cabill New York Hematuria and Cancer of the Genito urinary Tract

Dr Frank E Adair New York Carcinoma of the Breast—Diagnosis Treatment and Results

Dr Thomas E Jones Cleveland Surgery and Radiation in the Treatment of Malignancies of the Colon and Rectum

Dr Cornelius P Rhoads, New York will address the dinner session on Recent Studies in the Production of Cancer by Chemical Compounds, the Conditioned Deficiency as a Mechanism

## New York City

**Technician Killed While Demonstrating X-Ray Machine**—Miss Edith Fox, x-ray technician and assistant to Dr Arthur S Unger director of the division of roentgenology at Sydenham Hospital suffered a fatal electric shock on May 6 shortly after she had started to demonstrate an x-ray machine to a class of three technician students at the hospital, according to the New York Times Miss Fox is said just to have turned the machine on and was stepping up the voltage when the accident occurred The machine was of the so-called shock proof type

**Personal**—Dr William M Dunning a charter member of the Bronx County Medical Society was given a dinner on April 25 by the Bronx Eye and Ear Infirmary in recognition of his completion of fifty years in the practice of medicine —Dr

Maximilian A Ramirez, president of the Medical Society of the County of New York was guest of honor at a dinner on April 23 Among the speakers were Drs Edward M Bernecker, commissioner of hospitals, Samuel J Kopetzky George Baehr, John S Kenney and Nathan O Ratnoff Dr Adolph G G DeSanctis was toastmaster

**Academy Commends Psychiatric Clinics**—The public health relations committee of the New York Academy of Medicine commending both the diagnostic and the treatment clinic for psychiatric cases of the children's division of the domestic relations court as important and necessary, recommended in a report made public on April 28 that the treatment clinic be financed out of city funds and that it have a larger staff, including at least two full time psychiatrists, one or more psychiatric social workers and "pediatricians who would be responsible for general medical work"

**Course on Tropical Medicine**—The New York Post-Graduate Medical School, Columbia University, will offer a five day course on tropical medicine May 25-29, under the direction of Dr Zacharias Bercovitz Included among the lecturers will be

Dr Eugene R Kellersberger executive director American Mission to Lepers African Trypanosomiasis

Dr Walter J K Clothier of the Presbyterian Board of Foreign Missions Filariasis

Dr Thomas T Mackie Amebiasis Diagnosis Differential Diagnosis Treatment and Prophylaxis

Dr Henry E Meleney Relapsing Fevers

Dr Ward J MacNeal Yellow Fever Diagnosis and Preventive Vaccination

Dr Howard Fox Syphilis and Pinta

Dr Bercovitz Tropical Hygiene

Dr Stuart P Seaton Princeton N J for seventeen years a medical missionary in Hainan South China

## PENNSYLVANIA

**Institute on the Exceptional Child**—'The Wartime Adjustment of the Exceptional Child' will be the theme of the eighth institute on the exceptional child under the auspices of the child research clinic of the Woods Schools, Langhorne, May 26 The speakers will include

Dr Erich Benjamin Baltimore Social Adjustment During Early Childhood and Its Failures

Caroline B Zachry Ph D New York Educational Philosophy for the School for Exceptional Children

Emily T Burr Ph D New York Vocational Training for the Exceptional Child During the War Emergency

Dr Paul V Lemkau first lieutenant M C U S Army Washington D C Military Service

James H S Bossard Ph D Lansdowne The Impact of War on the Family

**Combined Annual Sessions**—The annual clinic of the Westmoreland County Medical Society and the annual meeting of the Tenth Councilor District Medical Society were held in Greensburg on May 7 The speakers included

Dr William A McHugh Jr Umontown Congenital Hypertrophic Pyloric Stenosis

Dr Thomas G McLellan Connellsville Glaucoma in General Practice

Dr Samuel A Ruben Washington Does Cesarean Section for Prematures Offer Better Chances for Viability Than Vaginal Delivery

Dr Elmer Higberger Jr Greensburg Pneumothorax

Dr David P McCune McKeesport Hematuria

Dr La Mar H Davenport Du Bos Ruptured Peptic Ulcer

Dr John W Fredette Pittsburgh Sulfonamides in Bone and Joint Surgery

At this session fifty year testimonial certificates were presented from the state medical society to the fellow members of the Tenth Councilor District who have been in practice more than fifty years

## Philadelphia

**Premature Baby Deaths**—On July 1 the Philadelphia department of health will launch a campaign to reduce the death rate of babies born prematurely Simultaneously a city ordinance will go into effect compelling physicians to report premature births to the department of health within two hours The report stated that the mortality rate for premature babies in the city is 135 per thousand

**Medal for Scholastic Standing**—The will of the late Dr Howard A Sutton stipulates that his medical instruments and books are to be offered for sale to members of the medical fraternity Alpha Mu Pi Omega the proceeds to be used to purchase medals to be awarded annually to the undergraduate member of the fraternity who shall have attained the highest scholastic standing during the preceding year at the University of Pennsylvania Dr Sutton at one time served on the faculty of the department of anatomy at the university medical school He died March 21

## WEST VIRGINIA

**Personal**—Dr William E McIlvain, Charleston, director of the bureau of tuberculosis of the state health department and for the past two years in charge of the state's mobile x-ray unit, resigned, April 6, it is reported, to enter the U S Navy

**State Health Conference**—The West Virginia State Health Conference was held at Martinsburg, May 11-13, with Dr Victor H Vogel, assistant chief, division of mental hygiene, U S Public Health Service, Washington, D C, giving the opening address, on "Mental Health in War and Peace" Other features included a symposium on communicable disease control and a panel discussion, led by Dr Reginald M Atwater, New York, on "Planning a Local Health Program in the Light of the Present Crisis"

**Joe Savage in the Air Corps**—Mr Joe Savage, for many years executive secretary of the West Virginia Medical Association and business manager of its journal, has been granted a leave of absence for the duration of his service in the Army Air Corps Captain Savage is stationed at Miami Beach Mr Charles Lively has been appointed acting executive secretary He has been serving as clerk of the U S District Court for the Southern District of West Virginia Between 1933 and 1941 he was clerk of the West Virginia Senate

## GENERAL

**Dermatologists Cancel Meeting**—The American Dermatological Association announces that its 1942 meeting has been postponed The meeting was to be held in Hot Springs, Va, May 31-June 4

**Class Reunions and Dinners**—There will be a reunion of the class of 1932 of the University of Pennsylvania School of Medicine at the Hotel Madison, Atlantic City, June 10, 6 to 8 p m Admission \$3

**Plastic Surgeons' Meeting**—The American Association of Oral and Plastic Surgeons will hold its annual meeting at the Barbizon-Plaza Hotel, New York, May 28-30, under the presidency of Dr Jerome P Webster, New York Clinics will be held at St Clare's, Presbyterian, Lenox Hill, Post-Graduate and Polyclinic hospitals The association has always held a clinical session, but this year a number of short papers will be presented on subjects of current interest

**American Otological Meeting**—The seventy-fifth meeting of the American Otological Society, Inc, will be held at the Marlborough-Blenheim Hotel, Atlantic City, N J, May 28-29, under the presidency of Dr Ernest M Seydell, Wichita, Kan Among the speakers will be

Dr Ralph A Fenton, Portland, Oregon, The Influence of Aviation on Otology  
Dr John M Brown, Los Angeles Actinomycosis of the Temporal Bone  
Dr Hermon Marshall Taylor, Jacksonville, Fla Neurological Complications of Serum Sickness with Special Reference to the Ear  
Dr Hans Brunner, Chicago, Encephalography  
Drs Robert S Schwab and Richard R Carter, Boston, Electroencephalography in Relation to Otology

**American Orthopaedic Association**—The annual meeting of the American Orthopaedic Association will be held in Baltimore, June 3-6, under the presidency of Dr George E Bennett, Baltimore The tentative program includes the following speakers

Dr Kellogg Speed, Chicago, Postmetastatic Survival of Osteogenic Sarcoma  
Dr Henry W Meyerding, Rochester, Minn, Spondylolisthesis  
Dr Wallace H Cole, St Paul, Pin Fixation of War Fractures  
Dr Lee C Farr, Wilmington, Del, Indications for the Intravenous Use of Amino Acid Mixtures in Surgery  
Dr William E Gallie, Toronto, Ontario, Canada, Fracture of the Odontoid Process  
Dr Carl E Badgley, Ann Arbor, Mich, Spontaneous Fracture of the Femur Following Radiation Therapy for Pelvic Malignancy  
Dr Luther Vargas, Brazil, S A, Repair of Complete Acromioclavicular Dislocation with the Aponeurosis of the Short Head of This Biceps

**American Ophthalmological Society**—The seventy-eighth annual meeting of the American Ophthalmological Society will be held at The Homestead, Hot Springs, Va, June 1-3, under the presidency of Dr Allen Greenwood, Boston Among the speakers will be

Dr William H Crisp, Denver, A New Cross Cylinder Test of Astigmatic Axis, Without Use of Test Type  
Drs Peter C Kronfeld, Helen Isabelle McGarry and Homer E Smith, Chicago, Effect of Mydriatics on the Intraocular Pressure in "Primary" Wide Angle Glaucoma  
Drs Cecil S O'Brien and James H Allen, Iowa City, Allergic Keratoconjunctivitis  
Drs Phillips Thygeson and Alton E Bracey, New York, Local Sulfonamide Therapy of Catarrhal Conjunctivitis  
Drs Henry P Wagener and J Grafton Love, Rochester, Minn, Studies of the Fields of Vision in Cases of Rathke Pouch Tumors  
Dr Algernon B Reese, New York, Precancerous Melanosis and Malignant Melanoma of the Conjunctiva

**American Human Serum Association**—The annual meeting of the American Human Serum Association will be held at the Chalfonte-Haddon Hall, Atlantic City, N J, June 8, under the presidency of Dr Maurice A F Hardgrove, Milwaukee Among the speakers will be

Earl W Flosdorf, Ph D, Lansdowne, Pa, Drs Harriet M Felton, Philadelphia, and Anthony Bondi, Rochester, N Y, Incidence of Agglutinins Specific for H Pertussis and B Parapertussis in Sera from Adults and Children  
Edwin J Cohn, Ph D, Cambridge, Mass, Properties of the Various Globulins and Albumins of Serum and Plasma  
Drs Frank W Hartman and Henry N Harkins, Detroit, The Physical Properties and Physiological Responses to the Intravenous Injection of Pectin Solutions  
Dr Wilhelm C Hueper, New York, Hematic and Organic Reactions Caused by Several Macromolecular Plasma Substitutes  
Drs Ernest C Muirhead and Joseph M Hill, Dallas, Texas, The Rationale of Concentrated Plasma Protein Solution in the Treatment of Shock

**Association of Genito-Urinary Surgeons**—The fifth annual session of the American Association of Genito-Urinary Surgeons will be held at the Hotel Hershey, Hershey, Pa, May 27-29, under the presidency of Dr Homer G Hamer, Indianapolis Included among the speakers will be

Dr Thomas P Shupe, Cleveland, Division of Aberrant Blood Vessels to the Kidney Without the Production of an Infarct—Report of a Case  
Drs William F Brasch, and William W Wood Jr, Rochester, Minn, Clinical Perinephritis and Blood Pressure  
Dr Emerson C Smith, Montreal, Quebec, Canada, The Upper Urinary Tract in Cases of Neurogenic Bladder  
Drs John K Ormond, George H Wadsworth and Harold V Morley, Detroit, Pancreatic Lesions Confusing Urologic Diagnosis—Report of Two Cases  
Drs George Gilbert Smith and Wyland F Leadbetter, Brookline, Mass, Effect of Irradiation on the Lower Ureters  
Dr Alexander Randall, Philadelphia, Eight Year Results of Castration for Prostatic Malignancy  
Drs Charles M McKenna and Joseph H Kiefer, Chicago, Pseudohermaphroditism Due to Hyperactivity of the Adrenal Cortex

**Association for the Surgery of Trauma**—The fourth annual session of the American Association for the Surgery of Trauma will be held at the Copley-Plaza Hotel, Boston, June 4-6, under the presidency of Dr Henry C Marble, Boston Included among the speakers will be

Dr Arthur W Allen, Boston, Peripheral Circulation in Relation to Trauma  
Dr Idys Mims Gage, New Orleans, Traumatic Arterial Aneurysms of the Peripheral Arteries The Pathology, Clinical Manifestations, Diagnosis and Treatment  
Dr Garrett M Brownrigg, St John's, Newfoundland, Frosthite and Allied Conditions as Observed in Shipwrecked Mariners  
Drs George M Curtis and Louis C Roettig, Columbus, Ohio, Traumatic Rupture of the Spleen  
Dr Sidney C Wiggan, Boston, Anesthesia for the Surgery of Trauma  
Dr John A Caldwell, Cincinnati, Subtrochanteric Fracture of the Femur—An Advantageous Approach for Open Fixation

The annual banquet Friday evening will be addressed by Comdr Albert Warren Stearns, U S N R Medical Corps on "The Medical History of the Siege of Boston" and Col Joseph A MacFarlane, Toronto, Ont, Canada, consulting surgeon with the Canadian Forces in Britain

**Neurological Meeting**—The sixty-eighth annual meeting of the American Neurological Association will be held at the Drake Hotel, Chicago, June 4-6, under the presidency of Dr Lewis J Pollock, Chicago Included among the speakers will be

Drs Loyal Davis and George E Perret, Chicago, Cerebral Thrombosis Obliterans  
Dr Walter L Bruetsch, Indianapolis, Rheumatic Endarteritis of Cerebral Vessels Sequel of Rheumatic Fever  
Drs Franklin G Ebaugh, Clarke H Barnard and Karl T Neuberg, Denver, Fatalities Following Electric Convulsive Therapy  
Drs Ralph W Gerard, Julian M Tolins and David B Clarke, Chicago, Spinal Ganglion Respiration  
Dr Charles Davison, New York, Effect of Vitamin E Therapy on the Central Nervous System in Amyotrophic Lateral Sclerosis  
Drs Henry A Riley and Maurice Frocht, New York, Myasthenia Gravis Incidence in Two Sisters  
Dr Victor E Gonda, Chicago, A New Tendon Stretch Reflex and Its Significance in Lesions of the Pyramidal Tracts

The Chicago Neurological Society will give a luncheon at the Drake Hotel Friday afternoon for the members of the association The annual dinner will be held Friday evening at 7:30 The American Association of Neuropathologists will hold its meeting at the Drake Hotel, June 4

**Committee on the Common Cold**—The American Association of Industrial Physicians and Surgeons announces the formation of a new committee on the common cold Dr A G Kammer, medical director, Inland Steel Company, Watling Street, East Chicago, Ind, is chairman of the committee, members include Drs Mark W Garry, Montreal, mining Company, Montreal, Wis, Charles E Shannon, director, Marshall Field Store, Chicago, James C Clark, Sand Springs, Okla, Howard G Lafferty, Sharon, Pa, Michael J Lepore, chief, nutrition clinic, Columbia U

Medical Center, New York. The committee will study the preventive aspects of the common cold and submit reports to the president of the association of industrial physicians and surgeons. Physicians who are investigating one method or the other of cold prophylaxis and who do not intend to publish reports of their studies are invited to submit their data for study and correlation.

**Meeting of Pathologists**—The American Society of Clinical Pathologists will hold its twenty-first annual meeting and ninth seminar at the Benjamin Franklin Philadelphia, June 4-7, under the presidency of Dr. John L. Lattimore, Topeka, Kan. whose address will be entitled "The Pathologist as a Physician. Among the speakers will be

Dr. Virgil H. Moon, Philadelphia. The Dynamics of Shock as Related to Diagnosis and Treatment.  
Dr. Israel Davidson and Beatrice Toback, M.S., Chicago. The Rh Factor: An Antigenic Analysis.  
Dr. Philip Levine, Newark, N. J. The Role of Isoimmunization in Erythroblastosis and Other Conditions.  
Dr. Fritz Levy, Elkins, W. Va. Megakaryocytes and Blood Platelets.  
Dr. Albert B. Sabin, Cincinnati. The Natural History of Human Poliomyelitis.  
Dr. Herbert Lund, Cleveland. Scientific Evidence Useful in Establishing the Time of Death.  
Dr. Samuel A. Levinson and Harold C. Voris, Chicago. Cerebral Injuries by Mechanical Violence.

A symposium on medicolegal autopsy will be held Saturday morning. The annual banquet Saturday evening will be addressed by Col. James E. Ash, M.C., U.S. Army, Washington, D.C., Capt. Charles W. O. Bunker, medical director, U.S. Navy, Bethesda, Md. and Dr. Morris Fishbein, Editor, THE JOURNAL, Chicago.

**American Gastro-Enterological Meeting**—The forty-fifth annual meeting of the American Gastro-Enterological Association will be held at the Hotel Claridge Atlantic City, June 8-9, under the presidency of Dr. Russell S. Boles, Philadelphia. The scientific program will open with a symposium on the diseases of the digestive tract in relation to the present emergency. Drs. Zacharias Bercovitz, New York, Clifford J. Barborka, Chicago, Donald T. Chamberlin, Boston, Lemuel C. McGee, Wilmington, Del., and Lee C. Gatewood, Chicago. Other speakers on the program will include

Dr. Donald Sheehan, New York. Relationship of the Hypothalamus to the Large Bowel.  
Drs. George B. Eusterman and Byrl R. Kirklin, Rochester, Minn. Significance of the Malfunctioning and Closed Stoma in the Gastro-enterostomized Stomach.  
Dr. Donovan C. Browne, New Orleans. Gastric Changes in Advanced Pulmonary Tuberculosis.  
Drs. Rudolf Schindler and Marie Ortmyer, Chicago. Histopathology of Chronic Gastritis.  
Drs. Jack Edward Berk, Jacob Earl Thomas and Martin E. Rehfuss, Philadelphia. The Duodenal Acidity and Neutralizing Ability as Criteria of the Acid Factor in Duodenal Ulcer.  
Drs. Grant H. Laing, James M. Beazell and Andrew C. Ivy, Chicago. The Relationship Between Roentgenographic Abnormalities of the Gallbladder and Constipation.

At the annual dinner Dr. Max Einhorn, New York, will be presented with the Friedenwald Medal by Dr. William Gerry Morgan, Washington, D.C. Dr. Frank H. Lahey, Boston, President of the American Medical Association will be the principal speaker, on "Medicine and the War."

## LATIN AMERICA

**Personal**—Dr. Carlos Bonorino Udaondo, Buenos Aires, Argentina was recently appointed honorary professor of the Faculty of Medical Sciences of the University of Buenos Aires. Dr. Udaondo was dean of the faculty from 1929 to 1931.

**Neuropsychiatric Reunion**—The third reunion of Pan American neuropsychiatric societies will be held in Buenos Aires in November. Members of the board of directors of the committee of organization of Argentina include Drs. Nerio Rojas, professor of legal medicine, Faculty of Medicine of Buenos Aires, president Arturo Ameghino and Vicente Dimitri vice presidents and Felipe M. Cia secretary. All correspondence should be addressed to Dr. Rojas, Catedra de Medicina Legal de la Facultad de Ciencias Medicas de la Universidad de Buenos Aires.

## FOREIGN

**Public Health Under Hitler's Rule**—According to Dr. Conti, reich health leader, in the *Völkische Beobachter* as quoted by NDZ, March 27, the typhus menace has been banished. Typhus in March decreased 70 per cent as compared with the number of new cases in December 1941. An epidemic of typhus is said not to have developed in the reich territory during the winter but in 1941 there were 165 cases among German nationals and 121 among Jews in the old reich. In the incorporated eastern territories there were 34 cases among the

Germans and 2,750 among the Jews. In Berlin itself there were only 4 cases in February. Anticipating the danger, Dr. Conti said all necessary precautions were taken in time, the German frontier having been protected by a network of delousing stations. In 1939 and 1940 precautionary measures were started with the repatriation of Germans from districts near Russia. Three thousand people from Volhynia and Galicia were deloused every day in Lodz alone. There has been a shortage of soap rendering delousing difficult, but the Germans have developed soapless preparations, it is said, which are equally effective. For Germans in Greater Germany the danger of typhus is now said to be practically nonexistent.

According to Havas, March 22, the depopulation of France has increased since 1935, and the death rate exceeds the birth rate. The secretary of state for national education M. Caropine, has therefore organized courses and lessons on demography in schools, so that children may learn about this danger to their country.

Stefani, March 24, states that the National Congress of War Surgery will be held at Rome late in May. Presiding will be General Alfredo Ingravalle, director general of the army medical department, and Prof. Raffaele Bastanelli, secretary of the National Fascist Syndicate of Doctors. Delegates from Germany and other axis countries are expected to attend.

The momentous negligence of France confronts both party and state today with great tasks in their fight against tuberculosis. According to NDZ, March 18, tuberculosis in Alsace has reached an incidence twice as high as in Baden. Dr. Steininger, who was called to Strasbourg as tuberculosis consultant, Dr. Sprauer, head of the state health services, and Dr. Pichlau, gauamtsleiter for people's health in the NSDAP, gave an interview in which they are reported to have said that tuberculosis has spread because, under French rule, restrictions against this disease were directed chiefly to safeguard the livelihood of the patients. But the payment of grants is no solution to the problem, the community must help these patients by timely diagnosis and treatment and not merely by sympathizing with them. Tuberculosis centers have been set up in the thirteen health offices in Alsace, equipped with x-ray apparatus and staffed by experts. The Strasbourg tuberculosis center has given expert advice to 1,200 patients a month. The x-ray mass examination unit of the office for the people's health which was set up explicitly for Alsace, has since January 1941 taken about forty thousand roentgenograms of chests and in this way has found many cases of tuberculosis which previously were unknown. All these patients, regardless of their financial status will be treated, it is said without delay. The insurance institute will pay in full for the insured patients, and the welfare institutions will pay for those who are unable to pay themselves. In the case of farmers and independent craftsmen who are not insured and who have insufficient means, the tuberculosis relief scheme of the National Socialist Welfare Organization will pay the expense.

Since several sanatoriums owned by the city of Paris are now in danger zones, the authorities have acquired the De Launay Estate at Reuilly and converted it into a one hundred and fifty bed sanatorium for patients with tuberculosis, according to Radio Lyons, March 25.

## CORRECTION

**New York Psychoanalytic Society and Institute**—The New York Psychoanalytic Society and Institute issued a statement on Nov. 25, 1941 in which, among other things, it claimed to be the only organization for training in psychoanalysis chartered by the University of the State of New York. The New York Psychoanalytic Society and Institute now desires to correct the error by pointing out that the New York Psychoanalytic Institute was chartered by the state of New York and not by the University of the State of New York. The Commissioner of Education of the State of New York gave consent to the filing of a charter but such consent was not subject to construction as an approval of the Education Department, the Board of Regents or the Commissioner of Education of the purposes and objects of the institute. It is further pointed out in the statement of correction issued by the New York Psychoanalytic Society and Institute that as far as the University of the State of New York is concerned the status of the New York Psychoanalytic Institute does not differ from that of the American Institute for Psychoanalysis. This will also correct the last paragraph of the general news item in THE JOURNAL, April 25, page 1507, entitled "Statement by New York Psychoanalytic Society and Institute."

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

April 4, 1942

#### The Status of Medical Women in the Fighting Services

In 1939 medical women were recruited for the fighting forces. They were offered "relative rank" without commissions but with similar status and allowances as men. This offer was accepted, but when the government gave commissions to officers of the women's services, including the nursing service, trouble began. Medical women were offered commissions in these services. They complained that, instead of having commissions in the medical services on equal terms with men, they were asked to work with the army medical corps, though not an integral part of it. Although financially they were equal to men, their status was inferior. As a result of negotiations they were allowed to retain their old status of "relative rank" if they preferred, but this does not satisfy them. The Medical Women's Federation, which exists to uphold the rights of medical women, holds that the commissions offered in the women's forces do not secure professional equality between men and women doctors. This is a fundamental principle of the federation. It says that medical women volunteered for service in, not with, the medical services.

#### The Physiologic Limit to Sprinting for War Production

The Industrial Health Research Board of the Medical Research Council has issued a report on work in war production based on investigations of fifty factories employing two hundred thousand workers. The time lost through sickness, injury and absence without permission varied with the weekly hours of work. It was usually low when the hours were less than sixty weekly but increased as the hours increased up to seventy-five. The findings suggest that over an extended period the hours should not generally exceed sixty or sixty-five for men and fifty-five to sixty for women. The workers were stimulated to increased output after the fall of France. Although it was physiologically impossible to maintain the maximum level reached, output has since remained above the previous level. The beneficial effect of a reduction of excessive hours with inauguration of staggered holidays was reflected in an increase in the rate of working afterward. Adjustment to factory life was difficult for women unaccustomed to it, particularly for those with domestic responsibilities.

The report concludes that man is not a machine, an idea which dies hard. For maximum production good health is necessary, and for this adequate food, regular periods of leisure and reasonable conditions of work. War time tends to obscure these truths. As man is not a machine, he has the power to "rise above himself" and by force of will to exceed his ordinary maximum. Hence the amazing success of emergency efforts. Unfortunately, industry often fails to acknowledge that the effort is extraordinary and complains when this becomes ordinary. The last war showed that after a number of hours the best will in the world cannot keep up the pace. Steady sustained effort pays better in the long run than violent spurts.

#### Precautions Necessary with Roentgen Rays

The damage sustained by surgeons when using the roentgen rays in the manipulation of fractures and the removal of foreign bodies has led the British X-Ray and Radium Protection Committee to draw up the following rules. The rays may be used in two ways. 1. Screening or taking roentgenograms, radiography should be the usual procedure and involve no exposure of the hands or person to a direct beam. 2. Manipulating the fracture under fluorescent screen control, this inevitably involves great risk and cannot be rendered safe, for the surgeon's hands

must come into the direct beam of the rays. Only in exceptional cases should this method be adopted, and then only on the responsibility and under the direction of the senior surgeon.

The operating room should be satisfactorily darkened. Lights should be dimmed as far as possible before screening, and no lights should face the surgeon. The previous films in the case should be seen and memorized and not scrutinized in a bright viewing box immediately before examination. It is essential that the surgeon should prepare his eyes for screening a minimum of five minutes in the dark should be allowed. This can also be attained by using a single red light in the room or by wearing dark or (preferably) red goggles for some minutes before screening. The apparatus should be operated by a radiographer specially trained. He should be given definite instructions by the radiologist as to the limits in which he must use the apparatus. The tube-screen distance should not be less than 20 or more than 30 inches. The apparatus should be set to give not more than 65 kilovolts. For thin parts and children a lower voltage is adequate, 3 milliamperes is the maximum screening current that should be used. As a safeguard an automatic "cutout" can be used. All apparatus should be shock proof. An aluminum filter of 1 or 1.5 mm should be fixed in the tube aperture, so as to furnish a total filtration of not more than 2 mm of aluminum. Cones or cylinders to limit the x-ray field are essential. The radiographer should watch to see that the beam is constantly kept within the limits of the screen. The hands of the operator or of the assistant should not come within the direct beam.

Manipulation of fractures under screen observation should be done only in exceptional cases, and the time occupied should be limited to a minute. Even with one rapid manipulation with the hands in the direct beam the tolerance dose may be much exceeded. The fluorescent screen fitted to the head and supplied with a hood is a very dangerous device which should never be used.

#### Feeding the Nation

The minister of food has given a review of his work in 1941 which shows that we have a nutritional policy of wide scope to keep the nation well in spite of war restrictions. The beginning of 1942 finds us fighting fit, and all the statistics indicate that we shall remain so during the year. "The Germans were determined to starve us," said Lord Woolton, minister of food "and the early part of 1941 was an anxious time for the ministry." Then the Americans came forward with generous supplies under the lend-lease act, and our seamen ensured their safe arrival. The result was that by the beginning of the third year of the war stocks were so improved that some of the bulk foods were higher than before the war. As the war has now become a world war, we must be continually prepared for variation in foods and in amounts. Provided there is enough of one thing or another, that is all which matters. Having collected the food there remains the equally complicated task of distributing it fairly. Lord Woolton claims that we are the only country at war which has been able to increase its ration.

With control of distribution goes control of prices. Taking certain food prices in 1914 (before the previous great war) as 100, the cost rose continuously to a peak of 278 in 1920. At the outbreak of this war we started with a figure of 138. This rose steadily to 170 in June 1940, since which time it has fallen to the present level of 164. The cost of food to the consumer has been stabilized both by price control and by subsidies, which now total \$500,000,000 a year. Bread has been the main subsidized food, but in 1941 eggs and potatoes were subsidized for the first time. Food has been directed to those who need it most—milk to children, adolescents, expectant and nursing mothers and invalids, extra rationed foods to industrial workers, more cheese and meals from war agricultural workers. Provision is about to be made for the job for 94 per cent of the miners.



## PARIS

(From Our Regular Correspondent)

March 19, 1942

## Tuberculosis and Food Restrictions

Since 1913 the mortality of tuberculosis has diminished 60 per cent in Paris and 44 per cent in all France. During the war of 1914-1918 there was a transitory increase in tuberculosis. Since the beginning of 1941 a continuous increase of tuberculosis has occurred, as pointed out at a meeting of the Academy of Medicine, Sept 2, 1941 by Prof Marcel Moine. In comparison to the first six months of 1939, the mortality due to tuberculosis of the respiratory organs increased in the first six months of 1941 by 20.4 per cent and of all other forms of tuberculosis by 30.4 per cent. The departmental laboratory of the Oise which does work for several dispensaries, reports that the frequency of requests for sputum examinations has increased 38 per cent at Beauvais and 101 per cent at Compiègne and that the positive bacteriologic examinations of new cases have increased. In comparison to 1938 there is the following increase of positive examinations per thousand samples examined in 1938, 54.3, in 1939, 59.1, in 1940, 72.2, in 1941, 211. Compared with 1938 the increase of bacillary intensity can be estimated to be 290 per cent.

At a meeting of the Société médicale des hôpitaux de Paris, Ravina stated that he observed a great number of first infections and many acute attacks in persons who until the last few months enjoyed perfect health. Ravina gives several reasons for this. The army took in a great number of formerly tuberculous persons. Weariness has resulted from overwork, alimentary insufficiency and captivity. The retreat of the armies, the exodus of the population, the poor conditions of life, have caused a revival of this disease. Moral factors as Laennec emphasized, have had a great part. Research is going on in order to classify the types of tuberculosis. It can already be stated that there are two main categories. 1. The form for which the outbreak goes back to June-September 1940 and which is caused by fatigue and moral shocks shows a tuberculosis type of a more polymorphic appearance and less grave prognosis. 2. The bacillary bronchopneumonia with rapid evolution, these cases have started since the beginning of 1941 and are chiefly due to food shortage.

At the same meeting Charles and François Flandin reported on an inquiry which they made at the hospital of St. Louis in Paris and in the private practice of various physicians into the influence of food restrictions on tuberculosis of the skin and lymph glands which until now have been without change. On the other hand, they have noted an increase in cases of Hodgkin's disease, of which the relationship to tuberculosis is believed to have been established by various research workers.

## Sulfonamide Therapy and Bronchiectasis

At a recent meeting of the Academy of Medicine, Professor Bezançon discussed the interesting problem of sulfonamide therapy in cases of bronchiectasis. Sulfapyridine reacts positively in acute typical pneumonia but often is ineffective in bronchopneumonia or abscess of the lungs. Bezançon supposed that the positive influence is chiefly in cases with fresh inflammation as soon as a lesion exists fragments of dead tissue hinder the bacteriostatic action of the drug. The same thing can be stated for war wounds. In order to make the action efficacious one has to clean the wound of dead tissue. Bezançon has observed however, that even in complicated pulmonary cases an unexpected positive result is sometimes obtained. In bronchiectasis the infection and the dilatation of the bronchi cause pain, cough and expectoration. The aim of sulfonamide treatment is not to cure the bronchial dilatation but to improve the state of the patient by fighting the infection. In 7 cases of

bronchiectasis treated with sulfapyridine the results have varied. A woman now 24 developed bronchiectasis at the age of 6 after bronchopneumonia. All search for tuberculosis was negative. The patient has incessant cough and cyanosis of the face and nails. She is very thin and has a temperature always over 38°C (100.4°F). The expectoration amounts to 300 to 400 cc a day. There was no result whatever obtained with any treatment. After the administration every day of 3 Gm of sulfapyridine for four days the temperature sank to 37°C (98.6°F), the expectoration diminished to 125 cc and the cyanosis diminished. During the twenty-five days of administration of the drug the patient's state was good then leukopenia developed and the treatment was stopped. For six days after this medication was stopped the improvement persisted. Then the expectoration increased to 400 cc, dyspnea and cyanosis reappeared and the temperature oscillated between 36.5 and 39.2°C (97.7 and 102.5°F). A blood examination showed 15,000 leukocytes. The medication was resumed and the patient's condition improved the next day. For a year 0.75 to 2.5 Gm of sulfapyridine a day has been given for ten days and then stopped for two or three days. The administration of sulfapyridine powder into the bronchi did not give positive results. The lesion itself has not been modified. The excellent results are always transitory, and as soon as the medication is suspended the symptoms reappear. Bezançon explains the various results among the other cases as due to the different forms of bronchiectasis. In many cases of bronchial dilatation, as in many tuberculous cavities, the expectoration does not come from morbid foci alone but also from the neighboring bronchi. Under these conditions the failures of sulfonamide treatment are comprehensible, as the disorders do not result from infection alone.

## Surgical Treatment of Cerebral Hemorrhage

Lhermitte and Guillaume, at a recent meeting of the Academy of Medicine read a paper on the surgical treatment of cerebral hemorrhage in 2 cases. In the first case left facial paralysis, the Babinski reflex (right) and lateral left hemianopsia were present. The cerebrospinal fluid gave negative Wassermann and Kahn reactions. After some days the patient had hallucinations and did not answer questions. The pupils were dilated, they reacted weakly to light and the fundus of the eye showed stasis of the optic papilla. The patient became comatose and they decided to intervene to save his life.

Under local anesthesia with the patient in a half sitting position a vertical temporal incision was made and the cranium trephined. The dura mater appeared tense and violet hued. The opening was enlarged by means of a gouge and first the dura mater and then the temporal convolutions were incised revealing a hemorrhagic focus the size of a nectarine, which was removed by aspiration and by means of a curet. After hemostasis the dura mater, the aponeurosis and the skin were sutured. Some hours after the operation the patient recovered consciousness. After three days all pathologic symptoms had disappeared except the hemianopsia. After a fortnight the patient was cured except for a slight reduction in the field of vision of the left eye. The same brilliant result was obtained in the second case.

This operation cannot be performed in all cases of cerebral hemorrhage, in many cases one does not find only one hemorrhagic focus a hematoma, but many which are not determined by vascular rupture but by a massive erythrodiapedesis. Lhermitte and Guillaume believe that ventriculography is not always indicated to diagnose the foci. This examination is indicated only in cases in which the neurologic signs do not point to the seat of the hemorrhagic foci. An enlarged trepanation is not indicated on account of the extreme sensibility to traumatism of patients with intracerebral hematomas especially as an enlarged opening by means of the gouge is sufficient for this operation.



## Deaths

**Clinton Hart Merriam**, Berkeley, Calif., College of Physicians and Surgeons, medical department of Columbia College, New York, 1879, founder and director for many years of the United States Biological Survey, conducted biologic and ethnologic explorations in the Far West, in 1931 was awarded a Roosevelt medal for distinguished service in the advancement of the study of natural history, past president of the American Ornithologists Union, American Society of Naturalists, the Biological Society of Washington, the Anthropological Society of Washington and the American Society of Mammalogists, member of the National Academy of Sciences, American Philosophical Society and the Washington Academy of Sciences, foreign member of the Zoological Society of London, author of "The Birds of Connecticut," "Mammals of the Adirondacks" and "Geographic Distribution of Life in North America" and many other books, aged 86, died, March 19.

**George J. Newgarden** ♂ Lieutenant Colonel, U S Army, retired, Washington, D C., Jefferson Medical College of Philadelphia, 1889, entered the medical corps of the U S Army as an assistant surgeon in November 1892, was commissioned a major Nov 23, 1905, retired April 24, 1907 for disability in line of duty, returned to active duty May 2, 1917 and served until 1919, retired as a lieutenant colonel under the Act of June 21, 1930, veteran of the Spanish-American War and World War I, aged 77, died, March 25, in the Walter Reed General Hospital.

**Richard Joseph Coyne**, Philadelphia, Hahnemann Medical College and Hospital of Philadelphia, 1924, member of the Medical Society of the State of Pennsylvania, from 1927 to 1931 assistant in laryngology and rhinology, from 1931 to 1933 instructor in laryngology and rhinology and from 1933 to 1936 demonstrator in laryngology and rhinology at his alma mater, examining physician for draft board number 63, served during World War I, aged 44, died, March 25.

**Aspinwall Judd** ♂ New York, Columbia University College of Physicians and Surgeons, New York, 1896, formerly adjunct professor of surgery at the New York Post-Graduate Medical School, at one time attending surgeon at the Lutheran Hospital of Manhattan, formerly affiliated with the Broad Street Hospital, now known as the Downtown Hospital, and was on the staff of the Bellevue Hospital, aged 74, died, March 17, of coronary embolism.

**George Thomas Conley**, Williamson, W Va., Louisville (Ky) and Hospital Medical College, 1908, member of the West Virginia State Medical Association, fellow of the American College of Surgeons, past president and secretary of the Mingo County Medical Society, formerly member and president of the school board, aged 60, surgeon and co-founder of the Williamson Memorial Hospital, where he died, March 20, of carcinoma.

**William Humes Houston** ♂ Lieutenant Colonel, U S Army, retired, Key West, Fla., University of Maryland School of Medicine, Baltimore, 1900, an Affiliate Fellow of the American Medical Association, entered the medical corps of the U S Army in 1920, rose through the various grades to that of lieutenant colonel in 1937, when he retired for disability in line of duty, served during World War I, aged 66, died, March 20.

**Charles Emerson Townsend** ♂ Newburgh, N Y., Bellevue Hospital Medical College, New York, 1892, fellow of the American College of Surgeons, president of the board of managers, consulting surgeon and formerly chief surgeon and chief of the hospital staff of St Luke's Hospital, consulting surgeon, Highland Hospital, Beacon, and the Goshen (N Y) Hospital, aged 71, died, March 16, of agranulocytic angina.

**Maurice Lincoln Fisher** ♂ Mansfield, Ohio, Yale University School of Medicine, New Haven, Conn., 1924, fellow of the American College of Surgeons, member of the American Association for Thoracic Surgery and the American College of Chest Physicians, formerly medical director of tuberculosis work in Richland County, chest consultant, Mansfield General Hospital, aged 41, died, March 18.

**Victor Augustus Reed** ♂ Lawrence, Mass., Harvard Medical School, Boston, 1897, formerly medical examiner for the fifth Essex district, served as a line officer in the National Guard in 1902 and later as a captain in the medical corps at Fort Williams, Portland, Maine, on the staff of the Lawrence

General Hospital, aged 73, died, February 24, at his home in Methuen of coronary thrombosis.

**Harry Z. Hibshman** ♂ Philadelphia, Medico-Chirurgical College of Philadelphia, 1908, member and past president of the American Proctologic Society, fellow of the American College of Surgeons, professor of proctology at the Temple University School of Medicine, proctologist, Temple University Hospital, consulting proctologist, Northeastern Hospital, aged 62, died, March 17.

**Charles Jules Lowen**, Denver, Long Island College Hospital, Brooklyn, 1909, member of the Colorado State Medical Society, fellow of the American College of Surgeons, formerly instructor in surgery at the University of Colorado School of Medicine, on the staffs of St Joseph's Hospital and the National Jewish Hospital, aged 56, died, March 26, of coronary thrombosis.

**Baylis Haynsworth Earle** ♂ Passed Assistant Surgeon, U S Public Health Service, Greenville, S C., Medical College of the State of South Carolina, Charleston, 1892, entered the U S Public Health Service as an assistant surgeon, April 9, 1900 and became a passed assistant surgeon July 26, 1906, formerly county health commissioner, aged 72, died, March 31.

**Edgar Elliott Findlay** ♂ Passed Assistant Surgeon, U S Public Health Service, Ashland, Ky., Ohio State University College of Medicine, Columbus, 1935, was appointed an assistant surgeon in the U S Public Health Service, April 1, 1937 and a passed assistant surgeon, April 1, 1940, aged 31, died, March 28, of asphyxiation.

**Francis Holmes Matthews** ♂ Liberty, Mo., University Medical College of Kansas City, 1900, past president and secretary of the Clay County Medical Society, past president and vice president of the state board of health, physician in charge of the Missouri Odd Fellows Home Hospital, aged 75, died, March 23.

**Frank R. England**, Montreal, Que., Canada, University of Bishop College Faculty of Medicine, Montreal, 1885, fellow of the American College of Surgeons, formerly professor of surgery at his alma mater, consulting surgeon, Montreal General Hospital and the Woman's General Hospital, Westmount, aged 79, died, March 9.

**James Henry Cook**, Quincy, Mass., Tufts College Medical School, Boston, 1910, member of the Massachusetts Medical Society, fellow of the American College of Surgeons, served during World War I, on the staff of the Quincy City Hospital, aged 58, died in March at East Hampstead, N H, of heart disease.

**George Romain Stalter**, Knoxville, Iowa, University of Buffalo School of Medicine, 1912, member of the American Psychiatric Association, served during World War I, for many years associated with the Veterans Administration, manager of the Veterans Administration Facility, aged 52, died in March.

**Ernest Albert Jenkinson**, Sioux City, Iowa, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903, member of the Iowa State Medical Society, fellow of the American College of Surgeons, on the staff of St Vincent's Hospital, aged 70, died, March 17.

**David Solomon Grim** ♂ Millbach, Pa., University of Michigan Department of Medicine and Surgery, Ann Arbor, 1900, past president of the Berks County Medical Society, served during World War I, aged 69, for many years on the staff of St Joseph's Hospital, Reading, where he died, March 10.

**Abram F. Lumpkin**, Amarillo, Texas, University of Texas School of Medicine, Galveston, 1896, member of the State Medical Association of Texas, fellow of the American College of Surgeons, on the staffs of St Anthony's Hospital and the Northwest Texas Hospital, aged 67, died, March 16.

**Elliott Washburn**, Brooklyn, Harvard Medical School, Boston, 1892, formerly chairman of the Taunton (Mass.) board of health, at one time on the staff of the Morton Hospital, Taunton, formerly superintendent of the Rutland (Vt.) State Hospital, aged 72, died, February 17.

**John S. Hart**, Toronto, Ont., Canada, Victoria University Medical Department, Coburg, 1888, University of Toronto Faculty of Medicine, 1889, for many years on the staff of the Toronto Hospital for Incurables and the Toronto Western Hospital, aged 81, died, March 30.

**Cicero Jackson Connor** ♂ Corpus Christi, Texas, Worth School of Medicine, Medical Department of Texas

Christian University Fort Worth 1917, aged 46 died in March at the Brackenridge Hospital, Austin of injuries received in an airplane accident

Oscar Wilhelm Tuhsalo, Atlanta, Ga Rush Medical College, Chicago, 1917, member of the Medical Association of Georgia, served during World War I, aged 49, on the staff of the Georgia Baptist Hospital, where he died, March 14 of acute hepatitis

Charles Ryan \* Des Moines, Iowa, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1909, fellow of the American College of Surgeons attending surgeon, Iowa Lutheran Hospital, aged 69, died March 8

Thomas Jefferson Halsey \* Butler, Mo., University of Nashville (Tenn) Medical Department 1893, Vanderbilt University School of Medicine, Nashville, Tenn, 1893, past president of the Bates County Medical Society, aged 74, died, February 26

James Augustus McCloskey \* Major, M C, U S Army, San Antonio Texas, St Louis University School of Medicine, 1933, became a first lieutenant in the medical reserve corps of the U S Army June 6 1933 and was on active duty from Jan 22, 1935 to Jan 29, 1936, was commissioned a first lieutenant in the medical corps of the U S Army Jan 30, 1936, a captain Jan 22, 1938 and major Dec 29, 1941, aged 32, was killed in action in the Philippine Islands, March 26

Richard Crawford Haynes, Wedo-  
vee Ala., Chattanooga (Tenn) Medical College 1906 member of the Medical Association of the State of Alabama, aged 64, died, March 21, in the Knight Sanatorium, Roanoke, of a penetrating bullet wound of the chest

Franklin Sheldon Ruttan, Woodstock, Ont, Canada, Queen's University Faculty of Medicine Kingston, 1893, served with the Royal Canadian Army Medical Corps during World War I, medical officer of health of Woodstock, died January 12

Morris Wayne Bottorf \* Kalispell, Mont Hahnemann Medical College and Hospital, Chicago, 1895, past president of the Flathead County Medical Society, on the staff of the Kalispell General Hospital aged 70, died, March 16, of heart disease

Garrett Mack Van Ausdall, New London, Iowa, Medical College of Indiana, Indianapolis 1884, member of the Iowa State Medical Society, bank president, past president of the Henry County Medical Society aged 83, died, February 27

Edward F Mikeska \* Taylor, Texas, University of Texas School of Medicine, Galveston, 1910 medical director of Dr Floeckinger's Sanitarium on the staff of the Stromberg Clinic and Hospital, aged 56, died, March 26, of coronary occlusion

Herman Burgess Cole, Redwood Falls, Minn., University of Buffalo School of Medicine 1896 member of the Minnesota State Medical Association, aged 70, died, March 29 of diabetes mellitus, cerebral hemorrhage and arteriosclerosis

Harry M Greenwald \* Brooklyn University and Bellevue Hospital Medical College New York 1910, member of the American Academy of Pediatrics, on the staff of the Israel-Zion Hospital aged 51, died, March 13, of hypertension

Albertus Adair Moore \* New York, University of the South Medical Department Sewanee, Tenn 1895 Medical College of the State of South Carolina, Charleston 1896, served during World War I, aged 67, died, March 23

Robert Bailey, St Clair Shores Mich., University of Michigan Homeopathic Medical School Ann Arbor 1911 member of the Michigan State Medical Society, veteran of the Spanish-American War, aged 72 died in March

Orren William Wyatt \* Manning Iowa University of Nebraska College of Medicine Omaha 1909 past president of the Carroll County Medical Society, medical director of the Wyatt Memorial Hospital aged 61 died February 3

Fred Norton Blanchard, Detroit, Detroit College of Medicine, 1903, member of the Michigan State Medical Society, served during World War I aged 63, on the staff of the Harper Hospital, where he died, March 3

John Thomas Stringer \* Medical Inspector, Commander, U S Navy, University of Maryland School of Medicine, Baltimore, 1915, was commissioned in the navy Dec 29, 1917 aged 54, died, March 6, in Baltimore

Caroline Jane Young High, Woodside, N Y, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1897, aged 77, died, March 10, in the James W Sheldon Memorial Hospital, Albion, Mich

John Harvey Hudson, Vanceboro, N C, College of Physicians and Surgeons, Baltimore, 1907, aged 64, died in March at St Luke's Hospital, New Bern, of injuries received when he was struck by an automobile

William Elbert Cravens, Lubbock, Texas, Kentucky School of Medicine, Louisville, 1892, member of the State Medical Association of Texas, on the staff of the West Texas Hospital, aged 71, died, March 18

George A Bell, Los Angeles Saginaw (Mich) Valley Medical College, 1903, formerly coroner of Saginaw County, Mich, and Saginaw County physician, aged 66, died, April 15, of carcinoma of the intestine

Walter Clay Dickey, Memphis, Texas, University of Texas School of Medicine, Galveston, 1906, for many years bank president, aged 59, died March 6, in the Baylor University Hospital Dallas

John F Cooke, Smiths Grove, Ky, University of Louisville (Ky) Medical Department, 1888 for many years bank president formerly member of the county board of education, aged 77, died March 29

Joseph Gauvreau, Montreal Que, Canada, Laval University Faculty of Medicine, Quebec, 1898 formerly registrar, College of Physicians and Surgeons of the Province of Quebec, aged 71, died in March

George S Deibert, Wescosville, Pa Temple University School of Medicine Philadelphia 1910, served during World War I, aged 65 died, March 23 in the U S Naval Hospital Philadelphia

James E Douglass, Tarpon Springs Fla College of Physicians and Surgeons, Baltimore 1873, formerly mayor, aged 90, died, March 1, of chronic myocarditis and valvular heart disease

G D Dorrough, Quitman, Ga Atlanta Medical College 1895, member of the Medical Association of Georgia, aged 76, died, March 16, of acute dilatation of the heart and chronic nephritis

Robert Dickson Ferguson, Pilot Mound Man, Canada, Manitoba Medical College 1897, served during World War I formerly mayor and medical health officer, aged 75, died, March 2

Harry Evans Pelle, Louisville Ky, Hospital College of Medicine, Louisville, 1877, member of the Kentucky State Medical Association, aged 86, died March 4, of myocardial failure

B Wade Baker, Grafton, Ohio Homeopathic Hospital College, Cleveland 1882, aged 85 died February 23 of carcinoma of the prostate

Alfred P Gray, Philadelphia Jefferson Medical College of Philadelphia 1896 aged 70, died March 27 of a self-inflicted bullet wound

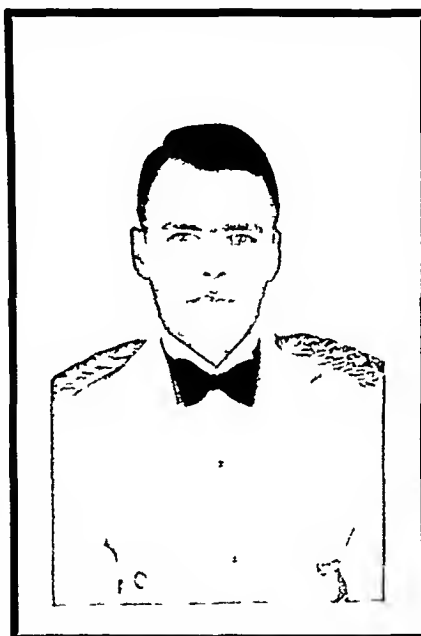
Lewis De Moss Wolfe, Columbus Ohio Ohio Medical University, Columbus 1902, aged 66 died February 4

George Fierheller, Toronto Ont. Canada Trinity Medical College Toronto 1884 aged 81 died February 8

Albert M West, Spirit Lake Iowa Chicago Homeopathic Medical College 1904 aged 82 died January 15

Frank C Britton Greenville Tenn Chattanooga Medical College 1893 aged 76 died February 7

# KILLED IN ACTION



JAMES A. MCCLOSKEY, MAJOR M C,  
U S ARMY, 1909-1942

## Bureau of Investigation

### DIAPLEX DUPED DIABETICS

#### Frederick Dugdale, M D, Meets Expert Witnesses for the U S Post Office

For some years "Diaplex," an alleged diabetes cure, was sold through the mails from Denver by the Diaplex Laboratories and from Portland, Maine, by Frederick Dugdale, M D, who was known as "Chief Medical Advisor" [sic] of the Denver concern. Dugdale obtained a diploma in 1903 from the Baltimore Medical College and licenses to practice in Massachusetts and Maine.

Dugdale's Massachusetts license was revoked in 1929 for "gross misconduct in the practice of his profession." It was reported that this action was based on the charge that he had treated a woman in the last stages of cancer with the nostrum put out for that condition by William F Koch of Detroit and virtually promised that it would cure her. When the Lowell, Mass., *Sun* published a considerable article on this case, Dugdale sued that paper for libel and demanded \$50,000 damages. After hearing the evidence the jury in less than two hours brought in a verdict in favor of the *Sun*.

In the same field Dugdale was said to have been interested in the "Hovide" cancer fakery and also to have put out a "cancer cure" of his own, known as "The Dugdale Treatment for Malignant Growths," as well as a "rheumatism cure," besides advertising himself as a "Boston Specialist" in "skin, blood and nervous diseases." In addition, he was at times associated with such "twilight zone" organizations—to which so many quacks and faddists have belonged—as the "Allied Medical Associations of America," the "Medical Society of the United States" and the "American Association for Medico-Physical Research." The latter was an outgrowth of the "American Association for Spondylotherapy," organized by the outstanding quack of the century, Albert Abrams, of whom Dugdale was a disciple. All of this serves as excellent background for the promotion of a "cure" for diabetes.

After an investigation, the Post Office Department on Oct 19, 1940 ordered the Diaplex Laboratories and its general sales manager, H W Pierce, both of Denver, and Frederick Dugdale as "Chief Medical Advisor" to show cause on November 26 of that year why a fraud order should not be issued to debar them and their "treatment" from the mails because of what the Post Office charged were false and fraudulent pretenses, representations and promises. Among these were that Diaplex would permanently cure diabetes regardless of the age of the user or the severity of the case, would enable the user to discontinue taking insulin, would clear the urine of sugar and result in "a gradual, lasting building-up of the body glucose tolerance", would, through its "mineral and vitamin content," restore the islands of Langerhans so that they would secrete a normal supply of insulin, and that all users of Diaplex would obtain results identical with or similar to those described in the alleged testimonials in the literature.

After two postponements requested by the defendants' attorney, the hearing was held on December 13. A government chemist testified that his analysis of Diaplex had shown it to be a mixture of sodium, potassium, calcium, chloride, sulfate, phosphate and traces of iron, manganese, aluminum, silica and iodine. Apparently these chemicals were found in the ash of saltbush, the plant from which, Pierce testified, his nostrum was made and which government chemists confirmed in another examination. Also appearing for the government was Dr Maurice Protas of Washington, D C, who specializes in the treatment of diabetes and lectures on that disease at George Washington University School of Medicine. He testified that diabetes mellitus is a metabolic disease in which the pancreas is involved, wherein there is a definite lack of insulin due to failure of the islands of Langerhans to produce the insulin hormone which is vital to the blood. He further stated that diabetes may be caused, among other things, by any malignancy which attacks the tissues and spreads to the pancreas, with the result that the insulin secreting cells may be destroyed. He showed that in the severe types of diabetes the patient

must be given insulin injections, dietary restrictions and other individualized treatment, and that in milder cases the patient requires a restricted diet as to sugars and starches and some times needs insulin. Dr Protas had tested Diaplex on three diabetic patients and found from careful clinical records that they made no progress whatever in six weeks—a period in which, he stated, a definite improvement would show, if ever. Dr Protas offered further testimony which refuted the various claims and representations made for Diaplex.

Dr Dugdale himself as one of the defendants was obliged to admit that some of the representations could not be scientifically substantiated. He further admitted that he had not made any physical examination whatever of the twenty five or so persons whom he cited as diabetic who allegedly had been benefited by taking Diaplex, nor had he submitted them to laboratory tests.

The other defendant, H W Pierce of Denver, said to be sole owner of the Diaplex business, also was put on the witness stand. He testified that around 1906 a neighbor suggested the use of a certain herb for the treatment of Pierce's brother, an alleged diabetic, and that he, the witness, later identified the herb as saltbush and obtained it from some sheepmen. Although Pierce claimed that by the use of the saltbush his brother was cured of diabetes, he admitted that two physicians who had previously treated the patient had diagnosed his disease as dropsy. Pierce further contended that he knew of various persons whose diabetic condition had been helped by Diaplex, including himself, but he refused to submit to a scientific test to prove his freedom from the disease.

In 1930, according to Pierce, he began marketing the product, successively naming it "American Beauty Tea," "American Beauty Beverage" and "Diaplex." In spite of the "laboratory" part of his firm name he acknowledged that he did not maintain a laboratory and had no employees. Further testimony from him showed that, though he had read some books on diabetes, he had never found one in which saltbush was recommended for that condition. In fact, since neither defendant was able to present any evidence that saltbush was a cure for diabetes, their promotion of Diaplex was found to constitute a swindle on the public. Accordingly their business was debarred from the mails by a fraud order issued on March 27, 1941 against the names Diaplex, Diaplex Laboratories, H W Pierce, Dr Frederick Dugdale and their officers and agents. Two days later a separate fraud order was issued against Frederick Dugdale, who represented the eastern office of the Denver concern.

Previous mention has been made of the fact that Dugdale once was a disciple of the late Albert Abrams of "electronic reactions" notoriety. It is interesting to note that at the hearing of the case that the Post Office brought against him part of the government's evidence was a printed circular, "The Successful Treatment of Diabetes with Diaplex," which recommended the use of Diaplex in connection with "electronic devices." And yet such contraptions originally were represented by their promoters as self sufficient for treatment of disease without the use of any drugs.

Between 1935 and 1940 another government agency, the Food and Drug Administration, seized consignments of Diaplex in interstate commerce in at least 9 cases on record, on the ground that the labels bore fraudulent representations. In 6 of the cases no one put up a defense or claimed the property, and the court ordered it confiscated. In 1 instance an Idaho consignor having consented to the entry of a decree of condemnation was permitted to claim the consignment by promising under oath that it would be relabeled in compliance with the law. In the 2 remaining instances, which involved shipments of Diaplex from Denver to California and Idaho and cited H W Pierce and W J Predmore of Denver as defendants, the cases were tried together before a jury. Here it is worth reprinting a Current Comment which appeared in THE JOURNAL Jul 4 1936, page 42, under the heading "Doctors and Diaplex."

"In a recent trial the federal government was defeated in its attempt to prove one Horace Wayne Pierce manufacturer and shipper of a herb tea called 'Diaplex,' guilty of fraud under the criminal clause of the Food and Drugs Act. Diaplex is dried leaves and stems of *Atriplex canescens* (sagebrush) offered as a specific for diabetes. The advertising campaign

the dangers of insulin and dwells on the simplicity of taking Diaplex. The government lost its case principally because of the premature enthusiasm of a physician for the nostrum. As told in a brief summary of the case issued by the United States Department of Agriculture, the government contended that the falsity of the claims made for Diaplex as a remedy for treating diabetes was fully proved. The breakdown in the government testimony came when two witnesses—one a doctor and the other a layman—admitted the writing of complimentary and optimistic letters to the manufacturer. Both these witnesses testified nevertheless that they had been misled, as the herb tea turned out to be worthless in their later experience. At the trial Pierce claimed that he depended on these letters as expressions of opinion from persons competent to judge the effects of his treatment. In the face of this testimony, the jury was not convinced of the fraudulent intent, which, under the law, must be shown in all criminal cases involving curative claims for medicines. The testimony of physicians called by the government that Diaplex could not affect the course of diabetes was entirely nullified by the careless endorsement of one physician. Endorsements given by physicians to 'patent medicine' vendors, either carelessly or wilfully, are invariably distorted into bait for the uncritical patient as a means of luring him away from proved methods of treatment. The case of Diaplex should serve as a warning to the physician against haste in judgment of therapeutic results. The difficulty of evaluating remedies for arthritis, diabetes, nephritis, hypertension and similar chronic conditions should be realized. The lack of suitable controls is apparent in all these hasty enthusiasms which lead doctors into writing or voicing commendation before time has truly tested the results. Then, like the ghost in Hamlet, their testimonials come back in after years to haunt them."

## SOME MISCELLANEOUS MEDICAL FRAUDS

### A Variety of Schemes Debarred from the Mails

Fraud orders issued by the Post Office Department have frequently been the subject of extensive articles by the Bureau of Investigation in these pages of THE JOURNAL. Following are brief abstracts of some fraud orders not dealt with previously.

**Adams Products Company**—From Adams N. Y. and Montreal Canada a Frederick Godfrey sold a hair treatment under the Renair name and sometimes operated as the Frederick Godfrey Company. Some of his advertising described him as a hair specialist famous in England, Australia and New Zealand and now in Canada and again he called himself 'a young English research worker in hair and scalp conditions' and claimed that sworn statements and actual photographs clearly prove the success of his process. His advertising was directed toward people wholly or partially bald or whose hair is thinning rapidly. Finally the Post Office looked into his activities and charged that he was falsely and fraudulently representing that his Renair Process which included Renair Hair Lotion, Renair Lotion No. 2 and Renair Pomade and instructions concerning massage would when used as directed stop hair from falling and prevent baldness in all cases except those due to the atrophy of old age and produce numerous other results. According to the Post Office memorandum on this case Godfrey had operated under his personal name and that of the Frederick Godfrey Company up to Sept. 30, 1939 on which date the Post Office had called on him to show cause why a fraud order should not be issued against his name and that of the Frederick Godfrey Company for perpetrating a fraud on the public through the mails. On December 30 Godfrey filed an affidavit with the Post Office in which he promised to abandon the business and agreed that the postmaster at Adams N. Y. should be directed to return to senders all mail addressed to Godfrey or his concern and mark it 'Out of Business' or otherwise to dispose of it according to the postal regulations. Subsequent investigation by the Post Office however revealed that Godfrey did not actually go out of business but continued his operations after adopting a new name the Adams Products Company and under this trade style circularized former customers telling them in effect that the formulas and rights for the Renair Process had been procured by the new company from Frederick Godfrey and that future orders and remittances should be addressed to the new name. As this ruse was a transparent one the Post Office on Jan. 30, 1941 ordered the Adams Products Company to show cause on February 17 why a fraud order should not be issued against it. After a continuance had been granted the defendant he finally appeared with one of his attorneys at the hearing set for March 3. The only explanation that he offered for the continuance of the business under a new name was that an attorney he had previously employed had advised him that this action would not violate the terms of the affidavit that he had signed promising to go out of business. He further testified that he had revised his circular matter and believed that he had removed therefrom all objectionable statements. There also appeared at the hearing three witnesses for the government including two physicians who specialize in dermatology and a chemist

connected with the Food and Drug Administration. The latter testified that he had found the Renair Hair Lotion to contain 0.017 Gm. of sulfuric acid and 0.21 grain of quinine sulfate in each 100 cc. The Hair Lotion No. 2 he testified contained 58 per cent of alcohol, 11 grams of resorcinol and a small amount of capsaicin in each 100 cc. In the Pomade he found 29 per cent of betanaphthol and 2 per cent of a volatile oil resembling cedar leaf oil. The two dermatologists who appeared as government witnesses testified that Renair Pomade when applied to the scalp as directed would have a fairly strong counterirritant and mildly antiseptic action and that the Hair Lotion No. 2 would be mildly antipruritic antiseptic and irritant. Their further testimony however showed that these products would have practically no effect on falling hair and baldness. It was also shown at the hearing that Godfrey had requested that he again be permitted to file an affidavit agreeing to discontinue this business on the ground that he had never intended to violate the provisions of the previous affidavit. As this however was exactly what he had done the Post Office did not consider it expedient to grant his second request and on May 6, 1941 issued a fraud order against the Adams Products Company and its officers and agents.

**R. F. Vestvold**—Under this assumed name one Rolf Frank Kristiansen of Haverford Pa. promoted through the mails three devices known as 'The Photo-Electric Dilator', 'The Flexible G. U. Heater' and 'The Adjustable Intermittent'. For the dilator he claimed that it was in use by over 6,000 physicians throughout the world and could be employed by any one physician or layman to ameliorate the ravages of Prostate Gland Trouble, Piles, Pruritis [sic] Ani and Constipation etc. Luminous Infra-red rays does it \$3.75 Postpaid. Inquirers received a mimeographed circular containing testimonials alleged to have been written by physicians in various parts of the country and abroad. The mechanism consisted of a large rectal dilator connected to an electrical cord with an electric socket attached for the insertion of a light globe. The dilator itself consisted of a glass tube about four inches long and three-quarters of an inch in diameter. A scientific test made of the maximum temperature reached by the instrument when used according to the directions showed 104 degrees Fahrenheit. At the hearing of this case an expert medical witness testified for the government that hemorrhoids, enlarged prostate, pelvic abscesses, cystitis, gonorrhea and some kindred disorders are all due to different causes which should be treated accordingly and hence devices such as the Photo-Electric Dilator would give little if any relief in general. The Adjustable Intermittent was shown to consist of an electrical intermittent which when connected to the house current along with the dilator would result in the intermittent flow of current to the latter. According to the expert medical testimony the combination of these devices would not afford effective passive massage action in the treatment of prostatic conditions as represented beyond the interruption of the steady flow of current and the resultant heat produced thereby. The Flexible G. U. Heater according to the Post Office memorandum was found to consist of a rubber catheter about two feet long containing a metal heating element. It was to be connected to the regular house current by means of an electric plug and switch. Scientific tests made of this device disclosed that when used according to directions it would reach a maximum temperature of 107.6 degrees Fahrenheit within five minutes after the current was turned on. It was represented as a cure for such conditions as urethritis, strictures, urine retention, gonorrheal infections and kindred disorders. The expert medical witness testified that there is no known single curative agent for any of these ailments but that the employment of this device might in some instances offer minor temporary relief. Nothing more could be expected of it and in fact its use might prove dangerous in the hands of a layman. It was further shown that Kristiansen (Vestvold) was not a physician but a plumber by trade. Subsequent to the hearing he offered to revise his advertising literature to remove any objectionable claims but as the Post Office found from the evidence that his scheme constituted a swindle on the public through the mails a fraud order was issued on April 26, 1941 against the name of R. F. Vestvold.

**W. C. Foster**—This person conducted a mail order business from a postoffice box in Santa Monica Calif. describing himself as president of his unnamed firm and also as Distributor of Private Pharmaceutical Formula. He put out O. A. Capsules which he puffing as 'The Newest and Greatest Contribution Medical Science Has to Offer' but there followed the simple denouement that it consisted of acidophilus yeast! A chemist and a microanalyst who examined the product for the government however reported that a positive test made for the presence of yeast cells in O. A. Capsules failed to detect any of this substance although the label declared that they consisted of acidophilus yeast and ovarian and prostatic extracts. They did report finding in each capsule crystalline milk sugar, alfalfa leaf tissues, granular animal tissues, corn starch and rice bran. This mixture was represented to enable the user to attain and retain a strong healthy sexual system regardless of his age or physical condition and to rebuild and revitalize the parts of the glandular system which are necessary for smooth powerful active sexual system with almost instant results. At the hearing of the case these claims were refuted by the physician who testified for the government that sexual debility is due to many causes associated with various systemic diseases and conditions such as tuberculosis, cancer, venereal disorders, anemia and certain injuries to the sexual structure and that sexual impotence may also result from such factors as psychic conditions, emotional changes, senility and financial and family worries. Hence every case of sexual debility would have to be studied as to its cause and treated accordingly. This witness further showed that the product in question would not and could not cause every person to attain and retain a strong healthy sexual system and that it contained nothing which would overcome any or all of the various factors causing sexual debility. Other evidence was presented to show that neither Mr. Foster nor any one else associated with the business had any medical training and that in fact Foster formerly had been employed as a coal worker. Foster put up no defense and on Sep. 17, 1941 the Post Office issued a fraud order declaring him and his business from the mail.



## Correspondence

### WARNING ON USE OF PHENOL-CAMPHOR IN CASES OF "ATHLETE'S FOOT"

To the Editor —I was pleased to note in the current issue of *THE JOURNAL* your comments on phenol-camphor for "athlete's foot," especially since it warns again that the phenol-camphor preparation should not be applied to the wet skin. Our previous experience with phenol-camphor mixtures caused us to be a little bit dubious about the clinical note which appeared in *THE JOURNAL* of Dec 6, 1941, but we did not immediately begin any investigations of these preparations and, as a matter of fact, did not perform any experiments until a case came to our attention which resulted from the appearance of an item in *Science Supplement* of Dec 19, 1941. In the item in *Science Supplement* it states "The remedy consists of a mixture of three parts phenol and one part camphor which can be prepared by any pharmacist." The injury which came to our attention, as I said, was the result of a person's noting this item and having a pharmacist prepare such a preparation and subsequently using it. The material was applied to a fairly large area on the leg near the ankle. A necrotic area developed which required several weeks to heal. This was the situation we feared when we read the rather peculiar combination of sentences in the second paragraph of the clinical note which appeared in *THE JOURNAL*. The last sentence of this paragraph states, as you will recall, "Experiments indicate that the ingredients may be mixed in the proportion of 3 parts phenol and 1 part camphor," which is followed by a paragraph, the first sentence of which states "The mixture is nonirritating to the skin and may be painted between the toes several times a day."

Soon after this case came to our attention we began some experiments, using rabbits as the test animal, since it is quite well recognized that rabbit skin responds very much the same as that of human skin to many types of preparations. Our experiments were finished a few days ago and we had just been debating the best possible manner of presenting this information to the public in order to prevent further serious injuries when we noticed the editorial comment in *THE JOURNAL*. Since you have stated in it that a number of investigations are now being conducted to determine the extent of the causticity of the phenol-camphor mixture and its possible benefits and dangers, we thought you might be interested in the results of our investigations. Briefly summarized, they are as follows:

1 Three preparations were prepared, namely a National Formulary VI preparation composed of 6 parts of camphor, 3 parts of phenol and 1 part of liquid petrolatum.

2 A 1 to 1 mixture of camphor and phenol without petrolatum.

3 One part of camphor plus 3 parts of phenol without petrolatum.

These preparations were each applied to a clipped area of skin of the rabbit and in each instance the National Formulary preparation was used on one area while one of the other two preparations was used on a different area of the same animal. The applications were made twice a day and the largest number of total applications was seven for any one of the three preparations. In order to simulate the sock and the shoe, we used dry gauze covered by adhesive tape to cover the areas. In the case of the National Formulary preparation applied to dry areas, there was only very slight irritation and very slight

erythema, if one could consider it positive at all. With the 1 to 1 preparation the irritation and erythema were also slight but definitely more noticeable than with the National Formulary preparation. When the same two preparations were used on areas that had been moistened to such an extent as to resemble mild perspiration, the effects were definitely more noticeable, even in the case of the National Formulary preparation, and in that of the 1 to 1 mixture after the second application the area was discolored black and after the fourth application there was a severe burn with a necrotic eschar. When the mixture of 1 part camphor and 3 parts phenol was applied to the dry skin, there was a severe burn even after the first and particularly after the second application, followed by a necrotic eschar. When the area was wetted prior to application of the mixture of 1 part camphor and 3 parts phenol, a condition arose similar to that when it was applied to the dry skin but even more severe.

We feel that further emphasis should be given by some means to the injuries that may result from the caustic nature of this type of preparation, particularly the one containing 3 parts phenol and 1 part camphor. A further warning would be advisable by *THE JOURNAL*, and I feel that warning notes should also be published in those journals which have reprinted this information, particularly *Science*, *Readers' Digest* and some of the drug trade journals. I shall call this to their attention by sending them copies of this letter.

HERBERT O. CALVERY, PH.D.

Chief, Division of Pharmacology,  
Food and Drug Administration,  
Washington, D. C.

### DOES DIABETES PREDISPOSE TO PYOGENIC SKIN INFECTIONS?

To the Editor —In the article by J. R. Williams "Does Diabetes Mellitus Predispose the Patient to the Pyogenic Skin Infections?" (*THE JOURNAL*, April 18, p. 1357) the author concludes that pyogenic skin infections occur no more frequently in diabetic than in nondiabetic persons, but the statistics presented by him do not bear out his point. In one of the hospitals studied by him 330 diabetic patients were admitted during the years 1938, 1939 and 1940. Eight of these had boils or carbuncles, which gives a percentage of 2.4. During this same period there were 26,879 nondiabetic admissions, among which there were 166 boils or carbuncles. This gives an incidence of 0.6 per cent. In other words, according to the author's figures boils or carbuncles were four times as common among diabetic as among nondiabetic patients. In the other hospital studied, one is unable to make this calculation because the number of patients with diabetes is not given. Similarly, in a study of 2,130 office patients the author does not state how many diabetic patients were in the group. Before concluding that there is no relationship between diabetes and pyogenic infections of the skin, one would have to study a series of patients in whom the disease was not under control, and the advent of insulin such a series would be difficult to obtain. Whenever I see a boil or a carbuncle I make it a point to test the urine for sugar, and it is my impression that diabetics find a little more frequently in these patients than in normals. I agree with Dr. Williams that if the disease is being controlled the diabetic patient is not in much danger from boils or carbuncles, but I still believe that he is in a little more danger than a normal person.

FREDERICK C. HILL, M.D.



## Medical Examinations and Licensure

### COMING EXAMINATIONS AND MEETINGS

**ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE**  
Chicago Feb 15-16 1943 Sec Council on Medical Education and Hospitals Dr H G Weiskotten 335 North Dearborn Street Chicago

#### NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in THE JOURNAL May 16 page 288

#### BOARDS OF MEDICAL EXAMINERS

**ALABAMA** Montgomery June 16-18 Acting Sec Dr B F Austin, 519 Dexter Ave Montgomery  
**ARKANSAS** \* Medical Little Rock June 4-5 Sec Dr D L Owens Harrison Edgett Little Rock, June 4-5 Sec Dr Clarence H Young 1415 Main St Little Rock  
**CALIFORNIA** \* Written San Francisco June 29-July 2 Oral examination (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California) San Francisco June 17 Sec Dr Charles B Pinkham 1020 N St Sacramento  
**COLORADO** \* Denver July 7-10 Application must be on file not later than June 21 Sec Dr George R Buck 831 Republic Bldg Denver  
**CONNECTICUT** \* Medical Hartford July 14-15 Endorsement Hartford July 28 Sec to the Board Dr Creighton Barker 258 Church St New Haven Homoeopathic Derby July 14-15 Sec Dr Joseph H Evans 1488 Chapel St New Haven  
**DELAWARE** Dover July 14-16 Sec. Medical Council of Delaware Dr Joseph S McDaniel 229 S State St Dover  
**FLORIDA** \* Jacksonville June 22-23 Sec Dr William M Rowlett Box 786 Tampa  
**GEORGIA** Atlanta June Sec State Examining Boards Mr R C Coleman 111 State Capitol Atlanta  
**HAWAII** Honolulu July 13-16 Sec Dr James A Morgan 55 Young Bldg Honolulu  
**ILLINOIS** Chicago June 23-25 Superintendent of Registration Mr Philip M Harman Department of Registration and Education Springfield  
**INDIANA** Indianapolis June 16-18 Sec Board of Registration and Examination Dr J W Bowers 301 State House Indianapolis  
**KANSAS** Kansas City June 2-3 Sec Board of Medical Registration and Examination Dr J F Hassig 905 N Seventh St Kansas City  
**KENTUCKY** Louisville May 27-29 Sec State Board of Health Dr A T McCormack 620 S Third St Louisville  
**MAINE** Augusta July 7-8 Sec Dr Adam P Leighton 192 State St Portland  
**MARYLAND** Medical Baltimore June 9-12 Sec Dr John T O'Vara 1215 Cathedral St Baltimore Homoeopathic Baltimore June 16-17 Sec Dr John A Evans 612 W 40th St Baltimore  
**MASSACHUSETTS** Boston July 14-17 Sec Dr H Q Gallupe 413 F State House Boston  
**MICHIGAN** \* Ann Arbor and Detroit June 3-5 Sec Board of Registration in Medicine Dr J Earl McIntire 2024 Hollister Bldg Lansing  
**MINNESOTA** \* Minneapolis June 16-18 Sec Dr Julian F Du Bois 230 Lowry Medical Arts Bldg St Paul  
**MISSISSIPPI** Jackson June 24-25 Assistant Sec State Board of Health Dr R N Whitfield Jackson  
**MISSOURI** St Louis June 4-6 Sec Board of Health Dr James Stewart State Capitol Bldg Jefferson City  
**NEBRASKA** \* Omaha June 8-10 Dir Bureau of Examining Boards Mrs Jeannette Crawford 1009 State Capitol Bldg Lincoln  
**NEW HAMPSHIRE** Concord Sept 10-11 Sec Board of Registration in Medicine Dr T P Burroughs State House Concord  
**NEW JERSEY** Trenton June 16-17 Sec Dr Earl S Hallinger 28 W State St Trenton  
**NEW YORK** Albany Buffalo New York and Syracuse June 22-25 Chief Bureau of Professional Examinations Mr Herbert J Hamilton 315 Education Bldg Albany  
**NORTH CAROLINA** Raleigh June 15 Sec Dr W D James Hamlet  
**NORTH DAKOTA** Grand Forks July 7-10 Sec Dr G M Williamson 4½ S Third St Grand Forks  
**OHIO** \* Written Columbus June 16-17 Sec Dr H M Platter, 21 W Broad St Columbus  
**OKLAHOMA** \* Oklahoma City June 3-4 Sec Dr James D Osborn Jr Frederick  
**OREGON** \* Portland July 22-24 Application must be on file not later than July 9 Exec Sec Miss Lorraine M Conlee 608 Failing Bldg Portland  
**PENNSYLVANIA** Philadelphia and Pittsburgh July Act Sec Bureau of Professional Licensing Mrs Marguerite G Steiner 358 Education Bldg Harrisburg  
**RHODE ISLAND** \* Providence July 2-3 Chief Division of Examiners Mr Thomas B Casey 366 State Office Bldg Providence  
**SOUTH CAROLINA** Columbia June 22-24 Sec Dr A Earle Boozer 50½ Saluda Ave Columbia  
**SOUTH DAKOTA** \* Pierre July 21-22 Dir Medical Licensure Dr J F D Cook State Board of Health Pierre  
**TENNESSEE** Knoxville Memphis and Nashville June 17-20 Sec Dr H W Qualls 130 Madison Ave Memphis  
**TEXAS** Dallas June 4-6 Sec Dr T J Crowe 918 20 Texas Bank Bldg Dallas  
**UTAH** Salt Lake City June 29-30 Assistant Dir Department of Registration Mr G V Billings 324 State Capitol Bldg Salt Lake City  
**VERMONT** Burlington June 16-18 Sec Board of Medical Registration Dr F J Lawless Richford  
**VIRGINIA** Richmond June 17-20 Sec Dr J W Preston 30½ Franklin Rd Roanoke  
**WEST VIRGINIA** Charleston July 6-8 Commissioner Public Health Council Dr C F McClinton State Capitol Charleston  
**WISCONSIN** \* Milwaukee June 30-July 3 Sec Dr H W Shutter 425 E Wisconsin Ave Milwaukee  
**WYOMING** Cheyenne June 1-2 Sec Dr M C Keith Capitol Bldg Cheyenne

\* Basic Science Certificate required

#### BOARDS OF EXAMINERS IN THE BASIC SCIENCES

**ARIZONA** Tucson June 10 Sec Mr Franklin E. Reach Science Hall University of Arizona Tucson

**CONNECTICUT** June 13 Address State Board of Healing Arts 1945 Yale Station New Haven  
**MICHIGAN** Ann Arbor and Detroit June 12-13 Sec Miss Eloise LeBeau 101 N Walnut St Lansing  
**NEBRASKA** Omaha June 8-10 Dir Bureau of Examining Boards, Mrs Jeannette Crawford 1009 State Capitol Bldg Lincoln  
**NEW MEXICO** Springer June 12 Sec Miss Pia Joerger State Capitol Santa Fe  
**OREGON** Corvallis July 11 Application must be on file not later than June 24 Sec Mr Charles D Byrne University of Oregon Eugene  
**SOUTH DAKOTA** Vermillion June 5-6 Sec Dr G M Evans Yankton  
**WISCONSIN** Milwaukee June 6 Sec Prof Robert N Bauer 3414 W Wisconsin Ave Milwaukee

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Liability for Prenatal Injuries to Infants**—In 2 cases decided within a month of each other the courts of Pennsylvania and New Jersey passed on the question of whether or not an infant could recover damages for injuries sustained prior to its birth. Opposite conclusions were reached.

In the first case, decided by the Supreme Court of Pennsylvania, no facts were stated in the decision. The court merely said that the question had never before been presented to an appellate court in Pennsylvania, cited four decisions from other jurisdictions denying a right of recovery to the infant and concluded that there was no warrant for holding, independent of statute, that a cause of action for prenatal injuries to a child accrues at birth. The Supreme Court of Pennsylvania admitted, however, that "it is true that the unity of mother and child has been relaxed in modern times and that today for some beneficial purposes a child en ventre sa mere is considered as born."

In the New Jersey case the circuit court of Middlesex County exhaustively discussed the principles of law involved and cited many cases that have been decided on the subject. The real plaintiff in the case was a 5 year old boy. He filed suit by his next friend, for damages, alleging that, prior to his birth, his mother had gone to the defendant physician for medical attention and, because of the physician's negligence in diagnosis and the administration of roentgen treatments, the plaintiff was born a microcephalic and an idiot, without skeletal structure, sight, speech, hearing or the power of locomotion. The defendant filed a motion to dismiss the plaintiff's complaint on the ground that an infant had no right to maintain an action for injuries sustained while en ventre sa mere.

The court said that the law has long recognized that, for all purposes beneficial to the infant after birth, a child en ventre sa mere is to be considered as born and that a right of action to recover for prenatal injuries is certainly for the child's benefit. The perfect answer and unanswerable argument, the court said, in the determination of the issue here presented, a problem in the law of torts, is the application of the criminal law in offenses committed against an infant en ventre sa mere. Assault and battery is an integral part of murder. Murder by force cannot be committed without there being an assault and battery. If it is an offense under the criminal law to assault and batter a child en ventre sa mere, that crime ripening into murder if the child is born alive and later dies as the result of its prenatal injuries, it in all justice and logic must be said that the child has a right of action after its birth for prenatal injuries inflicted on it by the wrongdoer. Assuming as it must be assumed, the court continued, that an indictment for assault and battery would lie, certainly a right of action sounding in damages for the tort should be allowed. While it is true that the majority of the decided cases are against the right of recovery for an alleged tort committed against a child yet unborn the court pointedly remarked that in its opinion the weight of authority holds for the recovery. The well-being and health of our children are of at least as much importance and in need of care and the protection of the courts as are their rights in property or under the criminal laws. The law, the court said, cannot to survive be stagnant. It cannot be a dead thing. It must be alive. It must progress as civilization progresses. It must keep abreast of the other arts and sciences in order to justify its existence.

The court concluded, therefore, that where as here the defendant is a physician and knows or should know of the existence of a child en ventre sa mere, he owes a duty to that child. If that duty is disregarded and through his negligence the child is injured while the mother is quick, if it is born viable, an action should lie on behalf of the child for the injuries sustained by it and for any consequential damages resulting therefrom to its parents. The motion to dismiss was therefore disallowed—*Berlin v J C Penney Co, Inc*, 16 A (2d) 28 (Pa, 1940), *Stemmer v Kline*, 17 A (2d) 58 (N J, 1940).

**Malpractice Failure to Cure Not Actionable**—In January 1938, the plaintiff fractured both bones in his right leg between the knee and the ankle and was taken to a clinic operated by the defendant physician. The defendant set the broken bones, placed the plaintiff's leg in a cast and put the plaintiff in bed, where he remained for forty-seven days. In the early part of February, the plaintiff and the defendant entered into a contract whereby the defendant agreed, for the sum of \$750, to furnish the plaintiff all necessary medical attention and hospitalization through March 4, 1938, the contract covering, too, the services already rendered by the defendant. About four weeks after the accident, the first cast was removed. It was found that the plaintiff's leg was bent and his foot twisted and that there was a "sink-hole" where the leg had been broken, but the defendant advised the plaintiff that the "sink-hole" was due to lack of circulation caused by the cast and that it would get all right after the cast had been permanently removed. He then straightened out the foot and applied a second cast. A number of roentgenograms were taken by the defendant from time to time. The plaintiff left the clinic on March 3 but continued to return for treatment, and eventually a third cast was put on. His condition gradually improved to a point where he was able to go about on crutches, but while attending a baseball game some one struck his toe and reinjured his leg.

In July, the plaintiff went to a government hospital in Lexington, Ky, where he stayed for five days. Additional roentgenograms of his leg were there taken and an operation was advised, but the plaintiff refused his consent. He returned home and renewed his visits to the defendant. Some time in January 1939 the plaintiff suggested to the defendant that he would like to have some other surgeon operate on his leg. The defendant therefore sent the plaintiff to a recognized bone specialist and offered to pay any necessary hospital or medical fees, but proper arrangements could not be made. Finally, in April 1939 the plaintiff entered the Veterans' Hospital at Memphis and had a second operation performed. He remained there for fifty-nine days and then moved to the Veterans' Hospital at Johnson City, where he was at the time of the trial. The physicians in the latter institution refused to operate again but attempted to cure a disease condition of the bones in the plaintiff's leg by heat and electric treatments. In a subsequent suit against the defendant for malpractice, the only evidence consisted of the testimony of the plaintiff and his sister. Not one of the roentgenograms which had been taken was introduced in evidence nor were any of the physicians who had seen and treated the plaintiff called as witnesses. At the close of the plaintiff's case the trial court entered judgment for the defendant on a directed verdict, and the plaintiff appealed to the court of appeals of Tennessee, middle section.

In the opinion of the appellate court, the trial court did not err in directing a verdict for the defendant, for there was no evidence of any negligence on the part of the defendant. The utmost effect of the evidence was merely that the leg had failed to recover, that neither the defendant nor any of the other physicians had been able to cure it. A physician is not liable for a mere failure to cure, the court pointed out. He is liable only for failure to use that degree of care and learning which is ordinarily used under similar circumstances by members in good standing in his profession. The evidence afforded no explanation why the leg would not heal or why the bone was diseased. Since this might have been due to causes other than the lack of proper treatment, the court concluded that the doctrine of *res ipsa loquitur* was inapplicable.

The plaintiff also contended that the case should have been submitted to the jury on the question of breach of the contract to furnish medical attention and hospitalization. The court held, however, that the contract, by its terms, extended only through March 4, 1938. The defendant, nevertheless, continued to treat the plaintiff until January 1939 and even offered to pay the fee for a bone specialist to treat the plaintiff's leg. The court held that the contract had not been breached. Judgment for the defendant was accordingly affirmed—*Merryman v Bunch*, 14 S W (2d) 559 (Tenn, 1940).

## Society Proceedings

### COMING MEETINGS

- American Medical Association, Atlantic City, N J, June 8-12 Dr O. West, 535 North Dearborn Street, Chicago, Secretary
- American Association for the Study of Allergy, Atlantic City, N J, June 8-9 Dr J Harvey Black, 1405 Medical Arts Bldg, Dallas Texas, Secretary
- American Association for the Surgery of Trauma, Boston, June 4-6 Dr Gordon M Morrison, 520 Commonwealth Ave, Boston, Secretary
- American Association of Genito-Urinary Surgeons, Hershey, Pa, May 29-29 Dr Charles C Higgins, 2020 East 93d St, Cleveland, Secretary
- American Association of Oral and Plastic Surgeons, New York, May 28-30 Dr Frederick A Figi, 102 Second Avenue S W, Rochester Minn, Secretary
- American Broncho Esophagological Association, Atlantic City, N J, June 8-9 Dr Paul H Holinger, 700 North Michigan Blvd, Chicago, Secretary
- American College of Chest Physicians, Atlantic City, N J, June 6-8 Dr Paul H Holinger, 500 North Dearborn St, Chicago, Secretary
- American Diabetes Association, Atlantic City, N J, June 7 Dr Cecil Striker, 630 Vine Street, Cincinnati, Secretary
- American Gastro Enterological Association, Atlantic City, N J, June 8-9 Dr J Arnold Barger, 102 Second Ave S W, Rochester, Minn, Secretary
- American Gynecological Society, Skatop, Pa, June 15-17 Dr Howard C Taylor Jr, 842 Park Ave, New York, Secretary
- American Heart Association, Atlantic City, N J, June 5-6 Dr Howard B Sprague, 50 West 50th St, New York, Secretary
- American Human Serum Association, Atlantic City, N J, June 8-10 William L Wheeler, 348 West 22d St, New York, Secretary
- American Laryngological Association, Atlantic City, N J, May 29-31 Dr Charles J Imperatori, 108 East 38th St, New York, Secretary
- American Laryngological, Rhinological and Otolological Society, Atlantic City, N J, June 1-3 Dr C Stewart Nash, 277 Alexander St, Rochester, N Y, Secretary
- American Medical Women's Association, Atlantic City, N J, June 6-7 Dr Ada Chree Reid, 102 East 22d St, New York, Secretary
- American Neurological Association, Chicago, June 4-6 Dr Henry A Riley, 117 East 72d St, New York, Secretary
- American Ophthalmological Society, Hot Springs, Va, June 13-15 Dr Eugene M Blake, 303 Whitney Ave, New Haven, Conn, Secretary
- American Orthopedic Association, Baltimore, June 3-6 Dr Charles W Peabody, 474 Fisher Bldg, Detroit, Secretary
- American Otolological Society, Atlantic City, N J, May 28-29 Dr Isid Friesner, 101 East 73d St, New York, Secretary
- American Physiotherapy Association, Lake Geneva, Wis, June 28-July 3 Miss Evelyn Anderson, Stanford University, Calif, Secretary
- American Proctological Society, Atlantic City, N J, June 7-9 Dr William H Daniel, 1930 Wilshire Blvd, Los Angeles, Secretary
- American Radium Society, Atlantic City, N J, June 8-9 Dr Axel Arneson, 4952 Maryland Ave, St Louis, Secretary
- American Rheumatism Association, Atlantic City, June 8-9 Dr A R Shands, Dupont Institute, Wilmington, Del, Secretary
- American Society of Clinical Pathologists, Philadelphia, June 5-7 Dr Alfred S Giordano, 531 North Main St, South Bend Ind, Secretary
- American Therapeutic Society, Atlantic City, N J, June 5-6 Dr B Hunter, 1835 Eye St N W, Washington D C, Secretary
- American Urological Association, New York, June 14-15 Dr Chas Deming, 789 Howard Ave, New Haven, Conn, Secretary
- Arizona State Medical Association, Prescott, May 25-30 Dr W Watkins, 15 East Monroe St, Phoenix, Secretary
- Association for the Study of Internal Secretions, Atlantic City, N J, June 8-9 Dr Henry H Turner, 1200 North Walker St, Oklahoma City, Secretary
- Connecticut State Medical Society, Middletown, June 3-4 Dr Barker, 258 Church St, New Haven, Secretary
- Maine Medical Association, Poland, June 21-23 Dr Frederick R Car, 142 High Street, Portland, Secretary
- Massachusetts Medical Society, Boston, May 26-27 Dr Tighe, 8 Fenway, Boston, Secretary
- Minnesota State Medical Association, Duluth, June 29-July 1 Dr Souster, 493 Lowry Medical Arts Bldg, St Paul, Secretary
- Montana Medical Association of Missoula, July 8-10 Dr Walker, 206 Medical Arts Bldg, Great Falls, Secretary
- National Gastroenterological Association, New York, June 3-5 Dr Randolph Manning, 1819 Broadway, New York, Secretary
- New Mexico Medical Society, Santa Fe, June 25-28 Dr L C, 221 W Central Avenue, Albuquerque, Secretary
- Pacific Northwest Medical Association, Portland, Ore, June 1-3 Dr C W Countryman, 407 Riverside Ave, Spokane, Secretary
- Rhode Island Medical Society, Providence, June 3-4 Dr Buffum, 122 Waterman St, Providence, Secretary
- Society of Surgeons of New Jersey, Montclair, May 27-28 Dr Mount, 21 Plymouth Street, Montclair, Secretary
- West Virginia Medical Association, White Sulphur Springs, June 1-3 Mr Charles Lively, 1031 Quarrier St, Charleston, Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

#### American J Digestive Diseases, Fort Wayne, Ind 9 49-86 (Feb) 1942

- \*Gallbladder Dyspepsia R H Moser B D Rosenak and R J Hasterlik Indianapolis—p 49  
Problem of Common Duct Stones Further Experience with Instrument for Visualizing Interior of Common Duct at Operation M A McIver Cooperstown N Y—p 52  
Lipophagic Granulomatosis of Enteric Tract S Sailer and R J McGann Cincinnati—p 53  
\*Ileocolostomy with Exclusion for Nonspecific Ileitis R Colp J Garlock and L Ginzburg New York—p 64  
Clinical Study of Secretin Test H M Pollard Lila Miller and W A Brewer Ann Arbor Mich—p 68  
Functional Disturbance of Small Intestine in Chronic Idiopathic Ulcerative Colitis K A Elsom F G Dickey and F W Chornock Philadelphia—p 74  
Movements of Pancreas C A Beling C F Baker and W J Marquis Newark N J—p 76  
Atrophic Gastritis Successfully Treated with Liver Stomach Concentrate Case R U Leser and R J Hasterlik Indianapolis—p 78  
Halitosis True and False R Dross and B B Crohn New York—p 79  
Effect of Acute Alcoholic Intoxication on Hepatic Function J M Beazell A L Berman V H Hough and A C Ivy Chicago—p 82

**Gallbladder Dyspepsia**—Moser and his co-workers analyzed the histories of 49 patients who returned to the clinic because of the persistence of dyspeptic symptoms following cholecystectomy for a calculous gallbladder. A comparison of preoperative and postoperative symptoms with the micropathologic study of the gallbladder showed no correlation between the degree of pathologic change and the expectancy of an operative cure. Among the patients having dyspepsia postoperatively many had severe cholecystitis with stones. This fact suggests that there is little or no relationship between the dyspepsia in disease of the gallbladder and the pathologic degree of cholecystitis. The symptoms of 33 patients were considered to be due to an irritable colon and of the others to food intolerance, diverticulitis of the colon, superficial gastritis, chronic pancreatitis, biliary dyskinesia and chronic inflammatory disease of the pelvis. There was nothing in the histories of the 49 patients to differentiate the dyspepsia from that originating from other sources. Only one observation seemed important. If the dyspepsia was associated only with the acute attack, then relief was likely to follow cholecystectomy. While it is not suggested that the diseased gallbladder with stones should not be removed, the patient should be informed of his chances for obtaining relief from dyspepsia. The true cause of the dyspepsia should be determined before operation and, if possible, measures should be instituted to correct it. The colic due to disease of the gallbladder is generally relieved by cholecystectomy, dyspepsia is not and should not in itself be an indication for cholecystectomy.

**Ileocolostomy with Exclusion for Nonspecific Ileitis**—Colp and his associates report their experience with ileocolostomy with exclusion for the treatment of distal regional ileitis. Ileocolostomy with exclusion is an indirect effective and simpler procedure than one stage ileocolic resection which may be performed in the uncomplicated variety of the disease. Ileocolostomy obviates the necessity for widespread dissection with the possibility of injury to the adjacent and often densely adherent viscera. It avoids extensive raw areas as sites for further adhesions and possibly intestinal obstruction. The possibility of peritonitis from the accidental opening of an encapsulated purulent focus is also reduced. It can be carried out with a negligible mortality by the surgeon who only rarely encounters the disease. Among the authors 40 patients there was no operative death and no serious postoperative complica-

tion. The validity of the objections against ileocolostomy with exclusion, that undesirable mechanical and physiologic conditions might supervene, that healing would fail to occur in the excluded diseased loop and that the continued presence of a primarily diseased segment of ileum would favor the extension of the pathologic process to proximal segments previously uninvolved, are not supported by the results in 40 cases. An overwhelming number of excluded segments of intestine undergo healing. New proximal disease was observed only once, and in that case there was a "skip area" of about 3 feet. In a parallel series of thirteen resections proximal extension was encountered three times. It appears that the deciding factor in the prevention of postoperative proximal disease is not what is done to the primarily diseased segment, but on resection or exclusion at a high enough level. When distal ileitis is complicated by proximal localized or jejunal involvement it may be wiser to resect the proximal lesion, reestablish continuity at that point and exclude the distal segment. Also there are cases of jejuno-ileitis that are not to be treated by either method as sufficient small intestine would not be left to perform adequately the functions of digestion and absorption.

#### American J Obstetrics and Gynecology, St Louis 43 183-364 (Feb) 1942

- \*Comparison of Thyroid Extract and Iodine Therapy in Prevention of Toxemia of Pregnancy E D Colvin R A Bartholomew and W H Grimes Atlanta Ga—p 183  
Granulosa and Theca Cell Tumors of Ovary Report of Thirty Cases D N Henderson Toronto Canada—p 194  
Malignancy of Ovaries J R Goodall Montreal Canada—p 210  
Hysterectomy in Pregnancy Labor and Puerperium G W Gustafson, Indianapolis—p 221  
Study of 104 Cases of Uterine Fibroids Associated with Arterial Hypertension W O Johnson Louisville Ky—p 231  
Pathology of Embryo and Abortion A K Paine Boston—p 245  
Endometriosis W R Holmes Atlanta Ga—p 255  
Management and Outcome of Labor in 742 Women with Borderline Pelvis J B Jacobs Washington D C—p 267  
Occiput Posterior—Normal Presentation L A Calkins Kansas City Kan—p 277  
Transverse Plication of Rectum for Reduction of Large Rectoceles W T Dannreuther New York—p 286  
Midline Episiotomy J P Pratt C P Hodgkinson and C R Kennedy Detroit—p 292  
\*Treatment of Gonorrhea in Female with Sulfathiazole D R Smith and R Deakin St Louis—p 296  
Improved Method of Uterine Closure in High Classic Cesarean Section M G Potter and N W Elton Buffalo—p 303  
Gonadotropic Hormone Concentration in Emesis Gravidarum F J Schoeneck Syracuse N Y—p 308  
Blood Transfusions in Pregnancy Review of 3000 Cases E G Hamilton and A P Martin St Louis—p 313  
Postoperative Hormone Therapy to Spare Remaining Ovarian Tissue W D Owens Miami Beach Fla—p 326  
Use of Stilbestrol in Management of Menopause Z J R Hollenbeck and P J Reel Columbus Ohio—p 331  
Mental Disorders Associated with Childbearing D A Boyd Jr Indianapolis—p 335

**Prevention of Toxemia of Pregnancy**—Colvin and his colleagues attempted to prevent true toxemia of pregnancy by the administration of thyroid or iodine. Basing their reasoning on the premise that thyroid or iodine limits or prevents a cholesterol-vascular change in the placental vessels and thus lessens the incidence of infarction and toxemia, they have employed this therapy in 273 cases. Iodine proved much more potent than thyroid in preventing true toxemia (as differentiated from vascular disease) of pregnancy. The administration of iodine to patients with vascular disease of pregnancy failed to lower the already low incidence of toxemia among such patients, but when iodine was administered to normal pregnant women the frequency of toxemia was reduced almost 75 per cent. The ophthalmoscope is a most valuable aid in differentiating true toxemia of pregnancy and vascular disease during pregnancy. A low basal metabolic rate is a predisposing factor in true toxemia of pregnancy. Hypercholesteremia induced both by pregnancy and by a lower basal metabolic rate, predisposes to cholesterol vascular change in the placental vessels. This change is the probable antecedent to thrombotic infarction and true toxemia of pregnancy. Lipiodine (Ciba) is a pleasant, well tolerated form of iodine. It does not require an initial or subsequent determination of the basal metabolic rate and, as one tablet is given daily from the end of the third month of pregnancy to full term, an immense reduction in the frequency of true toxemia of pregnancy may be anticipated.

**Treatment of Gonorrhea**—According to Smith and Deakin the coordinated effort of a clinician, a bacteriologist and a medical social worker will aid in the management of gonorrhea in women and improve the therapeutic results in large clinics. A joint male and female clinic aids materially in case control. A comprehensive treatment routine is more effective than haphazard methods. Sulfathiazole is a safe and efficient therapeutic chemical. A single five day 20 Gm course of the drug has resulted in a cure rate of 94.9 per cent. The recently improved results in the treatment of gonorrhea in women at Washington University Clinics are attributed to (1) the use of sulfathiazole, (2) the use of improved methods of culturing the gonococcus, (3) the development of an improved technic of case finding and case holding, (4) the use of an adequate form for statistical analysis and (5) the education of the public about gonorrhea and its cure.

### American Journal of Ophthalmology, Cincinnati

25 135-260 (Feb) 1942

- \*Some of the Most Important Ocular and Orbital Wounds in War W B Doherty, New York—p 135  
Study of Aqueous Humor as Aid to Understanding Uveitis and Certain Related Conditions I Preliminary Report R Irvine, A R Irvine and Mary Druley Irvine, Los Angeles—p 150  
Disability Lawsuit Following Successful Bilateral Cataract Extraction R W Danielson and J C Long, Denver—p 164  
Intraepithelial Epithelioma of Cornea and Conjunctiva (Bowen's Disease) J S McGraw, New York—p 167  
Sex Linked Hereditary Nystagmus R W Waggoner, Ann Arbor, Mich., and D A Boyd, Indianapolis—p 177  
Ophthalmologic Findings on Draftees from Washington, D C, Military Area Preliminary Report W T Davis and A E Meisenbach Jr, Washington, D C—p 181  
Role of Meibomian Glands in Recurrent Conjunctivitis Review with Experimental Observations R B Scohee, St Louis—p 184  
Cataract Extraction After Glaucoma Operation J M McLean, New York—p 192  
Systemic Disturbances from Errors of Refraction and of Diet R M Moose, San Bernardino, Calif—p 194  
Is Enucleation Indicated in Early Cases of Intraocular Malignant Melanoma? Report of Two Cases P Lohrfeld, Philadelphia—p 199

**Ocular and Orbital Wounds of War**—Doherty states that the ingenious devices of war created for the wholesale slaughter of man cause many interesting, weird and freak wounds in all branches of medicine, including ophthalmology. To understand the clinical picture of a fantastic wound of the eye and of the orbit a thorough knowledge of their anatomy must be had. For any injury of the eye or orbit not only the eye and orbit should be carefully examined but the mouth and oral cavity and the bone and skin around it, vision and muscle balance should be determined, intranasal adhesions should be looked for, the exact location of the foreign body should be determined by roentgen study and a complete neurologic study should be included. If roentgenography is not available, probing must be resorted to. This often eliminates a Kronlein operation later to remove fragments of a shell. Many of the so-called red or inflamed eyes treated for inflammation sometimes have harbored foreign material for years, and its presence is finally detected only by a special and careful roentgen study. Five unusual conditions are found in ophthalmologic war surgery: traumatic proliferating choroidoretinitis of Lagrange, spastic entropion (blepharospasm), avulsion of the optic nerve, true or false enophthalmos and a hematic pigmented ring of the disk. The preservation and the tolerance of an eye to foreign material does not depend on the actual microbic invasion but on the chemical decomposition of the foreign substance and on mechanical irritation. The iris and the ciliary body usually react more seriously than does the lens or the vitreous. Copper usually induces a violent inflammation, iron if not encapsulated forms an oxide and causes a discoloration, and the reaction from non-magnetic material is more serious because its extraction causes more trauma and manipulation. The appearance of an injured eye gives no clue as to the absence or presence of a foreign body. Any immediate wound of the orbit or surrounding tissue usually produces swelling, ecchymosis and profuse intraorbital hemorrhage often accompanied by exophthalmos. In the first aid station after asepsis has been carried out the attending surgeon could, by knowing a few important fundamentals, prevent many deformities of the lids and orbit and save many eyes by proper first aid treatment. For extreme exophthalmos a 1:3,000 ointment of mercury bichloride should be instilled in the cul-de-sac, the lids sutured together and an appropriate dressing applied.

The sutures should not be placed directly over the cornea. Restorative work should not be attempted for two to four weeks. This also applies to the removal of or the probing for bullets. No tissue and, above all, no fragments of bone found around the orbital margin should be removed. The attending surgeon's work should consist in replacing the mutilated parts in as good a position as possible and of applying a snug supporting dressing for transportation to the rear. Even if the globe is hopelessly injured the eyeball can be more skilfully enucleated after the ecchymosis and swelling have subsided. There is little danger of sympathetic ophthalmia from a mutilated eyeball allowed to remain in the socket for two weeks. Cartilaginous grafts, adipose grafts and metallic plates have been used successfully for the repair of substance lost from the orbital margin.

### American Journal of Public Health, New York

32 125-234 (Feb) 1942

- Health Department Service in War Emergency M F Haralson, Honolulu, Territory of Hawaii—p 125  
Stamp Out Gonorrhea Now J L Rice, New York—p 129  
Uniformity in Control of Communicable Diseases H Emerson, New York—p 131  
Air Raid Medical Administration—Current British Practice H Williams, Baltimore—p 137  
\*Silicosis and Other Health Problems of Metal Miners W C Dreesen, R T Page and H P Brinton, Bethesda, Md—p 142  
\*Food Poisoning Outbreaks Involving Smoked Fish Their Epidemiology and Control I Kleeman, S Frant and A E Abrahamson, New York—p 151  
How Important Is the Dental Health Problem?—Nationally?—Locally? I V Hiscok, New Haven, Conn—p 159  
Shall Public Health Physicians Attempt to Assess Nutritional Status of School Children? Susan P Souther, Columbus, Ohio—p 166  
Problems in Laboratory Diagnosis of Rabies W D Stovall and S B Pessin, Madison, Wis—p 171  
Studies on Single Injection Method of Canine Rabies Vaccination H N Johnson and C N Leach, Montgomery, Ala—p 176  
Sewage Disposal Problems at Army Camps P Hansen, Chicago—p 181  
Willingness of Individuals to Be Examined for Tuberculosis G E Harmon, Detroit—p 187  
Development of Training Courses for Food Handlers in Texas L Dodson, Austin, Texas—p 189  
New Light on Relation of Housing to Health R H Britten, Bethesda, Md—p 193

**Diseases of Metal Miners**—On the basis of the data obtained from the occupational and medical histories and physical and roentgen examination of 783 metal mine workers in Utah and the determinations of the average concentration of atmospheric dust in the environment, Dreesen and his associates conclude that 1 In Utah mines the prevalence of silicosis (91 per cent) is lower than in certain other areas where lead ores are mined. This is possibly due to differences in the silica content of the ore and the mining operations. 2 While the level of hazard in these mines is not especially acute, lead intoxication occurs. 3 If the atmospheric dust in these metal mines is kept below ten million particles per cubic foot of air, no disabling silicosis should occur and morbidity should decrease. 4 The reduction in concentration can be accomplished by proper use of present control measures. Preemployment and annual medical examinations should enable the physician to detect silicosis, active pulmonary tuberculosis, high blood pressure, nephritis, diabetes, syphilis and heart disease during their incipient stages and to advise the worker on remedial measures.

**Food Poisoning from Smoked Fish**—Kleeman and his associates reporting the occurrence in April 1934 of 32 cases of food poisoning due to smoked fish among residents of Brooklyn and Queens and in 2 visitors from Newark, N J, and in July 1940 of 64 cases of acute gastroenteritis in Brooklyn. Ten of the 98 patients died. No specific food poisoning organism could be isolated on bacteriologic examination of the food. Several samples of fish responsible for the first outbreak. However, several samples had high bacterial counts of *Proteus vulgaris*, which organism, although not considered pathogenic under ordinary circumstances, when found in food may well be responsible for symptoms of food poisoning, and certainly the first outbreak of the organism indicates improper handling of the fish. The source of the fish causing the second outbreak was traced to a health department embargoed approximately 1,000 pounds of smoked fish from this plant found in the retail store. The plant the vats used for washing, soaking and salting is drained directly into a sewer line connected in common with



toilet drain. This sewer pipe emptied into a ditch close to the plant. A sample of the ditch water contained *Salmonella typhi* murium. The persistent efforts of health officials and the cooperation of the more progressive operators have caused food industries to accept the higher standards of sanitation in processing and refrigerating smoked fish. The consumer should be made to realize that smoked whitefish, butterfish and similarly processed fish are perishable foods and require refrigeration at 50 F or below and the utmost care in handling.

### American Review of Tuberculosis, New York

45 117-242 (Feb.) 1942

- \*Voluntary Termination of Artificial Pneumothorax. Review of 200 Cases. G. F. Aycock and P. E. Keller. Denver—p. 117.
- \*Pneumothorax Treatment of Pulmonary Tuberculosis. Results in Follow Up of 117 Cases. A. Hurst and S. Schwartz. New York—p. 132.
- \*Prognosis and Treatment of Minimal Pulmonary Tuberculosis. I. D. Bobrowitz. Otisville, N. Y.—p. 144.
- Survey of Persons Exposed to Tuberculosis in Household. Necessity for Prolonged Observation of Contacts. H. Beeuwkes, R. G. Hahn and P. Putnam. New York—p. 165.
- Transient Pulmonary Infiltrations. Case with Eosinophilia (Loeffler's Syndrome) Associated with Amebiasis. Amanda Hoff and H. M. Hicks. New York—p. 194.
- Two Separate Specific Immune Phenomena in Tuberculosis. Concrete Demonstration. H. I. Corper and M. L. Cohn. Denver—p. 200.
- Effect of Sulfathiazole and Allied Compounds on Human Tubercle Bacilli in Vitro. H. C. Ballou and A. Guernon. Prefontaine, Que. Canada—p. 212.
- Sulfathiazole in Experimental Tuberculosis of Guinea Pig. H. C. Ballou, A. Guernon and M. A. Simon. Prefontaine, Que. Canada—p. 217.

#### Voluntary Termination of Artificial Pneumothorax—

Aycock and Keller report 200 cases of artificial pneumothorax voluntarily terminated in order to show that prolonged and indefinite collapse is not applicable to all cases of artificial pneumothorax. The dominant tissue reaction prior to the induction of artificial pneumothorax was exudative in 179, caseous pneumonic in 3 and fibrocavernous in 18. The time range since expansion was completed was from one to sixteen years. The reactivation incidence in the far advanced exudative series indicates that the time element of collapse does not have any bearing on future reactivation after reexpansion is completed. Of 12 cases under collapse for less than eighteen months, the original lesion of 1 reactivated fifty-five months after reexpansion. Of 11 under collapse for three to four years the lesion of 1 reactivated twelve months after reexpansion. Among 13 under collapse for eighteen to twenty-four months the lesions of none showed reactivation. The same was true for 11 cases under collapse for four or more years. Of 36 patients under collapse for two to three years the lesions of 2 reactivated. The incidence of reactivation for these 83 patients was 4.8 per cent. In the moderately advanced exudative cases the absence of any relation between the duration of collapse and reactivation after reexpansion was even more clearly emphasized. The study fails to show any connection between reexpansion and subsequent reactivation. Aside from the inconvenience and expense to the patient of a prolonged and indefinite collapse under artificial pneumothorax, the chief disadvantage is the possible development of serious complications. Prolonged pneumothoraces, with or without effusion sometimes show considerable thickening of the visceral pleura, with a fixation of the collapsed lung which results in the 'unexpandable lung'. Hypertrophy and failure of the right side of the heart and associated mediastinal distortion in such cases assume an increased importance as the end result is grave and deserve further serious study.

#### Pneumothorax Treatment of Pulmonary Tuberculosis

Hurst and Schwartz report the end results in 117 cases in which pneumothorax collapse therapy was employed for a minimum of two years before it was discontinued and the lungs were reexamined. There has been one death, the disease in 79 is apparently cured in 16 it is arrested and in 21 it is active. There were twelve homolateral and seventeen contralateral relapses. The best results were observed in cases with at least four years of pneumothorax. An abrupt cessation of refills and careful watching of the lung as it reexpands appeared preferable to gradual reexpansion of the lung. Early pneumothorax in cases in which the sputum was positive was indicated regardless of the absence of cavity. The best results were observed in

cases of ideal collapse, that is without adhesions to the apex or the costal wall of the lung. The early Jacobaeus operation should be considered when adhesions exist, even though the sputum is negative.

**Minimal Tuberculosis**—Bobrowitz evaluates the methods of treating minimal pulmonary tuberculosis by analyzing the prognosis of this type of lesion in 190 patients with minimal infiltrations discharged from the Municipal Sanatorium, Otisville, N. Y., in 1934 and 1935. One hundred and seventy-six of these patients were again studied in July 1940 and their condition on discharge was compared with their last follow-up examination. Of the patients 124 had unilateral lesions, 44 bilateral lesions, 9 thick pleura and 13 an increase in pulmonary markings, 160 had no complications. At the time of discharge 154 patients had no symptoms, 15 complained of expectoration, 17 of cough and expectoration, 1 had cough and slight dyspnea and chest pain, 1 had digestive disturbances, 1 had lost weight and 1 had fever and convulsions. All but 3 patients had sanatorium observation, bed rest, symptomatic care, gradual increase in physical activities and occupational therapy, in 2 of the 3 pneumothorax was attempted and 1 had pneumothorax. The value of sanatorium care was clearly illustrated. 164 were definitely benefited and were not active at the time of discharge. Even the 10 patients with still active disease were improved, the condition of 11 remained unimproved and that of 5 was unknown. One hundred and seventy-six of the patients received known care after discharge. Comparative roentgenograms were available for 129 and those of 103 were unchanged or improved and those of 26 showed progression or that collapse therapy was needed. If active therapy had been instituted for all the patients, 80 per cent would have had unnecessary collapse therapy. Even after long periods of observation only 15 patients required collapse therapy. It was possible to compare the sputum of 156 patients that of 96 remained negative, of 23 it was converted from positive to negative, of 8 it remained positive, of 29 it turned positive after being negative, and the condition of the sputum of 34 was unknown although in many the tuberculous condition was compatible with a negative sputum. The physical condition of 137 patients on follow-up ranged from excellent or apparently cured to inactive, of 5 it was poor, of 5 it was guarded, of 32 it was unknown and 11 patients had died. The study indicates that routine collapse therapy of minimal pulmonary tuberculosis is not justified as the disease in 75 to 80 per cent resolves or becomes fibrotic or stable with conservative therapy. Collapse therapy should be instituted only when especially indicated.

### Archives of Dermatology and Syphilology, Chicago

45 455-640 (March) 1942

- Serologic Diagnosis of Syphilis. Value of Complement Fixation and Agglutination with Spirochetal Antigens and Relation of Spirochetal Antibody to Wassermann Reaction. J. A. Kolmer. Philadelphia—p. 455.
- New Bismuth Compound Identical in Chemical Origin with Solimol. Mass. W. Van Winkle Jr and P. J. Hanzlik. San Francisco—p. 478.
- Early History of American Dermatology. P. E. Bechet. New York—p. 482.
- Prevalence of Syphilis in Virgin Islands of United States. Results of Serologic Survey. G. M. Saunders. Cleveland—p. 506.
- Solution of Aluminum Citrate as Substitute for Solution of Aluminum Acetate. N. F. T. Butterworth and L. W. Wolfe. Reading, Pa.—p. 514.
- Threhold Erythema Dose of Roentgen Rays. I. Review of Literature and Comment on Variation of Doses in Use in Australia. United States and England. J. C. Belisario. Sydney, Australia and R. E. Pugh Jr. Pasadena, Calif.—p. 519.
- \*Tuberculin in Dermatologic Diagnosis with Special Reference to Purified Protein Derivative (P. P. D.). Carmen C. Thomas. Philadelphia—p. 544.
- Contact Dermatitis from Emeline Hydrochloride. R. L. Kile and A. L. Welsh. Cincinnati—p. 550.
- External Contact with Monoethyl Ether of Diethylene Glycol (Carbitol Solvent). A. G. Cranch. New York. H. F. Smyth Jr and C. P. Carpenter. Pittsburgh—p. 553.
- Treatment of Cutaneous Diseases with Radon Ointment and Radium Pads. Preliminary Report. L. Isaac. New York—p. 560.
- Anhidrosis Associated with Hyperkeratosis Palmaris et Plantari. G. A. Spencer. New York—p. 574.

**Tuberculin in Dermatologic Diagnosis**—Thomas subjected 79 patients with various dermatoses to one hundred and nine parallel tests with purified protein derivative and graded freshly prepared dilutions of a potent old tuberculin. The results confirm those of other investigators and indicate that



the first test dose of 0.00002 mg of purified protein derivative is equivalent to from 0.002 to 0.001 mg of old tuberculin and that the second test dose (two hundred and fifty times the first) is equivalent to approximately 1 mg of old tuberculin. No positive reactions were obtained with the purified protein derivative in persons in whom they were not also elicited with old tuberculin and vice versa. Purified protein derivative is therefore specific in detecting sensitized persons.

**Radium Pads for Cutaneous Disease**—Isaak reports excellent results in the treatment of 85 patients with various cutaneous diseases with radon ointment or radium pads. Radon, the first product of decay of radium, can be separated from its mother substance by suction into a vacuum, and if melted petrolatum is sucked into the same vacuum and thoroughly shaken a uniform radon ointment is created. The ointment is placed in small collapsible tubes. A radium pad has a body or carrier of linen or of a fine meshed webbing of bronze or silver on which radium salt is spread uniformly in as fine a layer as possible with a good lacquer. A radium pad looks like a piece of oiled silk, is flexible and can be molded to the contour of the body. The pad keeps its radioactivity practically all the time and is therefore always ready for use, while the ointment loses half of its intensity within about four days. The radon ointment and radium pad treatment was successful for cases of chronic lichen simplex, chronic lichenified eczema, lichen planus, hypertrophic lichen, marginal eczema and vulval kraurosis with leukoplakia. The results were less satisfactory in cases of psoriasis. The treatment seemed to have an excellent effect on arthropathic psoriasis. The improvement in 1 of 2 cases of syccosis vulgaris was satisfactory. The condition in more than half of the patients with anal, vulval or scrotal pruritus healed or improved, but the results were not entirely successful and could well be improved. The use of the radium pad was preferred because of its flexibility, ease of application, uniform radiation output, better results obtained with it and the shortened time of treatment.

### Archives of Internal Medicine, Chicago

69 369-550 (March) 1942

- \*Shock Syndrome Produced by Failure of Heart E. A. Stead Jr and R. V. Ebert, Boston—p. 369
- \*Severe Forms of Chickenpox in Adults with Autopsy Observations in Case with Associated Pneumonia and Encephalitis J. J. Waring, K. Neuburger and E. F. Geever, Denver—p. 384
- Resting Peripheral Blood Flow in Hyperthyroid State D. I. Abramson and S. M. Fierst Cincinnati—p. 409
- Electrocardiographic Studies on Artificially Produced Pulmonary Artery Occlusion in Human Beings C. W. Semisch 3d and L. Merves, Philadelphia—p. 417
- Effect of Inflammation on Concentration of Sulfanilamide in Pleural and Joint Fluids R. Gregory Galveston, Texas—p. 429
- Short PR Interval Associated with Prolonged QRS Complex Clinical and Experimental Study J. S. Butterworth and C. A. Poindexter, New York—p. 437
- Relation Between Symptoms of Uremia and Blood Levels of Phenols R. Dickes, Cleveland—p. 446
- Diffusion of Sulfanilamide into Artificial Peritoneal Fluid A. Cantarow, C. L. Cumberley Jr and A. E. Rakoff, Philadelphia—p. 456
- \*Diagnosis of Addison's Disease Further Experience with Cutler Power Wilder Sodium Chloride Restriction Test D. M. Willson, F. J. Robinson, Marschelle H. Power and R. M. Wilder, Rochester, Minn—p. 460
- Syphilis Review of Recent Literature C. F. Mohr, P. Padgett, R. Hahn and J. E. Moore, Baltimore—p. 470

**Shock Syndrome**—Stead and Ebert studied a group of patients with known heart disease to evaluate the role of the heart, the peripheral vascular system and the blood volume in producing the shock syndrome seen in certain patients with congestive cardiac failure and in some with acute myocardial infarction. These patients present signs of a decreased peripheral blood flow with a diminished or an absent radial pulse, cold extremities, narrowed pulse pressure and a relatively well maintained diastolic pressure. The patients with congestive failure had an elevated systemic venous pressure but in those with acute myocardial infarction but no congestive failure this pressure was normal but extreme pulmonary congestion and edema was exhibited. There was evidence of slight hemoconcentration in patients with acute myocardial infarction, probably owing to loss of fluid into the lungs. Because of the simultaneous presence of diminished peripheral blood flow and congestion of the pulmonary or of the systemic venous bed, it is thought

that the clinical picture of shock is produced by heart failure rather than by an inadequate venous return due to a decrease in blood volume or to peripheral pooling of blood. Peripheral circulatory failure and shock should not be applied to the signs incident to a decreased cardiac output due to heart failure but should be restricted to conditions in which the cardiac output is diminished because of an inadequate venous return.

**Chickenpox in Adults**—During the last twelve months 4 persons more than 26 years of age with chickenpox were encountered at the Colorado General Hospital. Waring and his associates cite 2 cases in which the chickenpox was complicated by pneumonia and in 1 by fatal encephalitis and nephritis. Both patients were healthy, robust men, who had contracted the disease from children in whom the course was mild. The main anatomic features in the 2 cases were (1) severe and generalized chickenpox, (2) severe, confluent, mononuclear and proliferative lobar pneumonia, (3) only in the fatal case an acute, toxic, moderate and diffuse encephalitis with purpura of the white matter and (4) acute, toxic and moderate nephrosis. The authors draw attention to the chickenpox virus as a possible cause for the mononuclear and proliferative pneumonia in man. Neurologic complications of varicella are not rare. In the fatal case all types of lesions were present, but some of them were only slight or moderate in intensity. The chief macroscopic and microscopic characteristic was the vascular disturbance, which pointed to a pronounced vasotoxic action of the virus. Petechial and hemorrhages dominated the picture. This is apparently the first case of cerebral involvement following chickenpox in an adult with necropsy to be reported. Only further necropsy reports will permit a more definite classification of encephalitis varicellosa. Special attention should be given to perivascular (perivenous) demyelination, with or without lesions of the axis cylinders, described in the literature and observed to a certain extent in the present fatal case. The relation of chickenpox encephalopathy to perivenous encephalitis is not incompatible with a relation to multiple sclerosis. Future study of the demyelination in chickenpox encephalitis may enhance the knowledge of the etiology and the pathogenesis of multiple sclerosis. Their microscopic examination of the renal sections lead the authors to believe that the likely cause for the renal changes was the virus of chickenpox.

**Addison's Disease**—Willson and his co-workers employed the sodium chloride excretion test (after fifty-two hours of restriction) of Cutler, Power and Wilder (*The Journal*, July 9, 1938, p. 117) in the diagnosis of Addison's disease. 19 cases. The diagnosis in 11 had been made on clinical grounds and the test was used to obtain confirmatory evidence of the efficacy of the procedure, in 5 the test was a necessary adjunct in establishing the proper diagnosis, and in 3 the test was performed during treatment with desoxycorticosterone acetate. In addition, the test was employed in 44 cases of a variety of conditions, including many of "functional" asthma. Of the 16 patients with Addison's disease who were not receiving desoxycorticosterone, 10 were unable to withstand the fifty-two hours of salt restriction. The 10 patients had sufficiently severe symptoms of crisis to permit the diagnosis of Addison's disease on clinical grounds. The concentration of chloride in the final four hour specimen of urine of 5 of the 6 patients in whom the test was complete was more than 225 mg per hundred cubic centimeters, while that of sodium was more than 165 mg. Examination of the composition of the plasma in the sixth patient revealed evidence of adrenal cortical insufficiency. The 3 patients with the disease who were receiving desoxycorticosterone responded like subjects without the disease, that is, with a great increase in the excretion of sodium chloride. The great value of the salt restriction test has been in excluding the possibility of Addison's disease. Of the 44 patients examined, 21 were classed as suffering from nervous exhaustion, infectious exhaustion, vagotonia, neurocirculatory asthenia and anxiety, 11 had certain manifestations which were some of those in Addison's disease and 12 had various functional and organic disorders. The 44 patients with 1 exception responded with typically low concentrations of sodium chloride in the final four hour specimen of urine. The only exception the concentration of sodium and chloride in the

in the plasma the patient failed to react unfavorably to the salt restriction and thus aided in excluding the diagnosis of Addison's disease. The test subjects the patient with Addison's disease to some danger and the clinician should be prepared to recognize and to treat acute adrenal cortical insufficiency, should it occur.

### Florida Medical Association Journal, Jacksonville

28 361-412 (Feb.) 1942

- \*Surgical Treatment of Extensive or Advanced Cancer of Skin R M Fleming Miami—p 373
- Use of Quinidine Sulfate in Treatment of Auricular Fibrillation L Limbaugh Jacksonville—p 378
- Use of Cobra Venom and Oxygen in Control of Cardiac Pain K Hanson Jacksonville—p 381
- \*Quinine as Prophylactic in Influenza H A Barge Miami—p 383
- Fractures of Pelvis T H Bates Lake City—p 385
- Compensation in Industrial Ophthalmology N M Black Miami—p 387

**Surgical Treatment of Cancer of Skin**—Fleming reports 5 cases of advanced or extensive cancer of the skin, 2 of the patients have died and 3 are living, respectively two, three and four years after radical surgical removal with no evidence of disease. Prophylaxis in this type of cancer is possible by proper treatment of burns, early cutaneous grafting with skin of adequate thickness to prevent subsequent scarring or contracture. Granulomas and other cutaneous chronic irritations should be dealt with similarly if conservative measures fail to produce cure.

**Quinine as Prophylactic in Influenza**—Barge believes that, since quinine causes a leukocytosis and increases the body defenses during the initial stage of influenza, it might be given as a prophylactic. Evidence indicates that the incidence of influenza is much lower among persons taking quinine than among those not using the drug. As physicians studying defense with regard to national health, it is well to impress on the younger men the seriousness of the disease and the importance of quinine as a possible prophylactic. In Florida, to which people from all parts of the country come to hotels, tourist camps, army camps and aviation fields, an epidemic is likely. Many authorities have stated that influenza is practically unknown among people who take quinine.

### Journal of Pediatrics, St Louis

20 145-280 (Feb.) 1942

- \*Etiology of Acute Infectious Gingivostomatitis (Vincent's Stomatitis) W C Black San Diego Calif—p 145
- Immunity to Whooping Cough as Judged by Skin Test on Rabbits J H Lapin Bronx N Y—p 161
- \*Initial Response to Immunization with Diphtheria and Tetanus Alum Toxoid W C Deamer G Bates and F S Smyth San Francisco—p 169
- Diffusion of Sulfathiazole Into and From Peritoneum Case of Pneumococcal Peritonitis Treated with Sulfathiazole Orally and Intraperitoneally L B Slobody G Rook and D Dragutsky New York—p 182
- Sulfathiazole in Treatment of Pneumococcal Pneumonia in Infants Brief Note on Development of Pneumococcal Meningitis During Therapy P A Woolley Jr Portland Ore—p 185
- Five Year Clinical Study of Factors Affecting First Dentition H E Thelander San Francisco—p 187
- Vitamin B<sub>1</sub> (Pyridoxine Hydrochloride) in Treatment of Pseudohypertrophic Muscular Dystrophy Among Children H M Keith Rochester Minn—p 200
- Acute Yellow Atrophy of Liver Report of Case in Twelve Year Old Girl with Autopsy Findings Rosa E Prigosen and M B Gordon Brooklyn—p 208
- Difficulty in Beginning Respiration Seen in Infants Delivered by Cesarean Section Analysis of One Hundred Consecutive Cesarean Sections A Blossom Houston Texas—p 215
- Unilateral Paralysis of Diaphragm Without Involvement of Brachial Plexus R J Blattner St Louis—p 223
- Self Selection of Diets C P Richter Baltimore—p 230
- Physical Expression of Psychogenic Disturbance in Children S S Iamm Brooklyn—p 237

**Etiology of Acute Infectious Gingivostomatitis**—Black presents clinical and experimental evidence which demonstrates that herpes simplex virus is the primary etiologic agent of acute infectious gingivostomatitis, which condition, he suggests, should be known as acute herpetic gingivostomatitis. The course of the experimental lesion in the inoculated rabbit's eye is typical of herpetic keratoconjunctivitis produced by known strains of herpes simplex virus. The infection is easily transferred to other rabbits. The lesion in the rabbit's eye contains intranuclear acidophilic inclusion bodies indistinguishable from

those produced by known strains of herpes simplex virus. After the infected animals recover they are immune to further virulent inoculations. The agent, carried in serial inoculations of rabbits and mice for months, produces uniformly the typical clinical picture of fatal herpetic encephalitis when injected intracerebrally into rabbits or mice. The presence of the herpes simplex virus in the lesions of acute infectious gingivostomatitis is neither incidental nor accidental but etiologic. The virus is not commonly present in the normal mouth or in mouths with other types of inflammation whereas it is found on a single examination in approximately 90 per cent of the mouths in which there is acute infectious gingivostomatitis. Humoral immunity is present after the disease has run its course, but it is not commonly present during the early stages of the disease. Ten, or more than 40 per cent, of 23 patients were known to have been intimately exposed to a source of herpes virus, whereas only 8 per cent of patients with other types of oral inflammation gave such a history. A typical attack of acute herpetic gingivostomatitis followed inoculation of a volunteer's mouth with the fluid from the vesicles of a herpes simplex lesion.

**Diphtheria and Tetanus Alum Toxoid**—Since 1937 Deamer and his associates have given combined diphtheria and tetanus alum toxoid to 600 infants less than a year old. At first three injections of 1 cc of toxoid were given at intervals of one month. Recently the interval was lengthened to two months. Two months or more after the last injection a Schick test was made and blood was obtained by venipuncture from 242 infants to determine the tetanus antitoxin content by guinea pig assay. The variation in tetanus antitoxin response was considerable, but the blood of all of them contained more than 0.01 unit and of some as much as 10 units of antitoxin per cubic centimeter of serum. Schick tests were negative in 96 per cent, and the infants tolerated the antigen well. A study of their response to a late 'recall' injection of tetanus toxoid is in progress.

### Kentucky Medical Journal, Bowling Green

40 41-74 (Feb.) 1942

- \*Upper Respiratory Infections Evaluation of Immunization K N Victor Louisville—p 43
- Catarrhal Conjunctivitis W C Wells Glasgow—p 46
- Surgical Treatment of Trachoma W A Poole Lexington—p 49
- Diagnosis of Mastoiditis W H Garner Madisonville—p 52
- Present Aspect of Leprosy A O Pfingst Louisville—p 56
- Submucous Resection W S Snyder Jr Frankfort—p 59
- Arteriosclerosis of Retina W Dean Louisville—p 62
- Complications After Cataract Extraction Analysis of 500 Attempted Intracapsular Extractions C D Townes Louisville—p 64
- Ocular Tuberculosis P C Kronteld Chicago—p 66

**Upper Respiratory Infections**—Victor states that individual resistance determines the effect of preventive and immunization measures against the common cold and related infections of the upper part of the respiratory tract. The factors that influence the individual resistance are dietary deficiencies, fatigue, general systemic diseases, anatomic variations, contacts, exposure, climatic conditions, environment, social status, epidemic prevalence, occupation and geographic locations. Assuming that the symptoms, severity, complications and duration of a cold may be prevented or lessened by decreasing the virulence and number of organisms present, the advantage of immunization of 500 employees of an industrial plant with oral and with subcutaneous vaccine over four years was evaluated. The first year (September 1935-March 1936) with no immunization measures the 500 subjects had an average of three and six-tenths colds of an average duration of five and seven-tenths days and there were 45 cases of pneumonia per hundred patients. The corresponding figures for the second year for the 250 employees given six injections of 0.25 to 1 cc of vaccine subcutaneously at intervals of three days were two and six-tenths, four and six-tenths and 3, and for the 250 untreated employees the figures were three and four-tenths, five and three-tenths and 4.5. The third year 166 subjects were not treated 167 were given six subcutaneous injections of vaccine and 167 were given one capsule of oral vaccine for seven days and then one capsule two times a week until March. The figures for the colds, their duration and the number of cases of pneumonia for the three groups were three and five-tenths, five and six-tenths and 6.01, two and three-tenths, four and three-tenths and 2.25, and two and eight-tenths, four and six-tenths and 4.51. The fourth year

the 500 employees were divided into five groups of 100 subjects and each group was given varying amounts of subcutaneous or oral vaccine for different lengths of time. The group given 0.25 to 1 cc of vaccine subcutaneously every three days for six injections and then 1 cc every month and also one capsule of oral vaccine for seven days followed by one capsule two times a week had the least number of colds (one and eight-tenths) of the shortest duration (two and eight-tenths days) and among them there was only 1 case of pneumonia.

### Medicine, Baltimore

21 1-94 (Feb) 1942

- Infections with Virus of Lymphocytic Choriomeningitis T W Farmer and C A Janeway, Boston—p 1  
Tonsillectomy and Poliomyelitis I Epidemiologic Considerations W L Aycock, Boston—p 65

### Military Surgeon, Washington, D C

90 113-224 (Feb) 1942 Partial Index

- Progress of the Part the Veterans' Administration Is Playing in National Defense Program F T Hines—p 113  
Policies and Activities of Medical Department of United States Navy in Present National Emergency R T McIntire—p 119  
Present Policies and Activities of United States Public Health Service W F Draper—p 123  
Trailer Refrigerator for Protection of Food on March and in Field D P Penhallow—p 130  
Some Observations on Efficacy of Convalescent Mumps Serum W H Bailey and A T Hareem—p 134  
Dental Service in Combat G E Meyer—p 152  
Streptococcus Viridans Septicemia: Cure with Sulfapyridine G B Moore Jr and A J Tannenbaum—p 155  
Local Use of Sulfanilamide and Sulfathiazole in Extraction Wounds Preliminary Report L Weiner—p 157  
Prostagnine in Treatment of Chronic Deafness and Tinnitus Aurium A F Judge—p 177  
Medical Service with Horse Mechanized Cavalry on Maneuvers H P Macnamara—p 182  
Plan of Short Period Instruction Designed to Correct Deficiencies Revealed in Training Inspections F B Queen and A R Mailer—p 186  
\*Chigger and Jigger Bites J E Weigel—p 189

**Chigger and Jigger Bites**—Weigel states that, since the irritation and discomfort from bites of chiggers and jiggers have an unfavorable effect on the morale and physical well being of troops, medical officers should have knowledge of their prevention and treatment, especially the medical officer in a warm region where the two mites are prevalent. A check made on 200 soldiers who spent ten days in the field during July 1941 revealed that 78 per cent had three or more chigger bites on their return to the garrison. The fierce, maddening itch is not due to the bite but to the liquefaction of epidermal tissue by a digestive secretion that the larva of the chigger injects into the wound. Prevention is preferred to treatment, and powdered sulfur is the best repellent. Four parts of a vanishing cream known as "Hazeline Snow" mixed with one part of powdered sulfur and applied to the skin leaves an almost invisible film of sulfur. When it was applied before going into the fields and reapplied after a soapy shower on return to camp none of the treated men had chigger bites, while unprotected men had numerous lesions. If the cream was applied to bites early, it ameliorated the pruritus and hastened healing. To remove the larvae present on the skin, a half hour of bathing with plenty of soapy water and then, after drying, a light application of the cream followed by a complete change of clothing is recommended. To relieve the intense itching and irritation the lesions should be sponged with 70 per cent alcohol several times a day, and a boric acid ointment containing 0.65 Gm of phenol and 0.32 Gm of menthol to the ounce should be spread on lightly followed by the dusting on of borated talcum powder. The bites of the sand flea or jigger produce similar lesions. Their prevention is based on the elimination of breeding and hiding places, clearing up of rubbish, admitting sunlight to dark places and filling up cracks and crevices in buildings. The most useful repellents are camphor and sulfur. A solution of camphor, menthol and phenol painted on the skin is of value. A small amount of the sulfur cream recommended for preventing and treating chigger bites destroys the insects. Sulfur fumigation can be used to destroy the insects hiding in barracks or buildings. If the sulfur cream is used constantly, the possibilities of dermatitis from sulfur irritation and toxic effects must be considered.

### North Carolina Medical Journal, Winston-Salem

3 53-108 (Feb) 1942

- Diagnosis and Treatment of Intestinal Tuberculosis C D Thomas  
Sanatorium—p 53  
Concepts as to Etiology of Nonspecific Ulcerative Colitis O N Smith  
Greensboro—p 55  
Management of Nonspecific Ulcerative Colitis C G Reid, Charlotte—p 58  
Amebic Dysentery as Seen in North Carolina J M Ruffin and W Schulze, Durham—p 62  
Labor and Influence of a State Board of Medical Examiners B A Hays, Oxford—p 64  
Correlation of Aorta T W Baker, Charlotte—p 66  
Measles Wake County Epidemic of 1941 C T Williams, Raleigh—p 70  
Some Impressions Gained from Two Hundred and Fifty Cholecystectomies G C Cooke, Winston-Salem—p 74  
Changing Trends in Therapy J A Rose, Winston-Salem—p 78  
Vincicene Anesthesia M L Slate, High Point—p 82  
Mechanics of Contraception W C Highsmith, Fayetteville—p 85  
Sulfonamides in Surgery Review of Literature A deT Valk  
Winston-Salem—p 87

### Oklahoma State Medical Assn Jour, Oklahoma City

35 47-92 (Feb) 1942

- Electrosurgical Treatment of Pathologic Cervix K J Wilson, Oklahoma City—p 47  
Hypertrophic Arthritis and Physiotherapy E Goldfarb, Oklahoma City—p 51  
Syphilis Problem for the Internist W C Thompson, Stillwater—p 53  
Some Common Diseases That Can Be Helped by X-Ray C M Mine Okmulgee—p 55  
Functional Symptoms in Skin Disorders O G Hazel, Oklahoma City—p 58

### Public Health Reports, Washington, D C

57 217-248 (Feb 13) 1942

- Occurrence of Hyaline Sclerosis and Calcification of Blood Vessel in Rats on Sulfaguanidine F S Drift, L L Ashburn, S S Spier and W H Sebrell—p 217  
Dental Status of Adult Male Mine and Smelter Workers II P Brinton, D C Johnston and E O Thompson—p 218

57 249-284 (Feb 20) 1942

- \*Diphtheria Toxoid Treatment of Leprosy Preliminary Report G H Faget and F A Johansen—p 249  
Effects of Distillery Wastes and Waters on Microscopic Flora and Fauna of Small Creek J B Lackey—p 253  
Relation of Plants to Malaria Control, with Special Reference to Impounded Waters W T Penfound—p 261

**Diphtheria Toxoid for Leprosy**—Faget and Johnston point out that because of the favorable report of Collier on the treatment of leprosy with diphtheria toxoid 1 cc of diphtheria toxoid was given every month for up to twenty months to 47 patients at the United States Marine Hospital at Carroll, La. The study was controlled by giving 35 patients similar doses of the broth from which the diphtheria toxoid is produced. The results in the control group were better than those in the group given toxoid. There is no indication that the treatment has a favorable effect on leprosy.

### Radiology, Syracuse, N Y

38 131-260 (Feb) 1942 Partial Index

- Congenital Deformities in Region of Foramen Magnum Basilar Impression W T Peyton and H O Peterson, Minneapolis—p 131  
\*Influence of Single Dose of Commonly Used Laxatives on Gastrointestinal Motility Comparative Study S Bruck and J M Fruchter Philadelphia—p 145  
Roentgen Diagnosis of Spontaneous Internal Biliary Fistula Especially Those Involving Common Duct L H Garland and J V Brown, San Francisco—p 154  
Calcification and Ossification of Vertebral Ligaments (Spondylitis Ossificans Ligamentosa) Roentgen Study of Pathogenesis and Clinical Significance A Oppenheimer, Beirut, Lebanon, Syria—p 166  
X-Ray Protection in Diagnostic Radiology C B Brestrup New York—p 207  
The Specialist as a Naval Medical Officer A H Derring Brewster Wash—p 217  
Photoroentgenography in Tuberculosis Program M I Pirlet Los Angeles—p 224

**Influence of Laxatives on Gastrointestinal Motility**—Bruck and Fruchter studied the gastrointestinal motility of apparently healthy young volunteers following the administration of a single dose of commonly used laxatives: cascara, 1 powder, magnesium citrate, magnesium sulfate or castor oil. For a control the gastrointestinal motility of each subject

studied a week or ten days preceding the study with laxatives. Roentgenograms were made immediately and one hour, three, four, six, eight, twenty-four and forty-eight hours after a barium sulfate meal. Fluidextract of cascara sagrada and compound powder of senna did not alter the control gastric evacuating time. The magnesium salts—citrate and sulfate—and castor oil delayed gastric motility. Each laxative caused an initial irritability of one to three hours of the proximal jejunum. With magnesium sulfate there was a definite delay in the passage of the meal through the small intestine. The other laxatives moderately increased the motility of the small intestine. Fluidextract of cascara sagrada slightly increased the emptying time of the colon. Compound powder of senna and castor oil produced the most satisfactory and complete emptying of the colon. There was more retention at forty-eight hours after the taking of either of the magnesium salts, in spite of numerous defecations, than the control. Castor oil and compound powder of senna appear to be the best laxatives for colonic cleansing in preparing the patient for roentgen examination.

### Rhode Island Medical Journal, Providence

25 23-54 (Feb) 1942

Surgical Treatment of Peptic Ulcer A W Eckstein Providence—p 23

25 55-74 (March) 1942

Leprosy Report of Case and Brief Summary of Certain Interesting Features of Disease H S Barrett Providence—p 36  
Cancer of Skin F Ronchese Providence—p 61

### Tennessee State Medical Assn. Journal, Nashville

35 39-82 (Feb) 1942

Problem of Tuberculosis in Chattanooga and Hamilton County C A Hartung Chattanooga—p 39  
Treatment of Hemorrhoids M W Holehan Memphis—p 43  
Rupture of Intervertebral Disks R E Semmes and F Murphy Memphis—p 49  
Low Back Pain and Injection Treatment L Vinsant Mariaville—p 53  
Contact Lenses—Invisible Eyeglasses J W McKinney Memphis—p 58  
The Wish to Fall Ill E D Bond Philadelphia—p 62

### Texas State Journal of Medicine, Fort Worth

37 639-702 (Feb) 1942

Importance of Physical Diagnosis in Practice of Medicine R H Major Kansas City, Mo—p 647  
Sinobronchial Disease the Stepchild of Medicine O E Egbert El Paso—p 651  
Mental Health—Its Relation to Child Growth and Development T Harris Galveston—p 655  
Society's Responsibility for Protecting Mental Health of Children R L Sutherland Austin—p 658  
Reduction of Recurrence Rates Following Hernia Repairs H J Sheller Fort Worth—p 661  
Management of Acute Cholecystitis P M Ramey and A C Scott Jr Temple—p 664  
Blood Findings in Acute Appendicitis L O Dutton El Paso—p 669  
Uterine Bleeding Complicating Pregnancy Its Significance as Shown in 100 Consecutive Cases T F Bunkley Temple—p 672  
Melanosis of Lip Margin and Conjunctiva Case Reports J T Stough Houston—p 675  
Catarrh Surgery W S Webb Fort Worth—p 679  
Hemorrhages into Anterior Chamber H L Hilgartner Jr Austin and A Pfirsch San Antonio—p 681

**The Blood in Acute Appendicitis**—Dutton plotted the total leukocyte counts and neutrophils of 70 patients before they were operated on for acute appendicitis of 17 for subacute appendicitis and of 25 for chronic appendicitis. Postoperatively the pathologic diagnosis was acute diffuse appendicitis in 31, acute catarrhal appendicitis in 36, chronic appendicitis in 20, subacute appendicitis in 6 and fibrosed appendix in 24. All but three of the leukocyte counts were above 12,000 leukocytes per cubic millimeter and a percentage of more than 80 for the neutrophils. It seemed fairly clear that if the blood count is above 12,000 and the polymorphonuclear percentage above 80, acute diffuse suppuration of the appendix should be expected when the rule of immediate operation is in full force. If definite clinical indications of appendicitis are present but the blood count falls below the aforementioned figures the chances are that the appendix will be in the catarrhal stage. A catarrhal subacutely inflamed chronically inflamed or fibrosed appendix cannot be determined by blood counts. Little diagnostic aid is to be

obtained by considering the percentage of immature neutrophils in appendicitis, as an essentially similar variation is present in all cases. If eosinophils are present there is little likelihood that diffuse suppuration will be present.

### Western J Surg, Obst & Gynecology, Portland, Ore

50 69-114 (Feb) 1942

Ureteral Obstruction Following Irradiation Treatment of Cancer of Cervix P E Hoffman San Francisco—p 69  
Direct Injection of Esophageal Varices Through Esophagoscope P C Samson and L Foree Oakland Calif—p 73  
Bilateral Ovarian Dermoid Cysts Complicating Pregnancy H E Boules Honolulu Territory of Hawaii—p 78  
Treatment of Urinary Tract Infections of Pregnancy A Heldfond Los Angeles—p 82  
\*Body Weight in Spontaneous Myxedema W A Plummer, Rochester Minn—p 85  
Simplified Aseptic Intestinal Anastomosis Experimental Study H P Totten Los Angeles—p 93  
\*Local Implantation of Sulfathiazole as Therapeutic and Prophylactic Measure in Peritonitis Experimental Study M J Pearl and J A Rickles Portland Ore—p 99  
Treatment of Delayed Menstruation with Prostigmine Relationship to Diagnosis of Pregnancy L L Grossmann Milwaukee—p 103  
Total versus Subtotal Abdominal Hysterectomy for Benign Conditions of Uterus R E Ahlquist Spokane Wash—p 109

**Body Weight in Spontaneous Myxedema**—Plummer presents data on 200 cases of spontaneous myxedema which emphasize that overweight need not necessarily accompany the disease. The data consist largely of a correlation between the theoretically normal weight and the individual variable. Of the 200 patients 25 per cent were men and 75 per cent were women. The average age of the men was 47.4 years and of the women 48.4 years. The weight of 123 patients was from 1 to 50 or more pounds (0.4 to 22.7 Kg) above the theoretically normal weight and of 77 it was normal (in 3 only) or 30 or more pounds (13.6 Kg) below normal. The average basal metabolic rate of the patients in whom the theoretical weight was greater than normal was  $-31.4$  and of those whose weight was normal or less than normal it was  $-34.6$ . For the entire group the average actual weight was  $10\frac{1}{10}$  pounds (4.6 Kg) more than the theoretically normal weight at the beginning of treatment. Contrary to what might be expected, the patients having the highest basal metabolic rate, that is those with the least severe myxedema, were, on the average, the most overweight,  $21\frac{3}{10}$  pounds (9.7 Kg). The decrease in overweight was progressive in the direction of the lowest basal metabolic rate. The data warrant the conclusion that when the disease is well established, or at least severe there is an actual loss of body tissue which may not be apparent because of its being replaced by edema. Furthermore, the loss of body tissue becomes progressively greater as the disease becomes more severe. When the edema in spontaneous myxedema has been eliminated by the administration of thyroid, the patient may still be undernourished because of the previous cachexia. Later, if the basal metabolic rate is maintained within normal limits, the patient tends to gain weight by acquiring normal body tissue.

**Sulfathiazole Locally for Peritonitis**—Pearl and Rickles state that the intraperitoneal introduction of sulfathiazole in sufficient concentration is effective in controlling and combating peritonitis produced in the rat by inoculating a pure culture of hemolytic *Escherichia coli*. Simultaneous introduction of a suspension of sulfathiazole with a dose of *Esch coli* culture which alone produced a fatal peritonitis in rats completely protected the rats from any detectable peritoneal or systemic reaction. When a suspension of sulfathiazole was introduced ten hours after the peritoneal cavity was infected, all but 1 animal survived. Definite positive signs of an active spreading peritonitis were present in all before the drug was administered, and the infection left no residua in the recovered animals. Sulfathiazole apparently exerted no harmful effects on the peritoneal cavity. Local application of sulfathiazole at the site of infection causes an immediate high concentration of the drug at the place where it is needed. This inhibits the growth of the colon bacillus, and thus the phagocytes can remove the contaminating material. Study of the blood levels of sulfathiazole in a number of rats suggests that the absorption of the drug from an infected peritoneum is more rapid than from a normal peritoneum and that a blood level is maintained that could combat any bacteremia present in active peritonitis.



## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Urology, London

13 199-286 (Dec) 1941

Stricture of Urethra F. M. Loughnane—p. 199

Bilateral Urinary Calculus, with Review of Fifty-Five Personal Cases H. P. Winstanley White—p. 220

"Delayed Action" Prostatectomy G. H. Barnes—p. 230

## British Medical Journal, London

2 137-172 (Jan 31) 1942

\*Syndrome of Periodic Somnolence and Morbid Hunger (Kleine Levin Syndrome) M. Critchley and H. L. Hoffman—p. 137

Heavy Pervine Spinal Anesthesia: Experience Gained in Series of 420 Cases W. W. Mushin—p. 139

\*Sudden Compression Injuries of Abdomen at Sea N. P. Breden, A. L. d'Abreu and D. P. King—p. 144

Acute Relapsing Dermatitis Due to Nail Varnish H. C. Scmon—p. 146

Acute Appendicitis Associated with Intraperitoneal Hemorrhage from Rupture of Corpus Luteum F. O'Gorman—p. 148

**Periodic Somnolence and Morbid Hunger**—Critchley and Hoffman believe that the syndrome of periodic somnolence and morbid hunger described by Kleine and by Levin is a definite entity. Two cases are reported. Levin believes that there is a periodic excess of inhibition exerted by the highest cerebral centers, including those controlling gastrointestinal motility. From a study of their 2 cases the authors can form no definite conclusion as to the morbid anatomy and physiology of the syndrome. Despite the abnormal electroencephalographic changes in 1, the suggestion of a frontal lobe dysfunction is by no means convincing and they are far more tempted to suggest a pathophysiologic process within or near the hypothalamus. The changes were similar to those observed in epilepsy or in cases of epileptic predisposition in which fits never occurred. This probably indicates the existence of a cerebral dysrhythmia. Blood sugar and electroencephalographic studies during attacks might furnish more helpful data. Dextrose and insulin tolerance tests in 1 case indicated that hypoglycemia was not responsible. Apart from the drowsiness and hunger there were no other symptoms suggestive of hypoglycemia.

**Casualty Compression of Abdomen at Sea**—Breden and his associates describe the visceral injury that is caused by compression or suction waves set up by the detonation of high explosives on land or at sea. Organisms permeating a contused colon were the cause of pelvic and subphrenic abscess which 2 patients had who recovered after drainage. There were 7 patients with severe melena but without serious complications who recovered, but 1 patient with lacerations of the ileum, peritonitis and compression injuries of the lungs died after a laparotomy and suture of the perforation. In addition to the abdominal injuries, blast effects in the lung were seen at necropsy of the patient who died. The patients who survived did not show symptoms or signs of severe blast injury to the lung. The immediate symptoms (vomiting with blood, diarrhea with melena and testicular pain presented by 4 patients) after sudden compression were not severe. The testicular pain was probably due to a direct compression effect. No patient had external bruising. None of the patients were seen in the first twenty-four hours. The results justify conservative management. Neither of the 2 patients with abscess showed positive signs demanding immediate laparotomy. Microscopic study of the lungs and small intestine of the patient who died disclosed edematous patches with many carbon particles and some basophilic debris. Many macrophages, attributed to the inhalation of sea water and fuel oil, were present. Sections of the ileum showed the hemorrhages to be most severe in the submucous and subperitoneal layers of the intestine. The hemorrhages in the intestine were more diffuse than was suggested macroscopically.

## Journal of Laryngology and Otology, London

56 415-458 (Dec) 1941

Otitic Meningitis F. W. Watkyn Thomas—p. 415

Postural Instillation: Method of Inducing Local Anesthesia in Nose A. J. Moffett—p. 429

## Lancet, London

1 129-158 (Jan 31) 1942

\*Outbreak of Paratyphoid B in Bristol. Note on Routine Investigation of Food Borne Epidemics I. G. Davies, K. E. Cooper, D. C. Fleming, H. M. Gould and R. Williams—p. 129

Paratyphoid B Infection: Fatal Case, Development of Carrier State T. F. Hewer—p. 132

\*Bacteriology of Epidemic Paratyphoid Fever in Liverpool H. D. Holt, A. C. T. Vaughan and H. D. Wright—p. 133

Staphylococcal Septicemia: Recovery with Sulfathiazole W. A. Jackson and N. H. Martin—p. 135

Normoblastic Crises After Air Raid Injury J. G. Humble—p. 137

Pancreatic Fistula Implanted into Stomach H. C. Edwards—p. 137

Foreign Bodies in Air Passages H. V. Morlock and B. G. Edelstein—p. 138

Addition of Glucose to Stored Blood R. A. Bono and J. F. C. Wilder—p. 139

**Outbreak of Paratyphoid B in Bristol**—Between Aug. 18 and Oct. 30, 1941, 268 cases suggestive of paratyphoid B infection were reported in Bristol. Laboratory evidence of the infection, Davies and his co-workers say, was present in 244 and clinical paratyphoid in 203; there were 41 intestinal carriers. Investigation of the source of infection disclosed a common confection prepared by one firm. Investigation of the firm's premises and staff narrowed down to a girl employee who had had a vague history of headaches and malaise and had ceased to work on August 2. She was visited and persuaded to have her blood and feces examined. *Salmonella paratyphi B* was isolated from the feces. Of 167 patients with the primary disease 102 (61 per cent) had consumed artificial cream from the confectionery. Opportunities for infection of this cream by the girl employee were present in each instance. Of the 41 intestinal carriers, 19 had consumed artificial cream from the firm, 9 were members of families in which a known case had occurred, 6 belonged to a family known to have consumed infected cream and 13 were untraced. Of the 244 patients with established infection 149 (61 per cent) were known to have either consumed food material which was known to be infected or were in intimate contact with a person known to have paratyphoid. Of the remaining 95 with untraced infections the onset of the illness of 65 began during the primary wave of the epidemic with similar dates of onset and a similar peak. A number of strains of the paratyphoid organism isolated from cases arising during and after the primary wave reveals that they are all of the same phage type, type I, which at present is common throughout the country. The best method of controlling epidemics of paratyphoid B is by examining the feces, Widal tests will miss many cases in the early stage. Bacteriologic study must also be made of the feces of all contacts and of people engaged in handling food. The management of all food factories must be impressed with the importance of strict cleanliness among the food handlers. Adequate washing and facilities for clean linen must be provided.

**Bacteriology of Epidemic Paratyphoid**—Holt and his associates believe that the value of fecal cultures in the diagnosis of paratyphoid is illustrated by the fact that of 466 cases of paratyphoid B that recently occurred in and around Liverpool 96 per cent were confirmed by this method. The method was equally diagnostic at all stages of the infection, including the first week. Positive cultures were obtained at the first attempt from 402 of 439 cases (92 per cent), at the second from 32 and at the third attempt from 5. Fecal infection was particularly slow to clear up in women more than 20 years of age. Of 7 women more than 40, 9 continued to excrete paratyphoid bacteria in the feces for more than sixteen weeks. The ultimate origin of the epidemic is still uncertain, but its great extent appears to have been due to contamination of synthetic cream. This contamination was regarded as an accident in the history of 10 or more persons who became infected in the early days of the epidemic and whose occupation permitted them to infect many more other persons in the same place of employment, who may have contributed their quota to the final result. The employees who were infected early when detected at home with conditions labeled gastritis but which were actually paratyphoid, the other infected employees were detected while still at work. These facts emphasize the importance of bacteriologic examination of even mild intestinal disturbances and too that the hygiene of large bakeries requires more supervision.



## Helvetica Medica Acta, Basel

8 525 654 (Nov.) 1941 Partial Index

Study of Meteorism J A Mathez—p 523

\*Pathologic Aspects of Cerebrospinal Fluid in Poliomyelitis (Meningitic and Paralytic Stages) P Lotscher—p 578

Ferment Chemistry of Human Spermiatic Fluid C A Joel—p 595

Study of Parathyrogenic and Idiopathic Forms of Tetany T Vitti—p 601

**Cerebrospinal Fluid in Poliomyelitis**—Lotscher is concerned with the cerebrospinal fluid of the second and third stages of poliomyelitis after the invasion of the central nervous system by the virus. The first stage is characterized clinically by the absence of neurologic symptoms and a normal cerebrospinal fluid. Many patients are cured during the first stage. The majority of these purely "abortive cases" are not diagnosed. The author is concerned with 101 patients hospitalized during the second and third stages of poliomyelitis and subjected to one or several spinal punctures. The fluid pressure was normal in 44 per cent (70 to 150 mm of water), in 43 per cent it was moderately increased (150 to 200 mm) and in 13 per cent it was greatly increased (over 200 mm). There was no complete parallelism between pressure and cell count though the high pressures were usually accompanied by rather high cell counts. The Queckenstedt phenomenon was always positive. The cerebrospinal fluid was water clear in the majority of cases but when the cell count was high a slight turbidity was visible against a dark background. Obvious spider web formation was observed in 2 cases xanthochromia in 1. The cell count was increased in about 98 per cent. Cell counts of more than 1000 were observed chiefly in the meningitic types. In the paralytic types the polyplegic patients usually had higher counts than did the monoplegic ones but there was no parallelism between the severity of the disease and the cell count. There were a number of fatalities among patients with rather low cell counts. Following invasion of the virus into the central nervous system the cell count increases rapidly to maximal values, so that the first puncture usually reveals the severest pleocytosis. The polymorphonuclear cells usually predominate over the mononuclears in the first puncture. This predominance persists generally beyond the rapid decrease in the cell count during the first week and is replaced by a mononucleosis only after from two to four weeks. The Pandy reaction was positive in 71 cases, Nonne's reaction in 33. The first puncture disclosed an increase in the total protein content in only 42 per cent of the cases; subsequent punctures increased this figure to 50 per cent. The incipient cytoalbumin dissociation gradually changes into an albuminocytologic one. The increase in the total protein content is of no prognostic significance. The colloidal gold reaction is of limited prognostic significance. The sugar content of the cerebrospinal fluid was normal in 79 per cent of the cases. The supposed unfavorable prognosis of increased sugar content could be corroborated in only two of the nine fatalities. The rarity of decreased sugar values is helpful in the differentiation from other forms of meningitis particularly tuberculous meningitis. There is no one aspect of the cerebrospinal fluid that is characteristic of poliomyelitis. However positive findings in the cerebrospinal fluid, together with the history and clinical signs, permit the diagnosis of poliomyelitis during the meningitic stage. In paralytic forms positive observations in the cerebrospinal fluid are of differential diagnostic significance.

## Anais Paulistas de Medicina e Cirurgia, São Paulo

42 459-544 (Dec.) 1941 Partial Index

Sulfanilamide Through Arteries J Saldanha Faria—p 473

Electroanalgesia in Tuberculous Painful Dysphagia E C F Mondadori and F Laria Pereira—p 501

**Sulfanilamide Through Arteries**—Saldanha Faria advocates the arterial route for administration of sulfanilamide in local infection of extremities. The injection is made into the main artery of the limb into the radial in the case of infection of the hand and forearm into the subclavian above the upper border of the clavicle in infections of the arm and into the femoral artery at the base of Scarpa's triangle in infections of the legs. The injection is made slowly with a 6 cm needle of the type used for lumbar puncture. The injection is made

in the direction of the blood stream. After the injection the needle is quickly withdrawn and the point of injection is compressed for a few minutes. The injection is harmless. It produces a local analgesic effect and is not accompanied by unpleasant general reactions or vasomotor phenomena. Indications for intra-arterial injections of sulfanilamide are local infections of the extremities, erysipelas, acute and subacute lymphangitis, abscess, infected trauma, chronic ulcer, osteomyelitis, wet gangrene, compound fractures and acute and subacute arteritis. The earlier the administration of intra-arterial injections of sulfanilamide the more rapid and better the effect.

**Electroanalgesia in Tuberculous Painful Dysphagia**—Mondadori and Faria Pereira direct attention to Gran's method of "electroanesthesia (iodine ionization) of the larynx" and the value of the procedure in the therapy of acute painful swelling in tuberculous laryngitis. The metallic electrodes of steel and tin, respectively, are bent to the form of the throat and back of the neck. The concave part of each electrode is filled with a thick layer of cotton. The anterior electrode is soaked in a 2 per cent potassium iodide solution and the posterior one in water. The electrodes are firmly applied to the throat and back of the neck by means of an elastic bandage. A galvanic current of 12 milliamperes is passed through the electrodes for thirty minutes. Pain stops completely within the first fifteen minutes of the treatment. It reappears within or after twenty-four hours. In either case the treatment is repeated only when pain recurs. The intervals of recurrence of pain after the first twenty-four hours rapidly increase from several days to several weeks. All patients can resume normal feeding immediately after the first treatment. The treatment controls pain permanently without any effect on the course of the tuberculous laryngeal lesions. Edema of the larynx is the only contraindication. Administration of local and inhalation anesthesia and local trauma of any degree are prohibited, as they nullify the effects of electroanalgesia. The treatment is painless, harmless and simple. It gives good results in all cases regardless of the stage and extension of the involvement.

## Arquivos de Biologia, São Paulo

26 1-28 (Jan.) 1942 Partial Index

\*Therapeutic Abortion and Malignant Endocarditis Lenta I Taddeo—p 16

**Therapeutic Abortion and Malignant Endocarditis Lenta**—Taddeo stresses the inadvisability of inducing abortion in women with heart disease, especially in the presence of a history of rheumatic fever. Abortion may be the cause of Streptococcus viridans infection and consequent development of a malignant endocarditis lenta due to the passage of bacteria from the operative wound to the blood and the predisposed heart valves. Pregnancy in women with heart disease can be carried to full term if the patients are under constant medical care. Abortion is indicated only in exceptionally rare cases of grave heart disease in which cardiac insufficiency appears in the first three months of pregnancy and cannot be controlled. The author prefers high cesarean section with sterilization of the patient to abortion. A case of malignant endocarditis lenta after abortion in a woman with heart disease of rheumatic origin is reported.

## Revista Española de Tuberculosis, Madrid

10 559-610 (Oct.) 1941 Partial Index

\*Tuberculin Tests and Roentgen Examinations of Thorax of 1462 Young Men A Alemaný Selfa and A Gomez Lopez—p 559

**Tuberculin Tests and Roentgenograms**—Alemaný Selfa and Gomez Lopez performed tuberculin tests and roentgen studies on 1462 apparently normal young men between the ages of 20 and 27. The Pirquet tuberculin skin reaction was positive in 1349 men. The Mantoux intradermal test was performed on the group of 113 men who gave a negative or doubtful tuberculin skin reaction to a dose of 0.1 cc of 1:1000, 1:100 and 1:10 tuberculin dilutions. Thirty-five men gave a positive reaction to the 1:1000 tuberculin dilution, 18 to the 1:100 and 13 to the 1:10 tuberculin dilution. Negative reactions were observed in 47. Roentgenograms of the chest showed

tuberculous lesions in 11 cases. The disease was in a stage of evolution in 8 cases. There were residual tuberculous pleural lesions in 100 and residual tuberculous pulmonary lesions in 133. Allergy was more frequent in the city dwellers than in those who lived in the country, but the difference was small.

### Revista Médica Peruana, Lima

13 561-640 (Oct) 1941 Partial Index

Complicated Perforation of Uterus Sigmoido Uterine Fistula C Heriud —p 563

\*Nine Cases of Anxiety Neurosis Treated by Metrazol F Sal y Rosas —p 567

Radiologic Examination of Gastric and Duodenal Ulcers M Arias Schreiber —p 577

**Anxiety Neurosis Treated by Metrazol**—Sal y Rosas employed metrazol in the treatment of neuroses. He found that the provoked attacks exert a favorable influence particularly on the symptoms of anxiety. Metrazol treatment was found to be extraordinarily efficient in anxiety neuroses, 8 of the 9 patients treated with it having had a more or less lasting remission. The 1 patient who did not respond proved subsequently more amenable to medicinal treatment and to psychotherapy. Not a single case of aggravation was observed. In anxiety, as in other forms of neurosis, favorable results were obtained with injections that did not produce a convulsive effect. The neuroses of shortest duration reacted most favorably to metrazol treatment.

### São Paulo Médico, São Paulo, Brazil

2 187-248 (Dec) 1941 Partial Index

\*Determination of Sulfanilamide in Bone Marrow Considerations on Origin of Sulfanilamide Neutropenia from Changes of Hemogram and Myelogram L Ayres and D Pedrosa —p 187

**Sulfanilamide in Bone Marrow**—Ayres and Pedrosa studied hemograms and sternal myelograms in 3 cases in the course of sulfanilamide therapy and after and made quantitative determinations of the sulfanilamide in the venous blood and in the sternal marrow. They found that sulfanilamide is stored in the bone marrow. The amount in the bone marrow is twice that in the venous blood for more than two or three weeks after discontinuation of the treatment. The time of "delay" for therapeutic action of sulfanilamide, when small doses of the drug are administered, is time necessary for the accumulation of the drug in the bone marrow. Sulfanilamide impregnates the protoplasm of the neutrophilic leukocytes, which are the carriers of sulfanilamide in the blood. Sulfanilamide impregnation of the bone marrow tissue results in a greatly retarded maturation of erythroblasts and myelocytes with consequent development of peripheral erythropenia and neutropenia. The bone marrow is a good reservoir for sulfanilamide as well as tissue capable of conveying the drug to the blood by the neutrophil leukocytes. This suggests the advisability of injecting sulfanilamide into the sternal bone marrow to obtain rapid results.

### Semana Médica Española, Madrid

4 333-364 (Oct 11) 1941

\*Treatment of Chronic Osteomyelitis and Immunotransfusion M Gomez Duran —p 333

Fractures as Complications of Convulsion Therapy A Prieto Vidal and I Lopez Saiz —p 342

Psychology of Patients with Biliary Disease F Fernandez Martinez —p 351

Present Status of Syphilis in Spain in 1941 E Alvarez Sainz de Aja —p 355

Oxycephaly and Mental Deficiency Difficulties of Neuropsychologic Diagnosis M Schlachter, M Wahl and S Cotte —p 358

\*Consideration of Nutritional Value of Oysters C Blanco Soler —p 360

**Immunotransfusion in Chronic Osteomyelitis**—According to Gomez-Duran, surgical treatment does not always effect a cure in fistulous osteomyelitis. Various considerations indicate immunotransfusion as a complementary treatment. Chronic osteomyelitis causes grave disturbances in the serum proteins, and this makes the transfusion of plasma proteins advisable, the use of vaccine and chemotherapy is likewise helpful in osteomyelitis. Immunotransfusion preceded by vaccination and sulfanilamide treatment of the donor combines these different

factors. The author considers immunotransfusion advisable as a complementary treatment after a surgical intervention and as the only treatment in cases of diffuse infection without sequestrum formation in which operation is not indicated. He employs it in practically all cases of osteomyelitis complicating fractures. The immunotransfusion is given within a week after the surgical intervention and is followed by the occlusive treatment of Orr.

**Nutritional Value of Oysters**—Blanco Soler states that the popular belief that oysters should not be eaten during the months without an r (May, June, July and August) is unfounded, except that their nutritive value is slightly less at this time. Oysters are rich in protein and in amino acids and compare favorably with meat and eggs. They also contain readily assimilable mineral salts, such as copper, manganese, calcium, iron and iodine. Green oysters contain lecithin, which provides phosphorus in an advantageous form. Carbohydrates are present as glycogen. Vitamins A and D are present in abundant quantities and B, C and G in appreciable amounts. The digestibility of raw oysters compares with that of raw eggs or milk, cooked oysters remain in the stomach somewhat longer. Because of the high iron, manganese and copper content, oysters have long been recommended for anemia. That eating oysters results in regeneration of the blood has been demonstrated in experiments on rats. In pernicious anemia, oysters can be estimated next to liver. The author recommends the combination of liver therapy with the eating of oysters, the more so since they stimulate the appetite when eaten before a meal, furthermore, they increase the production of the gastric and pancreatic juices. Oysters influence the regeneration of hemoglobin more than the augmentation of the erythrocyte count. In anemias and in hepatic disorders accompanying them the glycogen content of the mollusks and their richness in diastases should not be forgotten. The concurrence of vitamins A and D and of iodine makes them recommendable for use in rickets. Because of their high vitamin content oysters have been recommended also in the treatment of scurvy and of pulmonary tuberculosis. The vitamin C content of oysters is probably explained by the presence of this vitamin in the aquatic vegetable matter which they consume.

### Chirurg, Berlin

13 33-64 (Jan 15) 1941

Surgical Interventions in Gunshot Wounds of Pelvic Bones C Reimer —p 33

\*Treatment of Infected Wounds with Potassium Permanganate Boric Acid Solution and Powder B von Mező —p 43

\*Potassium Permanganate Boric Acid Powder in Wound Treatment I Györfy —p 45

Shearing Off Fractures of Tuber Calcanei F Jimeno Vidal —p 46

\*Esophageal Stricture After Diphtheria Continuous Dilatation F Weigand —p 51

\*Synovial and Anthomatous Tumors H C a Wengen —p 55

**Treatment of Infected Wounds with Potassium Permanganate-Boric Acid Solution and Powder**—Von Mező demonstrated that combination of ineffective and weakly acting solutions may increase the bactericidal action without injury to the tissues. Finely powdered boric acid and potassium permanganate, mixed in the ratio of 100 Gm of boric acid to 0.8 or 1 Gm of potassium permanganate, were found in animal experiments to be well tolerated when applied to wound surface. The author first thoroughly cleanses the wound by irrigation with a solution of potassium permanganate-boric acid (potassium permanganate 1:4,000 in 3 per cent solution of boric acid). Then the wound is dusted with the aforementioned powder and is sutured in layers over drainage tubes. This treatment was found especially effective in the treatment of open fractures. 15 of 19 healed without fever. In 2 cases reduction had to be done elsewhere without careful cleansing of the street dirt and in 1 of them a gas phlegmon developed. Renewed reduction and application of generous amounts of the powder arrested the process. The patient was cured. The potassium permanganate-boric acid powder is especially effective in the treatment of anaerobic infections. The powder proved effective in severe cases of appendicitis, in renal operations and in cerebral abscess. While as much as 30 Gm of the powder was

used without harmful effects, such large quantities are rarely required. The powder dissolves at once in the tissue fluids after being dusted on. It does not precipitate the protein, the cellular function is not impaired, its solubility in lipoids facilitates deep penetration. The bactericidal action is intensified by the fact that tissue fluids pass toward the concentrated salt solution on the surface, this carries the pathogenic organisms toward the surface, where they are killed. The author recommends this treatment for war injuries.

**Potassium Permanganate-Boric Acid Powder in Wound Treatment**—Gyorffy states that the potassium permanganate and boric acid mixture of von Mezo represents an intensification of the effects of the two. The mixture is especially effective in the treatment of crushed contaminated and infected wounds. A culture of a platinum loopful of wound secretion of a contaminated foot wound yielded 68 bacterial colonies, three hours after application of the powder mixture only 7 colonies were obtained and after an additional three hours the culture of 5 specimens yielded not a single living micro-organism. Control experiments with boric acid powder (without admixture of potassium permanganate) disclosed that it alone is incapable of exerting an adequate bactericidal action. Control tests with pure potassium permanganate powder could not be made because of possible tissue damage. It was ascertained also how the mixed powder acts on pure staphylococci and streptococci cultures. All bacterial growth disappeared from an agar plate after the powder was dusted on whereas some organisms still survived twelve hours after boric acid alone was applied to the plates. Gyorffy concludes that the potassium permanganate-boric acid powder is valuable in the treatment of contaminated traffic and war wounds.

**Postdiphtheric Esophageal Stricture**—Postdiphtheric esophageal stricture is rare, probably because diphtheria with esophageal involvement is usually fatal. Weigand reports the history of a boy aged 9 in whom diphtheria was followed by difficulty in swallowing. After a year the condition had become severe. Roentgenologic examination disclosed extreme narrowing of the esophagus. A Witzel fistula was made, which permitted adequate feeding. A urethral cystoscope was introduced through the fistula, and with some effort it became possible to pass upward a slender urethral catheter. A thin silk thread was fastened to the catheter and pulled upward through the esophagus. The two ends, the one coming from the mouth, the other one from the fistula, were knotted together. Every second day a new thread was added and pulled through. Later the threads were replaced by a smooth cord. Finally thin Nelaton catheters were used for dilation. As their size increased, the catheters were left in place during the night. During the day only a thread was left in place. After three months of treatment the boy was again able to take fluids through the natural passage. After fourteen months of treatment all foods could again be taken by mouth, but the fistula was kept open for a while. Dilation was continued twice a week and this was followed by dilation with English bougies. Roentgenologic examination revealed that the esophagus was again normal in size. Although continuous dilation requires much time and much patience it is to be preferred to a premature surgical operation. Dilation is superior to a plastic intervention.

**Synovial and Xanthomatous Tumors**—Wengen describes a xanthomatous synovium of the elbow joint in a youth aged 18 who three months previously had knocked his elbow against an iron press. A mild painful swelling appeared on the extensor surface two days later. It subsided in two weeks but reappeared after a month. A slightly fluctuating swelling almost the size of a plum was present between the olecranon and the lateral condyle. Active and passive movements were impaired. Roentgenologic examination disclosed no pathologic changes and exploratory puncture was negative. At operation under local anesthesia a grape shaped pedicled yellowish brown tumor 7 by 5 by 3 cm. was removed from the radial side of the olecranon. It was attached to the inner surface of the articular capsule. Microscopic examination revealed spindle shaped connective tissue strands partly in reticular arrangement and traversed by capillaries. At other sites there were

xanthoma cells with hemosiderin deposits. There were no signs of malignancy. The pathologic-anatomic diagnosis was epulis-like tumor of the synovia with xanthoma formation and signs of old hemorrhages. The postoperative course was uneventful, and a follow-up examination nine months later disclosed no abnormalities. Opinions differ widely regarding synoviomias. They have been designated as gigantocellular fibrosarcomas, endotheliomas and gigantocellular sarcomas with hemosiderin. The etiology of synoviomias is still obscure, age seems to play no part, they are twice as frequent in men as in women. The knee is the most frequent site, and fingers and metatarsal joints next. Synoviomias are resistant to irradiation, making surgical treatment advisable. The synovium oscillates between fibroma and sarcoma. It greatly resembles brown tumor or epulis. If a synovium shows signs of malignancy, two thirds of those operated on die within five years. In the absence of malignant degeneration the postoperative life expectancy is not decreased. The reported case is noteworthy because of the concurrence of a synovial tumor at a rare site with xanthomatous formation. It has long been disputed whether xanthomas are true blastomas or granulation formation. Traumas, even slight ones and metabolic disturbances may be eliciting factors. At present blastomatous genesis of xanthomas is accepted beside a granuloma theory. There is so far no uniform conception regarding the mode of development or the character of synoviomias and xanthomas.

### Monatsschrift für Kinderheilkunde, Berlin

85 313-444 (Feb 5) 1941 Partial Index

\*Further Contribution to Prophylaxis of Measles. H. G. Huber—p. 313

\*1st Case of Kala Azar in Hungary. J. Geldrich—p. 332

Studies on Eczema in Infants. P. Wöringer—p. 348

Feeding of Infants According to Bessau. H. J. Keller—p. 366

\*Therapy of Epidemic Meningitis. Gerda Oetzer—p. 374

**Prophylaxis of Measles**—Huber describes an epidemic of measles among children of German families returning from Volhynia and Galicia. The psychic shock of the migration, one sided and inadequate diet and lack of natural immunity could have been factors in the severity of the complications and the high mortality rate he mentions. Children sharing the camp with those who had contracted measles were subjected to a prophylactic treatment either with a preparation of retroplacental blood or with one of placental blood. It was observed that the retroplacental blood extract was about as effective as serum from adults, but it had the advantage that it is always available. To be more effective it may be given in considerably higher doses. The prophylactic treatment from placental blood produced somewhat better results than did the retroplacental blood extract, but the protective effect was not quite as good as earlier reports had indicated. This might be explained by the fact that the placental extract is not standardized for its prophylactic activity and that its content of active substances varies. Both substances are of value in the prophylaxis of measles, but the placental extract is somewhat more effective than the retroplacental blood preparation.

**First Case of Kala-Azar in Hungary**—According to Geldrich, the infantile form of kala-azar or Leishmania infantum occurs in the Mediterranean countries but is practically confined to the coastal regions. In Hungary it has as yet not been observed, although the disease was watched for by pediatricians and internists, particularly during the years after 1920 when numerous cases were reported in Italy. The case reported is the first encountered in Hungary. The splenomegaly, hepatomegaly, intermittent fever and the characteristic blood changes led to the diagnosis of kala-azar and the demonstration of Leishmania donovani in the splenic punctate corroborated it. Intravenous injections of neostibosan (a pentavalent antimony compound) were given beginning with 0.03 Gm and increasing to 0.07 Gm, 0.1 Gm and finally to 0.2 Gm. The injections were given every second or third day. In all the child received 1.2 Gm of neostibosan. The effects of the treatment became apparent after the fifth injection when the fever subsided. A follow up examination after seven months disclosed that the splenomegaly and hepatomegaly had completely disappeared and that the child can be considered cured.

**Therapy of Epidemic Meningitis**—Oetker presents a survey of 114 cases treated at the Magdeburg clinic since 1935. The results of meningococcic serum therapy were unsatisfactory. Blood transfusion was extremely helpful as an adjuvant to other treatments. Repeated withdrawal of cerebrospinal fluid and subsequent air filling proved of value in older children, but in children under 2 years of age the results were unsatisfactory. Chemotherapy with azosulfamide was tried but was given up because no evident results were obtained. Other sulfonamide preparations tried more recently were ulirom (dimethyl-disulfanilamide) and sulfapyridine. The therapeutic effects of ulirom did not come up to expectations, but sulfapyridine proved highly effective, even in doses which are far exceeded today. It is to be expected that the larger doses of sulfapyridine will produce even better results.

#### 86 1-138 (March 12) 1941 Partial Index

- Studies on Edema in Infants P Wounger—p 1  
Whooping Cough Attack A Peiper—p 17  
\*Hemorrhagic Diathesis in Congenital Pyloric Stenosis (Hypoprothrombinemia) A Wallgren—p 32  
Modification of Quick's Method of Prothrombin Determination J Lehmann—p 44  
\*Duodenal Ulcer in Infants Dorothea Krafft—p 49  
\*Scalds and Burns in Children Treatment B Fincke—p 73  
\*So Called Interstitial (Plasmacellular) Pneumonia of Prematurely Born and Weak Infants W Giesenbauer—p 111  
Sturge Weber's Disease During Childhood W Goeters—p 122  
Antibodies of Scarlet Fever Convalescent Serum G Tamasi—p 136

**Hemorrhagic Diathesis in Congenital Pyloric Stenosis (Hypoprothrombinemia)**—Wallgren reports case histories which suggest that the hemorrhagic diathesis of children with congenital pyloric stenosis resembles that which occurs in the newborn. The coagulation time was determined in only 1 of the cases, and in that 1 it was retarded as in hemorrhagic diathesis of the newborn. The latter is due to hypoprothrombinemia, which in turn is the result of K avitaminosis. Hemorrhagic diathesis associated with severe diarrhea or other intestinal disturbance is likewise the result of prothrombin deficiency. As a result of intestinal disturbance, vitamin K is either produced or absorbed in insufficient quantities. This led to the assumption that the hemorrhagic diathesis of pyloric stenosis is likewise a manifestation of a deficient enterogenic production of vitamin K and of hypoprothrombinemia caused by it. The correctness of this assumption was supported by the therapeutic effect of vitamin K in a case of hemorrhagic diathesis in pyloric stenosis. The rapid arrest of the hemorrhage without a simultaneous improvement of the nutritional state and in the presence of continued vomiting demonstrates that vitamin K deficiency is a factor in causing the hemorrhage. The author reports cases of pyloric stenosis in which repeated prothrombin tests demonstrated hypoprothrombinemia which could be counteracted by vitamin K. The hypoprothrombinemia and the resulting hemorrhagic diathesis are of clinical importance in pyloric stenosis. The author cites reports from the literature on postoperative hemorrhages in connection with Ramstedt's operation. Such reports have become less frequent since introduction of preoperative blood transfusions. The transfusions increase the prothrombin content and reduce the tendency to bleeding. He recommends routine administration of vitamin K previous to pylorotomy.

**Duodenal Ulcer in Infants**—Krafft reviews the literature on duodenal ulcer in infants and describes 4 new cases that came for observation at the pathologic institute of a Munich hospital. The etiology of duodenal ulcer in infants has not been explained, but the increased incidence during the summer months is noteworthy. All infants who give even the slightest indication of ulcer should be carefully examined. Search for occult blood in the stools is particularly recommended. Information should be obtained regarding the hydrochloric acid values of the gastric juice. The concurrence of ulcer development with the onset of hydrochloric acid production deserves consideration.

**Treatment of Scalds and Burns in Young Children**—Fincke reports observations on 95 children with scalds and 5 with burns. There were 26 fatalities. Complications in the form of severe dyspepsia, pneumonia, toxic impairment of the circulation, sepsis and anuria were the chief causes of death.

Dressings with 10 per cent alcohol proved most effective for heat lesions of the first degree, those of the second degree were treated with cod liver oil ointment, tannin and a burn plaster containing bismuth, alum, zinc, amyl, ethyl aminobenzoate, boric acid and Peruvian balsam. The ointment treatment can be preceded by application of alcohol. In heat lesions of the third degree the cod liver oil ointment is more suitable than tannin. The scalds of the first degree and most of those of the second degree healed without scars. The other second degree lesions resulted in slight scar formation. All scalds of the third degree healed with central scar formation, irrespective of whether cod liver oil ointment or tannin was used. Two of the third degree lesions resulted in keloid formation, which were successfully treated with radium rays.

**Interstitial Pneumonia of Children**—Giesenbauer states that in the disorder referred to as interstitial pneumonia occurring in young children and in prematurely born infants all lobes, with the exception of their anterior portions show hepatic consolidation. The cut surface varies in color from light gray to gray-red. Suppurative bronchitis and pleurisy are usually absent. Microscopic examination discloses enlargement of the alveolar framework and a peculiar exudate in the lumen of the alveoli. The enlargement is due to a dense accumulation of lymphocytes and plasma cells and to a lesser extent to an increase in fibrocytes and fibroblasts. The exudate has a honey-comb appearance and resembles fibrin but does not take the same stains. There may be seen an admixture of exfoliated alveolar epithelial cells which frequently have fatty and lipid granular inclusions and rarely inclusions of polymorphonuclear leukocytes. These observations are based on 46 cases which came to necropsy. All concern children less than 1 year old, 33 of which were prematurely born infants. There is agreement with regard to the microscopic appearances of this pulmonary disorder but no general agreement as to the differentiation from other forms of interstitial pneumonia of childhood, particularly from the congenital syphilitic pneumonia. Syphilitic congenital pneumonia and the interstitial (plasmacellular) pneumonia are not identical in their microscopic characteristics. The peculiar type of exudate which is regularly encountered in the interstitial pneumonia is never seen in congenital syphilitic pneumonia. The thick concentric increase in fibers about the arterial and venous branches which is seen in the syphilitic form is never observed in the interstitial pneumonia. Noteworthy also is the comparatively slight increase in collagenic fibers in the interstitial form. The cause of interstitial pneumonia is unknown. Various types of bacilli have been encountered. It is not certain whether the disorder is infectious and whether it should be designated as pneumonia. The first case reported (Feyrter) was identified as "lymphoplasmocytoma," and in the more recent reports it is referred to as diffuse plasmocytosis of the lung, rather than interstitial pneumonia.

#### Geneeskundig Tijdschr v Nederl-Indië, Batavia

##### 81 2621-2668 (Dec 9) 1941 Partial Index

- \*Bacteria of Newcastle Dysentery Group from Feces of Patients with Symptomatic and Bacillary Dysentery in Netherlands East Indies H Esseveld, H Beeuwkes and J K Baars—p 2622  
Stability of Iodine in Iodized Salt A G Van Veen—p 2637  
Difficulty of Classifying Tumor of Humerus W M Pruijs—p 2641

**Bacteria of Newcastle Dysentery Group in Dysentery Patients in Netherlands East Indies**—According to Esseveld and his collaborators the mucous and bloody stools of patients with mild bacillary dysentery yielded on culture forming bacteria which, according to comparative examination with the Manchester type of the Newcastle dysentery bacteria. The identity claimed by Scott and Boyd for the antigen of the Newcastle dysentery organisms with that of the type described by Boyd (Boyd 88) could be corroborated by Esseveld and his associates. In 64 cases of dysentery on the East coast of Sumatra the feces yielded a bacterial flora of the Manchester type and no other pathogenic bacteria. Simultaneous bacteriologic tests on feces from patients with dysentery never disclosed the Manchester strain. In a series of tests the original Newcastle type was encountered.



## Book Notices

**Bellevue in France** Anecdotal History of Base Hospital No. 1 By Anne Tjomsland M.D. Cloth Price \$2.50 Pp. 251 with 82 illustrations New York: Froben Press 1941

The publication of this book is timely. It should attract all who are interested in military hospitals in the war area. The Bellevue unit operated as Base Hospital No. 1 in Vichy, France, from March 12, 1918 to March 5, 1919. The author, avoiding all technical details, portrays the operation of the unit in a delightful manner with many anecdotes, photographs and maps. Fortunately, she had not only an unusual appreciation of the psychology of the hospital personnel, patients and the French people but also the ability to transmit her impressions to the reader.

One gains the impression that the friendliness of old Bellevue as expressed by an outgoing patient, "This is a friendly place," must have prevailed at Vichy, for the spirit of service prevailed. No task was too difficult, no hours of labor were too long if the comfort and welfare of the patients required it. The personnel and convalescent patients did new strange tasks remarkably well. One learned that when human life is to be salvaged and suffering relieved the best in all of us becomes evident. "There was not much need of discipline; we were learning that when mankind is pushed to extremities its behavior on the whole is pretty decent."

The unit, which was organized in the autumn of 1916, was accepted by the War Department in June 1917. The equipment, valued at more than \$125,000, was purchased by funds donated by friends. It sailed on the *Olympic* Feb. 26, 1918, docked at Liverpool March 5, reached Le Havre March 8 and arrived at Vichy March 12. Vichy, or Aquis Calidis as it was called by the Romans, had been developed by them as a large fashionable water resort. Many years later Napoleon III restored it to its Roman grandeur as a famous summer resort. Elegant hotels were established with other necessary buildings and streets. Its railroad facilities and numerous hotels made it desirable as a location for a general hospital. The Bellevue unit first occupied ten hotels, during June and July ten more were added. During the week of July 16-22, 1,733 patients were admitted; in October, 3,206, the total treated was 16,077. Vichy became a hospital center, and Base Hospital No. 1 was joined by No. 19, No. 76, No. 115 and No. 109 and Convalescent Camp No. 9.

The staff of the hospital, which was organized for 500 patients but was treating several times that number, was depleted by calls for surgical teams needed in the combat area. With the author we visit such hospitals; we see the condition of the soldiers coming from the indescribable filth and mud of the battlefield and sense their frightful fatigue and near exhaustion.

Finally, "It seems that we had lived somewhere else, long ago, had gone through a breath-taking interval of startling events, blinding toil till you almost killed yourself, as well as spirited pleasures—and now we were going back to begin all over again. We should forever have a horror of war. But we also felt dissatisfied with civil life as we had known it."

**Laboratory Diagnosis of Protozoan Diseases** By Charles Franklin Craig M.D. M.A. F.A.C.S. Cloth Price \$4.50 Pp. 349 with 38 illustrations Philadelphia: Lea & Febiger 1942

This book is written to supply a work devoted entirely to laboratory methods for the diagnosis of diseases caused by protozoan parasites. It is the expressed desire of the author that it may be of real worth to physicians conducting their own clinical laboratories and to workers, especially technicians, in various laboratories preparing material for the diagnosis of these diseases. There are six parts devoted to the laboratory diagnosis of amebiasis and flagellate infections, leishmaniasis, trypanosomiasis, coccidiosis, malaria and balantidiosis. The laboratory methods in each part are given with exhaustive thoroughness. For example, under amebiasis there are chapters devoted to the morphology of the parasites, the collection and preparation of materials for examination, the diagnostic value of cultures, complement fixation and animal inoculations. Some of the methods described will probably be of more interest to the research worker than to the physician or technician interested in diagnosis but the confusion that might result from

the inclusion of so many technical variations is largely, if not entirely, eliminated by the "critique of diagnostic methods" which is appended to the consideration of each group of diseases. Specialists will probably question the criteria for including or excluding certain methods. Such criticisms, however, are matters of opinion and there is no doubt that the author has exhaustively and accurately presented the important laboratory methods. The book will undoubtedly be of value to laboratory workers.

**La anestesia general intravascular** Trabajo galardonado con la medalla de oro de la R. A. de medicina Madrid. Por el Dr. E. Perez Castro. Paper Pp. 95 with 69 illustrations Madrid: Ediciones Morata 1941

**El nivel motorico (edad motora)** Por el Dr. César Juarros médico-otor de la Escuela nacional de anormales. Paper Pp. 111 with 7 illustrations Madrid, Barcelona & Buenos Aires: Ediciones Morata 1941

**Diagnostico y clinica de la tuberculosis infantil** Por el Dr. Georg Simon, médico jefe del Sanatorio infantil de Aprath. Traducido por los Doctores R. Navarro Gutierrez y F. Paz Espeso, directores de los dispensarios antituberculosos centrales de Buenavista (Madrid) y Guadalupe (Barcelona). Paper Pp. 111 with 44 illustrations Madrid: Ediciones Morata 1941

**La esterilidad en la mujer. ¿Qué causas la originan?** Por el Dr. Vital Aza, director del Sanatorio quirúrgico y Clínica de maternidad Santa Alicia. Madrid. Paper Pp. 110 Madrid: Ediciones Morata 1941

**Difteria. Epidemiología, diagnóstico, clínico, tratamiento** Por el Dr. J. de Eleizegui Steyro. Paper Pp. 122 with 14 illustrations Madrid: Ediciones Morata 1941

**Personalidad y carácter. Estudio crítico** Por el Prof. Dr. M. Bañuelos, catedrático de la Universidad de Valladolid. Paper Pp. 127 Madrid, Barcelona & Buenos Aires: Ediciones Morata 1941

**La prostata y sus enfermedades** Por los Dres. A. y E. de la Peña. Paper Pp. 93 with 16 illustrations Madrid: Ediciones Morata 1941

Perez Castro's book made the author the winner of the gold medal of the Royal Academy of Medicine of Madrid and of the degree of academic member of the academy, which the latter offered by contest, for the best article on intravascular general anesthesia. This book contains chapters on the history of intravascular anesthesia and substances used, with special reference to the pharmacology, experimental and clinical results and accidents and contraindications of evipal soluble. The book ends with eight pages of bibliography.

Juarros' book is the result of observations of the author, who is a fellow of the Royal Academy of Medicine of Madrid and the head of the National School for abnormal children of that city. This book purports to show the relations between motricity—the motor state—and mentality in children. There are chapters on the value of Osebetzky's tests for intelligence and the motor state and of Osebetzky's collective tests for determining the motor state in relation to chronological age.

Dr. Simon's book is the result of observations as the head of the sanatorium for Diseases of Children in Aprath. The book is a compilation of several articles previously published by the author in German and a translation of the articles from German into Spanish which was carried on by Drs. R. Navarro Gutierrez and F. Paz Espeso, heads of the antituberculosis dispensaries of Madrid and Guadalupe respectively. There are different chapters on the frequency, diagnosis, differential diagnosis and clinical forms of pulmonary tuberculosis in children and also chapters on the complications and sequels of the disease.

Vital Aza's book issued from his work as head of the Santa Alicia Maternity Hospital of Madrid. The book contains chapters on the causes and social importance of sterility in women. There are several chapters on frigidity and the mechanical, functional, constitutional, endocrine, psychological and pathological factors of sterility. There are also chapters on maternity and foster motherhood, and on the role of syphilis and tuberculosis in sterility.

Eleizegui's book issued from experience as an officer of the Medical Department of Public Health of Madrid. This book is devoted to the discussion of the problems of epidemiology, diagnosis, clinical forms, therapy and prevention of diphtheria. The book ends with six pages of bibliography from modern literature.

Bañuelos' book is a review of various theories on heredity, physical, psychic, sexual, environmental, educational and other factors which are in relation with personality and character and a critical study of all typologic classifications or



personality and character. It purports to show the psychobiologic roots and fundamentals of personality and character, the causes of radical changes and the feasibility of modifying changes and improving personality and character by determination, perseverance and good advice and example. Other aspects of personality and character also are discussed.

Peña's book purports to show modern trends which are of practical clinical value for the diagnosis and therapy of diseases of the prostate. There are several chapters on general study of latent, acute and chronic diseases of the prostate, differential diagnosis of fever from retention of urine, causes of diseases of the prostate and surgical therapy. The book ends with a chapter with formulas and therapeutic indications of use in clinical practice and a page of bibliography on the subject.

**Textbook of Embryology** By Harvey Ernest Jordan, M.A., Ph.D., Sc.D., Professor of Anatomy and Director of the Anatomical Laboratories, University of Virginia, Charlottesville, and James Ernest Kindred, M.A., Ph.D., Professor of Anatomy, University of Virginia. Fourth edition. Cloth. Price, \$6.75. Pp. 613, with 501 illustrations. New York & London: D. Appleton-Century Company, Incorporated, 1942.

First published in 1926, this textbook for medical students has now undergone its first extensive revision. An important addition to the descriptive material, which necessarily forms the bulk of the text, is much recent experimental and comparative material. This in part has been incorporated in the text, and in part is summarized in fine print at the end of the appropriate descriptive sections. Such material is particularly welcome in a field which is being actively investigated and in which new and significant contributions are continually being made. As is almost inevitable, some sections are treated more adequately than others. Since human development is primarily the object of the text, it would seem that in the discussions of early development, especially in presomite stages, more emphasis might be placed on the magnificent recent contributions to early primate development from the Carnegie Institution. Similarly the most basic aspects of fetal physiology, especially with respect to the respiratory and nervous systems, might well be included, perhaps even as an integral part of the text, which would be thereby enlivened. In this connection it is surprising that Windle's monograph on the highly interesting and important subject of fetal physiology is not mentioned. Nevertheless, those who have used this textbook for medical teaching will welcome this new edition, which is attractively bound and printed. Many new and useful illustrations have been added, but many of the retained line drawings are as crude and unattractive as ever, and some of the halftone reproductions are not up to the high standard set by modern morphologic textbooks.

**Medico Surgical Tributes to Harold Brunn**. A Series of Essays on Various Aspects of Surgery and Medicine Written by His Pupils and Friends. Cloth. Price, \$6. Pp. 571 with illustrations. Berkeley & Los Angeles: University of California Press, 1942.

A well deserved tribute to one of the leading surgeons of the Pacific Coast area becomes available in this volume from the University of California Press. In his statement in the book the editor of *THE JOURNAL* says "In the social, civic, educational and professional aspects of medicine in San Francisco, Dr. Harold Brunn has been a leader. His numerous contributions to the literature of scientific medicine are evidence of the place he has made for himself as a practitioner of medical science. Nevertheless he has found time in the midst of all this activity to stimulate innumerable young men, who hail him as their preceptor. Thus he has truly fulfilled the requirements necessary to be listed among the builders in medicine. He has built educational institutions, laboratories of research, hospitals and, above all, young men."

The book itself makes apparent the well merited character of the tribute. Statements from the president of the university, the dean of the medical school and its professor of surgery are supplemented by fifty-three essays running the gamut of progress in every field of medicine and surgery. Most of America's great surgical leaders are represented, and they are supplemented by reports of technical research in the laboratory and statements in the field of experimental medicine and the public health. The volume is supplemented by a bibliography of the writings of Dr. Brunn. It is printed and bound in a style adequate to its quality.

**Neuroanatomy** By Fred A. Mettler, A.M., M.D., Ph.D., Professor of Anatomy, University of Georgia School of Medicine, Augusta. Cloth. Price, \$7.50. Pp. 476, with 337 illustrations. St. Louis: C.V. Mosby Company, 1942.

This textbook is intended for medical students beginning the study of neuroanatomy. The first half is devoted to the gross morphology and topography, and the second to the microscopic anatomy of the nervous system (the author uses the phrase "neural system"). In both parts he has kept in mind the future needs of the student in his clinical studies and has also endeavored to clarify those aspects in which clinical students and interns have shown evidence of misunderstanding. The illustrations are worthy of special comment. They were made specifically for this book from original material prepared by the author. Schemas from other sources have been redrawn. Obviously no pains have been spared to make the illustrations as effective as possible in relation to the text. In addition to the aims mentioned the author has endeavored in the first part to emphasize aspects of importance in practical medicine and in the second part to help in establishing a sound functional point of view. He characterizes the work as a "bare outline for the fuller study required by the special fields of medicine." However, the average medical student in his clinical years rarely shows evidence of having mastered more than a small part of the ground covered in this volume. Thus the labor involved in organizing the bibliography, which comprises several thousand references and fills fifty-three pages, may not receive much appreciation. However, the book will be useful to many long past the undergraduate stage and they, at least, may find the bibliography helpful. This volume is a worthy addition to the various other excellent textbooks now available on the subject.

**Economics of Social Security: The Relation of the American Program to Consumption, Savings Output, and Finance** By Seymour E. Harris. Associate Professor of Economics, Harvard University, Boston. Cloth. Price \$5. Pp. 455. New York & London: McGraw-Hill Book Company, Inc., 1941.

Every phase of the economics of social security is exhaustively treated, and the relation of each phase to the most recent economic developments is discussed. The possible reactions of the large financial operations involved and their possible effects on savings, investment, wages, interest, price, consumption, finance, inflation and employment are discussed as related to all stages of the industrial cycle. The possibility of failure to meet security obligations in case of war is recognized. So thorough and basic is the work that its reading is essential to any real understanding of the multitude of problems involved. The reading is not easy. It assumes a familiarity with the writings of Keynes, Hansen, Wickseil, Joan Robinson and Pigou as well as of their predecessors, and none of the writers mentioned are easy of comprehension by those unfamiliar with economics. Any one engaged in the management or interested in the operation of social security will find that the effort required to master the book will be repaid by added ability to understand the problems involved.

**Visual Outline of Psychiatry** By Leland E. Hinsie, M.D., Prof. of Psychiatry, College of Physicians and Surgeons, Columbia University, New York. Oxford Medical Outline Series. Cloth. Price \$2. Pp. 103. New York, Toronto & London: Oxford University Press, 1941.

This little volume is one of a series of short outlines covering various aspects of medicine. The present psychiatric outline is systematically carried out and consists of five parts, the last being the glossary and index. The first part of the book deals with the organization of the mind. The second and largest part of it covers the psychiatric syndromes, including the psychoses, neuroses and psychoses, and the fourth part covers intellectual deficiency. As the latter part is only about three pages long it is obvious that the problem of mental deficiency is much sketchily done, a criticism that can be leveled at the whole volume. For instance, psychopathic personalities are covered in what amounts to one page. There is a definition of it for about half of the section, and a four line description of its manifestations, one line on the course, and half a dozen lines on treatment. It is difficult to see in just whose library this would fit. It is obviously intended for the student and is heavily interleaved with blank pages for note taking. It is a fairly good glossary appended to it, but it can neither nor adequately supplement conventional textbooks.

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT HOWEVER REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS BUT THESE WILL BE OMITTED ON REQUEST.

### DETERMINATION OF PATERNITY OF A NEWBORN CHILD

To the Editor—Will you please send me information about any legally accepted method of determining the paternity of a newborn child? One of my patients is desirous of this information as soon as possible and I would appreciate your cooperation. M D Canon City Colo

ANSWER—Knowledge of the A-B group or the M-N type of blood of parents makes it possible to predict which blood groups or type children from this mating may or may not be. In the determination of the paternity this information can be used only as negative evidence unless all males, other than the one person in question, can be eliminated from consideration. If all men concerned in such paternity problems were falsely accused, the determination of the A-B group of mothers, presumed father and child gives the man in question a 16 per cent chance of being eliminated. An additional 18 per cent chance of elimination may be had by the determination of the M-N types. Thus with the determination of both A-B and M-N the chances of exclusion are between 35 and 40 per cent. Such evidence is not universally accepted by courts. However, New York, Wisconsin and perhaps other states have enacted laws authorizing the courts to order such blood grouping tests in cases of questioned paternity. Details of technic and complete lists of possible groups and types in children born of parents with varied combinations of groups and types may be had in several standard works, such as *Diseases of the Blood* by Kracke, published by Lippincott, *Textbook of Clinical Pathology* by Kracke and Parker, published by Williams and Wilkins and *Blood Groups and Blood Transfusions* by Wiener, published by Thomas.

### ANTIPERSPIRANTS AND DEODORANTS

To the Editor—I have been consulted by some high school girls about the advisability of shaving under their arms using deodorants and the kind of deodorant if recommended.

J P McGowan M D Horton Iowa

ANSWER—If done carefully, there is no harm in shaving the axillary hair. Not all young girls need assistance from antiperspirants and deodorants. Their tendency to make much of slight difficulties of this sort should be discouraged, for an olfactory neurosis can cause much misery and is particularly hard to overcome.

Antiperspirants and deodorants are closely related, and it is hard in some cases to separate one from the other. The first measure of protection against body odor is frequent washing with soap and water to remove the products of perspiration which, by decomposing furnish most of the odor. After this a mild lotion may be applied, such as salicylic acid 24 Gm, benzoic acid 48 Gm and 50 per cent alcohol to make 120 cc, dabbed on the axillas frequently.

Another somewhat stronger lotion is solution of formaldehyde U S P diluted 1:100 in alcohol. This cannot be used so often. Once or twice a day is often enough, but its effect is more lasting. Oxidation of the products of sweating is often tried by applying a wine red solution of potassium permanganate in distilled water. It is efficient but, if used in too great strength, turns the skin brown. Another oxidizer is the dusting powder recommended by Goodman (*Cosmetic Dermatology*, New York McGraw Hill Book Company, 1936, p 438): zinc peroxide 1 Gm, benzoic acid 1 Gm and talc to make 100 Gm. Other powders recommended by the same author are solution of formaldehyde 1 cc, thymol 1 Gm, zinc oxide 32 Gm and talc to make 100 Gm or magnesium carbonate 32 Gm finely powdered alum 32 Gm and talc to make 100 Gm. These may be dusted on after the bath. Goodman presents many other formulas.

In cases of pronounced axillary hyperhidrosis, stronger measures are necessary. Aluminum chloride introduced into American dermatology by Stillians in 1916 (*The Control of Localized Hyperhidrosis* THE JOURNAL Dec 30, 1916 p 2015) is the strongest of these, effective in most cases checking the excess perspiration and keeping it in check by moderate use. As the author warns, certain precautions are necessary to success. The 25 per cent aqueous solution recommended is acid and irritating

to clothing, so that one must use care that the skin of the part has dried before putting on the clothes. If applied too often, it may act as a primary irritant. The author suggests applying it once every third day. After the effect has been obtained an application once a week is usually enough to maintain the effect. It is very important to avoid washing the part with soap just before applying the lotion, for soap or any alkali counteracts its effect.

The most effective measure against hyperhidrosis is roentgen therapy. Unfiltered radiation may be given once a week in a dose of 75 roentgens, or once a month 225 roentgens may be administered. Two to six months' treatment may be necessary to effect a satisfactory decrease of sweating. When a decided decrease has been obtained, treatment should cease, for usually there will be a further lessening after the treatments have been discontinued. Later the effect will be less, but recurrences are not common (MacKee, G M. X-Rays and Radium in the Treatment of Diseases of the Skin, ed 2, Philadelphia, Lea & Febiger, 1927, p 547). The use of any irritant during or for three weeks after the end of the course of treatment is strictly enjoined. Soap and water followed by a bland dusting powder should be all that is allowed.

Persons who wish to be free from body odor should avoid excessive participation in foods containing onions or garlic. Eller (*Body Odor*, M Rec 154 167 [Sept 3] 1941) lists other foods and a number of drugs which may contribute odor to the perspiration.

Many persons advocate perfume to cover the body odor. Some perfumes, as Eller says, decompose under the influence of the perspiration and intensify the body odor. Care must be taken to choose one that will improve matters without having to be used in excess. Heavy perfume is as repugnant to some people as body odor.

### TREATMENT OF ACUTE MORPHINE POISONING

To the Editor—Will you please indicate briefly the modern treatment of acute morphine poisoning? I did some research work on this subject thirty five years ago. The results of that work demanded a radical change in the old treatment. That is why I make the request.

Neol Kitchens M D, Warm Springs Ga

ANSWER—Morphine is readily absorbed from the stomach and intestine and is then excreted again into the stomach, where it is again absorbed. As much as one third of the morphine given hypodermically has been recovered from stomach washings. It is for this reason that in the treatment of acute morphine poisoning the stomach should be washed.

As soon as the patient is seen the stomach is washed repeatedly with a solution of potassium permanganate, 0.5 Gm of permanganate to the liter of water. This oxidizes the morphine to oximorphine, which is harmless. If permanganate is not available, a 5 per cent solution of tannic acid or a strong infusion of tea may be given. This forms an insoluble compound with the morphine and thus prevents absorption. Magnesium sulfate may be given to hasten the removal of the morphine from the intestine. Caffeine, either by mouth, intravenously or as a strong hot coffee enema, is a physiologic antidote. Nikethamide is given for stimulation. The patient is kept warm, and most authorities feel that the patient should not be allowed to go to sleep. If the patient lives for twelve hours following the ingestion of the morphine, the prognosis for complete recovery is favorable.

### INFLUENCE OF FATIGUE ON ANEMIA

To the Editor—Are there reports in the literature of scientifically controlled experiments on the role of fatigue either acute or chronic in the production or maintenance of anemia? I have noticed in the past few years since I have been stressing rest that secondary anemias respond much more readily.

L. A. Crowell Jr M D Lincoln N C

ANSWER—After brief exercise there is an increase in the erythrocytes in the peripheral blood apparently because of release of stored red cells into the circulation. After prolonged exercise in dogs there is an increased destruction of erythrocytes with slight lowering of the erythrocyte count and hemoglobin content of the blood. This is accompanied by an increase in reticulo-cytes and hyperplasia in the bone marrow.

It is quite possible that a patient with anemia due to blood loss or deficiency might recover more rapidly when at rest than while performing hard work.

#### References

- Brown G O. Blood Destruction During Exercise. *J Exper Med* 36:481 (Nov) 1922. 37:113 (Jan) 187; 207 (Feb) 1923.  
Steinhilber A H. Chronic Effects of Exercise. *Physiol Rev* 13:103 (Jan) 1933.

## A PATERNITY PROBLEM

To the Editor—A young married woman has a regular twenty-eight day cycle. She usually can tell by slight cramps when ovulation takes place. Just before marriage (a sudden event) she had a normal period. On the sixth and eighth days of her cycle she had intercourse. On the fourteenth day she noted the usual symptoms of ovulation. On the twenty-first day of the cycle she was married and had intercourse with her husband (a different man). The following menstrual period did not take place. The patient is worried that she may be pregnant by the first man rather than by her husband. Unless I can offer her definite assurance to the contrary I feel sure she will resort to illegal abortion. My own reading and knowledge indicate that she is more likely pregnant by her husband. I should appreciate a prompt reply so that I may avert a possible tragedy.

M D

ANSWER—The exact day of ovulation in women cannot be determined with certainty except in a few who have characteristic intermenstrual pain. Daily vaginal smears may be used to determine ovulation in some women, but generally there is nothing characteristic of the process. Ovulation usually occurs fourteen days before the following menstrual flow. This interval appears to be fixed, but the lapse of time between the onset of bleeding and subsequent ovulation may vary considerably. Furthermore, it is known that an ovum usually lives only about twenty-four hours and seldom survives more than forty-eight hours. Spermatozoa, however, generally are capable of fertilization for forty-eight hours and in some instances perhaps longer. However, nearly all these data are based on what occurs in animals, hence they may not be entirely applicable to human beings. Theoretically, coitus on the twenty-first day should not lead to fertilization in a woman who has a twenty-eight day cycle, but this does not mean that it is impossible for a woman with a fairly regular twenty-eight day cycle to ovulate on the twentieth or the twenty-first day. If ovulation does take place late in a menstrual cycle and pregnancy does not supervene, the onset of the following period is generally delayed.

In order for the first man to have impregnated the patient one must infer that ovulation occurred some time between the fifth and the ninth day of the cycle or that this man's sperm retained their ability to fertilize an ovum for at least six days.

Since there are so many uncertain factors concerning ovulation in the human being and since it is definitely possible that the husband may be responsible for the pregnancy, the patient should not have her pregnancy terminated.

## PROBABLE SYPHILITIC PORTAL CIRRHOSIS

To the Editor—A woman aged 41, who states that she had a positive Wassermann reaction for several years and has received forty-six injections of neoarsphenamine and at least an equal number of bismuth injections, complains of a gradual enlargement of her abdomen over a period of six weeks. The patient is thin. There is no dizziness, cyanosis or jaundice. The pupils are round and react. The nose and throat are normal. The heart and lungs are apparently normal. The abdomen shows signs of fluid, no masses are palpable, either liver or spleen. There are external and internal hemorrhoids, and edema of both legs is present. The urine is normal except for a trace of albumin. A gastrointestinal roentgenologic study revealed nothing of note except the presence of fluid in the abdominal cavity. A gallon of clear fluid was obtained by paracentesis and, by all laboratory procedures, proved to be a transudate. The Kline reaction was weakly positive and the Kolmer complement fixation reaction strongly positive. The albumin globulin ratio was 1:7 and a Takata-Ara test was positive. There is a secondary anemia. In view of the probability that this is a syphilitic cirrhosis, is the use of bismuth and arsenic compounds contraindicated? What would be the proper course of treatment for a case of this type?

B E Lachman, M D, Oil City, Pa

ANSWER—We would agree that the patient has a portal cirrhosis, whether it is syphilitic or not is difficult to say. No mention is made of an alcoholic history. The patient has already had sufficient antisyphilitic therapy in the form of arsenicals and bismuth compounds. While, years ago (A Therapeutic Paradox, *Am J M Sc* 164:415 [Sept] 1922), pointed out that in syphilitic hepatitis the patient may apparently respond brilliantly to the arsenical therapy only to get worse and die later of a cirrhosis.

Certainly the physical findings, as well as the reversed albumin globulin ratio 1:7 and the positive Takata-Ara, would speak in favor of a portal cirrhosis.

In the way of therapy there would be no harm in the use of potassium iodide, in fact, it might be of definite value, and, if any heavy metal is employed, reliance should be put on soluble mercury injections, e.g. mercuric succinimide intramuscularly three times a week.

Paracentesis should be done as indicated. The patient should be allowed no alcohol. Her diet should consist principally of carbohydrates, though milk is allowed. Fatty foods, eggs and meat should be restricted. Salt in the diet should be restricted, and saline cathartics are in order.

## EDEMA OF EYELIDS IN SINUSITIS

To the Editor—What is the mechanism responsible for edema of the eyelids in sinusitis? Is it an allergic manifestation or mechanical resulting from congestion? For years I have suffered from ethmoiditis and have tried everything recommended—roentgen rays, vaccines, Penicillin and other local treatments, surgery (turbinectomy, ostiotomy, mucous resection, anterior and posterior ethmoidectomy—all on the left side) but not complete exenteration. For about a year I have had frequent attacks of edema of the right eyelid, which come on at night and slowly subside. These are getting more frequent, more severe and troublesome, and now there is always slight edema between attacks. There is rather profuse discharge from both nostrils of greenish yellow pus, the culture shows *Staphylococcus aureus*. Autogenous vaccine does not relieve. What is the prognosis and best treatment? Should radical surgery be resorted to?

M D, Hollywood, Calif

ANSWER—Without examining the patient, one's answer to the above query is apt to be incomplete. The most likely cause of the edema of the eyelids is a chronic conjunctivitis secondary to an ascending infection from the nose by way of the lacrimal passages. There may be an allergic factor present. In fact, in many cases of protracted ethmoiditis the chronicity is due to a secondary infection based on progressive allergic changes. It is not likely that a low grade orbital periostitis secondary to sinusitis would come and go just in the manner described. This would apply also to congestive changes in the orbit. Treatment should be dependent on the judgment of a competent rhinologist. Every attempt including the use of cutaneous tests should be made to determine the presence of an allergic factor and to remove it if possible. Because there seems to have been a fair trial of the more conservative measures, a thorough exenteration of the ethmoid labyrinth, preferably by external approach, should be seriously considered. If there is no other sinusitis present such an operation, well done, offers a minimum of risk and a good possibility of satisfactory relief.

## SENSITIVITY TO DUST AND VACUUM CLEANERS

To the Editor—Many of my patients are sensitive to house dust. What type or make of vacuum cleaner will cause the least dispersion of dust particles and bacteria into the air? Is the so called tank type of cleaner more efficient as an air filter than the conventional upright models?

M D, New York

ANSWER—All the vacuum cleaners at present on the market cause some dust dispersion. However, the tank type, if well made, is more efficient than the type with the unenclosed bag. While some of the tank types have cloth filters which are advertised as highly efficient, the filtering efficiency is far from good. It is therefore advisable for the patient sensitive to dust to be out of the house while vacuum cleaning is being done. If this is not possible, the patient may wear a mask.

## COMBINED VACCINATION OF CHILDREN

To the Editor—In the use of combined diphtheria toxoid and pertussis toxoid, a dose of 1 cc to be repeated in three months is advised. Would there be any harm in either vaccinating or giving the pertussis vaccine during that three month period?

Samuel J Bolonik, M D, Chicago

ANSWER—Harm should not result from the concurrent program to vaccinate against smallpox or to administer pertussis vaccine within the period specified. However, the difficulty in immunization procedures should be properly spaced to avoid the possibility of accumulated reactions.

It would not be advisable to inject immunizing substances for other diseases while a local reaction from smallpox vaccination was present because of the added discomfort that the patient might experience.

## CORBUS-FERRY CUTANEOUS TEST FOR GONORRHEA

To the Editor—What is the value of Corbus-Ferry gonococcus filtrate as a diagnostic procedure in gonococcal infections?

William F Putnam, M D, Lynn, Mass

ANSWER—The value of the cutaneous test with gonococcus filtrate (Corbus-Ferry) is questionable. Even in the hands of those who have had a great deal of experience with it a definite diagnosis cannot be established. The test may be an aid in the diagnosis of gonococcal infection but the clinical history and culture are the best criteria. The filtrate is of no therapeutic value and has been ruled out acceptable for use by the Council on Pharmacy and Chemistry of the American Medical Association.

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## THE TREATMENT OF BURNS IN WARTIME

HENRY N. HARKINS, M.D., PH.D.

DETROIT

The problem of thermal injuries is as old as recorded history. Even before fire had been harnessed to man's use the danger of burns from molten lava, forest fires and hot springs was constantly present. More recently the accidents of wartime have greatly increased the importance of thermal injuries. It is reported that 60 per cent of the casualties at Pearl Harbor were burns.

The treatment of war burns requires an adequate knowledge of the management of peacetime injuries coupled with an understanding of several of the distinguishing features of wartime burns. The present conflict has produced several unusual injuries not previously seen in large numbers, e. g. the "airman's burn," the phosphorus burn and the burn contaminated by oil and sea water. These special types will be discussed later in more detail.

The adequate management of any burn includes a careful cooperative effort in two directions, namely: (1) the general treatment of the patient and (2) the local treatment of the burned area. The first of these is probably more important than the second, as it is of little avail to have a clean, well dressed burn but a dead patient. These two endeavors will now be considered more fully, after which a special discussion will be given of war burns.

### GENERAL TREATMENT OF THE PATIENT

**Shock**—From the practical standpoint, no differentiation need be made between primary and secondary burn shock. Usually by the time the patient is admitted with a severe burn true secondary, or traumatic, shock exists and it should be managed according to well established principles.<sup>1</sup> In fact, the only difference between burn shock and shock due to other types of trauma is that in the former the degree of hemoconcentration is much greater. It will be shown that this actually makes the treatment simpler, since the extent of hemoconcentration is an excellent therapeutic guide.

One of the first things to do when a severe burn occurs is to diagnose and to treat shock. Estimates have placed the incidence of burn deaths which are due to shock at from 60 to 75 per cent of all burn deaths. Wilson<sup>2</sup> in summarizing 80 burn cases found

that death from shock occurred in 63 per cent. Seeger<sup>3</sup> reported a percentage of 64 and Klotz<sup>4</sup> of 70. Atkins,<sup>5</sup> in discussing the burned patients evacuated from Dunkirk, said "Secondary shock is the most serious factor in burns and is responsible for 60 per cent of the deaths occurring in this condition."

The pathologic physiology of burn shock is extremely complicated. Various theories in the past have attributed shock to toxic, nervous, septic and fluid loss factors. At present it seems likely that all these influences are at work but probably at different times. Just as with diphtheria a patient may die early of laryngeal obstruction and late from myocardial damage, so with burns at different stages during their course, fluid loss, toxemia and sepsis may have a role. Figure 1 demonstrates such a concept schematically.

The early stages of shock undoubtedly include the following essential elements of disturbed physiology. The local thermal trauma causes a local capillary injury with regional loss of plasma-like fluid. This local plasmorrhhea is both into the damaged tissues and from the burned surface as "weeping." Later, owing to tissue metabolites set loose in the damaged area or to resultant hypovolemia, there is a generalized loss of plasma-like fluid from capillaries remote from the burned area. The amount of plasma lost is of especial consequence and may equal several liters. Secondary to this loss is a reduction in blood volume, cardiac output and blood flow with associated hemoconcentration. The correction of this condition before dangerous and irreparable anoxic tissue damage and irreversible generalized increased capillary permeability occurs forms the prime element in the treatment of burn shock. Other changes are of essentially secondary importance. Chemical alterations in association with burns include a decrease in plasma sodium, plasma chloride and plasma proteins as well as an increase in plasma potassium, plasma magnesium and plasma bilirubin in certain instances. The chemical aspects of burns have recently been reviewed by Lam,<sup>6</sup> Tenery<sup>7</sup> and myself.<sup>8</sup>

The treatment of burn shock can be discussed under four heads:

1. **Supportive Measures**—These include rest, quiet, elevation of the foot of the bed, warmth and use of sedatives, stimulants and vasopastics. Such remedies may be useful but are essentially symptomatic and do not get at the source of the trouble.

3. Seeger, S. J. The Treatment of Burns in Lewis, Dean, Practice of Surgery, Hagerstown, Md. W. F. Prior Company, 1937, vol. 1, chapter 17.

4. Klotz (1938), cited by Harkins.  
5. Atkins, H. J. B. Lessons from Dover. *Gulf's Hosp. Gaz.* 5:1 192-195 (June 29) 1940.

6. Lam, C. R. The Chemical Pathology of Burns. *Surg. Gynec. & Obst.* 72: 390-400 (April) 1941. Plasma Therapy of Burns. *Ann. Surg.* 113: 1089 (June) 1941.

7. Tenery, R. M. Extensive Cutaneous Burns with Special Reference to the Blood Chemical Changes. *Surg. Gynec. & Obst.* 72: 1018-1027 (June) 1941.

8. Harkins, H. N. Recent Advances in the Study of Burns. *Surg. Gynec. & Obst.* 73: 439-446 (October) 1941. The Treatment of Burns.

From the Division of General Surgery, Henry Ford Hospital. The third annual Ernest Edward Irons Lecture of the University of Chicago Chapter, Nu Sigma Nu Medical Fraternity.

1. Harkins, H. N. Treatment of Shock in Wartime. *War Med.* 1: 520-535 (July) 1941. Recent Advances in the Study and Management of Traumatic Shock.<sup>10</sup>

2. Wilson, W. C. Treatment of Burns and Scalds. *Ann. Surg.* 113: 21-28 (July 21) 1928.



2 Oxygen Mutch<sup>9</sup> formulated a simple rule for remembering the percentages of oxygen furnished by different methods. He pointed out that the percentages of alveolar oxygen obtained are multiples of fifteen.

Normal percentage of alveolar oxygen, 15

With nasal catheters, 30

With tent (usual), 45

With tent (extreme), 60

With B L B mask, 90

The more serious the burn, the higher the percentage of oxygen that is advised. In extreme instances the B L B mask, with its capability of giving 90 per cent oxygen or more, should be applied. The adequate and continued control of anoxia is important in any type of shock.

3 Adrenal Cortex The use of this substance in synthetic or in extract form is still in the experimental stage but may prove of value. It is common knowledge that the cortex of the adrenal gland is essential to life and that animals with a deficient adrenal cortex are unusually susceptible to procedures which commonly produce shock. The converse of this, namely that the administration of adrenal cortex extract is useful in the treatment of burn shock, is far less well established. This subject has recently been reviewed by Harkins,<sup>10</sup> Loeb,<sup>11</sup> and Kendall.<sup>12</sup> As Kendall pointed out, there are several substances present in the adrenal cortex with varying and at times opposing actions. Much confusion has arisen from carelessly considering any or all of these as adrenal cortex extract. One of the most encouraging of the well documented reports on the use of these substances in the treatment of burn shock is that of Rhoads, Wolff and Lee.<sup>13</sup> These authors found adrenal cortex extract of value in preventing fluid loss in cases of severe burns.

4 Plasma and Other Fluids Fluid replacement therapy is actually the most important element in the treatment of burn shock. Plasma is lost in large amounts, and large amounts of plasma should be replaced. Whole blood is useful when plasma is not available, but its contained erythrocytes are superfluous.

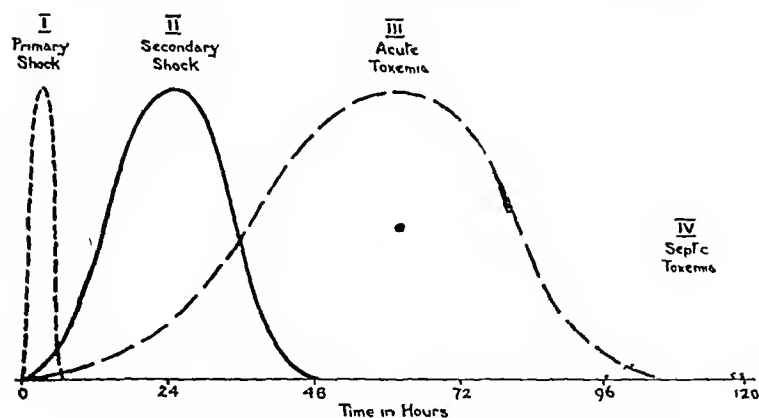


Fig 1—Chronological course of a burn (from Harkins<sup>10</sup>)

All burned patients should be kept in adequate chloride balance, but usually 1,000 cc of isotonic solution of sodium chloride a day (10 Gm of sodium chloride) is

sufficient unless the patient is vomiting or otherwise losing chlorides in abnormal amounts. Dextrose should be given in large amounts to protect the liver, but its administration should be by mouth whenever possible. Complete reliance on crystalloid solutions for intravenous fluid replacement therapy for burn shock is fallacious. Plasma, then, is the best means of replacing the fluid loss due to thermal trauma.

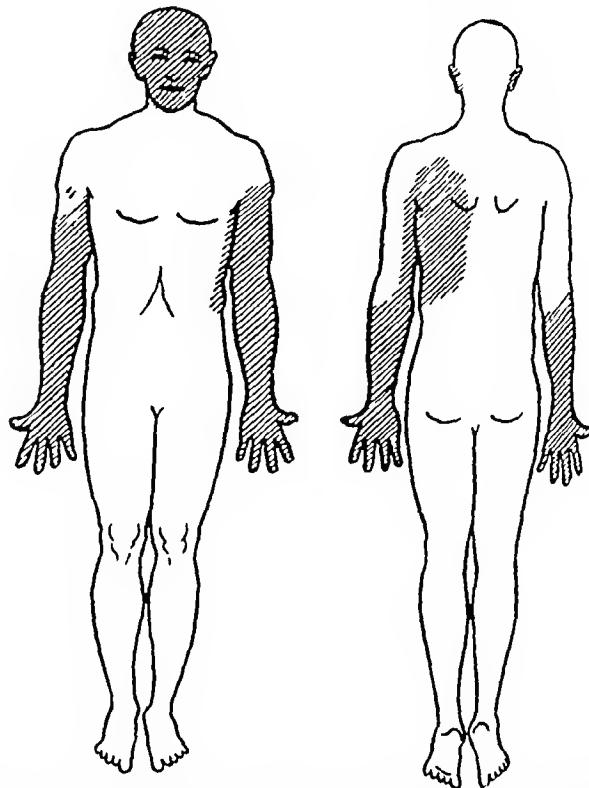


Fig 2 (case 1)—Burned areas of patient W K. According to Berkow's formula, the total burned area was 20 per cent of the body surface (head 3 per cent, hands 4.5 per cent, arms 7.5 per cent and back 5 per cent).

The use of plasma should be quantitative. There is no more reason for always giving a shocked patient a pint of plasma than for always giving a diabetic patient 10 units of insulin. Calculation of the dose of plasma should be individualized for each burned patient. For this purpose, the aid of one or more of the following five guides should be invoked.

Method 1 (clinical method) As advised by Rhoads, Wolff and Lee,<sup>14</sup> plasma should be given by continuous intravenous drip transfusion to all seriously burned patients. The rate of flow should then be adjusted so as to maintain the peripheral circulation continuously. This is evidenced better by a control of the blood flow than by a normal blood pressure or pulse rate. Since the estimation of the blood flow is often difficult other methods, as listed hereafter, may be more suitable for calculating the dose of plasma. A rough estimation of the blood flow may be obtained, however, from observation of the ease with which blood can be obtained by a needle prick. Furthermore, even if the methods described hereafter are used for calculating the total amount of plasma needed, observation of the state of the peripheral circulation may give an adequate indication of the necessary rate of administration of plasma.

Method 2 (first aid formula<sup>15</sup>) When laboratory facilities are not available, the dose of plasma may be calculated according to the extent of the body surface involved by the burn. This is estimated by Berkow's

9 Mutch, N. Some Methods of Oxygen Administration—Essential Data, Guy's Hosp Gaz 54: 189-192 (June 29) 1940.

10 Harkins, H. N. Recent Advances in the Study and Management of Traumatic Shock, Surgery 9: 231-294 (Feb.), 447-482 (March), 607-655 (April) 1941.

11 Loeb, R. F. Adrenal Cortex Insufficiency, J A M A 116: 2495-2500 (May 31) 1941.

12 Kendall, E. C. The Function of the Adrenal Cortex, J A M A 116: 2394-2398 (May 24) 1941.

13 Rhoads, J. E., Wolff, W. A., and Lee, W. E. The Use of Adrenal Cortex Extract in the Treatment of Traumatic Shock of Burns, Ann Surg 113: 955-968 (June) 1941.

14 Rhoads, J. E., Wolff, W. A., and Lee, W. E. Paper presented at the New York Surgical Society, March 11, 1942.

15 Harkins, H. N. Treatment of Shock from Burns, Michigan State M Soc 41: 287-293 (April) 1942.



formula<sup>17</sup> and 50 cc of plasma should be given for every per cent of the body surface affected by a deep (blistering) burn. The formula roughly gives the entire amount of plasma that will be necessary, this amount should not be administered all at once but according to the following schedule: one third the first two hours, one third the next four hours and one third the next six hours.

Method 3 (Black's formula<sup>17</sup>) This involves the administration of an amount of plasma in cubic centimeters equal to one thousand times the product of the difference of 5 less 500 divided by the percentage of hemoglobin observed after the burn.

smaller according to the body weight, while, in the rare instances in which the plasma protein is abnormally low, additional amounts should be given according to well established surgical principles.

Two case reports illustrate the use of these methods.

CASE 1—W. K., a man aged 37, suffered flame burns as shown in figure 2, involving 20 per cent of the body surface. The hematocrit reading twelve hours after the burns occurred was 57 despite the transfusion of 500 cc of plasma. At that time the formulas indicated the following doses of plasma:

First aid formula 1,000 cc (50 cc for each of the 20 per cent of the body surface involved)

Black's formula 1,040 cc

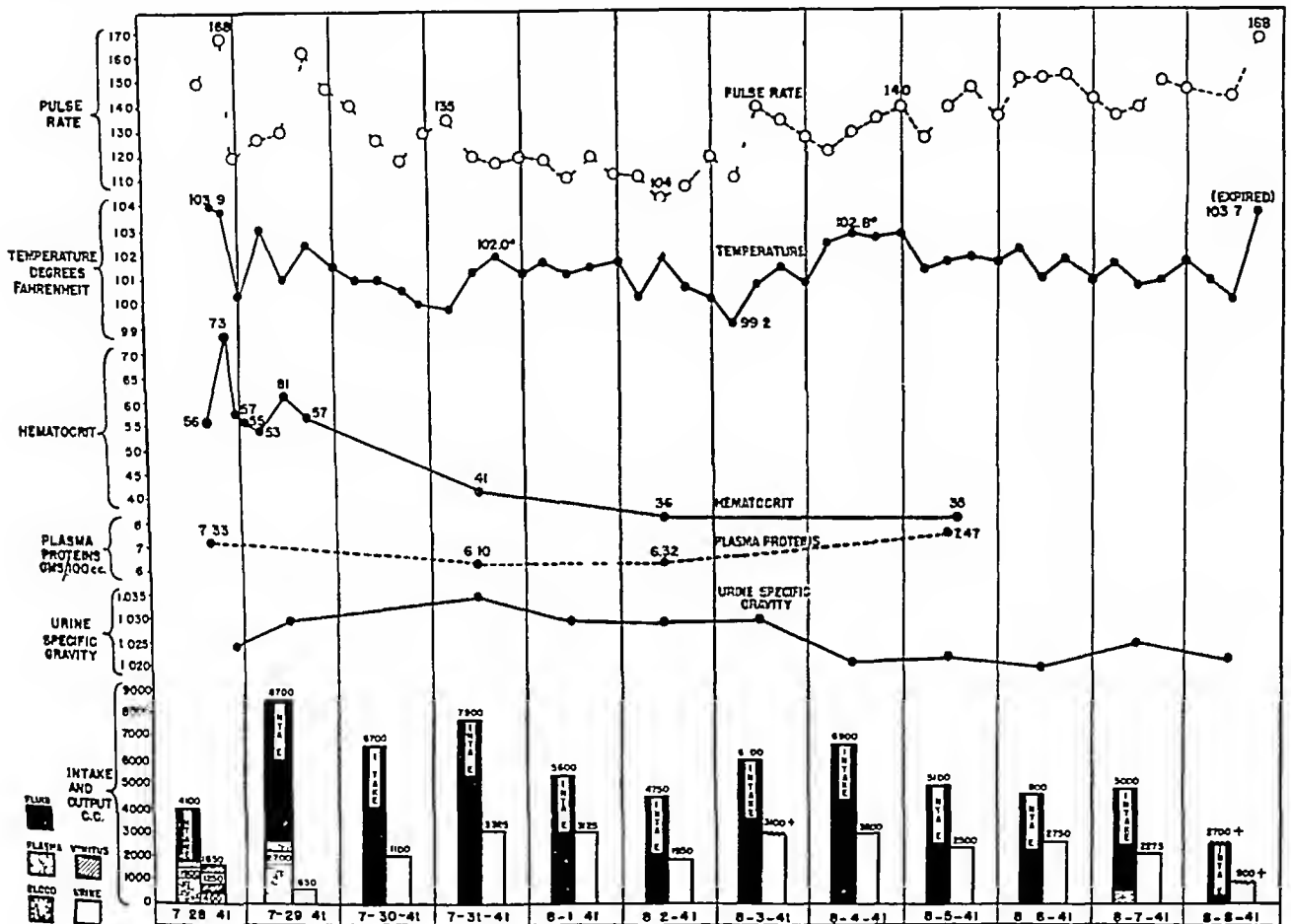


Fig. 3 (case 2)—Metabolic studies of severely burned patient

Method 4 (Elkinton's formula<sup>18</sup>) This formula is even more complicated than that of Black and involves as variables the body weight, the plasma protein and the hematocrit reading after the burn.

Method 5 (author's formula<sup>19</sup>) Realizing that the formula of Black and that of Elkinton were somewhat complicated for everyday use, I devised a rule which involves the administration of 100 cc of plasma for every point the hematocrit reading exceeds the normal of 45. For children the dose should be proportionately

Elkinton's formula 1,850 cc

Author's formula 1,200 cc (100 cc for each of the twelve points the hematocrit reading was above 45)

In the second case the agreement was even better. In none of the cases studied were the differences in the results given by the various methods therapeutically significant.

CASE 2—T. W., a youth aged 18, received flame burns involving approximately 48 per cent of the body surface. The subsequent course is shown in figure 3. When the peak hematocrit reading was obtained the formulas indicated the following amounts of plasma to be necessary:

First aid formula 2,400 cc (50 cc for each of the 48 per cent of the body surface involved)

Black's formula 1,910 cc

Elkinton's formula 2,390 cc

Author's formula 2,800 cc (100 cc for each of the 28 points the hematocrit reading was above 45)

16 Berkow S. G. A Method of Estimating the Extensiveness of Lesions (Burns and Scalds) Based on Surface Area Proportions. Arch Surg 8: 138-148 (Jan) 1924

17 Black D. A. K. Treatment of Burn Shock with Plasma and Serum. Brit M J 2: 693 (97) (Nov 23) 1940

18 Elkinton J. R., Wolf W. A. and Lee W. E. Plasma Transfusion in the Treatment of the Fluid Shift in Severe Burns. Ann Surg 11: 150-157 (July) 1940

19 Harkins H. N. The Treatment of Burns with Particular Emphasis on the Management of Burn Shock. Brochure distributed in connection with Scientific Exhibit, Ninety-Second Annual Session of American Medical Association, Cleveland, June 2-6, 1941

At the time of the next hematocrit reading, of 57 (fig 3), the last three formulas (Black's, Elkinton's and mine) gave requirements of 1,030, 1,300 and 1,200 cc of plasma, respectively

From these and similar data it is seen that my simplified formula gives results which agree satisfactorily with those obtained from more complicated equations.

As to recovery of permeability of capillaries subjected to thermal trauma, experimental results of mine<sup>20</sup> and clinical observations of Tenery<sup>21</sup> and others indicate that much of the plasma leakage occurs rapidly. Fifty per cent of such leakage may result during the first hour. This indicates the necessity for prompt treatment. The work of Rhoads, Wolff and Lee<sup>22</sup> indicates that the capillaries may regain their normal permeability more rapidly when the patient is given adrenal cortex extract. Figure 4 demonstrates a method of showing the time of recovery of a normal plasma balance.

CASE 3—B S, a white man aged 21, who weighed 68 Kg, was burned at 3 a m on Feb 11, 1941, when his oil soaked clothes caught on fire after an oil stove exploded (figs 5, 6 and 7). Resoreinol and tannic acid jelly and sulfaguandine were applied locally. Desoxycorticosterone acetate 2 cc was injected intramuscularly every four hours for five days, and one dose of 1,500 units of tetanus antitoxin was administered. By transfusion 2,200 cc of blood plasma was given in the first thirty-six hours. The patient was never in shock, but he died April 7, fifty-five days after being burned.

The plasma balance line of this patient occupies the middle of figure 4, while the hematocrit readings are graphed at the top and the actual amount of plasma injected is charted at the bottom. The middle line, showing the plasma balance, represents the plasma change per hour in cubic centimeters. This is listed as a loss (negative values) or a gain (positive values) in the amount of plasma in the blood stream calculated by Elkinton's formula<sup>18</sup>. The first point on this line represents an average plasma loss from the blood stream per hour of 210 cc. This was six hours after the burn and was calculated from the results shown in table 1.

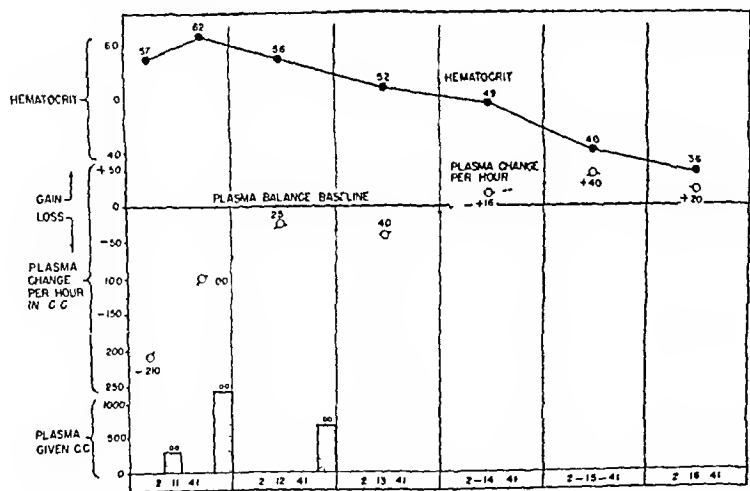


Fig 4 (case 3)—Course of burn and calculations of dose of plasma

The Elkinton formula indicated a deficit of 1,250 cc after six hours, or 210 cc per hour. The second point shows an average plasma loss of 100 cc per hour. This was calculated as follows. The Elkinton formula indicated an added deficit of 510 cc ( $1,760 - 1,250$ ) despite the administration of 300 cc of plasma. This represents a total deficit of  $510 + 300 = 810$  cc over

an eight hour period, or 100 cc an hour. The other points were calculated accordingly and represent the combined deficit plus loss of plasma given.

The progressive decrease in rate of plasma loss with a complete recovery of balance at the end of the third day is of interest. This undoubtedly represents a restitutio in integrum of the capillary permeability to

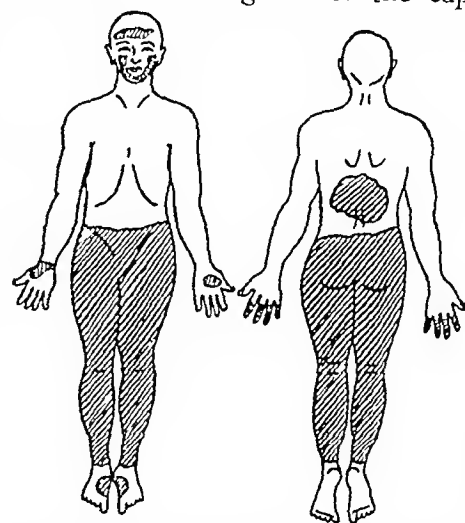


Fig 5 (case 3)—Burned area according to Berkow's formula (one third of head 2 per cent, one thirty sixth of hands and arms 0.5 per cent, one seventh of anterior portion of trunk 3 per cent, one fourth of posterior portion of trunk 4.5 per cent, both thighs 19 per cent, both legs 14 per cent, total 43 per cent)

proteins. This patient received no adrenal cortex extract, which may account for the slowness of the recovery according to the work of Rhoads, Wolff and Lee<sup>22</sup>.

**Treatment of Toxemia**—Burn toxemia is undoubtedly related to a disturbance of hepatic function, since it is usually accompanied by jaundice and an abnormal response to hepatic function tests (including prothrom-

bin, cephalin-cholesterol and hippuric acid). Furthermore, as first shown by Wilson, Macgregor and Stewart,<sup>22a</sup> the chief consistent postmortem finding in fatal cases of burn toxemia is a severe focal central necrosis of the liver. Since the liver is damaged, the usual methods of protecting this organ are advisable. These include the administration of adequate amounts of dextrose and of protein. The use of plasma is helpful in the treatment of toxemia as well as in the treatment of shock.

**Treatment of Sepsis**—Careful and aseptic local treatment is the best prophylactic means of controlling burn sepsis, while use of the sulfonamides offers considerable promise in the therapeutic control of this complication.

#### LOCAL TREATMENT OF THE BURNED AREA

Local treatment should at all times be carefully coordinated with the general management of the burned patient. This principle is one of the most important in all burn therapy.

**Means of Treatment**—At the present time there are many means of local treatment, all of which have their enthusiastic advocates. The very multiplicity of the preparations shown in table 3 indicates the lack of agreement on this aspect of the subject. Without attempting to render a didactic decision as to their relative merits, several of these means of treatment will be listed hereafter:

1. **Tannic Acid Spray**—This is the parent technique of all the coagulating modes of treating burns. Introduced by Davidson,<sup>22</sup> it led rapidly to a number of variants including application of tannic acid jelly, tannic acid baths, use of tannic acid and silver nitrate, and application of gentian violet and silver nitrate. The use of the sulfonamide drugs in combination with tannic

20 Harkins H N. Shift of Body Fluids in Severe Burns, *Proc Soc Exper Biol & Med* 31 994 995 (May) 1934, *Experimental Burns I. The Rate of Fluid Shift and Its Relation to the Onset of Shock in Severe Burns*, *Arch Surg* 31 71 85 (July) 1935.  
21 Tenery, R M. Personal communication to the author, Nov 11, 1940.

22a Wilson, W C, Macgregor, A R and Stewart C P. Course and Pathology of Burns and Scalds Under Modern Treatment *Brit J Surg* 25 826 865 (April) 1938.  
22 Davidson, E C. Tannic Acid in the Treatment of Burns, *Gynec & Obst* 41 202 221 (Aug) 1925.

acid has considerable promise. Tanning agents have the advantage of rapid action with minimum subsequent nursing care. The importance of repeated painting of the edges of the tanned eschar with gentian violet or brilliant green has been emphasized by war surgeons in Great Britain.

**2 Tannic Acid and Silver Nitrate** This combination which was introduced by Bettman<sup>23</sup> has the merit of even more rapid action than tannic acid alone. The burned surface is covered with a protective coating within minutes instead of hours and this is of considerable importance in wartime.

**3 Gentian Violet** Introduced by Aldrich<sup>24</sup> this dye has found considerable use in the treatment of burns. It promises more antiseptic action than does tannic acid and gives a more pliable eschar. It is slow in action, however, and soils bed linen.

**4 Triple Dye** The mixture of crystal violet, acriflavine and brilliant green in essentially 1 per cent concentration each was introduced by Aldrich<sup>25</sup> to combine action against gram-negative as well as gram-positive organisms.

**5 Gentian Violet and Silver Nitrate** First used by Branch,<sup>26</sup> this combination is similar to tannic acid and silver nitrate.

**6 Sulfadiazine Spray** Pickrell<sup>27</sup> used 35 per cent sulfadiazine in triethanolamine solution as a spray. This is applied every hour the first day, every two hours the second day, every three hours the third day and every four hours the fourth day.



Fig 6 (case 3)—Burns soon after admission. Hairs are still in place on the right shin in spite of the fact that this is a deep third degree burn.

**7 Sulfonamide Ointments** These may be used alone or in combination with cod liver oil. They are especially useful for burns of the face, hands, feet and perineum.

**8 Bunyan (Oiled Silk) Envelops** These are especially popular in Great Britain but were not entirely original with Bunyan<sup>28</sup>. Their main applicability is for deep burns of the hand, but various shaped envelops with inlet and outlet vents for through and through irrigation may be fitted to other parts of the body.

Other means of treatment may be equally useful but no assessment of their relative merits will be made here.

**Principles of Closure of the Wound**—One of the most important of all principles in the care of deep burns is that of closure of the wound. Just as no one

would think of leaving the abdomen wide open after an intra-abdominal exploration so any one who assumes the responsibility of a deep burn should see to it that the surface is epithelized as soon as possible. Skin grafting is usually done too little and too late. The methods of grafting have been reviewed elsewhere<sup>29</sup> but the importance of the operation must be reemphasized here. When a granulating surface resulting from a burn exists, every effort should be made to get the local area and the condition of the patient as a whole ready for skin grafting as soon as possible.



Fig 7 (case 3)—Appearance of burns after complete tanning.

#### WAR BURNS

Thermal injuries received during the present conflict are distinguished to a large extent by their depth and localization to the hands and face.

The depth of the burns makes coagulative methods of therapy less beneficial than in the case of shallower injuries.

Just as one would hesitate more to close a deep puncture wound than a shallow laceration so the tendency is toward use of an ointment or a saline solution dressing for deep war burns. This is especially true since the hands and face are considered unfavorable sites for tanning.

Mason<sup>30</sup> advocated a pressure dressing over petrolatum gauze for treating hand burns. In Great Britain many writers have opposed the use of tanning agents on

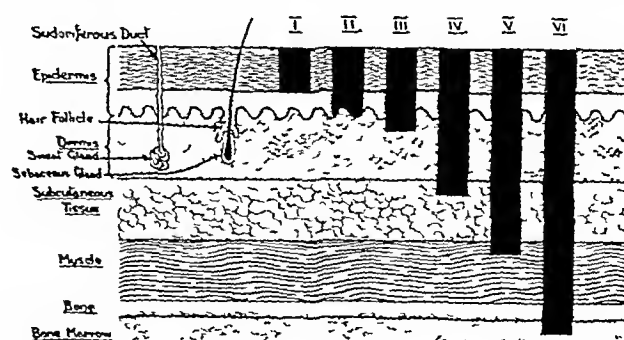


Fig 8—Dupuytren's classification of burns according to depth (from Harkins<sup>31</sup>).

the hands and face, including Mowlem<sup>31</sup>, Wakeley,<sup>32</sup> the Heggies<sup>33</sup> and Robson and Wallace<sup>34</sup>. A few desultory reports have continued to recommend tannic

23 Bettman A C. The Tannic Acid Silver Nitrate Treatment of Burns. Northwest Med 24 46-51 (Feb.) 1935.

24 Aldrich R H. The Role of Infection in Burns. The Theory and Treatment with Special Reference to Gentian Violet. New England J Med 208 299-309 (Feb. 9) 1933.

25 Aldrich R H. Treatment of Burns with a Compound of Analgin Dyes. Maine M J 28 57 (Jan.) 1937.

26 Branch H F. Extensive Burns. Treatment with Silver Nitrate and Methyl Rosaniline. Arch Surg 35 475-485 (Sept.) 1915.

27 Pickrell K L. A New Treatment for Burns. Preliminary Report. Bull Johns Hopkins Hosp 69 217-221 (Aug.) 1941.

28 Bunyan J. The Treatment of Burns and Wounds by the Envelop Method. Brit M J 2 17 (July 6) 1941.

29 Harkins H N. Treatment of Burns. Springfield Ill. Charles C Thomas 1942.

30 Mason M L. Local Treatment of the Burned Area. Surg Gynec & Obst 72 250-255 (Feb.) 1941.

31 Mowlem R. Treatment of Burn. Brit M J 2 844 (Dec. 14) 1940.

32 Wakeley C P G. Treatment of War Burn. Brit M J 2 679 (Nov. 16) 1940.

33 Heggie J F and Heggie R M. Antiseptic Analgesic Tannic Acid Jelly for Burns. Lancet 2 391 (Sept. 25) 1940.

34 Robson J M and Wallace A B. Use of a Glycerin Sulfonamide Paste (Faglamide) in Treatment of Burns. Brit M J 1 1-69-72 (March 29) 1941.

acid for all regions of the body (e g, Cohen<sup>35</sup>), but the general tendency is in the opposite direction

From the practical standpoint it is useless to try to decide too carefully during its early stages as to the depth of a burn. Burns are divided into three degrees according to depth by Boyer's classification (redness,

to Wallace,<sup>37</sup> such burns should be immersed and the phosphorus particles picked out under water. Successive washings with mild sodium bicarbonate, 1 per cent copper sulfate and boric acid solutions should be followed by a saline solution dressing. Oils and greases should be avoided.

In naval engagements, burned patients are especially apt to be covered with grease or oil. The coating may be so difficult to remove that tanning therapy is indicated. If the decision is made to remove the oil, this should be done with benzene, ether, soap, turkey red oil or Fantus's ether soap.<sup>38</sup> The objection to the use of ether or benzene is that these substances cannot safely be carried in large quantities aboard ship.

TABLE 1—Calculation of Dose of Plasma During First Week After Burn in Case 3

| Date    | Hematocrit Reading | Hemoglobin (Calculated from Hematocrit Reading) | Plasma Protein, Gm per 100 Cc | Calculated Dose of Plasma, Cc |                 |                             | Actual Amount of Plasma Given (After Readings) |
|---------|--------------------|---|-------------------------------|-------------------------------|-----------------|-----------------------------|--|
|         |                    |   |                               | Method of Elkinton            | Method of Black | Henry Ford Hospital Formula |  |
| 2/11/41 |                    |   |                               |                               |                 |                             |  |
| A M     | 57                 | 126   | 7.5                           | 1,250                         | 1,040           | 1,200                       | 300  |
| P M     | 62                 | 137   | 7.0                           | 1,760                         | 1,350           | 1,700                       | 1,200  |
| 2/12/41 | 56                 | 124   | 8.1                           | 970                           | 970             | 1,100                       | 700  |
| 2/13/41 | 52                 | 115   | 5.9                           | 1,290                         | 650             | 700                         | 0  |
| 2/14/41 | 49                 | 109   | 6.0                           | 970                           | 410             | 400                         | 0  |
| 2/15/41 | 40                 | 89  | 5.9                           | 20                            | —620 (excess)   | 0                           | 0  |
| 2/17/41 | 36                 | 80  | 5.7                           | —460 (excess)                 | —1,250          | 0                           | 0  |

SUMMARY AND CONCLUSIONS

The general treatment of burns is of prime importance and should be carefully coordinated with local

TABLE 3—Methods of Treating Burns Locally<sup>39</sup>

|                                  |                                       |
|----------------------------------|---------------------------------------|
| 1 Tannic acid spray              | 39 Onol                               |
| 2 Tannic acid jelly              | 40 Waxed paper and zinc oxide         |
| 3 Tannic acid baths              | 41 Hendry's ointment                  |
| 4 Tannic acid gauze              | 42 Kissmeyer's ointment               |
| 5 Tannic acid powder             | 43 Fraser's formula                   |
| 6 Tannic acid in ether           | 44 Saline dressings                   |
| 7 Tannic acid silver nitrate     | 45 Ambrone                            |
| 8 Gentian violet                 | 46 Paraffin                           |
| 9 Gentian violet silver nitrate  | 47 Paraffined gauze                   |
| 10 Triple dye                    | 48 Tulle gras                         |
| 11 Ferric chloride               | 49 Cod liver oil                      |
| 12 Taktoet                       | 50 Plaster cast                       |
| 13 Cutch extract                 | 51 Initial cold water                 |
| 14 Tea                           | 52 Viscopaste bandage                 |
| 15 Ink                           | 53 Dextrose, levulose and sucrose     |
| 16 Tannafax                      | 54 Camphorated oil                    |
| 17 Brilliant green               | 55 Electrosurgical brush              |
| 18 Mercurochrome                 | 56 Alcohol dressings                  |
| 19 Acriflavine                   | 57 Bismuth subnitrate gauze           |
| 20 Dichloramine T                | 58 Sodium bicarbonate dressings       |
| 21 Amylsalicylate                | 59 Sodium bicarbonate baths           |
| 22 Aluminum acetate              | 60 Waxed paper and zinc oxide         |
| 23 Aluminum aniline compound     | 61 Sulfhydryl solution                |
| 24 Carron oil                    | 62 Folic                              |
| 25 Open air                      | 63 Water baths                        |
| 26 Dry dressings                 | 64 Saline baths                       |
| 27 Debridement                   | 65 Aqueous green soap                 |
| 28 Epinephrine packs             | 66 Bunyan envelops                    |
| 29 Horse serum                   | 67 Petrolatum gauze pressure dressing |
| 30 Pteric acid                   | 68 Euglamide                          |
| 31 Acetic acid                   | 69 Sulfanilamide powder               |
| 32 Hare's ointment               | 70 Sulfaguanidine powder              |
| 33 Lead carbonate in linseed oil | 71 Sulfathiazole powder               |
| 34 Unguentine                    | 72 Sulfanilamide ointment             |
| 35 Antipyrexol                   | 73 Sulfathiazole ointment             |
| 36 Boric acid ointment           | 74 Sulfadiazole ointment              |
| 37 Zinc oxide ointment           | 75 Sulfadiazole spray                 |
| 38 Carofax                       |                                       |

blistering and granulation producing) and into six degrees by Dupuytren's classification (fig 8)

A type of burn especially prevalent in the present war is the so-called aviator's burn. When an explosion occurs in an airplane, the aviator throws up his hands to protect his face, burning the backs of the hands as well as the face. Such burns are often deep and involve a considerable amount of convalescent plastic care, especially for the fingers and the eyelids. In Great Britain burns of the hands of this type are often treated with Bunyan envelops. Wakeley<sup>36</sup> stated in this regard: "The best preliminary dressing for burns of the hand is a saline bath. The hands should be immersed in a bath twice a day and the patient encouraged to move his fingers in the bath. A saline pack is applied after the bath and this is kept moist and allowed to fall off in the next saline bath." Use of the

TABLE 2—Miscellaneous Studies in Case 3

| Date    | Hemoglobin, Gm / 100 Cc | Non protein Nitrogen, Mg / 100 Cc | Chlorides, Mg / 100 Cc | Potassium, Mg / 100 Cc | Sodium, Mg / 100 Cc | Carbon Dioxide, Vols per Cent | White Blood Count | Specific Gravity of Plasma |
|---------|-------------------------|-----------------------------------|------------------------|------------------------|---------------------|-------------------------------|-------------------|----------------------------|
|         |                         |                                   |                        |                        |                     |                               |                   |                            |
| 2/11/41 |                         |                                   |                        |                        |                     |                               |                   |                            |
| A M     | 17.0                    | 41.0                              | 347                    |                        |                     | 46.8                          | 20,000            | 1.0288                     |
| P M     |                         |                                   |                        |                        |                     |                               |                   | 1.0273                     |
| 2/12/41 |                         | 54.6                              | 325                    | 17.8                   | 334                 | 34.9                          |                   | 1.0305                     |
| 2/13/41 |                         | 54.6                              | 347                    |                        |                     | 50.2                          |                   | 1.0242                     |
| 2/14/41 |                         | 44.4                              | 330                    |                        |                     | 65.6                          | 22,000            | 1.0245                     |
| 2/15/41 | 12.5                    | 36.1                              | 347                    |                        |                     | 56.0                          | 19,000            | 1.0242                     |
| 2/16/41 |                         |                                   |                        |                        |                     |                               |                   |                            |
| 2/17/41 | 13.0                    | 38.0                              | 387                    | 15.2                   | 346                 | 49.1                          | 19,000            | 1.0237                     |

sulfonamides, especially locally, has a distinct applicability in the cases of such burns.

Phosphorus burns are especially apt to occur from incendiary bombs and self-igniting phosphorus grenades. Because small particles tend to become embedded under the skin, these injuries are apt to be deep. According

to Wallace,<sup>37</sup> such burns should be immersed and the phosphorus particles picked out under water. Successive washings with mild sodium bicarbonate, 1 per cent copper sulfate and boric acid solutions should be followed by a saline solution dressing. Oils and greases should be avoided.

In naval engagements, burned patients are especially apt to be covered with grease or oil. The coating may be so difficult to remove that tanning therapy is indicated. If the decision is made to remove the oil, this should be done with benzene, ether, soap, turkey red oil or Fantus's ether soap.<sup>38</sup> The objection to the use of ether or benzene is that these substances cannot safely be carried in large quantities aboard ship.

The study of burns is of especial importance in the

35 Cohen, S. M. The Treatment of Burns. Tannic Acid versus Saline, Brit. M. J. 2, 754-755 (Nov. 30) 1940.  
36 Wakeley, C. P. G. The Treatment of War Burns, Surgery 10, 207-232 (Aug.) 1941.

37 Wallace, A. B. The Treatment of Burns (Oxford War Hospital, London: Humphrey Milford, Oxford University Press, 1941).  
38 Fantus, Bernard. Therapy of Burns (The Therapy of the County Hospital), J. A. M. A. 103: 1446-1447 (Nov. 10) 1934.

THE PITUITARY TYPE OF  
MYXEDEMA

## FURTHER OBSERVATIONS

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Last year Means, Hertz and Lerman<sup>1</sup> described their sequence of experiences leading to the recognition of the pituitary type of myxedema. First it was noted that patients with Addison's disease have acute adrenocortical failure when thyroid is administered to them, second, that some patients with apparent myxedema do not respond well to thyroid. One such patient actually went into coma and died. At autopsy—the endocrine organs presented the characteristic changes of Simmonds' disease, namely, atrophy of the pituitary, thyroid, parathyroids, adrenals and ovaries. This knowledge permitted them to establish the proper diagnosis and institute proper treatment when the next patient with apparent myxedema went into coma on administration of active thyroid material.

Our purpose in the present report is to describe in more detail the metabolic studies made on this patient and to describe the pathologic manifestations in another case recognized before death.

## REPORT OF CASES

The history of patient 1 was given in full in a previous publication.<sup>1</sup> For the convenience of the reader of the present publication the important points will be restated.

**CASE 1**—Mrs S, aged 30, was recognized on sight as suffering from myxedema. She was admitted to the hospital March 1, 1939 in a state of semistupor which followed the onset of an infection of the upper respiratory tract. She complained of vomiting and abdominal cramps. With no special treatment but forcing of foods and fluids she improved rapidly in twenty-four hours. Her sister related that for several years she had had similar episodes, usually following infections of the upper respiratory tract, and that in a few days she would come out of them. Seven years before entry, following the birth of her second child, she complained of fatigue, headaches, puffiness of the eyes and ankles, faintness aversion to cold and spells of dyspnea. These symptoms had persisted and, in addition she had gained 15 pounds (68 Kg). Amenorrhea and loss of libido had ensued after the last pregnancy without the accompaniment of hot flashes. It was later discovered that after this pregnancy she had had a severe postpartum hemorrhage with inversion of the uterus, requiring laparotomy and two transfusions.

Physical examination presented an appearance characteristic of myxedema. There were, however, several atypical features namely atrophic breasts, sparse pubic and axillary hair, absence of body hair atrophic vaginal mucosa, infantile uterus and low blood pressure (94 systolic and 72 diastolic)—one expects normal or high blood pressure in ordinary myxedema. The laboratory studies also were atypical in some respects but typical in others. The hypochromic anemia, the gastric anacidity, the low basal metabolic rate—varying from minus 40 to minus 52—the low voltage and flat T waves in the electrocardiogram and slow alpha rhythm in the electroencephalogram

were all characteristic of myxedema, whereas the blood cholesterol of 112 to 120 mg per hundred cubic centimeters and serum protein of 4.8 to 6.6 Gm per hundred cubic centimeters were unusual for myxedema.

When the patient was placed on active thyroid preparation her metabolism rose to minus 18 in six days, but the patient did not respond in the expected manner. Anorexia, nausea, vomiting and abdominal pains developed, she became drowsy and responded slowly and the blood pressure remained low. The blood sugar was low, 42 mg per hundred cubic centimeters, and the total base in the serum was 134 milliequivalents per liter, an extremely low value.

At this point it became apparent that the diagnosis of myxedema was in error—that she was probably suffering from anterior pituitary hypofunction and that thyroid therapy had thrown her into a state of adrenocortical insufficiency plus hypoglycemia. Consequently thyroid medication was stopped and intravenous dextrose in saline solution given immediately. On this she improved rapidly and in a few days was well enough to permit extensive studies of her total endocrine picture.

The insulin tolerance test, as indicated in figure 1, showed a slightly faster fall than normal, very little recovery at the

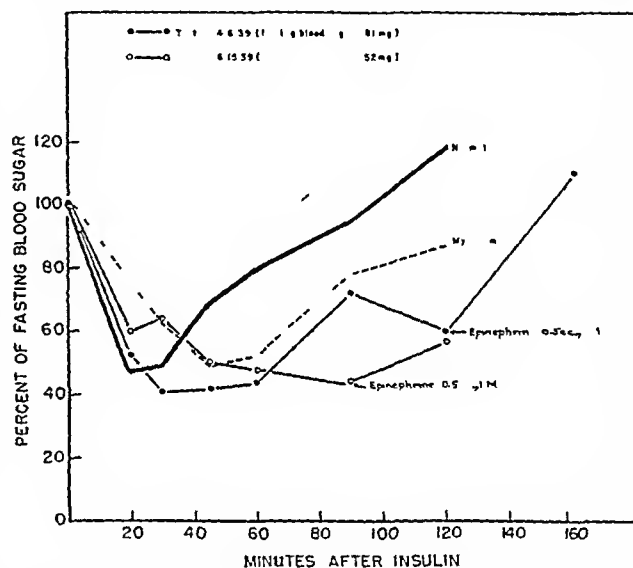


Fig 1 (case 1)—The insulin tolerance tests on Mrs S compared with the composites of tests on normal persons and on patients with primary thyroid myxedema.

end of two hours and only a slight response to epinephrine. The curve is calculated on the basis of the percentage of fasting level. The absolute blood sugar values were also lower than those of normal or myxedematous persons. Such a curve is characteristic of patients with hypofunction of the anterior lobe.<sup>2</sup> It indicates insulin sensitivity and failure of the diabetogenic hormone of the pituitary to restore the blood sugar level to normal. A second test done two months later, showed a similar response to insulin and also failure of the blood sugar to respond to epinephrine. This resulted in a second attack of coma again relieved by dextrose and saline solution intravenously.

The test for follicle stimulating substance in the urine was negative indicating that her amenorrhea was due not to primary ovarian failure but rather to pituitary failure.

The test for 17 ketosteroids in the urine showed an amount less than 0.5 mg in twenty-four hours. This is equal to the blank. Since this test is an index of activity of the gonads and adrenal cortex in the male and of the adrenal cortex only in the female such a result indicates adrenocortical hypofunction either due to primary adrenal disease or secondary to hypofunction of the anterior pituitary.

3 Fraser RL, ell Albright Fuller and Smith Patricia H. The Value of the Glucose Tolerance Test, the Insulin Tolerance Test and the Glucose Insulin Tolerance Test in the Diagnosis of Endocrine Disorders. *Journal of Clinical Endocrinology* 1: 297 (April) 1941.

From the Thyroid Clinic of the Massachusetts General Hospital. During the course of the experiments reported Dr James H Means cooperated with guidance and suggestions.

1 Means J H, Hertz Saul and Lerman Jacob. The Pituitary Type of Myxedema or Simmonds' Disease Masquerading as Myxedema. *Tr A Am Physicians* 55: 32 1940.

2 Castleman Benjamin and Hertz Saul. Pituitary Fibrosis with Myxedema. *Arch Path* 27: 69 (Jan) 1939.



Study of the salt metabolism revealed abnormal levels in the blood and abnormal amounts excreted. As shown in the accompanying table, the blood sodium and chloride were low and the loss of chloride in the test described by Wilder<sup>4</sup> was high. Such results are characteristic of adrenocortical hypo-

for the body by diminishing the excretion of salt. In addition, she excreted 44 mg of 17 ketosteroids in twenty-four hours on the day after the last injection of extract of pregnant mare's serum.

Following another attack of coma on May 3, she was put on a high salt diet with 6 Gm of salt added. As a result, the sodium and chloride levels of the blood rose further, as indicated in the table. The next effort was to determine whether any of the commercial pituitary preparations could substitute for this patient's deficiency. She received eighteen doses of Squibb's anterior pituitary extract, 2 cc daily intramuscularly from May 8 to May 25, in addition to the high salt intake. The only definite effect obtained from this was gonadotropin, as indicated by changes in the vaginal mucosa to normal. The metabolism was not affected, fluctuating between minus 30 and minus 40. The already normal levels of sodium and chloride in the blood were maintained. Beginning June 1, she received a preparation intramuscularly of anterior pituitary thyrotropic substance made by Parke, Davis & Co, 1 cc daily for seven days and 2 cc daily for seven days. No definite change in clinical appearance or in metabolism was observed.

She was discharged on June 19, 1939 on a regimen which consisted of a high salt diet, 4 Gm of extra salt and intramuscular injections of extract of pregnant mare's serum 20 units three times a week for two weeks, alternating with two week periods without injections. This was carried out for

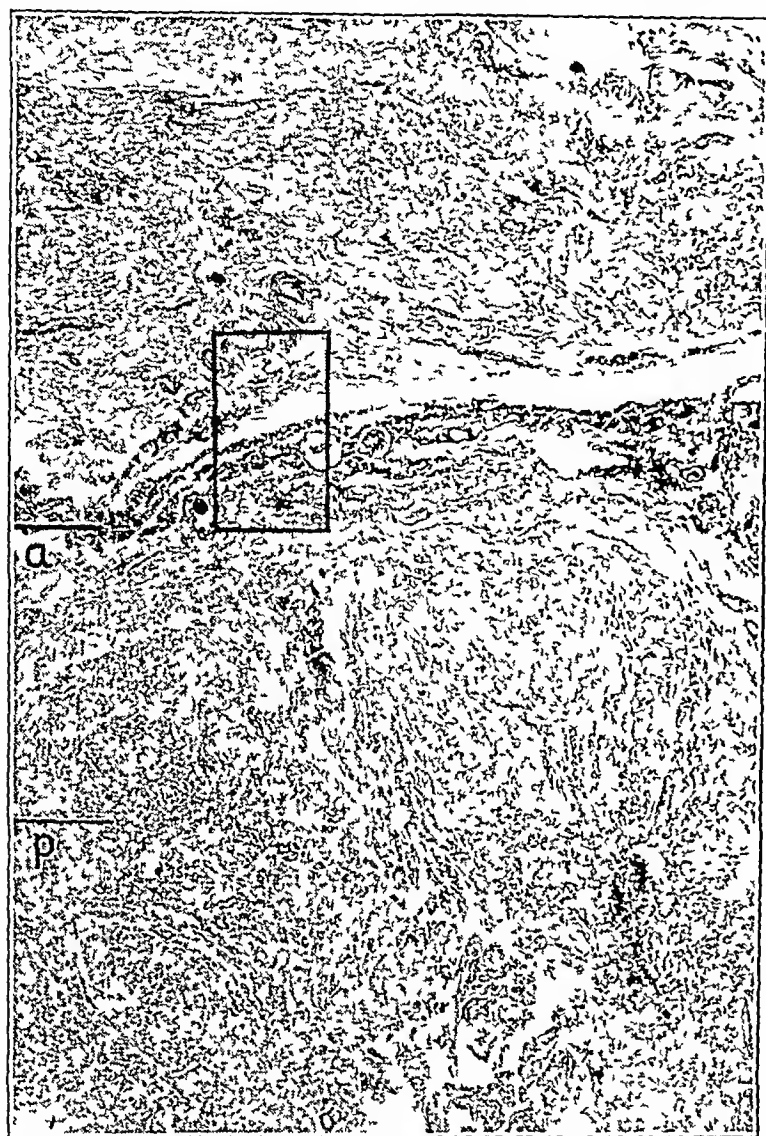


Fig 2 (case 2)—Low power view of the pituitary of Mrs. H. The anterior pituitary is almost completely replaced by fibrous tissue. All that remains of the anterior pituitary (a) is shown in the photomicrograph. The posterior lobe (p) is normal.

function and agree with those reported by Stephens<sup>5</sup> for hypopituitarism.

These tests all confirmed the diagnosis of primary anterior pituitary hypofunction with manifestations of thyroid atrophy predominating. It became clear that any plan of treatment must take into consideration the importance of protecting the adrenal glands. She therefore received daily doses of an extract of pregnant mare's serum (gonadogen<sup>6</sup>) 20 units intramuscularly from April 11 to April 21 (eleven doses). She improved considerably, felt alert and was able to walk around a good deal, and the metabolism fluctuated. There was definite estrogenic effect as indicated by increased folding of the vaginal mucosa, disappearance of atrophy, increase in mucus and a rise in the excretion of estrogens from 16 international units in twenty-four hours before treatment to 30 international units in twenty-four hours after treatment. The content of sodium and chloride in the blood increased and the Wilder test indicated a more normal type of chloride excretion (table). Thus it would seem that the estrogenic material resulting from gonadotropic stimulation of the ovary was able to spare salt



Fig 3 (case 2)—High power view of a portion of the anterior pituitary shown in boxed section in figure 2. The surviving anterior pituitary cells appear normal.

4 Wilder R. M. Power, M. H. and Cutler H. H. Concentrations of Chloride Sodium and Potassium in Urine and Blood. Their Diagnostic Significance in Adrenal Insufficiency, *Tr. A. Am. Physicians* 53: 235 1938.

5 Stephens, D. J. Chloride Excretion in Hypopituitarism with Reference to Adrenocortical Function, *Am. J. M. Sc.* 199: 67 (Jan.) 1940.

6 This material was supplied by Dr. E. G. Upjohn of the Upjohn Company.

six months. In the first two months she had normal periods. In the subsequent months she had premenstrual symptoms highly suggestive of periods. Her libido, which had been absent during her illness, returned to her previous normal level shortly after treatment was begun. Her breasts

increased in size, and glandular tissue developed. Her eyebrows regrew, the hair on her scalp increased in amount and the skin became softer. The level of metabolism after treatment averaged 10 per cent higher than the pretreatment level. During this period of treatment she had one severe infection of

gradually raised to  $\frac{3}{4}$  grain (0.05 Gm) daily and has been maintained to date. At various times she has received injections of extract of pregnant mare's serum, 20 units three times a week for two weeks, alternating with a two week period without injections. Her physical condition has been entirely normal, her metabolic rate varies between minus 15 and minus 20. She is active and leads a normal sex life. Although she has not had any more periods, abdominal cramps and breast symptoms always develop ten to fourteen days after a series of injections of the extract of pregnant mare's serum.

No doubt the ideal treatment in this case is to replace all the tropic hormones of the pituitary or to supply all the hormones produced by the glands which are stimulated by the pituitary. In practice, the pituitary extracts have not been satisfactory for human use. The minimal requirements are thyroid and something to protect against adrenal insufficiency. In this case extra salt and gonadotropic substance from pregnant mare's serum have proved adequate.

As indicated in the previous report, the experience with this and similar cases has put us on the alert for myxedema of pituitary origin. Another such case was recently observed and is reported here because post-mortem examination confirmed the diagnosis.



Fig. 4 (case 2)—Low power view of the thyroid showing fibrosis, dense lymphoid tissue and a few scattered thyroid follicles.

the respiratory tract, but unlike the previous infections it did not cause her to go into coma or to have abdominal cramps.

She was readmitted December 26, six weeks after omission of all medication in order that she might be studied further and to reevaluate the effect of gonadotropic substance and of thyroid. Without treatment the blood chemistry was the same as during the previous admission and the excretion of chlorides was high. After receiving 20 units of extract of pregnant mare's serum daily from Jan. 22, 1940 to February 5 (fifteen doses), she showed changes similar to the ones observed before. The blood sodium and chloride levels rose (table), but the excretion of chlorides during the Wilder test remained abnormally high. The effect on the endometrium was shown in biopsy specimens by a change from an "inactive endometrium" before treatment to a "proliferative endometrium" after treatment. Unfortunately, it was not possible to determine by biopsy whether or not a secretory phase developed later. The effect on the excretion of 17 ketosteroids in the urine was definite but not large. Two of 3 specimens of urine before treatment contained less than 0.5 mg. of 17 ketosteroids in twenty-four hours, whereas 2 specimens after treatment both contained more than 1 mg. in twenty-four hours.

On February 9 she was started on a high salt diet plus 4 Gm. of added salt and desiccated thyroid,  $\frac{1}{4}$  grain (0.016 Gm) daily. The dose of thyroid was raised to  $\frac{1}{2}$  grain (0.032 Gm) on February 18. On this dosage the basal metabolic rate rose to a level of minus 22 in about two weeks and she lost most of her myxedematous appearance. There was no evidence of adrenal insufficiency. In fact both the blood sodium and the blood chloride reached higher levels (140.8 and 105.7 milliequivalents per liter respectively). The dose of thyroid was



Fig. 5 (case 2)—High power view of the thyroid showing fibrosis, dense lymphoid tissue and a few scattered thyroid follicles.

CASE 2—A woman aged 68 was seen June 15, 1940 because of a fainting spell. Since she presented the clinical appearance of myxedema (subnormal temperature, a slow feeble pulse and in addition low voltage and flat T waves in the electrocardiogram) she was given desiccated thyroid 3 grains (0.2 Gm.)

daily After four days thyroid was stopped because alarming symptoms of weakness, nausea, vomiting and finally coma developed. The woman's companion then added the information that myxedema and amenorrhea had developed after the birth of her first and only child some forty years previously. The delivery had been difficult and complicated by severe hemorrhage. During the ensuing years several physicians had prescribed thyroid, but each time the patient had discarded it after a few days because it did not agree with her, i. e. it produced nausea, vomiting and weakness.

Examination at this time showed that the patient was well developed and well nourished, she was propped up in bed was breathing rapidly and shallowly and was unresponsive. The skin was pale, dry and coarse, the face had the puffy appearance characteristic of myxedema and the tongue was large. There was no pubic, axillary or body hair, and the eyebrows and hair on the scalp were scant. The heart was not enlarged, the sounds were rapid, regular and feeble, the blood pressure varied between 110 and 130 systolic and 90 and 100 diastolic. The lungs were normal except for a few scattered rales, the abdomen was distended and the extremities showed slight pitting edema. The temperature was 99.2 F and she had a slight anemia.

It appeared likely that the patient had the pituitary type of myxedema and that thyroid medication might have been a factor in the production of her comatose state. Since further studies to confirm the diagnosis were not feasible, she was treated with an intravenous infusion of 1,500 cc of 5 per cent dextrose in physiologic solution of sodium chloride. She was already completely digitalized. She made no response, however, and died several hours later.

Postmortem examination<sup>7</sup> revealed that the immediate causes of death were coronary occlusion with recent left ventricular infarction, mural thrombosis of the left ventricle and embolism of the basilar artery. The interesting and unusual conditions were found in the endocrine glands.

The pituitary was deeply sunken in its sella and decidedly atrophic. No definite anterior lobe was distinguishable. As shown in figures 2 and 3, the anterior lobe was almost completely replaced by dense fibrous tissue. Only a few islands of normal appearing epithelial cells were still present. There was no evidence of thrombosis or inflammatory reaction. The posterior lobe appeared normal.

The thyroid was completely atrophic and weighed less than 2 Gm. Microscopic examination (figs 4 and 5) showed that the gland was composed of patchy fibrosis, dense lymphoid tissue and only a rare thyroid follicle. The few follicles seen were small, were lined with cuboidal epithelium and did not contain any colloid.

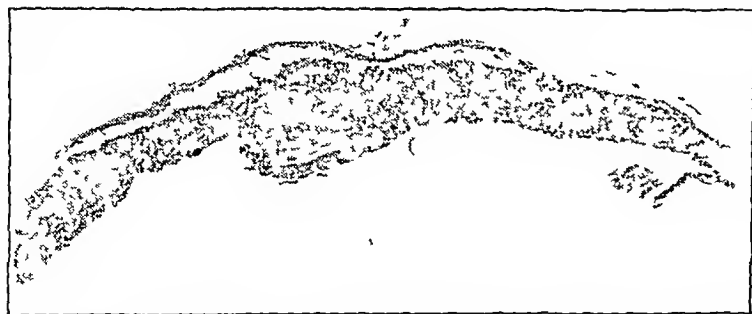


Fig 6 (case 2)—Low power view of the entire adrenal gland. Note the extreme atrophy. Reduced from a photomicrograph with a magnification of 10 diameters.

The adrenals also were atrophic, as shown in figure 6, and together weighed about 4 Gm, the normal being about 12 Gm. Microscopic sections, however, showed no cellular abnormalities.

The parathyroid glands and the pancreatic islets were normal grossly and microscopically. The ovaries showed complete atrophy and fibrosis—conditions consistent with the patient's age. The only other important abnormalities were generalized arteriosclerosis and terminal bronchopneumonia.

It is not possible to say how much of a role the thyroid medication played in the cause of death. The coronary occlusion by itself was sufficient to cause death. The adrenal insufficiency, which was probably present, may have been a contributing factor. On the other hand, one cannot rule out the possibility that thyroid medication may have initiated coronary occlusion.

*Changes in Salt Concentration in Blood and Urine of Patient with Pituitary Myxedema (Mrs S) Under Various Conditions*

| Date                 | Wilder Test,<br>Mg Cl/100 Cc |         | Serum<br>Sodium,<br>M Eq/L | Serum<br>Chloride,<br>M Eq/L | Comment   |
|----------------------|------------------------------|---------|----------------------------|------------------------------|---|
|                      | 24 Hrs                       | 4 Hrs   |                            |                              |   |
| First Admission      |                              |         |                            |                              |   |
| 4/ 8/39              | 183.1                        | 97.1*   | 133.7                      | 96.6                         | No treatment  |
| 4/22/39              | 114.0                        | 188.0   | 135.0                      | 100.3                        | Extract of pregnant<br>mare's serum, 20 unit<br>daily from 4/11 to 4/19 |
| 5/ 8/39              |                              |         | 141.1                      | 102.2                        | High salt intake for<br>5 days  |
| Second Admission     |                              |         |                            |                              |   |
| 1/11/40              | 111                          | 339     | 131.2                      | 93.4                         | No treatment  |
| 2/ 8/40              | 165                          | 364     | 132.8                      | 101.3                        | Extract of pregnant<br>mare's serum, 20 unit<br>daily from 1/23 to 1/30 |
| 3/ 2/40              |                              |         | 140.8                      | 105.7                        | High salt intake plus<br>thyroid 1/4 grain daily                        |
| Comparative Values   |                              |         |                            |                              |   |
| Normals              | 48-125                       | 23-137  | 137-142                    | 100-105                      |   |
| Addison's<br>disease | 130-352                      | 220-356 | 110-132                    | 60-98                        |   |

\* Patient vomited and in addition did not consume the entire dose.

#### COMMENT

It must be emphasized that not all cases of hypopituitary disease give the appearance of myxedema. Although all the glands are involved, they are not depressed to the same extent in every instance. In one the emphasis may be on myxedema, in another on adrenocortical insufficiency, on hypogonadism or on decreased diabetogenic activity. The recognition of the pituitary type of myxedema has been discussed in the previous report,<sup>1</sup> but is briefly repeated here for emphasis.

The development of amenorrhea earlier than the expected menopause, particularly without the usual menopausal symptoms, suggests anterior pituitary disturbance. Also, the history of postpartum hemorrhage followed by failure to lactate, permanent amenorrhea and loss of libido, as emphasized by Sheehan,<sup>8</sup> is strong evidence for this disease. In the male, loss of libido and impotence have a similar significance.

On physical examination the important findings suggestive of the pituitary type of myxedema are atrophy of the breasts, vaginal mucosa and uterus in women, eunuchoid habitus in men, scant axillary, pubic body hair and persistent hypotension.

The laboratory procedures of importance are those which detect the presence of other endocrine disturbances. The reduction in the levels of blood glucose and chloride and increase in chloride excretion (W)

<sup>7</sup> Dr Benjamin Castleman performed the autopsy on this patient and gave the authors permission to report the results.

<sup>8</sup> Sheehan, H. L. *Simmonds Disease Due to Pituitary Deficiency of the Anterior Pituitary*, Quart J Med 8: 277 (Oct) 1917.

test) indicate adrenocortical insufficiency. The quick drop in blood sugar and its slow recovery following the injection of insulin is evidence of the unopposed action of insulin occasioned by the absence of diabetogenic substance of the pituitary. A negative test for follicle stimulating substance in the urine past the time of the menopause indicates pituitary hypofunction. The absence of 17 ketosteroids in the urine indicates adrenocortical hypofunction of pituitary origin in either sex. These are also absent however in females with Addison's disease. In primary thyroid myxedema the 17 ketosteroids are present but low in amount. The blood cholesterol, usually highly elevated in primary thyroid myxedema, is as a rule low in the pituitary type.

Finally, the response to thyroid may be most important in establishing the diagnosis. The onset of nausea, vomiting, weakness, abdominal pains, collapse and coma after average doses of thyroid is strongly suggestive. Ordinary myxedema seldom fails to make the expected improvement on thyroid, the pituitary variety usually responds unfavorably.

Treatment of myxedema of pituitary origin must be based on the fact that thyroid in such cases, may produce adrenocortical failure and hypoglycemia. Thyroid must therefore be administered with caution. At the same time measures must be taken to protect the adrenals. In case 1 a combination of salt and gonadotropic substance from pregnant mare's serum to stimulate the production of estrin was successful in protecting against adrenocortical failure in spite of the employment of an adequate amount of thyroid. The production of antihormones (antibodies) by similar gonadotropic substances, as reported by Rowlands and Spence,<sup>9</sup> raises theoretical objections to the continued use of such hormones. Thus far this extract of pregnant mare's serum has not failed to produce an adequate response in this patient.

#### SUMMARY

In a previously published case of myxedema due to anterior pituitary hypofunction the diagnosis was confirmed by laboratory procedures which indicated gonadal and adrenocortical hypofunction and absence of gonadotropic and diabetogenic substances of the pituitary. Treatment designed to raise the metabolism with thyroid and at the same time to protect against adrenocortical "crises" was successful. In the second case reported here the diagnosis was confirmed post mortem by anatomic evidence of atrophy of the pituitary, thyroid and adrenal glands.

<sup>9</sup> Rowlands I. W. and Spence A. W. Production of Antigonaladotropic Activity in Man by Injection of Extract of Pregnant Mares Serum. *Brit. M. J.* 2: 947-950 (Nov. 11) 1939.

**The Eternal Search for Values**—To live intelligently requires conscious effort on the part of the individual. He must ever seek to develop those abilities which nature gave him. He must profit by his own experiences and those of other men living and dead by constantly seeking meanings and wider implications. He is growing in wisdom. He must participate in life to the full. He must join the eternal search for more satisfying values. Long ago John Bunyan said that these paths lead to the Delectable Mountain where peace and satisfaction were to be had. We may not know that at the end there is the Delectable Mountain but we do know that those who tread this way of life do send back reports to us that the journey was one of adventure, interest, joy and satisfaction.—Oppenheimer, J. J. Some Characteristics of the Scholarly Ideal in Everyday Student Life. *Ism. Im Coll. Bull.* 26: 222 (May) 1940.

## CIRCUMSCRIBED INTRATHORACIC NEOPLASMS

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There is a prevailing impression among many physicians that most circumscribed intrathoracic neoplasms are extrapulmonary and benign, and that their prompt removal is not important. The basis for this impression is in part the fact that a considerable number of small circumscribed neoplasms at first cause few or no troublesome symptoms and also that such tumors may, for a period of months, remain apparently stationary with regard to growth. The truth is that a majority of circumscribed intrathoracic neoplasms arise within the lung (almost all of them being malignant),

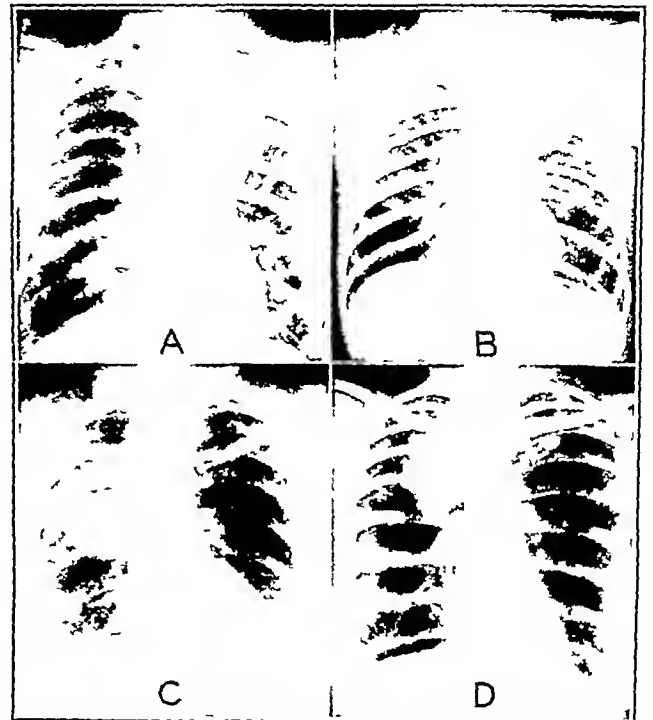


Fig. 1—Approximately similar appearance of neoplasms in four different patients. A lymphoblastoma. B neurofibroma extending far into spinal canal through intervertebral foramen. C fibrosarcoma of mediastinum. D bronchogenic carcinoma of upper lobe invisible by bronchoscopy.

many of those that arise outside the lung are malignant and, therefore, the prompt removal of any circumscribed neoplasm which cannot be proved benign is of vital importance.

The preoperative demonstration of the exact nature of primary intrathoracic neoplasms is usually impossible unless a specimen of tissue can be obtained for microscopic examination by bronchoscopy, esophagoscopy, needle aspiration or from a metastatically involved lymph node in the neck, axilla or elsewhere. About 70 per cent of the carcinomas of the lung arise in the large bronchi from which bronchoscopic biopsy specimens may be obtained. The roentgenologic shadows in the cases of this group are usually not well circumscribed, but the shadows in the 30 per cent or the cases in which no lesion can be seen bronchoscopically and in which the tumor is in the lung at a distance

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from the large bronchi are usually well circumscribed. Although the infiltration produced by carcinoma of the esophagus (from which biopsy material is almost always obtainable during esophagoscopy) is generally circumscribed, the external outline of the tumor mass is rarely demonstrable roentgenologically. For reasons that will not be considered here, needle aspiration of intrathoracic tumors for the obtaining of biopsy material is, in my opinion, inadvisable except when a patient's general condition is so poor that the risk of surgery should not be accepted unless the tumor was known to be malignant.

The position of neoplasms within the chest helps to suggest their nature, but mistaken diagnoses, when based on this criterion, are so frequent that the physician must guard against managing his patients on a presumptive diagnosis so made.

The differentiation between intrapulmonary and extrapulmonary tumors is important and sometimes difficult. When a tumor is visible bronchoscopically it almost certainly arose within the lung. When a tumor

monary tumors that are loosely attached to the thoracic wall move synchronously with the lung.

While circumscribed extrapulmonary neoplasms in the costovertebral region are usually neurofibromas, and those in the anterior half of the chest are usually teratomas, there are too many exceptions to this "rule" to justify reliance on it. The illustrations for this article have been chosen to demonstrate that approximately similar roentgenologic shadows may represent diverse types of benign and malignant neoplasms.

Although an exact pathologic diagnosis is of interest, it is of relatively little clinical importance. What is of paramount importance is whether a neoplasm is benign or malignant and, if malignant, whether it is still completely removable. I<sup>1</sup> have invited attention to the fact that a preoperative determination of benignancy or malignancy can only rarely be made in those many neoplasms from which a biopsy cannot be safely carried out or which have not shown a response to high voltage roentgentherapy that is typical of lymphoblastoma or which have not shown evidence of metastasis. Since

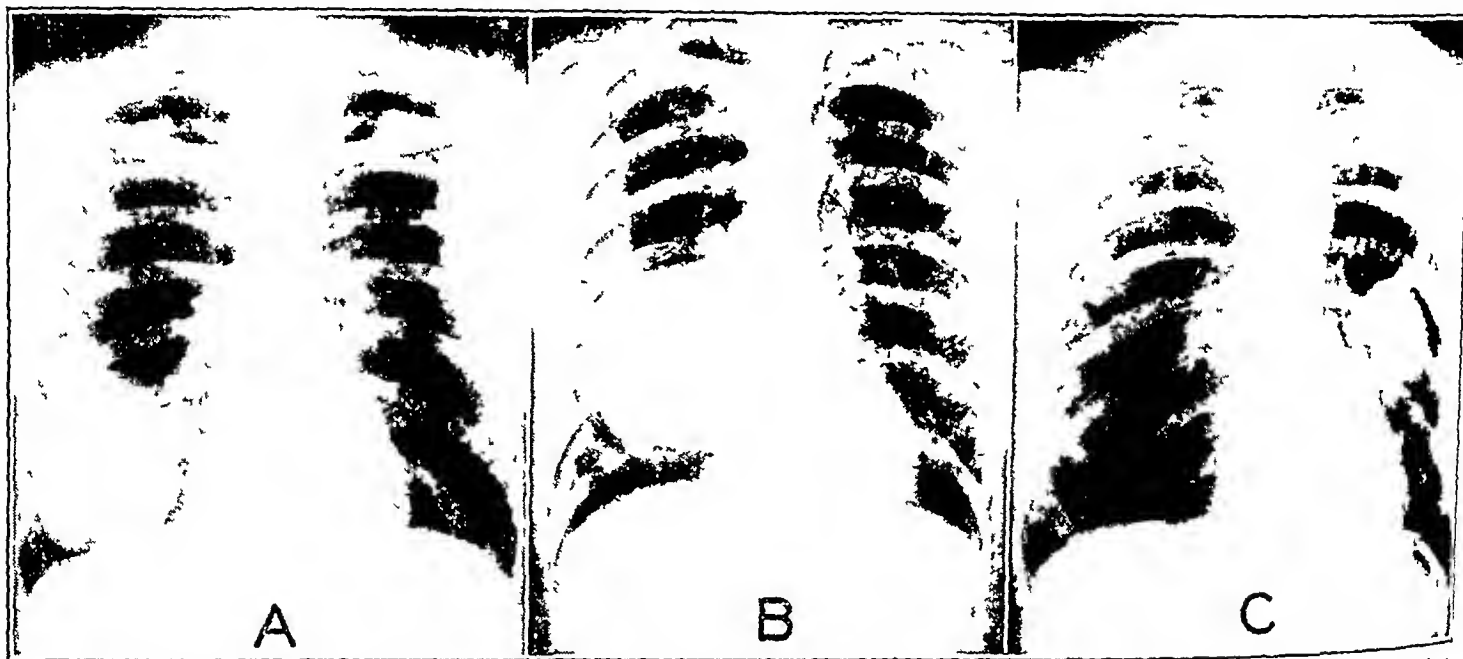


Fig. 2—A, benign but very cellular papilliferous teratoid bronchial adenoma lying outside of lung but attached to it; B, neurofibroma with extension into intervertebral foramen; C, bronchogenic carcinoma in lingular portion of upper lobe, invisible by bronchoscopy.

is seen by posteroanterior and lateral or oblique roentgenograms to lie everywhere within the limits of the cortex of the lung it should obviously be considered as intrapulmonary, although an interlobar origin is possible. Large tumors may so completely replace or displace the adjacent parts of the lung that it is roentgenographically impossible to decide whether they arose within the lung and expanded to the costal, diaphragmatic or mediastinal wall of the hemithorax or whether they arose within one of the thoracic walls and displaced the adjacent lung. If a preoperative determination of an intrapulmonary or extrapulmonary site of the tumor should be important, an induced pneumothorax may be used to show, in the absence of extensive pleural adhesions, whether or not the tumor lies within the lung. If a tumor in the lower part of the chest, but not in continuity with the diaphragm, descends with the lung during inspiration, the tumor is likely to be of intrapulmonary rather than extrapulmonary origin. The failure of a tumor to descend during inspiration does not, however, exclude an intrapulmonary origin, since pleural adhesions or malignant invasion of the thoracic wall may so fix that part of the lung containing such a tumor that it will not move appreciably during respiration. Occasionally, extrapul-

monary intrathoracic neoplasms rather frequently undergo malignant degeneration and since those that remain benign tend to cause progressive disability and dangerous complications as they increase in size the patients' safety requires that all presumably removable neoplasms should be promptly operated on whether or not a preoperative pathologic diagnosis has been made.

The increasing use of roentgenology of the chest for the detection of tuberculosis in large groups of people and as a routine method of examination of all patients admitted to hospitals, will result in detection of many neoplasms that have produced no thoracic symptoms whatever (fig. 1 B). Since such neoplasms are as potentially dangerous as those that have produced symptoms, and since the medical profession properly pleads to the public to seek examinations that will detect disease in an early, curable state, physicians should insist on the prompt removal of "silent neoplasms."

Emphasis needs to be placed on the erroneous and the prevalent belief among many physicians and roentgenologists that circumscribed intrathoracic neoplasms are usually benign. With rare exception, circumscribed neoplasms within the lung are carcinoma.

1. Alexander, John. Observations on Intrathoracic Neoplasms. *Surg.* 114: 734 (Oct.) 1941.



Since many circumscribed extrapulmonary neoplasms are malignant, a presumptive diagnosis of benignancy obviously cannot be made with safety. I have operated on a number of patients whose histories or periods of preoperative roentgenographic observation suggested that their circumscribed extrapulmonary neoplasms had been benign for months but in whom the pathologic examination of the tumors showed malignancy, which, however, was often of a low degree of activity. I have seen other patients whose apparently benign tumors had been observed for months or even years without troublesome symptoms and with only a slow growth of their tumors, when troublesome symptoms arose and the rate of growth of the tumors increased, the probable malignant degeneration that had then occurred was not recognized until the lesions had become inoperable through metastasis or extensive invasion of surrounding structures.

If failure to remove circumscribed neoplasms promptly because of the mistaken belief that the great majority of such tumors are benign may be considered the most important error made in the management of intrathoracic neoplasms, the routine use of high voltage roentgen therapy is probably the second most important serious error. The only proper use of high voltage roentgen therapy for possibly removable intrathoracic neoplasms is to determine whether a tumor suspected of being a lymphoblastoma is truly one. In other neoplasms the absence of response, with regard to a decrease in the size of the tumor or improvement in symptoms, fails to indicate whether the tumor is benign or malignant, since many malignant tumors do not respond. If a tumor does decrease in size and if the symptoms improve, the tumor has been shown to be probably malignant but at the cost of a loss of a number of weeks of valuable time, during which metastases may occur, making the lesion inoperable. As high voltage roentgen therapy does not completely destroy malignant intrathoracic neoplasms and as the best that can be expected from it is a temporary improvement, and as the frequent practical effect of its use is the loss of the patient's chance of cure by complete surgical removal of the tumor, high voltage roentgen therapy must be strongly condemned except for suspected or proved lymphoblastomas and for palliation in cases of inoperable malignant neoplasms.

Although the differentiation of intrathoracic neoplasms from non-neoplastic lesions that resemble them is of fundamental importance, the scope of this article does not include the extensive discussion that would be necessary to clarify the often difficult differential diagnoses. The following list of circumscribed non-neoplastic lesions will serve to suggest the methods of examination that may be necessary to differentiate them from circumscribed neoplastic lesions: syphilitic and nonsyphilitic aneurysms of the great vessels and heart, diaphragmatic hernia, entration of a part or of the whole of a hemidiaphragm, megaesophagus, substernal goiter, encapsulated empyema, mediastinal and Pott's abscesses, echinococci, congenital, developmental and acquired inflammatory cysts, a solid or abscessed mass of tuberculous hilar or mediastinal lymph nodes, a circumscribed tuberculous or nontuberculous inflammatory mass within the lung, atelectasis of a single pulmonary lobe in which the roentgen shadow is produced entirely by the atelectasis and not in part by an extension of carcinomatous infiltration from a primary bronchogenic carcinoma that may have produced the atelectasis.

## SUMMARY

1 Contrary to the prevailing impression, the majority of circumscribed intrathoracic neoplasms are intrapulmonary and malignant. Many circumscribed extrapulmonary neoplasms are malignant and those that are benign may undergo malignant degeneration or cause disability or serious complications as a result of increase in size.

2 Except for those bronchogenic and esophageal carcinomas that yield endoscopic biopsy material and those neoplasms that have metastasized, a preoperative determination of malignancy or benignancy cannot be made with reasonable accuracy. Needle aspiration biopsy is not advised unless the patient's general condition is so poor that operation would not be performed unless the tumor was known to be malignant.

3 Since delay in the removal of malignant neoplasms may result in their becoming inoperable and since benign neoplasms are potentially dangerous, virtually all presumably removable neoplasms should be promptly operated on, even though they may, at the time, be producing no troublesome symptoms.

4 The only proper use of high voltage roentgen therapy is as a therapeutic test for lymphoblastoma or for palliation in inoperable malignant neoplasms. The use of roentgen therapy for other purposes is useless and, because of the loss of valuable time in those cases that happen to be malignant, dangerous.

## PYELONEPHRITIS

WITH DEATH IN UREMIA

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It is coming to be realized that bacterial infection of the kidneys—pyelonephritis—plays an important role in initiating and continuing pathologic processes which can result in death by uremia and also that many of these cases are first seen by the internist as arteriosclerotic, cardiovascular renal disease and hypertension. A definite etiologic factor is thus injected into a percentage of the large group of diseases classed as degenerative. This places before medicine the theoretical possibility of diagnosing and curing bacterial infection of the kidneys in the early stage. In the late stage it appears to be impossible to change the trend of these pathologic processes.

Longcope and Winkenwerder<sup>1</sup> in 1933 and Longcope<sup>2</sup> in 1937 stressed the destructive effects of pyelonephritis on the functional efficiency of the kidneys. They reported 22 cases in which the age varied from 15 to 58 years and nonobstructive pyelonephritis had been present for periods of five days to seventeen years. They showed that in the beginning there might be typical acute attacks in children or in women in pregnancy. However, when first seen in the late stages the diagnosis was easily missed as 6 of 14 cases were not recognized till autopsy. Costovertebral pain, pus cells in the urine and bacteriuria when present were

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<sup>1</sup> Longcope W. T. and Winkenwerder W. L. Clinical Features of the Contracted Kidney Due to Pyelonephritis. Bull. John Hopkins Hosp. 53: 255 (Nov.) 1933.

<sup>2</sup> Longcope W. T. Chronic Bilateral Pyelonephritis. Ann. Int. Med. 11: 1-9 (July) 1937.

the findings in their series most suggestive of the correct diagnosis. Pyelography frequently confirmed the diagnosis.

Weiss and Parker<sup>3</sup> made a very intensive clinical and microscopic study of 100 cases. They pointed out that only recently has pyelonephritis been separated from chronic glomerulonephritis. While they found scattered cases described in the European literature and certain features noted by urologists, practically no information was available in the Anglo-Saxon literature until Longcope and Winkenweide emphasized its significance in internal medicine. To quote Weiss and Parker, "As long as 'pyelitis' of early childhood was considered by pediatricians as a benign and transient purulent infection of the renal pelvis, it was not suspected that this condition in its chronic stage is related to certain types of toxemia of pregnancy with apparent recovery observed by the obstetrician, to subsequent attacks of pyuria, treated by the urologic surgeons, and to arterial hypertension of progressive severity, developing years later, and associated with impaired concentrating capacity of the kidney with but a trace of albumin and few or no white blood cells in the urine, cared for by the internist. Only when it became sufficiently recognized that 'pyelitis' is uniformly associated with focal or diffuse inflammatory lesions of the parenchyma of the kidney as well as the pelvis was it suspected that acute 'pyelitis' or pyelonephritis bears a direct relation to the functionally insufficient, contracted and irregularly scarred kidneys of chronic pyelonephritis." Weiss and Parker concluded that pyelonephritis was responsible for 15 to 20 per cent of malignant hypertension. The presence of a normal or increased blood pressure depended on the extent of arterial or arteriolar change. Hyperplastic endarteritis, hyperplastic arteriosclerosis and necrotizing arteriolitis were the changes they encountered. They concluded from the histologic evidence that the arteriolitis was directly caused by bacterial infection. The vascular changes were most noticeable in the renal scars, less so in the rest of the kidney. Furthermore, the vascular changes were confined to the kidney and were not generalized as in "primary" malignant hypertension.

The present communication adds further support for the role pyelonephritis plays in the causation of loss of kidney function and uremia. Our data were obtained from the study of 22 cases of nonobstructive pyelonephritis. They were chosen from 93 cases of uremia that came to autopsy between Jan 1, 1928 and Dec 1, 1941. In this group of 93 cases the main renal pathologic condition was pyelonephritis, including both obstructive and nonobstructive in 32 cases, or 30 per cent. These patients were all admitted to the medical wards. In only 5 was pyelonephritis recognized clinically. In the remainder it was discovered at the autopsy table. The clinical diagnosis was based on a blood nonprotein nitrogen level of not less than 90 mg per hundred cubic centimeters and death in coma. The criteria for the pathologic diagnosis of pyelonephritis used in this communication were essentially the same as those laid down by Weiss and Parker. The kidneys tended to be coarsely scarred, the capsules somewhat adherent, the cut surface showed distortion of cortex and medulla, with blunting of the calices and

dilatation of the pelvis, and in the very acute stages yellow streaks in the medulla extending up into the cortex, sometimes with small abscess formation. Histologically the most pronounced feature was the extensive disorganization, primarily interstitial in nature, with compression of the tubules and a mixed cell inflammatory reaction. The tubules contained pus or hyaline casts, depending on the stage and the activity of the process. The vascular changes were more pronounced in the areas of inflammatory reaction. The glomeruli tended to be unusually well preserved with a comparatively small number hyalinized. In the cases in which death occurred in uremia the lesions of acute glomerulitis were extensive, as pointed out in a previous study.<sup>4</sup> The inflammatory reaction in the pelvis was usually severe and of the same character as that found in the parenchyma.

The age range in the 22 cases was from 16 to 71 years, with an average age of 47.9 years. Each decade was evenly represented excepting in 1 case between 10 and 19 years and 5 cases between 60 and 69. In 2 the age was over 70. Fifteen patients were male and 7 female, contrary to Longcope's finding of a preponderance in females. Seventeen were white and five Negro.

There was a wide range of chief complaints. Abdominal pain, the most common complaint, was present eight times. It was largely epigastric and not associated with food intake. Lumbar or back pain did not appear as a chief complaint. Dysuria appeared only once in a list of forty-five complaints. Dyspnea seven times, edema six, nausea and vomiting five were the other frequent symptoms with the following occurring only once or twice: paralysis of the leg, weakness, diarrhea, tarry stool, purpura, trembling, pain in the chest pain in the joints, precordial pain, anorexia, cough, epistaxis and generalized itching.

The clinical course in 12 cases was largely cardiac alone or cardiac associated with neurologic, ophthalmologic or gastrointestinal elements. All these patients had hypertension. In the 10 other cases the principal picture of the course was ophthalmologic, intestinal obstruction, pulmonary and neurologic, upper respiratory and recurrent cutaneous disorder, gastrointestinal, arthritic, hepatic and neurologic. All the cases presented renal features for a varying length of time before death. In all cases some kidney diagnosis was made, in most not until the renal element was obvious.

The blood Wassermann reaction was positive in 2, there was a history of syphilis in 2, and 18 were negative. The blood pressure was normal in 8, moderately elevated in 6 and highly elevated in 8. The average blood pressure was 175 systolic and 107 diastolic.

The urine showed the following: The specific gravity was fixed in 7, there was a loss of concentration in 1, slight fixation in 6 and considerable reduction in 1. There was no albumin in 1 case, it was 1 plus in 4 cases, 2 plus in 4 cases, 3 plus in 7 cases and 4 plus in 1 case. There were no erythrocytes in 1 case, there were 1 plus in 5 cases, 2 plus in 4 cases, 3 plus in 3 cases and 4 plus in 2 cases. Pus cells were absent in 1 case, 1 plus in 8 cases, 2 plus in 2 cases, 3 plus in 4 cases and 4 plus in 6 cases. All showed sharp reduction of phenolsulfonphthalein excretion when the

<sup>3</sup> Weiss, Somer, and Parker, Fred, Jr. *Pyelonephritis*, *Medicine* 18: 221 (Sept.) 1939.

<sup>4</sup> Lisa, J. R., Solomon and Gordon, F. J. *Ureteral Pathologic Study*, *International Clin* 3: 88, 1941.

was done. Morning specimens were not as satisfactory as later specimens for leukocytes and clumps. All urines showed some pathologic elements in some specimens at one time or another. Some showed leukocytes without erythrocytes and others the opposite. Almost all tests showed white blood cells if repeated often enough.

Blood counts were done in 15 of the 22 cases and showed secondary anemia in all but 1 case. The white count ranged from 3,400 to 17,200 cells, the latter in an acute exacerbation of pyelonephritis.

The following three cases are illustrative of this group.

CASE 1—R. C., a white man aged 48, admitted to the service of Dr. Donaldson with the complaint of pain in the joints of the hands, shoulder and knees, for three months, gave no urinary or cardiac history. He had been treated for syphilis. The fundi were normal. The heart was slightly enlarged. X-ray examination revealed no bony joint abnormality. The blood pressure ranged from 132 systolic and 80 diastolic to 160 systolic and 150 diastolic. The urine showed fixation 3 plus albumin, an occasional white blood cell and no red blood cells. The nonprotein nitrogen rose to 225 mg per hundred cubic centimeters. The blood showed a secondary anemia and normal white and differential count. Cystoscopy revealed a mild cystitis and an appearance time of phenolsulfonphthalein of seven minutes on each side. The temperature was normal with a disproportionally elevated pulse rate. The patient gradually became lethargic, had several nosebleeds, became stuporous, went into a coma and died.

The clinical impression was rheumatoid arthritis and later chronic glomerulonephritis with uremia.

The right kidney weighed 170 Gm, the left kidney 130 Gm. The left kidney was more profoundly affected than the right. The kidneys were irregular and nodular; the capsules were adherent and the external surface showed numerous telangiectases. On cut surface the markings were indistinct, the corticomedullary boundary line was obscured and there were numerous yellow streaks throughout the medulla and cortex. The pelvis was dilated and the mucosae had numerous petechial hemorrhages, the contents were purulent.

Histologically there were numerous areas in the cortex and medulla of interstitial lymphoid, plasma and polymorphonuclear infiltration with local fibrosis. The small arteries within the scars were moderately sclerotic. The glomeruli were fairly well preserved, and all showed moderate to severe endothelial hyperplasia with occlusion of the capillary bed. Many of the tubules, particularly of the collecting elements in the cortex and medulla, were filled with pus casts, a few having colloid casts. The pelvis was moderately infiltrated with lymphoid and plasma cells.

CASE 2—A. LaM., a white man aged 58, admitted to the medical service of Dr. Donaldson with complaints of swelling of the abdomen and ankles and pain in the chest for one month's duration, had had ankle edema and ascites for one year, more pronounced the month before admission, dyspnea on exertion and precordial pain for one year. Physical examination revealed edema and sclerotic peripheral vessels. The heart was enlarged to the left and down; a rough mitral systole and soft aortic systolic murmur were heard. The second aortic sound was definitely accentuated. The blood pressure was 264 systolic and 160 diastolic. The liver was enlarged and ascites was present. An electrocardiogram and X-ray examination revealed disease of the ventricular muscle and evidence of pulmonary congestion respectively. Laboratory studies revealed a negative Wassermann reaction and secondary anemia with normal white count and differential. On admission the nonprotein nitrogen was 34, which rose to 129 in one month. Phenolsulfonphthalein clearance was 30 per cent in three hours and the urine showed a fixed specific gravity 3 plus albumin, 4 plus red blood cells and an occasional white

blood cell. The temperature and pulse rate remained elevated throughout the course. The patient suffered from pain in the right upper quadrant, went into coma and died.

The clinical impression was hypertensive cardiovascular disease with uremia and bronchopneumonia.

This case illustrated the almost wholly cardiac type until the mode of death in uremia revealed the true pathologic condition.

The right and left kidneys weighed 175 and 150 Gm respectively. They were coarsely scarred. The capsules were thickened and adherent, and on section there were numerous small petechial hemorrhages and yellow streaks throughout the medulla and cortex. The calices were dilated, the pelvis was thickened and granular. A frankly purulent urine was present on each side.

Histologically the changes were largely acute, with extensive purulent infiltration of the interstitial tissue both in the cortex and in the medulla with some foci of lymphoid and plasma cells. The tubules contained numerous pus casts. The glomeruli were large and plump and had extensive acute changes. The vessels had sclerotic changes throughout all radicles.

CASE 3—E. V., a Negro aged 29, admitted with complaints of nausea and vomiting and pain in the right upper quadrant for four months and epistaxis three times in two months, had had smallpox at 17 and pneumonia at 20. The pain in the abdomen was usually epigastric, did not radiate and had no relationship to meals. There had been constipation for five months previous to admission. The weight loss had been 28 pounds (13 Kg) in four months. The blood pressure was 180 systolic and 130 diastolic. The heart was enlarged. The urine showed fixed specific gravity laterally, 3 plus albumin, clumped white blood cells and urea nitrogen which rose to 219 mg per hundred cubic centimeters. The blood count showed severe secondary anemia and 14,000 white blood cells with 91 per cent polymorphonuclears. The Wassermann reaction was negative. The fundi were normal early and showed hemorrhage and exudation later. Cystoscopy showed non-hemolytic streptococci on urine culture from both ureters.

The clinical impression was nephrosclerosis with uremia, peptic ulcer.

The kidneys weighed 125 Gm each and were coarsely nodular. The capsules were adherent, more at the pelvis than over the cortex, and were studded with small yellow and gray nodules. The cut surfaces showed irregular width of the cortex, blunting of the calices and yellow streaks throughout the medulla and cortex. The pelvis and ureters contained thick purulent urine.

On microscopic examination the kidney showed extraordinary disorganization and interstitial fibrosis with a mixed cell infiltration, frequently purulent. The tubules of the cortex and the medulla contained both hyaline and pus casts. The glomeruli had all stages of acute glomerulitis, only a few were scarred and hyaline. The vessels showed profound sclerosis, many with hyaline and fibrin thrombi. The pelvis had a dense lymphoid plasma and polymorphonuclear infiltration.

#### COMMENT

The foregoing data show the meagerness of the signs and symptoms which clearly point to the diagnosis of pyelonephritis when seen in the late stage. In the acute stage the signs are more diagnostic. Every pediatrician and obstetrician is acutely aware of "pyelitis." The direct connection between acute "pyelitis" of childhood, pregnancy and adult life, whether ascending or hematogenous in nature and chronic pyelonephritis appears to be established. Symptomless pyuria and bacteriuria, especially if preceded by acute attacks with symptoms, must assume a position of large importance in medical consciousness. It is in this blind period of symptomless pyuria with vague nonspecific upset and chronic anemia that it is difficult for the physician to convince either himself or his patient that he is

dealing with an infection which frequently goes on to kidney destruction

Our data confirm previous writers in showing that in a large proportion of cases in which death occurs in uremia the essential cause is bacterial infection of the kidneys. This fact supplies a specific etiologic factor for pathologic processes followed by renal death which previously had been attributed to degenerative cardiovascular disease or to primary nonbacterial inflammatory disease of the parenchyma of the kidneys. It presents to medicine a challenge as, theoretically at least, it is possible to diagnose and cure these patients at an early stage of their illness.

#### CONCLUSION

1 In 22 cases of nonobstructive pyelonephritis, death occurred in uremia

2 They are chosen from 93 cases of uremia coming to autopsy of which 32 were cases of pyelonephritis both obstructive and nonobstructive

3 Most of these cases were instances of degenerative cardiovascular renal disease

4 The series illustrates the importance of long standing pyelonephritis as the basic pathologic condition in a large proportion of the mass of hospital cases usually grouped as degenerative diseases

5 There is presented to medicine a definite challenge for early diagnosis and proper therapy of pyelonephritis to prevent the development of irreversible changes

### THE NAUSEA AND VOMITING FOLLOWING ADMINISTRATION OF DIETHYLSTILBESTROL

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My purpose in this paper is twofold. First, a definite relation is shown to exist between the nausea and vomiting of early pregnancy and the nausea and vomiting which frequently follows the administration of diethylstilbestrol. Second, a method is described by which diethylstilbestrol may be administered with elimination of side effects in those patients who do not tolerate the drug.

#### RELATION OF NAUSEA OF PREGNANCY TO NAUSEA FOLLOWING DIETHYLSTILBESTROL

The clinical material used for this report consists of 95 patients given diethylstilbestrol for periods ranging from three months to two years. Diagnoses include the menopause (natural, surgical and irradiation), hypo-ovarianism, dysmenorrhea, vulvovaginitis of young girls, senile vaginitis, inhibition of lactation (postpartum), menometrorrhagia and 9 cases of benign prostatic hypertrophy.

As the investigation progressed it was observed repeatedly that patients who previously had experienced nausea and vomiting in excessive degrees during pregnancy also had nausea and vomiting following administration of diethylstilbestrol. The intolerance to diethylstilbestrol was in almost every case directly proportional to the severity of the nausea and vomiting of

previous pregnancies. It was noted also that patients in describing their nausea from the drug stated "I felt just as if I were pregnant again. It was the same kind of nausea."

Following this observation, diethylstilbestrol in 1 mg enteric coated tablets once daily at bedtime was administered to 10 patients who had had severe nausea and vomiting of pregnancy, purposely to see if they were sensitive to the drug. No patient was forewarned of any likely side effect. In every case, definite nausea, accompanied by vomiting in 60 per cent of the cases, was produced following administration of one to three doses. Further administration of the drug caused sufficient side effects in each case to prove beyond doubt that it was the diethylstilbestrol causing the symptoms.

A summary of cases treated was then made, with these findings:

Thirty-three women varying in age from 29 to 56 and in parity from one to four had experienced severe nausea and vomiting with each pregnancy. Each of these women had been started on a 1 mg enteric coated tablet of diethylstilbestrol daily. Thirty-two patients of this group (96.9 per cent) had nausea, vomiting, abdominal pains and/or migraine sufficiently severe to make withdrawal of the drug desirable. One patient had no side effects and continued with the same dosage. Two patients were unable to tolerate as little as 0.15 mg of the drug, this small dose causing a hyperemesis for several hours. Side effects began, on the average, about six hours after administration of each dose and continued for three to eight hours.

A control series of 20 women who varied in age from 25 to 56 years and in parity from one to ten had had no nausea whatever with any pregnancy. These women were given doses of from 3 to 8 mg of diethylstilbestrol by mouth each day, and in 19 cases (95 per cent) there was not the slightest side effect from the drug. One woman tolerated 3 mg daily without side effect, but after a nineteen day period without the drug it was resumed at 5 mg daily. This dose caused severe nausea with some vomiting, and the patient refused to cooperate by taking a reduced dose.

Eight girls from 2 to 8 years of age were given 0.1 to 0.5 mg of diethylstilbestrol daily without side effects in any case.

Each of 9 men aged 65 to 78 was given 5 mg daily. In no case was any side effect from the drug noted.

Twenty-two lactating women were given 3 to 5 mg of diethylstilbestrol daily, and although about one third had had nausea of early pregnancy there were no side effects from the diethylstilbestrol taken during this period. Two of these women who had had hyperemesis early during their pregnancy were given diethylstilbestrol at later dates with resulting attacks of severe nausea and vomiting from the drug.

In previously published research<sup>1</sup> and in some current experimentation, as yet unpublished, I have recorded considerable proof that the nausea and vomiting of early pregnancy is due to an allergic reaction of the patient to the secretion of her own gravid corpus luteum. This secretion is as yet unidentified in form but has been shown not to be progesterone. Injection of this luteal hormone intradermally in the pre-

Materials for this study consisting of "Enseris Stilbestrol" (enteric coated tablets of diethylstilbestrol), ampules of stilbestrol in oil, and special extractions of the corpus luteum were furnished by Eli Lilly & Co. through the courtesy of Dr. D. C. Hines and Dr. Raymond M. Rice of the Lilly Research Laboratories, Indianapolis.

1 Finch, J. William. Etiology of Nausea and Vomiting of Pregnancy, J. A. M. A. 111:1368 (Oct. 8) 1938. The Nausea and Vomiting of Pregnancy Due to Allergic Reaction, Am. J. Obst. & Gynec. 54:1029 (Dec.) 1940.

with nausea of pregnancy produces a typical allergic hive with surrounding erythema. In patients pregnant but with no nausea intradermal injections of this hormone produce no reaction.

In each case recorded in this paper intradermal tests were made with this luteal hormone and found to respond identically as hyperemesis patients, i. e., those with nausea and vomiting from diethylstilbestrol had positive cutaneous reactions and those without side effects from diethylstilbestrol had negative cutaneous reactions. Three nulliparas not reported in the foregoing, were very intolerant to diethylstilbestrol in 1 mg daily doses and, although they had not been pregnant, their reaction to the corpus luteum extraction was quite positive. Injections of diethylstilbestrol in oil intradermally in each case of the entire group included in this paper gave uniformly negative reactions, thus ruling out any direct sensitivity to diethylstilbestrol.

If the side effects are allergic in nature the allergen must be something produced secondary to stimulation from diethylstilbestrol or a metabolic by-product or end product of diethylstilbestrol metabolism. The first named of these is the most likely, as Greene<sup>2</sup> has shown a high percentage of cases with nausea and vomiting following large doses (comparable in estrogenic activity to the larger doses of diethylstilbestrol) of estradiol carbethoxylate, a "natural" estrogen.

#### TREATMENT OF PATIENTS INTOLERANT TO DIETHYLSTILBESTROL

Since, as stated in previous publications,<sup>1</sup> it is possible to cure the nausea and vomiting of early pregnancy with desensitizing doses of corpus luteum extracts, it was decided to endeavor to "desensitize" patients to the side effects of diethylstilbestrol by administering a course of graduated doses of the drug, hoping that they would eventually become able to tolerate a

every second or third day, beginning with 0.05 mg, gradually increasing the dose by 0.05 to 0.10 mg each dose until a total of 1 mg was reached without a reaction. Then the patient was returned to the enteric

TABLE 2—Parenteral Desensitization in Amenorrhea for Eight Months with Migraine, Nervousness and Hot Flushes

A primipara aged 33 had extreme hyperemesis of pregnancy and hyperemesis with migraine lasting for twelve hours after ingestion of 1 Mg of diethylstilbestrol.

| Date | Dose                | Reaction                                |
|------|---------------------|---|
| 7/12 | 0.15 Mg             | Severe nausea and vomiting              |
| 7/15 | 0.05 Mg             | None                                    |
| 7/18 | 0.10 Mg             | None                                    |
| 7/21 | 0.15 Mg             | None                                    |
| 7/23 | 0.20 Mg             | None                                    |
| 7/25 | 0.25 Mg             | None                                    |
| 7/29 | 0.35 Mg             | Nausea vomiting migraine                |
| 8/2  | 0.30 Mg             | Mild headache                           |
| 8/4  | 0.35 Mg             | None                                    |
| 8/6  | 0.40 Mg             | None (feels generally better)           |
| 8/9  | 0.45 Mg             | None                                    |
| 8/12 | 0.50 Mg             | None (vaginal smear approaching normal) |
| 8/16 | 0.55 Mg             | Nausea                                  |
| 8/19 | 0.57 Mg             | None                                    |
| 8/22 | 0.62 Mg             | None                                    |
| 8/25 | 0.67 Mg             | None                                    |
| 8/28 | 0.72 Mg             | Slight nausea                           |
| 8/30 | Scanty menstruation |   |
| 9/1  | 0.75 Mg             | None                                    |
| 9/4  | 0.80 Mg             | None                                    |
| 9/7  | 0.85 Mg             | None                                    |
| 9/10 | 0.90 Mg             | None                                    |
| 9/13 | 1.0 Mg              | None                                    |

Patient has now been taking 1 mg daily without side effects for three months.

TABLE 1—Parenteral Desensitization During Menopause

A secundipara aged 40 had allergic eczema hay fever asthma and migraine and had one child with asthma there was hyperemesis with each pregnancy.

| Date | Dose          | Reaction                   |
|------|---------------|----------------------------|
| 7/29 | 1 Mg by mouth | Severe nausea and vomiting |
| 7/31 | 0.30 Mg       | Severe nausea and vomiting |
| 8/1  | 0.20 Mg       | Mild nausea                |
| 8/3  | 0.10 Mg       | None                       |
| 8/5  | 0.20 Mg       | None                       |
| 8/8  | 0.30 Mg       | None                       |
| 8/10 | 0.35 Mg       | None                       |
| 8/12 | 0.45 Mg       | None                       |
| 8/15 | 0.60 Mg       | Severe nausea and vomiting |
| 8/18 | 0.55 Mg       | Slight nausea              |
| 8/20 | 0.57 Mg       | Slight nausea              |
| 8/22 | 0.62 Mg       | None                       |
| 8/24 | 0.67 Mg       | None                       |
| 8/26 | 1 Mg by mouth | None                       |
| 8/28 | 1 Mg by mouth | None                       |

No reaction following this date although adequate dose has been maintained for several months.

therapeutic dose. To date this desensitization process has been successfully carried out on 29 patients, 20 of them having received the desensitizing doses parenterally and 9 having taken the drug orally.

Parenteral desensitization consisted in intramuscular or subcutaneous injections of diethylstilbestrol in oil

coated tablet and given 0.5 to 1 mg daily, which dose was sufficient in most cases to produce therapeutic results.

Oral desensitization consisted in giving 0.1 mg tablets once daily for five days, then increasing the daily dose by 0.05 to 0.15 mg every five or six days until the therapeutic level required was reached. In every case the drug was well tolerated after this desensitization process. During the desensitization process, especially in the more sensitive subjects, it frequently was necessary to drop the dose back to a previous dose as further reactions to the drug were encountered. From this point the drug was again slowly increased with success. Tables 1 and 2 outline desensitization processes.

#### COMMENT

Nausea and vomiting are the most complained of side effects following administration of diethylstilbestrol, although other allergic type side effects such as urticaria and migraine are not infrequent. Of literature reviewed approximately 20 per cent of all patients treated have shown definite intolerance to this new estrogen. I myself feel that the tendency is to use far too large doses for the desired therapeutic results. Certainly many patients having side effects from 3 or 5 mg or even as little as 1 mg daily can have these side effects reduced by merely reducing the dose; however, many women are extremely sensitive to the drug, and "de-sensitization" as outlined will be necessary before they can tolerate a therapeutic dose. In one of

<sup>2</sup> Greene, I. R. Reaction to Estrogens. *Am J Obst & Gynec* 42: 58 (Nov) 1941.



merely take the time to ask the prospective patient if she had any nausea or vomiting with a previous pregnancy it should serve as sufficient warning in most cases to give not over 0.25 mg daily as an initial dose, as she will surely have side effects from a much larger dose.

Many interesting subjects for future study are suggested by these facts.

1 Is the tolerance for diethylstilbestrol by all pregnant or puerperal women due to an antihormone effect of progesterone or some other hormone or might it be due to the fact that diethylstilbestrol is more completely metabolized during pregnancy from an increased progesterone activity at that time, as the Smiths<sup>3</sup> have indicated in their work on estrogen metabolism? Or is the estrogen requirement of the pregnant or puerperal woman so much higher that diethylstilbestrol administration causes relatively little difference?

2 Is the reason that males and young girls also are quite tolerant to diethylstilbestrol due to the fact that an allergic state has not developed in these persons because of the absence of the constantly changing endocrine picture of the adult female?

3 Is the unidentified hormone of the corpus luteum which I have previously indicated the etiologic factor in nausea and vomiting of early pregnancy quite similar to a product of diethylstilbestrol metabolism or does diethylstilbestrol cause a direct stimulation of the ovary and/or adrenals simulating the endocrinology of the first trimester of pregnancy?

Several patients taking the larger doses of diethylstilbestrol have complained of the appearance of acneiform lesions on the face. These lesions disappear after withdrawal of the drug or reduction of the dose. Might this indicate stimulation of adrenal androgens?

Although all these questions obviously must be answered before the picture is at all complete, I have endeavored to show that the unpleasant side effects from diethylstilbestrol are not toxic effects per se but are an allergic response which can be corrected by a simple desensitization process.

#### SUMMARY

1 The unpleasant side effects following the administration of diethylstilbestrol are shown to occur in the same patients who also have nausea and vomiting of pregnancy. Women who have no nausea of pregnancy tolerate the drug in large doses.

2 Patients who cannot tolerate therapeutic doses of diethylstilbestrol may quickly be desensitized by frequent doses of the drug given on a graduated scale of dosage until the therapeutic dose is reached.

#### CONCLUSION

1 The intolerance of some women to diethylstilbestrol is similar to if not identical with the nausea and vomiting of early pregnancy, being an allergic reaction and occurring in the same individuals.

2 Desensitization by gradually increased doses of diethylstilbestrol will enable any patient to tolerate a full therapeutic dose of the drug.

Oklahoman Building

<sup>3</sup> Smith, George Van S., and Smith, O. Watkins. Observations Concerning the Metabolism of Estrogens in Women, *Am J Obst & Gynec* 36: 769 (Nov.) 1938.

## IDIOPATHIC RECURRENT THROMBOPHLEBITIS

WITH CEREBRAL VENOUS THROMBOSES AND AN ACUTE SUBDURAL HEMATOMA

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Idiopathic recurrent thrombophlebitis is an uncommon but not unfamiliar disease.<sup>1</sup> Ordinarily this condition begins in men of middle age employed at sedentary tasks. The thrombophlebitis most commonly involves the superficial veins of the extremities, particularly the lower ones, but involvement of deep veins in the extremities and visceral veins is not unknown. Involvement of the cerebral veins has been suspected,<sup>2</sup> but so far as we have been able to discover the actual cerebral venous thrombooses have never been demonstrated prior to the present report.

#### REPORT OF CASE

*History*—R. A. P., a man employed in a clerical position, came under the care of one of us (F. J. L.) in 1926 when he was 37. At that time he was suffering from thrombophlebitis in one of his thighs. He had not suffered from illnesses of any moment previously except for pneumonia on the left side, complicated by empyema, which required surgical drainage in 1918. From 1926 to 1930 he suffered from recurring attacks of thrombophlebitis—first in one lower extremity, then in the other, sometimes in both. It is not now known exactly which veins were involved. During the same period he suffered from repeated attacks in which he would "choke up" and, on occasion, lose consciousness. About 1930 all these symptoms subsided completely, and from 1930 to 1941 he was well except for two or three very mild attacks of thrombophlebitis of small superficial veins in the lower extremities.

Sept. 18, 1941, at the age of 52, he had pain and tenderness in the left antecubital fossa which soon extended up the medial aspect of the left upper arm to the axilla. Three days later, on September 21, he suffered an attack in which he lost consciousness. He again consulted one of us (F. J. L.) and was immediately admitted to the Englewood Hospital. Examination revealed a thrombophlebitis of the left basilic vein extending upward into the axilla. The vein was hard, tender and painful but there was no edema of the distal part of the extremity. He had no fever and little or no generalized reaction. The remainder of the physical examination was essentially negative. The only evidence of the previous bout of thrombophlebitis was some atrophic pigmented areas in the skin about the ankles.

During his stay in the hospital the thrombophlebitis rapidly subsided, but he suffered from three attacks in which he lost consciousness, on October 1, 10 and 16. These were all similar except that they varied in duration from thirty to eighty-five minutes. Each attack began with a flushing of the face and a feeling of warmth about the head. The flushing would then descend over the entire body in a wave and the patient would lose consciousness. The eyes would bulge and the pupils dilate. The pulse would become feeble and rapid and then imperceptible, and the blood pressure would fall from the previous level of about 130 to 140 systolic and 85 diastolic to 90 systolic and 80 diastolic and frequently be unobtainable. The respirations were usually labored and often difficult or impossible to count accurately. He perspired profusely. There were

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<sup>1</sup> Barker, N. W. Primary Idiopathic Thrombophlebitis. *Am J Med* 58: 147-159 (July) 1936.

<sup>2</sup> Moorhead, T. G., and Abrahamson, L. Thrombophlebitis. *Brit M J* 1: 586-587 (April 7) 1928.

<sup>3</sup> Symonds, C. P. Hydrocephalic and Focal Cerebral Changes in Relation to Thrombophlebitis of the Dural Sinuses and Cerebral Veins. *Brun* 60: 531-550 (Dec.) 1937.

convulsive phenomenon except that on October 16, ten minutes after losing consciousness, clonic movements of the toes of the left foot and slight twitching movements of the right hand appeared. After thirty-five minutes there was some spontaneous nystagmus. The tendon reflexes were hyperactive, more so on the left side, and there was an unsustained left ankle clonus. After recovery from this attack there were no abnormal neurologic manifestations.

About October 1 he began to complain of an occasional frontal headache. The headaches became more frequent and more severe and after October 13 were present almost all the time. He vomited only twice, immediately following the attacks on October 1 and 10.

The other of us (P. C. B.) was called in consultation on October 17. A lumbar puncture had been performed earlier that morning. The cerebrospinal fluid was normal except for a slight increase in protein. Neurologic examination, October 17, revealed only that the margins of the right optic disk were blurred and the disk was elevated about  $\frac{1}{2}$  diopter. There was a small oval rose-colored hemorrhage along the upper temporal vessels just beyond the disk. The left optic disk was not elevated, but the margins were hazy and the veins were somewhat dilated. The left arm was a little weaker than the right but it had recently been the seat of a thrombophlebitis and had been immobilized. There were no cranial nerve palsies, alteration of the reflexes or sensory changes.

Following the lumbar puncture on October 17 his headaches disappeared and his condition seemed improved. On October 20 the evagrounds were unchanged. But on lumbar puncture the pressure of the spinal fluid, with the patient horizontal, was 350 mm of fluid. He was examined again (by P. C. B.) on October 24. There was a decided increase in the elevation of the right optic disk to 2 or 3 diopters, and there were many flame-shaped hemorrhages just beyond the disk, particularly along the inferior nasal vessels. There was definite though less severe choking of the left disk of  $\frac{1}{2}$  to 1 diopter but no hemorrhages. The neurologic manifestations had not otherwise altered and the pressure of the spinal fluid was still elevated.

On October 24, he was transferred to the Chicago Memorial Hospital and the following morning a ventriculogram was made. The lateral and third ventricles were shifted toward the left side and the left lateral ventricle was somewhat larger than the right.

Shortly thereafter he was returned to the operating room. A frontotemporal flap was outlined on the scalp. As soon as the first trephine opening was made the dura mater was seen to be tense and bluish green. It was incised and a large hematoma was encountered. Because the blood was firmly coagulated, the osteoplastic flap was completed in order to secure an adequate exposure. When the dura mater was reflected a large, firmly coagulated unencapsulated hematoma was exposed in the subdural space. More than an ounce (30 cc) of this blood was collected while an apparently equal amount was washed away or removed by suction. The underlying brain was soft, moderately swollen and edematous. The cortex was injected. Although most of the vessels were normal, a few of the cortical veins were distended hard and definitely thrombosed. A blunt needle inserted into various parts of the hemisphere encountered no hemorrhage or other abnormality. A subtemporal decompression was made and the wound closed.

**Pathologic Description**—The coagulated blood was examined by our pathologist Dr. Otto Saphir. Sections were made from embedded material and stained. Microscopic examination revealed nothing except recently coagulated blood.

**Postoperative Course**—Following the operation, the patient did well. The decompression bulged moderately for a time and then subsided. On October 30, five days after the operation ophthalmoscopic examination revealed a papilledema of 3 to 4 diopters in the right eye and an extensive corona of flame-shaped hemorrhages surrounding the disk. The papilledema in the left eye was subsiding. On November 2 the left eye was practically normal and the condition in the right was distinctly receding. On November 12 the left fundus

was normal. The right optic disk was flat and of good color. The margins were clear. The hemorrhages were almost completely absorbed, though some were replaced by a yellowish white exudate. The upper nasal vein extending from just beyond the center of the disk to beyond the edge of the disk was bloodless and apparently thrombosed. There was a shorter bloodless segment in the upper temporal vein a short distance beyond the disk. He was allowed up in a chair on November 6 and discharged to his home on November 12, apparently well on his way to complete recovery.

**Laboratory Examinations**—The blood counts are presented in the accompanying table.

Blood Counts

| Date                        | Red Blood Cells | Hemo globin | White Blood Cells | Poly morpho nuclears | Lympho cytes | Mono cytes |
|-----------------------------|-----------------|-------------|-------------------|----------------------|--------------|------------|
| 9/21/41                     | 4,730,000       | 95%         | 14,700            | 79%                  | 21%          |            |
| 10/24/41                    | 5,340,000       | 110%        | 13,900            | 76%                  | 24%          |            |
| 10/25/41                    | Operation       |             |                   |                      |              |            |
| 10/27/41                    | 4,600,000       | 93%         | 17,800            | 83%                  | 12%          | 2%         |
| Sulfadiazine given 10/28/41 |                 |             | 10,600            |                      |              |            |

Examination of the urine revealed no abnormality. The Wassermann and Kahn tests on the blood were negative.

The sedimentation rate with a Friedländer tube showed an 18 mm drop on October 30 in thirty minutes and on November 10 in fifty-four minutes. With this method an 18 mm drop should normally require more than two hours.

The blood coagulation time on October 18 was three minutes and on November 10 it was recorded as one minute and eleven seconds. The bleeding time on November 10 was one minute and forty-five seconds.

Examination of the spinal fluid on October 17 showed it to be clear and colorless, to contain 1 lymphocyte per cubic millimeter and 60 mg per hundred cubic centimeters of protein. Pandy's test gave a 1 plus reaction. The Kahn reaction was negative and the colloidal gold curve was 0000000000. On October 24 the results were similar except that the total protein was 37.5 mg per hundred cubic centimeters and Pandy's test showed only a trace of globulin.

Electrocardiograms taken on October 3 showed the QRS complex to be slurred in leads 2 and 3, diphasic in lead 2 and inverted in lead 3. The S-T segment was slurred in leads 1 and 2. The T wave was flattened in lead 2 and inverted in leads 3 and 4. This tracing was interpreted by Dr. A. K. Peterson as showing some evidence of myocardial damage. On October 17 the tracings were similar except that the T waves were upright in leads 2 and 4.

Ordinary roentgenograms of the skull revealed no abnormality except for small areas of calcification in the falx cerebri. The ventriculograms have been described. Roentgenograms of the chest on October 18 and October 27 disclosed that the posterior part of the left eighth rib had been resected and that there was some pleural thickening in the lower part of the thorax on the left side.

There can be little doubt that this patient belongs with the group of patients classified as sufferers from idiopathic recurrent thrombophlebitis by Barker<sup>1</sup> and others. The thrombophlebitis was certainly both recurrent and idiopathic. At the time of onset in 1926 our patient was almost 40 years of age and employed in a sedentary occupation, a situation which is highly descriptive of the average victim of this disease as reported by Barker.

There appears to be no evidence of any relationship between the pneumonia and empyema in 1918 and the subsequent developments from 1926 to 1941.

The subdural hematoma was obviously of recent origin. It was unencapsulated and had none of the cystic characteristics so commonly seen with chronic traumatic subdural hematomas. There can be little doubt that it resulted from rupture of a vein subjected

to the increased intravenous tension produced by obstruction of the venous return by a thrombus

We believe that the severe changes seen in the right fundus oculi were the result, in large measure, of thromboses of the retinal veins but that the mild papilledema without retinal hemorrhages seen in the left eye resulted from the increased intracranial pressure. This increased pressure, as evidenced by a spinal fluid pressure of 350 mm of cerebrospinal fluid, undoubtedly was secondary to the cerebral venous thromboses and the cerebral edema and subdural hematoma which they produced

Sufficient evidence is not available to permit of any statement as to the significance of the attacks of loss of consciousness in 1926-1930 except to state that they are suggestive of some cerebral involvement at that time

The four attacks of loss of consciousness in September-October 1941 are suggestive of epileptiform discharges involving the sympathetic and vasomotor systems. The various manifestations were (1) bulging eyes, (2) dilated pupils, (3) flushing, (4) profuse perspiration, (5) tachycardia, (6) arterial hypotension and (7) disturbed respiration. These are reminiscent of the symptoms present in the case which Penfield<sup>4</sup> classified as diencephalic autonomic epilepsy. Accordingly, it appears likely that our patient suffered from central venous thromboses of the brain which resulted in abnormal nervous discharges from the hypothalamus, as well as the superficial venous thromboses which were actually seen on the surface of the cerebral cortex

#### COMMENT

Idiopathic recurrent thrombophlebitis has been recognized for more than a century. Barker<sup>1</sup> credits Sir James Paget with one of the most accurate and fullest early descriptions of the condition in 1886. Those interested in a full review of the relevant literature are referred to the papers by Barker<sup>1</sup> and by Hirschhorn, Lisa and Goldstein.<sup>5</sup> Barker reported on the study of 79 cases of idiopathic thrombophlebitis, and 40 of these cases were definitely of the recurrent type. Barker<sup>1</sup> characterized the recurrent condition as beginning in men (88 per cent) of an average age of 40, although the ages of his patients at the onset of the disease varied from 21 to 67 years. Sixty per cent of his patients led sedentary lives as against 40 per cent who could be classified as physically active. Twelve per cent of his patients were Jews, a somewhat higher incidence than the percentage of Jewish patients in the clinic in which he worked. As previously stated, he found the superficial veins of the lower extremities to be most frequently involved, but on occasion thromboses were found in the arms, in the deep peripheral veins and even in the visceral veins. Barker noted moderate local pain with considerable tenderness and local redness. The involved veins were firm and cordlike. But constitutional symptoms, both subjective and the usual manifestations of infection, such as fever, leukocytosis and chill, were usually absent. Commonly the blood count, blood Wassermann reaction, coagulation and bleeding times, blood platelet counts and sedimentation rates showed no abnormality.

Barker examined segments of the involved veins microscopically and was impressed with the similarity of the microscopic picture here and in Buerger's

thrombo-angitis obliterans, the principal difference being that in Buerger's disease it is the small peripheral branches of the arterial tree that are predominantly involved, whereas here it is usually proximal veins of large caliber. This interpretation of the microscopic picture had been previously advanced by D'Abreu in 1934.<sup>6</sup> His study was based on one of the few autopsies which have been performed in this condition. D'Abreu also drew attention to the relationship between idiopathic recurrent thrombophlebitis and Buerger's disease on other grounds, and it seems not unlikely that they are really manifestations of the same disease. In D'Abreu's case, recurrent thrombophlebitis had been present for forty years before evidence of arterial disease developed, at which time the patient was 52 years of age.

Hausner and Allen<sup>7</sup> reported an interesting clinical study of 11 patients, victims of thrombo-angitis obliterans, in whom evidence of occlusion of cerebral vessels developed. They cited similar reports by Spatz, Livingston and others, and other reports of such complications are to be found in the literature.<sup>8</sup> Of particular interest in the series of 11 patients reported by Hausner and Allen is the fact that several, notably patients 1, 2, 9 and 10, suffered from recurrent attacks of thrombophlebitis of superficial veins as well as from thrombo-angitis. As theirs was a purely clinical study, it was not possible to ascertain whether the cerebrovascular disturbances were in the arterial or in the venous channels. We have found only one convincing report<sup>9</sup> of cerebral venous thromboses in a patient suffering from idiopathic recurrent thrombophlebitis. The reports by Ryle,<sup>9</sup> by Walker<sup>10</sup> and by Campbell and Morgan,<sup>11</sup> which are frequently cited as instances of this disease with such complications, are not conclusive.

Symonds'<sup>3</sup> patient, a man aged 44, had phlebitis in the left leg in January 1935. Subsequently, he suffered from headaches and vomiting. Later phlebitis appeared in the right leg. Some pelvic infection developed which on February 25 resulted in a purulent rectal discharge. The condition in the legs improved but the headache and vomiting persisted, and he occasionally complained of double vision. On admission to the hospital, April 4, there was a bilateral papilledema of 2 to 3 diopter. Visual acuity was reduced to 6/24 in the right eye and 6/12 in the left. The tendon reflexes in the left arm were somewhat more active than in the right, but there were no other localizing neurologic manifestations. Examination of the spinal fluid disclosed a pressure of 295 mm of fluid. The fluid contained 2 lymphocytes and 70 mg per hundred cubic centimeters of protein. The patient is said to have made a good spontaneous recovery. However, mention is not made of the final visual acuity or of the appearance of the optic disk. In view of the papilledema and the reduction in visual acuity, which presumably resulted from a secondary optic atrophy, one is naturally curious regarding the final state of the vision, as there apparently was

- 6 D'Abreu, A. L. Relation of Thrombophlebitis Migrans to Thrombo-angitis Obliterans, *Brit M J* 1 101 102 (Jan 20) 1934
- 7 Hausner, Erich, and Allen, E. V. Cerebrovascular Complications in Thrombo-angitis Obliterans, *Ann Int Med* 12 845 852 (1) 1937
- 8 Lindenberg, R., and Spatz, H. Ueber die Thrombose der Hirngefasse (cerebrale Form der Buerger'schen Krankheit), *Virchows Arch f path Anat* 205 511 515 (1936)
- 9 Ryle, J. A. Thrombophlebitis Migrans, *Lancet* 2 71 1 (1938)
- 10 Walker, A. B. Thrombophlebitis Migrans, *Lancet* 2 71 1 (1938)
- 11 Campbell, M., and Morgan, O. G. An Unusual Case of Thrombosis, *Guy's Hosp Rep* 80 34 38 (Jan) 1931

4 Penfield Wilder. Diencephalic Autonomic Epilepsy, *Arch Neurol & Psychiat* 22 358 375 (Aug) 1929  
5 Hirschhorn, Louis, Lisa, J. R., and Goldstein, R. J. Thrombophlebitis Migrans, *Am Heart J* 17 76 84 (Jan) 1939

effort made to provide a persistent reduction in the increased intracranial pressure

Even in this case the evidence of cerebral thromboses is only presumptive, although strongly so. Furthermore, there are no reports of cases in which cerebral thrombosis has actually been demonstrated. We have found the reports of only 2 autopsies performed in cases of idiopathic recurrent thrombophlebitis,<sup>1,2</sup> and in neither instance was the brain examined. So far as we are aware, our case is the only one in which cerebral thromboses have actually been demonstrated as the cause of the symptoms of cerebral involvement in idiopathic recurrent thrombophlebitis. In no other instance has there been any evidence of intracranial hemorrhage, subdural or otherwise. However, in view of the well established fact that cerebral venous thrombosis is commonly associated with intracerebral hemorrhage it is likely that such has been present in some of the other cases.

#### SUMMARY

A patient with idiopathic recurrent thrombophlebitis of fifteen years' duration had symptoms of increased intracranial pressure and of hypothalamic involvement. Examination and operation disclosed a thrombosis of the retinal veins in the right eye and of the cerebral cortical veins, with a massive acute subdural hemorrhage and cerebral edema. Evacuation of the subdural hematoma and a decompression afforded immediate relief and the patient promptly recovered from his symptoms.

## GONORRHEA AT THE STATION HOSPITAL, CAMP BOWIE, TEXAS

### A STATISTICAL REPORT

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This paper is presented to show the tremendous progress achieved in the treatment of gonorrhea and statistically the progress of the average patient in our hospital.

It is the policy of the Army to hospitalize every patient with gonorrhea for the duration of his infection. It may be that as time goes on the Army may change its policy and hospitalize only those patients who show resistance to therapy.

Before the introduction of sulfanilamide, gonorrhea was a resistant disease to cure, taking anywhere from six weeks to years. I believe that I am safe in saying that the largest percentage were cured in about three months, however, many patients with chronic gonorrhea were uncured and these took varying periods from six months on into a year or two to cure. As sulfanilamide was used the period of cure was shortened to somewhere around six weeks on the average. Then came sulfapyridine, and some of its proponents claimed that it further shortened the disease. This I cannot concur with. My experience with the drug has not been good. As a civilian urologist twice in one week I was called to see pneumonia patients who were being given the drug. Urteral colic was present in both instances and renal lavage had to be carried out. Fear of its side effects have kept me from using sulfapyridine. Fortunately, sulfathiazole has been supplied and the results obtained at this hospital are herewith presented. Sulfathiazole

is not without toxic effect at times, but the effects in this series of cases were extremely low in number and trivial in consequence. I shall make no effort to compare our results with those of other authors.

Since our patients are hospitalized until they are completely cured of their gonorrhea I might offer a suggestion or two which may shed some light on the difference in lengths of hospital stay. There are many strains of the gonococcus and some of these are definitely more virulent than others, and it is with these that we have our difficulty. Congenital anomalies of the external genitalia such as stricture and hypospadias have in the past given us trouble. Hypospadias is no longer a factor because local treatment is no longer used. Old stricture and old infected prostate glands with superimposed acute gonorrhea have been more difficult to clear up than the normal and uninfected.

Beside the patients' clinical symptoms it has been our routine practice to prove that the patient has gonorrhea by having one and sometimes two urethral smears made and stained with the Gram stain. Those patients found positive for gonorrhea have been placed on 1 Gm of sulfathiazole every four hours for the duration of their stay in the hospital until all urethral smears are negative. Before we massage the prostate, which we do as a provocative test, the patient must have three negative urethral smears. If we are unable to obtain a urethral smear we provoke a discharge by means of anterior urethral instillation of a 1:20,000 solution of mercury bichloride. After three negative urethral smears are obtained the prostate is massaged. The specimen is examined by smear for the gonococcus and by wet cell count for the number of pus cells per high power field. Before a patient is discharged he must have three consecutive negative urethral smears and two negative prostatic smears. In the event that a positive prostatic smear returns, the patient is placed on sulfathiazole again and four negative prostatic smears are obtained before he is discharged. In my wards I have insisted that daily urethral smears are made on each patient. In this manner it has been possible to note exactly when the gonococcus has disappeared.

The total number of patients cared for from Dec 16, 1940 until Dec 1, 1941 is 575. Of this number 98 were either transferred or evacuated to this station during the two maneuver periods which occurred this past year. Of this number, 63 per cent of those transferred back to their home stations were cured before orders were effective in removing them from our wards. Of the 575 patients treated there were 514 white men, 60 Negroes and 1 Indian.

One and nine-tenths per cent, or 11 patients, entered the hospital with gonorrheal complications, all of which were acute. The following complications were encountered: epididymitis, parafrenal and periurethral abscess. It is interesting to note that in only 1 instance or 0.17 per cent, did an acute epididymitis develop in the hospital. Nine patients, or 1.6 per cent, were admitted with acute gonorrheal epididymitis. They responded to treatment with scrotal elevation and an ice cap to the scrotum and sulfathiazole as previously mentioned. These patients were cured in remarkably short order, their hospital stay being no longer than the average for all patients which will be shown later. Prostatic masses were given them routinely without causing a flare up. I have been unable to find but 3 patients with cutaneous rash (0.5 per cent). 2 of these patients



receiving sulfathiazole and the other sulfapyridine. The patients on sulfathiazole were kept on the drug until they were cured of their gonorrhea. The dermatitis was not extremely severe and the patients were under constant surveillance.

Two patients (0.3 per cent) had renal colic, and the colic was proved due to showers of sulfathiazole crystals. One of these patients was taken off the drug, and although his gonorrhea persisted his colic disappeared, and on resumption of the drug mild attacks of colic appeared. This time the patient was given strict instructions to force fluids and continue taking the drug, which he did. In spite of mild showers of crystals with light colic his gonorrhea was cured. The other patient was cured of his gonorrhea just as his colic began. Microscopic demonstration of large numbers of sulfathiazole crystals in the urine was proof in these cases.

There were 2 patients (0.3 per cent) who entered the hospital with gonorrhea and complicating parafrenal abscess. One of these on incision healed and did not lengthen the patient's hospital stay. The other patient had a tremendous amount of penile edema, for which a dorsal slit was necessary. When this was done a large abscess cavity was drained along the left side of the frenulum. This cavity extended about one and a half inches (3.7 cm) down the left side of the shaft of the penis and easily admitted the forefinger along its entire length. A urinary fistula resulted and after six weeks of persistent therapy the patient absented himself without leave. The patient has just returned to the hospital. He is free of gonorrhea and a urethroplasty is contemplated.

During the August maneuvers 1 patient (0.7 per cent) was evacuated here with a perineal perineal abscess and acute gonorrhea. The abscess drained spontaneously and the patient dipped urine from the perineum for a couple of days and then the fistula closed over. The gonorrhea was cured, the stricture of the bulbous urethra well dilated and the patient discharged.

The only congenital anomaly encountered in the entire group was balanic hypospadias. There were 6 instances, 1.04 per cent, of this and in all these the external urethral meatus was large enough so that instrumentation or meatotomy was not necessary. This group of patients was all cured and discharged from the hospital in less than twelve days each.

There were 575 patients admitted with gonorrhea, of this number 553, or 96.3 per cent, had an acute attack, 10, or 1.7 per cent, had a subacute attack, and 12, or 2 per cent, had chronic gonorrhea. One patient with subacute gonorrhea was admitted with acute epididymitis. Two patients with chronic gonorrhea had acute epididymitis. One patient with chronic gonorrhea had been treated at the Station Hospital, Fort Sam Houston, Texas, for more than a year and during this period had received all types of therapy including imposed fever. In no instance has a Camp Bowie patient been readmitted and classified as having subacute or chronic gonorrhea. Every patient with subacute or chronic gonorrhea gave a history of the infection, all of whom had had treatment of some sort, mostly for a period of from three months to two years previous to induction, sulfanilamide and sulfapyridine, a few had treated themselves locally.

Of the 575 patients, 553, or 96 per cent, had acute gonorrhea. Of this number there were 8 patients who

returned to the hospital with acute gonorrhea in periods varying from two weeks to eight months after being discharged from the hospital as cured. These soldiers, 1.4 per cent, admitted exposure and in almost all cases made no effort to claim that the new infection was a prolongation of the old one. We have on record only 1 instance, or 0.17 per cent, of real acute recurrence, or possibly I should say failure to cure on first admission. This man was discharged on a Saturday morning as cured. He was confined to camp by his organization and was returned to us the following Tuesday with a profuse urethral discharge. He was again started on routine treatment and was discharged as cured eleven days later.

Of the 575 patients we were able to obtain replies as to prophylaxis in 544 instances. Eighty-two, or 16 per cent, stated that they had taken Army prophylaxis. Three hundred and sixty-two, or 84 per cent, admitted they had not.

The honesty with which any one admits fault is always questionable, however, I felt that it would be of some value to try to obtain some information as regards the incubation period of gonorrhea. Many sorts of stories were heard regarding when, how and under what other circumstances these men got their infection. I decided not to accept an exposure of more than thirty days from the time the urethral discharge appeared. Glancing over 380 acceptable incubation periods showed that the longest was twenty-eight days and the shortest one day, with the predominance between two and four days. The average incubation period for the entire group was 6.1 days.

At this point it became necessary to compile three sets of statistics in order to clarify the number of days before the patient was gonorrhea free. At first at this hospital patients were treated with sulfanilamide, later sulfapyridine and later still sulfathiazole. For the whole group the average number of days before the urethral discharge was gonorrhea free was 7.08 days, for those patients given sulfathiazole, 5.5 days. The group of patients treated by other means (52) was 20.26 days.

The average number of days that the gonorrhea patient has remained in our wards has been 12.1 days; this includes those patients treated with the older drugs. Those patients treated with sulfathiazole were hospitalized an average of 11.1 days, while the 52 patients treated before we had sulfathiazole stayed an average of 38.8 days.

Fifty blood sulfanilamide contents were run on the group of 52 patients receiving sulfanilamide. The lowest was 2 mg per hundred cubic centimeters of blood and the highest 21.1 mg, the average being 6.12 mg. The blood level of the 299 patients who were receiving sulfathiazole was 3.58 mg per hundred cubic centimeters of blood, the lowest being 1.6 mg and the highest 6.8 mg.

Of 470 patients on whom repeated prostatic smears were made there were 26 patients (5.5 per cent) who were found to have neisserian organisms present in the secretion. I can't say that this means a thing, because in no instance did complications occur as a result of the infected prostate being massaged. The disease of the patients did not become chronic and only a few more days of sulfathiazole therapy and repeated mild massage were needed, necessitating four to six more hospital days before results of tests for gonorrhea were negative and the patient was returned to duty.



## SUMMARY

1 Five hundred and seventy-five patients were treated for gonorrhea and cured between Dec 16, 1940 and Nov 30, 1941

2 Sulfathiazole has been found to be the drug of choice shortening the hospital stay of patients to 111 days

3 Side reactions to sulfathiazole were present in less than 1 per cent of all patients, and these were minimal in effect and consequence

4 The blood level of sulfathiazole has no effect on the speed of recovery from gonorrhea

5 The average incubation period was 61 days for the entire group of patients

6 The gonococcus was found to be present in the prostatic secretion of 55 per cent of our patients before they were cured

7 Duties in the hospital wards such as general policing did not produce prolongation of hospital time nor did they delay cure

## THE TREATMENT OF INCLUSION CONJUNCTIVITIS WITH SULFATHIAZOLE OINTMENT

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AND

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The rapid curative action of sulfanilamide in cases of inclusion conjunctivitis in infants and adults was described in two previous reports<sup>1</sup>. It was found that infants responded in the first few days of treatment and were usually cured within a week. In adults the papillary type of the disease responded equally rapidly, but in cases with predominant follicular hypertrophy several weeks were required for the conjunctiva to return completely to normal. The inclusion bodies characteristic of the disease could not be found after the first few days of treatment. There were no recurrences in cases in which the treatment was continued six days or longer. Local therapy with 0.8 per cent sulfanilamide solution produced temporary improvement in 1 of 2 cases but failed to effect a cure.

In spite of the demonstrable efficacy of the administration of small doses of sulfanilamide over a comparatively short period in curing inclusion conjunctivitis, the slight risk of toxic complications incident to oral medication rendered the treatment undesirable in infants, particularly in view of the benignity and self-limited nature of the disease. It seemed desirable, therefore, to test the efficacy of local sulfonamide therapy in this disease. For this purpose 5 per cent sulfathiazole and sulfathiazole sodium ointments, which had proved efficacious in the treatment of staphylococci and certain other bacterial types of conjunctivitis, were employed on the hypothesis that the drug in ointment form would reach the virus in the epithelium in a concentration sufficient to be effective and easy to maintain

by reasonably frequent applications (four to six times a day). The present report records the results obtained in the treatment of 15 infants, children and adults.

The accompanying table gives the essential data on these cases. It will be seen that in 11 of the 15 cases sulfathiazole in ointment form effected rapid cures, a result comparable in every way with that obtained by oral therapy with sulfanilamide. Just as in the sulfanilamide series, the cases in which papillary hypertrophy predominated responded more rapidly than those in which follicular hypertrophy predominated. In this respect the results were analogous to those obtained in trachoma, in which stage IIb (papillary) trachoma responded dramatically to sulfanilamide therapy and stage IIa (follicular) much more slowly.

Two patients, one a girl aged 8 years and the other a youth aged 19, both with the follicular type of the disease, failed to respond rapidly to local medication but did so when oral medication was employed. Two infants treated at home failed to respond satisfactorily within a two week period but healing was rapid when the drug was properly administered; it was found that these patients had been receiving insufficient amounts of the ointment at too infrequent intervals, probably in each instance because of the mother's language difficulties, which prevented her understanding cooperation.

There were no recurrences. In 1 case (8), six weeks after disappearance of all signs and symptoms of the disease in both eyes, a mild inflammation of the left eye developed with epiphora and secretion. Scrapings showed no inclusions and cultures revealed *Staphylococcus aureus*. The condition was found to be a lacrimal conjunctivitis secondary to a congenital stenosis of the nasolacrimal duct.

It is noteworthy that in 10 of the 11 cases that healed satisfactorily on local sulfathiazole therapy the inclusion bodies disappeared as rapidly as in those cases previously reported in which treatment was by oral medication with sulfanilamide. In these 10 cases it was impossible to find inclusion bodies after the third day of therapy. The one exception (9) was a case of the follicular type of the disease in a young girl who had contracted it in a swimming pool. In this case inclusions were still demonstrable as late as one week after onset of therapy, but the disease healed satisfactorily and has shown no tendency to recur.

In the 2 controls, both infants, the disease ran the typical course of untreated inclusion conjunctivitis in the infant, one requiring four months and the other six months to heal. Inclusion bodies were readily demonstrated in both cases during the first two months.

## COMMENT

The curative action of sulfonamide therapy in inclusion conjunctivitis has been confirmed by Allen<sup>2</sup> and by Giddens and Howard<sup>3</sup>. Lugossy<sup>4</sup> has reported favorable action but not definitely curative action. McKelvie, Kirk and Holder<sup>5</sup> refer to good results in inclusion conjunctivitis obtained by McKelvie<sup>6</sup> and recorded in the Annual Report of the Sudan Medical Service for 1938, but we have not as yet been able to

2 Allen J H in discussion on Treatment of Inclusion Conjunctivitis with Sulfanilamide.<sup>1</sup>

3 Giddens S W and Howard W A Inclusion Blepharitis in Pediatric Practice. *M Ann District Columbia* 9: 333 (Oct) 1940.

4 Lugossy J Chemotherapy in Paratrachoma. *Ophthalmologica* 100: 63 (June-July) 1940.

5 McKelvie A R, Kirk R, and Holder H J Observations on the Chemotherapy of Trachoma. *Am J Ophth* 24: 1033 (Ser.) 19-1.

6 McKelvie A R Ophthalmic Report annual report of the Sudan Medical Service 1938, p 67 cited from McKelvie, Kirk and Holder.<sup>5</sup>

Aided by a grant from the Francis I and Elizabeth C Proctor Fund. Drs Charles Perera and Raynold N Berke permitted inclusion in this report of their 2 cases seen by the authors in consultation.

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1 Thygeson Phillips Sulfanilamide Therapy of Inclusion Conjunctivitis. *Am J Ophth* 22: 119 (Feb) 1919. Treatment of Inclusion Conjunctivitis with Sulfanilamide. *Arch Ophth* 25: 217 (Feb) 1941.

see this work Favorable but not curative results from the local use of sulfanilamide have been mentioned by Allen<sup>2</sup>

Since the virus of inclusion conjunctivitis is known to attack epithelium only, and its superficial layers most concentratedly, oral therapy would appear to have no advantage over local therapy other than that concerned with the maintenance of a constant therapeutic concentration of the drug Local applications of the drug in the form of solution, however, are of little value because of rapid dilution by tears and elimination into the nose

CONCLUSIONS

The local use of 5 per cent sulfathiazole or sulfathiazole sodium ointment was effective in causing rapid healing in 11 of 15 cases of inclusion conjunctivitis in infants, children and adults In 10 of these 11 cases the epithelial cell inclusions characteristic of the disease could no longer be found after the third day of therapy Two of the remaining 4 cases, 1 in a child and 1 in an adult, required supplementary oral therapy, the remaining 2 cases, both in infants and both treated in the outpatient department, failed to heal until the mothers

Data on Cases of Inclusion Conjunctivitis Treated Locally with 5 per Cent Sulfathiazole or Sulfathiazole Sodium Ointment

| Case     | Name  | Sex | Age at Onset | Type of Inflammation   | Bacteriology                        |                 | Inclusions   | Treatment  | Result                                     |
|----------|-------|-----|--------------|------------------------|-------------------------------------|-----------------|--|--|--|
|          |       |     |              |                        | Before                              | After Treatment |  |  |  |
| 1        | B C   | ♀   | 5 days       | Papillary, bilateral   | Staph aureus                        | Normal flora    | Disappeared 4th day                                  | 5% sulfathiazole sodium ointment 6 times daily   | Rapid healing                              |
| 2        | C G   | ♂   | 7 days       | Papillary, bilateral   | Normal flora                        | Normal flora    | Not present after 1 week                             | 5% sulfathiazole sodium ointment 6 times daily   | Rapid healing                              |
| 3        | P M   | ♀   | 10 days      | Papillary, bilateral   | Staph aureus                        | Normal flora    | Disappeared 3d day                                   | 5% sulfathiazole sodium ointment 6 times daily   | Rapid healing                              |
| 4        | C S   | ♀   | 8 days       | Papillary, bilateral   | Normal flora                        | Normal flora    | Disappeared 5th day                                  | 5% sulfathiazole sodium ointment 6 times daily   | Rapid healing                              |
| 5        | C T A | ♀   | 6 days       | Papillary, bilateral   | Normal flora                        | Normal flora    | Disappeared 4th day                                  | 5% sulfathiazole sodium ointment 6 times daily   | Rapid healing                              |
| 6        | B P   | ♀   | 10 days      | Papillary, bilateral   | Normal flora                        | Normal flora    | Disappeared 3d day                                   | 1% sulfathiazole sodium ointment 6 times daily   | Rapid healing                              |
| 7        | G R   | ♂   | 10 days      | Papillary, bilateral   | Staph aureus                        | Normal flora    | Disappeared 4th day                                  | 5% sulfathiazole sodium ointment 4 times daily   | Rapid healing                              |
| 8        | M D   | ♀   | 7 days       | Papillary, bilateral   | Staph aureus                        | Normal flora    | Disappeared 4th day                                  | 5% sulfathiazole sodium ointment 6 times daily   | Rapid healing                              |
| 9        | M E   | ♀   | 9 years      | Follicular, bilateral  | Staph aureus, Hemophilus influenzae | Normal flora    | Present during 1st week of therapy only              | 5% sulfathiazole sodium ointment 6 times daily   | Rapid healing                              |
| 10       | A M D | ♂   | Adult        | Follicular, unilateral | Normal flora                        | Normal flora    | Present on 1st examination, further studies not made | 5% sulfathiazole sodium ointment 6 times daily   | Healing within 3 weeks                     |
| 11       | M D   | ♀   | Adult        | Follicular, unilateral | Normal flora                        | Normal flora    | Present on 1st examination, further studies not made | 5% sulfathiazole sodium ointment 6 times daily   | Healing within 3 weeks                     |
| 12       | S V   | ♂   | 19 years     | Papillary, bilateral   | Normal flora                        | Normal flora    | Demonstrated during 1st week                         | 5% sulfathiazole sodium ointment 6 times daily supplemented by oral therapy after first week | Healing within 3 weeks                     |
| 13       | J McG | ♂   | 7 days       | Papillary, bilateral   | Staph aureus                        | Normal flora    | Disappeared 3 days after ointment was properly used  | 5% sulfathiazole sodium ointment 6 times daily   | Rapid healing after proper use of ointment |
| 14       | G M   | ♀   | 5 days       | Papillary, bilateral   | Staph aureus                        | Normal flora    | Disappeared within week after proper use             | 5% sulfathiazole sodium ointment 6 times daily   | Rapid healing after proper use of ointment |
| 15       | H K   | ♀   | 8 years      | Follicular, bilateral  | Normal flora                        | Normal flora    | Absent after 2 weeks                                 | 5% sulfathiazole sodium ointment 6 times daily supplemented by oral therapy after 2 weeks    | Healing after oral therapy                 |
| Controls |       |     |              |                        |                                     |                 |  |  |  |
| 1        | S J S | ♂   | 11 days      | Papillary, bilateral   | Normal flora                        | Normal flora    | Demonstrated at intervals for 6 weeks                | None   | Healing after 6 months                     |
| 2        | J B R | ♂   | 16 days      | Papillary, bilateral   | Normal flora                        | Normal flora    | Demonstrated at intervals for 7 weeks                | None   | Healing after 4 months                     |

through the lacrimal passages In the 1 case previously reported by one of us in which saturated sulfanilamide solution in isotonic solution of sodium chloride was used every fifteen minutes during the day and every half hour during the night for one week, there was symptomatic cure, but the disease returned as soon as treatment was stopped The use of the drug in ointment form has the advantage of allowing its slow release over a considerable period of time In the newborn, in whom tear function is minimal during the first few weeks of life, the ointment remains visible in the conjunctival sac for considerably longer than it does in the adult This may explain in part at least the greater efficacy of local therapy in the infant than in the adult and may indicate that in the latter the ointment should be applied more often than the four to six times a day found effective for the infant

learned to employ the medication properly There have been no recurrences

Local sulfathiazole therapy would appear to be the treatment of choice in inclusion conjunctivitis, at least in the disease in the newborn infant

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Admiration Stifles Curiosity —It is easier to build a tower, than to discover what is worth building It is easier, when a thing has been built, to forget the purpose that created it The great corporation reports its assets and liabilities, says little about service to the community or the happiness of its workers The man who is establishing a business forgets the wife and children who give meaning to his life Admiration for the great church building stifles curiosity about the lives of its members—Terry, Paul W Some Reflections on Ideas, *Assn Am Coll Bull* 26 257 (May) 1940

## Clinical Notes, Suggestions and New Instruments

### SULFONAMIDE RESISTANCE DEVELOPING DURING TREATMENT OF PNEUMOCOCCIC ENDOCARDITIS

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An important question raised by recent investigations of the sulfonamide drugs concerns the development of sulfonamide-resistant organisms during treatment of clinical infections. Experimental studies, both *in vivo* and *in vitro*,<sup>1</sup> have shown conclusively that sulfonamide-sensitive pneumococci can be readily converted into organisms that are highly resistant to these drugs. Available reports<sup>2</sup> suggest that this may also occur during use of the sulfonamides in treating human infections.

During a study of the clinical aspects of this problem in our laboratories a case of pneumococcic endocarditis was encountered which proved to be of special interest. The pneumococci isolated from this case at progressive intervals during treatment showed as great a change in sulfonamide sensitivity as has been produced experimentally<sup>1</sup> and a greater change than has been reported in any clinical case heretofore.<sup>2</sup> The observations on this case are summarized here.

#### REPORT OF CASE

**History.**—A Negro woman aged 43 admitted to the Cincinnati General Hospital June 16, 1941 complained of steady, aching pain in the back and right hip. This pain had been present for two days. During the previous four weeks the patient had chills, sweats, fever, anorexia and gradually increasing weakness. For about two weeks the stools had been loose and watery. There were no other symptoms, nor was there any history of recent or remote pneumonia or of rheumatic fever.

The physical examination was of little diagnostic aid. The temperature was 104 F, the pulse 120, the respiratory rate 32 and the blood pressure 110 systolic and 60 diastolic. The patient appeared chronically ill but was not in acute distress. The lungs were clear and the heart was normal except for a soft systolic murmur heard over the entire precordium. Passive movement of the right hip in any direction elicited pain, though there was neither limitation of motion nor tenderness.

The initial white blood cell count was 9,550, with 90 per cent polymorphonuclear leukocytes and 10 per cent lymphocytes. The red blood cell count was 3,250,000 and the hemoglobin 13 Gm per hundred cubic centimeters. The urine was

clear, with a specific gravity of 1.015, tests for albumin and sugar were negative, there were 1 to 2 white blood cells per high power field. Examination of the stool was negative. A roentgenogram of the chest showed an increase in the bronchial markings throughout both lung fields and a small amount of infiltrate at the base of the right lung. Roentgen examination of the pelvis revealed no abnormality.

**Course.**—The day following admission a blood culture was made which was reported positive for pneumococcus type VII. Four Gm of sodium sulfapyrazine<sup>3</sup> was administered intravenously and 1 Gm orally every four hours thereafter. After three days of this treatment a negative blood culture was obtained, but on the following day the culture was again positive. This clearing of the blood stream was accompanied by a gradual subsidence of fever, after five days of normal temperature the drug was discontinued. By that time the patient had received 134 Gm of sulfapyrazine. She looked well.

Six days passed uneventfully. On the seventh day the temperature rose to 101.8 F, and the blood culture was positive. Sulfapyrazine was again administered, and after four days of treatment the blood levels of the drug maintained between 6.4 and 16.5 mg per hundred cubic centimeters. During this interval, fifteen negative blood cultures were obtained. It is of interest that type VII pneumococci was recovered from a throat culture.<sup>4</sup> It is also of interest that the patient's serum in a dilution of 1:32 agglutinated her own organisms and produced visible swelling of their capsules. After nine days of well-being and normal temperature treatment was discontinued.

Four days later, there was a sudden temperature elevation to 105.4 F, and the blood culture was again positive. Sulfapyrazine was administered promptly and the blood culture became negative. After four days of treatment, the concentration of drug in the blood rose to 21.3 mg per hundred cubic centimeters and therapy was discontinued. Five days later, when the level of the drug had fallen to 4.8 mg per hundred cubic centimeters, the organisms reinvaded the blood, therapy was again instituted. Three days later the patient left the hospital against the advice of her physicians. Up to the time of her departure she had received a total of 307.5 Gm of sulfapyrazine.

For two weeks at home the patient's only symptoms were anorexia and weakness. Then a nonproductive cough and pain in the right axilla developed and a week later she had chills. One month after leaving the hospital, the patient reentered with a temperature of 102.6 F and a positive blood culture. Sulfapyrazine was again administered, and after four days of treatment a negative blood culture was obtained. However, with one exception, cultures made during the next thirty-six days were positive even though the level of sulfapyrazine in the blood was maintained between 12 and 30 mg per hundred cubic centimeters.

Treatment was discontinued after forty days because of the appearance of nausea and vomiting and the failure of the drug to sterilize the blood. Eleven days later 4 Gm of sodium sulfapyrazine was injected intravenously. Although this established a blood level of 21 mg per hundred cubic centimeters, the number of pneumococci in the blood did not diminish.

During the second admission the patient's condition became steadily worse. The temperature curve followed no regular pattern sometimes being normal for several days even though blood cultures remained positive. Anemia developed gradually, but there was no jaundice. Leukocytosis persisted. There were few abnormal physical signs. An apical systolic murmur increased in loudness as the anemia progressed, but no diastolic murmur ever appeared. Signs of pulmonary consolidation came and went. Roentgenograms gave the appearance of infiltrate,

<sup>3</sup> Sulfapyrazine an isomer of sulfadiazine was synthesized by Ellingson (Sulfapyrazine, Sulfapyridine and Sulfadiazine, *J Am Chem Soc* 63:2524-2525 [Sept] 1941). Its antipneumococcal activity in human and experimental infections has been reported (Ruegger, J M, Hamburger, Morton Jr, Tuttle, A S, Spies, T D, and Blum, M A, The Use of 2 Sulfanilamidopyridine in Pneumococcal Pneumonia, A Preliminary Report, *Am J Med Sci* 202:2-20 [Sept] 1941; Ruegger, G W, Clemence, L W, and Feiler, M N, Heretofore Cyclic Sulfanilamide Derivatives, *J Am Chem Soc* 63:2792-2793 [Oct] 1941; Schmidt, Ruegger, Seiler, and Hamburger). The drug used in the present study was supplied by Mehl Johnson & Co.

<sup>4</sup> Later attempts to culture type VII pneumococci from the throat were unsuccessful.

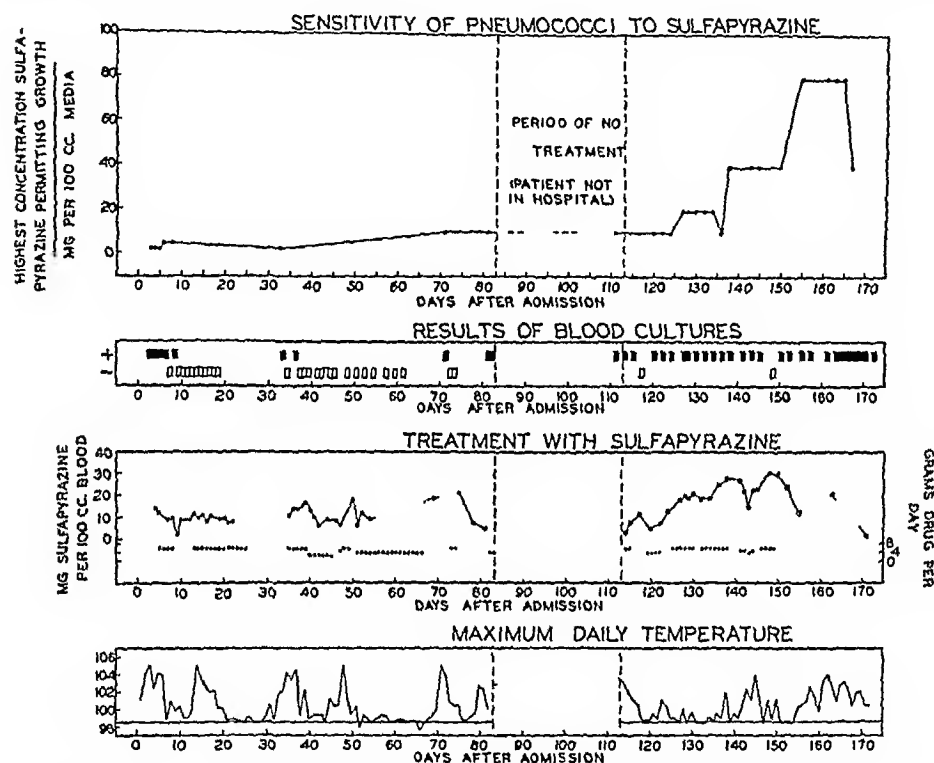
This study was aided by a grant in honor of Craig Yeiser. From the Department of Internal Medicine, University of Cincinnati College of Medicine, the Cincinnati General Hospital and the Institute for Medical Research, Christ Hospital.

<sup>1</sup> MacLean, I H, Rogers, K B, and Fleming, A M & B 693 and Pneumococci, *Lancet* 1:562-568 (March 11) 1939; MacLeod, C M, and Dadd, G A, Sulfapyridine Fast Strain of Pneumococcus Type I, *Proc Soc Exper Biol & Med* 41:69-71 (May) 1939; Schmidt, L H, and Dettwiler, H A, Development of Sulfapyridine Fastness *in Vivo*, *J Biol Chem* 133:133-138 (May) 1940; Dettwiler, H A, and Schmidt, L H, Observations on the Development of Resistance to Sulfapyridine by Diplococcus Pneumoniae, *J Bact* 40:160-161 (July) 1940; Schmidt, L H, Experimentelle chemotherapeutische studien Nord med Hospitalstidn 8:221-227 (Nov 30) 1940; Mulder, J, van den Berg, R, and Eimers, G, Het ontstaan van sulfanilamidopyridine vaste pneumococcus stammen *in vivo*, *Nederl tijdschr Geneesk* 84:923-928 (March 9) 1940; Schmidt, L H, Experimental Studies on the Effect of Sulfapyridine on Pneumococci and Gonococci, Arnold Busch, Copenhagen, 1941, chap 3, pp 101-115; Schmidt, L H, Seiler, Clara L, and Dettwiler, H A, Studies on Sulfonamide Resistant Organisms. I. Development of Sulfapyridine Resistance by Pneumococci, *J Pharmacol & Exper Therap* (Feb.) 1942; Lowell, F C, Struhs, Elias, and Finland, Maxwell, Observations on the Susceptibility of Pneumococci to Sulfapyridine, Sulfathiazole and Sulfamethythiazole, *Ann Int Med* 14:1001-1023 (Dec) 1940; Ruegger, J M, Acquired Tolerance of Pneumococcus to M & B 693, *Lancet* 1:1207-1208 (May 27) 1939; Auger, W, Sulfapyridine Resistance of Pneumococci Following Sulfapyridine Therapy in Infants and Children and the Comparative Potency of Three Chemotherapeutic Agents for Pneumococci, *Shown by Laboratory Tests*, *J Pediatr* 18:162-169 (Feb.) 1941; Frieh, A W, Sputum Tests in Pneumonia—*In Vivo* and *In Vitro* Susceptibility of Pneumococci to Sulfapyridine and Sulfathiazole, *Am J Clin Path* 11:797-809 (Nov) 1941.

though some of the films suggested pulmonary abscess. Sputum was always scanty and none of the specimens examined on five different occasions were positive for type VII pneumococci. The electrocardiogram was normal. The urea clearance was 29 per cent of normal. The nose, teeth, pelvis, hip and lungs were investigated as possible foci for the bacteremia, but these searches were fruitless. Most observers felt that endocarditis must be present.

The patient's last days were uneventful, she became gradually weaker, and fever and tachycardia persisted. She died nearly six months after her first admission to the hospital. A total of 4915 Gm of sulfapyrazine had been administered. Autopsy revealed vegetative endocarditis of the tricuspid valve, old and fresh pulmonary infarcts, subacute diffuse hepatitis and "nephrotic" changes in the kidneys.

A summary of the data relative to the blood cultures, maximum daily temperature, amount of sulfapyrazine administered and resulting levels of this drug in the blood is presented in the accompanying chart.



Curves of sensitivity of pneumococci to sulfapyrazine, blood cultures, treatment with the drug and maximum daily temperatures

#### SULFONAMIDE SENSITIVITY STUDIES

**Method**—The following procedure was used in studying the sulfonamide sensitivity of the pneumococci isolated at various periods during treatment.

Blood obtained from the patient was cultured in infusion broth containing para-aminobenzoic acid<sup>5</sup>. Organisms obtained from these cultures were subcultured at least three times in beef infusion broth enriched with rabbit blood, each transfer being incubated twelve to fourteen hours. A  $10^{-4}$  dilution of the final subculture was prepared in beef infusion broth, 1 cc quantities of this diluted culture were added to each of a series of nine tubes containing 9 cc of beef heart infusion broth<sup>6</sup> of varying sulfapyrazine content and 0.2 cc of defibrinated rabbit blood. The final concentrations of sulfapyrazine in these tubes were 0, 1.25, 2.5, 5, 10, 20, 40, 80 and 150 mg per hundred cubic centimeters. The inoculums, as determined by plate counts, varied in different experiments from 200 to 2,000 organisms per cubic centimeter of culture.

Estimations of growth were made at the end of twelve, twenty-four and forty-eight hours' incubation at 37 C. The criteria for determining growth were (1) turbidity of the culture supernatant and (2) change in the color of hemoglobin from bright red to chocolate brown. Previous experiments have

shown that these changes occur only when the population of the culture exceeds approximately 5,000,000 pneumococci per cubic centimeter. In view of the size of the inoculum, the appearance of these changes indicated that the population had increased at least twenty-five hundred fold. The results of the sensitivity tests have been expressed in terms of the highest concentration of sulfapyrazine permitting growth within forty-eight hours.<sup>7</sup>

Tests of sulfonamide sensitivity were carried out as soon as possible after isolation of the pneumococci. Since the study extended over more than five months it was necessary to use different preparations of beef heart infusion broth in the tests. That the use of different preparations of this medium does not influence the results obtained was established previously.<sup>8</sup> This has since been confirmed by tests of the sulfonamide sensitivity of stock strains of pneumococcus in at least twenty different preparations of the medium over a period of more than two years. Moreover, organisms obtained at different times during treatment of this patient were preserved and after her death were retested in a single preparation of medium. The results obtained in the retest were identical with those of the initial tests.

**Results**—The various observations on sulfonamide sensitivity are shown in the accompanying chart. Organisms isolated from the blood of the patient on the third hospital day (prior to treatment) were unable to grow in mediums containing more than 25 mg of sulfapyrazine per hundred cubic centimeters. This was also the maximum concentration of drug permitting growth of organisms isolated on the fourth and fifth days. The pneumococci obtained on days 6 and 8 grew in mediums containing 5 mg per hundred cubic centimeters. Blood cultures were negative from the eighth to the thirty-third day. Organisms obtained on the thirty-third day were unable to grow in mediums containing more than 25 mg of sulfapyrazine per hundred cubic centimeters. The organisms isolated on days 71 and 81 grew in mediums containing 10 mg of the drug per hundred cubic centimeter. Thus the decrease in the sulfonamide sensitivity of the organisms during the patient's first stay in the hospital was not great.

The next test of sensitivity was made thirty days later, i. e. two days prior to the patient's readmission to the hospital. The organisms obtained at this time showed the same response to the drug as those last tested. The culture obtained on day 113 (the day of readmission) grew only in 5 mg of sulfapyrazine per hundred cubic centimeters, but succeeding cultures obtained on days 120, 122 and 124 grew in 10 mg per hundred cubic centimeters. Thereafter there was a progressive increase in the resistance of the organisms. Those isolated between days 127 and 134 were able to grow in the presence of 20 mg of the drug and those isolated from days 138 to 150 grew in 40 mg per hundred cubic centimeters. Although rigorous treatment was discontinued on day 152 of the patient's illness, the organisms obtained on days 155 to 165 were more resistant than any isolated previously, since they were able to grow in the presence of 80 mg of sulfapyrazine per hundred cubic centimeters.

#### COMMENT

This remarkable experiment of nature afforded an unusual opportunity of studying, in the treated patient, the development of sulfonamide resistance by the pneumococcus. Development of sulfonamide-resistant organisms during treatment of pneumococcal pneumonia and meningitis has been reported heretofore, but the results in most of these studies either have been equivocal or have involved relatively small changes in sulfonamide sensitivity. In no instance has as great an increase in sulfonamide resistance been noted as in the present case.

<sup>5</sup> Para-aminobenzoic acid was not added to any medium other than that used for direct culture of the patient's blood.

<sup>6</sup> Schmidt, L. H., Hilles, C., Dettwiler, H. A., and Starks, E. The Response of Different Types and Strains of Pneumococcus to Sulfapyridine, *J. Infect. Dis.* 67: 232-242 (Nov-Dec) 1940.

<sup>7</sup> Readings taken at forty-eight hours were used in preference to those at earlier periods. This choice was based on experiments which showed that at this period variations in inoculums of the order of magnitude occurred in this study had little effect on the amount of sulfapyrazine required to inhibit growth.

The prolonged period of therapy and the nature of the disease were undoubtedly largely responsible for the high degree of resistance attained. It is noteworthy that during the early period of treatment there was little change in the sensitivity of the organisms. It, during this time, pneumococci were thrown off into the blood, they were effectively disposed of, since the blood cultures remained sterile. It seems probable, however, that as a result of prolonged contact between drug and organisms in the valvular vegetations the pneumococci slowly accustomed themselves to the presence of the drug. After this had occurred, the organisms thrown off into the blood stream were able to survive. It was then that sulfonamide resistance developed most rapidly.

There was a striking relationship between *in vitro* sensitivity of the pneumococci and the ability of the blood to sterilize itself. Negative blood cultures were maintained as long as 5 to 10 mg of sulfapyrazine per hundred cubic centimeters sufficed to inhibit growth of the organisms *in vitro*. When 20 mg or more per hundred cubic centimeters was necessary to check growth *in vitro* it became almost impossible to sterilize the blood stream, even with blood levels of sulfapyrazine as high as 30 mg per hundred cubic centimeters.

The question may be raised whether the pneumococci would have become resistant if a sulfonamide other than sulfapyrazine had been used in treating this patient. It seems improbable that the use of another drug would have altered the sequence of events. Sulfapyrazine is one of the most effective if not the most effective, of the sulfonamides against experimental pneumococcal infections,<sup>8</sup> and it has been demonstrated<sup>9</sup> that the more effective the drug the more difficult it is to develop drug resistant organisms.

It may also be questioned whether another sulfonamide could have been used effectively after resistance to sulfapyrazine was established. This was not attempted, for it has been shown that pneumococci resistant to one sulfonamide are resistant to the others as well.<sup>10</sup> Actual *in vitro* tests showed that when the organisms isolated from the present case became resistant to sulfapyrazine they were also resistant to sulfathiazole, sulfadiazine and sulpyridine.<sup>11</sup>

This case focuses attention on a serious hazard inherent in the long-continued administration of sulfonamides, whether therapeutically or prophylactically. Studies in progress in our laboratories during the last year indicate that this hazard is considerably less during short intensive treatment of acute infections such as pneumococcal pneumonia.

#### SUMMARY

A patient with an ultimately fatal type VII pneumococcus endocarditis was treated with sulfapyrazine intermittently over a period of six months. The pneumococci isolated at intervals during this treatment period showed a progressive increase in sulfonamide resistance. The organisms isolated prior to treatment were unable to multiply in mediums containing more than 25 mg of sulfapyrazine per hundred cubic centimeters, whereas those isolated after five months of treatment could grow in the presence of 80 mg of this drug. These observations point to a serious complication in the long-continued use of sulfonamides.

8 Schmidt L. H., Ruegger J. M., Sesler Clara L. and Hamburger Morton Jr. Sulfapyrazine (2 Sulfanilamidopyrazine) Its Anti-pneumococcal Activity as Compared with That of Sulfapyridine, Sulfathiazole and Sulfadiazine. *J. Pharmacol. & Exper. Therap.* 73: 468-47 (Dec.) 1941.

9 Sesler Clara L. and Schmidt L. H. The Activity of Various Sulfonamides Against Pneumococci Made Resistant to One of These Drugs. *J. Bact.* 43: 73-74 (Jan.) 1942.

10 Schmidt L. H., Clausen C. E. and Starks E. Response of Sulfapyridine-First Pneumococci to Sulfathiazole and Sulfamethylthiazole. *Proc. Soc. Exper. Biol. & Med.* 45: 256-259 (Oct.) 1940. Lowell Strauss and Finland. Sesler and Schmidt.

11 These tests were carried out both with the method described and with a blood plate method similar to that described by Auger. The results obtained with the two methods were similar. In testing the sensitivity of the organism on blood agar plates, subcultures of a moderately resistant (one hundred and eleven day) and a highly resistant (one hundred and fifty second day) strain were each streaked on half the surface of a plate and the growth compared. The difference in growth of the two strains at the higher sulfonamide concentrations was very striking.

#### ACUTE URINARY SUPPRESSION FOLLOWING SULFADIAZINE THERAPY

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Acute urinary suppression following the administration of sulfadiazine is rare but is a severe complication of use of the drug. The attendant development of uremia may lead to a fatal termination if urinary drainage is not reestablished immediately.

In a review of recent literature, urinary suppression from sulfadiazine has been reported but once.<sup>1</sup> Renal colic and both gross and microscopic hematuria have been mentioned not infrequently following its use.<sup>2</sup> So far, no cases of anuria following the administration of sulfanilamide have been reported.

The following is a report of a case in which acute urinary suppression developed following average doses of sulfadiazine.

L. E., a white man aged 26, single, American, a night club operator, entered the surgical service Feb. 23, 1942 for removal of an orbital tumor on the left side. General physical examination was not remarkable. The blood pressure was 120 systolic and 80 diastolic. There was an 8.5 mm exophthalmos of the left eye as compared with the right. There was severe papilledema with exudates and fine hemorrhages about the disk and edema extending out to and involving the macula. There was 4 diopters of choking. Only an inner upper quadrant field remained in the left visual field.

The entry blood count was 92 per cent hemoglobin (Sahli), 4.7 million red blood cells and 9,500 white blood cells with normal distribution. Urinalysis showed no red blood cells, casts or crystals. No albumin or sugar was found, and the urinary pH measured 6.0 by nitrazine paper.

With a working diagnosis of retrobulbar tumor, the left orbit was explored through a Kronlein approach on February 26. An encapsulated neurolemmoma was found and removed, but during the mobilization of the left lateral orbital wall the maxillary sinus was entered. The patient withstood the operation well. Because of the contamination of the operative field chemotherapy was begun immediately, 1 Gm. of sulfanilamide being placed in the wound.

Sulfadiazine 2 Gm. was given orally the evening of the day of operation and 1 Gm. every four hours thereafter. He tolerated the drug well. His urinary output was between 1,500 and 2,000 cc. daily during the first three postoperative days and 2,400 cc. on the fourth postoperative day. By the beginning of the fifth postoperative day he had received a total of 25 Gm. of sulfadiazine. Urinalysis on the morning of this day showed 40 to 50 red blood cells per high dry field of the centrifuged sediment and numerous typical sulfadiazine crystals. Administration of the drug was stopped. At noon the patient began to complain of abdominal pain, and by evening his pain was radiating bilaterally from the flanks toward the bladder. Fluids were forced by mouth, and an intravenous infusion of 1,000 cc. of 5 per cent dextrose was given. His fluid intake was 3,110 cc. His urinary output was only 300 cc. for this twenty-four hour period. On the sixth postoperative day he had less pain but vomited intermittently. His urine was grossly bloody. The blood pressure was 140 systolic and 90 diastolic. Two infusions of 1,000 cc. of 5 per cent dextrose were given intravenously in addition to oral fluid making a total fluid intake of 4,600 cc., 1,900 of which was lost through emesis. Only 350 cc. of bloody urine was obtained on this day. He voided 180 cc. of bloody urine early in the morning of the seventh postoperative day. Because additional urine was not passed by noon he was catheterized but no urine was obtained. That afternoon he was taken to the surgery for cystoscopy and ureteral catheterization.

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<sup>1</sup> Thompson G. J., Herrell W. E. and Brown A. E. Anuria After Sulfadiazine Therapy. *Proc. Staff Meet. Mayo Clinic* 16: 692-612 (Ser. 24) 1941.

<sup>2</sup> Finland Strauss and Peters (cf. Finland, Lowell Strauss and J. W. Schulte, Thompson, Herrell and Brown, Plummer).



Under local anesthesia, a No 28 McCarthy panendoscope was passed. No urine was found in the bladder. The bladder was surveyed and the trigone was found to be definitely edematous, with areas of submucosal hemorrhage. The right ureteral orifice was finally identified as a mound from the center of which projected a granular mass of yellowish orange material having the appearance of crystalline deposit. The left ureteral orifice could not be identified. Several unsuccessful attempts with a small ureteral catheter were made to dislodge the plug from the right side. The cystoscope was removed and the patient was given a spinal anesthesia by injection of 50 mg of procaine hydrochloride and 20 mg of pontocaine hydrochloride. The cystoscope was reinserted and an attempt was made to dislodge the mass from the right ureter with biopsy forceps. This also failed. Five cc of indigo carmine was then given intravenously in an attempt to locate the left ureteral orifice. There was no appearance of the dye at the end of twenty-five minutes from either orifice, so a No 6 olive-tip ureteral catheter with wire stylet was used to probe the region of the left ureteral orifice. This was located under a fold of edematous mucosa, blocked by a smaller amount of the same granular substance as was seen on the right. The catheter was introduced with some difficulty and passed to the renal pelvis. A grating sensation was encountered throughout the entire distance. Twenty cc of brown, turbid urine containing a large amount of sandlike deposit was removed from the left renal pelvis and the pelvis lavaged with a total of 200 cc of warm sterile water in 10 cc amounts. The indigo carmine then appeared in fair concentration. The catheter was withdrawn and a No 8 whistle-tip catheter was passed to the renal pelvis and left in place.

Another attempt was made to dislodge the mass from the right orifice with a No 6 olive-tip catheter with wire stylet. This time the attempt was successful and the mass came away, followed by a gush of brown urine containing sandlike granular material. The catheter failed to pass beyond 5 cm, but no crystalline or calcareous deposit was encountered. Indigo carmine then appeared on that side and no further attempt was made to catheterize the right ureter. The patient was returned to the ward with the left ureteral catheter in place and a No 22 indwelling Robinson catheter in the bladder. Large numbers of typical "sheaves of wheat" crystals were seen microscopically in the first bladder urine and in the urine recovered from the left renal pelvis.

Immediately on return from the operating room the patient was given an intravenous infusion of 1,000 cc of 5 per cent dextrose and started on 4 Gm of sodium bicarbonate every three hours by mouth. During the first twelve hours drainage from the ureteral catheter measured 210 cc and from the bladder catheter 900 cc. During the next twenty-four hours 480 cc drained from the ureteral catheter and 1,835 cc from the bladder catheter. The following day 1,100 cc drained from the ureteral catheter and 1,900 cc from the bladder catheter. In view of this and also since no crystals had been demonstrated in the urine from either catheter since the day after cystoscopy, both catheters were removed on the eleventh postoperative day. His urinary output for that day and each succeeding day was well over 2,000 cc.

Treatment following cystoscopy consisted in irrigating the ureteral catheter with 5 cc of 2 per cent sterile sodium bicarbonate solution every three hours, forcing fluids by mouth and intravenous infusions of 1,000 cc of 5 per cent dextrose daily for three days. In addition, he was given 4 Gm of sodium bicarbonate by mouth every three hours. His urinary pH on daily examinations after cystoscopy was 7.0 by nitrazine test paper.

Cystoscopy was done again under spinal anesthesia four days after the first cystoscopy. At this time, intravenous indigo carmine appeared in good concentration on the right side in five minutes and on the left side in ten minutes. An attempt was again made to catheterize the right ureter, but the catheter failed to pass beyond 5 cm. Because of the prompt appearance of the indigo carmine, this apparent ureteral block was thought probably to be the result of edema or a fold of mucosa.

The blood urea was 48 mg per hundred cubic centimeters the day after his first cystoscopy. Three days later it had fallen to 18 mg per hundred cubic centimeters. The day of dismissal, seven days after his first cystoscopy, it was still 18 mg per hundred cubic centimeters.

His course after the ureteral blocks were relieved was not remarkable. His temperature rose to 39.2 C (102.6 F) on the eighth postoperative day but gradually declined to normal on the thirteenth day. The hematuria cleared rapidly and only an occasional red blood cell could be found in the centrifugated urinary specimen on the day of his dismissal. He was free of pain and abdominal discomfort on the day after the first cystoscopy. His orbital wound healed rapidly by first intention.

#### COMMENT

In this case, following administration of sulfadiazine, urinary suppression developed from ureteral obstruction by masses of crystals forming soft calculi. Apparently either crystals are formed in the collecting tubules of the kidney from which they pass to the pelvis to aggregate in large masses or through some change in the colloidal mechanism of the urine they are precipitated in the renal pelvis. This has been demonstrated by Lehr and Antopol<sup>3</sup> in studies on albino rats given massive doses of sodium sulfadiazine intraperitoneally, when they found sulfadiazine crystals in the renal tubules as early as fifteen minutes after injections of the drug.

Recently one of us performed an autopsy on a patient who died following pneumonectomy. He had received a total of 54 Gm of sulfadiazine during the eleven days before death and had a urinary output for the four days preceding death averaging less than 1,000 cc daily. At necropsy amorphous yellowish orange granular deposits were found in the right renal pelvis and along the entire course of the right ureter. This granular substance gave the typical diazo reaction of sulfadiazine. Careful histologic examination of both kidneys failed to demonstrate any crystals in the renal tubules.

In our case, the signs and symptoms of impending urinary suppression following the administration of sulfadiazine were gross hematuria, abdominal and flank pain and decreasing urinary excretion. Plummer<sup>4</sup> in a discussion on therapy at the New York Hospital reported 7 cases of gross hematuria with renal colic out of 457 cases in which 10 Gm or more of sulfadiazine was given. Flippin, Rose, Schwartz and Domm<sup>5</sup> reported 4 cases of microscopic hematuria in 200 cases in which sulfadiazine was given for pneumonia. Thompson, Herell and Brown<sup>1</sup> in their case report of anuria following sulfadiazine administration recorded microscopic hematuria and decreasing urinary output. Finland, Strauss and Peterson<sup>6</sup> reported 3 cases of hematuria in a series of 446 cases in which sulfadiazine therapy was used. Of these, 2 presented microscopic and 1 gross hematuria. The patient with gross hematuria had renal colic followed by anuria. On cystoscopy he had a ureteral obstruction which was promptly relieved by ureteral catheterization and lavage.

Large amounts of sodium bicarbonate should be given since sulfadiazine is slightly more soluble in alkaline solution. Schwartz, Flippin, Reinhold and Domm<sup>7</sup> made urinary crystal counts on 100 patients, 50 of whom were given sulfadiazine and 50 sulfadiazine, examining 290 urinary samples in all. One hundred and eighty of these were from patients receiving renal alkali and 110 were from patients to whom sodium bicarbonate was administered concomitantly in the same amounts as the

- 3 Lehr, David and Antopol, William. Toxicity of Sulfadiazine and Acetalsulfadiazine in Albino Rats with Special Reference to Renal Lesions and Their Significance. *Urol & Cut Rev* 15: 545-554 (Sept.) 1941.
- 4 Plummer, Norman. Conference on Therapy, New York, N. Y. Med 42: 259-265 (Feb. 1) 1942.
- 5 Flippin, H. F., Rose, S. B., Schwartz, Leon and Domm, A. J. Sulfadiazine and Sulfathiazole in Treatment of Pneumococcal Pneumonia. Progress Report on 200 Cases. *Am J M Sc* 201: 553 (May) 1941.
- 6 Finland, Maxwell, Strauss, Eliaz and Peterson, O. I. Sulfadiazine—Therapeutic Evaluation and Toxic Effects on 446 Patients. *J A M A* 116: 2641 (June 14) 1941.
- 7 Schwartz, Leon, Flippin, H. F., Reinhold, J. G., and Domm, A. H. Effect of Alkali on Crystalluria from Sulfadiazine. *J A M A* 117: 514-515 (Aug. 16) 1941.

drug administered. Fewer crystals were found in the urines of patients taking sodium bicarbonate with both sulfathiazole and sulfadiazine. Curtis and Sobin<sup>5</sup> showed that acetylsulfapyridine and more particularly acetylsulfathiazole increase in solubility as the urinary pH increases in alkalinity above 7.0.

The fluid intake is most important because of the relative insolubility of the drug. In the case reported by Thompson, Herell and Brown<sup>1</sup> the average urinary output was 600 cc during the period when sulfadiazine was being administered. In our case, interestingly enough, the urinary output was more than 1,000 cc a day until the development of urinary suppression. All patients receiving average doses of sulfadiazine should be observed carefully for abdominal pain accompanied by either gross or microscopic hematuria and decreasing urinary excretion. If these symptoms and signs occur prompt cystoscopy, ureteral catheterization and pelvic lavage are indicated. A 2 per cent sodium bicarbonate solution may be used for pelvic lavage.

#### SUMMARY

1 Acute urinary suppression although rare, is a serious complication following the use of sulfadiazine.

2 Signs and symptoms of beginning renal failure are microscopic and gross hematuria, crystalluria, abdominal and flank pain, decreased urinary output and nausea and vomiting.

3 Treatment consists in forcing fluids and in alkalinizing the urine. If the urinary output decreases considerably, cystoscopy, ureteral catheterization and lavage are immediately indicated, with continuous urinary drainage by means of indwelling ureteral and bladder catheters. Subsequently, the renal pelvis should be irrigated with 2 per cent sodium bicarbonate solution every three to four hours. Catheters are removed when the urinary output has returned to normal.

4 Deposits of sulfadiazine crystals in the renal pelvis and ureters produce a mechanical anuria.

5 Sodium bicarbonate in amounts sufficient to alkalinize the urine should be administered simultaneously with sulfadiazine.

Clay and Webster streets

#### REPORT OF 661 NAIL PUNCTURE WOUNDS OF THE FOOT

FRED H. BOWEN, M.D. Lieutenant (j.g.) MC V(S)  
U. S. Naval Reserve  
NEW RIVER, N. C.

There is a wide diversity of opinion in the literature concerning the proper treatment of nail puncture wounds of the foot. Most authors advocate probing the wound, laying it open, injecting an antiseptic solution (phenol [carbolic acid], tincture of iodine) and instituting some form of drainage. It is my opinion that such treatment is unnecessary, painful and harmful and that it is followed by prolonged disability and

#### Disability with Reference to the Size of the Nail Involved

|                             | 6    | 8    | 10   | 16   | 20   |
|-----------------------------|------|------|------|------|------|
| Penny nail                  |      |      |      |      |      |
| No. of cases                | 205  | 209  | 86   | 61   | 19   |
| Days disability             | 10   | 71   | 124  | 111  | 84   |
| Days of disability per case | 0.04 | 0.24 | 1.44 | 1.81 | 4.22 |

This table aptly shows the increased danger of the larger nails. Perhaps the prophylactic use of one of the sulfonamide derivatives either locally or generally in the cases in which 16 and 20 and possibly 10 penny nail wounds have been incurred might be followed by a lessening of the period of disability.

at times by a painful plantar scar. Foreign bodies are not often carried deeply into the foot by a nail but they lie in the dermis or just beneath it. I have demonstrated that nails (6 to 20 penny) coated with methylosaniline (gentian violet) and driven into a cadaver's foot were wiped clean in the proximal  $\frac{1}{4}$  inch of the tract. In doing a superficial debridement

in my cases, I noted that particles of sand were just beneath the epidermis, and occasionally rust particles and little pieces of concrete or rubber were found in the same location. The introduction of a drain into a noninfected wound tends to convert it into an infected wound.

The foot is a complex anatomic unit, and several layers of fascia slide over one another when the foot is used in walking.

#### Summary of Cases with a Disability

| Cause of Disability  | No. of Days Disability | No. of Cases |
|--|------------------------|--------------|
| Soreness of foot   | 1*                     | 4            |
| Mild degree of cellulitis                                  | 2                      | 4            |
| Mild degree of cellulitis                                  | 3                      | 6            |
| Cellulitis of foot   | 4                      | 6            |
| Cellulitis of foot   | 5                      | 7            |
| Cellulitis of foot   | 6                      | 11           |
| Cellulitis of foot   | 7                      | 1            |
| Cellulitis of foot   | 8                      | 5            |
| Cellulitis of foot   | 10                     | 3            |
| Abscess of foot  | 12                     | 1            |
| Deep foot pain (traumatic osteitis?) (traumatic neuritis?) | 14                     | 1            |
| Abscess of the ball of the right foot                      | 14                     | 1            |
| Cellulitis of foot   | 15                     | 1            |
| Cellulitis of foot   | 16                     | 2            |
| Cellulitis of foot   | 18                     | 1            |
| Cellulitis of foot   | 21                     | 1            |
| Cellulitis of foot   | 42                     | 1            |

\* There were probably more patients who lost one day's work or less and did not report back to the first aid station.

Hence, by the time a patient walks from where he suffers the nail puncture wound to the doctor's office or to the hospital, these fascial planes have slid over one another so that one is dealing with a tract that resembles a staircase more than a straight line. I have attempted to follow the tract made by nail wounds in the foot of a cadaver. Walking was simulated by moving the foot between the infliction of the nail wound and the attempt to probe the tract. I was unable to follow the tract except occasionally in the wounds due to the larger nails, and it is therefore believed that probing is harmful, as it often does not follow the course of the original nail wound. In attempting to probe such a tract, one injures tissue not injured by the nail and opens new tissue planes to infection.

In dealing with cases of nail puncture wounds incurred by laborers in the construction of the United States Naval Air Station at Jacksonville, Fla., the following simple plan of treatment was used. The foot was soaked for fifteen to thirty minutes in hot water to which liniment of soft soap (tincture of green soap) or a small quantity of saponated solution of cresol was added. (I do not believe that the addition of these solutions affected the results.) The foot was dried carefully, and an area about 2 to 3 inches in diameter around the wound was painted with tincture of mercuricin (orthohydroxyphenylmercuric chloride). The wound edges were grasped with splinter forceps, and the epidermis was cut away for several millimeters about the circumference of the wound. This exposed the foreign matter (usually sand, rarely particles of sock, leather, rust, rubber or concrete), which could then easily be removed with the splinter forceps or be wiped away with a cotton applicator soaked in tincture of mercuricin. The wound was not probed beyond  $\frac{1}{4}$  inch and this was done under direct vision. A dry dressing was applied and 1,500 units of tetanus antitoxin was given. If the nail wound was caused by a nail larger than a 10 penny, the patient was instructed not to work for at least one or two days, but if a nail of lesser diameter was involved he returned at once to work. The patient was instructed to soak his foot in hot water for thirty minutes when he reached home and to repeat this at bedtime.

Patients with severe nail wounds (larger than a 10 penny or lacerated wounds) were given crêpe bandage to protect

<sup>5</sup> Curtis, A. C. and Sobin, S. S. The Solubility of Acetylsulfapyridine and Acetylsulfathiazole in the Urine. *Ann. Int. Med.* 15: 584 (Nov.) 1941.

bear weight on the affected foot for one or two days. They were told to report to the hospital on the day they returned to work for inspection of the wound. If any sign of increasing inflammation was present, elevation and rest of the affected limb with hot compresses was advised.

Patients with minor wounds were instructed to return if any increased soreness was noted.

No prophylactic sulfonamide treatment was used locally or orally.

In this paper only the patients who came for treatment on the day of the injury are considered.

Soaking the foot in hot water dilates the tissue capillaries and this brings an exudation of lymph, the best germicidal agent in the body, into the affected areas. Leukocytes are probably mobilized by the local elevation of temperature.

A total of 661 nail puncture wounds of the foot were treated by the methods outlined. There were no deaths in this series. There was no tetanus encountered in this series or in any of the thousand nail wounds treated. Cavalry units were stationed at the site of the air station during the first world war and thus the nails were probably exposed to the tetanus bacillus. There were four hundred days of disability in these cases. This is a disability per case of 0.6 day. Cases with disability due to tetanus antitoxin have not been considered in this series.

Headquarters Company, First Pioneer Battalion, Fleet Marine Force

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS HOWARD A. CARTER, Secretary

### EMERSON RESUSCITATOR HOSPITAL AND PORTABLE MODELS ACCEPTABLE

Manufacturer J. H. Emerson Company, 22 Cottage Park Avenue, Cambridge, Mass.

The Emerson Resuscitator, Hospital and Portable Models, provides for the mechanical performance of artificial respiration or for inhalation of oxygen without artificial respiration when the latter is not needed. The portable model is enclosed in a trunklike carrying case designed for use in ambulances; it weighs 43 pounds without tanks and measures 8 by 14 by 25 inches. D or E size tanks are used. The Standard Hospital model also accommodates E or D size oxygen cylinders and is mounted on an upright stand with three swivel casters having conductive rubber tires.

Working parts in the two models are identical. The complete apparatus may be said to consist of three components. The first is an automatic breathing machine employing a positive pressure of 14 mm of mercury and a negative pressure of 9 mm of mercury; the second is a device for continuous aspiration of fluid, mucus and the like from the pharynx and trachea, and the third is a device for inhalation in the administration of oxygen therapy.

Clinical evidence showing that the apparatus had been used with satisfaction and safety on infants and adults was submitted by the firm. Results of laboratory work with the unit were also presented.

Following are the results of the Council's examination.

The mechanical parts are operated by power supplied by compressed oxygen. Oxygen is supplied from small cylinders identical in construction with those generally used with anesthesia apparatus and attached in the same manner. A gage is an integral part of the equipment and indicates cylinder pressure. The reducing valve is a Linde product already Council accepted (THE JOURNAL, July 11, 1936, p. 130). This device is set to reduce the cylinder pressure to 15 pounds per square inch, at which pressure the gas is admitted to the apparatus. A valve permits adjustment by the manufacturer so that gas at this pressure will not enter too rapidly.

Oxygen entering the face mask passes over a balloon silk diaphragm to which is attached a toggle valve. As the lungs

distend against the resistance of the patient's chest wall and diaphragm a pressure is built up, to which the diaphragm of the apparatus is subjected. The toggle mechanism is so adjusted that when this pressure reaches 13 mm of mercury it shifts and closes the valve through which the oxygen has been reaching the face mask and diverts it through a Venturi tube. The side connection to this tube is simultaneously connected to the face mask and, the pressure being reduced below atmosphere by the Venturi tube, the gas moves out of the lungs. At first this is assisted by the elastic recoil of the lungs and chest walls and the pressure of the abdominal content on the diaphragm. Gradually a pressure below atmosphere is built up on the toggle diaphragm of the apparatus, and when this pressure difference reaches 8 mm of mercury the toggle reverses and the valves change so as again to admit oxygen. The toggle permits slow operation of the resuscitator and is said by the firm to operate at below zero temperatures.



Emerson Resuscitator Hospital and Portable Models

By turning a selector valve the operator may change from mechanical artificial respiration to inhalation. At the midposition of the selector valve is a connection for an aspirator tube and a bottle for trapping excess secretion. When this is in use the apparatus ceases to function either as a resuscitator or as an inhalator. To operate the aspirator a second Venturi tube entirely separate from that used to operate the artificial respiration mechanism is provided. This second Venturi tube is capable of reducing the pressure in the aspirator bottle to 140 mm below atmosphere.

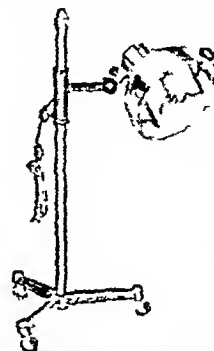
In most instances artificial respiration may be successfully carried out by the Schafer prone pressure method, which does not require mechanical equipment. In addition, a simple inhalator may be used when oxygen is required. Cases of poliomyelitis in which artificial respiration is needed over periods of weeks or months require entirely different mechanism. In the opinion of the Council, devices of the type under discussion are better suited to professional than to lay use and their use by untrained persons is considered undesirable.

The Council on Physical Therapy voted to accept the Emerson Resuscitator, Hospital and Portable Models, with the understanding that such acceptance is not to be considered an endorsement of this or similar equipment for artificial respiration in the hands of the untrained laity nor in the usual uncomplicated conditions (meaning no open abdomen, broken ribs and so on) requiring artificial respiration for periods ranging from a few minutes to an hour or two.

### ALOE GLOW-BAR INFRARED LAMP ACCEPTABLE

Manufacturer A. S. Aloe Company, 1819 Olive Street, St. Louis

The Glow-Bar Infrared Lamp employs a 600 watt rod type heating element. The 600 watt element is mounted in an aluminum reflector 12 inches in diameter which is adjustable to a height of 70 inches and



Aloe Glow-Bar Infrared Lamp

which swings up, down or to either side. A screw knob on the reflector arm fixes the angle, and another screw knob locates the reflector at the desired height on the upright. Fitted over the reflector is a bronze heating element. The lamp is mounted on a black enamel tripod stand equipped with casters. The "off on" switch is located on the electric cord.

The Council found the lamp to be made and to give satisfactory service in heat therapy.

The Council voted to accept the Glow-Bar Infrared Lamp for inclusion on its list of accepted devices.

## Council on Pharmacy and Chemistry

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING STATEMENT  
AUSTIN E SMITH M D Acting Secretary

### SULFAGUANIDINE RECOGNIZED AS NON-PROPRIETARY NAME FOR SULF-ANILYLGUANIDINE MONO-HYDRATE

In a previous published report, "Sulfadiazine and Sulfaguanidine Nonproprietary Names for 2-Sulfanilamidopyrimidine and Sulfanilylguanidine Respectively (J A M A 116 2019 [May 3] 1941), it was stated that the Council had recognized sulfaguanidine as the nonproprietary name for sulfanilylguanidine. Subsequent consideration brought out the fact that the compound is marketed mainly as the monohydrate. In view of this, the Council voted that the term 'Sulfaguanidine-N N R' be defined as the monohydrate of sulfanilylguanidine.

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AUSTIN E SMITH M D Acting Secretary

**IODOBISMITHOL WITH BENZOCAINE**—A solution of sodium iodobismuthite (sodium bismuth iodide) and sodium iodide in propylene glycol (racemic 1,2 propylene glycol) containing benzocaine.

**Actions and Uses**—Iodobismithol with benzocaine seems to be well absorbed and to be excreted fairly rapidly. Intramuscular injections twice weekly produce a satisfactory therapeutic bismuth level in the blood stream as reflected in the sustained excretion level in the urine.

**Dosage**—Intramuscular injections of 2 cc repeated every three days. Two full days should elapse between injections. From sixteen to twenty injections comprise a course of treatment. In case of arsenical sensitization such therapy may be continued over a long period of time. At each injection the patient would thus receive from 0.024 to 0.0276 Gm of metallic bismuth (from 0.1154 to 0.1328 Gm of sodium bismuth iodide and from 0.218 to 0.258 Gm of sodium iodide).

#### Tests and Standards—

The specific gravity of iodobismithol with benzocaine at 25 C ranges from 1.167 to 1.175. The pH of iodobismithol with benzocaine taken with a quinhydrone electrode ranges from 4.5 to 5.0. The refractive index at 25 C ranges from 1.4609 to 1.4611.

Transfer about 3 cc of iodobismithol with benzocaine accurately weighed to an Erlenmeyer flask, add 3 cc of hydrochloric acid and 125 cc of water, determine the bismuth according to the method outlined under sodium iodobismuthite, each cubic centimeter contains the equivalent of not less than 0.012 nor more than 0.0138 Gm of bismuth. Add 10 cc of a nitric acid silver nitrate solution (prepared by dissolving 1 Gm of silver nitrate in 20 cc of water and adding 5 cc of nitric acid) to about 3 cc of iodobismithol with benzocaine accurately weighed and then add 100 cc of water, allow to stand two hours, filter into a prepared Gooch crucible and wash with very dilute nitric acid (5 cc of diluted nitric acid to make 100 cc) dry to constant weight at 100 C. Weight of silver iodide is equivalent to not less than 0.135 nor more than 0.145 Gm of iodide per cubic centimeter.

**SODIUM IODOBISMUTHITE AND PROPYLENE GLYCOL** The sodium iodobismuthite and propylene glycol in iodobismithol with benzocaine conform to the New and Nonofficial Remedies standards for these substances.

**BENZOCAINE** The benzocaine in iodobismithol with benzocaine conforms to the U S P standards for this substance.

E R SQUIBB & SONS, NEW BRUNSWICK, N J

**Ampules Iodobismithol with Benzocaine** 2 cc. Each 2 cc contains sodium iodobismuthite 0.12 Gm, sodium iodide 0.24 Gm, benzocaine 0.08 Gm, propylene glycol q s 2 cc.

**Solution Iodobismithol with Benzocaine** 50 cc rubber capped bottles. Each 2 cc contains sodium iodobismuthite 0.12 Gm, sodium iodide 0.24 Gm, benzocaine 0.08 Gm, propylene glycol q s 2 cc.

**QUININE DERIVATIVES** (See New and Nonofficial Remedies, 1941, p 403)

**QUININE DIHYDROCHLORIDE AND URETHANE**—A sterile aqueous solution containing quinine dihydrochloride U S P 127 Gm and ethyl carbamate N F 665 Gm in each hundred cubic centimeters.

For standards see U S Pharmacopeia under Quininae Dihydrochloridum and the National Formulary under Ethylis Carbamas.

**Actions and Uses**—A mixture of quinine dihydrochloride and urethane in aqueous solution is used as a sclerosing agent for injection in the obliterative treatment of varicose veins. The mixture is claimed to have antiseptic qualities. It should not be employed during menstruation, pregnancy nor in the presence of heart disease, nephritis, diabetes, upper respiratory infection or septic tonsillitis. It is contraindicated in the presence of phlebitis, suppurative ulceration and incompetence of deep veins.

**Dosage**—The initial injection should be limited to 0.5 cc to determine whether idiosyncrasy exists, average amount for injection at any one site is 1 cc and should not exceed 2 cc. The total quantity to be injected at a single sitting should not exceed 5 cc to avoid the production of cinchonism. The injection should be made slowly to avoid dangerous consequences.

THE LAKESIDE LABORATORIES, INC., MILWAUKEE

**Ampule Solution Quinine Dihydrochloride and Urethane** 2 cc. Each ampul contains quinine dihydrochloride 0.255 Gm (4.1 grains) and urethane 0.133 Gm (2.05 grains).

**THIAMINE HYDROCHLORIDE** (See New and Nonofficial Remedies, 1941, p 551)

The following dosage forms have been accepted

SMITH-DORSEY CO., LINCOLN, NEB

**Tablets Thiamine Hydrochloride** 1 mg, 3.33 mg, 5 mg, 6.66 mg and 10 mg

**Solution Thiamine Hydrochloride** 10 cc vials, 10 mg per cc, 33.3 mg per cc, 50 mg per cc and 100 mg per cc. Each cubic centimeter contains thiamine hydrochloride in an isotonic solution of sodium chloride. Chlorobutanol 0.5 per cent added as a preservative.

E R SQUIBB & SONS, NEW YORK

**Solution Thiamine Hydrochloride** 25 cc vials 100 mg per cc. 0.5 per cent of chlorobutanol is used as a preservative.

THE LEPJOHN COMPANY, KALAMAZOO, MICH

**Tablets Thiamine Hydrochloride** 10 mg

**NICOTINIC ACID-U S P** (See New and Nonofficial Remedies 1941, p 555)

The following dosage form has been accepted

SMITH-DORSEY CO., LINCOLN, NEB

**Tablets Nicotinic Acid** 100 mg

**NICOTINIC ACID AMIDE** (See New and Nonofficial Remedies 1941 p 556)

The following dosage forms have been accepted

INTERNATIONAL VITAMIN SALES CORPORATION, NEW YORK

**Tablets Nicotinic Acid Amide** 25 mg and 50 mg

THE LAKESIDE LABORATORIES, INC., MILWAUKEE

**Tablets Nicotinamide** 50 mg

**Ampule Solution Nicotinamide, 10% W/V** 1 cc. Each cubic centimeter contains 100 mg of nicotinamide in distilled water with 0.5 per cent chlorobutanol.

**Solution Nicotinamide 10% W/V** 15 cc vial. Each cubic centimeter contains 100 mg of nicotinamide in distilled water with 0.5 per cent chlorobutanol.

S M A CORPORATION, CHICAGO

**Solution Nicotinic Acid Amide** 500 mg in 10 cc vials with 0.5 per cent chlorobutanol.

**SODIUM CITRATE** (See Revised Supplement to N N R 1941 p 26)

The following dosage form has been accepted

THE LEPJOHN COMPANY, KALAMAZOO, MICH

**Solution Sodium Citrate 2½% W/V** 50 cc ampuls. A sterile solution containing in each cubic centimeter sodium citrate-U S P 0.025 Gm (0.38 grain).

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 30, 1942

## TANNIC ACID TREATMENT OF BURNS AND LIVER NECROSIS

According to the mortality statistics of the Bureau of the Census, there were 8,083 deaths from burns in the United States in 1928, while there were 5,232 in 1933. This decrease followed the introduction of the tannic acid treatment by Davidson in 1925-1927. However, further reduction in mortality was not recorded in the succeeding four years. Improved hygienic conditions, more frequent recourse to blood or plasma transfusion and oxygen therapy undoubtedly played a conspicuous part in the lowering of the mortality in cases of severe burns. The coagulant treatment was probably a major factor in the improved results. Whether or not the favorable effect of coagulation is to be ascribed to reduction in the loss of plasma or, as Davidson himself believed, to the prevention of absorption of toxic products from the burned area is a subject of considerable controversy.

The treatment of the primary and secondary shock accompanying burns does not differ from treatment of shock in other conditions. Current research is directed to the toxic phase, which appears after eighteen to twenty-four hours. Three theories have been advanced to elucidate its cause and mode of development. 1. A physical theory, supported by Underhill, Blalock and Harkins, maintains that leakage of fluids and plasma proteins from the burned area results in blood concentration leading to circulatory failure and to anoxia. 2. A bacterial theory is favored by Aldrich, who found a beta hemolytic streptococcus in the blood and burned areas in most of his cases. 3. A chemical theory holds that a specific toxin is formed in the burned area and is absorbed into the circulating blood, with resultant toxemia and collapse.

Wilson, Macgregor and Stewart<sup>1</sup> reported in 1938 a clinical study of 65 selected cases of severe burns. Particular attention was paid to the cause of death.

<sup>1</sup> Wilson, W. C., Macgregor, Agnes R., and Stewart, C. P. The Clinical Course and Pathology of Burns and Scalds Under Modern Methods of Treatment, Brit J Surg 25: 826 (April) 1938.

Such factors as anhydremia, changes in blood chemistry and bacterial infection have been excluded as primary or etiologic agencies. These authors have studied pathologic alterations in 33 fatal cases, all treated with tannic acid. The important and characteristic pathologic lesion of acute toxemia in their studies was degeneration and necrosis of the liver cells. The lesions in the liver were much more intense than those in other organs. It appeared obvious that the liver lesion of serious prognostic importance. These investigators favor the view that acute toxemia of burns is caused by the action of a specific toxin of nonbacterial origin which has been absorbed from the burned area. The nature of the "burn toxin" has not been determined.

Belt<sup>2</sup> studied pathologic changes in 4 fatalities from burns treated with tannic acid. In each instance death ensued within four days and the liver presented "a remarkably uniform and distinctive picture." The changes in the liver were similar in all cases, with widespread necrosis producing disorganization of the parenchyma. These appearances in all 4 cases were indistinguishable from those of acute yellow fever.

McClure<sup>3</sup> reports a fatal case in which postmortem examination disclosed an almost total necrosis of liver tissue. Another patient had less toxemia, but the liver became palpable and jaundice appeared, the icterus index rising to 130 units. He agrees with Wilson, who said "After death from burns a lesion of the liver cells was found in many cases which was characteristic of this form of injury. Its relation to acute toxemia was so remarkably close as to leave little doubt that the liver lesion and the acute toxemia were produced by the same mechanism. The responsible agency was certainly not bacterial infection, and in our view the liver lesion furnished the strongest evidence of a nonbacterial toxin circulating during the first few days after a burn." McClure, however, makes the reservation that these changes might have been due to anoxemia.

Buis and Hartman<sup>4</sup> report 5 instances of death following superficial burns. The treatment included tannic acid jelly, transfusions of blood plasma and oxygen. In 4 out of 5 of these necropsies liver changes were quite similar to those described by Wilson. They state that central necrosis of the liver is regularly seen in burn cases in which death occurs three to five days after the injury. Anoxemia resulting from the shock, plasma loss, hemoconcentration and acute congestion are suggested as a contributing cause of the liver necrosis. These investigators produced in experimental animals second and third degree burns which were immediately

<sup>2</sup> Belt, Thomas H. Liver Necrosis Following Burns. Lesions of Yellow Fever. J Path & Bact 48: 493 (May) 1941.

<sup>3</sup> McClure, Roy D. The Treatment of the Burn. Burns J A M A 113: 1803 (Nov 11) 1939.

<sup>4</sup> Buis, L. James, and Hartman, F. W. Histopathology of Following Superficial Burns, Am J Clin Path 11: 220 (1941).



treated by resorcinantanol jelly, the same as that used in the clinical treatment of burns. Similar liver necrosis has been found in the experimental animals, and the lesion paralleled the extent and severity of the injury.

Wells, Humphrey and Coll<sup>5</sup> report 4 cases in which death from toxemia occurred after extensive burns. At necropsy each exhibited a central lobular liver necrosis as a prominent lesion or as the sole cause of death. Treatment consisted in a tannic acid tub debridement intravenous dextrose in isotonic solution of sodium chloride, whole blood transfusion and intranasal oxygen. They have also seen human beings with burns treated with tannic acid who have shown definite clinical and chemical evidence of liver damage but have recovered. They have injected into rats 1.5 cc of a 5 or 10 per cent tannic acid solution and produced characteristic liver damage: necrosis of liver cells in the central portion of the lobule, hemorrhage and leukocytic infiltration. The degree of damage varied directly with the total amount of tannic acid injected. Factors other than tannic acid have not entered into the production of liver damage in these experiments. The animals died largely or solely as the result of a central liver necrosis. Such a necrosis has been observed in their own cases and in those reported by others only when treatment with tannic acid has been administered. They conclude that the specific central necrosis of the liver due to tannic acid poisoning should be distinguished from the cause or causes of the so-called toxemias of burns and scalds.

Coagulant treatment is certainly not the last word on the subject. Allen and Koch<sup>6</sup> indicate that the loss of tissue fluids from the burned area in their treatment is prevented by the application of a nonadherent dressing consisting of gauze saturated with petrolatum and held in place by sea sponges and an elastic bandage. The even elastic pressure controls capillary oozing, loss of tissue fluids and formation of dead spaces. These authors voice objection to the use of a general anesthetic employed by many surgeons in the process of debriding and cleansing the burned area. They feel that a general anesthetic may act as a factor in the development of beginning shock. The mortality rate for burns at the Cook County Hospital Children's Surgical Ward for 1933 to 1936, when tannic acid treatment was practiced, amounted to 10 per cent; in 1939 with tannic acid and silver nitrate treatment it was 7.3 per cent, while under the nonadherent pressure dressing treatment the mortality rate in 1939 dropped to 5.8 per cent and under the same treatment to 3.65 per cent in 1940 and to 2.7 per cent in 1941.

#### ANNIVERSARY OF THE NATIONAL NUTRITION CONFERENCE

The National Nutrition Conference called by President Roosevelt in May 1941 assembled diversified interests in the field of nutrition and stimulated the formulation of a national program. The responsibility for coordinating the programs and activities of public and private agencies, national, state and local, into a unified program for the promotion of better nutrition rests with the Office of Defense Health and Welfare Services of which Federal Security Administrator Paul V. McNutt is director. M. L. Wilson is assistant director in charge of nutrition and Dr. W. H. Sebrell is deputy assistant director. Helen S. Mitchell is principal nutritionist.

In some states nutrition committees had been working for several years prior to the National Nutrition Conference. Others have been organized. Now active volunteer nutrition committees have been established in all the states in the District of Columbia, in Hawaii and in Puerto Rico. County committees have been organized in more than two thousand five hundred of the three thousand and seventy counties, and local committees are scattered throughout the nation. Committees are composed of trained nutritionists, physicians, dentists, public health officers and nurses, social workers and other civic leaders. These committees in most instances are affiliated with their state or local defense councils.

Throughout the nation emphasis has been placed on strengthening and expanding existing governmental programs for improving the diets of the low income groups. Through school lunch programs more than five million children received hot lunches last year. The food stamp plan enabled hundreds of thousands of families on relief to make their food dollar go further toward providing nutritious food. Low cost milk programs are now in operation in hundreds of communities.

Particular stress has been placed in the national, state and local programs on the use of enriched flour and bread. Through the cooperation of millers and bakers, following recommendations of the National Research Council, more than half the white flour and bread in the country is selling in enriched form. This percentage is constantly increasing. On April 28 the Millers National Federation recommended to the wheat flour industry the enrichment of all family flour.

Besides encouraging these programs, the state and local nutrition committees have instituted, with the cooperation of professionally trained people, nutrition classes, demonstrations and clinics, made surveys of nutrition needs in their localities and planned activities to meet the most urgent of these needs. They have secured the cooperation of libraries in providing informational materials on nutrition. Statewide nutrition conferences have been held and retre-hier courses in nutrition established in colleges and universities.

5. Wells, Donald B., Humphrey, Henry D. and Coll, James J. The Pellets of Tannic Acid to the Liver Necrosis Occurring in Burns. *New England J. Med.* 226: 629 (April 16) 1942.

6. Allen, Harvey S. and Koch, Sumner I. The Treatment of Patients with Severe Burns. *Surg. Gynec. & Obst.* 91: 491 (May) 1942.

Nutrition must be as familiar to literate Americans as reading and writing. Simple, basic information has been assembled that is immediately applicable in the home. Food rules have been worked out with the guidance of the Food and Nutrition Board of the National Research Council and released in poster form, these rules list the foods to be eaten each day for an adequate, well balanced diet. These food rules are accompanied by a symbol and slogan which are intended to make the nation "nutrition conscious" and to enable all agencies, organizations and industries interested in spreading nutrition information to associate their programs with the national nutrition program.

The many channels through which the national nutrition program is being carried out may be grouped under five major headings: Nutrition Division, Office of Defense Health and Welfare Services, cooperating with related federal agencies, nutrition committees, state, county and local, state and local medical associations, food and related industries, and national organizations, civic, labor and women's groups. Many of these agencies and organizations are producing informational materials and carrying out action programs in a nationwide campaign for better nutrition. Physicians must familiarize themselves with the program and its objects so that they may contribute the scientific leadership that the public expects of them.

## Current Comment

### SCIENCE IN THE WAR AND AFTER

In times like these the search for spiritual comfort and inspiration is more necessary than in time of peace. In the midst of the world conflagration the message of Raymond B. Fosdick, president of the Rockefeller Foundation, in *A Review* for 1941, serves well to call to our attention the universality and everlasting character of scientific advancement. "The Bill of Rights," he says, "will outlast Mein Kampf just as the scientist's objective search for truth will outlive all the regimented thinking of totalitarianism." Organizations like the Rockefeller Foundation, dedicated to the extension of knowledge, can only reaffirm their undiscourageable belief in the ultimate power of reason. Much has been written of the necessity for postwar planning now. While it would seem to be folly to engage at this time in too much consideration of postwar planning, we must recognize the point emphasized by Mr. Fosdick, namely, the necessity for maintenance of fundamental education in science and of basic research. Thus he says:

This concern for the future is a matter of stern, practical sense. The specialized talents and abilities that are meeting this emergency and those that will meet emergencies to come are not produced by feverish last minute activities. No amount of pressure can suddenly create a supply of thoroughly trained and

broadly experienced physicists, mathematicians, chemists, biologists, economists and political scientists. These men represent the trained intelligence without which a war cannot be won or a lasting peace achieved. They emerge spontaneously, unpredictably but irresistibly out of long, patient and sustained effort. Pure research, the clean urge to gain new knowledge, the sympathetic appreciation of imaginative scholarship even when it seems remote and unrelated—these we must steadfastly sponsor or our vital intellectual resources will fail us in the days to come.

### GRADUATE TRAINING IN OPHTHALMOLOGY FOR LATIN AMERICAN PHYSICIANS

Further progress in Pan American relationships in the field of medical education is indicated by a recent announcement made by Dr. Harry G. Gradle, president of the Pan American Congress of Ophthalmology. Through the generosity of the W. K. Kellogg Foundation a program of graduate training has been formulated whereby twenty-five selected physicians of the Latin American countries will be brought to the leading ophthalmic institutions of the United States for a minimum of one year's training. This program of graduate training will be carried on with the cooperation of the Division of Cultural Relations of the Department of State, which has previously made arrangements whereby selected medical graduates of Central and South American countries may secure an opportunity for intern training in approved hospitals in the United States. The W. K. Kellogg Foundation has offered to pay the traveling expenses and a stipend of \$1,000 a year to the selected trainees. Eligibility requirements are such that they should assure the selection of high grade physicians who will return to their native countries at the completion of their training. Seventeen of the leading ophthalmic institutions in the United States are cooperating in this program.

### NO EXTRA GAS FOR MOTORING TO ATLANTIC CITY

The legal department of the Office of Price Administration has issued a statement that extra gasoline will not be available for physicians who are motoring to the annual session of the American Medical Association in Atlantic City, June 8 to 12. As stated previously in *THE JOURNAL*, a physician is entitled to an allowance for use in attending to his practice which permits him to use all the gasoline that may be necessary in that service. Apparently, however, it is not considered that attendance at a convention may be reckoned in relation to consumption of gasoline as a part of the practice of medicine. In replying to a question on this point, the legal department emphasized the fact that no restriction had been placed even on bishops who use gasoline so as to permit them to visit the individual ministers or priests in their dioceses, although it had been impossible to grant the use of gasoline to students who were traveling on the seaboard for graduate education. It is hoped that physicians will cooperate with the spirit of the ruling.

# MEDICINE AND THE WAR

*In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession*

## PREHABILITATION AND REHABILITATION IN INDUSTRY

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The physical qualifications necessary to be an industrial worker are considerably less rigid than those demanded by our military forces. This point should be made very clear before an attempt is made to discuss the role that medical service for industrial workers may play in the prehabilitation and rehabilitation of men liable for service under our Selective Service System. For the Army and Navy in any of its branches a relatively high standard of physical perfection is necessary. If a fighting unit is to be successful its men must have those things inherent in first class physical condition. The requirements of military or naval operations cannot hazard the possible failure due to physical weakness or imperfection. The work to be performed by our armed forces is too critical to trust to such chances.

The human physical requisites for industry are not so exacting. In the shop and factory a man may do a high quality job standing still or while seated, although he could not perform at a task which required walking, running, climbing, lifting, pushing or pulling especially while carrying a heavy load. As long as he has his eyesight, two good arms and hands, intelligence and the endurance to stand or sit for eight to nine hours daily, he can be a satisfactory producer. Industry can use many men, physically limited for one reason or another, because the effort required is confined to only a part of their bodies, and the strain involved is geared not only to their somewhat limited capacity but for a long steady pull rather than a spurt of effort as often required in military emergencies. Physical fitness for work in industry is measured to determine ability to do a specific job, whereas in the armed forces medical examinations are given to determine fitness to perform any one of a number of jobs, in fact almost any job, hence the obvious necessity for higher standards in the services.

The program of the Selective Service System bears a certain similarity to the industrial preemployment and preplacement medical examination for the selection and classification of workers.

Perhaps an account of what is done in industry, in passing on the physical qualifications of workers might be in order.

Applicants for employment are rated as follows:

- I Physically fit for any employment. No defects or impairments.
- II Physically fit for any employment. Minor impairments easily correctable.
- III Physically fit for certain restricted employment.
- IV Physically unfit for employment (rejection).

In industry those individuals placed in class II (with correctable defects) are employed and followed periodically while working until the condition has been taken care of adequately. The common defects in this group are poor vision, infected tonsils, dental caries, anemia, underweight, overweight and so on.

Class III indicates that the individual's physical condition is such that he can do only certain types of work safely. He is employed with this understanding and is shifted to another job only with the approval of the medical department. Individuals who are industrially blind in one eye (20/100 or less) or have deformities, heart conditions, hernias and the like are included in this group. Usually the findings which put them in this class are more in the nature of permanent disabilities and are not correctable, nevertheless they can work at certain restricted jobs.

Class IV means rejections because of the more serious disabling physical impairments, conditions which make the job unsafe for the worker or his fellow workmen, and militate against his successful performance. The cause for rejection is explained to the applicant and he is asked to see his family physician or go to a hospital clinic for treatment. The majority of these handicaps are not correctable. Some could be improved or corrected if sufficient time and necessary money were available. These applicants do come back occasionally and are accepted for employment, after having extensive dental care, a hernia operation, tonsils removed, or some other major condition or infection properly treated. This demonstrates that prehabilitation is possible. It is always preferable to have physical impairments corrected before starting employment, no matter what the classification.

It is obvious that for the Selective Service System only class I men would be accepted for general military service. Many of the class II men can be made eligible for class I by medical and dental treatment in a relatively short time. The rehabilitation program more easily applies to the class II individuals.

For many years I have advocated a similar procedure in our schools. Too often young people graduate from grade or high school with remediable defects. Little if any thought has been given to the physical standards necessary to qualify them for industrial work. Every effort should be made to prepare them for the day to day routine of mass production operations—a regimen to which they have not been accustomed in their school life.

Not infrequently young boys come to industry from high school with hernias, enlarged and infected tonsils, carious teeth, poor vision and heart or lung conditions. With proper guidance these individuals could have been saved the discouraging experience of being rejected for employment until some condition has been corrected. In the past two years we have had six young men rejected on the first examination because of hernias who have had them repaired and were subsequently passed for employment. In some instances it is of course

impossible to do much in the way of correction. These handicapped individuals should have been guided and prepared for the type of industrial work best suited to them. A case in point is a young lad who was allowed to train for a machine job which required good vision. He had had considerable shop training in high school, but apparently his uncorrectable visual defect had not been discovered. His rejection for the job for which he applied might have been prevented had a thorough medical examination been given before he was advised to take up a particular field of work for which the physical requirement should have been known to the vocational guide. The disappointment to the individual and cost to the community which these rejections occasion are hard to estimate.

#### AGE GROUPS

In making comparisons it must be remembered that the age groups in industry are more extensive than under the Selective Service System. The age spread in industry not infrequently is as great as 17 to 80, whereas the Selective Service applicants have been from

industry to do everything possible to protect them from breaking down and do everything possible to rehabilitate them. Perhaps the Selective Service System will have to pursue a somewhat similar policy if the war lasts sufficiently long.

It might be worth while to review here what our physical examination consists of. It includes first of all a separate blank for a history of previous illnesses, which is filled out by the applicant and then reviewed by the nurse and the examining physician. Such a history is very helpful in uncovering conditions that are not easily detected by examination. Often past illness gives an indication of future health problems. Height, weight, eyes, ears, teeth, blood pressure, urine, heart, lungs (chest stereoroentgenogram), blood Wassermann, abdomen, hernia, feet and general body structure (musculoskeletal) are examined. Neurologic reactions are tested and any other abnormalities that would appear on inspection or palpation.

#### REJECTIONS

The two conditions causing the largest number of rejections in the Army were dental defects (19.3 per cent) and defective vision (13.3 per cent). In an analysis of the causes for rejection in our industry over a period of two years, defective vision was responsible for 23.8 per cent of the rejections and cardiac conditions for 13.6 per cent. Dental defects in themselves were not responsible for any rejections. However, there have been instances in which badly infected mouths necessitated postponing classification until the condition had been corrected. Not infrequently a combination of conditions, of which poor teeth is one, are classified as poor general condition, and this group was responsible for 6.8 per cent of the rejections. Other causes for rejection are to be found in table 1. It must be remembered that the percentages given are of the total rejections and not of the total examinations.

In 1940 and 1941 the applicants examined in one of our plants were classified as shown in table 2. Those in class I would be available for general military service without much doubt if they were in the right age group. There might be some musculoskeletal or foot conditions which we did not deem of any importance.

The class II individuals ought to be eligible for general military service if their defects were corrected. Since they consist chiefly of eyes, dental, height and weight defects, there should be relatively little difficulty. In industry we are able to persuade many of these individuals to take care of such things.

There are very few in class III and class IV who can be rehabilitated sufficiently to make them eligible for the Army. Conditions in these two classifications are more permanent.

If, however, class I and class II individuals could be made eligible, approximately 75 per cent of those examined in industry would seem, according to our standards, to be fit for general military service.

I am convinced that this group of 75 per cent could be very useful to the armed forces, at least in some capacity. Unfortunately, we do not have our records separated on the basis of age. Therefore we cannot tell what percentage of these groups are within present army age limits (21-35).

It is recorded that 6.3 per cent of the registrants under the Selective Service were unqualified because of mental and nervous conditions. No mention is made of mental conditions in the report of our rejections in industry. This is due to the sifting out of such

TABLE 1—Summary of Causes for Rejections, 1940 and First Four Periods of 1941

|                                    | Total | Percentage of Total Rejections |
|------------------------------------|-------|--------------------------------|
| Vision                             | 21    | 23.8                           |
| Hypertension and heart disease     | 12    | 13.6                           |
| Hernia                             | 9     | 10.2                           |
| Tuberculosis                       | 8     | 9.0                            |
| Poor general condition—combination | 6     | 6.8                            |
| Nervous instability                | 5     | 5.6                            |
| Positive Wassermann reaction       | 4     | 4.5                            |
| Diabetes                           | 3     | 3.4                            |
| Overweight                         | 3     | 3.4                            |
| Albuminuria                        | 2     | 2.2                            |
| Anemia                             | 2     | 2.2                            |
| Varicose veins                     | 2     | 2.2                            |
| Eczema                             | 2     | 2.2                            |
| Flat feet                          | 1     | 1.1                            |
| Gonococcal infection               | 1     | 1.1                            |
| Hyperthyroid                       | 1     | 1.1                            |
| Obstruction of nose                | 1     | 1.1                            |
| Otitis media                       | 1     | 1.1                            |
| Potential kidney disease           | 1     | 1.1                            |
| Pott's disease                     | 1     | 1.1                            |
| Undiagnosed fever                  | 1     | 1.1                            |
| Undulant fever                     | 1     | 1.1                            |

21 to 35. This obviously accounts for much of the difference in defects found. On the other hand, despite the wider age range examined in industry and the greater number of defects expected because of the older ages, industry can use a great many more of these men than can the Army or Navy.

We are told that standards for acceptance in the German army are less rigid than in our own. Perhaps that is the result of raising such a large army, or it may be that experience has taught them that men can be just as good soldiers whether they have twelve of their own teeth or necessary bridge work or dentures. Certainly dental standards in industry are not nearly so strict. If an applicant for work is free of dental infection, and it is quite obvious that he should be, and has enough teeth to carry on mastication, i. e. opposing bicuspids and molars, he is accepted.

As the demand for men in the Army increases, it is quite possible that some restrictions will be removed. Necessity dictates the possibility of many things. In industry when labor, either skilled or unskilled, is scarce, we cannot be as strict as when it is plentiful. Right now, especially as far as certain skilled workers are concerned, men are being accepted with major conditions that doubtless will make them more susceptible to lost time and disabilities. In such an emergency as the present, it is the responsibility of medical service in

to a very large extent in the employment offices. Interviewers become adept at detecting them and they are never sent for a medical examination. That eliminates the easily detected mental case. Those which we have listed as rejected because of nervous instability are cases which the employment interviewer would not be able to "spot" in conversation.

Also should be mentioned the fact that a certain number of individuals, knowing they possess some disability will not apply and submit themselves to an exacting medical examination. This fact keeps down our rate of rejections, no doubt, which for the past four years in our four Rochester plants has been as follows: 1937, 62 per cent, 1938, 25 per cent, 1939, 36 per cent, 1940, 52 per cent.

Again it should be reiterated that industry can and does use men with defects which the Army would not take. These defects in no way interfere with their general health or their ability to perform many routine occupations. Such things as the loss of a toe or a finger, or being below 60 inches in height does not militate against the performance of ordinary factory tasks. The real explanation for many of these differences lies in the fact that industry's rejection rate is negligible, 5 per cent, as against 25 per cent for the Selective Service. (Class I-A and I-B comprise approximately 75 per cent of the total.) With such a disparity in standards, it is extremely difficult to make full comparisons.

#### COMPARISON OF SELECTIVE SERVICE REGISTRANTS WITH WORKERS

The medical examination results of 157 Selective Service registrants from one of our plants, given us by one of the local draft boards, are shown in table 3. This is approximately the same as has been found generally in the summary reports of physical examinations by Selective Service local boards and Army induction stations. To be exact, these 157 Selective Service registrants with 52.23 per cent fit for military service showed a 2.23 per cent advantage over the 50 per cent of the country at large. This seemingly slight advantage might be increased considerably by a more complete analysis. However, we cannot draw any conclusions from this because we were not given the age distribution in the group of industrial registrants. It is obvious to any one supervising the health of employed workers that there is an increment of disabilities after 30 years of age. In the first examinations and inductions, men up to 35 years of age were taken which, of course, greatly increases the percentage of defects. As the rejections in Selective Service were nearly twice as great in age group from 31 to 36 as in age group from 21 to 25, no comparisons should be made except by age groups.

#### CHECK-UPS

While the original admission examination in industry is important and valuable to all concerned, it is of much greater value if it is followed by periodic check-ups. Such check-ups have proved so helpful in industry that it might be worth while to detail them here.

In some instances applicants for employment are put in class III because of such things as a hernia, infected tonsils or extensive dental caries. They are employed with the understanding that they will take care of the condition within the first year of employment and are followed periodically to make sure they are doing so. When the defect has been satisfactorily corrected they are changed to class II. The same procedure is followed

with regard to those individuals with correctable defects, put in class II at the time of the original examination. However, it is obvious that the follow-up in such cases would not be so rigid as those in class III in which there is a serious major condition.

This is a phase of the preventive work which industrial medicine strives to do. By such check-ups more serious consequences are avoided and individuals are sometimes rehabilitated and thus pushed up in their rating.

The mechanical operation of such a follow-up system is a basic consideration in its success. To insure the return of employees on the dates recommended for follow-up examinations a tickler file is maintained and is the sole responsibility of one assistant. The tickler is made out for the proper date from the original examination card with a notation of the condition to be checked. These ticklers are filed by date. Each week the ticklers dated within the week are taken out. Those individuals are called for the doctor or the nurse.

#### PREVENTION

Industrial medicine comes nearer to real personal preventive medicine than any other branch of the entire practice of medicine. I suppose it grew in large part

TABLE 2—Classification of Applicants Examined, 1940 and 1941

| Class    | 1940  | 1941  |
|----------|-------|-------|
| I        | 18.0% | 16.1% |
| II       | 56.5% | 61.7% |
| III      | 20.1% | 17.9% |
| IV       | 4.3%  | 4.6%  |
| No class | 1.1%  | 0.7%  |

out of the original safety first campaigns back in 1911-1914, when the groundwork was laid for the prevention of accidents as a result of our various state workmen's accident compensation laws. It was soon found that the doctor in industry could help reduce the severity rate of accidents by taking care of them promptly. Certainly, major infections were prevented by insisting that even the slightest injury be treated promptly by the nurse or doctor. Prevention became the watchword, and today efforts on the part of the doctor and the nurse are large factors in preventing disability and lost time, both costly wastes to employer and employee. Unfortunately, such efforts have been restricted chiefly to the larger and more successful industries.

#### SMALL INDUSTRIES

In the smaller shops and factories, adequate medical service is seldom found. If the time comes when all workers receive prompt and efficient care, then we shall have fewer disabilities and a better state of health among all our workers. By efficient care I mean adequate treatment of injuries, periodic examinations and follow-up regarding defects and disabilities with genuine efforts made toward prevention and rehabilitation.

Several years ago a plan was tried in Philadelphia, under the guidance of Dr. Glenn S. Everts of the Philadelphia Health Council, which provided part time medical and nursing service to a group of small plants. One doctor and one nurse made the rounds of these small factories periodically. Recently a great deal of attention has been given to this subject by the National Manufacturers' Association and local Visiting Nurse organizations. A number of nursing organizations have trained nurses for the purpose of providing part time nursing service for smaller industries. To what extent



small plants have availed themselves of this, there seems to be little evidence. It is a service which must be developed for the present emergency. The combined efforts of local medical societies, visiting nurse organizations and industrial groups should be able to work this out.

Small plant managers should not feel that because they cannot inaugurate complete medical service they will not undertake anything. Physical examinations of all new employees can be the first step, then perhaps examination of all present employees. It is not a question of prohibitive cost, it is a matter of interest in the preventive scheme and a will to give it a trial.

#### PROPOSED PLAN

Is it possible for industry to institute a more positive program on behalf of the Selective Service? Yes, it is. Industry could review all eligibles and offer examinations and advice concerning the correction of defects. This is already being done in a small number of cases. Men have come to our medical department and asked for examinations, so that they will know beforehand what chance they stand of being accepted. No one who

TABLE 3—Results of Physical Examination of 157 Selective Service Registrants Employed by Eastman Kodak Company (From First Thousand Registrants)

|   | Number | Per Cent |
|---|--------|----------|
| Fit for general military service          | 82     | 52.23    |
| Deferred for physical reasons as follows: |        |          |
| Teeth                                     | 16     | 10.19    |
| Cardiovascular system                     | 14     | 8.92     |
| Musculoskeletal and feet                  | 13     | 8.28     |
| Legs and feet                             | 8      |          |
| Arms and hands                            | 2      |          |
| Back injury                               | 2      |          |
| Dislocated hip                            | 1      |          |
| Vision                                    | 10     | 6.37     |
| Lungs                                     | 6      | 3.82     |
| Hernia                                    | 4      | 2.54     |
| Underweight                               | 3      | 1.91     |
| Ears                                      | 2      | 1.27     |
| Inguinal rings                            | 2      | 1.27     |
| Diabetes                                  | 1      | 0.64     |
| Rectal fissure                            | 1      | 0.64     |
| Uleer                                     | 1      | 0.64     |
| Urethritis                                | 1      | 0.64     |
| Urine                                     | 1      | 0.64     |

is genuinely interested in entering the service likes to be "turned down." Those whose patriotism and sense of duty convince them that they ought to get into one of the services as soon as possible will welcome an opportunity to correct disqualifying conditions. Some, no doubt, will be glad to bear the cost of having conditions corrected.

Perhaps this is a phase of industrial medicine which has been neglected. Unfortunately, it has been the practice of industry to concern itself very little with the individual who cannot pass its applicant examination. Nor does it do enough in encouraging those admitted for employment to have correctable impairments treated while employed, thus improving their health. This situation exists largely because there are not the proper arrangements and funds to take care of it. It is one of those steps in the evolution of a complete medical service for workers that is yet to be developed. Possibly the attention directed to it by the rejections under the Selective Service System may bring about a solution.

While it is true in our Kodak organization that we have aided some applicants who could not pass the entrance medical examination to have defects corrected, there has been no well developed program. Usually it has been an individual matter between the examining physician and the applicant who has evinced a desire to

have something done. Some persons want a job so much that they insist on knowing how they can eventually qualify. So often a man will say "Well, does this turn me down forever? Isn't there anything I can do about it?" Perhaps they did not know they had a disqualifying condition. Sometimes they are grateful for knowing, and even though they do not have the ready money to have any extensive medical treatment they will ask for advice as to how it may be accomplished. It is this sort of person that most physicians will instinctively try to help.

It might be of interest to tell briefly of the attempt in Rochester last year to rehabilitate a group of trainees attending vocational classes for war industries, under the Federal Emergency Defense Training Act. The project included not only medical examinations but also follow-up of the physically disqualified, in an effort to help them have defects corrected.<sup>1</sup> These reports, with their analysis of 2,791 examinations, their ratings, rejections and attempts at rehabilitation, show that approximately 33 per cent were disqualified for defense industry employment, 60 per cent of these voluntarily sought the Medical Consultant Service set up by this combined community enterprise, and 85 per cent of the 547 men in class III and class IV who saw the consultant had conditions sufficiently corrected to be passed for employment. This experience demonstrated that applicants for jobs are interested in making themselves physically eligible and that physicians will cooperate in helping such persons to get the necessary treatment. Ophthalmologists contributed their services without remuneration. Other physicians rendered certain services gratis, either in the hospitals or in their offices. This was all very commendable but is not a satisfactory solution to the problem.

What plan can industry devise which will insure a higher percentage of physically sound workers and also help to prehabilitate those who may be drawn from the ranks of industry by the Selective Service System? This seems a propitious time to propose a plan, in part suggested by Col. L. G. Rowntree, Chief of the Medical Division of the Selective Service System. When an applicant for a job is rejected and told he cannot be accepted until certain impairments are taken care of, would it be possible to issue a card or letter saying that the bearer has been examined for employment but that, because of certain specific conditions, it is impossible to accept him until they are corrected? Such a letter as this might be given to the applicant:

Dr

was examined by us today for

a job as

Because of the following conditions, he did not pass our examination

If you will assist him in having these conditions corrected, we shall be glad to consider him again for employment. It must be understood that it is not possible to hold jobs open for any length of time, and no promise can be made that this particular job with us will be available when he presents himself again for examination. Every effort will be made to offer him a job when he is ready. It is to his interest and well that his health be improved as early as possible.

Yours truly,

<sup>1</sup> Greenman, Raymond H. Health for Industrial Training. Midmonthly Sawyer, W. A. Medical Aspects of Vocational Training. J. A. M. A. 118:641 (Feb. 21) 1942.

By arrangements with the members of the county medical and dental societies and the hospitals, it should be possible to put such a plan into operation. Industry could not guarantee payment for this medical service, but the fact that the individual had been considered for employment by a reputable concern ought to be a recommendation to the doctor or hospital to extend credit as far as possible to such a person. The least that the medical profession, the dentists, the hospitals and other interested groups can do is to assist in putting persons with substandard physiques into condition to work safely and successfully.

It is always possible to find some way to help the occasional individual to secure needed medical service. Very few industrial communities are lacking in sufficient facilities. The trouble comes when there are so many cases that it becomes a burden. Such reconditioning will not function equitably and smoothly without a well integrated plan in which all groups cooperate. The hospital and the doctors cannot do much rehabilitation without remuneration. Most of the workers want to pay, but they cannot afford to pay much or promptly. If doctors or the hospitals extend credit to workers to help put them in better physical condition, industry can exert some influence in persuading the worker to pay his bill. As far as older employees are concerned, industry not infrequently lends them money to pay medical (rehabilitation) bills. This should all be worked out on a broad, comprehensive scale, retaining as far as possible the usual doctor-patient relationship along with freedom of choice of doctor, dentist and hospital. Naturally,

the financial side must be planned for. As usual, the members of the medical and dental professions will be willing to make some gambles in so worthy an effort. Such a project might encourage workers to apply for treatment to the best men rather than the cheapest.

At present there may be more interest in the prehabilitation and rehabilitation of men who can be made available to the military forces, and this must be the first necessity, but whatever works with industry ought to benefit the prospective armed service candidates. A basically sound plan should have a broad application to both.

Providing essential materials and arms for military purposes is quite as necessary as securing the right men properly trained, to use them. To do this efficiently and with speed, it is fundamental that we have healthy, normal workers. If many workers are drawn into the military service and they have been rehabilitated, the armed forces will be so much the gainer. Workers must be kept fit and on the job. Especially is this important when we remember that it takes eighteen men behind the lines for every able bodied man in the armed ranks. Efficient efforts by industrial medicine show a reduction in the amount of absence due to sickness. Disabilities are shortened and prevented. Therefore, the great opportunity of industrial medicine at this time, as a part of the war effort is to improve and maintain the health of workers. By practicing prehabilitation and rehabilitation, it will be making a real contribution to our present man power requirements both in industry and in the military services.

#### EXAMINATION FOR APPOINTMENT IN MEDICAL CORPS, REGULAR ARMY

The War Department announces an examination, August 10-13, for the purpose of qualifying candidates for appointment as first lieutenants in the Medical Corps, Regular Army, to fill vacancies occurring during the fiscal year 1943. The examination is open to all male graduates of acceptable medical schools in the United States and Canada who have completed one year's internship in an approved hospital and who will not be over 32 years of age at the time it will be possible to tender a commission. Candidates who fail a first examination will not be permitted to take more than one subsequent examination. The examination will be conducted by boards of medical officers and will consist of a physical examination, a written examination in professional subjects and a determination of the candidate's adaptability for military service. Full information and application blanks will be furnished on request addressed to the Adjutant General, War Department, Washington, D. C. Applications will not be considered if received in the War Department after July 22.

#### COMMISSIONS FOR MEDICAL STUDENTS

The War Department issued the following instructions, May 12:

1 Reference is made to War Department Immediate Action letter AG 210 1 MA-AUS (4-25-42) RB-SPGA, May 8, 1942, above subject. (See THE JOURNAL May 23 p. 352)

2 The following instructions are published relative to the action to be taken in reference to students who are members of the R O T C advanced course in R O T C units of the arms and services other than Medical Corps and who become accepted matriculants in an approved medical school:

a Students who prior to entrance in an approved medical school will have completed all requirements for a commission including summer camp training will be commissioned in the arm or service in which training was received.

b Students who, prior to entrance in an approved medical school, will have completed all requirements for a commission

except training at the appropriate service school, will be governed by the following:

(1) Where the date of entrance in an approved medical school will permit students will be required to attend the prescribed course at the appropriate special service school. On successful completion of this course, they will be commissioned in the arm or service in which training was received.

(2) Where the date of entrance in an approved medical school will not permit attendance at the appropriate special service school will not be required and students will be permitted to withdraw from their advanced course contracts for the convenience of the government.

c Students who enter an approved medical school prior to the completion of the senior year of the R O T C advanced course will be permitted to withdraw from their advanced course contracts for the convenience of the government.

3 Students who, under the above provisions are commissioned in an arm or service other than the Medical Corps, will not be ordered to active duty except as provided for in the letter referred to in paragraph 1, above.

4 Students who are permitted to withdraw from their advanced course contracts for the convenience of the government will not be required to refund any sums previously paid to them as commutation of subsistence.

By order of the Secretary of War

J A ULIO  
Major General,  
The Adjutant General

#### THE SALVAGE OF TIN

The War Production Board on May 20 announced that the Metals Reserve Company has designated the Tin Salvage Institute of Newark, N. J. as the only organization authorized to salvage the tin tubes accumulated by retailers in connection with the sale of new tubes or tooth paste and shaving cream. Retailers will turn over free of charge to their nearest wholesale supplier the tubes which they have collected but in such facilities are not available retailers may ship the tubes collected in lots of 5 pounds or more to the wholesale supplier.

will be reimbursed for the freight charges by the institute Chain stores, junk dealers, warehouses, wholesalers, organizations and others having large stocks of old tubes may ship lots of 100 pounds or more to the Tin Salvage Institute, 411 Wilson Avenue, Newark, N J, freight collect On termination of the agency with the Metals Reserve Company, the Tin Salvage Institute will wind up its affairs and formally dissolve

### PLAN FOR COLLEGE STUDENTS TO ENLIST IN RESERVE AND CONTINUE STUDIES

The War Department announced on May 14 its Army Enlisted Reserve Corps plan whereby selected qualified college students may continue their college education for the time being on an inactive status The plan provides for the enlistment in the Army Enlisted Reserve Corps of a certain number of qualified men in colleges all over the United States These men are encouraged to continue their education in order that they may be better prepared to serve their country, especially in branches of the service requiring technical knowledge An examination will be given during the second year, and those who do not meet the required standards or who have not given promise of a capacity for leadership will be immediately called to active duty It should be understood that men in the enlisted reserve may be called to active duty at any time required by the military situation

The first requisite for enrolment in the Army Enlisted Reserve Corps will be United States citizenship Enrolment will be voluntary The student must evidence the basic qualities necessary for commissioned rank, be physically qualified and must have attained 18 years of age If a student fails to graduate with his class, fails to meet the prescribed level in the qualifying examination or withdraws from school or fails to show the qualities for officer material, he will be reported to the corps area commander and will be ordered to duty in an enlisted status

On graduation, physically qualified students who are members of the corps will be ordered to active duty and sent to the nearest reception center as privates, after completing the normal course of basic military training they will, if otherwise qualified and selected, be eligible for admission to an officer candidate school Students specially qualified for advanced study or research or as faculty replacements may be recommended by the institutional authorities to continue their studies, and on approval such students will be continued in the corps in an inactive status

This plan does not alter the continued operation of the present R O T C system

### NATURALIZATION OF NONCITIZENS IN THE ARMY

The War Department has directed (Circular Letter No 120, April 24, 1942) all commanding officers to take action to facilitate the naturalization of noncitizen members of their commands who desire to become citizens and, for this purpose, to establish liaison with the nearest district office of the United States Immigration and Naturalization Service To be eligible for naturalization under the provisions of the act cited in Circular Letter No 120, a noncitizen in the army must have been lawfully admitted into the United States or its possessions and must have been a resident there at the time of his entry into the service He must have given honorable service for at least three months, be of good moral character and, in the opinion of his immediate commanding officer, would make a loyal and useful citizen of the United States The requirement of at least three months' service may be waived when the applicant is scheduled to depart for overseas service Naturalization procedures will be completed before departure for overseas for all noncitizens desiring to become citizens Noncitizens in training at replacement training centers who desire to become citizens will be naturalized before their departure from the replacement training center All noncitizens passing through reception centers will be sent to replacement centers and will not, except under unusual circumstances, be sent direct to units from reception centers

The requirement of three months honorable service during the present war will be waived for noncitizens who were former citizens of the United States and who lost their citizenship by reason of service in the armed forces of an allied nation during the first world war or second world war

### ARMY APPLICATIONS OF DENTISTS

The army is now prepared to accept the applications of three thousand dentists who are in class 1-A of the Selective Service, according to a memorandum from Sam F Seeley, executive officer of the Procurement and Assignment Service Applicants should write immediately to the Surgeon General for application forms Only those in class 1-A need apply They need not wait for notification by their board to appear for induction examination The sooner a man enters the service, the greater his opportunity to advance as the army expands Every candidate will be cleared through the Procurement and Assignment Service

### VETERINARIANS, IF DRAFTED, TO BE COMMISSIONED

The Procurement and Assignment Service announced that the veterinary service is now completely staffed and has a large reserve of officers which is adequate to meet the needs for the rest of the calendar year For this reason there are no vacancies in the Veterinary Corps of the U S Army However, the civil need for veterinarians is great and it is desired that no veterinarians be inducted into the military services in the capacity of enlisted men In order to conserve all veterinarians in a professional capacity, the Surgeon General of the Army has announced that any veterinarian who is inducted will receive a commission if he meets the professional requirements There fore any veterinarian who has been drafted should apply immediately to the Office of the Surgeon General for the necessary forms for application for a commission

### FIVE MORE GENERAL HOSPITAL UNITS ACTIVATED

The War Department has authorized the activation in May of five additional general hospital units 6th Massachusetts General Hospital Unit, Boston, 20th University of Pennsylvania Unit, Philadelphia, 30th University of California Unit, San Francisco, 38th Jefferson Medical College Unit, Philadelphia and 45th Medical College of Virginia Unit, Charlottesville, Va The total bed capacity of these hospital units will be four thousand six hundred beds The commanding officer of the 20th is Lieut Col Isidor Ravdin, Philadelphia, of the 38th, Lieut Col Baldwin L Keyes, Philadelphia, and of the 45th, Lieut Col Carrington Williams, Richmond, Va

### MEDICAL AND SURGICAL RELIEF COMMITTEE

During the last month the Medical and Surgical Relief Committee of America, with headquarters at 420 Lexington Avenue New York City, has furnished more than forty-three emergency medical field sets to defense officials and hospitals throughout the country All bandages used in these field sets are made up by the American-French War Relief Committee and sterilized and packed into units by the Hospital for the Ruptured and Crippled in New York The committee urgently requests that its members thoroughly canvass all hospitals and other sources in their respective localities for surplus scissors, which are needed to complete the contents of emergency medical field sets

### PLAGUE INFECTED RATS IN HAWAII

The Public Health Service in Hawaii has maintained a plague suppressive service which in the last three months 1941 destroyed more than 41,000 rodents, of which nearly 2,000 were examined in the laboratory, and of these 23 were found with rodent plague There were no cases of human plague during this period

# ORGANIZATION SECTION

## OFFICIAL NOTES

### THE ATLANTIC CITY SESSION

#### Conference on Motion Pictures

The Committee on Scientific Exhibit has authorized a conference on medical motion pictures to be held during the annual session of the American Medical Association in Atlantic City.

Among the subjects to be discussed will be information on the availability and listing of motion pictures, the utilization of films in medical schools and medical societies, the distribution of films through film libraries and other sources, the production of new films and how they can be made to fill the need of medical teaching.

The conference will take place on Wednesday June 10 at 3 30 p m in room F in the Atlantic City Convention Hall. The chairman will be Dr W L Benedict of Rochester, Minn.

#### Conference on Conservation of Vision

In compliance with the terms of a resolution submitted to the House of Delegates at the annual session of the Association held in 1940, a Committee on Conservation of Vision was appointed. In view of the great scope of the duties assigned to that committee it is believed to be highly desirable that the committee should have the benefit of suggestions and advice of a much larger group than is comprised in the members of the committee. It is therefore proposed that a conference be held at the Hotel Traymore at 2 p m Wednesday, June 10, for the purpose of discussing a proposal to enlarge the Committee on Conservation of Vision and Prevention of Blindness so that each state in the Union may be represented and for the further purpose of discussing a tentative program of work.

The members of the Committee on Conservation of Vision and Prevention of Blindness are Drs S Judd Beach, Portland, Maine, Harry S Gradle, Chicago, Albert C Snell, Rochester, N Y, Lawrence T Post, St Louis, Arthur J Bedell, Albany, N Y, and Olin West, Secretary and General Manager of the American Medical Association.

The proceedings of the conference will be submitted to the Section on Ophthalmology so that recommendations may be properly submitted to the House of Delegates.

#### The Golf Tournament at Atlantic City

The Atlantic City Golf Committee has made arrangements for the twenty-eighth annual tournament of the American Medical Golfing Association to be held at the Seaview Country Club on Monday June 8. American Medical Golfing Association fellows may play this club on one or more days preceding the tournament by paying a regular green fee of \$3 a day and a special prize will be awarded on June 8 if such players will hand in their score cards to the club office. The total cost per person for an excellent dinner, the tournament fee, green fees and prizes is \$7.50. New fellows of the golfing association pay an additional enrolment fee of \$3. The taxi fare to the club from the boardwalk hotels a distance of 9 miles, has been reduced to \$2.50 for four or fewer persons. The club has sleeping accommodations for one hundred and fifty guests, a first class restaurant and a salt water swimming pool. Members desiring hotel accommodations at the Seaview Country Club should write to Mr John F Reid, Manager, Seaview Country Club, Absecon, N J. Nearly fifty trophies and prizes for experts, clubs and beginners in both gross and net events will be awarded. Only active fellows of the American Medical Golfing Association may compete for the prizes. The executive secretary is Bill Burns, 2020 Olds Tower, Lansing, Mich.

### Are You Flying to the Meeting?

If so, you should know that there is no airport in Atlantic City. All flights of all lines make use of the Philadelphia municipal airport. Limousine service from the airport to the Broad Street Station, Philadelphia, is available. The distance is 8 miles and the cost, including tax, is 80 cents. Forty-five minutes is allowed for the trip.

#### Service from Broad Street Station to Atlantic City

The Pennsylvania-Reading Seashore Lines operate out of Broad Street Station, Philadelphia, on the following schedule.

All times are subject to change without notice.

| Leave Broad Street | Week Days | Arrive in Atlantic City |
|--------------------|-----------|-------------------------|
| 8 15 a m           |           | 9 45 a m                |
| 10 30 a m          |           | 11 50 a m               |
| 12 30 p m          |           | 1 50 p m                |
|                    |           | (Saturdays only)        |
| 1 30 p m           |           | 2 50 p m                |
|                    |           | (Saturdays only)        |
| 1 30 p m           |           | 3 00 p m                |
|                    |           | (Except Saturdays)      |
| 4 30 p m           |           | 5 55 p m                |
| 5 25 p m           |           | 6 45 p m                |
| 8 35 p m           |           | 10 00 p m               |
| 11 45 p m          |           | 1 10 p m                |
|                    | Sunday    |                         |
| 8 40 a m           |           | 10 00 a m               |
| 10 30 a m          |           | 11 50 a m               |
| 11 50 a m          |           | 1 15 p m                |
| 1 30 p m           |           | 2 50 p m                |
| 4 30 p m           |           | 5 55 p m                |
| 8 35 p m           |           | 10 00 p m               |
| 11 45 p m          |           | 1 10 p m                |

#### Special Trolley to Carry Physicians to Combined Luncheon

There will be a special trolley at Georgia and Atlantic avenues, Atlantic City, on Tuesday June 9 at 12 05 p m to carry members of Rotary, Kiwanis, Lions, Reciprocity and Exchange Clubs to Hackney's Restaurant for a combined luncheon meeting with local members of these groups. The speaker at the luncheon will be Dr Perrin H Long of Baltimore, whose subject will be "Medicine and the War Effort."

#### George Washington University Alumni at Atlantic City

A luncheon meeting of graduates of Columbian and George Washington University will be held at the Claridge Hotel, Atlantic City, Wednesday June 10 at 12 30 p m during the annual meeting of the American Medical Association. Tickets will be \$1.50. The secretary-treasurer of the George Washington University Medical Society is Dr Oscar B Hunter, 1835 Eye Street N W, Washington, D C, to whom requests for reservations may be addressed. Please do not send any money.

#### Physicians' Art Association Dinner

A dinner has been arranged by the president of the American Physicians Art Association, Dr Robert Ridpath, Philadelphia, to be held at the Hotel Claridge, Atlantic City, Tuesday June 9 at 6 30 p m in honor of Mr and Mrs A L Root of Meriden, Conn., and Company, sponsors of the art exhibit. The seventy-five trophies will be awarded to the winners at this dinner. Members desiring to participate in the art exhibit should ship their art pieces early in care of the secretary of the American Physicians Art Association, Dr F H Redewill, Hotel Claridge, Atlantic City, N J. All art pieces should be sent preferably by railway express collect.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH)

### CALIFORNIA

**Society News**—Dr. Leo Eloesser, San Francisco, addressed the Hollywood Academy of Medicine, April 9, on "War Wounds"—Dr. Ralph R. Mellon, Pittsburgh, addressed the Los Angeles Surgical Society, April 10, on "The Sulfonamide Drugs in Wound Healing."

**Gold Headed Cane Awarded**—Henry Donald Grant, Healdsburg, is the recipient this year of the Gold Headed Cane, the annual honor award to a member of the graduating class of the University of California Medical School, San Francisco. The cane is awarded to the senior student who, in the opinion of his classmates and the faculty of the division of medicine, has demonstrated the most outstanding qualities of a physician and who has shown the greatest interest in the care of his patients during his clinical years.

**Heart Disease Publicity**—The California Heart Association and its chapters in San Francisco, Los Angeles and San Diego have launched an educational program against heart disease, including the use of street car posters and free distribution to parent-teacher and other groups of exhibits, study group outlines, films, radio scripts and speakers. The Los Angeles Tuberculosis and Health Association has established a division of heart diseases with a budget which will permit employment of a health education expert and purchase of health education aids for an intensified program in Los Angeles. The Los Angeles Heart Association will act as executive and advisory committee to the new division. New officers of the California Heart Association chosen at its annual meeting in Del Monte, May 3, include Drs. Harold H. Rosenblum, San Francisco, president, Louis E. Martin, Los Angeles, vice president, and Charles E. Shepard, Palo Alto, secretary-treasurer.

### GEORGIA

**Vacancies in State Services**—The supervisor of examinations of the Georgia State Welfare Department announces competitive examinations for filling positions in the public assistance, crippled children and child welfare divisions. In the crippled children division the salary ranges are minimum \$1,800 and maximum \$2,280 for the position of medical social worker, orthopedic field nurse and physical therapy technician, for district orthopedic field nurse a minimum of \$1,920 and a maximum of \$2,400, for physical therapy consultant a minimum of \$2,400 and a maximum of \$2,880, orthopedic nursing consultant and medical social consultant begin at a minimum of \$2,700 and range to a maximum of \$3,180, medical director of the crippled children services begins at a minimum of \$4,200, with a maximum of \$5,400. In the child welfare group the positions of child welfare consultant and senior child welfare worker have a minimum of \$1,800 and a maximum of \$2,280, senior child welfare consultant and child welfare psychologist a minimum of \$2,400 and a maximum of \$2,520, senior child welfare consultant grade I a minimum of \$2,400 and a maximum of \$3,000, and child welfare worker a minimum of \$1,440 and a maximum of \$1,920. All these positions are open to competitive assembled examinations except the medical director of the crippled children services, which is an unassembled examination. The examinations are based on a rating of training and experience, a written test, and an oral interview. Each eligible who is appointed from the adequate register will be required to serve a probational period of six months as is the usual custom in civil service and merit system agencies. Georgia state residence is not required of an applicant in order to participate in these examinations.

### ILLINOIS

**State Medical Election**—Dr. George W. Post, associate professor of surgery, University of Illinois College of Medicine, Chicago, was chosen president-elect of the Illinois State Medical Society during its annual meeting in Springfield, May 21, and Dr. Edward H. Weld, Rockford, was installed as president. Drs. Hermon H. Cole, Springfield, and Charles O. Lane, West

Frankfort, were named vice presidents, and Dr. Harold M. Camp, Monmouth, was reelected secretary-treasurer. The next annual meeting will be in Chicago.

**Tuberculosis Control in Mental Hospitals**—Dr. Hubert S. Houston, Naperville, has been appointed supervisor of the tuberculosis control program in state mental institutions effective May 1, newspapers reported April 6. The appointment inaugurates a new program in state mental institutions. Dr. Houston will visit and supervise work in each institution, but each hospital will have its own physician to diagnose and treat each case. Dr. Houston graduated at the University of Illinois College of Medicine, Chicago, in 1928.

### CHICAGO

**The Ernest Irons Lecture**—Dr. Henry N. Harkins, Detroit, delivered the third annual Ernest Edward Irons Lecture of Kappa chapter of Nu Sigma Nu at the University of Chicago School of Medicine, April 23. His subject was "The Treatment of Burns in Wartime."

**Revocation of Fernel's License Upheld**—Circuit Judge John Prystalski, in dismissing a petition for a review of the findings, May 6, upheld the action of the state department of registration and education in revoking the license to practice medicine of Dr. Jean P. Fernel, newspapers reported. The license was revoked on charges of malpractice.

### IOWA

**Physicians Upheld in Distribution of Medical Relief Funds**—The right of ninety-three physicians who participated in the Linn County medical relief program last year to retain surplus funds amounting to \$1,900 was upheld by Attorney General Floyd Philbrick in an opinion received by County Attorney William W. Crissman, newspapers reported on May 3. The Linn County Medical Society on April 25 formally served a ninety day notice on the board of supervisors to cancel the contract with the county under which the physicians had been caring for the indigent sick, it was stated. Dissension over the contract arose in February, when Supervisor C. L. Beeson, Cedar Rapids, charged that the doctors had divided the \$1,900 left over from 1941 among themselves instead of returning it to the county. The physicians contended that the contract called for \$3,200 a month to be paid the society by the county and that the society had the right to use the money as it saw fit. They held that the surplus was available because the physicians had held down expenses and sacrificed fees throughout the year. The attorney general's opinion is said to have stated that the monthly payment of \$3,200 was made by Linn County to the physicians through the treasurer of the Linn County Medical Society, and "the sum thereby loses its character as public funds."

### KENTUCKY

**Public Health Activities in Louisville**—Dr. Hugh R. Leavell, health officer of Louisville, has been named full time director of the new Louisville and Jefferson County health department. Dr. Gracie R. Rowntree, assistant city health director, has been named assistant director of the unit. According to the state medical journal, Dr. John D. Trawick, Louisville, health officer of Jefferson County, has also been appointed assistant director of the city-county health department. The city-county board of health voted to change the name of the Louisville City Hospital to Louisville General Hospital.

### MARYLAND

**Dr. Thorn to Succeed Dr. Weiss at Harvard**—Dr. George W. Thorn, associate professor of medicine of Johns Hopkins University School of Medicine, Baltimore, has been appointed the Hersey professor of the theory and practice of physic at Harvard Medical School, Boston, and physician-in-chief of the Peter Bent Brigham Hospital. He will succeed the late Dr. Soma Weiss. Born in Buffalo in 1906, Dr. Thorn graduated at the University of Buffalo School of Medicine in 1929. He was a Rockefeller fellow in medicine at Harvard and Massachusetts General Hospital, 1934-1935, and at Johns Hopkins, 1936-1937. He served on the faculties of the University of Illinois and of Ohio State University College of Medicine, Columbus, going to Johns Hopkins in 1936. In 1932 he was one of the collaborators winning a gold medal, and was a member of the Committee on Scientific Exhibit of the American Medical Association for original investigative work on the development and use of a hormone from the adrenal cortex and its influence of presentation.



## MASSACHUSETTS

**Health Educator Dies**—Announcement is made of the recent death at the Baker Memorial Hospital, Boston, of J. Alice Andrews, Ph.D., aged 61, a native of Chesaning, Mich. Dr. Andrews studied at Michigan State Normal College, the University of Chicago, Harvard University and Clark University. He served as instructor in history and education, Manchester (Ind.) College, 1906-1907, head of the department of psychology and school hygiene State Normal School Worcester, Mass. 1908-1915, head of the department of psychology and child study, Boston Normal School 1915-1923 and since then as health lecturer on the staffs of several schools including Boston University and the Cleveland Institute of School Hygiene. He had written textbooks on health education. Since 1928 he had served as editor of the *School and Health Department of Hygiene*, the *Health Magazine*.

## MISSOURI

**The Terry Lecture**—Dr. George B. Wislocki, Parkman professor of anatomy, Harvard Medical School, Boston, delivered the second Robert J. Terry Lecture at the Washington University School of Medicine, Medical Alumni Foundation, St. Louis, April 22. His subject was 'The Primate Placenta, with Particular Reference to the Trophoblast.'

**New Cyclotron Now in Operation**—A cyclotron has been installed as a part of the Mallinckrodt Institute of Radiology, Washington University School of Medicine, St. Louis, producing a beam of deuterons of 250-350 microamperes with an energy of 12 million volts. The unit, which is located in an underground room on the campus about a mile away from the institute, was designed by Robert L. Thornton, Ph.D., in cooperation with Alexander S. Langsdorf Jr., Ph.D., and Harold Fulbright, A.B. The clinical application of the machine is under the direction of Dr. Sherwood Moore, director of the Mallinckrodt Institute. A clinic for treatment of diseases with radioactive isotopes has been established, and plans are under way to use the cyclotron in the treatment of malignant disease with neutrons. The entire seventh floor of the institute, originally designed for biologic laboratories, has been equipped for animal investigations utilizing radioactive isotopes as "tracers." A laboratory for investigation of the problem of phosphorylation has been established by Dr. Herman M. Kalchauer, research associate in radiology at the school of medicine. Another laboratory will be devoted to the fundamental problems of the use of radioactive isotopes in therapy under the direction of Dr. Louis H. Hempelmann, instructor in clinical medicine.

## NEW YORK

**Lecture in Public Health**—The Medical Society of the State of New York arranged for a special lecture on public health before the St. Lawrence County Medical Society in Ogdensburg, May 14. Dr. Haven Emerson, New York, gave the lecture on "The Private Physician's Place in Public Health."

**Personal**—Dr. William A. Brumfield Jr., Albany, has resigned as director of the division of syphilis control of the New York state department of health to accept a commission as major in the U. S. Army Medical Corps. Tentative assignment has been announced as venereal disease control officer in the fourth corps area with headquarters at Atlanta, Ga.

## New York City

**New Hospital Wing Dedicated**—The new \$375,000 wing of the Frances Schervier Home and Hospital for the aged and chronic sick in the Bronx was dedicated and formally opened recently. The new unit is part of the three million dollar hospital expansion program announced by Archbishop Spellman of New York more than two years ago. The hospital is built of red brick and Flemish bond. It was opened in 1938 and has private rooms and semiprivate wards. Nearly half the patients are cared for without charge and their average age is over 80.

**Professor du Vigneaud Named Chairman-Elect of Chemical Society**—Vincent du Vigneaud, Ph.D., professor and head of the department of biochemistry, Cornell University Medical School, was chosen chairman-elect of the New York section of the American Chemical Society at its annual meeting, May 8. The speakers at the meeting included John R. Dunning, Ph.D., associate professor of physics, Columbia University, on 'Production and Detection of Radioactive Isotopes';

and Glenn T. Seaborg, Ph.D., assistant professor of chemistry, University of California, "The Applications of Artificial Radioactivity to Chemistry, Biology and Medicine."

**Changes in Faculty at Columbia**—Dr. Vernon W. Lip-pard, assistant dean of Columbia University College of Physicians and Surgeons, has been appointed associate dean, it was announced on April 28. The following promotions have also been reported:

Dr. Alvan L. Barach to associate professor of clinical medicine  
Dr. Donovan J. McCune to associate professor of pediatrics  
Dr. Karl Meyer to associate professor of biochemistry  
Dr. David Seegal to associate professor of medicine  
Drs. Hartford Hallock and Leonidas Lantzonis to associate clinical professors of orthopedic surgery  
Dr. Andre Courmand to assistant professor of medicine  
Dr. Paul F. A. Hoefer to assistant professor of neurology  
Dr. Ruth A. Miller to assistant professor of anatomy  
Dr. Edith E. Sproul to assistant professor of pathology  
Dr. Raymond C. Truex to assistant professor of anatomy  
Dr. Sherwood L. Washburn to assistant professor of anatomy

The following were promoted to assistant clinical professors: Drs. Samuel C. Burchell, neurology, L. Beverley Chaney, neurology, Armistead C. Crump, medicine, Angus M. Frantz, neurology, Walter O. Klingman, neurology, and Hugh S. McKeown, ophthalmology.

## OHIO

**Alumni Banquet**—The alumni association of the University of Cincinnati will act as host to seventy-seven graduates of the college of medicine at a banquet, June 4. The occasion will be a joint meeting with the Cincinnati Academy of Medicine. Dr. Alexander Ashley Weech, recently appointed professor of pediatrics at the college of medicine, will be the principal speaker, on "War and Beyond the War, A Promise to Men of Medical Science."

**Changes in Health Personnel**—Dr. Elizabeth I. Workman, Columbus, has been named health commissioner of Delaware County, filling the unexpired term of Dr. George Frederick Moench, who went to the W. K. Kellogg Foundation in Michigan.—Dr. Albert J. Helm, London, health officer of Madison County, has been given jurisdiction over the unit in Union County under a recently adopted plan merging the two units.—Dr. Albert B. Headley, Cambridge, has been appointed health commissioner of Guernsey County, succeeding Dr. Marshall J. Thomas, Cambridge, resigned.—Dr. Clarence B. Rawers, Bergholz, has been appointed health commissioner of Jefferson County.

## OKLAHOMA

**Secretary for Twenty-Two Years**—Dr. Oscar E. Templin, Alva, was recently reelected secretary of the Woods County Medical Society for his twenty-second term. Dr. Templin graduated at Vanderbilt University School of Medicine, Nashville, Tenn., in 1905.

**Personal**—The Pittsburg County Medical Society recently presented a silver plaque to Dr. Frank J. Baum, marking his fiftieth anniversary in the practice of medicine. Dr. Tracey H. McCarley presented the plaque, and Dr. Leonard S. Willour acted as toastmaster. All are of McAlester.

**Society News**—A joint meeting of the Custer County Medical Society and the Southwestern Oklahoma Medical Association was addressed recently by Drs. Wann Langston, Oklahoma City, on 'Circulatory Emergencies: James William Finch, Hobart, Nausea and Vomiting Following Administration of Stilbestrol' and Paul B. Lingenfelter, Clinton, 'Foreign Bodies of Lung and Trachea'.—The Oklahoma County Medical Society was recently addressed in Oklahoma City by Dr. Frederick Redding Hood on 'Treatment of the De-compensated Heart'.—The Cherokee County Medical Society devoted its March meeting to a symposium on gynecologic endocrinology with Louis H. Ball, Ph.D., professor of biology, Northeastern Oklahoma State Teachers College, and Dr. Isadore Dyer, Tahlequah, as the speakers.

## PENNSYLVANIA

**Society News**—Dr. John S. McMurray, Washington, addressed the Washington County Medical Society, May 13, on 'Role of Endoscopy in General Medicine'.—Dr. Norman E. Freeman, Philadelphia, addressed the Harrisburg Academy of Medicine, May 19, on 'Peripheral Vascular Disease'.—Dr. Charles Howard Marey, Pittsburgh, discussed 'Chronic Nontuberculous Lung Conditions' before the Washington County Medical Society, April 8, in Washington.

## RHODE ISLAND

**State Medical Meeting in Providence**—The one hundred and thirty-first annual meeting of the Rhode Island Medical Society will be held in Providence, June 3-4, under the presidency of Dr. Frederic V. Hussey, Providence. Included among the speakers will be:

- Dr. Herman C. Pitts, Providence, New Phases of Cancer Research
- Dr. Robert H. Kennedy, New York, The Need for Fracture Knowledge in Wartime
- Dr. Robert A. Cooke, New York, The Practitioner and the Allergy Problem
- Dr. Timothy Leary, Boston, Arteriosclerosis, Its Causes
- Dr. Israel B. Cutts, Providence, Arthritis
- Dr. Arthur H. Ruggles, Providence, Psychiatric Aspects of Selective Service
- Dr. Edward D. Churchill, Boston, Military Aspects of Thoracic Surgery

Mr. Victor Coen, barrister and lecturer, London, England, will address the annual dinner Thursday evening on "Hitler, Napoleon and Philip II of Spain."

## TEXAS

**Continuation Courses**—Cardiology, dermatology, obstetrics and fractures will be the subjects of four courses to be given in Parkland Hospital, Dallas, June 22-24, under the auspices of the Dallas Southern Clinical Society. Additional information can be obtained from Dr. Charles H. Warren, secretary, Dallas Southern Clinical Society, 1133 Medical Arts Building, Dallas.

**Impostor Given Suspended Sentence**—Charles Peter Wisotsky, alias Wesotsky, alias Charles Peter West, alias Dr. David Walton Fell, who was convicted in U. S. District Court at Houston, May 1, of violation of the federal narcotic laws, was sentenced on May 9 to five years' imprisonment. The sentence was suspended on condition that Wisotsky immediately enter the armed forces of the United States. Wisotsky is not a graduate of any medical school and is not registered under the federal narcotic laws. He represented himself to be "Dr. David Walton Fell" and obtained a position as professor of pathology at the University of Texas School of Medicine, Galveston. He was given a staff appointment at the John Sealy Hospital, operated in connection with the medical school, holding the position from September 1940 to December 1941, when his identity was discovered and he was discharged. During the time he practiced medicine at the hospital, Wisotsky wrote several prescriptions calling for narcotic drugs. On Aug. 21, 1941, he wrote a prescription for a mental patient at the hospital calling for twelve ½ grain codeine sulfate tablets and another prescription for 1½ grains of digitalis, ½ gram of codeine sulfate and 50 grains of phenobarbital. The pharmacist in the dispensary refused to fill the latter prescription. In various credentials Wisotsky's claims are said to correspond with the educational background of a Dr. David Walton Fell listed in the British Medical Register.

## VIRGINIA

**Physician's Certificate Needed for School Enrolment**—The Montgomery County school board, Christiansburg, recently adopted resolutions requiring all children attending public schools next fall to present physicians' certificates before being enrolled; it is reported. Another provision requires all teachers, matrons and janitors to present certificates stating that they have been examined by physicians and are free from chest illnesses. These certificates must be presented every three years thereafter. The same group must also present certificates declaring that they are free from communicable diseases. These certificates must be renewed every twelve months.

**The McGuire Lectures**—Dr. John B. Youmans, associate professor of medicine, Vanderbilt University School of Medicine, Nashville, Tenn., delivered the annual Stuart McGuire lectures, May 7-8, at the Medical College of Virginia, Richmond, on "The Meaning of Nutrition" and "The Significance of Protein in the Diet." Other lectures delivered during this two day session, in cooperation with the department of clinical education of the Medical Society of Virginia, were:

- Roland J. Mann, Ph.D., Richmond, The Physiology of the Vitamins
- Dr. Henry B. Mulholland, Charlottesville, Nutrition Problems in Post-operative Patients
- Dr. Julian M. Ruffin, Durham, N. C., The Recognition of Mild or Early Vitamin Deficiencies
- Dr. Robert H. Courtney, Richmond, Ocular Manifestations in Deficiency Diseases
- Dr. Maxwell R. Berry Jr., Richmond, The Significance and Treatment of Iron Deficiency Anemia

## GENERAL

**College of Radiology**—The American College of Radiology will hold its annual meeting at the Chalfonte-Haddon Hall, Atlantic City, June 10, under the presidency of Dr. William Edward Chamberlain, Philadelphia.

**Meeting of Medical Section of Life Convention**—The thirty-second annual meeting of the medical section of the American Life Convention will be held at the Broadmoor, Colorado Springs, Colo., June 4-6, under the presidency of Mr. Alva J. McAndless, Fort Wayne, Ind. Included among the speakers will be:

- Dr. Peirce H. Long, Baltimore, The Importance of Sulfanilamide Therapy on the Future Underwriting of Risks
- Dr. Irvin Abell, Louisville, Peptic Ulcer—Surgical Conclusions Associated with Underwriting Conclusions
- Dr. Roy Lyman Sexton, Washington, D. C., Value of Minor Disturbances as a Clue to Gastrointestinal Disease
- Dr. Albert L. Johann, Des Moines, Iowa, The Medical Director's Role in Underwriting Selection of Life Insurance Risks
- Dr. Edwin G. Dewis, Newark, N. J., Field Examiner's Association with the Medical Director

**American Proctologic Society**—The forty-third annual meeting of the American Proctologic Society will be held at the Marlborough-Blenheim Hotel, Atlantic City, N. J., June 7-9, under the presidency of Dr. Frederick B. Campbell, Kansas City, Mo. Dr. Jerome M. Lynch, New York, will deliver the biennial Joseph M. Matthews Oration. Speakers include:

- Dr. Cornelius P. Rhoads, New York, The Chemical Aspects of Cancer
- Dr. George E. Binkley, New York, Pre and Postoperative Care of Patients with Rectal Cancer, with Special Reference to Liver Damage
- Dr. George Johnson Hamilton, New York, Aviation and the Proctologist
- Dr. Vernon G. Jeurink, Denver, The Role of Surgery in the Treatment of Idiopathic Ulcerative Colitis
- Dr. Wayne W. Flora, Chicago, Urinary Retention Following Anorectal Operations
- Dr. Frank C. Yeomans, New York, Granulomata of the Rectum Specific and Nonspecific

**Association for Research in Ophthalmology**—The meeting of the Association for Research in Ophthalmology will be held at the Marlborough-Blenheim Hotel, Atlantic City, N. J., June 9. Included among the speakers will be:

- Dr. Manuel U. Troncoso, New York, The Intracranial Vascular Plexus and Its Relations to the Aqueous Outflow
- Dr. Kenneth C. Swan and Norman G. White, M.S., Iowa City, Corneal Permeability Factors Affecting Penetration of Drugs into the Cornea
- Dr. Theodore L. Terry, Boston, Fibroblastic Overgrowth of Persistent Tunica Vascularis Lenticis in Infants Born Prematurely. Studies in Development and Involution of the Hyaloid Artery and Tunica Vascularis Lenticis
- Dr. Erich Sachs, Detroit, Some Observations and Experimental Studies on the Physiology of the Ciliary Muscle
- Dr. Ludwig von Sallmann, New York, Sulfadiazine Iontophoresis in the Treatment of Pyocyanous Infection of the Rabbit Cornea
- Dr. Charles W. Ascher, Cincinnati, The Aqueous Viscosity: Physiologic Importance of the Visible Elimination of the Intracocular Fluid

**Dedication of Painting "The Dawn of Abdominal Surgery"**—Special exercises will be held in the Rose Room of the Traymore Hotel, Atlantic City, N. J., June 8, to unveil and dedicate the new painting of Dean Cornwell on "The Dawn of Abdominal Surgery." The dedicatory address will be given by Col. Fred W. Rankin, M. C., U. S. Army, Lexington, Ky., President-Elect of the American Medical Association. The painting is the fourth in a series which will take between ten and fifteen years to complete, one to be done a year. The first three were "Beaumont and St. Martin," "Osler at Old Blockley," and "Pioneers of American Medicine." The third in the group shows Major Walter Reed and Dr. Carlos Finlay with Major General Leonard Wood, Dr. Jesse W. Lazear, Dr. James Carroll and Dr. Aristides Agramonte, and John R. Kissinger, first volunteer soldier to be inoculated in the second set of yellow fever experiments. The series is being financed by John H. Wyeth and Brother, Inc.

**Live Mouse Found on Airplane Arriving at Miami**—The May 8 issue of *Public Health Reports* gives what is believed to be the first instance in this country of a live mouse found on an airplane arriving at quarantine. Surg. Gilbert I. Dunnahoo, medical officer in charge of the U. S. Quarantine Station, Miami, stated that on April 16 a live mouse was recovered from the galley of a plane on inspection after arrival at Miami from San Juan, P. R. Considering the increase in the size of transport planes, the carrying of food stuffs and the ingenuity of rats in seeking food supplies, avoiding man's devices for destroying them, the possibility of rats boarding airplanes is not remote. Should an infected rat harboring a species of flea capable of transmitting plague succeed in stowing away in an airplane, the danger of infection developing also would not be remote. The first mouse on board a transport plane at its destination emphasizes the necessity for greater vigilance on the part of airplane companies and quarantine officers in combating danger.

**Broncho-Esophagological Meeting**—The twenty-fifth annual meeting of the American Broncho-Esophagological Association will be held at the Hotel Dennis, Atlantic City, N J, June 8-9, under the presidency of Dr W Likely Simpson, Memphis, Tenn. Among the speakers will be

- Drs Louis H Clerf and Carl J Bucher Philadelphia Adenoma (Mixed Tumor of the Bronchus)  
Dr Paul H Helinger Chicago Kodachrome Visualization of the Physiology and Pathology of the Tracheobronchial Tree  
Drs Emil L Van Loon Philadelphia and Sidney Diamond Woodlyn Pa Foreign Bodies in the Gastrointestinal Tract  
Drs Sidney S Cellis and Luther Emmett Holt Jr, Baltimore The Prophylaxis of Lye Strictures of the Esophagus  
Drs Fletcher D Woodward and William W Waddell Jr Charlottesville Va Bronchoscopy in the Newborn  
Dr Kenneth A Phelps Minneapolis Some Further Observations on Tuberculous Tracheobronchitis

A dinner to honor the founders and charter members of the original association, the Clinical Association of American Peroral Endoscopists, will be held at the Hotel Dennis Tuesday evening June 9, at 7 o'clock. Dr Ellen I Patterson, Pittsburgh, will give an address on the history of the association.

**Association for the Study of Allergy**—The twentieth annual meeting of the American Association for the Study of Allergy will be held at the Chalfonte-Haddon Hall, Atlantic City, N J, June 8-9, under the presidency of Dr Milton B Cohen, Cleveland, whose address will be entitled 'The Basic Relationship of Allergy and Immunity'. Among the speakers will be

- Mr Oren C Durham, North Chicago Ill Kochia Scorpria as a Factor in Inhalant Allergy  
Dr Marion T David on Birmingham Ala The Source of the Activity of House Dust  
Drs George F Harsh San Diego Calif and Harry L Huber Chicago Studies of Tryptic and Pepsic Digestion of Extracts of Giant Rag weed Pollen  
Dr Stanley Cohen New Orleans Ascorbic Acid Metabolism in Asthma  
Drs James Alexander Clarke Jr and Charles M Hanna Philadelphia The Incidence of Nontuberculous Respiratory Disease in Various Sections of the Population  
Drs John Warrick, Thoma Cleveland and Meryl M Fenton Detroit Fatalities and Constitutional Reactions Following Use of Pontocaine

There will be a round table discussion Tuesday on 'The Immunology of Allergy' with Dr Milton Cohen, Dr Paul R Cannon, Chicago, and Jacques J Bronfenbrenner, DPH, St Louis.

**American Therapeutic Society**—The forty-third annual meeting of the American Therapeutic Society will be held at the Hotel Traymore Atlantic City, N J, June 5-6, under the presidency of Dr Harold S Davidson, Atlantic City. Among the speakers will be

- Drs Michael G Wohl and Harold F Robertson Philadelphia, Bromide Intoxication  
Drs Ernest A Spiegel Philadelphia and Norman P Scala Washington, D C The Importance of Nystagmus in Differential Diagnosis  
Dr Charles H deT Shivers Atlantic City The Medical Findings in Benign Prostatic Hyperplasia A New Method of Grouping Cases for Operation  
Drs Nathan S Davis III and Eduard F Poser Chicago Ascorbic Acid in the Treatment of Essential Hypertension—Preliminary Report  
Dr David Salkin Hopewell W Va The Natural History of Tuberculous Tracheobronchitis  
Dr George P Viley Philadelphia Ultraviolet Blood Irradiation Therapy  
Dr Robert A Kilduffe Atlantic City Transfusion as a Therapeutic Measure  
Drs Harry E Ungerleider and Richard S Gubner New York Extra systoles and the Mechanism of Palpitation

The annual banquet will be held on Saturday at the Hotel Traymore at 8 o'clock. The principal speaker will be Dr Reginald Fitz, Boston, on 'Something Curious in the Medical Line'.

**Heart Association Meeting**—The eighteenth scientific sessions of the American Heart Association will be held at the Chalfonte-Haddon Hall, Atlantic City, N J, June 5-6, under the presidency of Dr Paul D White, Boston. Among the speakers will be

- Dr William P Thompson Los Angeles The Electrocardiogram in the Hyperventilation Syndrome  
Drs Edward A Edwards and John E Edwards Boston The Venous Valves in Thromboangitis Obliterans  
Dr James Ross Veil Washington D C Thrombosis of the Subclavian and Axillary Vein  
Dr Abram Wilbur Durrer New York The Present Concept of Scleroderma and Its Allied Diseases  
Dr Herbert Charles William Coldring and Homer W Smith New York The Reduction of Blood Pressure Associated with the Pyrogenic Reaction in Hypertensive Subjects  
Drs Hilbert A Kanger and Stanley E Bradley New York Systemic and Renal Circulatory Changes Following Administration of Paredrinol  
Drs Willis F Evans and Harold J Stewart New York The Effect of Cigarette Smoking on the Peripheral Blood Flow

The annual dinner will be held Friday, June 5 at 7:15 p m. Dr White will be the principal speaker on Pioneer Days of the Discovery of Heart Disease. Dr Pedro Cosío, Buenos

Aires, Argentina, will deliver the Lewis A Conner Lecture on "Heart Disease in the Argentine" and Major Harry G Armstrong, M C, U S Army, Randolph Field, Texas, the George Brown Memorial Lecture on "The Effect of Flight on the Cardiovascular System".

**American Radium Society Meeting**—The twenty-seventh annual meeting of the American Radium Society will be held at the Chalfonte-Haddon Hall, Atlantic City, N J, June 8-9, under the presidency of Dr Hayes E Martin, New York. Among the speakers will be

- Dr Hoke Wammoth Philadelphia Fractures of the Rib Cage Following Interstitial Radium Therapy for Cancer of the Breast  
Dr Daniel P Slaughter New York Radiation Osteitis and Fractures Following Irradiation with Report of Five Cases of Fractured Clavicle  
Dr John E Teach New York The Effect of X-Ray Therapy on the Heart A Clinical Study  
Drs Jerome A Urban and William L Watson New York Milion Volt Therapy for Intrathoracic Neoplasms  
Drs James F Nolan and Axel A Arneson St Louis Introducer for Inserting Multiple Capsules of Radium in the Uterus for the Treatment of Corpus Cancer  
Andrew J Ackerman DDS New York Facial and Oral Prostheses  
Drs William P Healy and Gray T Twombly New York The Effect of Increasing the Dose of Roentgen Therapy to the Parametria on the Rate of Cure in Treatment of Cancer of the Cervix  
Mr John E Rose Baltimore A Remote Controlled Radon Plant and Automatic Measuring Apparatus  
Leon F Curtiss PhD Washington D C, Protection of Radium Under War Conditions  
Dr Ignacio Gonzalez Guzman Mexico City, Mexico The Centrosomes in Some Neoplastic Growths

The annual banquet will be held at the Chalfonte-Haddon Hall on Monday evening, June 8. Dr Healy will deliver the Janeway Lecture, June 8, on "The Role of the Gynecologist in the Field of Cancer".

**Association for the Study of Internal Secretions**—The twenty-sixth annual meeting of the Association for the Study of Internal Secretions will be held at the Hotel Traymore, Atlantic City, N J, June 8-9, under the presidency of Edgar Allen, PhD, New Haven, Conn., whose address will be entitled "A Picture Album of Tumors in Experimental Animals Following Estrogenic Treatment". Included among the speakers will be

- Drs Byron D Bowen, George F Koepf, Grosvenor W Bissell and Donald W Hall Buffalo Metabolic Changes in Coexisting Diabetes Mellitus and Addison's Disease  
Drs I Arthur Minsky, Norton Nelson and Samuel Elgart, Cincinnati Species Difference in Diabetes Mellitus  
John W Everett PhD Durham N C Further Studies of the Relationship of Progesterone to the Induction of Ovulation in the Persistent Estrous Rat  
Dr Charles H Lawrence and Nicholas T Werthessen, Boston The Treatment of Acne with Orally Administered Estrogens  
Dr Harry A Gusman Cleveland and Dr Maximilian A Goldzieher New York Synergism Between Pituitary Extracts and Chorionic Gonadotropin  
Warren O Nelson PhD and Eugene Cutuly PhD Detroit Gonadotropic Factors Influencing the Function of the Corpus Luteum  
Drs Willard O Thompson, Norris J Heekel and Richard P Morris Chicago Endocrine Regulation of Growth  
Drs Solomon C Freed, Walter M Eismann and Jacob P Greenhill Chicago Therapeutic Use of Diethylstilbestrol Dipalmitate

The annual dinner of the association will be held at 7 o'clock on Monday evening, June 8, at the Hotel Traymore.

**American Urological Meeting**—The thirty-ninth annual meeting of the American Urological Association will be held at the Waldorf-Astoria Hotel, New York, June 1-4, under the presidency of Dr Oswald S Lowsley, New York, whose address will be entitled "Urology in a Changing World". One session will be offered by the following:

- Drs Carlos Lobo Onell and Ignacio Diaz Munoz Santiago Chile Results of Treatment of Diffuse Glomerulonephritis by Surgery  
Alfonso Davalos Ecuador Experimental Production of Stones in the Bladder in Rabbits  
Dr Armando Trabucco Buenos Aires Argentina Kidney Injuries Clinical and Anatomopathological Results  
Dr Ricardo Machin Havana Cuba Ureteral Surgery  
William Vilme Port-au-Prince Haiti Avivement and Suture of Vesical Neck in Some Cases of Incontinence of Urine in Women Due to Vesicocervicovaginal Fistula with Complete Destruction of the Urethra  
Dr Eduardo Castro Mexico City Urinary Extravasation  
Dr Miguel A Llano Rosario Argentina Vesical Diverticula  
Dr Leopoldo E Lopez Caracas Venezuela The Incidence of Genitourinary Tuberculosis in Venezuela  
Dr Miguel Antonio Rueda Bogota Colombia Cancer of the Testicle  
Dr Hector Diaz Castro Montevideo Uruguay Traumatic Infection of the Testicle (Intra and Extravaginal) with Sarcoma of the Prostate in a Child  
Ferdinand Gonzales Yucatan Mexico Serum Lectinography  
Dr Waldemar F Cecatti Santiago Genitourinary Lesions in Vegetal Lemnigranulema

Dr Herbert M Evans Berkeley Calif will deliver the Ramon Gutierrez Lecture June 3 on Testicular Neoplasms and Urinary Gonadotropic Hormone. There will also be a

diplomatic luncheon on Thursday, June 4, with the following speakers Bishop John F. O'Hara, military ordinariate, United States, dean of South American medical men present, representatives of ambassadors of Latin American countries, dean of New York Consuls General, Mr. Nelson Rockefeller or a representative of the Division of Cultural Relations of the Department of State, and closing remarks by Dr. Lowsley Dr. Elmer Hess, Erie, Pa., will be the toastmaster.

### CANADA

**Canadian Medical Association Meeting**—The seventy-third annual meeting of the Canadian Medical Association will be held in Jasper Park, Alta., June 15-19, under the presidency of Dr. Gordon S. Fahrni, Winnipeg, Man. Headquarters will be at the Jasper Park Lodge. Dr. Paul A. O'Leary, Rochester, Minn., will present two papers, "The Treatment of Psoriasis" and "Dermatosclerose." Among other speakers on the program will be

Dr. Carleton B. Pearce, Montreal, Quebec, Recent Improvements in the X-Ray Diagnosis of Nontuberculous Pulmonary Diseases by Means of Bronchography

Dr. John F. Burgess, Montreal, Vitamins in Dermatology

Dr. Donald E. H. Cleveland, Vancouver, B. C., The Treatment of Pruritus Ani

Dr. Andrew M. Davidson, Winnipeg, Manitoba, Recurring Vesicular Eruptions of the Hands

Dr. George S. Williamson, Ottawa, Ontario, Sarcoidosis Systemic and Cutaneous Manifestations

Dr. Walter Ford Connell, Kingston, Ontario, Digitalis, Its Uses and Misuses

Dr. George E. Tremble, Montreal, Headache of Nasal Origin

Dr. Arthur L. Yates, Halifax, N. S., Sudden Deafness

Dr. Robert I. Harris, Toronto, Ontario, Spondylolisthesis

Dr. Morley A. R. Young, Lamont, Alberta, Present Status of Duodenal Ulcer Surgery

The program will also include the following series of round table conferences

Dr. Frederick F. Tisdall, Toronto, The Use and Abuse of Vitamins  
Dr. David C. Aikenhead, Winnipeg, Problems of Respiration and Anoxemia

Dr. Donald H. Williams, Vancouver, Syphilis

Dr. Harold Orr, Edmonton, Alberta, Cutaneous Cancer

Dr. James D. Adamson, Winnipeg, Recognition and Treatment of Poliomyelitis in General Practice

Dr. Duncan Graham, Toronto, The Selection of Sulfanilamide and Related Compounds in Medical Treatment

Dr. Rosslyn B. Mitchell, Winnipeg, Rational Endocrine Therapy in Obstetrics and Gynecology

Dr. John R. Vant, Edmonton, The Treatment of Prolapse

Dr. Robert Graham Hueckell, Edmonton, Pediatric Prevention of Future Foot Disorders

Dr. Alfred Howard Spohn, Vancouver, Adolescent Problems

Dr. Bede J. M. Harrison, Vancouver, Radiotherapy of Nonmalignant Diseases

Dr. W. Herbert McGuffin, Calgary, Presentation and Discussion of Interesting Films

Dr. Charles W. Burns, Winnipeg, Principles and Practice in Wound Treatment

Dr. Roscoe R. Graham, Toronto, Problems in Bile Tract Surgery

Dr. Frank S. Patch, Montreal, Urinary Complications Following Rectal Surgery

### FOREIGN

**Public Health Under Hitler's Rule**—Diphtheria is rapidly spreading in West Brabant, according to the *Nationale Dagblad*, Utrecht, February 6, several schools have been closed and 5 children have died. In Etten about 2 new cases a day were reported.

According to *Limbursch Dagblad*, Heerlen, February 2, there is an increasing shortage of medicines. Doctors have been asked to be as economical as possible and to try to get results by recommending diets, bandages are said to be very scarce.

According to *Magyar Nemzet*, February 14, Dr. Istvan Gaertner, chief medical officer, at a meeting of the Hajdu County Council, reported that 4 cases of typhus had occurred in a Gypsy settlement in the district of Kaba.

*Nova Hrvatska*, Zagreb, of February 14 reported that it had been necessary to evacuate the military hospital at Sarajevo, and a temporary one hundred and fifty bed hospital had been opened in the town school.

An epidemic of typhoid in Trikkala was reported by the Berlin correspondent of the *Svenska Dagbladet*, Stockholm, and its spread was feared, as the people were said to be starving and therefore more liable to infection than under normal conditions.

According to the *Hamburger Fremdenblatt*, March 7, German typhus research workers have found a rapid method of diagnosing typhus bacilli in the blood of patients and are producing antityphus vaccine by a method which makes it possible to produce it in any required quantity. The Behring works are expected to build a laboratory in Lwow to produce the vaccine.

The number of obituary notices in the German press of members of the German armed forces who have died as the

result of "malicious illness" in the east or from a "serious illness contracted in the east" in a reserve hospital at home has been increasing. Among the victims of such illnesses are Oberstleutnant Dr. Herbert von Spies, aged 54 (*Munchen Neueste Nachrichten*, March 5), Waldemar Herbst, aged 37 (*ibid*, March 7), Lieut. Gen. Gerhard Lindner, aged 37 (*Beobachter*, February 24), SA Oberscharfuhrer/Unteroffizier P. G. Erich Schwarz, aged 37 (*ibid*, March 6), SA Sturmfuhrer P. G. Werner Gerlach, aged 31 (*ibid*, March 10), Staff Captain Karl Heinrich Thele, aged 46 (*Deutsche Allgemeine Zeitung*, March 8), Lieut. Col. Hans Garcke, holder of the Iron Cross from the last war (*ibid*, March 7).

Radio Hilversum, March 14, reports the departure of the Dutch Ambulance Corps to the eastern front from the railway station in the Hague. The party of four specialists, two surgeons, an oculist, a throat and ear specialist and numerous general practitioners went off decked with flowers before a gathering of authorities. They were to go first to Germany for military training. Their train carried beds, surgical instruments, operating equipment and x-ray apparatus. The Ambulance Corps is equipped to set up a motorized hospital on the eastern front.

The Robert Koch Institute for Infectious Diseases was taken over by the reich on April 1, according to NDZ, March 30, and given the new name Robert Koch Institute—Reichsanstalt zur Bekämpfung der übertragbaren Krankheiten. The work of the institute has been extended since the outbreak of the war and now is concentrated on epidemics threatening from the eastern frontier. The various departments are concerned with research in virus diseases, the treatment of disease with synthetic remedies, the discovery of new disinfectants, with immunization against smallpox, diphtheria and rabies, and with the study of tropical diseases.

According to *Nova Hrvatska*, Zagreb, March 27, there has been an epidemic of typhus near Ljubuski in Herzegovina. The minister of public health spoke to the "sabor" on measures to prevent epidemics. A trainload of anti-typhus equipment was sent from Sarajevo to Bosnia and special places with baths and disinfecting equipment were constructed at Zemun, Hrvatska Mitrovica, Vinkovci, Brod, Nova Gradiska and Zagreb. New hospitals have been erected at Jajce, Bugojno, Bosut, Zvornik and Bjeljina.

On April 10 the largest and most modern hospital in the country was opened in the Zagreb suburb of Rebro, according to the *Neue Tag*, Prague, March 24, on the site of the old synagogue, which has been destroyed, a state building is being erected which will be used as an art gallery.

According to *Le Matin* in occupied France, the night medical taxi service, reserved for doctors, was resumed on March 1, after having been temporarily suspended. A day service of medical taxis was begun also, one taxi daily per hospital, stationed at the Hotel-Dieu, Necker and Marmottan.

A dispatch from Athens, Greece, through German source, reported on May 19 that all theaters, schools and concert halls had been closed to protect the population from the extension of typhus, a few cases of which had been reported.

### CORRECTIONS

**Kentucky Psychiatrists Elect Officers**—Dr. Abraham Wikler, Lexington, Ky., writes that he was not elected vice president of the Kentucky Psychiatric Association as reported in THE JOURNAL, May 9, page 196. He was elected to membership in the group. The source of the news item in THE JOURNAL was the *Kentucky Medical Journal*, March, page 115.

**Dr. Frank Cregor Retires at Indiana**—THE JOURNAL, April 18, page 1379, announced that Dr. Frank M. Gastman, Indianapolis, had been named head of the department of dermatology and syphilology at the Indiana University Medical Center to succeed Dr. Paul Cregor. This announcement was based on an official release from the university. A letter from the news bureau of the university now reports that the retiring member of the faculty is Dr. Frank W. Cregor, Indianapolis.

**Immunization of Infants—Toxoid Instead of Toxin**—In the current medical literature department of THE JOURNAL, May 9, page 224, in the abstract of Dr. J. H. Lapin's article in the *American Journal of Diseases of Children*, in the fourth line from the top in the second column the word "antitoxin" should have been "toxoid." Dr. Lapin's article is the whole point of active immunization against tetanus, and the use of toxoid to avoid the unfortunate reactions of antitoxin.



## Foreign Letters

### LONDON

(From Our Regular Correspondent)

April 11 1942

#### National Health Under War Conditions

In war time there are reasons for the Ministry of Health not presenting the usual annual reports. Instead a report has been presented for the two years ended March 31, 1941, which consist of five months of uneasy preparation for war and nineteen months of war itself. The health of a nation is one of the decisive factors in war, and a desire has been expressed in more quarters than one for fuller information on the public health. In the last annual report, for the year ended March 31, 1939, the minister of health described the preceding twenty years as "a period during which unexampled efforts have been devoted to the development of public health and welfare services. For over two years now these efforts have had to be diverted to special war services. With rare but notable exceptions the work on normal services has perforce been limited to maintenance. But it is satisfactory that in this third winter of the war the health of the people remains good. Many new problems have arisen from redistribution of the population resulting from evacuation in consequence of air raids and industrial war effort. The Red Cross Society, Women's Voluntary Services, the National Council of Social Service, the Salvation Army and other organizations have given great help to the authorities in dealing with health and welfare problems arising from the war."

When war broke out increased nervous strain was expected to make itself felt in various ways. Progressive food rationing, longer hours of work and the interference of the blackout with ventilation raised apprehensions. When the attack was turned on this country, outbreaks of infectious disease were anticipated from the crowding of people into shelters or the damage to water mains and sewers. But the national health remained surprisingly good. A survey of communicable diseases during the war follows.

#### CEREBROSPINAL FEVER

A disturbing feature was a sharp rise in the incidence of cerebrospinal fever but the fatality rate was the lowest known. The increased incidence may have been due to war time crowded conditions promoting droplet infection. The number of cases notified in England and Wales during 1940 was 12,771 with 2,584 deaths. In 1941 the incidence increased again but less steeply, in the March quarter there were 4,329 cases with 891 deaths.

#### DIPHTHERIA AND SCARLET FEVER

War time conditions did not increase the prevalence of these diseases, there were fewer cases of diphtheria in 1940 than in 1939. This may have been due to large scale immunization of the child population between the ages of 1 and 15 because of the increased risks of spread. Abundant facilities for immunization were provided and parents were instructed in its value.

#### TYPHOID AND PARATYPHOID

In 1939 the deaths for typhoid and paratyphoid fell to the unprecedentedly low figure of 112. In 1940 there was a rise to 135, but this figure was below the two previous records. The rise in incidence was due to the milder form of paratyphoid. In December 1940 because of the risk of damage to water systems by air raids free immunization against the typhoid group of organisms was offered to the public.

#### TUBERCULOSIS

In 1939 the number of deaths in England and Wales from respiratory tuberculosis for an estimated population of 41,460,000 was 22,199 and in 1940 for a population that had not varied

greatly, 23,660. The crude death rate per million thus rose from 535 to 571. The increase was most noticeable in young women between the ages of 15 and 25. History shows that war favors the spread of tuberculosis.

#### VENEREAL DISEASES

The incidence of venereal disease is best judged by the figures for syphilis, as the use of sulfonamide derivatives makes the figures for gonorrhea less reliable. New infections with syphilis declined steadily by over 46 per cent between 1931 and 1939. The decline stopped in 1940, when the number of patients with new infections seen for the first time at treatment centers in England and Wales rose sharply to 5,611, i. e. by 125 per cent. If infections in the fighting services are added, the increase rises to 23 per cent, a figure higher than that for 1935 and subsequent years and in accordance with past experience of war. The wider prevalence is being combated in every way.

#### MATERNAL AND INFANT MORTALITY

The fall in maternal mortality which began in 1934 has continued and 261 per thousand births in 1940 is the lowest on record. Factors in the reduction are the recent advances in the treatment of puerperal sepsis and improvement in domiciliary midwifery. The fall in infant mortality has suffered a check. In 1939 it fell to 50 per thousand live births, but in 1940 it rose to 56. Yet these figures show the great improvements of maternity and child welfare services between the two great wars. In the second year of the war of 1914-1918 the infant mortality was 110.

#### AMERICAN HELP

The report expresses gratitude for the flow of gifts of equipment and supplies, in which the United States has been predominant. Help has been given in the provision of residential nurseries. Harvard University in association with the American Red Cross contributed a field hospital constructed in America and fully equipped and staffed. It is now functioning for the investigation and treatment of outbreaks of communicable diseases. The American Red Cross, the British War Relief Association of New York and Bundles for Britain have been the main other channels through which contributions from the United States have reached this country.

#### Institute for Blinded Warriors Open to All Allies

St. Dunstan's, known throughout the British empire for its work in helping the victims of war to victory over blindness," has now opened its doors to all the allies. It was founded after the last great war for the training, settlement and after-care of men blinded in the fighting. The occupations taught are massage, typewriting, shorthand, telephony, poultry farming, joinery, basket making, boot repairing, mat making, netting and wool rug making. Weekly allowances are paid for the children of the blinded men up to the age of 16 who do not receive state allowances.

At a meeting of representatives of the allied powers Sir Ian Frazer, superintendent of St. Dunstan's assured them that it would be as freely open to their peoples as to British citizens. Mr. Harold Shantz of the American embassy expressed the warm appreciation of the allied nations for the offer. The work of St. Dunstan's was well known in the United States which would gladly cooperate in caring for any British service men blinded in the war who reached there. Sir Ian Frazer, who himself is an example of how St. Dunstan's conquers blindness, gave the allied representatives an account illustrated by films of how it conquers blindness. He mentioned that they had a Polish soldier blinded at Narvik, a Polish officer who lost his sight through hardships endured during his escape across many European countries to Britain, a sailor of the French navy blinded while his ship was evacuating French and British soldiers from Dunkirk, a French soldier evacuated from Dan-



kirk in a British hospital ship and a Dutch dispatch rider. In the present war 122 persons had been through St. Dunstan's as the result of eye damage. About half recovered some useful sight. Many totally blinded had successfully returned to industrial work in the national war effort.

#### Famine in Greece

A memorandum issued by the Greek government states that according to the Red Cross about forty thousand persons, including a high proportion of children in Athens and the Piraeus, died of famine and diseases caused by malnutrition between Oct. 1, 1941 and Jan. 26, 1942. The quality of such food as is available is low through lack of fats. Each daily ration contained only 500 calories against the 2,500 issued by feeding centers in the previous winter. The situation in other cities, Salonika, Patras and Volo for example, is equally tragic and it is believed that nine hundred deaths occur daily. In the islands the situation is disastrous, notably in Chios and Syra, where the inhabitants telegraphed to Athens "Send wheat or coffins." For these horrors, which take their place besides those of Poland and Yugoslavia, the Germans are responsible. The memorandum charges them with a deliberate attempt to destroy the Greeks.

#### BUENOS AIRES

(From Our Regular Correspondent)

March 28, 1942

#### Heart Disease in Children

Drs. J. M. Macera y Araya and Alberto P. Ruchelli for several years have given attention to heart disease in children in Argentina. They recently published a book entitled *Las cardiopatías en nuestro medio escolar*. The classification of patients is the same as the classification followed by the *American Heart Journal* with some modifications. For the selection of an occupation the children in the first group are orientated as if they were normal, although with some slight restrictions unless the disease progresses and the patients may be considered as fitted for the second group. For children in the second group, occupations which do not demand violent efforts are to be selected. Children in the third group should follow occupations which can be carried on slowly and in which the patient can work sitting down and standing up for alternate periods. Occupations for children in the fourth group should be those which can be carried on slowly, without any effort, and in which the patient can work while sitting down at all times. Children in the fifth and last group of the classification cannot work. In their book the authors describe twenty-two psychotechnical tests. The following are investigated: (1) sight, hearing and visual differentiation of colors, (2) physical capacity, (3) mentality, (4) technical aptitude and (5) abstract intelligence. The psychotechnical examination takes two hours for each patient. The authors selected the proper occupations for forty-six children with heart diseases.

#### The Faculty of Medicine of La Plata

The Faculty of Medicine of La Plata was established in 1934. The number of students in the freshman class at the school is limited to one hundred and twenty-five. There are thirty-four chairs with regular professors and twenty-seven substitutes and assistant professors. Dr. Orestes E. Adorni is dean of the faculty. The following are professors: Drs. Victorio Monteverde, professor of clinical obstetrics, Carlos M. Albizzati, professor of biologic chemistry, F. L. Soler of physiology, Manuel Cieza Rodriguez of clinical surgery, Rogelio Carratala of toxicology, Francisco R. D'Ovidio of pathology and clinical course of tuberculosis, Egidio S. Mazzei and Federico S. Lozano of clinical medicine, Carlos Ruera of medical pathology, Enrique C. Baldassarre, assistant professor of pharmacology, and Dionisio Echave, free teacher of biologic chemistry. Because of the proximity of La Plata to Buenos Aires, many

of the teachers of the Faculty of Medicine of the University of Buenos Aires are also professors at the Faculty of Medicine of the University of La Plata. The *Anales de la Facultad de Ciencias Medicas de La Plata* is the official organ of the Faculty of Medicine of La Plata. It contains articles on work carried on by the authors at the laboratories or clinics of the faculty. The seventh volume, containing four hundred and thirty-eight pages, recently appeared.

#### Hemorrhagic Pleurisy in Cirrhosis of Liver

Dr. Christian wrote an article entitled *Bloody Pleural Fluid, an Unusual Complication of Cirrhosis of the Liver* for the *Golden Book of Dr. Joseph Hersey Pratt* in 1937. The article was then published in the *Annals of Internal Medicine* (10:162) [May] 1937. Recently Drs. Mariano R. Castex, Egidio S. Mazzei and Jorge Remolar reported their observations in hemorrhagic pleurisy in patients with cirrhosis of the liver, in *Prensa Medica Argentina* (1941, 28, number 33). They found that hemorrhagic pleurisy alone or in association with hemorrhagic ascites may complicate cirrhosis of the liver. They performed pleuroscopy in cases of hemorrhagic pleurisy and laparoscopy in hemorrhagic ascites complicating cirrhosis of the liver. The authors found that hemorrhagic pleurisy and hemorrhagic ascites in patients with cirrhosis of the liver is due to hematogenous tuberculosis.

#### Spectroscopic Analysis of Saliva for Alkaloids

Drs. Ramon G. Loyarte and Jacinto Placeres recently published an article in the *Publicaciones de la Facultad de Ciencias Fisicomatematicas* of the University of La Plata. They direct attention to the difficulties of identifying alkaloids in the saliva of "doped" animals, especially race horses, and describe a method by which cocaine, morphine, caffeine and strychnine can be determined in the saliva by means of the ultraviolet absorption spectrum. The drug is identified in saliva by this method, even if the animals had been given only small stimulating doses. The authors experimented with race horses. Two hours after the injection the horses were made to run 1,000 or 1,600 meters, after which saliva was taken from the animals' mouths for analysis. They conclude that the spectrographic method is reliable for identification of the alkaloids mentioned.

### Marriages

- ROBERT A. RYAN JR., Mountain Grove, Mo., to Miss Frances Isabel Sells of Ottumwa, Iowa, in Evanston, Ill., March 23.  
THOMAS WILLIAMS BAKER, Charlotte, N. C., to Miss Margaret Mesley Lunsford of Durham in March.  
CLYDE ERWIN CHANEY, Eastland, Texas, to Miss Justice Ann Reedy at Memphis, Tenn., March 24.  
WILLIAM V. KNOLL, Boston, to Miss Blanche Ellis Stewart of Colorado Springs, Colo., Nov. 30, 1941.  
JAMES BAKER TWYMAN, Charlottesville, Va., to Miss Bertha Darios of Portland, Ore., March 27.  
JAMES GARNETT BRUCE JR., Watts Bar Dam, Tenn., to Miss Janet Floyd of Chattanooga, March 4.  
JOSEPH THOMAS WYCHE, Hallsboro, N. C., to Miss Elizabeth Calder at Charlotte in March.  
JOHN RILEY BLACK JR. to Miss Alma Jane Miller, to of Whitesville, N. C., March 26.  
JOHN PENNINGTON BOND, Baltimore, to Miss Helen P. F. of Albemarle, N. C., March 14.  
THOMAS G. LUPO, Oteen, N. C., to Miss Merdie Johnson of Carrollton, Ala., in March.  
JESSE T. SCHWIDDE, Iowa City, to Miss Catherine Ma, F. at Boone, Iowa, February 28.  
ROBERT C. LAWSON to Miss Phyllis Crowell, to of Ford, Ill., March 28.

## Deaths

**John Baldwin Walker** \* New York, Harvard Medical School Boston, 1888, member of the American Surgical Association and the Societe Internationale de Chirurgie and many other societies, a founder and fellow of the American College of Surgeons, formerly instructor in operative surgery and professor of clinical surgery at the Columbia University College of Physicians and Surgeons, at one time instructor in surgery assistant and associate surgeon at the New York Polyclinic Medical School and Hospital, served as a colonel in the medical reserve corps during World War I, was in command of Base Hospital 116 of the American Expeditionary Forces in France and received the Distinguished Service Medal, consulting surgeon Bellevue Hospital Manhattan State Hospital and the Hospital for the Ruptured and Crippled, trustee, Bard College and Home for Old Men and Aged Couples, author of volume IX "Hernia," in Twentieth Century Practice of Medicine, aged 82, died, April 13, in St. Luke's Hospital of arteriosclerosis.

**Thomas Reid Crowder** \* Chicago, Rush Medical College, Chicago, 1897, formerly assistant in pathology, associate in medicine and instructor in medicine and associate in genito-urinary surgery at his alma mater, past president of the American Association of Industrial Physicians and Surgeons and the American Association of Railway Chief Surgeons, formerly vice president of the Institute of Medicine of Chicago, honorary life member of the Conference of State and Provincial Health Authorities of North America, while a member of the committee of health and medical relief of the United States Railway Administration drew up a sanitation code which has since been used by nearly every state in the nation, director, department of sanitation and surgery of the Pullman Company, aged 70, died, April 15, of coronary occlusion at his home in Winnetka, Ill.

**Walter Harold McNeill Jr** \* New York, Cornell University Medical College New York 1910, associate professor of urology at the New York University College of Medicine, member of the American Urological Association, past president of the New York Central Surgeons Association, fellow of the American College of Surgeons, attending urologist and member and past president of the medical board of the Mount Vernon (N. Y.) Hospital, at various times attending urologist Bellevue Hospital and Welfare Hospital for Chronic Diseases New York and the New Rochelle (N. Y.) Hospital, consulting urologist French Hospital and New York Central Railroad, aged 56, died, March 22.

**John Paul Russell** \* Captain, U. S. Army, retired, Berkeley, Calif., George Washington University School of Medicine Washington, 1924, entered the medical corps of the U. S. Army as a first lieutenant in 1925, became a captain in 1927 and retired in 1932 for disability in line of duty, chief of the industrial hygiene service of the California State Department of Public Health since its organization in 1937, a director of the Western Association of Industrial Physicians and Surgeons, aged 41, died in March of heart disease.

**Homer William Scott**, Fort Dodge, Iowa, State University of Iowa College of Medicine, Iowa City, 1919, member of the Iowa State Medical Society and the American Urological Association, fellow of the American College of Surgeons, formerly assistant professor of surgery at his alma mater, aged 49, on the staffs of St. Joseph Mercy Hospital and the Lutheran Hospital where he died, March 23, of bronchiogenic carcinoma.

**Howard Anderson Sutton** \* Philadelphia, University of Pennsylvania Department of Medicine Philadelphia 1898, assistant demonstrator of anatomy from 1901 to 1911, assistant demonstrator of osteology 1911-1912 and instructor of osteology from 1912 to 1926 at his alma mater, for many years medical examiner in the public school system, co-author with Dr. C. K. Drinker of a book entitled Osteology and Syndesmology, aged 68, died, March 21.

**Herbert Lightstone**, London, England, University of Bishop College Faculty of Medicine Montreal, Que., Canada, 1901, served in the Spanish-American War, the Boer War and the Canadian Field Artillery and the World War, named deputy director-general of medical services in the British Ministry of Pensions in 1933 and in 1938 became acting director-general, aged 63, died, February 12, of gastric ulcer.

**Charles Sharp Bobo** \* Norman, Okla., Louisville (Ky.) Medical College 1881, an Affiliate Fellow of the American Medical Association, lecturer in forensic medicine 1907-1908,

dean and professor of forensic medicine from 1908 to 1911 at the University of Oklahoma School of Medicine, university physician, director of Ellison Infirmary from 1933 to 1937, aged 85, died, February 3, of diabetes mellitus.

**Given Campbell** \* St. Louis, St. Louis Medical College, 1889, an Affiliate Fellow of the American Medical Association, member of the American Neurological Association, formerly clinical professor of neurology at his alma mater, for many years on the visiting staff of St. Louis City Hospital, formerly on the staff of the Bethesda General Hospital, aged 74, died, April 20.

**William Taylor Webber** \* Long Beach, Calif., University of Nebraska College of Medicine, Omaha, 1922, past president of the Harbor Branch of the Los Angeles County Medical Society, served during World War I, on the staffs of the Long Beach Community, Seaside and St. Mary's Long Beach hospitals, aged 45, died, March 26, of virus pneumonia.

**Robert Malcolm Ross**, Mount Vernon, N. Y., College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois, 1906, member of the American Psychiatric Association, for many years a medical missionary in China, formerly superintendent of the Brigham Hall Hospital, Canandaigua, aged 65, died, March 24, of carcinoma.

**John William McGowan**, Oakland City, Ind., University of Louisville (Ky.) Medical Department, 1881, member of the Indiana State Medical Association, formerly member of the school board, at one time on the staff of the Methodist Episcopal Hospital, Princeton, now known as the Gibson General Hospital, aged 88, died, March 26, of myocarditis.

**Francis Henry Reilly**, New Haven, Conn., Yale University School of Medicine, New Haven, 1897, fellow of the American College of Surgeons, member of the American Urological Association, member of the selective service board 11 B, aged 65, attending surgeon Hospital of St. Raphael, where he died, March 31, of intestinal obstruction.

**Robert Burns McCay**, Sunbury, Pa., Jefferson Medical College of Philadelphia, 1900, member of the Medical Society of the State of Pennsylvania, served during World War I, chairman of the Northumberland County Draft Board number 3, on the staff of the Mary Packer Hospital, aged 65, died, March 30, of coronary embolism.

**John De Witt Byrne** \* DuQuoin, Ill., Kentucky School of Medicine Louisville, 1904, member of the American Academy of Ophthalmology and Otolaryngology, served during World War I, formerly resident in ophthalmology at the New Orleans Eye, Ear, Nose and Throat Hospital, aged 62, died, April 12.

**Francis Morgan Williams**, New York, Columbia University College of Physicians and Surgeons, New York, 1937, member of the Medical Society of the State of New York, aged 30, died, March 24, in Glasgow, Scotland, while in the employ of an American construction company.

**Jesse Frank Williams** \* Clarksburg, W. Va., Baltimore Medical College 1908, for many years member of the city board of education, formerly county health officer, on the staff of the Union Protestant Hospital, aged 60, died, March 18, of coronary thrombosis.

**W. E. Noblin**, Jackson, Miss., University of the South Medical Department, Sewanee, Tenn., 1897, member of the Mississippi State Medical Association, past president of the Central Medical Society, county and city health officer, aged 66, died, March 18.

**James Ernest Walker** \* Huntville, Ala., University of Tennessee Medical Department Nashville 1908, aged 58, died, March 20, in the Vanderbilt Hospital, Nashville, Tenn., of pneumonia as the result of a bullet wound inflicted by the father of a patient.

**Simeon Wood Johnson** \* Sheridan, Wyo., Ohio Medical University, Columbus 1898, past president and secretary of the Sheridan County Medical Society, at one time member of the state legislature, aged 71, died, March 29, of chronic myocarditis.

**Walter Lee Nicholls**, Birmingham, Ala., College of Physicians and Surgeons, Baltimore 1902, member of the Medical Association of the state of Alabama, fellow of the American College of Surgeons, aged 64, died, March 31, of coronary occlusion.

**Ralph Mozart Whitehead**, New York, College of Physicians and Surgeons of Chicago 1890, for many years ships surgeon, aged 75, was killed, March 7, when his ship was torpedoed in the Caribbean Sea.

**Edward Sherman Baker**, Kansas City, Mo., Howard University College of Medicine, Washington, D. C., 1919, formerly deputy county coroner, aged 51, died, April 14, in the Wheatley-Provident Hospital of hypertensive heart disease.

**William Henry West** ♂ Harrisburg, Pa., College of Physicians and Surgeons, medical department of Columbia College, New York, 1890, aged 76, died, March 19, in the Harrisburg Polyclinic Hospital of arteriosclerotic heart disease.

**W. S. Martin**, Carthage, Miss., Memphis (Tenn.) Hospital Medical College, 1899, member of the Mississippi State Medical Association, county health officer, aged 70, died, March 15, of chronic nephritis and valvular heart disease.

**John P. Getter** ♂ Belleville, Pa., Jefferson Medical College of Philadelphia, 1882, past president of the Mifflin County Medical Society, on the staff of the Lewiston (Pa.) Hospital, aged 84, died, March 24, of coronary occlusion.

**Felix Bailon y Hemedes**, Drexel Hill, Pa., University of Santo Tomas College of Medicine and Surgery, Manila, P. I., 1937, resident physician at the Delaware County Hospital, aged 32, died, April 9, of chronic nephritis.

**Charles Arthur Stafford** ♂ Captain, M. C., U. S. Army, native of Kennerly, Wyo., Rush Medical College, Chicago, 1937, School of Aviation Medicine, Randolph Field, Texas, 1940, was commissioned a first lieutenant in the medical corps of the U. S. Army, Nov. 8, 1939, recently stationed at Fort Douglas, Utah, aged 33, was killed in action, March 3, during the allied evacuation from Java.

**Benjamin S. Rutherford**, Bowling Green, Ky., University of Tennessee Medical Department, Nashville, 1885, formerly mayor, at one time city health officer and jail physician, aged 79, died, March 22, of chronic myocarditis.

**Archileus Crump**, Broseley, Mo., University of Nashville (Tenn.) Medical Department, 1897, member of the Missouri State Medical Association, aged 68, died recently in the Lucy Lee Hospital, Poplar Bluff, of myocarditis.

**James Francis Coyle**, New York, Cornell University Medical College, New York, 1905, member of the city health department for many years, aged 59, died, March 19, in the Lutheran Hospital of cerebral hemorrhage.

**James Wilson McLaughlin**, Austin, Texas, Medical Department of Tulane University of Louisiana, New Orleans, 1903, served during World War I, aged 64, died, March 21, of hypertensive heart disease and nephritis.

**Otis Littlefield**, Blue Hill, Maine, Medical School of Maine, Portland, 1885, three times elected to state legislature, on the staff of the Blue Hill Memorial Hospital, aged 80, died, February 4, of coronary thrombosis.

**Frederick Oliver Batteiger**, Greenville, Pa., Hahnemann Medical College and Hospital of Philadelphia, 1911, member of the Medical Society of the State of Pennsylvania, aged 55, died, February 19, of heart disease.

**Henry Clay Perkins**, Austin, Texas, Baylor University College of Medicine, Dallas, 1929, member of the State Medical Association of Texas, aged 44, died, March 14, in an automobile accident near San Marcos.

**Francis John Barnes** ♂ Cambridge, Mass., Harvard Medical School, Boston, 1888, for many years president of the board of trustees of the Walter E. Fernald State School, Waltham, aged 79, died, April 29.

**Hiram LeRoy Brockman** ♂ Greer, S. C., University of Oklahoma School of Medicine, Oklahoma City, 1920, on the staff of the Greenville (S. C.) General Hospital, aged 56, died, April 28, of multiple myeloma.

**George King Logan**, New Orleans, Medical Department of Tulane University of Louisiana, New Orleans, 1899, member of the Louisiana State Medical Society, aged 69, died, March 21, of coronary thrombosis.

**Frank C. Stewart**, Eskridge, Kan., American College of Medicine and Surgery, Chicago, 1905, member of the Kansas Medical Society, aged 63, died, March 27, in a hospital at Emporia of coronary heart disease.

**James Carlos Ghormley**, Tolovana Park, Ore., University of Oregon Medical School, Portland, 1918, member of the Oregon State Medical Society, served during World War I, aged 59, died, March 28.

**Fleeter Palmer**, Homer, La., University of Tennessee College of Medicine, Memphis, 1912, member of the Louisiana State Medical Society, parish coroner, aged 56, died, March 15, of cerebral hemorrhage.

**James W. Kinyoun**, Independence, Mo., Missouri Medical College, St. Louis, 1884, aged 83, died, March 4, in the Research Hospital, Kansas City, of arteriosclerotic heart disease and chronic nephritis.

**Charles Braxton Ingram**, Mount Gilead, N. C., Jefferson Medical College of Philadelphia, 1886, member of the Medical Society of the State of North Carolina, aged 84, died, March 5, of cerebral hemorrhage.

**Harry Blair Corl** ♂ Altoona, Pa., Jefferson Medical College of Philadelphia, 1925, aged 40, died recently in the Jefferson Hospital, Philadelphia, of subacute bacterial endocarditis and cirrhosis of the liver.

**Walter D. Patton**, Eldorado, Texas, University of Louisville (Ky.) Medical Department, 1887, member of the State Medical Association of Texas, county and city health officer, aged 83, died recently.

**Edwin Clark Babcock**, Utica, N. Y., New York Homeopathic Medical College and Hospital, New York, 1894, on the staff of the Utica Memorial Hospital, aged 69, died, April 20, of coronary thrombosis.

**Andrew Fremont Wagner** ♂ Los Angeles, University of Pennsylvania Department of Medicine, Philadelphia, 1899, for many years autopsy surgeon for Los Angeles County, aged 74, died, March 28.

**Thomas Richard Lutner** ♂ Lawton, Okla., University of Texas School of Medicine, Galveston, 1915, aged 56, died, March 7, in the Wesley Hospital, Oklahoma City, of embolism following an infection.

**Charles McCulloch**, Lexington, Va., Columbian University Medical Department, Washington, D. C., 1897, member of the Medical Society of Virginia, aged 68, died, March 13, of chronic myocarditis.

**Josiah Houston Warnick**, Abilene, Texas, Memphis (Tenn.) Hospital Medical College, 1892, member of the State Medical Association of Texas, aged 79, died, March 24, of cerebral hemorrhage.

**Robert J. Yost**, Bethlehem, Pa., Baltimore University School of Medicine, 1895, member of the Medical Society of the State of Pennsylvania, aged 71, died, February 20, of coronary occlusion.

**Seifert Clairmonte Pyle**, Charlotte, N. C., Howard University College of Medicine, Washington, D. C., 1937, on the staff of the Good Samaritan Hospital, aged 37, died in March of pneumonia.

**Ellsworth Brownell Knerr**, Portland, Ore., University of Kansas Medical College of Kansas City, Mo., 1907, member of the Missouri State Medical Association, aged 80, died, February 16, of uremia.

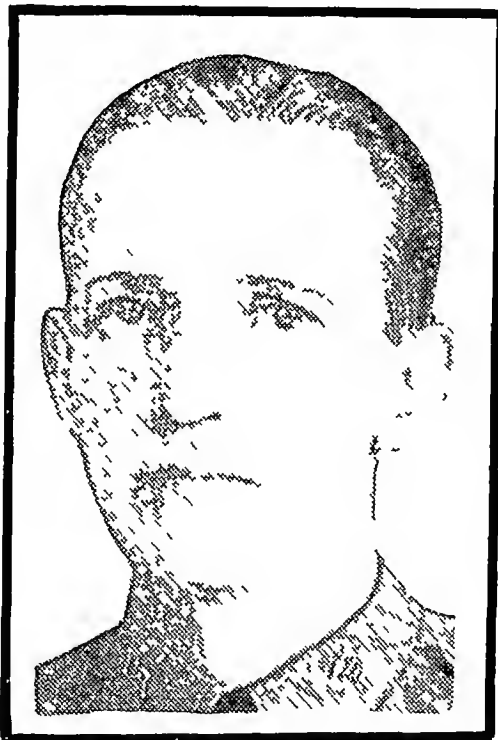
**William Claude Sain** ♂ Ardmore, Okla., University of Tennessee College of Medicine, Memphis, 1916, on the staff of the Hardy Sanitarium, aged 57, died, March 7, of tumor of the brain.

**John Elvin Parmer**, Mokane, Mo., University of Missouri School of Medicine, Columbia, 1894, member of the Missouri State Medical Association, aged 72, died, March 16, of chronic encephalitis.

**Herman August La Force** ♂ Joplin, Mo., Washington University School of Medicine, St. Louis, 1916, served during World War I, aged 55, died, March 31, in the Lincoln Hospital.

**Henry Milburn Faust**, Gold Dust, La., Memphis (Tenn.) Hospital Medical College, 1902, aged 68, died, March 1, in a hospital at Lecompte of gangrene of the left leg and arteriosclerosis.

### KILLED IN ACTION



CHARLES A. STAFFORD, M.D.,  
1908-1942

Morgan L. Miller, Susquehanna Pa., University of Pennsylvania Department of Medicine Philadelphia 1882, bank president, aged 81 died, March 28 in Miami, Fla., of arteriosclerosis

Thomas Van Buren Crane, Springfield Mo., Barnes Medical College, St. Louis 1903 member of the Missouri State Medical Association, aged 72, died April 10 of angina pectoris

Charles Edwin Montgomery @ Walla Walla Wash. Kentucky School of Medicine Louisville 1906, served during World War I aged 61 died, March 27 of cerebral hemorrhage

Clifford Morrison Taylor @ Westminster Md., University of Maryland School of Medicine and College of Physicians and Surgeons Baltimore 1933 aged 39, died March 25

Albert H. Miers, Mena Ark. Kansas City College of Medicine and Surgery, Kansas City Mo. 1921, aged 51 died, March 23, of coronary thrombosis and edema of the lungs

Elmer Alexander Hudson, Mercersburg Pa. Jefferson Medical College of Philadelphia 1888 served during World War I, aged 80, died, April 16, of cerebral hemorrhage

Harry Press @ New York University of Nashville (Tenn.) Medical Department, 1911 on the staff of the Gouverneur Hospital, aged 59 died February 19 of heart disease

Walter Elisha Hatch, Toledo Ohio Western Reserve University Medical Department Cleveland, 1902, aged 69, died March 28, in the Toledo Hospital of myocarditis

Harold Landow, New York, University of Pennsylvania School of Medicine Philadelphia 1937 aged 28, died March 27, in the Jewish Hospital of poison self administered

Horace Robert Peoples, Burlington Iowa, Northwestern University Medical School Chicago 1921 aged 47, died March 27, in New London of pulmonary tuberculosis

Charles Wesley Kahl, Merced Calif. College of Physicians and Surgeons of San Francisco 1899 aged 73 died, March 15, in the Mercy Hospital of arteriosclerosis

Benjamin Edward Hendrix @ Gillham, Ark., University Medical College of Kansas City Mo., 1900, for many years bank president, aged 70 died March 15 of uremia

Walter David Weil @ New York, University and Bellevue Hospital Medical College, New York 1909 aged 63, was found dead March 30, of illuminating gas poisoning

Harris Page Ilsley Limington Maine Medical School of Maine Portland 1909, member of the Maine Medical Association, aged 61, died February 16 of carcinoma

Norven Henry Gillespie @ Duluth Minn., Queen's University Faculty of Medicine Kingston Ont. Canada 1896, aged 67, died March 26, of coronary thrombosis

Theodore M. Agnew, Wichita Kan. Kansas City (Mo.) Hahnemann Medical College 1914 served during World War I, aged 52, died in April of coronary occlusion

Lucius Emilius Kimsey, Ducktown Tenn. Vanderbilt University School of Medicine Nashville 1888 aged 74, died March 13, of carcinoma of the bladder

Howard Dager, Philadelphia University of Pennsylvania Department of Medicine Philadelphia 1890, aged 77, died, March 20 of cerebral hemorrhage

John Jay Munden, Hendersonville N. C., Western Pennsylvania Medical College Pittsburgh, 1901, aged 66, died March 31 of coronary occlusion

M. Robertson Stapp @ Hesston Kan. Jefferson Medical College of Philadelphia 1889 aged 74 died March 17 in Newton of cerebral hemorrhage

Eugene A. Davis Murfreesboro Tenn. Meharry Medical College Nashville 1918 aged 50, died, March 15, of myocarditis hypertension and nephritis

Leo Edward Price @ Shelby Ohio University of Louisville (Ky.) Medical Department 1921 aged 46 died March 31 of coronary heart disease

Claude N. Workman Willow Point Texas (licensed in Texas under the Act of 1907) aged 67 died February 6 of hypertensive heart disease

John Granville Gill, Kendallville Ind. Rush Medical College Chicago 1897 aged 80 died March 26 of diabetes mellitus and myocarditis

Leonidas W. Humphreys Huntington W. Va. University of Virginia Department of Medicine Charlottesville 1901 aged 74 died April 12

Fred Lee Herbert, Andrews, N. C., Tennessee Medical College Knoxville, 1904, aged 63, died March 10 of carcinoma of the pancreas

Albert Joseph La France @ Lacombe N. H. Medical School of Maine, Portland, 1896, aged 70, died, March 12, of coronary thrombosis

George Reginald Deacon, Stratford, Ont., Canada, McGill University Faculty of Medicine, Montreal, Que., 1896, aged 67, died, March 22

Edmund Y. Hill, New York. Bellevue Hospital Medical College, New York, 1889 aged 75, died, March 30, of carcinoma of the colon

Nathan Walter Manow, Cleveland, Ohio State University College of Medicine, Columbus, 1935, aged 36, died, March 25 in Indianapolis

Charles N. McGaffey, Dallas Texas, Southwestern University Medical College, Dallas, 1908 aged 55, died, March 9, of arteriosclerosis

Joseph Benjamin Bailey, Keysville Va., Medical College of Virginia, Richmond, 1894 aged 72, died, April 6, of coronary thrombosis

William J. Orange Lee, Humboldt Tenn., Meharry Medical College Nashville, 1908, aged 63, died, March 9, of coronary thrombosis

Virgil C. Littlefield, Nixon, Texas, University of Texas School of Medicine, Galveston, 1897, aged 70, died recently in Tucson Ariz

Homer Chachere, Crowley, La., Medical Department of Tulane University of Louisiana, New Orleans, 1885, aged 83, died, March 30

Annie S. Higbie, Pasadena, Calif., New York Medical College and Hospital for Women, New York, 1903, aged 77, died March 26

Frederick Sinclair Wimberly @ Tucson Ariz., University of Texas School of Medicine, Galveston 1935, aged 32, died March 19

Samuel Arthur Looper, Hot Springs National Park, Ark., Memphis (Tenn.) Hospital Medical College, 1909, aged 67, died March 23

George Murray Shaw, Oldham, England, University of Toronto Faculty of Medicine, Toronto, Ont., Canada 1904, died, March 21

James Noah Greear, St. Paul Va., University of Virginia Department of Medicine, Charlottesville, 1883, aged 83, died March 14

Anthony Cestare, Brooklyn, Long Island College Hospital, Brooklyn 1911, aged 53 died February 26, of chronic myocarditis

George Albin Remington, Chicago, American College of Medicine and Surgery Chicago, 1905, aged 62, died, March 26

Anne McConnell Schilstra, Stembach Man. Canada, Trinity Medical College, Toronto, Ont., 1899 died recently

Lewis Franklin Soule, Salem Depot N. H. Medical School of Maine Portland, 1898, aged 72 died March 26

Marvin Cross Morris, Seattle Northwestern University Medical School, Chicago 1939 aged 31 died March 26

Merton Wheelock Brown, Ilion N. Y. Albany Medical College 1891 aged 72 died March 26 of nephritis

Isaac Newton Bourland, Equality Ill. Miami Medical College Cincinnati 1883 aged 84 died April 21

William W. Parkes, Louisville Miss. Louisville (Ky.) Medical College 1892 aged 73 died March 22

Homer Atwood Terrill, Los Angeles Rush Medical College Chicago 1884 aged 87 died February 16

Harry McMahon Barton, Walthalla S. C. Atlanta (Ga.) Medical College 1892, aged 71 died March 2

Bernard Rein, Brooklyn Cornell University Medical College New York 1905 aged 58 died March 4

George Austin Vail, Hersey Mich. Detroit College of Medicine, 1895 aged 74, died in January

Frank G. Sheffield Hastings Mich. Detroit College of Medicine 1894 aged 82 died March 30

Leland Delos Fosbury Endicott, N. Y. Albany Medical College 1904 aged 65 died March 1

Joseph Gill St. Louis American Medical College St. Louis 1907 aged 78 died March 15



## Bureau of Investigation

### HOW'S THAT AGAIN, NOW?

#### A Doctor Ohlendorf Gets Lost Among the Sublime Forces

On Aug 26, 1941 the Federal Trade Commission issued an order against William Clarence Ohlendorf, trading under the names W C Ohlendorf, Clarence Ohlendorf, C Ohlendorf and Dr Ohlendorf, 1924 Blue Island Avenue, Chicago. The respondent was ordered to cease and desist from representing that "Dr Ohlendorf's Tonic" constitutes a cure or remedy for, or that it possesses any therapeutic value in the treatment of, kidney disorders, bladder disorders, rheumatism, neuritis, diabetes or catarrh of the bladder or bowels or that the preparation will tone up the nerves or has any therapeutic value in the treatment of nervous disorders or as a diuretic.

Included in the order is the following statement: "To support his claims for the therapeutic value of his preparation, the respondent relies principally upon a scientific work published about 1795." This would seem to set some sort of record for going backward in science, until consideration is given to a release called "Nature's Sublime Forces," copyright 1942 by W C Ohlendorf, M D, Chicago. This constitutes one of the most remarkable pieces of clatter-trap that has been put in type since the invention of printing machines. Obviously based on some rather ancient material evolved prior to the advent of modern knowledge, the preface includes the following statements: "The knowledge of the Science of the Breath constitutes the object of the highest knowledge. This theory binds together widely divergent facts of medical knowledge and converges them into one point of view. The writer is indebted for his material to the Upanisads of India, Rama Prasad, and Helena P Blavatsky."

Consideration of the material indicates clearly that the writer is indebted to no one. In fact, some one, some time, somewhere, is obviously guilty of placing on record material which seems to have misled the doctor somewhat. The records of the American Medical Association indicate that Dr Ohlendorf was born in 1857 and graduated from Northwestern University Medical School, Chicago, in 1882, receiving a license to practice in Illinois the same year.

The first page of the pamphlet, which presumably was submitted by the author to the University of Chicago with the notation "Copies are 2 for a nickel. How many do you want for the students?" contains the following:

"The Tattvas are the five modifications of the Great Breath. The Great Breath is the ceaseless, eternal vibration of the Absolute. The first outcome of the evolutionary state is the Akasha Tattva (Force). After this come in order the Vayu, the Tejas, the Ap, and the Prithvi."

"The Akasha or sonorous ether throws matter which is subject to it into the form of a dotted sheet. It is said to move by fits and starts and to move in all directions. This means to say that the impulse falls back upon itself along the line of its former path on all sides of the directions of the wave. These ethers produce in gross media and in the human body vibrations similar to their own. The external form of the vibration is somewhat like the hole in the ear."

Or, as a matter of fact, like any other hole, if one totally disregards the surrounding matter.

The doctor then goes on to straighten out modern science with the following:

"From the heart ramify the Nadis, the power tube centres or carriers. Of these there are 101 principal ones. Each of these branches into 100 second order branches, of each of these again into 72,000. Thus there are 100 x 101 or 10,100 branch Nadis and 72,000 x 10,000 or 727,200,000 of the third order blood vessels. The terminology is imitated from a tree. The root is in the heart. The Susumna is that Nadi whose nervous substratum or reservoir of force is the spine."

And again

"The four petals of the heart really branch into twelve Nadis. Similarly the brain has twelve pairs of nerves. These correspond to the twelve signs of the Zodiac both in their positive and negative phases. In the Zodiacal sign the sun rises thirty one times. We have, therefore, thirty one pairs of nerves. Wherever the thirty one spinal Chakras connected with the twelve pairs of nerves in the brain pass throughout the body we have running side by side the blood vessels proceeding from the twelve Nadis of the Heart."

"In this system of Nadis moves the Prana. As the sun rises it passes into the nerves little by little. Up to noon Prana is greater in the nervous than in the venous Chakras. At noon they become equal. At sunset the Prana with its entire strength has passed into the blood vessels. Thence it gathers up into the heart and spreads towards the

nerves. At midnight the strength is equalized. In the morning the Prana is at the second spinal vertebra. The moon moves some 12 times more than the sun. Therefore, the effect of the moon is to produce 12 minor Pranic changes over a period of 24 hours. This gives a cycle of Tattvas in 2 hours or one Tattva every 24 minutes."

This quotation is followed by a paragraph entitled "Definition of Disease," which discusses further these "Pranic" changes and then states: "Disease is the result of this variation." Following this is a short paragraph on death:

"The two ordinary forms of death are the positive through the brain and the negative through the heart. If Prana becomes potential in Susumna and remains longer than for a passing moment death results. Prana is the second principle of the universe. The first principle is Manu or Mind."

Following a discussion of the pituitary body and the pineal gland, the heart is dealt with entirely by the following:

"The septenary disturbance and play of light around the pineal gland are reflected in the aura of the heart which vibrates and illumines the seven brains of the heart just as does the aura round the pineal gland. And the heart has 7 cavities, 3 superior and 4 inferior corresponding to the 7 principles in nature and man."

Under the heading "Definition of Insanity," the following appears:

"The definitions of insanity as given in the text books of medicine and neurology are very poor, and, as the present medical teachings overemphasize the gross body and woefully neglect the inner man and his six principles, the student and practitioner do not gain a comprehensive view of neurology as they do of the other branches of medicine. Insanity is a severance of the Atma and Buddhi principle from the Manas, i.e. breaking off of the 6th and 7th principles from the lower 5th principle, the mind. Keeping this definition in mind one is immediately in a better position to understand insanity."

One of the closing paragraphs of the twenty-two page pamphlet is entitled "The Science of Breath." Under this heading the following misinformation is expounded:

"The lamp of the five Tattvas receives its oil from the moon (allegorically). Protect it from the solar force. Life will thereby become long and stationary. If, by mastering the flow of breath, the sun is kept in check, life is prolonged."

"He whose breath flows by the Pingala two whole days and nights has two years to live."

"He whose breath flows from one nostril for three nights has one year to live."

"When the skin is cool and the inside hot, death comes within one month."

"He who suddenly begins to feel heavy bodies light and vice versa and he who being dark in color begins in disease to look gold colored must die."

"He whose hands, chest and feet become at once very dry after bathing has not ten nights to live."

"If a man sees the figure of the messenger of death he is sure to die. (The messenger of death has red clothes, matted hair, diseased teeth, oil besmeared body, a weeping and red hot face, a body besmeared with ashes, flying flames of fire having long rods and standing towards the empty Nadi.)"

The opus closes with the sentence "So much for this short and condensed article on Nature's Sublime Forces. There is no knowledge beyond the secret knowledge of the Five Tattvas."

All of which makes it fairly obvious that it would not be unusual for this individual to promote a remedy in 1941 which was based on scientific work published about 1795. After all, that is fairly recent in comparison with the age represented by the limitations of knowledge exemplified by the quotation.

### SOME MISCELLANEOUS MEDICAL FRAUDS

#### A Variety of Schemes Debarred from the Mails

Fraud orders issued by the Post Office Department have frequently been the subject of extensive articles by the Bureau of Investigation in these pages of THE JOURNAL. Following are brief abstracts of some fraud orders not dealt with previously.

**Arthur B Jacobson**—This person was reported to be a teacher of industrial arts in the high school at Upsala, Minn. On the 4th of May 1941 he conducted a mail order business in which he promoted a "Better Eyes System" by representations to the effect that by means of Jacobson's eye cure and correct presbyopia, myopia, hyperopia and aigmatism would enable all persons wearing properly fitted glasses for refractory errors to see equally well at close or long range as of their visual acuity, that it would strengthen the eyes of all and enable all persons suffering from eyestrain to see easily, clearly and without the slightest eye discomfort, that it would quench the vision, would cause no harm and that all users must be similar to those reported in the alleged testimonials that Jacobson published. In February 1941 the Post Office ordered Jacobson's



on March 24 why a fraud order should not be issued against him. Although his attorneys filed his reply which was a general denial of the charges neither they nor Jacobson appeared at the hearing. The hearing revealed that Jacobson had claimed that for eight years he had conducted numerous experiments and represented that the system which he promoted through the mails was the result of his personal experiments. The evidence presented at the hearing showed that he employed no physicians or other person qualified to diagnose and treat eye diseases and disorders. It further showed that he sent to inquirers something called an eye tester which he described as a new invention (patent pending) which assists you to quickly and easily set your eyes right in your own home. His system consisted of various charts and a set of instructions concerning exercises purporting to have the following effects: strengthening the muscles of both eyes; developing the seeing strength of the weaker eye; stimulating the sight centers; gaining eye coordination; increasing the range of accommodation for distances and correcting the unevenness in curvature of the eyeball. On purchasing the system however the customer found that special eye disorders such as cataracts, anisokonia, glaucoma, trachoma, etc. require the attention of specialists who have studied these conditions. The hearing also revealed that within the previous six months Jacobson had changed the instructions that go with his system so that it consisted of a seven day course of exercises for eyes. Out of Balance with additional exercises to be used during the second week of the treatment for cases of astigmatism, near sightedness and far sightedness. Previously the instructions had recommended exercises for those who were near sighted or far sighted to be performed on the first four days of an eight day course. The government's expert witness, a physician who specializes in the field of eye diseases, testified at considerable length on the subject and summarized his evidence with the statement that Jacobson's Better Eyesight System would have no effect on any part of the eye except the extraocular muscles. Accordingly the Post Office debarred Jacobson's scheme from the mails by issuing a fraud order against him on June 7, 1941. In the meantime another government agency, the Federal Trade Commission, had been investigating the same scheme and after a series of hearings the Commission reported on Jan. 12, 1942 that it had ordered Jacobson to cease and desist from certain statements in the advertising that the Commission regarded as misrepresentations. Among these were that the treatment is new and revolutionary, will improve the eyesight, eliminate headaches, nervousness and tired feeling, correct near sightedness, astigmatism and strabismus without resorting to glasses, drugs or surgery, and that 90 per cent of the physical defects of the eye can be remedied by the use of Jacobson's devices and courses of instruction.

**Manuel Solera Viquez**—This person at San Jose, Costa Rica, in connection with one Bruce Watts at Leslie, Ark., sold through the mails a nostrum called Senatica by means of what the Post Office charged were fraudulent pretenses to the effect that except in cases in which syphilis is present the product would quickly cure arthritis and kindred conditions regardless of the duration, severity or chronicity of the ailment and would prove of great value in the treatment of kidney disorders, fevers, high blood pressure, hemorrhoids, insomnia and some other things and that it was harmless. According to the evidence the Costa Rica man was the principal promoter of the scheme and had authorized Watts to act as his agent in the United States. When the Post Office notified Solera Viquez to show cause on Dec. 20, 1939 why he should not be debarred from the mails for conducting a fraudulent scheme he denied the charges by letter and later an attorney from Washington, D. C., representing him appeared in his behalf and obtained a form of affidavit under the terms of which Solera Viquez would be bound to discontinue his nostrum business. Not long thereafter the attorney filed with the Post Office a statement wherein Solera Viquez expressed a desire to continue selling his product through the mails. His attorney was informed that such a proposal was not acceptable. Thereafter the original affidavit bearing Solera Viquez's signature was filed with the Post Office and sworn to before the United States consul at San Jose, Costa Rica. On Dec. 18, 1939, an answer to the charges also was received from Bruce Watts who filed an affidavit a few days later in which he promised to abandon the business. Nevertheless evidence subsequently developed that Solera Viquez had resumed the operation of this fraud. According to a government chemist the Senatica preparations were composed of herbs or leaves of a species of cassia and one of the wild guavas and the user was to make a tea from them and to follow a diet which provided for plenty of milk and fruits, especially oranges and blackberries, but banned all meats. Since expert medical evidence showed that such a mixture would not produce the effects claimed for Senatica a fraud order was issued on Jan. 10, 1942, debarring Manuel Solera Viquez from further use of the mails.

**Myraene Company National Distributors Inc.** and Mr. and Mrs. W. A. Summers—The concerns in question were operated from Chester, Ark., with W. A. Summers as manager and Mrs. W. A. Summers as secretary. They used the mails to promote Myraene as a genuine Indian remedy for rheumatism, chills and fever, stomach, liver, kidney and bladder disorders, all diseases of the skin and some other conditions. For the tobacco habit they sold Nico-Ban. After due investigation of the scheme the Post Office ordered these respondents to show cause on May 27, 1941 why a fraud order should not be issued against them for using the mails to promote a scheme by means of false and fraudulent pretenses, representations and promises. W. A. Summers filed an answer in which he denied the charges but he put in no appearance at the hearing. On that occasion a government chemist and a microanalyst testified that Myraene was revealed in their examinations as a finely ground yellow brown powder composed of yellow dock and licorice roots. The user could take it in either dry or tea form. An expert medical witness testified that such a mixture would have merely a mildly irritant and laxative effect and could not act as a miracle tonic, renew

bodily vigor, restore lost sex functions in men and women or overcome the long list of ailments in the advertising. Nico-Ban, according to the government chemists, was found to consist of yellowish brown uncoated tablets containing the roots of gentian, licorice and yellow dock as well as some starchy material. The directions were to take a tablet as often as desired, hold it in the mouth until dissolved and swallow the saliva. An expert medical witness for the government testified that this nostrum certainly was not a reliable remedy for all forms of the tobacco habit as had been represented that it would not furnish a substitute for any of the systemic effects furnished by tobacco or in any way decrease the desire for tobacco. Together Myraene and Nico-Ban constituted according to the Post Office a scheme for fleecing the public and a fraud order was issued on Oct. 23, 1941, against the Myraene Company, National Distributors Inc., W. A. Summers, Manager, and Mrs. W. A. Summers, Secretary, with their officers and agents.

**Tarex Company**—This Los Angeles business was started in 1935 by a Jacob Baum who claimed to have incorporated it in California. Through the mails he sold Tarex No. 1 and Tarex No. 2 under representations that the first named would overcome all cases of eczema in its various forms regardless of duration and that the second would "clear up any case of psoriasis of whatever long standing, banish all unsightly marks and restore the skin to a normal healthy appearance. The Post Office regarded these representations as unwarranted and ordered the Tarex Company and an E. T. Baum (presumably the secretary, Mrs. Tyler Cromwell, formerly Ethel T. Baum) to show cause on April 25, 1941 why a fraud order should not be issued against them. Jacob Baum, president, then requested and obtained a continuance to May 12, 1941 but did not appear at the hearing, send a representative or file an answer denying the charges. There did appear a qualified medical expert and a chemist who testified for the government. Baum had not disclosed to the Post Office inspector in the case the formula of either preparation but had stated that Tarex No. 1 contained tar and that both products were based on a formula developed by a physician alleged to be the head of a Los Angeles hospital but neither the physician nor the institution could be identified in the American Medical Association's records. The government chemist testified at the hearing that his analysis had shown Tarex No. 1 to be a greenish black salve consisting chiefly of petrolatum 45 per cent, starch 45 per cent, coal tar 5 per cent and about the same proportion of zinc oxide. Tarex No. 2 he reported was an ointment chiefly consisting of wool fat with 7.8 per cent of salicylic acid and 5.75 per cent of ammoniated mercury. The lengthy testimony offered by the government's expert medical witness showed in substance that these mixtures would not cure the conditions cited in the advertising and on July 16, 1941 the Tarex Company and its officers and agents were debarred from the mails by a Post Office fraud order. Previously another government agency had taken action against the Tarex Company. On June 8, 1938, the Federal Trade Commission announced that it had ordered this concern to cease representing in any way that its products are effective remedies and cures for eczema and psoriasis in any form or are any more than palliatives for such conditions.

**Vita Laboratories, Hessel Laboratories and Hessel's Oil**—Under these various trade styles one Eugene Hessel conducted a mail order business from Philadelphia and promoted two patent medicines known as Hessel's Oil and Hessel's Oil Salve. According to the representations the first named when used as directed would prove an effective, reliable, successful and harmless remedy for and would effect astounding results in the treatment of almost all illnesses including paralytic stroke, food poisoning, rheumatism, sinus disorder, stomach and bowel ailments, heart trouble, hay fever, asthma and some other things and that the salve when used as directed would work like magic and produce healing results in rectal disorders including hemorrhoids. The Post Office considered these representations to be false and fraudulent and ordered Hessel to show cause on April 11, 1941 why a fraud order should not be issued against him and his trade styles. The hearing finally took place on May 6 but neither Hessel nor any one representing him put in an appearance although the defendant had issued a general denial through his attorney. Hence the only testimony offered was that given by government witnesses who included the Post Office inspector who had investigated the case, a chemist and two physicians. The chemist testified that both Hessel's Oil and Hessel's Oil Salve were composed essentially of ordinary oil of peppermint. The medical testimony presented was to the effect that these preparations when applied externally and in accordance with the directions might in some instances by means of their peppermint content act as a mild counterirritant and produce a slight reddening of the skin together with a slight tingling sensation. It also was shown that when taken internally the oil would produce some local irritant effects on the mucous membrane of the stomach and cause gaseous eructations without however causing any systemic effects. The medical testimony further showed that Hessel's Oil whether used externally or internally would be incapable of healing any of the disorders named and certainly no astounding results would be effected. On Sept. 29, 1941 a fraud order was issued to debar Eugene Hessel from further operating through the mails under the names of Vita Laboratories, Hessel Laboratories and Hessel's Oil. The testimony in this case brought out the fact that in the years 1933, 1937 and 1938, proceedings were instituted against Eugene Hessel under the Federal Food and Drug Act on the ground that his peppermint oil preparation which during those years was sold under different names (Hessel's Oil de Vita, Snuff and Hessel's Oil de Vita Salve) bore false and fraudulent therapeutic claims on its label and that in one of these proceedings Hessel had entered a plea of guilty in a district federal court to being sentenced to pay a fine and in addition to have been named as perpetrator for a year. Nevertheless as the Post Office memorandum stated he was still making similar claims at the time that the Post Office began its investigation.

## Correspondence

### IMMOBILIZATION IN INFANTILE PARALYSIS

*To the Editor*—To my knowledge, the practice of immobilization in the treatment of poliomyelitis in the acute or initial stage was first questioned years ago by the late Henry O Feiss, an orthopedic surgeon of Cleveland. As early as 1912 he (Feiss, H O. *Experimental Studies of Paralysis in Dogs After Mechanical Lesions in Their Spinal Cords, with a Note on "Fusion" Attempted in the Cauda Equina of the Sciatic Nerves, J Compar Neurol* 22 99 [April] 1912) became interested in the problem of nerve regeneration. He operated on dogs, producing mechanical lesions and a clinical picture roughly resembling that of infantile paralysis. He allowed his animals to move about without splinting the muscles. He also reported on the question of nerve fusion, and incidentally a part of one of his techniques was nerve crushing.

More than twenty-five years ago, Feiss was talking about the early treatment of infantile paralysis. He felt that immobilization procedures, as recommended by the Harvard Infantile Paralysis Commission (Lovett, R W. *The Treatment of Infantile Paralysis*, ed 2, Philadelphia, P Blakiston's Son & Co, 1917), which consisted chiefly in maintaining from the very start the greatest rest and fixation that might be obtained by the use of recumbency, rest and splints, were not physiologic in their application. In such treatment he remarked that a patient might be placed on his back and strapped to a frame for a period of six weeks or more, a type of fixation applicable to every case without regard to individual symptoms. He remarked frequently that he did not believe in this accepted method of treatment because disuse of muscles in the early stage of infantile paralysis was directly opposed to physiologic indications. He taught that most muscles were in reasonably good condition at the beginning of the disease.

Subsequently he publicly demonstrated the results of this method of treatment (The Academy of Medicine of Cleveland, Oct 21, 1921) and wrote about them in *THE JOURNAL* (Feiss, H O. *The Treatment of Early Infantile Paralysis Based on the Physiologic Indications*, Jan 14, 1922, p 85) and in the *Ohio State Medical Journal* (Early Activation of Muscles in Infantile Paralysis, *Ohio State M J* 19 177 [March] 1923).

This editorial comment prefaced Feiss's article in the *Ohio State Medical Journal*. "While it may not seem important to some practitioners to begin the activation of muscles as soon as possible in infantile paralysis, on account of the erstwhile fear of doing damage instead of good, it has been Dr Feiss's experience that early activation is not only the method of choice, but that it also saves weeks and months of convalescence as well as the long, trying period of parental suspense. There is nothing so sustaining to the morale of the little patient and those concerned in their child's recovery as the realization that something serious is being done to effect a cure."

Feiss (*The Treatment of Early Infantile Paralysis Based on the Physiologic Indications*) wrote of the motor functions in striated muscles: "(1) that willed by effort, (2) subconscious and (3) reflex." In early infantile paralysis he thought that it was necessary to make trial of all three types of functions and referred to voluntary will and effort. This to him consisted in directing the patient's attention to movements in the affected muscles. He frequently demonstrated to me that there was a subconscious subjective appreciation of movement on the part of the patient long before the movement was objectively appreciated by the examiner, and he instituted procedures in young children by which the subconscious and reflex pathways were

utilized. As stated by him, such technic consisted "in establishing a so-called 'receptor field,' a term borrowed by him from Sherrington (*The Integrative Action of the Nervous System*, New York, Charles Scribner's Sons, 1906). In the light of recent events, Feiss's vision was almost prophetic when he stated that "once a path is opened through any given receptor field, movement may be gained by several other methods of stimulation."

JOHN A TOOMEY, M D,  
Division of Contagious Diseases, City Hospital,  
Cleveland

### PSITTACOSIS

*To the Editor*—In his recent article entitled "Psittacosis" (*THE JOURNAL*, April 4, p 1214), Dr Henry Alicandri reports that the pigeons epidemiologically connected with the human case of psittacosis which he describes were sent to the Hooper Foundation for examination. It may be of general interest to report on the observations made on a sample of pigeons secured by the New York City Department of Health from the yard where the patient had paid a casual visit on Sept 28, 1941, ten days before he became ill. The flock consisted of 12 pigeons showing no signs of illness. The patient did not handle the birds. Five of the pigeons (*Columba livia*) were bled and the serums subjected to the complement fixation test in the presence of a parakeet psittacosis antigen. The serums of 2 reacted in dilutions of 1:128 to 1:256, and of 2 others in dilutions of from 1:8 to 1:16. A typical ornithotic, or pigeon psittacotic, virus was isolated from the spleen and kidneys of 1 pigeon which reacted in a dilution of 1:16. Although the evidence strongly incriminates the pigeon loft as the probable source of infection, it would have been of great interest had the patient's sputum been examined for the virus. It is extremely important that in the future the sputum of the patient and the viruses isolated from the kidneys or spleen of the pigeons be subjected to a comparative study in order to prove the etiologic relationship suspected on inductive epidemiologic evidence. The ubiquitous ornithotic infections in pigeons (up to 50 per cent in some lofts, plazas and parks) expose many people to fleeting accidental contact with the virus. Probably mild atypical human infections escape detection, while those with frank pulmonary lesions without a serologic test remain etiologically obscure, since they are clinically diagnosed as influenza, atypical pneumonia or the like.

K F MEYER, PH D,  
George Williams Hooper Foundation,  
San Francisco

### NOSE DROP CONTAMINATION

*To the Editor*—Here are further suggestions to be added to those of Gompertz and Michael in their article on nose drop contamination (*THE JOURNAL*, April 11, p 1287).

In prescribing nasal medication I ask the pharmacist to supply an empty quarter ounce (7.5 cm) dropper bottle and direct the patient to fill this bottle half way. When this amount is put up the bottle and dropper are to be rinsed in hot water and the bottle refilled. Where there is more than one patient to use the prescribed medication, each one has his own quarter ounce dropper bottle.

Moreover, in using such medication, it might be more easily used when the patient is instructed to draw up in the dropper 1/2 inch of medication, which is about 3 drops, and squirt the amount into each nostril. I have often wondered how to interpret and apply the usual drop numbered direction.

GEORGE ABELOFF, M D, Brooklyn

## Medical Examinations and Licensure

### COMING EXAMINATIONS AND MEETINGS

#### BOARDS OF MEDICAL EXAMINERS

##### BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL May 23 page 367

#### NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS *Parts I and II* Various centers June 22-24 *Part III* Various centers June or July Exec Sec Mr Everett S Elwood 225 S 15th St Philadelphia

#### EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY *Oral Part II* Atlantic City June 6-7 Sec Dr Paul M Wood 745 Fifth Ave New York

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY *Oral Groups A and B* Cleveland Jan 14-15 1943 Final date for filing application is Dec. 7 *Written* Various centers Nov 16 Final date for filing application is Oct 5 Sec Dr C Guy Lane 416 Marlboro St Boston

AMERICAN BOARD OF INTERNAL MEDICINE *Written* Oct 19 Final date for filing application is Sept 1 Sec Dr William S Middleton 1501 University Ave Madison Wis

AMERICAN BOARD OF OPHTHALMOLOGY *Oral* Baltimore June 6 and Philadelphia June 8 Sec Dr John Green 6830 Waterman Ave St Louis

AMERICAN BOARD OF ORTHOPAEDIC SURGERY *Oral and Written* Chicago Jan 9-10 Final date for filing application is Nov 1 Sec Dr Guy A Caldwell 3505 Prvian St New Orleans

AMERICAN BOARD OF PATHOLOGY *Oral and Written* Richmond Va Nov 9-10 Final date for filing application is Sept 1 Sec Dr F W Hartman Henry Ford Hospital Detroit

AMERICAN BOARD OF PEDIATRICS *Written* Locally Sept 18 *Oral* Chicago Nov 23 Final date for filing application is July 1 Sec Dr C A Aldrich 707 Fullerton Ave Chicago

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY New York December Final date for filing application is Oct 1 Sec Dr Walter Freeman 1028 Connecticut Ave N W Washington D C

AMERICAN BOARD OF UROLOGY If a sufficient number of applications are received an examination will be held in the east at the same time or shortly after one of the national meetings Sec Dr Gilbert J Thomas 1409 Willow St Minneapolis

### Ohio January Report

The Ohio State Medical Board reports 13 physicians licensed to practice medicine by endorsement on January 6 The following schools were represented

| School   | LICENSED BY ENDORSEMENT | Year Grad | Endorsement of |
|--|-------------------------|-----------|----------------|
| American Medical Missionary College  |                         | (1900)    | Illinois       |
| Northwestern University Medical School   |                         | (1929)    | Minnesota      |
| University of Illinois College of Medicine                                       | (1935)                  | (1940)    | Illinois       |
| University of Louisville School of Medicine                                      |                         | (1926)    | Kentucky       |
| Tulane University of Louisiana School of Medicine                                | (1931)                  | N B M Ex  |                |
| Johns Hopkins University School of Medicine                                      | (1923)                  | (1937)    | Maryland       |
| University of Maryland School of Medicine and College of Physicians and Surgeons |                         | (1920)    | Maryland       |
| Harvard Medical School   |                         | (1933)    | Penna          |
| (1935) N B M Ex  |                         |           |                |
| University of Michigan Medical School  |                         | (1939)    | Michigan       |

### Rhode Island January Report

The Rhode Island Board of Examiners in Medicine reports the written examination for medical licensure held at Providence, Jan 8-9 1941 The examination covered 9 subjects and included 54 questions An average of 80 per cent was required to pass Six candidates were examined all of whom passed One physician was licensed to practice medicine on endorsement of credentials of the National Board of Medical Examiners The following schools were represented

| School  | PASSED | Year Grad | Number Passed |
|---|--------|-----------|---------------|
| Georgetown University School of Medicine  |        | (1940)    | 1             |
| Rush Medical College  |        | (1940)    | 1             |
| University of Maryland School of Medicine and College of Physicians and Surgeon |        | (1940)    | 1             |
| Harvard Medical School  |        | (1940)    | 1             |
| Long Island College of Medicine   |        | (1936)    | 1             |
| Laval University Faculty of Medicine  |        | (1940)    | 1             |

| School                                 | LICENSED BY ENDORSEMENT | Year Grad |
|--|-------------------------|-----------|
| St Louis University School of Medicine |                         | (1940)    |

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

Dental Practice Acts Advertisements Containing a Guaranty and False and Misleading Statements—The Business and Professions Code of California, Section 1680, defines what constitutes "unprofessional conduct" on the part of a dentist for which a license may be suspended or revoked The following conduct is included within the definition

The advertising of professional superiority or the performance of professional services in a superior manner

The making use of any advertising statements of a character tending to deceive or mislead the public

The advertising to guarantee any dental service

The petitioner in this case caused an advertisement to be published which in the opinion of the Board of Dental Examiners of California contravened these provisions and his license to practice dentistry was suspended for six months He then filed a petition in the superior court for a writ of mandate to compel the board to reinstate his license and from an adverse judgment appealed to the Supreme Court of California

The court disagreed with the petitioner's contention that administrative proceedings to revoke a professional license are quasi criminal in nature and that the rules concerning the burden and quantum of proof applicable to criminal trials should have been applied in the hearings before the board Where the court said, the legislature has created a professional board and has conferred on it power to administer the provisions of a general regulatory plan governing the members of a profession the overwhelming weight of authority rejects any analogy which would require such a board to conduct its proceedings for the revocation of a license in accordance with theories developed in the field of criminal law

In answer to the petitioner's contention that the evidence introduced before the board and the superior court was insufficient to support the order of suspension the court pointed out that the only evidence in the case consisted of the advertisement itself and the testimony of the petitioner The advertisement stated among other things This new material will absolutely not change in color Does not stain from smoking, alcohol or alkaloids will not shrink or warp" and "These new dental plates are so ably designed that Dr Webster challenges you to detect any false appearance Each tooth is set so that it appears to be growing there Dr Webster's Immediate Restoration Dentures or plates are faithful reproductions of your own natural gums and teeth, in their true color, size and form These plates are made to defy detection most intimate friends need not know that you are wearing artificial teeth The petitioner contended that these statements did not constitute a binding guaranty and were too general to come within the statutory prohibition It was clear to the court however that if this view were accepted and the rules of contract thus imported into the statute the purpose of the law would be defeated The law was designed to prohibit advertising which induces the reader to believe that a dentist proposes to guarantee a particular result The law does not merely forbid a contractual guaranty of a particular dental service the court said but instead prohibits any advertising to guarantee any dental service that is advertising which represents that a guaranty may be forthcoming Under this interpretation the court thought that the statute had been violated

The court also held that the advertisement tended to deceive or mislead the public It stated Dr Webster's Immediate Restoration Plate Material Weighs Less than 1 Oz This beautiful plate material made from a secret formula is a development of dental science which many plate wearers have been thankful for and also Have Your Dental Plate Made The Webster Way of Immediate Restoration The ordinary reader said the court was given the unmistakable impression by this language that the petitioner used a secret type of plate material not generally available and that his plates etc made

according to a unique method called "The Webster Way" of Immediate Restoration." The petitioner testified, however, that he had no secret material not available to the entire profession and that his methods were no different from those in general use. The petitioner argued that the statute prohibited only statements which were actually untrue and that the untruth of his statements had not been proven. In the field of ordinary commercial advertising, said the Supreme Court, regulatory agencies which are charged with the duty of combating false or misleading advertising are not required to prove that the particular deceptive statements are actually false. In view of such a conclusion concerning ordinary commercial advertising, the court held that it would be unthinkable to accord a more stringent construction to a statute regulating one of the learned professions so intimately connected with public health and safety.

Finally the petitioner contended that the board's order was void because no proper findings to support it were made. The court, held, however, that where the findings of the board, either by a restatement of the charge made or by reference to the language of the accusation, sufficiently points out the specific ground on which it has determined that a cause for suspension or revocation exists it cannot be said that an order so based is void.

The judgment of the superior court for the Board of Dental Examiners was therefore affirmed—*Webster v Board of Dental Examiners of California*, 110 P (2d) 992 (Calif, 1941).

**Rabies Paralysis and Death Following Administration of Vaccine**—The deceased, having been exposed to rabies, submitted to the administration of a vaccine manufactured by the defendant. Thereafter he suffered "an ascending myelitis of the spinal cord, atelectasis lower lobes of both lungs, quadriplegia," as a result of which he died. His widow, both individually and as administratrix of her husband's estate, sued the defendant for damages for the wrongful death, claiming that the defendant was negligent in failing adequately to warn her husband and his physician of the danger involved in the use of the vaccine. At the close of the plaintiff's evidence, the trial court sustained the defendant's motion for a directed verdict and entered judgment thereon. The plaintiff then appealed to the appellate court of Indiana.

The evidence showed that accompanying the package of vaccine was a pamphlet containing, among other things, the following specific warnings of the risk involved in its use:

#### REMOTE ILL EFFECTS OF TREATMENT

Occasionally, in addition to the local reactions observed during treatment, there have been disturbances ascribed to the treatment, such as "treatment paralysis" coming on during the treatment or immediately afterward, and in a very few cases a fatal paralysis has occurred. Remlinger in the study of 107,712 cases, found forty cases of paralysis, 2 resulting fatally.

It is not easy to explain the paralysis, and a number of causes have been suggested. It is rarely met with in children, it is relatively more common in syphilitics, alcoholics, persons under severe nervous strain, and brain workers. It is to be remembered, too, that a person who has been bitten by a rabid dog is likely to have nervous and hysterical symptoms.

It is well for the physicians to have these facts in mind although the dangers are very remote and do not affect the value or necessity of treatment.

Prior to administering the vaccine, the physician showed the husband the pamphlet, went through it with him page by page and told him that, while there was a possibility that paralysis would follow treatment, the possibility was a remote one.

There was no charge that the vaccine was improperly prepared or manufactured. The gist of the plaintiff's complaint was that the defendant had negligently marketed, sold and recommended its antirabic vaccine treatment with misleading representations in the pamphlet and without sufficiently warning prospective users of its danger. The appellate court held that the husband was fully informed and was in no way misled as to the possible effects of the vaccine. In the opinion of the court, the evidence conclusively showed that the physician knew all the dangers and risks of the use of the vaccine and that he told the husband about them. With this information

and with the information contained in the pamphlet, the husband decided to take the treatment. The hospital records disclosed that the husband was "a regular daily drinker of whisky and that upon occasions he would take many drinks in a day." The pamphlet, pointed out that paralysis "is relatively more common in syphilitics, alcoholics, persons under severe nervous strain, and brain workers." Any reasonable adult lay person reading the pamphlet would be reasonably informed of all the dangers incident in the use of the vaccine, the court said. The duty of the defendant was adequately to warn of the dangers incurred in the use of its vaccine and, in the opinion of the court, the pamphlet met all the legal requirements. The judgment for the defendant was affirmed—*Carmen v Eli Lilly & Co*, 32 N E (2d) 729 (Ind, 1941).

## Society Proceedings

### COMING MEETINGS

- American Medical Association, Atlantic City, N J, June 8-12 Dr Ohio West, 535 North Dearborn Street, Chicago, Secretary
- American Association for the Study of Allergy, Atlantic City, N J, June 8-9 Dr J Harvey Black, 1405 Medical Arts Bldg, Dallas, Texas, Secretary
- American Association for the Surgery of Trauma, Boston, June 4-6 Dr Gordon M Morrison, 520 Commonwealth Ave, Boston, Secretary
- American Broncho Esophagological Association, Atlantic City, N J, June 8-9 Dr Paul H Holinger, 700 North Michigan Blvd, Chicago, Secretary
- American College of Chest Physicians, Atlantic City, N J, June 6-8 Dr Paul H Holinger, 500 North Dearborn St, Chicago, Secretary
- American Diabetes Association, Atlantic City, N J, June 7 Dr Cecil Striker, 630 Vine Street, Cincinnati, Secretary
- American Gastro Enterological Association, Atlantic City, N J, June 8-9 Dr J Arnold Barger, 102 Second Ave SW, Rochester, Minn, Secretary
- American Gynecological Society, Skytop, Pa, June 15-17 Dr Howard C Taylor Jr, 842 Park Ave, New York, Secretary
- American Heart Association, Atlantic City, N J, June 5-6 Dr Howard B Sprague, 50 West 50th St, New York, Secretary
- American Human Serum Association, Atlantic City, N J, June 8 Dr William L Wheeler, 348 West 22d St, New York, Secretary
- American Laryngological, Rhinological and Otolological Society, Atlantic City, N J, June 1-3 Dr C Stewart Nash, 277 Alexander St, Rochester, N Y, Secretary
- American Medical Women's Association, Atlantic City, N J, June 6-7 Dr Ada Chree Reid, 102 East 22d St, New York, Secretary
- American Neurological Association, Chicago, June 4-6 Dr Henry A Riley, 117 East 72d St, New York, Secretary
- American Ophthalmological Society, Hot Springs, Va, June 1-3 Dr Eugene M Blake, 303 Whitney Ave, New Haven, Conn, Secretary
- American Orthopedic Association, Baltimore, June 3-6 Dr Charles W Peabody, 474 Fisher Bldg, Detroit, Secretary
- American Physiotherapy Association, Lake Geneva, Wis, June 28-July 1 Miss Evelyn Anderson, Stanford University, Calif, Secretary
- American Proctologic Society, Atlantic City, N J, June 7 Dr William H Daniel, 1930 Wilshire Blvd, Los Angeles, Secretary
- American Radium Society, Atlantic City, N J, June 8-9 Dr Axel A Arneson, 4952 Maryland Ave, St Louis, Secretary
- American Rheumatism Association, Atlantic City, N J, June 8 Dr A R Shands, Dupont Institute, Wilmington, Del, Secretary
- American Society of Clinical Pathologists, Philadelphia, June 5-7 Dr Alfred S Giordano, 531 North Main St, South Bend, Ind, Secretary
- American Therapeutic Society, Atlantic City, N J, June 5-6 Dr Os B Hunter, 1835 Eye St NW, Washington, D C, Secretary
- American Urological Association, New York, June 1-4 Dr Clyde L Deming, 789 Howard Ave, New Haven, Conn, Secretary
- Association for the Study of Internal Secretions, Atlantic City, N J, June 8-9 Dr Henry H Turner, 1200 North Walker St, Oklahoma City, Secretary
- Connecticut State Medical Society, Middletown, June 3-4 Dr Crest Barker, 258 Church St, New Haven, Secretary
- Maine Medical Association, Poland, June 21-23 Dr Frederick R Cribb, 142 High Street, Portland, Secretary
- Minnesota State Medical Association, Duluth, June 29-July 1 Dr B I Souster, 493 Lowry Medical Arts Bldg, St Paul, Secretary
- Montana Medical Association of, Missoula, July 8-10 Dr Thomas F Walker, 206 Medical Arts Bldg, Great Falls, Secretary
- National Gastroenterological Association, New York, June 3-5 Dr G Randolph Manning, 1819 Broadway, New York, Secretary
- New Mexico Medical Society, Santa Fe, June 25-28 Dr L B C, 221 W Central Avenue, Albuquerque, Secretary
- Pacific Northwest Medical Association, Portland, Ore, June 17-19 Dr C W Countryman, 407 Riverside Ave, Spokane, Secretary
- Rhode Island Medical Society, Providence, June 3-4 Dr V J Buffum, 122 Waterman St, Providence, Secretary
- West Virginia Medical Association, White Sulphur Springs, June 1-3 Mr Charles Lively, 1031 Quarrier St, Charleston, Secretary



## Current Medical Literature

### AMERICAN

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Titles marked with an asterisk (\*) are abstracted below.

### American J Obstetrics and Gynecology, St. Louis

43 365-546 (March) 1942

- \*Relation of Inhalation Anesthesia and Anesthesia to Asphyxia Neonatorum. C. J. Lund, Madison, Wis.—p. 365.
- \*Radium in Treatment of Uterine Bleeding Caused by Benign Lesions. L. M. Randall, S. B. Lovelady, and F. S. Sluder, Rochester, Minn.—p. 377.
- Clinical Evaluation of Equine Gonadotropin. L. A. Gray, Louisville, Ky.—p. 387.
- Gynecographic Aid in Diagnosis of Ectopic Pregnancy. I. F. Stein, Chicago.—p. 400.
- \*Use of Uterine Packs Impregnated with Sulfanilamide. Preliminary Report. H. E. Anderson, H. L. Gardner, M. F. Gunderson, and J. M. Shek, Omaha.—p. 410.
- Premature Rupture of Membranes. Clinical Study. J. H. Morton, C. S. Penbody, I. Newdorp, and F. L. Adair, Chicago.—p. 422.
- Study of 115 Cases of Ruptured Ectopic Pregnancy. W. O. Johnson, Louisville, Ky.—p. 437.
- Clinical Application of Ergonovine During Third Stage of Labor. A. W. Diddle, Iowa City.—p. 450.
- Effect of Lymphogranuloma Venereum on Pregnancy, Labor, and Fetus. C. L. Wilson and H. C. Hecht, Chicago.—p. 459.
- Nutritional Edema in Pregnancy with Analysis of Eight Severe Cases. R. E. Arnell and W. F. Guerrero, New Orleans.—p. 467.
- Syphilis in Obstetrics. E. D. Platts, Iowa City, with assistance of Naomi Sacks.—p. 484.
- Review of Seventy-Five Cases of Eclampsia with Particular Reference to Late Cardiovascular Renal Effects. C. S. McClellan, W. D. Strayhorn, and P. M. Densen, Nashville, Tenn.—p. 493.
- Diaphragmatic Hernia in Newborn Infant. J. A. Haugen and C. J. Ehrenberg, Minneapolis.—p. 502.
- \*Pregnancy in Syphilitic Mother. Study of 955 Pregnancies at Cook County Hospital. S. J. Benenson, Chicago.—p. 505.
- Treatment of Hydrocephalus in Cephalic Presentation. C. T. O'Connor and A. I. Gorman, Boston.—p. 521.
- Unruptured Tubal Pregnancy Diagnosed by Gynecography. Case. I. F. Stein, Chicago.—p. 525.
- Theca Cell Tumor. W. C. Danforth, Evanston, Ill.—p. 526.

**Asphyxia Neonatorum.**—Lund observed that among 1982 consecutive deliveries nitrous oxide ethylene and cyclopropane when used as an analgesic did not materially influence the incidence of neonatal asphyxia. However, when cyclopropane and agents other than nitrous oxide were used in anesthetic concentrations there was an increase in the incidence of fetal asphyxia. Prematurity, the complications of pregnancy and labor, the method of delivery and the misuse of analgesic agents were of greater significance in neonatal asphyxia than were the various inhalation agents when properly administered.

**Radium in Uterine Bleeding.**—Randall and his associates analyzed the follow-up records of 196 women whose atypical uterine bleeding (menorrhagia and/or metrorrhagia) caused by benign conditions was treated five or more years ago with radium or roentgen rays. For women in the first half of reproductive life treatment should aim to regulate and preserve the menstrual function. A fair percentage of successful results has been obtained with doses of from 150 to 300 millicurie hours for women less than 30. Varying initial doses of radium given to 79 women 40 or less years of age without demonstrable myomas produced satisfactory results in 47. An additional 10 patients given subsequent radium treatment had good results. Hysterectomy was required by 12 patients before the bleeding was controlled and 8 had severe menopausal symptoms. Four pregnancies occurred among the 64 married women. Of 35 patients 40 or less years of age who had myomas 15 obtained satisfactory results following the initial dose of radium. 1 patient had a subsequent application of radium. 17 had a subsequent hysterectomy and 4 complained of severe menopausal symptoms. Of the 30 married women only 1 became pregnant after treatment. Twenty-five of the 27 patients aged more than 40 who

did not have myomas obtained satisfactory results after 1,000 or more millicurie hours of radium treatment. Four of these patients had severe menopausal symptoms and 1 died of a pulmonary embolus on the fourteenth day after dilation, curettage and insertion of radium. Of 20 similar patients who had myomas the results were satisfactory for 18 and 1 had severe menopausal symptoms. The results of abdominal and vaginal application of radium were satisfactory in 10 of 14 patients in both age groups. Two patients experienced severe menopausal symptoms and one pregnancy occurred among the 12 married women. Of 21 women with functional uterine bleeding treated with 700 to 1,760 roentgens 19 experienced satisfactory results. The bleeding of the 13 aged more than 40 was controlled with the initial dose of roentgen rays. Among the 8 patients aged 40 or less, 1 required further roentgen therapy and 1 patient a hysterectomy. There were no deaths following roentgen therapy.

**Uterine Packs with Sulfanilamide.**—Anderson and his co-workers used uterine packs impregnated with sulfanilamide to control postpartum hemorrhage in 37 women. The results were compared with those obtained with twenty-seven plain packs and six iodoform packs. The average length of time that packs remained in the uterus was fifty-four and one-half hours for the sulfanilamide, forty-three hours for the plain and forty-two and one-half hours for the iodoform. The uncorrected morbidity (temperature of 100.4 F or more) was 72 per cent for the plain packs, 38 per cent for the sulfanilamide and 20 per cent for the iodoform pack. In the sulfanilamide group, 1 patient had a severe paronychia with a temperature of 102 F during the first five postpartum days, another patient had acute sinusitis with a temperature of 104 F following delivery and a third was thought to have an acute appendicitis but instead a hematoma was found in the region of the infundibulopelvic ligament, this in the operator's judgment was not produced by the uterine pack. All rises of temperature of patients in the plain pack group were considered to be due directly to the packs. Two of these patients had a rather severe acute endometritis, and bacteriologic study of both showed nonhemolytic streptococci aerobically and Staphylococcus aureus and albus on anaerobic culture. Both were treated with sulfathiazole and recovered. If the sulfanilamide pack, the authors point out had no therapeutic virtue other than removing vaginal odor, its use would be justified. Almost without exception there was no odor while the pack was in place or after it was removed. The purpose of the sulfanilamide pack is prophylactic because of the bacteriostatic action of the drug at the site of contact.

**Pregnancy in Syphilitic Mother.**—Benenson discusses the results of antisyphilitic treatment for 935 pregnancies that occurred in 722 syphilitic women. A previous survey disclosed that among pregnant patients who had weakly positive Wassermann reactions and who were not treated 35 per cent had syphilitic complications. This led to a careful search for other evidence of syphilis and when a suggestive history was obtained, therapy was instituted even though an occasional patient was treated unnecessarily. Treatment prior to delivery consisted of a minimum of five to a maximum of forty weekly intravenous injections of 0.6 Gm of nearsphenamine and 0.13 Gm of bismuth salicylate or 0.2 Gm of bismarsen intramuscularly. There were no rest intervals during the antepartum period. If at any time syphilis was suspected or diagnosed in the infant he was referred to another agency for therapy. The mother was offered treatment for one year after delivery. About 17 per cent of the patients returned pregnant again within one to two years. All patients before discharge were urged to resume treatment whenever they became pregnant. The data reveal that only 39 per cent of all untreated mothers transmit the infection to the fetus as compared to 67 per cent in the entire group. The results among 350 patients receiving more than ten treatments were especially noteworthy: there were only fifteen failures. Study shows conclusively that patients receiving adequate therapy, particularly those also treated before pregnancy, can be completely prevented from transmitting syphilis. Third generation syphilis was extremely rare. The dangers of arsenic therapy to the mother (one death among the 722 patients due to arsenical exfoliative dermatitis) must always be considered and treatment should be stopped at the slightest indication that a reaction may be imminent.



**American Journal of Physiology, Baltimore****136 1-222 (March) 1942 Partial Index**

- Effect of Hypoglycemia on Electroencephalogram at Varying Degrees of Oxygenation of Blood E Gellhorn and M Kessler, Chicago —p 1
- Central Stimulation of Respiration During Hypoxia C A Moyer and H K Beecher, Boston —p 13
- Experimental Investigation on Effects of Trauma and Traumatic Shock on Gastrointestinal Motility and Secretions H Necheles and W H Olson, Chicago —p 32
- Use of Double Work Periods in Study of Fatigue and Influence of Caffeine on Recovery E Foltz, A C Ivy and C J Barborka, Chicago —p 79
- Heat Exchanges During Recovery from Experimental Deficit of Body Heat E A Pinson and E F Adolph, Rochester, N Y —p 105
- Pressure of Blood in Right Auricle, in Animals and in Man Under Normal Conditions and in Right Heart Failure D W Richards Jr, A Courmand R C Darling, W H Gillespie and Eleanor D Baldwin, New York —p 115
- Influence of Anterior Pituitary Extract on Protein and Carbohydrate Metabolism K E Paschikis, Philadelphia —p 128
- Observations on Physiologic Reactions of Ductus Arteriosus J A Kennedy and S L Clark Nashville, Tenn —p 140
- Training and Its Effect on Man at Rest and at Work C A Knich, D B Dill and W Neufeld, Boston —p 148
- Metabolism of Fructose by Eviscerated Rat R M Remick, Minneapolis —p 167
- Changes Produced on Oxygen and Carbon Dioxide Content of Arterial and Venous Blood of Brain During Diathermy Therapy for General Paresis J M Looney and E J Borkovic, Worcester, Mass —p 177
- Combination of Hypoxic and Hypercapnic Stimulation at Carotid Body C V Winder, Ann Arbor, Mich —p 200
- Flow of Lymph from Lungs of Dog Madeleine F Warren and C K Drinker, Boston —p 207

**American Journal of Psychiatry, New York****98 475-632 (Jan) 1942 Partial Index**

- Origin and Development of Nervous Disturbances Experimentally Produced W H Gantt, Baltimore —p 475
- Effect of Thyroid Medication on Brain Metabolism of Cretins H E Himwich, Albany N Y, C Daly, J F Fazekas and H C Herrlich —p 489
- Electroencephalographic Studies in Delinquent Behavior Problem Children N Q Brill Herta Seidemann Helen Montague and B H Balser, New York —p 494
- Delinquency and Electroencephalography W T Brown and C I Solomon New Haven Conn —p 499
- Neuropsychiatric Examination at Rhode Island Army Induction Station H E Kiene A S Hassell and H Miller Providence R I —p 509
- Study of Frontal Lobotomy Neurosurgical and Psychiatric Features and Results in Twenty Two Cases with Detailed Report on Five Chronic Schizophrenics E A Strecker H D Palmer and F C Grant Philadelphia —p 524
- Question of Vertebral Fractures in Convulsive Therapy and in Epilepsy H J Worthing and L B Kalinowsky Brentwood N Y —p 533
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- Heredoconstitutional Mechanisms of Predisposition and Resistance to Schizophrenia F J Kallmann and S E Barrera, New York —p 544
- Electroshock Treatment in Psychoses L H Smith, J Hughes, D W Hastings and B J Alpers Philadelphia —p 558
- \*Results in Use of Amphetamine (Benzedrine) Sulfate as Adjuvant in Treatment of Chronic Alcoholism W Bloomberg Boston —p 562
- Convulsions of Early Life and Their Relation to Chronic Convulsive Disorders and Mental Defect D A Thom, Boston —p 574

**Amphetamine in Treatment of Alcoholism**—Bloomberg administered amphetamine sulfate as an adjunct in the treatment of 56 patients with chronic alcoholism. This therapy effectively combated the depression and general malaise of the acute "hangover" and continued to combat these symptoms throughout the weeks of readjustment following the total withdrawal of alcohol. The amphetamine sulfate was as effective as alcohol in overcoming the depression and jitters of the hangover. It made it possible for the patient to stop drinking with no consequent great discomfort. The drug makes hospitalization for readjustment unnecessary for most patients. This is of enormous psychologic value, as a week of voluntary abstinence is better than six months of enforced and involuntary teetotalism. The fact that amphetamine gives an immediately perceptible effect and helps the process in the first few days makes rapport between patient and physician much easier to attain. Something tangible and specific has been done for the patient and his immediate unpleasant symptoms, and he is much more willing to try to cure himself by "talking." Alcoholic addicts are accustomed to solve their difficulties by ingesting something, usually alcohol, and it appears reasonable to them that something they ingest should help them. Amphetamine is substituted for alcohol in the habit pattern, yet the effect is good rather than bad and the internal logic of the situation for them is satisfied. Furthermore, after the first few weeks

amphetamine smooths out mood swings and gives the patient the kind of "lift" on his bad days that he had always hoped but never did get from alcohol. Frequently patients being treated with the drug say that they "have no more craving for liquor." What they probably mean is that with amphetamine they are able to face their life situations without alcohol. The drug was extremely useful as an aid to whatever other therapy was being administered. Some patients have responded to amphetamine without any other therapy. In the whole series, the degree of modified drinking habits, the number of total abstainers and the number of generally good results would appear to be greater than that usually expected with other psychiatric methods. These results warrant further trial.

**Annals of Surgery, Philadelphia****115 161-320 (Feb) 1942**

- \*Lateral Aberrant Thyroids V K Frantz, R Forsythe, J M Hanford and W M Rogers New York —p 161
- Masked Hyperthyroidism L Breidenbach and E Appelbaum New York —p 184
- End Results of Thyroidectomy L Dobson, H Seely and H Ro e Jr San Francisco —p 199
- Iodine Metabolism in Thyroid Disease Clinical and Experimental Observations J W Hinton, E B Eckerson and M Bruger, New York —p 206
- Cardiospasm C Eggers, New York —p 215
- Management of Appendical Peritonitis, with Special Reference to Operative Handling of Localized Abscess L Guerry and G T McCutchen, Columbia, S C —p 228
- Bile Peritonitis Report of Eight Cases C W McLaughlin Jr Omaha —p 240
- \*Black Widow Spider Bite H T Kirby Smith Seawee Tenn —p 249
- Sebaceous Gland Carcinoma A Beach and A O Severance San Antonio, Texas —p 258
- \*Neuropathic Arthropathy of Ankle Joint Resulting from Complete Severance of Sciatic Nerve G Kernwein and W F Lyon, Chicago —p 267
- Primary Reticulum Cell Sarcoma of Bone Report of Two Cases with Bone Regeneration Following Roentgenotherapy C Szutu and C Hsieh, Peking China —p 280
- Peripheral Arteriosclerosis N C Schlossmann, New York and L Gerber, Washington, D C —p 292
- Treatment of Severe Staphylococcal Infection with Specific Type A Antibacterial Serum H G McNamee, Philadelphia —p 308

**Lateral Aberrant Thyroid**—Frantz and his associates urge surgical intervention for the lateral aberrant thyroid which at first appears as a relatively benign lesion. A tumor was present in 27 of their 30 patients with a lateral aberrant thyroid and in 23 of the 27 the lesion was malignant. There were 8 deaths among the 23 patients. They believe that by the surgical approach at least some of the late unexpected deaths may be avoided. To determine the true nature of these tumors a follow-up study is essential. The distinction between a tumor of a lateral aberrant thyroid and metastasis to cervical lymph nodes from carcinoma of the thyroid is difficult and at times impossible. The authors make a diagnosis of metastasis only when groups of tumor cells lie scattered in a structure having the architecture of a lymph node, i e marginal sinus, sinusoids and lymph follicles. Biopsy of one or more nodules is advised and, if the study shows the lesion to be benign, all the nodules should be removed, because many such tumors with a long history of stationary masses subsequently were proved to be carcinoma. If the biopsy shows malignant disease with or without involvement of the lymph nodes a radical neck dissection is advisable, on both sides if the disease is bilateral. If the thyroid is involved, partial or complete thyroidectomy is indicated. Evidence on the effect of roentgenotherapy is meager, but at least 2 patients appeared to have the disease arrested. Others had recurrences during treatment. However, it is the only therapeutic measure for a tumor which is considered inoperable. All these tumors should be considered potentially malignant, treated radically and followed indefinitely.

**Black Widow Spider Bite**—Kirby-Smith believes that bites by *Latrodectus mactans*, the black widow spider, are more frequently than is generally supposed. He has collected 15 cases from the records of the Vanderbilt Hospital and encountered 9 cases during five years of private practice. Fourteen of the 24 patients were reported before 1933. Fourteen of the 24 patients actually saw the spider, and the history and subsequent course of symptoms of the other 10 leave no doubt that they were bitten by the black widow. Eleven of the bites were on the penis, four on the buttocks, one on the scrotum or thigh, four on the arms and hands one on the chest.

the knee and the site of one was not mentioned. Sixteen of the victims were bitten while in a privy. Twenty-two of the patients were male. Symptoms ensued from five minutes to two and a half hours after the bite. The bites were inflicted from April through October. There was 1 death and in 1 case a mistaken diagnosis led to echiotomy. Death following a bite by a black widow spider is uncommon despite the report by Bogen who collected approximately 600 cases with 40 deaths. The record of these deaths were not obtained from published articles but from death certificates, newspaper reports and personal communication. Among 248 cases collected from literature there were no recorded fatalities. Judging from the cases reviewed it appears to Kirby Smith that arachnidism usually results in complete recovery without sequelae in three days or less.

**Neuropathic Arthropathy.**—Kernwein and Lyon report a case of a neuropathic joint. There are three theories of pathogenesis advanced for neuropathic joints: the traumatic, the trophic and the mechanical theory. In many persons with elastic tibiae dorsalis including ataxia, hypotonia and loss of sensibility deep in the joint neuropathic joints never develop. In others with bilateral sensory changes only unilateral neuropathies develop. In the latter a history of trauma to the afflicted limb can usually be elicited. The events of the injury is overlooked because pain is absent. Inadequate treatment results in the rapid development of a neuropathic joint. That the loss of articular sensation alone does not cause a neuropathic joint to develop in man is therefore apparent. That destruction of articular sensation by cutting the posterior roots does produce a neuropathic joint in dogs, cats or rabbits has been repeatedly confirmed. The authors' case supports the mechanical theory. Severance of the sciatic nerve resulted in the development of a combined motor and sensory lesion. Definite atrophic changes appeared in the muscles of the leg and the ankle relaxed because of loss of motor nerve supply. The sensory loss was characterized by a decided ataxia and anesthesia below the knee. The trauma associated with the act of walking on such a limb was often excessive because the protective sense of pain was absent. This was sufficient to cause the joint to disintegrate. Roentgenograms of the ankle revealed changes typical of those ascribed to neuropathic joints. The opposing articular surfaces with some sclerosis but no atrophy showed particular destruction. Disseminated throughout the enlarged joint were numerous fragments of bone. An unusual feature was the extra articular migration of particles of bone which caused shadows in the roentgenograms. As the periosteum was stripped by the distended capsule radiating spicules or new bone were present on the lateral surface of the fibula and mesial surface of the tibia.

### Archives of Surgery, Chicago

44 399-598 (March) 1942

- Physiology of Gastric Secretion Particularly as Related to Ulcer Problem. M. J. Schiffrin and A. C. Ivy. Chicago—p. 399.
- Motor Physiology of Stomach, Pylorus and Duodenum with Special Reference to Gastroduodenal Ulcer. J. P. Quigley. Cleveland—p. 417.
- \*Pathogenesis of Gastroduodenal Ulcer. L. R. Dragstedt. Chicago—p. 438.
- Peptic Ulcer and Gastric Secretion. W. L. Palmer. Chicago—p. 442.
- Gastroscopic Differential Diagnosis of Benign and Malignant Ulcer of Stomach. Analysis of Gastroscopic Picture of 133 Lesions. R. Schindler. Chicago and O. Arndal. Glendale, Calif.—p. 473.
- Criteria of Acceptable Operation for Ulcer: Importance of Acid Factor. O. H. Wangenstein and B. Lannin. Minneapolis—p. 489.
- \*Surgical Treatment of Duodenal Ulcer. A. W. Allen. Boston—p. 501.
- Gastric Ulcer: Benign or Malignant? W. Walters. Rochester, Minn.—p. 520.
- Vitallium Cup Arthroplasty of Hip. L. D. Baker and C. H. Waters. Jr. Durham, N. C.—p. 531.
- Leg Shortening Operation for Equalizing Leg Length. M. B. Howarth. New York—p. 543.
- Transpleural Esophagogastronomy: Report of Successful Case. A. F. Jonas. Jr. Omaha—p. 556.
- Review of Urologic Surgery (concluded). A. J. Schell. Los Angeles.
- F. Hinman. San Francisco. A. von Lichtenberg. Mexico. D. F. Mexico. A. B. Hepler. Seattle. R. Gutierrez. New York. G. J. Thompson. J. T. Priestley. Rochester, Minn. E. Wildbely. Berne, Switzerland and V. J. O'Connor. Chicago—p. 562.

**Gastroduodenal Ulcer.**—Dragstedt states that the chemical and mechanical traumas produced by the normal content of the stomach are not sufficient to cause ulcers in the normal gastric and duodenal mucosa and to prevent them from heal-

ing or to delay the healing of an extensive artificial lesion. This resistance to the digestive action of the normal content of the stomach is not only limited to the gastric and the duodenal mucosa but is displayed by the spleen, the kidney and the pancreas. Pure gastric juice, on the other hand, can destroy and digest all living tissue including the gastric wall. In this effect the gross and the microscopic appearance of the typical progressive ulcer and the associated gastritis in man are exactly reproduced in the experimental animal. Under normal conditions the gastric wall is not digested away because it is not exposed to pure gastric juice. Food which is the stimulus for the formation of gastric juice is also the chief factor that protects gastric tissue against its corrosive activity. Pancreatic juice, gastric and intestinal mucus, duodenal juice and bile (probably in the order named) constitute an additional protective mechanism for the duodenal the gastric and the jejunal mucosa. When an excessive amount of normal gastric juice is continuously secreted by the experimental animal this defensive neutralizing mechanism is overcome and ulcer ensues. It is probable that in man a similar excessive secretion occurs and ulcer results. Hypersecretion is most likely neurogenic and abnormal in that it operates when food the usual stimulus for gastric secretion, is absent.

**Surgical Treatment of Duodenal Ulcer.**—Although duodenal ulcer responds well to conservative measures complications which require surgical intervention develop in about 20 per cent of patients with this functional disorder. The patient with a complication Allen says is usually the victim of ulceration in an area that gives no warning or activation until massive hemorrhage perforation duodenal or pyloric stenosis or intractability takes place. For acute perforation simple closure of the perforation combined with proper after-care is all that is indicated. The patient with a massive hemorrhage from duodenal ulcer must be hospitalized immediately. With conservative treatment in a patient less than 45 the hemorrhage will cease spontaneously and after complete recovery an elective subtotal gastrectomy is advised. Patients more than 45 years of age are likely to bleed to death in spite of the best conservative care. Their condition should be evaluated on admission and radical surgical intervention undertaken within seventy-hours after the onset of bleeding. If the delay has exceeded three days conservative treatment should be continued as the aged patient will rarely withstand radical operation after a week or more of repeated hemorrhage and starvation. Posterior gastroenterostomy, pyloroplasty and gastroduodenostomy are indicated only for cicatricial obstruction in the aged patient. Surgical cure of the duodenal ulcer can be brought about only by subtotal gastrectomy meaning the elimination of all the acid activating cells in the antrum and a large proportion of the acid cells in the fundus of the stomach. The operative mortality of the procedure is compatible with the results obtained.

### Bulletin of Johns Hopkins Hospital, Baltimore

70 101-200 (Feb.) 1942

- \*Present Incidence of Tuberculosis Infection. W. H. Carnes. New York—p. 101.
- Clinical and Anatomic Survey of Neurologic Conditions Resulting from Metastases in Central Nervous System Due to Carcinoma of Lung. Review of 109 Cases. A. B. King and F. R. Ford. Baltimore—p. 124.
- Dietary Protein and Permeability of Serum Albumin. IV. Potency Values of Dried Beef Serum, Whole Egg, Cow's Milk, Cow's Colostrum, Lactalbumin and Wheat Gluten. A. A. Welch. New York—p. 127.
- Nutritional Dermatoses in Rats. VII. Notes on Porcine Gastric and Hypertrophic Resulting from Diet Containing Unheated Dried Egg White as Source of Protein. M. Sullivan, L. Kell and Jane Nichol. Baltimore—p. 177.

**Incidence of Tuberculous Infection.**—To determine the validity of the tuberculin test as an indicator of the incidence of tuberculous infection Carnes examined post mortem a representative sample of 536 patients aged 6 weeks to 89 years whose death was not due to tuberculosis. The data from a plotted frequency curve show a rapid increase in acquiring the infection in the first few years of life. The steepest part of the curve lies between the ages of 10 and 15 and indicates an increase in the infected portion of the population examined or about 25 per cent in this brief span of life. The curve also indicates that by the age of 20 approximately 70 per cent of the

individuals are infected. After this age the incidence rises more and more slowly and approximates 100 per cent after the age of 60. The incidence of infection among the entire adult population of the community (calculated on the urban population of Maryland, U S Bureau of the Census, 1940) is estimated at approximately 90 per cent. If the curve does represent the true incidence of infection in Baltimore today, its most important implication is that a considerable body of young adults exists who have had no previous immunization against tuberculosis. The prevailing doctrine of the pathogenesis of adult tuberculosis would require that the childhood type of disease develop in these individuals when exposed. However, the proportion of noninfected young adults was sufficiently large to allow some doubt of the doctrine that previous infection is necessary for the development of the adult type of disease. The analysis did not include the type or location of the lesion, but the mesenteric lesion was encountered infrequently, four among the one hundred and fifty-three mesenteries roentgenographed. The four lesions had the characteristics of a primary intestinal complex, but in two there was also evidence of a primary type of pulmonary infection. Such lesions were not found in 84 individuals aged less than 20 years. The results suggest a moderate fall in the incidence of infection in adults since the study of Opie in St. Louis in 1916, however, the statistical comparison of these data does not yield a conclusive answer. Analysis of the numerous anatomic European investigations carried out in this century shows considerable local differences in incidence. The more recent European surveys do not reveal any great change in the past generation in spite of a decided decline in mortality. These considerations make it essential that similar anatomic surveys be conducted in numerous localities in the United States before any conclusion regarding the present prevalence of the disease in this country is reached. The effect of a lower mortality and morbidity on the extent of its distribution in the population can be evaluated only after such studies have been repeated at intervals in the same localities. A comparison of the available tuberculin and anatomic surveys suggests that the decided decrease in the rate of exposure of the population in recent times may have resulted in a greater decrease in the number of infected persons who maintain their hypersensitivity than in the proportion of infected individuals. This is supported by the increasing frequency with which calcified lesions are found in individuals who do not react to tuberculin.

### Cancer Research, Baltimore

2 157-236 (March) 1942

- Examination of Dimethylanthracenes for Carcinogenic Properties. E. L. Kennaway, N. M. Kennaway and F. L. Warren, London, England—p 157
- Metabolism of Dimethylaminoazobenzene (Butter Yellow) in Rats. Elizabeth S. Stevenson, K. Dobriner and C. P. Rhoads, New York—p 160
- Effect of Carcinogens on Hepatic Vitamin A Stores of Mice and Rats. C. Caruthers, St. Louis—p 168
- Choline in Tumor Bearing Animals and Choline like Effect of Butter Yellow. H. P. Jacoby and C. A. Baumann, Madison, Wis—p 175
- Absence of Carcinogenicity of Cod Liver Oil Concentrate. P. E. Steiner, Chicago—p 181
- Nonadditive Effect of Ultraviolet Light and Other Carcinogenic Procedures. H. P. Rusch, B. E. Kline and C. A. Baumann, Madison, Wis—p 183
- Some Additive Effects of Carcinogenic Hydrocarbons. P. S. Lavik, P. R. Moore, H. P. Rusch and C. A. Baumann, Madison, Wis—p 189
- Effect of Solvents in Methylcholanthrene Epidermal Carcinogenesis. Comparison of Benzene and Acetone. R. E. Stowell and W. Cramer, St. Louis—p 193
- Influence of Toxic Amounts of Estrin on Intact and Castrated Male Marsh Buffalo Mice. F. Bischoff, M. Louisa Long, J. J. Rupp and Georgena J. Clarke, Santa Barbara, Calif—p 198
- Quantitative Aspects of Antifibromatogenic Action of Synthetic Desoxy corticosterone Acetate. A. Lipschutz, J. V. Luco and J. Zañartu, Santiago, Chile—p 200
- Relation of Antifibromatogenic Activity of Certain Steroids to Their Molecular Structure and to Various Actions of These Hormones. A. Lipschutz, O. Vera and S. Gonzalez, Santiago, Chile—p 204
- Occurrence of Crystalline Material in Lungs of Normal and Cancerous Swiss Mice. Elizabeth Ufford Green Bryn Mawr Pa—p 210
- Stimulating Action of Nucleic Acids on Mouse Heart Fibroblasts. R. Tennant, New Haven Conn., K. G. Stern and A. A. Liebow, Meriden, Conn., with technical assistance of Elizabeth Carter—p 218
- Hemoglobin Level and Tumor Growth. A. Taylor and M. A. Pollack, Austin, Texas—p 223

### Delaware State Medical Journal, Wilmington

14 19-36 (Feb) 1942

- Carcinoma of Pancreas. Analysis of Clinical Data on Forty Seven Proved Cases. L. J. Rigney, Wilmington—p 19
- Some Aspects of Eye Muscle Problems. N. L. Cutler, Wilmington—p 23
- Transfusion via Bone Marrow. Case Report. G. J. Boines, Wilmington—p 28

### Iowa State Medical Society Journal, Des Moines

32 103-156 (March) 1942

- Newer Conceptions in Diagnosis and Treatment of Urinary Tract Infections. A. D. Munger, Lincoln, Neb—p 112
- Recognizing Borderline Conditions of Malnutrition. J. D. Boyd, Iowa City—p 116
- \*Sources of Failure in Surgical Treatment of Duodenal Ulcer. J. R. Buchbinder, Chicago—p 119
- Von Recklinghausen's Disease with Flat "Bladder like" Lesions Complicated by Paroxysms of Hypertension and Pneumothorax. R. T. Smith and D. J. Haines, Des Moines—p 124
- Plan for Closer Cooperation Between General Practitioner and State Hospitals. N. Blackman, Clarinda—p 126

**Surgical Treatment of Duodenal Ulcer**—Buchbinder points out that the goal of operative treatment of chronic duodenal ulcer is anacidity and a rapid gastric emptying time. Postoperative failure of surgical cure is usually associated with the failure to obtain both of these conditions. Used indiscriminately or as routine, gastrojejunostomy will fail in a large percentage of cases. Wide gastric resection, while not routinely possible, by accomplishing anacidity and a rapid emptying time in the largest percentage of recurring and marginal ulcer is the most desirable operative procedure. In certain instances its use is mandatory, and increasing experience with a definitely lowered mortality rate has made it applicable in most cases.

### Journal of Immunology, Baltimore

43 129-212 (Feb) 1942

- Studies of Antipneumococcus Serum. II. Complement Fixing Activity of Antipneumococcus Rabbit Serum with Homologous Type Specific Carbohydrate, Technique of Test, General Quantitative Relations Among Reagents. Christine E. Rice, Albany, N. Y.—p 129
- Virus Neutralization Test, Subject to Standardization. Used with Western Equine Encephalomyelitis, St. Louis Encephalitis and Mosquito Adapted Poliomyelitis Viruses. W. M. Hammon and E. M. Izumi, San Francisco—p 149
- Effect of Homologous Antiserum and Complement on Multiplication of Vaccinia Virus in Roller Tube Cultures of Blood Mononuclear Cells. A. L. Florman and J. F. Enders, Boston—p 159
- Further Studies on Serology of Pneumococcus Group. E. Møller, Copenhagen, Denmark—p 177
- Selective Agglutination. Possible Substitute for Absorption Test in Classification of Brucella, Salmonella or Their Antiserum. M. R. Castaneda, Mexico, D. F., Mexico—p 203

### Journal Industrial Hygiene & Toxicology, Baltimore

24 21-42 (Feb) 1942

- Mercury Poisoning from Use of Antifouling Plastic Paint. L. J. G. water and C. P. Jeffers, New York—p 21
- New Colorimetric Method for Determination of Trinitrotoluene in Air. S. S. Pinto and J. P. Fahy, Boston—p 24
- Toxicology of Acrylonitrile (Vinyl Cyanide). I. Study of Acute Toxicity. H. C. Dudley and P. A. Neal, Bethesda, Md—p 27
- Aplastic Anemia. L. M. Meyer and V. Ginsberg, Brooklyn—p 31

### Journal of Nat. Cancer Inst., Washington, D. C.

2 309-402 (Feb) 1942

- Trends in Cancer Research. C. Voegtlin—p 309
- Tumor Immunity. R. R. Spencer—p 317
- Production of Tumors in Mice Following Removal of Methylcholanthrene Cholesterol Pellets. H. B. Anderson and M. J. Shear—p 319
- Mitotic Frequency in Methylcholanthrene Epidermal Carcinoma in Mice. Zola K. Cooper and Helen C. Reller—p 335
- Liver Catalase Activity of Tumor Bearing Mice and Effect of Stereocous Regression and of Removal of Certain Tumors. J. P. 6 stein and H. B. Anderson—p 345
- Method of Evaluating Thymonucleopolymerase Activity in Normal Tumor Tissues. J. P. Greenstein—p 357
- Studies in Carcinogenesis. XVII. Local Effect of Repeated Application of 3,4-Benzpyrene and of Human Smegma to the Vagina and of Mice. M. Fishman, M. J. Shear, H. F. Friedman and H. L. Stewart—p 361
- Early Stages of Carcinogenesis by 20 Methylcholanthrene in Mouse. I. Experimental Technique and Macroscopic Changes. Cramer and R. E. Stowell—p 369
- Id. II. Microscopic Tissue Changes. W. Cramer and R. E. Stowell—p 379

**Journal of Nervous and Mental Disease, New York**

95 265-404 (March) 1942

- Hypocretin: Study of Therapy Produced by Insulin Administered Intravenously A. I. Mahoney and H. H. Herkowitz, Norristown, Pa.—p. 245
- Concerning Transfer of Cerebral Dominance in Function of Speech W. Needell, New York—p. 270
- Role of Manganese in Etiology of Delirium Tremens J. C. Sheps, Ann Arbor, Mich.—p. 285
- Electroencephalography in Cases of Head Injury J. Marmor and A. Savitzky, New York—p. 295
- Functional Speech and Voice Disorder I. S. Greene, New York—p. 299
- Schizophrenia Combined with Severe Dilemma: Report of Case Ann Moellendorf and I. Moellendorf, Leominster, Ill.—p. 310
- Aggressive Female Delinquents: Personality J. H. Conn, Baltimore—p. 316
- Dreams of Schizophrenic Patient O. Kant, Worcester, Mass.—p. 335

**Journal of Thoracic Surgery, St. Louis**

11 241-356 (Feb) 1942

- \*Bronchopneumography: III. Functional Capacity of Normal Lungs Severely Damaged Lungs Lungs with Strictly Parenchymal Lesions Thoracoplasty Lung and Expanded Pneumothorax Lung M. Pinner, C. Feiner, New York and W. A. Zaved, Mount Vernon, N. Y.—p. 241
- Studies of Individual Lung Function: I. Open Circuit Procedure with Air and Low Oxygen Mixture as Inspired Gas W. K. Whitehead, E. J. O'Brien and W. M. Tuttle, Detroit—p. 266
- Bronchopneumography: Ventilation and Oxygen Absorption of Normal and Diseased Lungs During Nitrogen Inspiration in Opposite Lung C. W. Wright, Tridacum, N. Y. and W. Woodruff, Saranac Lake, N. Y.—p. 278
- Treatment of Endobronchial Tuberculosis: Review of 100 Cases J. M. Chamberlain, Oneonta, N. Y. and J. Gordon, Rav Brook, N. Y.—p. 292
- Tuberculous Stenosis of Major Bronchi W. M. Tuttle, E. J. O'Brien, J. C. Day and F. J. Phillips, Detroit—p. 299
- Effect of Thoracoplasty on Pulmonary Tuberculosis Complicated by Stenotic Tuberculous Bronchitis: Incidental Remarks on Pneumocentesis and Lobectomy J. Alexander, Ann Arbor, Mich., G. N. J. Sommer, Jr., Trenton, N. J. and A. A. Flier, Albany, N. Y.—p. 308
- \*Extrapariosteal Pneumonolysis in Pulmonary Tuberculosis: Preliminary Report C. P. Bailey, Philadelphia—p. 326
- Regeneration of Tracheal and Bronchial Epithelium W. B. Condon, Rochester, Minn.—p. 333
- Technic of Ligation of Patent Ductus Arteriosus J. Johnson, W. A. Jeffers and A. Margolis, Philadelphia—p. 347

**Bronchospirography**—Pinner and his associates show that bronchospirographic studies within the field of pulmonary function tests are of practical value. Bronchospirography permits the determination of the total pulmonary function of each lung. In all lungs that are severely damaged functionally, pleural involvement appears to play an important part. Lungs with strictly parenchymal lesions even when far advanced, frequently have only a slightly decreased pulmonary function. Reexpanded pneumothorax lungs may or may not show extensive functional limitation. Thoracoplasty lungs, if not complicated by diaphragmatic paralysis, participate to a considerable degree in respiration. In lungs damaged by disease or treatment respiration is usually much more limited than ventilation. Therefore their function should not be judged only by their vital capacity. Clinical and roentgen studies do not provide a reliable indicator of the functional pulmonary capacity.

**Extrapariosteal Pneumonolysis**—Bailey attempted to overcome the more serious complications of extrapleural pneumothorax and thoracoplasty by an extrapariosteal pneumonolysis. He felt that the phenomena of paradoxical breathing, mediastinal flutter atelectasis and bronchiogenic spread following thoracoplasty were due mainly to the less rigid wall of the chest and to the resultant impairment of the cough function. These symptoms are absent after extrapleural pneumothorax, even though the area collapsed is much greater. Several collapse methods were freely drawn on in devising the operation. The usual thoracoplasty incision is made, and the estimated number of ribs are denuded of periosteum from the transverse processes to nearly the costal cartilage. A 2½ inch piece of the second rib is resected, and the periosteum on the under surface of the first rib is removed. An extensive Semb apicolysis is performed, freeing the apex down to the hilus and continuing down to the lowest denuded rib. The intercostal muscles, nerves and vessels are cut posteriorly so that the lung is mobilized out of the gutter. The anterior attachments of the

intercostals are left intact. This leaves an anterior portion of adherent tissue so that Davidson's modification of the Monaldi method may be employed safely in cases of check valve cavity. The wound is closed in the usual thoracoplasty manner. The space is maintained by aspirations and refills. After three to six months bone regeneration is practically complete on the pulmonary surface, rendering the collapse permanent. Any time after two months, the pneumonolysis may be safely and readily converted into a thoracoplasty by removing the denuded ribs. It is questionable whether this second operation can or should be avoided. Nineteen patients have undergone the operation with no bronchiogenic spread or serious paradoxical breathing. Up to ten ribs have been stripped at one time in patients aged from 15 to 57 years. In several patients the vital capacities were between 1,300 and 1,500 cc, and 3 had acute exudative fibril disease. Of 15 patients with unilateral involvement the operation in 11 was performed more than two months ago, 1 of the 11 died six weeks later as a result of manic depressive psychosis, wound rupture, secondary infection and inanition, and the cavities of 10 are closed and their sputum is converted. The operation of 1 of the 4 with bilateral involvement is very recent; the sputum of 1 is negative (having had contralateral clearing); the sputum of 1 is positive from the other side and the patient is now having pneumothorax therapy, and 1 died of contralateral progression ten months later. Further observation must determine the eventual value of the procedure.

**Journal of Urology, Baltimore**

47 59-202 (Feb) 1942

- Wound of Urogenital Tract in Modern Warfare: Part I. Collective Statistics and Case Reports from American Expeditionary Force and Our Allies: Part II. Discussion of Urogenital Wounds in Modern Warfare H. H. Young, Baltimore—p. 59
- \*Simple Maneuver Designed to Prevent Injury to Diaphragm in Cases of Difficult Nephrectomies J. A. Lazarus, New York—p. 109
- Anatomy of Commoner Renal Anomalies: Ectopic and Horseshoe Kidneys B. J. Aron, J. W. Pick and E. W. Cauldwell, Chicago—p. 112
- Simultaneous Obstruction of Both Ureters with Uremia: Report of Seven Cases L. R. Wharton, Baltimore—p. 133
- \*Occurrence and Clinical Course of Radium Reactions Following Use of Radium Implants in Treatment of Carcinoma of Bladder C. C. Herger and H. R. Sauer, Buffalo—p. 141
- Experimental Studies in Intravesical Photography L. E. McCrea, Philadelphia—p. 148
- Pathology of Experimental Roentgen Cystitis in Dogs W. C. Hueper, C. Virginia Fisher, J. de Carvajal Forero and M. R. Thompson, New York—p. 156
- Cystitis Follicularis B. H. Schlomovitz, Wood, Wis.—p. 168
- Study of Cystinuric Family J. C. Andrews, Chapel Hill, N. C. and R. E. Brooks, Burlington, N. C.—p. 171
- Status of Prosthetic Surgery in Charity Hospital, New Orleans, La., 1938-1940 P. J. Kahle, P. L. Getzoff and J. P. Burton, New Orleans—p. 174
- Studies of Comparative Toxicity: Absorption and Elimination of Sulfacetamide and Sulfanilamide R. S. Fisher and H. B. Haag, Richmond, Va.—p. 183
- Treatment of Acute Epididymitis with Nupercaine in Oil R. Lich, Jr., Louisville, Ky.—p. 196
- Another Aid in Prosthetic Resection N. Belt, Washington, D. C.—p. 199
- Modification of Stern-McCarthy Resectoscope Designed to Increase Its Utility T. E. Gibson, San Francisco—p. 200
- Chromocystoscopy with Neoprontosil A. de la Peña and E. de la Peña, Madrid, Spain—p. 202

**Preventing Injury to Diaphragm in Nephrectomy**

It occurred to Lazarus that the convalescence of nephrectomy could be reduced to a minimum and injury to the diaphragm to which the renal capsule might be adherent avoided by completely dividing the capsule surrounding the upper pole of the kidney, leaving it attached to the under surface of the diaphragm and removing the remainder of the capsule along with the kidney to which it is adherent.

**Radium in Treatment of Carcinoma of Bladder**

Between January 1930 and January 1941, 279 patients who had carcinoma of the bladder were treated by Herger and Sauer with radon implants, 50 were treated with radon implants alone, while 179 also received interstitial irradiation radium pack or electrocoagulation with loop resection either alone or in combination before or after interstitial irradiation. Two hundred and twenty-nine could be traced as to development, clinical course and radium reaction. Telangiectasis or ureteral stricture was not frequent but ulceration was observed in 195 (80.7 per cent) of the patients. In 53 the ulceration was



complicated by incrustation or stone or both. In 103 the ulceration healed and in 92 it persisted either until death or to the follow-up study. The tendency toward the formation of ulceration was least in low grade malignant papillary carcinomas and greatest in highly malignant papillary tumors and solid infiltrating cancers. There was a tendency for ulceration to form in tumors originating in the vesical sphincter or center and border of the trigone, while the prognosis of lesions of the anterior and posterior wall of the bladder was better as to the development and the healing of radium ulceration. Data from 179 patients with single tumors as to the factors that influence the clinical course and the duration of radium ulcerations were collected. The results show that the tendency of radium ulceration to persist is in direct proportion to the size of the area implanted and to the amount of radium delivered. The percentage of persistent ulceration was 62.5 per cent for lesions of from 4 to 5 cm and 71.4 per cent for lesions larger than 5 cm in diameter. If more than 3,000 millicurie hours was delivered, the ulcer persisted in two thirds of the cases. The average duration of radium ulceration when healing took place was ten and six-tenths months. Ulceration of the anterior and posterior wall of the bladder healed faster than that located in the fixed parts of the bladder. Incrustation or stone also prolonged the duration of the radium ulcers.

### Kansas Medical Society Journal, Topeka

43 45-88 (Feb) 1942

- Technic of Simple and Effective Hemorrhoidectomy L J Hirschman, Detroit—p 45  
Management of Early Toxemias of Pregnancy S T Thierstein, Lindsborg—p 49  
Surgical Pathology of Toxic and Nontoxic Goiter C A Hellwig, Wichita—p 52  
Pneumoperitoneum Following Douche M A Walker, Kansas City—p 55  
Cancer of Stomach H E Snyder, Winfield—p 58

### Laryngoscope, St Louis

52 83-168 (Feb) 1942

- Nonsecreting Cysts of Maxillary Sinus Mucosa J R Lindsay, Chicago—p 84  
Sphenoiditic Hydrocephalus I B Goldman, New York—p 101  
Spontaneous Rupture of Lateral Sinus in Otitis Media J I Kemler and G Tiefenthal, Baltimore—p 110  
Thrombophlebitis of Cavernous Sinus of Otic Origin Report of Case J G Druss, New York—p 115  
Adenocarcinoma Arising in Papilloma of First Portion of Duodenum New York—p 122  
Relation of Chest Conditions to Sinus Disease Roentgenologist's Point of View K Kornblum, Philadelphia—p 128  
Hearing and Hearing Aids Review of Recent Literature G Berry, Worcester, Mass—p 143

### Medical Annals of District of Columbia, Washington

11 41-82 (Feb) 1942

- Why Are There So Many Neurotics? W Muncie, Baltimore—p 41  
Digitalis Crude Drug Preparations versus Chemically Pure Principles B F Sieve, Boston—p 47  
Treatment of Thrombophlebitis J R Veal and H H Hussey, Washington—p 52  
Adenocarcinoma Arising in Papilloma of First Portion of Duodenum J R Veal, J J Weinstein and L W Conneen, Washington—p 59  
Subacute Bacterial Endocarditis Report of Case Apparently Cured with Sulfanilamide H Abramson, Washington—p 62

### Michigan State Medical Society Journal, Muskegon

41 173-260 (March) 1942

- \*Acute Appendicitis Twenty Five Year Study E C Cutler and S O Hoerr, Boston—p 203  
Pathogenesis of Acidosis and Alkalosis J L Gamble, Boston—p 210  
Uveitis A Cowin, Philadelphia—p 216  
Cerebral Atrophy in Infants and Children H K Fieber, San Francisco—p 221  
Plastic Surgery of Nose Report of Cases D F Weaver, Detroit—p 229

**Acute Appendicitis**—Cutler and Hoerr state that the mortality rate for acute appendicitis, at least in the Peter Bent Brigham Hospital, remains the same as it was twenty-five years ago despite the advancement in technical surgery. The only way to decrease the rate is to prevent the avoidable deaths of patients who reach the doctor too sick or who take medicine without consulting a physician. A part of the

blame rests with the "corner drug store," but above all the public must be spoken to as a mass, educated in medical matters and even perhaps prevented by laws from taking medical advice from those not competent to give it. Such a move would save more lives than all the improvements in technical surgery which may come in the next twenty-five years. The total mortality for the 2,192 cases of acute unruptured appendicitis, acute perforated appendicitis or appendical abscess encountered at the hospital from 1913 to 1940 was 4.4 per cent, and for the three types of appendicitis it was 1.2, 1.71 and 7.3 per cent, respectively. Today the proportion of cases with perforation or abscess is still greater than 20 per cent, indicating the need of a public educational campaign. An analysis by five year periods shows no significant improvement in the mortality trends for any of the three groups despite the availability of gastro-intestinal siphonage, parenteral fluid therapy and the sulfonamide drugs. A distinct advantage is shown for the McBurney incision, particularly in the acute unruptured appendix that has been drained. The low mortality in undrained cases further encourages restriction of drainage. Study of 14 patients who died during the last three years discloses that 6 died of extra-abdominal complications, 4 of peritonitis despite treatment with the sulfonamide drugs, and that no death could be attributed to the fact that drainage was not instituted. All but 3 of the 14 had symptoms for forty-eight hours or longer before coming to the hospital, and 8 had taken a cathartic (several on the advice of a physician). The disease can be attacked best through earlier diagnosis and treatment rather than through the skilful management of late cases.

### Nebraska State Medical Journal, Lincoln

27 77-116 (March) 1942

- Sounds Which Appear in Cardiac Diastole A L Smith, Lincoln—p 87  
Cardiac Disease Complicated by Pregnancy W E Brown and E C Sage, Omaha—p 91  
The "History" in the Study of the Cardiac Case R L Traylor, Omaha—p 94  
Physical Examination of Heart A D Cloyd, Omaha—p 96  
Radiologic Examination of Heart H B Hunt, Omaha—p 99  
Place of Electrocardiography in Examination of Heart M W Barry, Omaha—p 101

### New England Journal of Medicine, Boston

226 323-366 (Feb 26) 1942

- \*Treatment of Mammary Pain and Secretion with Testosterone Propionate I T Nathanson, J V Meigs and L Parsons, Boston—p 323  
\*Comparison of Blood Prothrombin Levels with Standard Function Tests in Diseases of Liver F W White, E Deutsch and S Madjack, Boston—p 327  
Fractures Around Ankle Joint W Darrach, New York—p 331  
Hereditary Telangiectasis Report of Case L I Stellar, Boston—p 336  
Hematology Anemia, with Particular Reference to Hemolytic Syndrome W Dimeshek, Boston—p 339

**Testosterone Propionate for Mammary Pain**—Nathanson and his collaborators treated mammary swelling and pain or chronic cystic mastitis whether or not there was secretion from the nipple, with testosterone propionate. Experimental data in animals suggest that prolonged administration of the substance reduces the secretory activity and probably the number of cells of the breast epithelium and that its action on the vascular bed of the breast may relieve the venous congestion and edema so often seen in these patients. Increased secretion, increased vascularity and edema are usually responsible for the swelling and pain, symptoms and signs which only after the fluid is absorbed or diminished disappear. Nine patients with adenofibrosis and 21 with nonpuerperal mammary disease were treated by injecting intramuscularly 1 cc of testosterone propionate in sesame oil. The injections were given every other day. For a few patients testosterone made up in a hydrous wool fat base was utilized as an ointment. Treatment was begun about two weeks prior to the next expected menstruation. If the symptoms were of long duration the cycle, it was started a few days before the symptoms were expected and continued up to the period. Treatment was given for longer than three months unless there was a



period of one to several months before its resumption. Eighteen of the 21 patients with mammary secretion were subjectively improved or completely relieved. Thirteen patients had inhibition of secretion during treatment. Eleven of the 30 patients had been previously treated, without success, with estrogen. The most obviously predominant and noticeable clinical effect was a reduction or inhibition of premenstrual swelling. If secretion was not completely inhibited it was reduced. Symptoms and physical signs usually recurred after treatment was discontinued. Few patients were relieved for more than six months without resuming treatment. Prolonged and continuous treatment is to be discouraged as planned periods of treatment followed by adequate intervals of rest accomplish as much.

**Prothrombin Levels**—White and his colleagues determined the blood prothrombin level of 100 patients with hepatic and biliary disease encountered as routine diagnostic problems. About seven hundred tests were made. The prothrombin percentage and its response to vitamin K was compared with the excretion of hippuric acid and urobilinogen in the urine and fractional bromsulphalein elimination from the blood. The correlation between the prothrombin level and the hepatic function tests was decidedly poor. The prothrombin test did not reveal the milder grades of hepatic damage. It was abnormal in only 53 per cent of the patients and may be normal when hepatic damage is extreme and easily revealed by the other tests. The prothrombin level with the exception of discovering the bleeding tendency was of less definite prognostic value than the hepatic function tests used. An abnormal test is significant, if a low prothrombin level rises but little fails to rise or falls after vitamin K treatment the prognosis is progressively unfavorable. In acute hepatitis a falling prothrombin level in the presence of adequate vitamin K usually means irreversible widespread hepatic damage. In the differential diagnosis of hepatic disease the prothrombin level is of only suggestive and limited value. The sole diagnostic differential is that the prothrombin percentage is much more likely to rise rapidly to normal after vitamin K treatment in obstructive jaundice and healing acute hepatitis than in chronic hepatitis (cirrhosis). Some patients with acute hepatitis and a low initial prothrombin level have had a rapid response to active dextrose and fluid intake comparable to that in similar patients treated with vitamin K. Bleeding in hepatic cirrhosis was about as frequently due to ruptured varices as to a low prothrombin level.

### New York State Journal of Medicine, New York

42 385-480 (March 1) 1942

- Principles Underlying Treatment and Management of Coronary Disease F A Willis Rochester Minn—p 409  
Follow Up Studies in Coronary Artery Occlusion I Degree of Recovery Symptoms and Physical Signs A M Master S Dack and H L Jaffe New York—p 413  
Intestinal Obstruction from Practitioners Point of View W O Abbott Philadelphia—p 421  
Functional Nervous Disorders Associated with Warfare F Kennedy New York—p 425  
\*Serodiagnosis of Trichinosis by Means of Complement Fixation E Witebsky P Wels and Anne Heide Buffalo—p 431  
\*Acidity on Surface of Skin E T Bernstein and F Herrmann New York—p 436

42 481-576 (March 15) 1942

- Diabetic Lower Extremity Amputations Report Over Five Year Period at St Luke's Hospital F W Solley New York—p 507  
Surgical Aspects of Diabetic Gangrene I M Donehue New York—p 511  
Medical Aspects of Diabetic Gangrene E Gustafson New York—p 512  
Diabetic Gangrene Report of Cases Treated at Roosevelt Hospital Five Year Period 1935 to 1939 Inclusive G P Pennoyer New York—p 513  
Infection and Gangrene of Lower Extremity in Diabetes Mellitus H Conway and S C Meigher New York—p 519  
Involuntary Melancholia E A Strecker Philadelphia—p 530  
Present Status of Surgical Procedures Directed Against Extrapyramidal Diseases R Meyers Brooklyn—p 535  
Gangrene of Toe Following Local Anesthesia with Procaine Epinephrine Solution Clinical and Experimental Study L Felner Brooklyn—p 544

**Serodiagnosis of Trichinosis**—A complement fixation test for the serodiagnosis of human trichinosis was developed by Witebsky and his co-workers. They tried two different methods. The first was performed by mixing a 1:500 and a 1:2,000 dilution of trichina antigen with a 1:5 or 1:10 dilution of inac-

tivated serum from the patient. This is put in the ice box for two to three hours and then it is placed in the incubator for one hour. For the second method a 1:2,000 dilution of boiled trichina antigen is mixed with serial dilutions of the patient's serum such as 1:5, 1:10 and 1:20. The latter method is preferred. Out of one thousand human control serums examined in this way only one definite positive reaction in both complement fixation and precipitation tests was obtained. The serum was from a healthy blood donor with no history of trichinosis. The test can be carried out as a quantitative procedure and the increase and decrease of antibody titer can be observed over a period of time.

**Cutaneous Acidity**—Bernstein and Herrmann measure the acidity of the skin by using the Stansien universal indicator with a  $pH$  range between 1 and 11. One drop of the indicator solution is dropped by pipet on the skin. The size of the drop should be kept constant and the solution should be stirred with equalized glass rods for five seconds each time. Immediately after the performance of the reaction the test drop is drawn up into a capillary. The resulting color of fluid in the capillary is compared with the given standard color shades. The test should be performed on many different areas. Not only the places affected by a dermatosis but also apparently normal parts should be tested. The figures are of value only when compared with the  $pH$  of the normal skin. The authors observed that the acidity on the normal skin is increased during hot days that the skin is alkalinized by washing with soap and that the reduced tendency to soap dermatitis in summer can be explained by the increase in (free) perspiration. When eczema is present the  $pH$  of the affected region is moderately higher than of the normal skin of the same person. This difference remains for some time after an apparent cure. Hyperhidrosis shows  $pH$  values that are either normal or on the acid side. These persist on hyperhidrotic inflammatory areas. Dyshidrosis is characterized by a lack of acidity. This lack can be either (1) primary, idiopathic and generalized (most definite in intertriginous areas), (2) secondary caused by external factors, as uncleanness and dust, (3) localized on areas with reduced evaporation due to anatomic peculiarities or (4) circumscribed, due to external mechanical factors. The figures for intertriginous mycosis are similar to those for eczema. The presence of fungi may be indicated by finding an 'inner' area of a lower  $pH$  within a surrounding zone of dyshidrosis with a higher  $pH$ . The normal acidity is reduced when degenerative changes, myxedema and senile atrophy prevent the skin from imbibition with sweat.

### Northwest Medicine, Seattle

41 77-114 (March) 1942

- Acute Thoracic Injuries G M Curtis Columbus Ohio—p 81  
Hysterosalpingography M S Siegel Portland Ore—p 85  
Conditioned Reflex Treatment of Chronic Alcoholism V Type of Patient Suitable for This Treatment F Lemere W L Voegtlin W R Broz and P O'Hollaren Seattle—p 88  
Leprosy Report of Case A D Campbell Seattle—p 89  
Fascial Transplant in Hernia Repair J F Scott Yakima Wash—p 91  
\*Osteopoiikilosis Disseminated Osteosclerosis E H McLean Oregon City Ore—p 92  
Treatment of Poison Gases A S Rosenfeld Portland Ore—p 94  
Salmon Poisoning C Scheffel Miami Fla—p 98  
Relation of Teeth to Inflammation of Eyes G Balding Boise Idaho—p 100

**Osteopoiikilosis**—McLean reports the occurrence of disseminated osteosclerosis in a boy of 20. Roentgenograms of the shoulder, acromial process, scapula, clavicle, pelvis, head of the humerus and the long bones of the legs, hands, feet and forearms showed the characteristic mottled appearance. The patient's mother was not affected. However, the patient's father aged 70 has a few scattered spots in the hands, feet and pelvis. It is possible that at his age the spots have become absorbed and, as the causative factor is no longer operative, no new ones have formed. The author thinks that the condition in the father represents a terminal stage of osteopoiikilosis and that if the condition in the son could be studied up to the same relative age a gradual disappearance of the spots would occur. The patient has two sisters living in California who have not been examined.

**Psychoanalytic Quarterly, Albany, N Y****11 1-148 (Jan) 1942**

- Psychology and Culture G Zilboorg, New York—p 1  
 Some Psychoanalytic Applications of Psychologic Field Concept T M French, Chicago—p 17  
 Instinct and the Ego During Infancy I Henrick, Boston—p 33  
 Critical Analysis of Elements of Psychic Functions Part II C M Herold, New York—p 59  
 Melampus and Freud Bernice Schultz Engle, Omaha—p 83  
 Ego Strength and Education of the Ego M Balint, Manchester, England—p 87

**Rocky Mountain Medical Journal, Denver****39 81-164 (Feb) 1942**

- Role of Protruded Intervertebral Disk in Production of Low Back and Serratus Pain W M Crug, Rochester, Minn—p 98  
 Obstructing Lesions of Common Duct V C Hunt, Los Angeles—p 101  
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- Use of Sulfanilamide in Treatment of Compound Fractures G A Caldwell, New Orleans—p 182  
 Atresias of Alimentary Tract H E Coe Seattle—p 185  
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 Colorado Pneumonia Experience, 1939 and 1940 A M Wolfe, Denver—p 199

**The Unrelieved Cholecystectomized Patient**—Senger ascribed the frequent occurrence of postcholecystectomy pain to mistakes made by the patient, the internist and the surgeon. The patient often fears an operation and therefore delays it. When his existence becomes intolerable he begs the surgeon to perform a miracle. The internist by training is more conservative than the surgeon. He sees all the poor results, rarely the good ones. Therefore he is prone to procrastinate with diets and sedatives. The surgeon must bear in mind that (1) if the gallbladder is found to be normal he should let honesty overrule pride and leave it alone, (2) exploration of the common duct is indicated if the pancreas is enlarged and hard from pancreatitis, if stones can be felt, if the wall of the common duct is thickened, if the gallbladder is filled with small stones and if there is a history of jaundice and chills, (3) he must be certain that no fragment of stone is left in the cystic duct, (4) he must peritonealize the bed of the gallbladder and (5) the incidence of postoperative hernia can be reduced by proper drainage and suturing of the wound.

**Southern Surgeon, Atlanta, Ga****11 153-226 (March) 1942**

- Surgical Treatment of Carcinoma of Stomach J M Emmett, Clifton Forge, Va—p 154  
 \*Subdural Hematoma in Infants C E Downman, Atlanta, Ga, and E A Kahn, Ann Arbor, Mich—p 164  
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**Subdural Hematoma in Infants**—Downman and Kahn state that subdural hematoma in infancy and early childhood is seldom thought of in differential diagnosis and therefore it is frequently not recognized. Subdural hematoma should be considered in a child with slight to moderate enlargement of the head, in whom hydrocephalus is suspected, particularly when the facial expression is more intelligent than that of the average hydrocephalic child. Subdural hematoma should also be suspected in infants with feeding problems, convulsions, palsies, opisthotonos, meningeal signs and drowsiness, with or without a history of injury. The condition is fairly frequent in illegitimate,

bottle fed, poorly nourished infants, probably because they are more exposed to injury. The increased capillary fragility in scorbutic patients may also play a part. Diagnostic bilateral fontanel puncture of the subdural space should not be used indiscriminately, but the space should be investigated whenever the intracranial pressure appears increased. Nine cases are reported, 1 of them is probably the first reported example of an infected subdural hematoma in an infant. The other 8 were chronic subdural hematomas. In 6 of the infants the lesions were bilateral. The condition of the child with the infected lesion was exceedingly poor and he was treated by bilateral trephining and drainage, as it was felt that less bone would be sacrificed by this method. The other 8 infants were submitted to osteoplastic craniotomy, with only one death. The favorable results, the authors feel, are due to three improvements. 1 The entire procedure was carried out under local anesthesia, with drop ether anesthesia carried only to the stage of sedation. 2 A smaller incision was employed. It facilitated closure and thereby reduced the total operating time and lessened surgical shock. 3 Blood transfusion was begun when the patient was put on the operating table, preventing shock. These infants rarely live, once shock supervenes. Of the surviving infant 2 are definitely retarded, 2 are apparently normal, 3 have been operated on too recently to permit definite conclusions to be drawn and 1 could not be followed.

**Surgery, Gynecology and Obstetrics, Chicago****74 273-648 (Feb 16) 1942 Partial Index**

- American Surgery in a Changing World E A Graham, St Louis—p 273  
 \*Adrenal Cortical Tumors Types of Nonhormone and Hormone Tumors G F Cahill, M M Melicow and H H Darby, New York—p 281  
 Functional Disturbances of Cholelithiasis and Hepatic Bile Ducts P L Mirizzi, Cordoba, Argentina—p 306  
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 \*Chemotherapy and Roentgen Radiation in Clostridium Welch Infection Clinical and Experimental Studies R L Sewell, A H Dowdy and J G Vincent, Rochester, N Y—p 361  
 Value of Sulfathiazole in Treatment of Peritonitis and Abscesses of Appendical Origin E S Stafford, Baltimore—p 368  
 Some Lessons Learned in the Great War W E Gillie, Toronto, Canada—p 370  
 \*Problems of Surgery in Total War, with Special Reference to Abdominal Injuries G Gordon Taylor, London, England—p 375  
 Care of the Lightly Wounded W Darrach, New York—p 402  
 Penetrating Wounds of Heart and Pericardium R A Griswold and C H Maguire, Louisville, Ky—p 406  
 \*Treatment of Burns G C Penberthy and C N Weller, Detroit—p 428  
 Some Problems Concerning Active Immunization Against Tetanus H B Shumacker Jr and A Lamont, Baltimore—p 433  
 Diagnosis and Treatment of Cancer of Stomach H K Gray, Rochester, Minn—p 487  
 Protection of Operative Field with Impermeable Adhesive Skin Coating Preliminary Report M DeBakey, E J Giles and Edith Horvath, New Orleans—p 499  
 The General Surgeon's Approach to Problems Presented by Fractures and Other Traumas W E Lee, Philadelphia—p 514  
 Results in Compound Fractures with Osteomyelitis as Experienced by Veterans Amputation over Past Twenty Years S K Livingston, White River Junction, Vt—p 546  
 Precancerous Lesions C P Rhoads, New York—p 549  
 Radical Surgical Treatment for Carcinoma of Cardiac End of Stomach J H Garlock, New York—p 555  
 Sulfonamide Drugs in Treatment of Acute Suppurations in Middle Ear and Mastoid J T Maxwell, Ann Arbor, Mich—p 573  
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**Tumors of Adrenal Cortex**—Cahill and his colleagues discuss the tumors of the adrenal cortex encountered at the Squier Clinic. The conclusion is drawn that, among adrenal syndromes, tumor of the adrenal cortex occurs infrequently. When it occurs there may be no symptoms showing it. There is any change in the hormone balance. In other words, symptoms due to hormone influences are present. These symptoms vary according to the hormones secreted, to their amount, to the age and sex of the individual. The anatomic change in the adrenal gland is ascertained by air insufflation in the perirenal facial spaces. All the tumors so diagnosed by the authors were confirmed by operation. A simple and reliable method for estimating all the androgens excreted in the

especially as the symptoms of androgenic excess are more frequent than any others. A large amount of estrogen is excreted in the urine of patients with the adrenogenital syndrome with virilism. In young girls with virilism due to a tumor much estrogen was excreted before the tumor was removed but after removal it continued unchanged although the virilism receded. The estimation of the estrogen is particularly necessary in those rare instances of male patients with femininity due to tumor of the adrenal cortex. The identification of other ketosteroids associated with tumors of the adrenal cortex is as yet in an unknown state. Three different routes of approach have been used for removing the adrenals: (1) the extraperitoneal through the lumbar region, (2) the trans-thoracic and (3) the transperitoneal. Shock brought about by an acute deficiency of adrenal cortex extract often occurs immediately or shortly after an adrenal tumor is removed. Walters and Kepler have stated that the most important factor in surgical therapy of tumors of the adrenal cortex is the anticipation, prevention and control of postoperative deficiency of adrenal cortex extract. In this the authors concur but believe that the mechanism occurs only in the Cushing syndrome because with the androgenic type of tumor there is no functional atrophy of the opposing adrenal. The method of prevention is that used in the crisis of Addison's disease: the preoperative and postoperative administration of desoxycorticosterone. Adequate amounts of sodium chloride and sodium citrate should also be given orally or parenterally. Since in the Cushing syndrome an erythrocytemia exists an immediate postoperative transfusion is necessary. A preoperative diet low in potassium might be of value. Walters and Kepler have been able to tide the patient over the crisis by replacement therapy. The remaining adrenal tissue will regain its capacity to excrete sufficient hormones to meet the needs of the body. Patients with androgenic changes do not need replacement therapy if an opposing adrenal can be demonstrated by air insufflation. The tumor was usually a soft, encapsulated adenoma that did not show any invasive characteristics microscopically, or a carcinoma the microscopic sections of which varied from tumor to tumor. The more the syndrome approached the Cushing type the more profuse were the vacuoles. Fuchsinophil staining of the cytoplasm was present in all the tumors, in some diffusely, in others in granules. It apparently was more pronounced in cases with the hormone syndrome.

**Clostridium Welchii Infections**—Sewell and his associates feel that a number of cases of *Clostridium welchii* infection do not belong among the "gas gangrene" cases. For this group the term "clostridium infection" seems inadequate but "clostridium cellulitis" is reasonably descriptive. Here conservative surgery and either a sulfonamide or roentgen irradiation gives the best therapeutic results. Amputation is warranted only when the vascular bed is decidedly compromised. Sulfanilamide or roentgen irradiation when employed alone has some beneficial effect on the course of the clinical and experimental infection. Sulfadiazine was used in 3 cases with success. The prophylactic use of the sulfonamide drugs is invariably superior to their use after infection has set in. Experimentally the combined use of sulfadiazine and roentgen irradiation has given poorer results than has the use of either separately. *Clostridium welchii* antiserum is of some efficacy only when additional therapy is used to combat the local lesion. At present conservative surgery and sulfadiazine are recommended.

**Problems of Surgery in Total War**—Gordon-Taylor discusses certain clinical phenomena of wounds which appear to be novel in this conflict of total war which makes no sex or age distinctions. Six hundred operations for abdominal injury incurred in naval and air warfare during indiscriminate civilian air bombardment and the flotsam and jetsam of the 'Dunkirk miracle' are reviewed. The environment of total war has been responsible for rupture of the spleen incurred by a fall on a stone floor from an air raid shelter bunk, by the fall of a soldier on his tin hat or of a sailor on his gas mask. Perforated peptic ulcers have been dealt with successfully in hospitals during air raids and even in the woods adjacent to

the Dunkirk beach. Despite the gravity of the abdominal wounds and the frequent association of multiple injuries, approximately 50 per cent of the patients for whom operation was possible survived. Few patients survived lengthy intestinal resections. Sulfonamide therapy locally and orally has proved of inestimable value. The transfusion of blood or blood derivatives has made operation possible in many cases that otherwise would have been fatal. For many through and through abdominothoracic wounds of the right side produced by a small fragment no immediate active surgical treatment is required if no gross damage is present in the thoracic or abdominal wall, if the track of the missile is not in the peritoneal cavity and if abdominal hemorrhage or injury to a hollow viscus is absent. For right sided abdominothoracic wounds with an inaccessible small fragment expectant treatment is the correct procedure. Accessible fragments should be removed. When an open, blowing thoracic wound is associated with a "stove-in chest" the chest must be treated first. If the track of entry and exit of a missile in a left sided abdominothoracic injury is obscured but injury to the left subphrenic area of the abdomen is suggested or if a fragment of metal in this region is demonstrated roentgenologically, the thorax should be dealt with first and access to the upper part of the abdomen obtained through the diaphragm. When intraperitoneal damage is widespread and the hollow viscera are involved, exploratory laparotomy is indicated. Often a slight thoracic injury with an extraperitoneal course of a small fragment may be left alone. For an abdominothoracic injury that occurred through the abdominal aspect time should not be taken to complete a difficult suture of the diaphragm if the patient is critically ill unless the aperture is so large that immediate herniation of the abdominal contents is certain. There is no successful operation for sub-parietal nonpenetrating abdominothoracic injuries involving the diaphragm. Present experience shows that abdominothoracic injuries due to fragments of a high explosive or of bullets are far less grave than those due to crushing force or to blast. Diaphragmatic hernia, especially that produced by injury, is approached by the thoracic route in Britain. The general surgeon also avails himself of a thoracic approach when removing the lower end of the esophagus or the cardiac end of the stomach.

**Treatment of Burns**—Penberthy and Weller epitomize the present management of the severe burn. The factors influencing their prognosis are general care, combating disturbances in general tissue metabolism, adequate treatment of shock, the correction of hemoconcentration, combating dehydration, raising the blood pressure to normal, restoring and maintaining capillary tone and preventing toxicity. An extensive burn is comparable to a large open wound and deserves rigid aseptic surgical care, thorough cleansing and debridement. Failure to adhere to the basic surgical principles in preparing the burned area, especially in war zones has led to adverse criticism of the tannic acid method. Uniformity of opinion on the development of toxemia in severe and extensive burns is lacking. On the basis of bacterial invasion of the local lesion and the presence of concurrent infections the authors instituted chemotherapy in 1939 with close clinical observation for complications or unfavorable reactions. There have been no deaths or serious reactions in 75 severely burned patients treated to date by the addition of chemotherapy. The local use of certain sulfonamide derivatives may aid in preventing local infection or in retarding bacterial invasion, and as the drug is absorbed it may have beneficial effects on septicemia. Local therapy is not without danger, however, as the rate of absorption is not controlled, high blood levels may occur and acetyl-sulfathiazole crystals may form in the renal pelvis. Further experimental study of local therapy is indicated. The use of a freshly prepared 5 per cent aqueous solution of tannic acid has stood the test of time. The use of a 10 per cent solution of silver nitrate and a 5 per cent solution of tannic acid applied either as a spray or as a jelly is of distinct value. Methyl-rosaniline in a 1 per cent aqueous solution is preferred for infected burns or for burns of more than forty-eight hours duration. Burns involving the perineum the hand and the foot those encircling an extremity or those in the region of a

joint should be treated with methylrosaniline, as the more pliable coagulum obviates splitting of the protective coating over articulations and permits increased freedom. The dye may be used after tannic acid when the coagulum has separated and infection about the edges of the coagulum is present. The combination of methylrosaniline and silver nitrate produces a firm coagulum, drying is more rapid and staining is lessened. Also the antiseptic properties of methylrosaniline appear to be increased by the silver nitrate. Tannic acid jelly may be used effectively for certain burns of the hand and face, but in other instances it may be best to apply saline compresses or a water soluble jelly to which has been added 2 to 5 per cent of sodium chloride followed by pressure bandages. After the coagulum has separated, early grafting of extensive granulating surfaces has saved the lives of many patients. It should be done as soon as the local lesion is sufficiently prepared to assure success. This also minimizes scarring and deformity.

#### 74 649-776 (March) 1942

- Superiority of Fine Catgut over Fine Silk as Mucosal Suture in Gastric Surgery J O Bower and A E Pearce, Philadelphia—p 649  
Arteriography of Abdominal Organs by Aortic Injection Preliminary Report O A Nelson Seattle—p 655  
\*Spondylitis Adolescents—Strumpell Marie Disease Practical and Theoretical Considerations H C Blair, Portland, Ore—p 663  
\*Clinical and Pathologic Study of Leiomyosarcoma, Hemangioendothelioma or Angiosarcoma and Fibrosarcoma of Stomach R G Lemon and A C Broders, Rochester, Minn—p 671  
\*Pneumonia as Complication of Biliary Colic S Levine and J J Schneider Brooklyn—p 681  
Studies in Diethylstilbestrol II Differences in Response of Radium Induced and Physiologic Menopause III Effect on Liver R C Grauer and Ellen Nugent Pittsburgh—p 686  
Study of Mechanics of Bile Flow II Responses to Intraduodenal Solutions D D Kozoll and H Necheles Chicago—p 692  
New Method of Repair for Indirect Inguinal Hernia Considered in Reference to Parietal Anatomy W K Jennings, B J Anson and R R Wright, Chicago—p 697  
Further Studies in Gynecologic Anatomy and Related Clinical Problems A H Curtis, B J Anson and F L Ashley Chicago—p 709  
Ectrophy of Bladder First Case in Which Normal Bladder and Urinary Control Have Been Obtained by Plastic Operations H H Young, Baltimore—p 729  
Surgical and Postoperative Treatment of Large Vesicovaginal and Rectovaginal Fistulas V S Counseller, Rochester, Minn—p 738  
Fundamental Error in Current Methods of Inguinal Herniorrhaphy C B McVay Ann Arbor, Mich and B J Anson, Chicago—p 746  
Basilar Invagination of Skull—So Called Platybasia Report of Three Cases in Which Operation Was Done W M Craig M N Walsh and J D Camp, Rochester, Minn—p 751  
Extra Articular Operation for Recurrent Dislocation of Shoulder Joint I A Glassman, Chicago—p 755  
Helium in Encephalography D Cleveland and E End Milwaukee—p 760  
Cancer of Breast Ten Year End Results C C Simmons, Boston—p 763

**Spondylitis Adolescents**—Blair suggests that spondylitis adolescents is not an infectious process but is caused primarily by absorption of cartilage from the joints involved, that the beneficial results of roentgen therapy are apparently due to the liberation of sulfur within the body in a usable form and that the associated iritis is caused by the same metabolic disturbance and may possibly react to the same treatment. In spondylitis adolescents chondroitin sulfuric acid is absorbed from the cartilage, ligaments and bone in and around the sacroiliac joints and spine, and this absorption probably occurs because of a deficiency of sulfur, mucosin or chondroitin sulfuric acid elsewhere in the body. In 1925 Cavadias stated that it is not illogical to assume that a certain hereditary or constitutional predisposition exists for sulfur demineralization. He believed that sulfur demineralization is a special metabolic disturbance in rheumatoid arthritis and that the tissues lose the power to retain sulfur.

**Study of Sarcoma of Stomach**—Lemon and Broders believe that gastric leiomyosarcoma, hemangioendothelioma and fibrosarcoma comprise a distinct group of nonepithelial neoplasms differing from lymphosarcoma. The clinical and pathologic features of gastric sarcoma are correlated with the three foregoing types on the basis of 14 microscopically proved cases of gastric sarcoma, exclusive of lymphosarcoma, in which operation was performed at the Mayo Clinic between 1908 and 1938 inclusive. The cause of gastric sarcoma is not known. Evidence points to its origin in normal cells, congenital isolated cell rests, traumatized or inflamed tissues, benign tumors and

gastric ulcers. All sarcomas of the stomach may be classified into four types: lymphosarcoma, leiomyosarcoma, hemangioendothelioma or angiosarcoma and fibrosarcoma. The last three most often involve the curvatures of the stomach, more rarely the pylorus or cardia. They originate in the submucous or muscular layers of the wall of the stomach, are usually well circumscribed, are often pedunculated and tend to assume an exogastric or endogastric form, rarely they are infiltrating. They may be composed of large or small round or spindle cells, depending on the proliferative activity of the growth and the amount of cellular differentiation. Microscopically the cells group themselves in interlacing bundles and whorls. The malignant grade of leiomyosarcoma, hemangioendothelioma and fibrosarcoma is average, metastasis occurs in about a third of the cases, the most common site being the regional perigastric lymph nodes or the liver. The clinical manifestations of gastric sarcoma generally are indistinguishable from those of any other malignant or sometimes benign gastric tumor. The sarcomas are confused most often with gastric carcinoma, peptic ulcer and benign bleeding gastric leiomyoma. There are no definite pathognomonic signs, symptoms or laboratory criteria on which to base a diagnosis before operation, although roentgen study usually establishes the malignant nature of the lesion. The matter of prime importance is to recognize the malignant nature of the neoplasm. The onset of the disease, although usually insidious, may be sudden, and the symptoms may vary from mild dyspepsia to the severe manifestations of gastric carcinoma. The course of the tumors is relatively slow. The average duration of symptoms before treatment was three and a half years. The chief signs and symptoms, in order of frequency, are pain, nausea and vomiting, abdominal tumor, melena, weakness and pallor, digestive disturbances, hematemesis and loss of weight. Frequently the history is suggestive of peptic ulcer. In the differential diagnosis carcinoma, benign tumors, cysts and ulcers of the stomach and the abdominal viscera must be considered. The prognosis, while guarded, is better than that of lymphosarcoma or carcinoma. The more mature the cells and the slower the growth, the better is the prognosis. There were no operative or immediate postoperative deaths among the 14 patients. The treatment for leiomyosarcoma, hemangioendothelioma or fibrosarcoma is surgical intervention. Lymphosarcoma responds to irradiation, but it is of little value in other types of gastric sarcoma.

**Pneumonia as Complication of Biliary Colic**—Levine and Schneider report 11 cases of biliary colic complicated by pneumonia. Severe epigastric pain or pain in the right upper quadrant prompted the patient to seek help, the pneumonia came as an unpleasant surprise and proved to be most annoying and at times hazardous. The exact mechanism that causes pulmonary inflammation in disease of the gallbladder is not known, but spasm and elevation of the diaphragm, shallow breathing caused by morphine and the recumbent posture, aspiration of infected material and spread of the infection from the gallbladder by way of the lymphatics into the blood stream and thus to the lungs are probably the chief inciting factors. The usual interval between the colic and the pneumonia was two to six days, the pneumonia was characterized by a relatively benign course and paucity of cough and expectoration. Treatment should be directed toward the condition that constitutes the most serious threat to the patient's life, usually it is the pneumonia. Deep breathing, use of carbon dioxide oxygen, frequent change of position and a decrease in the use of morphine particularly immediately after cholecystectomy, may prevent this complication.

#### Wisconsin Medical Journal, Madison

41 185-284 (March) 1942

- Modern Trends in Treatment of Hypertension, with Special Reference to Use of Kidney Antipressor Substance J D Murphy Milwaukee—p 199  
Nasal Therapy in Common Cold T Walsh St. Louis—p 201  
Management of Premature Infant H O McMahon Milwaukee—p 203  
Some Practical Aspects of Chronic Suppurative Otitis Media Straus Milwaukee—p 214  
Cardiovascular Disease in Industry W J Egan Milwaukee—p 217  
Unilateral Twin Ectopic Pregnancy Case R W Harris Milwaukee—p 222

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trial of new drugs are usually omitted.

## Annals of Rheumatic Diseases, London

231-298 (Dec.) 1941

- Use of Sulfanamide Group of Drugs in Treatment of Tonsillitis Due to Beta Hemolytic Streptococcus and in Acute Rheumatic Fever. W. A. H. King —p. 233
- Epidemic Myalgia Distinct from Bornholm Disease Which Chiefly Affected Muscles of Neck. P. B. Beeson and T. I. M. Scott —p. 247
- Wellmann Coagulation Reaction and Sedimentation Test in Arthritis. D. H. Klink —p. 256
- Specific Reaction in Acute Rheumatism and Rheumatoid Arthritis. A. J. Meester —p. 261
- Fractures in Chronic Arthritis. C. I. Baer —p. 269
- Coutant Male Pseudohemaphysoma. Report of Case. I. I. Rosenberg —p. 273

**Sulfonamides for Tonsillitis**—Hopkins gave sulfanilamide or sulfapyridine to 12 patients with acute rheumatic fever and to 49 with tonsillitis due to the hemolytic streptococcus. None of the patients with rheumatic fever had any beneficial effect from either drug. Their use was not followed by any fall of temperature, polyarthritides was not relieved and carditis was not prevented. Most patients showed a degree of exanthesis. Leukopenia did not develop, in fact the leukocyte count tended to rise rather than to fall. The patients with streptococcal tonsillitis did not receive any beneficial effect from the use of the drugs. Compared with a control group of patients the period of pyrexia, the duration or severity of the local manifestations or the period of hospitalization was not shortened. Complications were more frequent in the treated group than in the control group. Two patients undergoing intensive treatment with sulfapyridine acquired streptococcal tonsillitis. The carrier state was not influenced by the drugs.

**Epidemic Myalgia Affecting Muscles of Neck**—A "stiff neck" seemed prevalent in parts of southern England during the summer and fall of 1941; a study of two months was carried out on 163 workers in a piston ring factory. Beeson and Scott obtained a history of pain or stiffness in the neck or shoulder from 29 of the workers, 12 men and 17 women. Although the disease was usually mild, some workers were incapacitated for two weeks or longer. The clinical features were unlike those of Bornholm disease but resembled those of acute fibrositis. The authors hope to direct attention to the occurrence of the syndrome in epidemic form.

## British Journal of Dermatology and Syphilis, London

54:39-68 (Feb.) 1942

- Dermatitis Bullosa Striata Pratensis Agrimonis. Dermatitis. W. J. O'Donovan —p. 39
- Grenz Ray Therapy in Dermatology. C. Ryan —p. 47
- Occupational Dermatitis Following Exposure to Inorganic Selenium Compounds. P. Pringle —p. 54

## British Journal of Radiology, London

15:65-96 (March) 1942

- Mechanism of Closure of Ductus Venosus. A. E. Barclay, K. J. Franklin, and M. M. L. Prichard —p. 66
- Effect of Ionizing Radiations on Broad Bean Root. L. H. Gray and J. Read —p. 72
- Some Minor Injuries of Bones and Joints. E. Samuel —p. 77
- Quantitative Determination of Radium by Photographic Method. H. Meyer —p. 85
- Hydatid Disease of Lungs. Case. A. H. Gosse —p. 92
- Simple Radiographic Table for Smith-Petersen Pinning of Femoral Neck. D. Boyd —p. 94

## Edinburgh Medical Journal

49:73-144 (Feb.) 1942

- Some Aspects of Estrogenic Therapy. W. F. T. Haultain —p. 73
- Contribution to Pathogenesis of Spondylitis Ankylopoietica. E. Freund —p. 91
- Primary New Growths of Lung. C. K. Robertson —p. 110
- John Hunter Surgeon and Naturalist. D. Guthrie —p. 119

## Irish Journal of Medical Science, Dublin

605-644 (Dec.) 1941

- Observations on Peptic Ulcer. G. C. Dockera —p. 605
- Radiologic Investigation of Dyspepsias. S. J. Boland —p. 615
- Pathogenesis of Tuberculosis—Medical and Surgical. G. Bewley —p. 620
- Metallic Elements in Wheat Flour. R. W. Ditchburn, J. M. S. Speirs, and R. Press —p. 630
- Marvelous Paracelsus. Kathleen Murphy —p. 635

## Journal of Pathology and Bacteriology, Edinburgh

54:1-148 (Jan.) 1942

- Nature of Mouse Lung Adenomas with Special Reference to Effects of Atmospheric Dust on Incidence of These Tumors. S. McDonald Jr. and D. L. Woodhouse —p. 1
- Natural Relative Hypoplasia of Organs and Process of Aging. V. Korenchevsky —p. 13
- Significance of Potentials Developed at Noble Metal Electrodes Immersed in Cultures of Bacterium Coli in Synthetic Medium. K. I. Johnstone —p. 25
- Examination of Cervical Smears as Means of Rapid Diagnosis in Severe Clostridium Welchii Infections Following Abortion. H. M. Butler —p. 39
- Fermentation of Cellulose by Coli Aerogenes Group of Bacteria. C. G. Batty Smith —p. 45
- Role of Antibodies in Immunity to Transplanted Leukemia in Mice. I. A. Corer —p. 51
- Two Cases of Congenital Cardiac Disease. (1) Cor Biloculare with Solitary Aortic Trunk. (2) Atresia of Aorta with Hypoplasia of Left Ventricle. C. Popjak —p. 67
- Pneumonoconiosis Due to Inhalation of Fullers Earth. Case. A. H. Campbell and S. R. Cloyne —p. 75
- Reliable Technique for Diagnosis of ABO Blood Groups. C. L. Taylor, R. R. Rice, Aileen M. Prior, and Elizabeth W. Ilkin —p. 81
- Agglutinin Inhibiting Substance in Human Serum. E. I. Aubert, K. F. Boorman, and B. E. Dodd —p. 89
- Heterogeneous Antibodies in Subacute Bacterial Endocarditis. H. Sachs —p. 105
- Kidney Lesion in Traumatic Anuria. E. C. J. Bywaters and J. H. Dible —p. 111

**Diagnosis of Clostridium Welchii Infection**—In the cervical smears of 20 women with severe Clostridium welchii infection following abortion, Butler found many heavily capsulated bacilli and considerable damage to leukocytes. In 64 similar patients in whom a severe Clostridium welchii infection did not develop, this combination was not seen.

**Agglutinin Inhibiting Substance in Human Serum**—The conclusion that high titer universal donor blood is dangerous seems to be drawn chiefly by inference, as Aubert and his collaborators point out that there are practically no recorded facts directly incriminating the donor's agglutinins. Usually when a hemolytic reaction occurs the donor's titer has not been determined and it has never been shown that it was the recipient's and not the donor's cells which were hemolyzed. It seems that the question can be answered only by observing the effects of a deliberate injection of high titer isoagglutinins. Preliminary results of such a study suggest that donor isoagglutinins are but rarely the cause of a hemolytic transfusion reaction.

## Medical Journal of Australia, Sydney

1:125-156 (Jan. 31) 1942

- Production of Ammonia by Bacteria. Phyllis G. Ashworth —p. 125
- Treatment of Burns. T. E. Wilson —p. 131
- Nervousness Negligible and Not Pensionable Disability. J. Bostock —p. 133
- Determination of Thiamine (Vitamin B<sub>1</sub>) Content of Diet of Service Personnel in Training. Marie V. Banton and E. C. Slater —p. 135

## Tubercle, London

22:281-306 (Dec.) 1941

- Nonindustrial Pneumonoconiosis. Pneumonoconiotuberculosis and Tuberculosis of Mediastinal and Bronchial Lymph Glands in Old People. A. Arnstein —p. 281
- \*Investigation into Value of Sulfapyridine in Treatment of Pulmonary Tuberculosis. P. Ellman, J. S. Lawrence, and J. N. Cumings —p. 296

**Sulfapyridine for Pulmonary Tuberculosis**—According to Ellman and his colleagues, 47 of 89 patients with advanced tuberculosis with a grave prognosis were given sulfapyridine. The patients were kept at complete rest until they had been afebrile four weeks. Sulfapyridine was administered in doses of 0.5 Gm four times a day for four days a week throughout the period of hospitalization. Vomiting was the only complication. Of the 47 treated patients, 25 died, the condition of 3 was unaltered, in 3 it was slightly improved, in 3 it was quiescent, and 13 patients became ambulant. Of the 42 control patients, 26 died, 3 became worse, 8 became ambulant, the condition of 1 was unaltered and in 4 it was slightly improved. The drug showed a higher rate of recovery among patients who had the disease in slightly or moderately severe form. Tubercle bacilli disappeared more frequently from the treated group but contrary to expectations pyogenic organisms were not affected by the drug. The concentration of sulfapyridine in the sputum is a guide to the efficacy of treatment, when high the patient's condition is correspondingly improved. Patients severely affected with the disease showed no improvement.



**Anais Brasileiros de Ginecologia, Rio de Janeiro****13 1-88 (Jan) 1942 Partial Index****\*Missed Abortion from Bouba** Ferreira dos Santos—p 20

**Missed Abortion from Bouba**—Ferreira dos Santos reports a case in which bouba developed early in the course of pregnancy. Shortly after the disease appeared the size of the uterus diminished. By the end of the seventh month of pregnancy the patient was of normal appearance. Later she eliminated a mummified fetus. The author believes that bouba was the etiologic factor of the missed abortion.

**Ana d D Púb Nac p Enf d Ap Dig, Buenos Aires****4 1-926 (Dec 31) 1941 Partial Index****\*Therapy of Acute Hemorrhages from Gastric and Duodenal Ulcers** C Bonorino Udaondo—p 231

**Therapy of Acute Hemorrhage from Gastric and Duodenal Ulcers**—Bonorino Udaondo reports 646 cases of gastric or duodenal ulcer in which the diagnosis was verified by roentgenoscopy, gastroscopy or surgical intervention. Acute hemorrhage occurred in 73 cases and recurred in 17. Medical therapy is indicated during the bleeding in all cases regardless of whether it is subacute, acute, primary or recurrent as well as regardless of the age. The patient is put to bed and an ice bag is applied to the epigastrium not to control the bleeding but to keep him quiet. No food, water or drugs are given by mouth during the first forty-eight hours. Morphine, atropine, pantopon (the hydrochlorides of the alkaloids of opium, principally morphine), intravenous injections of a 5 or 10 per cent solution of calcium chloride or calcium lactate, transfusions of 200 or 250 cc of blood and intravenous or subcutaneous injections of saline solution by the drop method are given during the first three to four days. Feeding is gradually resumed after forty-eight hours of continued diminution of hemorrhage. Enemas are of importance in preventing hyperazotemia, which is an aggravating factor in the prognosis of patients about to be operated on. Patients are kept in bed on a strict diet as long as occult hemorrhage persists. As a rule, occult bleeding disappears within ten to fifteen days. Patients leave the bed by the third or fourth week. Iron or liver is administered for the control of secondary anemia. Treatment is continued after the disappearance of the clinical symptoms and x-ray signs until a cure is accomplished. Partial gastrectomy is indicated for hemorrhages recurring at short intervals. The operation is performed one month after the last hemorrhage.

**Archivos Arg de Enf del Ap Digest, Buenos Aires****17 119-334 (Dec-Jan) 1941-1942 Partial Index****\*Megacolon and Its Modern Conception** E Etzel—p 123

Megacolon J J Beretervide—p 185

Megacolon in Children M Gamboa—p 210

Surgical Treatment of Sigmoid Megacolon A Gutierrez—p 223

Radiologic Study of Megacolon F Garcia Capurro and R Tiscornia—p 262

Pathologic Anatomy of Megacolon A E Bianchi—p 283

Megacolon and Simultaneous Megadiaphragm E G Murray and E A Petrolí—p 298

**\*Hypothalamus and Megacolon** F Vidal—p 310

**Megacolon**—According to Etzel, acquired megacolon is a disorder caused by achalasia of one or more sphincters of the large intestine. In the majority of the cases achalasia is localized in the sphincters of the terminal segment of the colon and the rectum. The achalasia is the result of destruction of the plexus of Auerbach at the level of the sphincter. Megacolon is a symptom of a disorder of the intramural autonomic nervous system. Other manifestations of this disorder are megaesophagus, achalasia of the pylorus, megaloureter, megabladder, alterations in the electrocardiogram, polyneuritis, achlorhydria and lowered basal metabolism. A chronic alimentary deficiency, most probably in vitamin B<sub>1</sub>, is most likely the factor involved. Surgical treatment of the megalocolon should aim to overcome the achalasia of the sphincter. Partial resection of the sphincter is the most logical operation. It is not the ideal operation for the pelvic rectal sphincter. Administration of thiamine hydrochloride does not cure megacolon, but it can restrict the lesions.

The prophylaxis of megacolon by a balanced diet must be the aim of therapy. Congenital megacolon differs from an acquired one and is associated with an abnormal development of Auerbach's plexus at the level of the involved sphincter.

**Hypothalamus and Megacolon**—Reports from the literature suggest that the hypothalamus exerts great influence on the visceral activity. Vidal destroyed in 4 male rats the medial preoptic area, the lateral hypothalamus (pars tuberalis), pars mammillaris hypothalami and fibers of the supramammillary commissure by means of a unipolar electrode of the modified Horsley-Clarke apparatus and observed after several weeks the development of a megacolon.

**Repertorio de Medicina y Cirugía, Bogotá****2 1-82 (Jan 15) 1942 Partial Index****\*Postoperative Tetanus** G Guerrero Izquierdo—p 57

**Postoperative Tetanus**—Guerrero Izquierdo reports postoperative tetanus in two persons who came from a rural district and had been operated on, one for talipes and the other for removal of a bullet from the deltoid muscle. Both were treated with intraspinal injections of tetanus antitoxin and both got well. He believes that latent tetanus bacilli may exist in the intestine of many normal persons, in noninfected war wounds and postoperative wounds in the course of healing and in scars. Latent tetanus bacilli are more frequent and more virulent in persons in rural districts. The virulization of tetanus bacilli and consequent development of tetanus depend on the diminution of the local resistance resulting from local trauma and contamination of the tissues or from general bacterial infection. Postoperative tetanus is more frequent after operations on the digestive tract. Contamination of the wound by tetanus bacilli from the intestine takes place by way of the lymphatics. When tetanus develops after operations in areas at a distance from the digestive tract it is caused by bacilli dormant in the scars. War wounds and operative wounds in the course of healing harbor tetanus bacilli in 20 per cent of the cases. Tetanus does not develop in these cases unless there is an associated bacterial infection. The general condition in these cases may be grave and out of proportion to the local wound, which is apparently benign.

**Revista Médica Cubana, Havana****52 1131-1224 (Dec) 1941 Partial Index****\*Transitional Forms Between Lymphosarcoma and Chronic Lymphatic Leukemia** N Puente Duany and F Lopez Fernandez—p 1131

**Transitional Forms Between Lymphosarcoma and Chronic Lymphatic Leukemia**—Puente Duany and Lopez Fernandez report 5 cases of an afebrile diffuse adenopathy in patients between the ages of 47 and 70 years. The disease suggested a diffuse lymphosarcoma or an atypical chronic lymphatic aleukemia. The adenopathy first appeared either in the cervical, axillary or inguinal nodes. The enlargement was excessive. Other groups of superficial and deep lymph nodes became moderately enlarged in the course of the disease. In one group of patients mobility, consistency and appearance of the adenopathy were of the type of chronic lymphatic leukemia. There was a moderate leukocytosis and lymphocytosis. A myelogram showed lymphoid infiltration of the sternal bone marrow and diffuse, cutaneous, erythematous lesions or infiltration. Later in the course of the disease, moderate enlargement of the liver and the spleen occurred. In the other group the adenopathy was of the type observed in lymphosarcoma. The blood, sternal bone marrow and skin were normal. There was neither hepatomegaly nor splenomegaly all through the disease which was more acute and rapid than the leukemic variety. The period of the development of the adenopathy without clinical symptoms amounted to from two to four months for the lymphosarcomatous type and to one to two years for the leukemic type. The general condition of the patients was normal a long time but was followed by a rapid deterioration in the advanced stage. Biopsy of lymph nodes in both groups showed changes of the type of a chronic lymphoid leukemia. Perforation of the enlarged nodes reduced their volume.

reduction was more evident in the leukemic variety. The clinical symptoms were not influenced by roentgen irradiation. The span of life was one and one half years in patients with the lymphosarcomatous type of the disease. Four patients are still living three to six years after the onset of the disease. The author believes that the two varieties are atypical forms of a diffuse lymphosarcoma and chronic lymphatic leukemia and that they represent transitional forms between lymphosarcoma and chronic lymphatic leukemia.

### Revista Medica Latino-Americana, Buenos Aires

27 341-436 (Jan) 1942

\*Pulmonary Abscess and Tuberculosis—A. A. Ramondi and R. Scar-  
tazzini—p. 331

Granulomatous Hematoderma—M. Manguel—p. 375

Cranio-cervical Hematoderma—A. Zavala Saenz—p. 380

Tuberculin Patch Test—Vollmer—M. E. Pastor and R. E. Lempere  
—p. 396

**Pulmonary Abscess and Tuberculosis**—Ramondi and Scartazzini point out the desirability of differentiating between cases of pulmonary abscess in which tuberculosis develops and cases of tuberculosis in which abscess develops. The first group is much more frequent. The local factor tends to direct the action of the focus of suppuration on the old latent and inactive lesions by progression and extension. It comes in contact with a tuberculous focus which for a long time has been encapsulated and inactive. The bacilli thus liberated produce distinct lesions. If the dissemination is intracranial the foci localize near the abscess; if the dissemination is hematogenic generalized or circumscribed military lesions are produced. The bacilli may be expectorated from the bronchi without colonization taking place. All conditions likely to upset the equilibrium can produce activity in an old tuberculous lesion which had been kept inactive by the defensive powers of the organism. Thus suppuration involving a considerable part of the lung can be the cause of a tuberculous exacerbation as a consequence of a profound alteration of the general state. The second group (cases of tuberculosis in which an abscess develops) has a low frequency. Tuberculous tissue is refractory to pyogenic or putrefactive flora of a complicating abscess. The treatment must take into account the clinicopathogenic classification of the concurrence of pulmonary abscess and tuberculosis. In view of the relative frequency of tuberculous complications in cases of pulmonary abscess they advise early treatment with the object of preventing the development of this complication. In the rare cases in which abscess complicates tuberculosis they recommend measures employed in the different types. Active surgical treatment is contraindicated in the rare case in which the abscess complicates the tuberculous lesion, even simple drainage is not without danger. In cases in which the abscess is in the healthy pulmonary tissue, the decision whether the treatment should be surgical or not is dependent on the behavior of the tuberculous lesion.

**Granulomatous Hematoderma**—Zavala Saenz reports 2 cases. A woman aged 23 has symmetrical circinate erythematous spots "urticarious" and chronic in character and a man aged 36, whose cutaneous disorder began at the age of 16, presents erythematous pigmented patches and soft tumors of various sizes, some of which are ulcerated. Both patients are constantly troubled with pruritus. The similarity of the observed lesions with those encountered in parakeratosis, psoriasis, urticaria pigmentosa, certain forms of prurigo, neurodermatitis mycosis fungoides, erythema perstans and chronic multianular erythema of Darier suggests that all these incurable diseases of the skin have a common etiology the cause of which can be found in the disease of the leukopoietic system. The schematic table of Weissenbach and Basch reproduced in this article, indicates this etiologic relationship, which, if once established, permits appropriate treatment of a number of cutaneous disorders that heretofore could be treated only in an empiric manner, which in many cases proved ineffective. The 2 cases described are regarded as manifestations of granulomatous hematoderma in different stages of development.

### Revista Mexicana de Pediatría, Mexico, D F

11 449-482 (Dec 10) 1941 Partial Index

Continuous Oral Drip in Diseases in Infants—G. A. Estrada—p. 466

**Continuous Oral Drip**—Estrada directs attention to the difficulties of administering food and fluids to sick infants. He invented a mouth mask which is maintained in place by means of two pieces of tape tied at the back of the neck. It is made of semidur rubber with a transverse oval hole for the mouth and a small lateral perforation to correspond to the commissure of the lips for the passage of 3 or 4 centimeters of an end of a Nelaton catheter. The latter is fixed at this point to the mask with adhesive tape. Its other end is connected to the tube of a common irrigator which contains the fluid or food. The free end of the catheter is placed between the cheek and the gum of the infant's mouth when the mask is applied. The tube of the irrigator is provided with a clamp by which the flow of the fluid or food is regulated. The fluid drips slowly drop by drop at regular intervals into the infant's mouth.

### Revista de la Soc. Argent. de Biología, Buenos Aires

17 389-600 (Nov.) 1941 Partial Index

Androgen in Therapy of Hypertrophy of Thymus in Infants—C. A. Urquijo—p. 434

**Androgen in Therapy of Hypertrophy of Thymus**—Urquijo reports 2 cases of hypertrophy of the thymus in infants 6 and 11 months of age. The diagnosis was verified by roentgen demonstration of an enlarged thymus shadow. One of the patients was given six injections of 15 mg. of testosterone propionate at one day intervals. The other was given injections of androgen which corresponded to 5 Gm. of fresh testicle. The thymus shadow disappeared from the roentgenograms, and the general condition of the patients improved.

### Semana Medica Española, Madrid

4 365-388 (Oct 18) 1941

Intractable Asthma—J. G. Bengochea—p. 365

\*Technic of Treatment of Ozena—A. M. Calderin and E. Larru Fernandez—p. 375

Study of Pneumococcal Peritonitis—Velocity of Sedimentation as Differential Diagnostic Key with Appendicitis—L. Torres Marty—p. 382

Treatment of Pernicious Anemia—E. Arias Vallejo—p. 386

**Treatment of Ozena**—Calderin and Larru Fernandez advance a theory of ozena. They believe the atrophy to be the result of a neuritis of the trigeminus by a descending or an ascending process which attacks the ethmoidal fibers of the nasociliary branch of the ophthalmic nerve or of the sphenopalatine nerve. These types of neuritis require for their development (1) a constitutional factor (2) general or local toxic or traumatic agents such as syphilis, tuberculosis or scleroma and locally chronic catarrhs, pyorrhinitis, adenoid vegetations and all local traumatism and alimentary insufficiency or inadequate utilization of vitamins, (3) endocrine dysfunction. The infection and the resulting odor are produced secondarily by the implantation of a rhinophilic organism (Perez, Loewenberg, Abel, Belfanti, Della Vedova, Pes Gradenigo and the like) on a trophically changed mucosa with thick and deficient secretion, the stagnation and putrefaction of which behind the nasal fossa are favored by a physiologically anarchic respiration which transforms it into an excellent culture medium for bacteria. The authors consider it necessary to influence the sympathetic in its action on the nasal fossa, thereby producing more lasting results. Two points are decisive in the treatment (1) reducing the caliber of the abnormally wide and atrophic nasal fossa, (2) modifying the nasal sympathetic in order to correct the trophic action. Barium oxide in petrolatum is injected into the nasal fossa, and this is combined with roentgen therapy of the cervical region. There is no advantage in applying roentgen rays to lateral cervical fields, it is much more simple and rapid to resort to a frontal attack. This form of roentgen therapy has proved harmless. The irradiation was of medium penetration so as to stimulate the peripheral sympathetic. The caliber of the nasal fossa responded in the desired manner. The author is investigating the possibility of combining this treatment with the administration of sulfanilamide with or without the pyridine group because of the action of these substances on cocci including probably the rhinophilic organisms which cause the fetor.

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## Book Notices

*Psychiatry in Medical Education* By Franklin C. Lbaugh, M.D. Professor of Psychiatry, University of Colorado School of Medicine, Denver, and Charles A. Lyster, M.D., Associate Professor of Psychiatry, University of Colorado School of Medicine. Cloth. Price \$3.00. Pp. 119. New York: Commonwealth Fund, Ltd. London: Oxford University Press, 1941.

The development of psychiatry during the time which has elapsed since the first world war has been little short of phenomenal. From an isolated specialty limited almost entirely to the walls of the mental hospital or the courtroom it has grown into a large field of medicine closely related to internal medicine, surgery and the other specialties. It has emphasized the preventive aspects through child guidance and mental hygiene clinics, has invaded industry, the schools and correctional institutions and now numbers as well many practitioners in private practice.

The present volume records fully the corresponding developments which have taken place in the teaching of psychiatry in medical schools and in the postgraduate period. Great strides have been made, fostered and encouraged by the Commonwealth Fund, the Rockefeller Foundation, the National Committee for Mental Hygiene and the American Psychiatric Association. In this development Dr. Lbaugh has had a conspicuous part and he has visited nearly every medical school in the United States as a part of his long connection with the work. The present volume contains valuable data not only on the actual presentation of psychiatry in the medical curriculum but also on the teaching activities of the numerous psychiatric hospitals and on the opportunities for postgraduate education whether for the general practitioner or for the specialist.

A large volume which is essentially factual can hardly be abstracted in a review. One is impressed, however, with the painstaking work done in assembling the data and in the progress which the book records as having been made in the past decade. Obviously much yet remains to be done but the dean and the head of the department of psychiatry have here a ready reference work whereby they may compare themselves with their fellows and gather inspiration for further improvement. In general the teaching of psychiatry has passed the dry-as-dust stage; it is now the presentation of a living subject, with relationships to the other fields of medicine and with interests for the future general practitioners. The authors emphasize three fundamental principles which should be followed by the student of psychiatry: (1) the concept of man as a whole, (2) the concept of man as a living being in action—that mental disorders in short have a natural history, and (3) the close relationship of psychiatry to medicine in general. Psychosomatic medicine is going to be the focus of emphasis in psychiatry, and we must constantly stress the importance of emotional factors in disease. (p. 508)

The general orientation of the book is strictly meyerian and the experience of the institution with which both authors are associated is perhaps unduly emphasized. The volume will, however, meet enthusiastic and general approbation as a valuable compilation of data in a rapidly growing field and as an indicator of the directions of further progress.

*Die Ursachen der Entstehung des Kropfes (Struma) und seiner Formen bei Mensch und Tier mit Ausblicken auf rationelle Prophylaxe und Heilung. Deduktive und synthetisch experimentelle Studien über die Variationen des thyreothymischen Systems der Vertebraten und des Menschen unter dem Einfluss der Umwelt.* Von Dr. et Dr. h. c. Joh. Ulrich Duerst, o. Professor der Hygiene und Zootechnik an der vet. med. Fakultät der Universität Bern. Cloth. Price 14.40 marks. 24 Swiss francs. Pp. 538 with 82 illustrations. Berne: Hans Huber, 1941.

Duerst's foundation for this monograph rests on thirty-two years of experience with goiter in domestic animals together with his close association with such able students of goiter as the late Theodor Kocher, de Quervain and Wegelin. The book is divided into four parts. Part I deals with the comparative embryology and anatomy of the thyrothymic system of vertebrates. Part II deals with the physiology of the thyroid and thymus glands as it is influenced by constitutional, conditional and environmental factors. Part III deals with terrestrial

factors (air, water, soil, climate), their variations and actions on the thyrothymic system. Part IV discusses goiter development in man. Each of these parts is divided into four or more chapters. Thus part III contains four chapters dealing with (1) air, (2) climate, (3) water and (4) composition of the earth's crust as bearing on the problem of thyroid physiology and pathology. Throughout the book stress is continually laid on the importance of the compensating activities of the thyroid and thymus glands in connection with the internal and external variations in the oxygen and carbon dioxide volumes and pressures. For example, he thinks that goiter, especially in domestic animals, is much more dependent on deficient oxygen together with an excess of carbon dioxide than on the administration of goiter-producing foods. The importance of excess calcium and magnesium and of deficiencies of iodine and many other mineral imbalances is fully accepted and their possible relation to oxidation and carbon dioxide variations is discussed. The relation of oxygen deficiency and of temperature to thyroid activity is well established but the relation of carbon dioxide to thymic activity as outlined by the author involves much speculation and sidesteps such thymic reactions as are seen in toxic diffuse goiter and Addison's disease. Probably a fourth of the book is devoted to a discussion of the thyrothymic system, and other thymic interrelations are neglected. To the reviewer, however, the thymus at least in its objective manifestations appears to be more related to the steroid hormones than to the thyroid. One could also ask for proof that colloid and parenchymatous goiters are different kinds of goiter. However, interwoven in this extensive discussion the known facts associated with endemic goiter are fully presented. Each chapter concludes with a summary which conveniently reduces an extensive and often speculative discussion to simple statements. Also there is appended an extensive bibliography arranged alphabetically for each chapter.

*Contributions to Embryology, Volume XXIX, Nos. 179 to 186.* Carnegie Institution of Washington Publication 525. Paper. Pp. 193 with illustrations. Washington, D. C., 1941.

*Embryology of the Rhesus Monkey (Macaca mulatta).* Collected Papers from the Contributions to Embryology. Published by the Carnegie Institution of Washington. Carnegie Institution of Washington Publication 538. Paper. Price \$1. Various pagination with illustrations. Washington, D. C., 1941.

The current volume of the Contributions to Embryology contains several studies which are landmarks in primate embryology. Hertig and Rock describe two ova 11 and 12 days of age, the former is undoubtedly the youngest human embryo yet described. Both specimens are beautifully illustrated in photomicrographs. Of similar importance is the paper of Heuser and Streeter dealing with the development of macaque embryos. The abundance of specimens that have become available through the use of the monkey for such investigations is a testimonial to the scientists associated with the Carnegie Laboratory. Heuser and Streeter had more than fifty-five ova aged 8 to 13 days available for study of the early stages. Both Hertig and Rock for man and Heuser and Streeter for the monkey derive the primitive mesoblast by delamination from the cytotrophoblast. Before this new concept can be accepted adequate cytologic studies of the alleged transformation are necessary. The paper of Schultz on the growth and development of the orang-utan is a substantial contribution of interest particularly to physical anthropologists. A human embryo in the primitive streak stage is described by Jones and Brewer and some new features of the adrenal blood supply are elucidated by Gersh and Grollman. The paper of Krafka unfortunately falls below the level set by the other contributions to this substantial volume. Krafka is largely concerned with the histology of the endometrium associated with a presomite embryo and is guilty of numerous errors. Several of his citations as for example from Bartelmez's contributions to the histology of the menstruating uterus are inaccurate or misleading; he further confuses the premenstrual and the menstrual states and uncritically describes obvious artefacts. The Carnegie Institution has collected and issued as a separate volume a series of papers dealing with the embryology of the rhesus monkey. In addition to the paper of Heuser and Streeter it contains studies dealing with the maturation of the ovum, tubal ova and placentation.



**Psychosurgery Intelligence, Emotion and Social Behavior Following Prefrontal Lobotomy for Mental Disorders** By Walter Freeman, M.D., Ph.D. F.A.C.P., Professor of Neurology, George Washington University, Washington, D.C. and James W. Watts B.S., M.D., F.A.C.S., Associate Clinical Professor of Neurosurgery, George Washington University. With Special Psychometric and Personality Profile Studies By Thelma Hunt M.D., Ph.D., Associate Professor of Psychology, George Washington University. Fabrikoid Press, \$6 Pp 337 with 81 illustrations Springfield, Illinois & Baltimore Charles C Thomas Publisher, 1942

Here is a book which admirably achieves its purpose. The two physicians who first in September 1936 introduced frontal lobotomy for the treatment of certain mental disorders into the western hemisphere have set forth their technique and experiences. It is not the purpose of this review to consider the merits of frontal lobotomy. That is a matter which the medical profession must ultimately decide after a careful weighing of all available data. In this clear and concise monograph the authors have first briefly related the history both of other cerebral operations for the relief of psychotic states and of frontal lobotomy. They have then discussed the structure and functions of the frontal lobes and the manifestations of destructive lesions of the frontal lobes as revealed by animal experimentation, and in human cases by tumors, atrophies, vascular disorders, injuries and extirpations. With great clarity they have then discussed how a frontal lobotomy is made, and the results of this operation on the patient. With commendable frankness the authors have presented the complications and disadvantageous results of the operation which they have encountered as well as the beneficial ones. The effect of the procedure on various types of mental disorder is then taken up in detail. The authors are obviously enthusiastic proponents of this procedure, and more unfavorable criticism must be sought from others. At times it appears that their enthusiasm may have been excessive, and one cannot but wonder at the advisability of having an alcoholic lawyer who has been separated from much of his frontal lobes "returned to a position in the government service," where he "at present is employed in highly technical work" (p. 110). In fact some readers may be suspicious that other government officials in Washington may have fallen into the authors' hands. There are a full bibliography and useful index.

**Endotracheal Anaesthesia** By Noel A. Gillespie D.M. B.Ch. M.A., Research Associate and Resident in Anaesthesia, University of Wisconsin. Madison Cloth Price \$4 Pp 187 with 45 illustrations. Madison University of Wisconsin Press, 1941

This book is timely, since it deals in detail with one of the most valuable methods of inhalation anesthesia, the endotracheal method. The interesting history of endotracheal anesthesia is presented, as well as the advantages and disadvantages of the method. Some of the various available types of equipment are illustrated. The technique of oral as well as nasal intubation is described and illustrated in considerable detail. The practical application of the method is discussed, as well as the sequelae that occasionally are associated with the use of the method. The subject of therapeutic intubation other than for anesthesia is touched on briefly. Every active anesthetist will want to read this book, for it represents the most effective means of advancing the specialty, namely, that a competent person will present in considerable detail the technique of some definite method of anesthesia. It is to be hoped that the author will produce more monographs of this type on other subjects.

**Nasal Sinuses An Anatomic and Clinical Consideration** By O. E. Van Alstyne M.D. Assistant Professor Department of Laryngology, Rhinology and Otolaryngology, University of Illinois College of Medicine, Chicago. Cloth Price, \$6.50 Pp 262 with 83 illustrations. Baltimore William Wood & Company 1942

The author has limited his discussion on the nasal accessory sinuses to anatomic and clinical aspects. In the portion devoted to anatomic considerations he has done unusually well, and any one from medical student to experienced rhinologist can derive much of value from a careful study of this part of the text. It is based on the author's own extensive dissections over a period of ten years. The illustrations are numerous and well done, and because they are original they have a freshness and absence of the familiar which makes their study a combined pleasure and benefit.

The diagnostic and therapeutic considerations are abbreviated but not lacking in valuable content. It is apparent that they represent the mature judgment of a clinician of conservative

tendencies whose opinions have been influenced not only by well grounded anatomic knowledge but by a sympathetic understanding of the healthy physiologic advances that have taken place in the past decade or so in the field of rhinology. For this reason there is not in this work the usual detailed but frequently uncritical discussion of operative procedures, minor and major, so often noted in many standard textbooks on rhinology.

The experienced specialist in this field can turn to this creditable discussion with anticipation, pleasure and benefit and a good deal of pride that scholarly work based on the fundamental disciplines of anatomy and physiology continues to emanate from the ranks of active clinicians.

**Methods of Treatment in Postencephalitic Parkinsonism** By Henry D. von Witzleben. Preface by Theodore J. C. von Storch. Associate Professor of Neurology, Albany Medical College, Albany. Cloth Price \$7.50 Pp 164 New York Grune & Stratton, 1942

This is an admirable book dealing competently with a subject of practical and theoretical importance. There is an assemblage of all the pertinent literature, a careful consideration of the main aspects of differential diagnosis, perhaps more clearly developed in this book than elsewhere. The rest of the book is devoted to various types of treatment, those which have been tried and found wanting and those which have given some help to the patient. Like every other more or less hopeless disease, the postencephalitic Parkinson's syndrome has been attacked in a dozen directions by chemotherapy, brain surgery, vaccine and a large variety of drugs. The author clearly reviews these attempts, and, while he seems to give more value to the so-called Bulgarian treatment than it merits, his account is nevertheless clear and on the whole fair.

**How to Organize Group Health Plans** By Martin W. Brown, LL.D. Katharine G. Clark and Perry R. Taylor. Joint Committee of the Twentieth Century Fund and the Good Will Fund, and Medical Administration Service Inc. Paper Price 25 cents Pp 72 Boston Edward A. Filene Good Will Fund, Inc. 1942

After a mention of other types of organized medical care, attention is centered on contract group plans. There is a legal argument (not very convincing) trying to show that recent court decisions have cleared the way for corporations to practice medicine with instructions on how to draw up a charter that will conform to the law as the authors interpret it. Some helpful suggestions about avoiding "bad risks" in securing members is followed by a chapter on methods of enrolment which contains warnings against infringing the principles of medical ethics concerning advertising while conducting "publicity" and "educational" campaigns to secure subscribers. It is recognized that "astute management of varied factors is necessary" if the suspicions of organized medicine are not to be aroused.

**Standardization Activities of National Technical and Trade Organizations** By Robert A. Martino. U.S. Department of Commerce National Bureau of Standards National Bureau of Standards Miscellaneous Publication M169. Cloth Price 75 cents Pp 288 Washington D.C. Supt. of Doc. Government Printing Office, 1941

The purpose of this practical book is well expressed in the preface. "This volume represents an effort to present an adequate picture of the standardization and simplification movement being carried on by national technical and trade organizations in the United States. It contains outlines of the activities and accomplishments of four hundred and fifty American societies and associations in which standardization is a major or an important activity." The contents of the volume will be of service not only to the approximate three thousand national and interstate organizations representing various industries and to commercial organizations and educational institutions.

**Modern Bread from the Viewpoint of Nutrition** By Henry C. Sherman and Constance S. Pearson. Cloth Price \$1.75 Pp 118 New York Macmillan Company 1942

Quite timely is this brief essay on modern bread from the point of view of nutrition. The book contains one hundred and four pages and slightly over twenty thousand words, discussing bread as a food, its proteins and vitamins, present trends and future problems. The concept is that enrichment of bread will give it even a more important place in the diet than it has had in the past. Indeed the authors say that bread "may now safely be utilized to supply as much as 40 per cent of the calories of the normal diet."



## Queries and Minor Notes

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### TREATMENT OF GRANULOMA INGUINALE

To the Editor—A Negro woman aged 24 has had granuloma inguinale for five years. She has also active sickle cell anemia with a hemoglobin content of 40 to 50 per cent and jaundice barely detectable clinically. For the past two years she has been treated with antimony and potassium tartrate and fuadin after several injections of each drug. Jaundice is said to have appeared. Intravenous therapy with iodides and oral sulfadiazine therapy have been ineffectual; the latter resulting in hematuria. Please advise what is the best antimony compound to use, whether jaundice may be expected from its use and whether in this case the jaundice may have been coincidental with the sickle cell anemia. Also please advise in regard to alternative therapy if antimony is contra-indicated.

Paul Ally Kirschner, M.D., New York

ANSWER—The patient presents a complicated picture. The icterus might be concomitant with the sickle cell anemia since it is barely detectable clinically. Both antimony and potassium tartrate and fuadin have been employed in the treatment of granuloma inguinale but neither has been reported to produce icterus. True the effects of antimony on the system thought to a lesser extent resemble the effects following the use of arsenical compounds and it is well known that arsenic is hepatotropic.

The only compound of established value in the treatment of granuloma inguinale is some form of antimony and the best results are reported from the use of fuadin. The use of foreign protein therapy seems to be helpful at times but of course with a patient in the weakened condition of this patient one would hesitate to use too drastic measures of that type. One might employ injections of one of the milk compounds starting off with 3 cc given intramuscularly and gradually increasing the dose 2 cc at a time giving a dose twice a week for the foreign protein effect.

There seems to be no indication of value in the use of iodides and sulfonamide compounds for granuloma inguinale.

It is suggested that treatment with fuadin be begun again with an intramuscular dose of 25 cc which is to be gradually increased to 5 cc. The injections should be given once a week, one meanwhile watching the patient closely and checking on the icteric index.

If it is possible to employ surgical measures they might be considered. Some excellent results have been reported in the treatment of granuloma inguinale when the lesions have been amenable to total excision the edges being brought together with clips thereafter. Naturally if it is not possible to excise the entire area there will be a prompt recurrence.

### ARTIFICIAL INSEMINATION

To the Editor—I have a young woman patient whose husband is sterile. Repeated examinations have failed to show any spermatozoa either living or dead. The couple would very much like to have a baby. They would like to obtain one by artificial insemination. Could you tell how to go about such a procedure?

M.D. Montana

ANSWER—During the past few years much interest has been centered on artificial insemination, a donor's semen being utilized to overcome complete absence of sperm in a husband. Of course, great care must be exercised before undertaking such a procedure. From the physical side, the physician must convince himself that the husband has aspermia and that the wife has no abnormalities of the genitalia and that her tubes are patent. Furthermore, both husband and wife must be in excellent physical and mental condition and have negative Wassermann reactions. Both must give written consent to the procedure to absolve the physician from the possibility of a lawsuit. Furthermore, the written consent will act as a protection for the wife, the donor and the legal status of the child. Likewise, of great importance, is the selection of a proper donor. An individual must be chosen who bears a certain resemblance to the sterile husband not only racially and physically but also emotionally and temperamentally. For example, it might be embarrassing in later life if a tall blond, placid type of donor was selected for a short, swarthy highly emotional couple. Still more important, the physician must arrange for the collection of the donor's

semen and the insemination in such a way that the donor cannot possibly find out who is to receive his spermatozoa. Likewise, the recipient should not be able to discover who the donor is. There are many valid reasons for this chiefly the possibility of blackmail on the part of the donor and the risk of transference of affection from the recipient to the donor. To eliminate all risk the donor should be asked to bring his specimen to a different place from that in which the insemination is to be performed. If the specimen is to be delivered to the physician's office it must be brought to a side door during the physician's regular office hours when there are many patients, so that the donor could not possibly identify the recipient even if he watched every woman who left the office. Of course, the physician should use his judgment in selecting a donor who would not be so low morally as to resort to dishonesty.

In cases of artificial insemination in which a donor is used it is not necessary to use intrauterine insemination. All that is necessary is to deposit the sperm in the cervical canal or even at the external os. For this purpose a Luer syringe and cannula should be used but a glass pipet may suffice.

The technic of insemination is as follows. The patient is placed on the examining table, a speculum is inserted and the vagina and the external os are gently dried. There is no need to remove the secretion from the cervical canal unless it is purulent or unusually abundant. The semen is gently aspirated in the sterile syringe and the cannula attached. It is intracervical insemination is to be practiced, only a few drops of semen should be deposited in the cervical canal. The remainder should be placed at the external os after the speculum has been withdrawn. This can readily be accomplished by guiding the tip of the cannula with one finger in the vagina. If the semen is not to be placed in the cervical canal a few drops are placed at the external os and the remainder in the vaginal vault. Apparently it makes no difference in the results whether semen is deposited in the cervical canal or at the external os.

After the insemination, the patient's legs are stretched out on the examining table, her hips are elevated on a pillow and she is asked to remain in this position for about a half hour. Two or preferably three inseminations should be performed within seven days in the midinterval between two menstrual bleedings, at a time when ovulation is supposed to occur.

Further details concerning the technic may be found in the third edition of *Office Gynecology*, by J. P. Greenhill (Chicago, Year Book Publishers, 1940).

### CHANGED ROUTINE AND EFFICIENCY

To the Editor—My associates and I have had a considerable discussion as to whether the changing of a person's routine in his hours of work, sleep, recreation and meal times will affect his efficiency. We are much interested in knowing whether your organization has made a survey on the problem.

Walter Cappel, Milwaukee

ANSWER—Although this question cannot be answered categorically on the basis of crucial evidence, physiologic theory teaches that a change in habits of living impairs the efficiency of the majority of persons at least for a brief period. Kleitman (Sleep and Wakefulness, University of Chicago Press, 1939) examined the question in considerable detail. He found that many of the diurnal curves of performance coincide well with the diurnal curve of body temperature which is at a low ebb during the early morning hours. The existence of a diurnal curve of body temperature and performance is dependent chiefly on repeated performance since childhood and adherence to one's twenty-four hour routine of activities. The establishment of a new cycle is possible. However, a week or more is frequently required and some persons manifest a greater resistance to the development of a new cycle or routine of activities than others. Accordingly, it may be argued that alternating between a day and a night shift every week or two, as is done in some branches of the military services and in English industry, destroys any progress that has been made in the establishment of a new diurnal rhythm in body temperature and performance. Also according to theory, regular habits of work, play, meals, hours of retiring and awakening should be conducive to promoting the quality of sleep and the efficiency of work and deviations from the daily routine should be the exception rather than the rule. On the contrary, there are persons who have never been regular in their habits of living and have apparently become adapted to the irregularity of their lives. Whether they would become more efficient if they followed some routine is problematic. It is reported that most of the ship officers who make the trip to the Orient and back have become adapted to the changing diurnal conditions to which they are exposed. According to Vernon (Accidents and Their Prevention, Cambridge University Press, 1936) in England where it is the custom in

industry to reverse the day and night shifts at weekly intervals, it is seldom possible to detect the differences in health, productivity and accident liability between day and night shifts, if illumination is adequate. This is obviously not good evidence on which to base objection to physiologic theory, because the same group of persons is being observed under the same rather rapidly changing conditions, and it is possible that the day and night output are being equally impaired. The American system, in which the day and night shifts are not alternated weekly, conforms to physiologic theory. Apparently the theory has never been crucially tested by a long term experiment involving a large group of persons working in the same factory and doing the same type of work.

Irregularity of meals is commonly believed to predispose to digestive and gastric disorders. This notion was advanced as the reason for the high incidence of such disorders among the omnibus drivers in London (Hill, A. B. *Sickness of London Transport Workers*, London, His Majesty's Stationery Office, number 79, 1937). The cause of digestive and gastric disorders is not so simple. During the period in which the foregoing observation was made a "speeding up" of the London traffic routes was enforced which increased the nervous strain of the work. Environmental factors which cause irregularity in meals are probably more responsible for the functional digestive disorders than irregularity in filling the stomach. The activity of the digestive tract which is most likely to be disturbed by irregularity or a change in meal time is defecation. When the hours of light and darkness, meal times and the body temperature curve of the members of Linhard's crew in the arctic regions were reversed (Investigations into Conditions Governing the Temperature of the Body, Denmark, expedition Gronnøysk, number 1, Copenhagen, 1910) he observed that defecation was the physiologic activity most difficult to adapt to the new schedule.

#### MASTURBATION IN A GIRL OF 6 YEARS OF AGE

*To the Editor*—What is the routine therapy for masturbation in a female child? The patient is a white child aged 6 who had been perfectly normal until two months ago, when her mother noticed that she was practicing masturbation. Both physically and mentally the child is normal for her age. There are no other abnormal traits. I would not consider an occasional act alarming, however, this child's habits are particularly insistent and the mother is exceedingly worried. I would appreciate advice as to the best method to cope with this situation.

M. D., Texas

*ANSWER*—The first step should be the elimination of any local causes such as tight clothing, pinworms, eczema of the labia and vulvovaginitis. Corrections of such factors will frequently be followed by disappearance of the habit. In the absence of any of these findings it is more important to assure the parents that there is no evidence that the habit will do the child any physical harm. The harm lies in the worry and guilt that develop in the child following threats of imbecility, insanity and actual physical punishment by the parents. The child should be assured that it is a normal phenomenon and encouraged in the belief that it is of a transitory nature if anything is said at all. It is even better to ignore the act. In general, long periods of lying in bed before going to sleep or awakening should be avoided, also sleeping in very warm soft beds or under warm bedclothing. Cool morning baths have a beneficial effect. It is also well to study the child's life to see if any sudden changes or sources of dissatisfaction have occurred. Such adjustments may solve the problem.

#### TREATMENT OF THYROTOXICOSIS

*To the Editor*—Will you outline a course of medical treatment for toxic goiter? The patient is a married woman aged 30, with basal metabolism +10, blood pressure 130 systolic and 90 diastolic, weight 160 pounds (72.6 Kg) and height 5 feet 7 inches (170 cm). She had infected tonsils which have recently been removed and there is some improvement noted. All other physical findings are negative. Any suggestions will be welcomed. This goiter is of the toxic type and there should be no iodine deficiency, living as she does near the seacoast.

M. D., Maryland

*ANSWER*—If the patient is not taking iodine, a basal metabolism of plus 10 per cent should be considered within normal limits. The administration of iodine might mask any thyrotoxicosis present and reduce the level of basal metabolism to within normal limits. Before deciding on treatment, it is very important to know whether or not the patient is thyrotoxic. In rare instances, persons with metabolic rates of only plus 10 per cent are thyrotoxic.

For purposes of diagnosis, the following routine should be followed. Several determinations of the basal metabolism (at least three or four) should be taken on successive days at a time when the patient has not been receiving iodine for at

least two weeks. Iodine should then be administered and another series of metabolism tests run about two weeks after its administration is started.

If a significant reduction in metabolism occurs, as for example from plus 10 to minus 15 per cent, provided the metabolism readings are consistent and there is definite improvement in the clinical condition of the patient, it may be concluded that the patient is thyrotoxic. However, it should be borne in mind that there are many causes of nervousness besides thyrotoxicosis.

In some instances in which the disease is present in a mild form and the basal metabolism is only slightly elevated, it is possible to hold toxic goiter in check by the administration of iodine alone until the disease disappears. In general, however, it is unwise to carry out this form of therapy except in the clinics with a great deal of experience in the treatment of thyroid disease. The best treatment for toxic goiter in many instances is a subtotal thyroidectomy after adequate preparation.

#### EXCESSIVE GROWTH AND CONVULSIONS

*To the Editor*—Up to two years ago a youth aged 15 was squat and rotund. His height is now 6 feet (183 cm) and he weighs 135 pounds (61 Kg). He has gained in height more than 1 foot during this period. Two years ago he had a convulsive attack involving the flexor muscles of the fore extremities. He had no recurrence until one month ago, when he had three seizures, two within two hours. He loses consciousness during the seizure. He does not have nausea or bite his tongue during a seizure. He has premonition of an attack and had one attack when asleep. He takes great interest in athletics and exercises sometimes to excess. His behavior is normal. His eyes react to light and in accommodation, there is some injection of the efferent vessels but no excovertion or choking of the optic disks. He is much taller than any one of his relatives. The thought occurs to me that there is in this case a hyperactive pituitary gland. Blood pressure is 118 systolic and 79 diastolic.

M. D., Maryland

*ANSWER*—It would be impossible to attempt a diagnosis in this case or to make a guess at the cause of the convulsions without much more information. A growth of 12 inches in two years is abnormal. It would seem that there is a relationship of the convulsions to this growth. The patient's blood pressure must be determined in the lying, sitting and standing positions and in response to exercise. A sedimentation rate and a stereoscopic roentgenogram of the skull should be done in an effort to find a slow growing tumor such as a pinealoma. It is important to know whether there has been a normal development of the secondary sex characteristics. Hypogonadism would be more likely to produce this development than would hyperpituitarism. Roentgenograms of the wrists would indicate, by a determination of the bone age, whether the metabolism and maturation were probably within normal limits. The roentgenograms would also show whether the epiphyses were closing and if much more growth might be anticipated. An electroencephalogram would indicate with reasonable certainty whether or not epilepsy is to be considered as a cause of the convulsions. If no abnormalities are detected on any of the examinations, it is quite probable that there was an abnormal growth stimulus due to a temporary endocrine imbalance and no particular treatment would be indicated.

#### EFFECT OF TYING OFF ONE URETER

*To the Editor*—What would be the physiologic and pathologic effect of tying off one of the ureters? What is the cure for a ureterovaginal fistula? This occurred after the repair of a cystocele.

M. D., New York

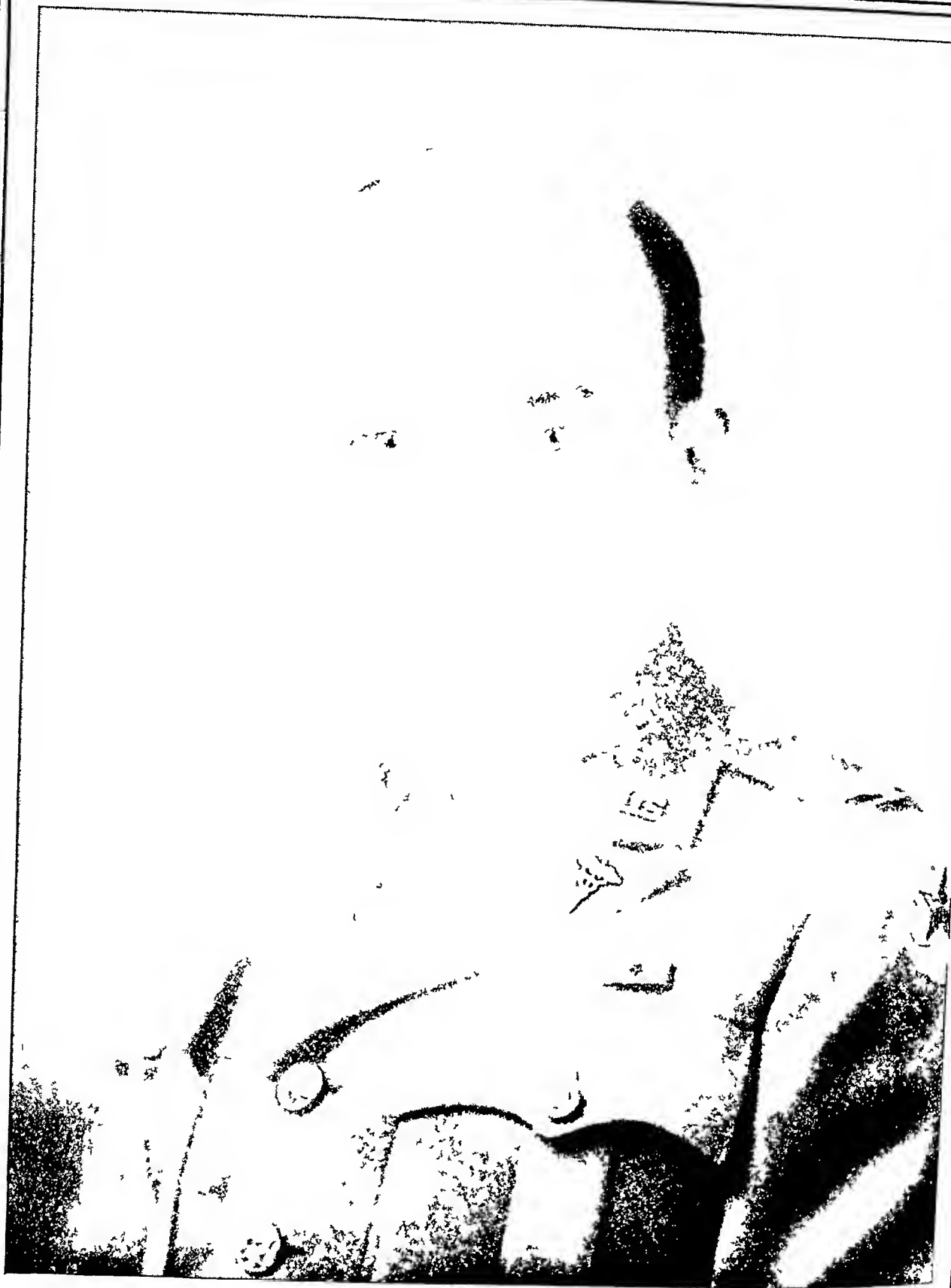
*ANSWER*—When a ureter is isolated and tied off there is usually hydronephrosis followed by atrophy of the kidney. The other kidney, provided it is healthy, undergoes compensatory hypertrophy and carries on satisfactorily.

If the ureter has been injured during a pelvic operation, leakage of urine is usually not apparent at first and it may not occur until a week or ten days after operation.

In the case in question an attempt to pass a ureteral catheter would scarcely be worth while. The patient should be managed expectantly, for patients with postoperative ureteral leakage of urine tend to progress to spontaneous cure as the result of a gradual development of ureteral occlusion. In experimental animals the flow of urine is practically always sufficient to prevent spontaneous closure of the injured ureter. In humans the results are not so ideal, but watchful management frequently suffices.

In the event of failure of expectant care the choice of procedure lies between removal of the affected kidney and transplantation of the ureter. Nephrectomy is definitely preferable to transplantation of the ureter into the bowel and is preferable to attempted transplantation into the bladder.





*Fred W Rankin*

FRED W RANKIN, M D

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## NERVOUS AND MENTAL EFFECTS OF THE SULFONAMIDES

SAM C. LITTLE, MD

ANN ARBOR, MICH

Sulfanilamide was first synthesized in 1908 by Gelmo. From that time until 1932 when Domagk demonstrated that azosulfamide (prontosil) could protect mice against streptococci the drug was relegated to a relatively unimportant niche among the 700 dyes. After Domagk reported his results in 1935 however this new antibacterial agent became generally known, and since then the story of sulfanilamide and the other sulfonamide derivatives has become common knowledge.

At one time or another, one of the sulfonamide derivatives has probably been exhibited in every illness known to man. Newer and more effective derivatives are constantly being brought out and disease after disease falls before the progress of the new chemotherapy. As with other dramatic new treatments however, the toxic effects of these drugs are being neglected among a welter of favorable reports. The effects of this group of drugs on the nervous system has hardly been investigated, yet the nervous system is frequently injured.

Earlier theories of the mode of action of sulfanilamide suggested that it stimulated the defense forces of the body, so that phagocytosis of pathogens was increased. This theory has been discarded, and it is now generally agreed that the drugs are primarily bacteriostatic. These compounds in some way interfere with the rate of growth of bacterial cells, possibly through disturbance of the enzyme system within the cell. The discarded theory had to assume that the toxic effects of the drugs were side effects unrelated to the beneficial action, but it is not unlikely that many of the toxic effects are an integral part of the effect of the drugs on cells, whether bacterial or human. It is possible that the synthesis of new multipotent derivatives will be brought to a standstill by the disappointing discovery that the more toxic these drugs are to bacteria the more toxic they are to the human cell.

The kidneys serve as the major excretory channel for the absorbed drugs. Great caution should be used when one prescribes the sulfonamide drugs for patients with impaired renal function. When toxic manifestations do arise, increasing the fluid intake will expedite the elimination of the drug from the body.

It is now fairly well established that the toxic symptoms of nausea, vomiting and diarrhea, which so often

accompany the administration of sulfonamides, originate in the central nervous system. Headaches, tinnitus and dizziness occur frequently in persons receiving any one of the sulfonamides. It does not follow, however, that the magnitude of these reactions is an accurate indication of the seriousness of the toxic effects of the drugs on the nervous system. It will be seen that some of the least nauseating drugs produce the most damage to the nervous system.

It is convenient to consider the drugs individually, with the neurotoxic effects of each.

### AZOSULFAMIDE (NEOPRONTOSIL)

Azosulfamide was used only a short time and was then supplanted by sulfanilamide. Cornwall<sup>1</sup> reported a case of mild dysmorphismia, with auditory and visual hallucinations, following the use of azosulfamide.

### SULFANILAMIDE

After applying solid sulfanilamide directly to the arachnoid of rabbits' brains, and after also injecting it into the cortex, Russell and Falconer<sup>2</sup> concluded that the slight damage seen was a foreign body reaction to the particulate substance and not in any way specific to the drug.

There are quite a few reports concerned with the toxicity of sulfanilamide for the nervous system of animals. Long and Bliss<sup>3</sup> noted that after prolonged administration of sulfanilamide to mice spastic paralysis and symptoms of vestibular dysfunction developed. Hawking<sup>4</sup> gave intraperitoneal injections of sulfanilamide to 10 rabbits. In all these animals extensor spasms developed from which 7 recovered completely and 3 died. The animals that died showed damage to the anterior horn cells and to some midbrain cells. Rosenthal<sup>5</sup> and Nelson<sup>6</sup> found that repeated doses of sulfanilamide to rabbits and hens caused symptoms suggestive of a peripheral neuritis (somewhat similar to triorthocresyl phosphate neuritis). Their histologic studies showed mild peripheral neuritis in 20 per cent of the rabbits and 33 per cent of the hens. Eighteen per cent of the hens also showed slight damage to the spinal cord. Bieter and his associates<sup>7</sup> gave hens large

1 Cornwall L R in discussion on Weitzen<sup>s</sup>

2 Russell D S and Falconer M A Local Effects of Sulfonamides on Rabbit's Brain *Lancet* 2 100 101 (July 27) 1940

3 Long P H and Bliss Eleanor A Para Amino Benzene Sulfonamide and Its Derivatives *J A M A* 108 32 37 (Jan 2) 1937

4 Hawking Frank Pharmacological Action of Sulfanilamide *Lancet* 2 1019 1020 (Oct 30) 1937

5 Rosenthal S M Some Toxic Effects of Repeated Administration of Sulfanilamide and Sulfanil Sulfanilamide to Rabbits and Chickens *Pub Health Rep* 54 96 106 (Jan 27) 1939

6 Nelson A A Histopathological Changes in Hens and Rabbits Following Administration of Sulfanilamide and Sulfanil Sulfanilamide (*Di* Sulfanilamide) *Pub Health Rep* 54 106 127 (Jan 27) 1939

7 Bieter R N Baker A B Shaffer J M Seery T M and Orr B A Nervous Injury Produced by Sulfanilamide and Some of Its Derivatives in the Chicken Preliminary Report *J A M A* 116 2231 2236 (May 17) 1941

doses of sulfanilamide, sulfapyridine, sulfathiazole, sulfamethylthiazole, sulfanilyl di-methyl-sulfanilamide and sulfaphenylthiazole for two weeks. Sulfanilamide caused the mildest injury to the nervous system of any of the sulfonamides used in this experiment. The damage was limited in the case of sulfanilamide to very mild changes in the peripheral nerves in 66 per cent of the animals and to a slight change in the posterolateral myelin sheaths of the spinal cord in 16 per cent.

As sulfanilamide has been used longer than any of the other members of the group now in general use, it is not surprising that many more reports of its clinical toxicity are available.

A mild depression or euphoria occurring during the use of this drug is common. A more localized cerebral effect may cause peculiar syndromes such as the case of severe dysmorphism (without other mental changes) reported by Weitzen.<sup>8</sup> In this case there were angular and curvilinear distortions, so that objects looked like the images seen in the "trick" mirrors of side shows. Distance perception was disturbed, and telopsia and micropsia occurred. The dysmorphism disappeared two days after the drug was withdrawn. Higgins<sup>9</sup> reported a case in which aphasia, agraphia and stammering appeared three times, each time on the third day of sulfanilamide medication. The patient was otherwise normal mentally during the medication, and the syndrome disappeared quickly after the drug was withdrawn.

When cortical depression progresses further, frank psychoses occur as a result of sulfanilamide therapy. A review of the literature reveals that 13 cases of psychoses following sulfanilamide therapy have been reported.<sup>10</sup> It is probably true that many more abnormal mental reactions have occurred than have been reported, because frequently this reaction is taken as a matter of course. In these 13 cases the drug had been administered for periods varying from fifteen minutes to forty days. In 2 cases the reaction appeared on the first day. Most of the psychoses appeared from three to ten days after drug therapy had been started, but in 2 cases the psychosis appeared after the drug had been discontinued, in 1 fourteen days later and in the other four days later. Several of the patients had had sulfanilamide before or had been given an interrupted course of the drug. It is interesting to speculate whether this intermittent administration might not have caused a sensitization to the drug somewhat like that seen in the use of protein materials. The average daily dose ranged from 3 to 8 Gm, with most of the patients receiving an average daily dose of about 4 Gm. One patient<sup>11</sup> would become so irrational, confused and excited ten to fifteen minutes after receiving a single dose of the drug that restraints were necessary. This train of events occurred three different times. Usually the picture in

sulfanilamide psychoses is that of an ordinary toxic psychosis with confusion, disorientation, depression or euphoria, auditory and visual hallucinosis and distractibility. Paranoid trends are not infrequent. As in other toxic psychoses, the particular manifestations probably depend somewhat on the prepsychotic personality of the patient. The psychosis usually clears up promptly following the discontinuance of the drug. Residual changes were not noted in most of the cases reported, but 1 patient<sup>12</sup> died. In this instance the toxic symptomatology appeared two weeks after the drug had been stopped.

Case 1 illustrates the usual type of toxic psychosis seen after the administration of sulfanilamide.

CASE 1—H. E., a man aged 58, a professor, had a partial gastric resection for peptic ulcer on Nov 15, 1938. On November 22 a septic type of fever developed and his urine was found to be severely infected. He was given 5 cc of 25 per cent of azosulfamide (neoprontosil) intramuscularly at 6:45 p.m. on November 26. No particular mental abnormality was noted. Between 4 and 8 p.m. of the next day (November 27) he was given, by intravenous administration, 5 Gm of sulfanilamide dissolved in 5 per cent dextrose. At 10 o'clock the nurses reported that he was "talking at random and could not talk coherently." He had to be observed continuously, and sedation with paraldehyde was necessary. The following day he was irrational and was talking nonsense such as "I am an equation, you're the denominator, that's the numerator." He appeared apprehensive and was disoriented. On the afternoon of November 28 he was clear enough to answer questions by nodding his head, but he would speak when urged, answering questions with "yes" and "no." The next morning he was drowsy and wanted to know where he was, but that afternoon, although there was a slight dysarthria, his mind was entirely clear. From that time on no mental abnormality was noted. In this case attention should be called to the fact that only one dose of sulfanilamide was given intravenously and that the patient's psychosis appeared six hours after the drug was started. It is entirely possible that the small dose of 120 sulfamide sensitized him to the later dose of sulfanilamide. The psychosis had entirely cleared up within thirty-six hours after the drug had been stopped.

The next report is that of a case of schizophrenia which appeared to have been precipitated by sulfanilamide.

CASE 2—G. B., a white schoolgirl aged 21, was admitted to the Neuropsychiatric Institute on Dec 15, 1941. She was the oldest of three children and had been somewhat spoiled. The family history was not remarkable. For three days following birth she had been anuric, and since then there had been frequent diurnal and nocturnal enuresis. She had talked in her sleep, had masturbated frequently and had expressed a wish to be a man like her father. Her interest in church work was such that at a Bible camp she had "consecrated her life as a Christian worker." Her friends described her as conscientious, cheerful, sweet and well liked. The enuresis appeared in the winter of 1940 but returned in the spring of 1941. Shortly before she left for Chicago to attend a college institute, Sept 3, 1941, she started taking alternating courses of sulfanilamide and methenamine. From September 1 to about September 7 she took 0.6 Gm of sulfanilamide four times daily (taking 0.3 Gm of sodium bicarbonate with each dose). Then for about two weeks she left off the sulfanilamide (taking 0.3 Gm of ammonium chloride four times a day) and took 0.6 Gm of methenamine four times a day. After a two-week course of sulfanilamide (and sodium bicarbonate) she

8 Weitzen, Hyman. Dysmorphism During Course of Sulfanilamide Therapy, *Arch Neurol & Psychiat* 46: 369-370 (Aug) 1941.

9 Higgins, W. H. Motor Aphasia, Agraphia and Stammering Following Use of Sulfanilamide, *Virginia M Monthly* 67: 216 (April) 1940.

10 Pearson, M. M., and Burnstine, M. D. Psychoses Precipitated by Sulfanilamide. Report of Two Cases, *Arch Neurol & Psychiat* 42: 775 (Oct) 1939. Toller, R. B. Psychoses Due to Sulfanilamide, *California & West Med* 53: 266-267 (Dec) 1940. Waugh, J. R. Psychosis During Administration of Sulfanilamide, *Am J Syph, Gonorr & Ven Dis* 25: 504-507 (July) 1941. Hogan, B. W., and McNamara, P. J. Psychosis Precipitated by Sulfanilamide, *U S Nav M Bull* 36: 60-61 (Jan) 1938. Danziger, L. Delayed Toxic Reaction to Sulfanilamide, *Bull Johns Hopkins Hosp* 63: 340-344 (Nov) 1938. Pearson, M. M., and Burnstine, M. D. Psychosis Precipitated by Sulfanilamide, *Internat Clin* 3: 246-248 (Sept) 1939. Garvin, C. F. Complications Following Administration of Sulfanilamide, *J A M A* 113: 288-291 (July 22) 1939.

12 Ottenberg, Reuben. Clinical Experiences with Sulfanilamide with Special Reference to Toxic Effects, *New York State J Med* 41: 418-430 (March 1) 1939.

next and was followed by another two weeks course of methenamine and ammonium chloride. On about October 19 she again started sulfanilamide (and sodium bicarbonate) and continued this until October 22 when abnormal mental symptoms developed. On October 22 she became enuretic in class, was very much embarrassed and left precipitously. She told her homemaker that she had been masturbating that she felt dead all over and that all her female organs were rotting away. She felt dead and frozen, sinful and hopeless and said that the Bible condemned her. She kept tapping her head 'to see whether it was dead or alive' and she constantly picked at her hands and arms. On admission to the Neuropsychiatric Institute physical examination was essentially negative except that a smooth liver was felt on deep inspiration. A neurologic examination was negative. There were no indications suggestive of a peripheral neuritis. The urologic consultant felt that the patient probably had an uninhibited neurogenic bladder. The test for blood sulfanilamide was negative. The hematology was normal and urinalysis bromsulphalein liver function tests spinal fluid examinations and skull roentgenograms were negative. She complained of confusion and difficulty in thinking and said that her head felt tired and her chest and abdomen empty. She was quiet, withdrawn and did not appear to have hallucinations. Orientation and memory were good. A psychometric examination revealed an intelligence quotient of 103, but the psychometrist expressed the opinion that her intelligence had originally been around the 125-130 level. A Rorschach analysis was interpreted as indicating catatonic schizophrenia with strong depressive elements. While in the hospital she expressed many feelings of self accusation and futility. She continued to pick at her hands and arms and complained that her skin felt numb and that her body was dying. Her status was generally unimproved throughout her hospitalization. Electric shock therapy was recommended but her relatives did not agree to this and they removed the patient from the hospital, against advice, on Feb. 4, 1942.

In this case the administration of the sulfanilamide had been intermittent, and a rather typical schizophrenic reaction appeared shortly after she had started on her third course of the drug.

Peripheral neuritis is one of the more common complications of the nervous system after the use of members of the sulfonamide group of drugs. Sulfanilamide itself, however, produces neuritis less often than other derivatives. Waugh<sup>13</sup> reported on the frequency by saying that he had observed only 1 case of peripheral neuritis among 650 patients treated with sulfanilamide. In Waugh's case,<sup>13</sup> painless neuritis of the left anterior tibial nerve developed on the second day of the third course of sulfanilamide therapy for gonorrhea. Symptoms of neuritis had not been noted during the previous (longer) courses of sulfanilamide. The average daily dose was 4.4 Gm. The drug was withdrawn soon after the neuritis appeared, physical therapy was started, and in five or six weeks 30 per cent of function had returned. In Janet's case<sup>14</sup> the neuritis was of the arm and thorax and lasted three days. Ornstein and Furst<sup>15</sup> reported that weakness of adduction of the thighs, a waddling dystrophic gait and a patchy distal hypesthesia of the legs developed in 1 case one and a half months after a course of combined sulfanilamide and fever therapy. Garvey, Jones and Warren<sup>16</sup> however,

noted a similar syndrome occurring after the use of fever therapy whether sulfanilamide was used or not. They observed that the spinal fluid protein was elevated in these cases and compared the picture to the Guillain-Barré syndrome. It therefore seems probable that sulfanilamide had nothing to do with the occurrence of neuritic symptoms in the cases reported by Garvey and his associates and by Ornstein and Furst.

Fisher and Sidney<sup>17</sup> reported 2 cases of encephalomyelitis following the use of sulfanilamide. In their first case 1 Gm. of sulfanilamide was given daily for thirteen days. Two days after the drug was stopped symptoms of a transverse myelitis developed at the first lumbar segment. There was pleocytosis of the spinal fluid. The sensory level ascended to the second thoracic segment in two days and the patient died a respiratory death. Postmortem examination showed softening of the cord substance and vascular lesions of thrombosis, congestion and hemorrhage were prominent in the small vessels of the nervous system. The vessel walls showed fibrinoid necrosis and were surrounded by areas of demyelination. Since this patient had lupus erythematosus, it is not altogether certain that the transverse myelitis was due to the sulfanilamide. In their second case radicular pains, weakness and increased reflexes in the right lower extremity developed after sulfanilamide therapy. These symptoms persisted even after the drug had been discontinued. This patient had received 3 Gm. of sulfanilamide daily for six days before the symptoms developed. Norbury<sup>18</sup> reported a case of transverse myelitis developing in a patient receiving an average daily dose of 3.3 Gm. of sulfanilamide for eight days. Hematoporphyrinuria was present. Some recession of the syndrome occurred six days after the drug had been discontinued, and recovery was complete in six months.

Bucy<sup>19</sup> has reported a case in which a toxic optic neuritis developed three times after a single 0.3 Gm. tablet of sulfanilamide, and each time the symptoms would subside after the drug had been withdrawn. It is noteworthy that this patient had had two previous courses of sulfanilamide without the development of symptoms of optic neuritis.

Transitory myopia developing acutely in the course of sulfanilamide therapy has often been reported.<sup>20</sup> Vision usually returns to normal within forty-eight hours after the drug has been stopped. Most investigators agree that the symptom is due to a swelling of the lens, either as an allergic reaction to the drug or as a result of a difference between the osmotic tension of the lens and the aqueous (this difference being caused by unequal distribution of the drug within the eye).

#### SULFAPYRIDINE

Russell and Falconer<sup>2</sup> found that sulfapyridine in solid form produced irritation of the rabbit brain only as a foreign body, not in a specific manner. It was somewhat more irritant than sulfanilamide owing to its greater insolubility. Bieter and his associates<sup>7</sup> found

13 Waugh J. R. Peripheral Neuritis During Administration of Sulfanilamide. *Am J Syph Gonorr & Ven Dis* 23: 745-750 (Nov.) 1939.

14 Janet Jules. Protest Against Sale of Sulfanilamide Over the Counter. Paris letter. *J A M A* 110: 1501 (April 30) 1938.

15 Ornstein A. M. and Furst William. Peripheral Neuritis Due to Sulfanilamide. *J A M A* 111: 2103-2104 (Dec. 3) 1938.

16 Garvey P. H., Jones Nathaniel and Warren S. L. Polyradiculoneuritis (Guillain-Barré Syndrome) Following the Use of Sulfanilamide and Fever Therapy. *J A M A* 115: 1955-1962 (Dec. 7) 1940.

17 Fisher J. H. and Sidney M. B. Encephalomyelitis Following Administration of Sulfanilamide. *Lancet* 2: 301-305 (Aug. 5) 1939.

18 Norbury F. G. Gonorrheal Myelitis with Associated Porphyrinuria Following Sulfanilamide. *J Lab & Clin Med* 25: 270-274 (Dec.) 1939.

19 Bucy P. C. Toxic Optic Neuritis Resulting from Sulfanilamide. *J A M A* 109: 1007-1008 (Sept. 25) 1937.

20 Blankstein S. S. Transitory Myopia. A Complication of Sulfanilamide Therapy. *Am J Ophth* 24: 895-899 (Aug.) 1941. Friedman B. B. Acute Myopia Induced by Sulfanilamide. *Am J Ophth* 24: 935 (Aug.) 1941.

that chickens given sulfapyridine in high concentrations for two weeks showed more injury to the nervous system than those given sulfanilamide but less injury than those given any of the other sulfonamides tested. Of the chickens given sulfapyridine, 91 per cent showed patchy swelling or condensation of the myelin sheaths of the peripheral nerves, but the changes were mild in all except 3. In these 3 chickens, the myelin sheaths and axons had partially disappeared. One spinal cord showed a slight change in the posterior columns (sheath swelling), but all the brains were normal.

Johnstone and Forgacs<sup>21</sup> reported on the administration of sulfapyridine (the sodium salt given intramuscularly) to 5 children suffering from meningococcal meningitis. In these patients cerebral symptoms of confusion, restlessness and irritability persisted after the spinal fluid had become normal, and in some instances meningeal signs persisted. Rapid improvement occurred in these symptoms when sulfapyridine was discontinued. Those patients died who did not have the drug withdrawn. He stated that if meningeal and cerebral symptoms persist three days after sulfapyridine therapy is started, these symptoms are probably due to the drug.

Pluegge<sup>22</sup> refers to a case of sciatica due to sulfapyridine reported in the German literature and to 2 cases of encephalomyelitis reported in the American literature as being due to the same drug. Pluegge himself reported that a patient received sulfapyridine for seven days (average dose 3 Gm daily) and on the twenty-sixth day polyneuritis of the femoral, tibial and peroneal nerves developed. There were no sensory disturbances, but areflexia was noted in the involved area. Therapy did not help the neuritic symptoms. He also reported that another patient was suffering from meningococcal meningitis and was treated with sulfapyridine. Six weeks after the spinal fluid became normal weakness and ataxia appeared, and loss of tendon reflexes in the legs was noted, and two weeks later bladder symptoms developed. All neurologic complications were improving when the patient was seen three months later.

Something should be said about the dangers of intraspinal injections of the sulfonamides,<sup>23</sup> particularly sulfapyridine and its sodium salt. Injections of sodium sulfapyridine are caustic and have been known to cause necrosis of the spinal cord at the level of the injection.

#### SULFANILYL SULFANILAMIDE (DI-SULFANILAMIDE)

Sulfanilyl sulfanilamide, or di-sulfanilamide, fortunately was not released for general use in the United States. In Europe it was widely used under the name "disulon." At the present time it has fallen into disrepute principally because of the number of reports concerned with its toxicity for the nervous system. Rosenthal<sup>5</sup> and Nelson<sup>6</sup> in this country found that the drug produced less clinical evidence of weakness in rabbits than sulfanilamide, but microscopic studies revealed that lesions of the peripheral nerves were four times as frequent with di-sulfanilamide as with sulfanilamide.

Instances of peripheral neuritis due to this drug have been reported.<sup>24</sup> The clinical picture of this neuritis is fairly constant. From one to three weeks after a long or short course of sulfanilyl sulfanilamide pain suddenly appears in the calves, and sometimes in the arms. This pain frequently disappears in a few days, but a day or two after its onset, weakness of the hands and feet appears. This progresses until, in severe cases, there is a veritable distal quadriplegia, which is particularly pronounced in the extensor muscles. The adductor pollicis is almost always more affected than any other muscle, and a reaction of degeneration may sometimes be noted in the thenar muscles. Sensory changes are slight or absent. The deep tendon reflexes in the distal parts of the extremities are usually lost, but they may be hyperactive.<sup>25</sup> Recovery is slow but may become complete in from several weeks to nine months, depending on the severity of the process.

#### DI-METHYL DI-SULFANILAMIDE

In the studies of Bieter<sup>7</sup> comparing the toxicity of the various sulfonamides, di-methyl di-sulfanilamide was more toxic to the nervous system than sulfanilamide, sulfapyridine, sulfathiazole or sulfamethylthiazole. In the animals given di-methyl di-sulfanilamide, each peripheral nerve examined showed fragmentation and vacuolization of the myelin sheath and damage to the axons. Six of the 11 spinal cords examined showed extensive damage, 1 cord being completely destroyed transversely. Six of the brains showed vascular damage and swelling of the neurons.

This drug, like sulfanilyl sulfanilamide, was given a short clinical trial in the United States, and its deleterious effects were so great that it was never distributed generally. In Europe, however, it found some general use until it was observed that many cases of peripheral neuritis followed its use. Bannick, Brown and Foster<sup>26</sup> used this drug in 32 cases, and peripheral neuritis occurred in 2. In each of these only the lower extremities were involved. The neuritis from this drug seems to disappear more rapidly than it does with sulfanilyl sulfanilamide. In 1 case, however, recovery was not complete in sixty days. Most of the cases of polyneuritis due to this drug<sup>27</sup> are reported in the

21 Johnstone, D. F. and Forgacs, P. Cerebral Symptoms Occurring During Sulfapyridine Treatment of Meningococcal Meningitis, *Brit. M. J.* 1: 772-774 (May 24) 1941.

22 Pluegge, H. Ueber zentrale und periphere nervose Schäden nach Eubasinum-medikation, *Deutsche Ztschr. f. Nervenheilk.* 151: 205-219, 1940, abstr., *Arch. Neurol. & Psychiat.* 46: 927 (Nov.) 1941.

23 Germain, A., and Picard, P. Meningite necrotique subaiguë, consécutive à l'injection intrarachidienne de 693 en solution sodique dans un cas de méningite cérébro-spinale, *Bull. et mem. Soc. med. d'hop. de Paris* 56: 670-672 (Nov. 25) 1940. Fort, P., and Iger, M. Paralysies graves au cours de la méningite cérébro-spinale (6 cas) d'après des injections d'a (para amino benzene sulfamido) pyridine ou M & B 693 par voie intra rachidienne, *Presse med.* 48: 693-695 (Sept. 47) 1940.

24 Reese, H. H. Editorial Comment, *Yearbook of Neurology, Psychiatry and Endocrinology*, Chicago: Year Book Publishing Company, 1939, p. 71. Wigton, R. S., and Johnson, S. H. Peripheral Neuritis Following Sulfanilyl Sulfanilamide (Di-Sulfanilamide), *J. A. M. A.* 111: 1641-1642 (Oct. 29) 1938. Hodgson, E. R. A Case of Peripheral Neuritis Following Disulfanilamide Treatment, *Journal of the American Medical Association* 111: 22-23 (Jan.) 1941. Tietze, A. Periphere Lähmungen nach Ulironbehandlung, *München med. Wchnschr.* 85: 332 (March 4) 1938 (quoted by Wigton and Johnson). Alyea, E. P., and Daniel, W. E. Treatment of Sulfanilamide Resistant Gonorrhea with Sodium Sulfanilyl Sulfanilamide, *J. Urol.* 42: 864-873 (Nov.) 1939. Roch, Martin and Neeser, J. 25 Roch, M., Martin, E., and Neeser, J. Syndrome neurologique simulant la sclérose latérale amyotrophique provoqué par un médicament sulfamidé, *Bull. et mem. Soc. med. d'hop. de Paris* 55: 885-887 (Juin) 1939.

26 Bannick, E. G., Brown, A. E., and Foster, E. P. Therapeutic Effectiveness and Toxicity of Sulfanilamide, *J. A. M. A.* 111: 1116 (Aug. 27) 1938.

27 Hermann, K. Polyneuritis Following Treatment with Uliron, *Ugeskr. f. Læger* 102: 809-810 (Aug. 1) 1940. Le Roy, A. P. Polyneurite toxique provoquée par l'ulirone, *J. belge de neurol. et de psych.* 39: 729-734 (Nov.) 1939. Burawski, J. Disorders of Peripheral Nerve Caused by Di-Sulfanilamide, *Polski gaz. lek.* 18: 446-447 (May 14) 1939. Radermecker (Mme.) Polyneuritis consecutive à un traitement d'Uliron, *J. belge de neurol. et de psych.* 39: 349-356 (May) 1939. Ueber Neuritis nach Ulironmedikation, *München med. Wchnschr.* 85: 452-453 (March 25) 1938 (quoted by Wigton and Johnson). H. E. Zur Ulironfrage, *München med. Wchnschr.* 85: 623-624 (Jan. 29) 1938 (quoted by Wigton and Johnson). Krause, F. Polyneuritis nach sulfanomidhaltigen Verbindungen, *Menschen und Tauben, Deutsche med. Wchnschr.* 64: 114-116 (Jan. 1938 (quoted by Wigton and Johnson). Rost, Joachim. Polyneuritis nach Ulironmedikation, *Monatsschr. f. Psychiat. u. Neurol.* 100: 1938, abstr., *J. Nerv. & Ment. Dis.* 90: 654 (Nov.) 1939.

European literature in which the drug was used under the names "uliron," "disceptal," and "D 373."

Two cases of fatal myelomalacia due to the use of di-methyl di-sulfanilamide have been reported.<sup>28</sup>

#### SULFATHIAZOLE

Bieter's work<sup>29</sup> showed that sulfathiazole was intermediate in nervous toxicity between sulapyridine and di-methyl di-sulfanilamide. There was some injury to all the peripheral nerves of the chickens examined but in only 3 was the damage advanced. Microscopic studies revealed that 6 of the 11 spinal cords had swelling of the myelin sheaths and axons and some cords showed demyelination and fragmentation of all the neural elements. In 4 of the brains mild demyelination and changes in the endothelium of the vessels were present. Bieter and his associates also reported 2 cases of peripheral neuritis due to sulfathiazole. Their first patient had received sulfathiazole steadily for five and one-half months. Seven weeks after sulfathiazole had been started nerve deafness appeared in the left ear. A few days later peroneal weakness and foot drop appeared on the right. When the drug was withdrawn some motor improvement was noticeable in two weeks. Their second patient had received 27 Gm of sulfathiazole in five and a half days when the drug was stopped because numbness and tingling in the hands appeared. The symptoms quickly disappeared after the drug was stopped.

Weinberg and Knoll<sup>29</sup> noted a syndrome occurring in the course of sulfathiazole therapy which they thought resembled amyotrophic lateral sclerosis. It appears, however, that the syndrome they described is quite different from amyotrophic lateral sclerosis and resembles more a mild peripheral neuritis. The patient complained of cramps in the arms and hands and of tremors and clumsiness of the hands. Fibrillations were noted in the thenar muscles and in the forearm muscles. The symptoms would promptly disappear when medication was withdrawn and recur when the drug was started again. The last time the drug was used they gave vitamin E concurrently with the sulfathiazole, and as the syndrome did not appear they felt that vitamin E had prevented the recurrence of the syndrome. Bloom, Leech and Shaw<sup>30</sup> reported a case of temporary blindness due to sulfathiazole. The ophthalmoscopic examination showed tortuosity and dilatation of the retinal vessels, and small petechial hemorrhages and crystal-like spots were present around the macula. After the drug was stopped vision returned to normal in about ten days.

The following cases illustrate the toxicity of sulfathiazole for the nervous system.

CASE 3—M. A., a white woman aged 64, was admitted to the University Hospital in coma on Nov. 11, 1941. While the patient was recovering from minor injuries sustained in an automobile accident on September 14, pleuritic pain developed for which she was given sulfathiazole. From October 10 to 16

she received 36 Gm of sulfathiazole. Then the drug was discontinued for two days because of nausea and vomiting, but on October 18 it was started again and by October 29 she had received a grand total of 69 Gm. Sulfathiazole was not given after October 29. On November 5 a sore throat developed. On November 6 she took a single 0.2 Gm tablet of sodium propyl-methylcarbinyl allylbarbiturate (seconal), became stuporous and remained so until admission to the University Hospital. Her relatives said that for three or four years she had had severe tremor of the extremities particularly on intention. On admission the rectal temperature was 106 F, the pulse rate 140, the respiratory rate 44 (Cheyne-Stokes type) and the blood pressure 98 systolic and 58 diastolic. Hematologic studies showed 85 per cent hemoglobin, 4,400,000 erythrocytes and only 1,200 leukocytes of which 2 per cent were neutrophils, 97 per cent lymphocytes and 1 per cent monocytes. There were dirty gray ulcers on the hard palate and in the right nostril. The patient was semicomatose but would nod her head in answer to questions, or would even speak a few words when urged. A neurologic examination soon after admission showed sensation to be intact as far as could be determined. The corneal reflexes were absent and there was an exposure keratitis. The pupils were irregular and the right was slightly larger than the left. There was a minimal central paresis of the right side of the face and the tongue and jaw deviated to the right. There was a paresis of the right extremities with some spasticity. The deep tendon reflexes were increased on the right and absent on the left. Mayer's sign was absent on the right and present on the left. Hoffmann's sign was more distinct on the right and definite Chaddock and Oppenheim signs were obtained on the right. Jacksonian convulsive movements were present in the right lower extremity from time to time. Roentgenograms of the skull and an examination of the spinal fluid were negative. The patient was treated with blood transfusions, pentose nucleotide and liver extract and by November 10 the leukocyte count had risen to 9,000. The following day she conversed with nurses and relatives but was still a little confused. A neurologic examination on December 3 disclosed some inattention to the right side of the body, and possibly some slight confusion of laterality but no other signs of aphasia. She was perfectly oriented but was definitely facetious and could not repeat more than four digits forward. The pupils were now equal though irregular. There was slight drooping of the right corner of the mouth but no definite facial paresis. There was mild generalized paresis of the right extremities with slight increase in tone on the right. The deep tendon reflexes were more active on the right but no pathologic pyramidal signs were present. Gross intermittent tremors (somewhat like those of paralysis agitans) were present in the hands. The patient continued to improve after this date, and at the time of discharge on Dec. 24, 1941 she was in good general physical and mental condition except for an evident paralysis agitans syndrome with tremor, loss of associated movements and masking of the tacies.

This case illustrates the toxic effect that sulfathiazole may have on a previously diseased nervous system.

Case 4 is another illustration of the toxicity that sulfathiazole has for the nervous system.

CASE 4—F. W. M., a white man aged 60, was admitted to the University Hospital on Dec. 24, 1941. On November 15 he had had right-sided pleuritic pain with fever, and he received a course of sulfathiazole, the exact duration and amount of which is unknown. When he was admitted to the University Hospital he was complaining of dyspnea and general malaise and a diagnosis of empyema was subsequently made. The admission blood count showed 60 per cent hemoglobin, 3,630,000 erythrocytes and 1,150 leukocytes. The whole stained smear contained only 37 leukocytes of which 35 were lymphocytes and 2 were monocytes. A neurologic examination on the day of admission showed vibratory appreciation to be lost bilaterally.

28 Schurer Martin Todesfall infolge Rückenmarks erweichung nach Uliron (Kombinationschädigung) Dermat Wehnschr 107 1361 1366 (Nov 19) 1938 Santo Erwin Ueber eine schwere Erkrankung des Rückenmarkes nach Uliron behandlung einer Gonorrhoe Frankfurt. Ztschr f Path 53 103 119 (March 22) 1939

29 Weinberg M H and Knoll A F Beneficial Effect of Vitamin E on Amyotrophic Lateral Sclerosis Syndrome Precipitated by Sulfathiazole M Rec 152 447 448 (Dec 18) 1940

30 Bloom W A Leech M P and Shaw W S Temporary Blindness Due to Sulfathiazole J Missouri M A 38 202 203 (June) 1941



as high up as the iliac crests. There were numerous patches of chorioretinitis in both fundi, the left corneal reflex was less active than the right, there was a definite paresis of the lower portion of the left side of the face, and there was slight tremor of the tongue. The patient had had a conduction deafness in the left ear for many years. Owing to debilitation, tremulousness was apparent in all movements of the extremities. The right triceps was absent, but otherwise the upper deep tendon reflexes were normal. There was a suggestion of atrophy in the first interosseous space bilaterally. The patellar reflexes were hyperactive and equal and the achilles reflexes absent bilaterally. There was a slight Chaddock sign on the right and a definite Babinski sign was elicited on the left. There were no definite motor abnormalities. The patient was given pentose nucleotide and blood transfusions, and the leukocyte count rose rapidly, until on December 28 it was 5,000 and on December 29 it was 28,000. Immediately after this rise the blood count returned to normal. His empyema was drained successfully and he was discharged Jan 20, 1942 in excellent general condition. When he returned for a check-up on February 21, another neurologic examination showed that there were healing patches of exudate in the fundi and that there was still a very mild paresis of the lower part of the left side of the face. There was a coarse tremor of the tongue and of the outstretched hands. There was slight ataxia on the finger to nose test. The left lower extremity showed slight spasticity, vibratory sensation was reduced at the right ankle and lost at the left, the ankle jerks were hyperactive but equal, and there was a suggestion of a Babinski sign on the left. The examination was otherwise normal.

In this case, it is true, there is a possibility that the central nervous signs might have been due to emboli (the retinal findings were suggestive of emboli), but there were no other clinical evidences of embolic phenomena. In both case 3 and case 4, neutropenia was well defined, and the question may arise as to whether the nervous and mental symptoms might not have been due to the neutropenia rather than to the direct toxic effect of the drug on the nervous system. The papers of Hunter,<sup>31</sup> Reznikoff<sup>32</sup> and Kracke,<sup>33</sup> which are concerned with the syndrome of granulocytopenia alone, make no mention of nervous or mental complications of this disease.

Case 5 illustrates the abnormal mental reactions and psychoses sometimes seen during the use of sulfathiazole.

CASE 5—H V, a white man aged 57, cut his face while shaving on Jan 7, 1942. On Jan 10 cellulitis of the right side of the face developed and on admission to the University Hospital on January 13 there was intense inflammation of the right side of the face. The temperature was 103.8 F, the pulse rate 120 and the respiratory rate 25. He showed evidence of general toxemia with mild confusion and slight lowering of the level of consciousness. Diabetes mellitus was discovered soon after admission, and when the patient was told of this illness on the third hospital day he became mildly depressed. During the first five days of his stay in the hospital he received 6 Gm of sulfathiazole daily. In addition, on the fifth hospital day prior to incision and drainage of the cellulitis he received an additional dose of 2 Gm of sulfathiazole. Several hours after the operation he became quarrelsome, resistive, aggressive, profane and generally uncooperative. He refused to remain in bed, insisted on walking to the bathroom and, when urinals were brought into his room, would throw them

down the hall toward the nurses' desk. In spite of this he seemed oriented and would take medication when it was brought to him. The next day (January 18, or the sixth hospital day) he was definitely facetious but was perfectly oriented and not so aggressive. There was some blunting of superficial sensation in the peripheral parts of the extremities, and vibratory sensation was slightly reduced at the left ankle. There was slight weakness of adduction and abduction of the fingers of both hands, and also of dorsiflexion of both feet. The biceps, triceps, radial-periosteal, patellar and achilles were absent bilaterally. A diagnosis of sulfathiazole intoxication was made, sulfathiazole was withdrawn and sulfadiazine substituted in doses of 6 Gm daily. From this time on he was also given 20 mg of thiamine hydrochloride, 20 mg of nicotinic acid amide and 0.1 Gm of ascorbic acid, each four times a day. Within thirty-six hours after the sulfathiazole had been withdrawn all mental abnormalities disappeared. Although the patient could not remember the exact details, he knew that his behavior had been objectional and apologized for this profusely. From this time on he was cheerful and cooperative. Examination on the seventeenth hospital day revealed that all the deep tendon reflexes had returned, and sensation and strength in the hands and feet were normal. Glycosuria practically disappeared after the sixth hospital day, and the diabetes was completely controlled when he was discharged in excellent general condition on the forty-ninth day.

It seems likely that the abnormal mental reactions of this patient after the operation were due mainly to the sudden increase in the blood sulfathiazole level resulting from the extra dose of 2 Gm of sulfathiazole. The signs suggestive of peripheral neuritis may have been due to the sulfathiazole, or they may have been associated with the diabetes. The toxic effect seemed to be specific for sulfathiazole in this patient, as all symptoms subsided after sulfadiazine was substituted.

#### SULFAMETHYLTHIAZOLE

Bieter's studies<sup>7</sup> showed that sulfamethylthiazole was only slightly more toxic to the nervous system of chickens than sulfathiazole, the changes being a little more advanced with the former drug. Brown and Herrell<sup>34</sup> treated 106 patients with sulfamethylthiazole, and in 3 patients they noted a "lower motor neuron" disturbance manifested by foot drop, which appeared one to two weeks after the drug had been stopped. Pain in the calves immediately preceded the foot drop. One patient also had weakness of the thumb and forefinger bilaterally. Only 1 of their patients had an interrupted course of sulfamethylthiazole therapy. Applebaum<sup>35</sup> observed a case of peripheral neuritis which came on six days after withdrawal of sulfamethylthiazole. In this case, bilateral weakness of the adductor pollicis was the first symptom, but it was soon followed by bilateral pain in the calves and bilateral foot drop. The drug was continued, regardless of the neuritis, and eventually a very distinct distal quadriplegia developed. At that time there were sensory changes in the extremities. The patient had had other sulfonamides before. Garvin<sup>36</sup> reported that a patient had tenderness and hyperesthesia of the legs on the seventeenth day of sulfamethylthiazole therapy and then, two days after the drug was stopped, became disoriented, had several generalized convulsions

34 Brown, A. E., and Herrell, W. E. Clinical Experience with Sulfamethylthiazole, *Am J M Sc* 200 618 632 (No. 1) 1947.  
35 Applebaum, E. Peripheral Neuritis Following Use of Sulfamethylthiazole in a Case of Subacute Bacterial Endocarditis, *State J Med* 41 1864 1865 (Sept 15) 1941.  
36 Garvin, C. F. Peripheral Neuropathy and Toxic Psychosis Due to Sulfamethylthiazole, *Am J M Sc* 200 1000 1002 (Sept) 1940.

31 Hunter, R. J. Agranulocytosis, *M Clin North America* 22 1669 1681 (Nov) 1938.  
32 Reznikoff, Paul. Acute Neutropenia (Granulocytopenia) (Agranulocytosis), *New Internat Clinics* 3 106 129 (Sept) 1939.

33 Kracke, R. R. A Review of Granulocytopenia (Agranulocytosis), *J Lab & Clin Med* 17 993 1005 (July) 1932.

and died. The postmortem examination of the brain revealed no abnormality. Another case of toxic psychosis with convulsions following sulfamethylthiazole therapy is reported by Roseman and Aring.<sup>37</sup> This psychosis appeared on the fifth day of a course of intensive sulfamethylthiazole therapy and it terminated in death. There were petechial hemorrhages scattered throughout the gray matter, but the white matter was entirely spared, contrary to the usual findings in toxic hemorrhagic encephalopathy. The predominant lesion was the drupedetic hemorrhage. Some perivascular necrosis was present. The blood vessel changes were mostly endothelial. In this case there were the following complicating factors: (1) The tissues contained abnormal amounts of lead (patient had worked in a lead factory for many years but had never had any symptoms of lead poisoning), (2) The patient was alcoholic. Perhaps this case is an illustration of the deleterious effect of sulfamethylthiazole in the presence of preexisting central nervous system disease.

In case 6 peripheral neuritis developed after a course of sulfamethylthiazole therapy.

CASE 6—A R., a white woman aged 47, was admitted to the University Hospital on March 7, 1940. Ten weeks before admission cellulitis of the right side of the face developed. Later severe headache appeared. On admission physical examination showed slight blurring of the margins of the optic disks and a small retinal hemorrhage in the right eye. The blood count revealed leukocytosis and some hypochromic anemia. Two blood cultures showed *Staphylococcus aureus* and a diagnosis of staphylococcal septicemia was made. A neurologic examination on the fifth hospital day was negative except for a questionable mild sixth nerve paresis on the right and a subsiding papillitis. On the evening of the seventh hospital day the patient was given 4 Gm. of sulfamethylthiazole and thereafter for twelve days received 15 Gm. every four hours. There was moderate nausea and vomiting. After the drug was withdrawn, she continued to improve. A blood culture on the fourteenth hospital day showed no growth, and she was discharged on the thirty-third hospital day. Two days after discharge (sixteen days after sulfamethylthiazole had been discontinued), she noted sudden severe pain in both legs, some swelling of the dorsums of the feet and sudden foot drop, first on the right and then on the left. The pain in the legs improved gradually. One week later she vomited, lost consciousness and entered a local hospital for four days, but on discharge the foot drop was unimproved. One month after her previous discharge she was readmitted to the University Hospital complaining of pain above and behind the right eye. Examination showed that the previously diagnosed papillitis had subsided. There was also an area of localized cellulitis on the right wrist, but it was felt that it probably bore no relation to her previous illness. Neurologic examination disclosed a coarse tremor of the tongue, some atrophy of the small muscles of the hands (especially on the right), some weakness of the grip bilaterally and general weakness of the muscles about the hips, knees and ankles. There was almost complete loss of extension of the feet bilaterally, this being less noticeable on the right. There was mild weakness of the flexors of the feet. The upper tendon reflexes and the patellars were active and equal but the achilles were absent bilaterally. There were no pathologic toe signs. The nerve trunks in both lower extremities were tender, and there was a patchy hypesthesia of both lower extremities, this change being most noticeable in the fifth lumbar and first sacral segments. Vibratory sensation was slightly impaired at the right ankle. Casts were made to prevent talipes equinus deformity, and the patient was discharged. She returned to the University Hospital one

month later. In the interval she had taken 15 mg. of thiamine hydrochloride daily. There was no pain in the legs, but she had begun to notice some awkwardness in the use of her hands. There was hypesthesia over the second, third and fourth lumbar segments on the right, severe bilateral foot drop (worse on the left) was present, and the achilles reflexes were absent. Straight leg raising caused some pain on both sides, and there was slight pain on flexion of the neck. There was slight weakness of the grip, and mild atrophy was present in the first interosseous space bilaterally. The patient was seen again two months later, at which time there was some improvement in the foot drop so that she could extend her toes and feet slightly when she was lying down. The numbness in the lower extremities annoyed her considerably, and examination disclosed hypesthesia and hypalgesia below the midthigh region on the right and below the knee on the left. Motion and position sense was absent in the feet. The knee jerks were moderately exaggerated, and the achilles reflexes were hyperactive and equal but there were no pathologic toe signs. Four attempts to do a lumbar puncture were unsuccessful owing to the fact that the patient experienced extreme pain immediately after the needle passed through the dura, and it was felt that the needle was impinging on nerve trunks. Roentgenograms of the spine were negative. In spite of large quantities of thiamine hydrochloride, brewers' yeast and physical therapy, the patient showed little improvement during her stay in the hospital. She was not seen again after discharge.

In this case it is interesting to speculate as to the exact location of the lesion causing the foot drop and the sensory change. The achilles tendon reflexes were absent for a long time and then finally became hyperactive. The explanation for this is obscure, but it is possible that the peripheral neuritis subsided and unmasked symptoms due to involvement of the spinal cord itself.

#### SULFAGUANIDINE

As yet there is little evidence that sulfaguanidine is toxic to the nervous system. Perhaps this is because only relatively small amounts enter the blood stream.

#### SULFAPHENYLTHIAZOLE

Sulfaphenylthiazole is not used clinically. Bieter<sup>7</sup> found that it produces more injury to the nervous system than any of the other sulfonamides.

#### SULFADIAZINE

Sulfadiazine has only recently been introduced. It seems to have a wider range of therapeutic effectiveness than many of the others, perhaps owing to the fact that not so much of it is acetylated in the blood. With regard to its toxicity for the nervous system, Finland<sup>38</sup> treated 466 patients with this drug, and serious neurologic or psychiatric syndromes did not develop in any of his cases. Nausea and vomiting occurred in 92 per cent, and headache and dizziness were present in only 2 cases.

Recently a case of peripheral neuritis following sulfadiazine was observed, and it will be reported briefly.

CASE 7—W. H. M., a white man aged 70, was admitted to the University Hospital complaining of nausea and vomiting. Subsequent studies showed that these complaints were due to uremia and acidosis secondary to benign prostatic hypertrophy with urinary obstruction. On admission the patient was quiet oriented and cooperative. Physical examination was negative except for peripheral arteriosclerosis and pulmonary emphysema. Blood nonprotein nitrogen was 127 mg. per hundred

37 Roseman E. and Aring C. D. Encephalopathy Associated with Sulfamethylthiazole Therapy. *New England J. Med.* 224: 416-420 (March 6) 1941.

38 Finland, Maxwell, Strauss, Elias and Peterson. O. L. Sulfadiazine. *J. A. M. A.* 116: 2641-2647 (June 14) 1941.

cubic centimeters and carbon dioxide combining power 31 volumes per cent. The urine was mildly infected, and he was given 3 Gm of sulfadiazine daily from November 18 to December 7. He also received sodium lactate by mouth, and fluids were given in copious amounts. From November 26 to 29 an episode of confusion and hallucinosis occurred. During this time blood nonprotein nitrogen was 76.5 mg per hundred cubic centimeters and carbon dioxide combining power 99 volumes per cent. It seems probable that alkalosis was at least partially responsible for this episode. From December 8 to 12 he received 15 Gm of sulfadiazine daily. On December 10 a transurethral resection of the prostate was performed, and shortly after the operation the patient contracted bronchopneumonia. Sulfadiazine was increased to 4 Gm daily and continued at this level until December 18. On the latter date the patient was having elevations of temperature without leukocytosis, and it was felt that the fever was probably due to the drug, so sulfadiazine was discontinued. The pneumonia had completely resolved by December 18, but postoperative hemorrhage had occurred and several blood transfusions were necessary to combat a severe hypochromic anemia. On December 18 and 19 he was again having hallucinations and was confused and disoriented. On December 20 a hemostasis was done, and his mental status improved gradually thereafter. On December 22 he had recovered enough to talk coherently, and on that day he first began to complain of numbness of the hands and feet. There was a hypalgesia in the ulnar distribution on the left, and also profound weakness of the grip was present on the same side. The numbness of the left hand persisted after he had been discharged on December 18, but the numbness of the right hand and of the feet subsided rapidly. He returned on March 17 for a check-up, and it was at that time that the first complete neurologic examination was done. His mental state was normal. He did not remember ever having had any pain associated with the numbness in the extremities. Vibratory appreciation was absent at the ankles and present at the wrists. There was hypesthesia and hyperalgesia in the distribution of the left ulnar nerve. The grip was moderately weak on the left, and there was severe paresis of the left adductor pollicis. Some atrophy was present in the first left interosseous space. There were no other sensory or motor abnormalities. The biceps, triceps, radial-periosteal, patellar and achilles reflexes were moderately active and equal.

#### COMMENT AND SUMMARY

Animal experiments seem to indicate that all members of the sulfonamide group have a toxic effect on the nervous system, the parent substance, sulfanilamide, being the least toxic, and some of the newer derivatives being the most toxic. The toxic effects are probably an integral part of the primary effect of the drugs on all cells, bacterial or human. It has been suggested<sup>39</sup> that some of the deleterious nervous and mental effects may be dependent on cerebral anoxia resulting from hemoglobin, attaching itself more readily to the sulfonamide group than to oxygen. Intermittent administration of a single sulfonamide or successive administration of different sulfonamides seems to predispose to the development of toxic nervous system symptoms, possibly through a sensitization process. A review of the clinical reports, in general, confirms the results of the animal experiments. The drugs appear more neurotoxic in the presence of preexisting disease of the nervous system. The following abnormal conditions have been reported as due to the use of the sulfonamides: dysmorphism, aphasia, agraphia, stammering, toxic psychosis, peripheral neuritis, encephalomyelitis, myelitis, optic neuritis, transitory myopia, meningeal signs, blindness and convulsions.

## SERIOUS COMPLICATIONS OF RUPTURED INTERVERTEBRAL DISKS

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Ruptured intervertebral disks are now known to be exceedingly common, they are, in fact, among the most frequent lesions treated surgically. Over 95 per cent of them are in the lumbar region, where they explain the overwhelming percentage of recurring pains low in the back plus sciatica in one or both legs. With rare exceptions it is now possible to diagnose and localize those in the lumbar region without spinal injections of iodized oil, air or other contrast medium or even without a lumbar puncture.<sup>1</sup> Up to the present time the course in all reported cases of ruptured disk except our first 2 has run true to form and there were no serious complications. Three serious sequelae encountered during the past month emphasize the potential dangers of this simple lesion when the diagnosis and treatment are delayed. One of the disks ruptured was in the cervical, another in the thoracic and the third in the lumbar region. The rupture of the cervical and the thoracic disk had disastrous results—total paralysis and death from pressure necrosis of the spinal cord in the former, in the latter the paralysis has partly cleared. The rupture of the lumbar disk caused permanent sensory paralysis in addition to long-continued pain and loss of bladder function with subsequent infection of the urinary system.

In addition to these 3 recent cases I have had 2 cases of ruptured disk (lumbar disk) with complete paraplegia (previously reported) and loss of bladder function and another (lumbar disk) with long-continued bladder incontinence and infection. These 6 cases of serious complications occurred in a series of perhaps 300 operative cases of ruptured disk, a percentage, therefore, of about 2. All the sequelae could have been prevented with early diagnosis and treatment. Although all the patients except the one with a cervical disk ruptured have survived, the paralysis of the patient with a thoracic disk ruptured will probably be permanent and perhaps some permanent stigmas will affect the others, particularly those with infection of the urinary tract. Delay in treating a ruptured cervical or thoracic disk is disastrous because only a few hours is required to destroy the spinal cord irreparably. After paralysis due to a ruptured lumbar disk, function can be restored because the lesion involves the peripheral nerves. Moreover, spontaneous healing of a ruptured disk must be unusual.

#### REPORT OF CASES

##### CASE 1—Rupture of fourth lumbar intervertebral disk into spinal canal

A laboring man aged 53 had had a sudden severe attack of "sciatica" on the right side and pain low in the back five years before that kept him in bed over three months. His recovery was slow, covering a period of three months.

Thirteen months before, while he was shoveling sand, a pain (not very severe) stabbed him in the lower part of his back. As he continued at work the pain became intense and was increased by movement. Two days later, while he was at work, "something gave way in his back" and the pain became excruciating. He went to bed, and in the afternoon control of his bladder became difficult and then impossible.

1. Dandy, W. E. Concealed Ruptured Intervertebral Disk for the Elimination of Contrast Mediums in Diagnosis. *J. N. A.* 821 (Sept. 6) 1941, Loose Cartilage from Intervertebral Disk. Tumor of the Spinal Cord, *Arch. Surg.* 19:660 (Oct.) 1927.

four days he could not pass urine and was catheterized. The pain was unbearable and he was unable to get out of bed. Morphine was given repeatedly. On the fourth day the pain was somewhat improved, he was able to get up but could not use his right leg. The urine then began to dribble but retention still made catheterization necessary. There was also fecal incontinence.

By degrees the pain lessened but an infection of the bladder kept the patient in a hospital seventy-eight days. During this period he noticed numbness in the back of both legs but the motor power in the right leg improved so that he could walk although with difficulty. The disturbance and anesthesia of the bladder and rectum were still present when he was admitted to the Johns Hopkins Hospital one year later. The infection in the bladder had cleared despite continued intermittent use of the catheter.

Examination on Dec. 19, 1941 revealed (1) weakness of the flexor and extensor movements at the right foot (2) bilateral anesthesia of all nerve segments on the right below the fourth lumbar vertebra including (3) saddle anesthesia and (4) anesthesia of the penis and the scrotum (5) loss of both Achilles tendon reflexes and (6) only slight response of the rectal sphincter.

This patient was presented at ward rounds with the students and an unequivocal diagnosis of ruptured intervertebral disk with compression of the lumbar spinal nerves was made. No

ing entirely across the spinal canal. The dura was then opened below the scar and the incision continued upward to it. The intradural scar was about 0.5 cm wide and very dense and had two distinct components; there were three small pure white glistening nodules, each about 3 mm in diameter, one far over to the left side of the dura on its dorsal aspect and the other two with a dumbbell formation on the right lateral aspect of the inner dura. These little white nodules were tightly bound together with the usual dense brownish red connective tissue of a scar. The mass clearly did not contain neoplastic elements. Three sensory nerve roots passed through the dense fibrous mass, and two had to be excised with it. Curiously this transverse fibrous mass was on the dorsal aspect of the spinal canal, the motor roots could be seen beneath and were intact after removal of the scar. On the right side the dura was an integral part of the scar and retained none of its normal appearance. The vertebral disk was then inspected. The posterior spinal ligament was a dense white scar but there was no localized protrusion, and when it was incised with a scalpel there was only very hard tissue beneath. The disk itself had, therefore, healed spontaneously after extrusion of the disk.

There could scarcely be a doubt that the scar throughout the interior of the spinal canal was the end product of the rupture of a disk into the spinal canal. And it was suspected that the small white glistening bodies in the scar represented actual remains of the extruded cartilage. In the stained microscopic sections cartilaginous remains were disclosed, some fairly normal and others so greatly disintegrated that only suggestions of cartilage were in evidence.

The patient left the hospital on Jan. 10, 1942, entirely relieved of pain and with some diminution in the anesthesia.

#### CASE 2—Rupture of sixth cervical disk with necrosis of spinal cord

A man aged 29 entered the hospital Jan. 2, 1942 and was operated on a few hours later. He was totally paralyzed in both legs and partly paralyzed in both arms and had bladder retention and loss of rectal control. Breathing was labored and was reinforced by use of the sternocleidomastoid muscles. There were rales in the lungs and much mucus which could not be delivered. The temperature was 104.2 F, the leukocytes numbered 18,000 and a patch of pneumonia in the base of the right lung was suspected because of clinical signs and its presence confirmed by roentgenogram twenty-four hours later.

Forty-eight hours before the time of operation the patient was seemingly perfectly well in every way. While straining at stool he suddenly became paralyzed to the degree noted, and all sensation was lost below the neck. All this paralysis developed within a few seconds, it appeared to begin in the left foot, went to the right and passed upward like a flash. Thirty-six hours later the condition showed no improvement, the patient was then rushed by ambulance from a neighboring city.

Examination showed complete motor and sensory paralysis with a sharp sensory level at the sixth cervical segment. The patient was perfectly conscious but apprehensive and somewhat panicky because of the embarrassed respirations.

It was possible to obtain a history of pain in the neck and shoulder over a period of six or eight months, always intensified by throwing a ball or moving the neck. The pain had probably been somewhat less during the past month. I suspected an extradural or intradural encapsulated tumor (probably a meningioma) because of the past history of pain and the associated sudden paralysis following straining at stool. In a case reported several years ago<sup>2</sup> this sequence of events was regarded as pathognomonic of an encapsulated tumor, and it has since been found to be a trustworthy sign. A ruptured intervertebral disk was not suspected.

At operation with the patient under local anesthesia, a cervical laminectomy was performed. At the level of the sixth cervical vertebra a sharply defined lesion was encountered. For a distance of perhaps 2 cm the cord was reddish brown, the vessels on the surface were enlarged and, for a moment an aneurysm was considered. The cord was dis-

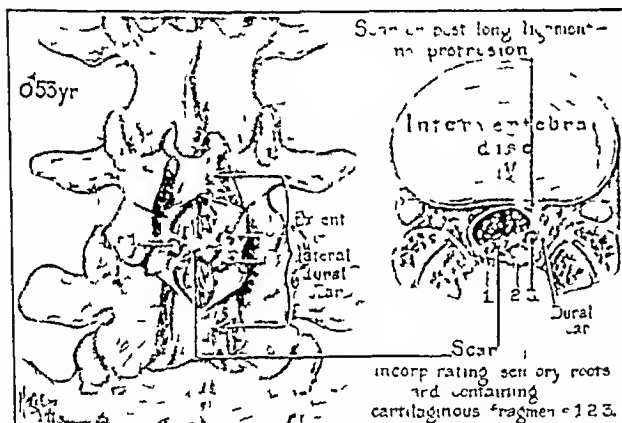


Fig. 1 (case 1)—Operative sketch showing intradural scar wrapped around the posterior roots of the cauda equina. Note the three little isolated fragments of intact cartilage (1 2 3). Sketch representing the cross section of the scar in the spinal canal.

other diagnosis could be considered. My assistant, Dr. Troland, whose diagnostic acumen is almost perfection, was gently chided for having entertained the diagnosis of a tumor of the spinal cord and injected 1 cc of iodized oil. This was our second spinal puncture and injection of iodized oil in 100 cases of ruptured intervertebral disk—a procedure that we have denounced for ruptured lumbar disks as unnecessary, misleading, painful and harmful. Roentgenograms with the iodized oil showed a complete block at the fourth lumbar disk.

We had assumed that the situation revealed at operation would be similar to that in other cases in which the protruding extradural disk was so large that the cauda equina had been compressed by the extradural mass. One exceptional objective observation, however, was noteworthy, i.e., the sensory loss was much greater than the motor, whereas the reverse would have been expected.

At operation (fig. 1) on the following day the usual unilateral approach was made. The fifth ligamentum flavum was reflected on a hinge and replaced when the subdural space was seen to be normal. Exploration of the fourth subflaval space immediately revealed a scar so dense that exposure beneath the dura was impossible. Removal of a notch in the upper part of the fifth lamina showed the same impenetrable scar. The only safe approach then was to expose the dura by a complete laminectomy. On the dorsal surface the dura became more normal and was opened. At the level of the fourth lumbar interspace a dense scar was encountered extend-



tinctly swollen, had iodized oil been injected (it was not) a block would probably have been shown. When the leptomeninges were stripped an area of pinhead size in the center looked almost transparent and was nicked with a knife, a large amount of the necrotic interior of the spinal cord oozed from the opening (fig 2). The incision was extended almost the length of the lesion, and an increasing volume of necrotic material was spontaneously extruded. It contained no blood or fluid and was not even blood tinged, it was grayish white. It should be noted that a network of vessels extended up and down for some distance in the outer layer of the arachnoid membrane, indicating a vascular support to the contiguous lesion in the cord. It is known that the white matter in the brain and spinal cord is much softer than the gray matter and, therefore, far more susceptible to trauma. It being evident, therefore, that this was a traumatic lesion, the cause was

with severe pains in the chest, a diagnosis of pneumonia had been made (probably erroneously). Five weeks before he had had a temperature of 103 F. During a stay of three weeks in another hospital the diagnosis of sinus infection was made. He was discharged, apparently well. Shortly thereafter there were some stiffness of the neck and some difficulty in bending forward. Two weeks before admission severe pains in the chest returned and radiated to both shoulders. Any movement intensified the pains, but they were not aggravated by coughing and sneezing. About the same time both legs became weak, and he could not walk. There were also urinary infrequency and dribbling. Within twenty-four hours the paralysis of the legs became almost complete. Examinations revealed (1) some pain on pressure over the first and second thoracic vertebrae, (2) almost total paralysis of both legs, (3) sharp sensory loss at the level of the third

thoracic vertebra, (4) paralysis of the abdominal and the lower intercostal muscles, (5) extreme hyperactivity of the knee kicks and ankle jerks, (6) presence of the Babinski sign bilaterally, (7) loss of the position and the vibratory sense in the legs, (8) presence of the Queckenstedt sign (complete block), (9) a count of 50 cells (lymphocytes) in the spinal fluid, (10) a complete block at the second thoracic vertebra as shown with iodized oil (roentgenograms of the spine were normal) and (11) a temperature of 100 F.

The tentative diagnosis was epidural abscess or tubercle. A ruptured disk was not considered.

At operation on February 13, performed by Dr. Troland, rupture of the second thoracic vertebral disk was found. One large and many small pieces of cartilage were removed.

The paralysis was unimproved on March 11, 1947, but on May 1 there was decided improvement, the patient being able to take steps.

#### COMMENT

Among perhaps 300 operations for ruptured

intervertebral disks these are the only instances of such complications, except our first 2 previously reported cases, and none, I think, have been reported in the literature. Although these complications are relatively uncommon, the quick succession of these 3 cases indicates that they are probably to be expected more frequently in the future.

Spontaneous resolution of ruptured intervertebral disks has been suspected from the history of patients whose signs and symptoms appeared to indicate the existence of a ruptured disk and later disappeared. The usual history is one of recurrent attacks with intervals varying up to several months or years. However, it is my belief that a spontaneous cure is infrequent and occurs only after a period of many years. In case 1

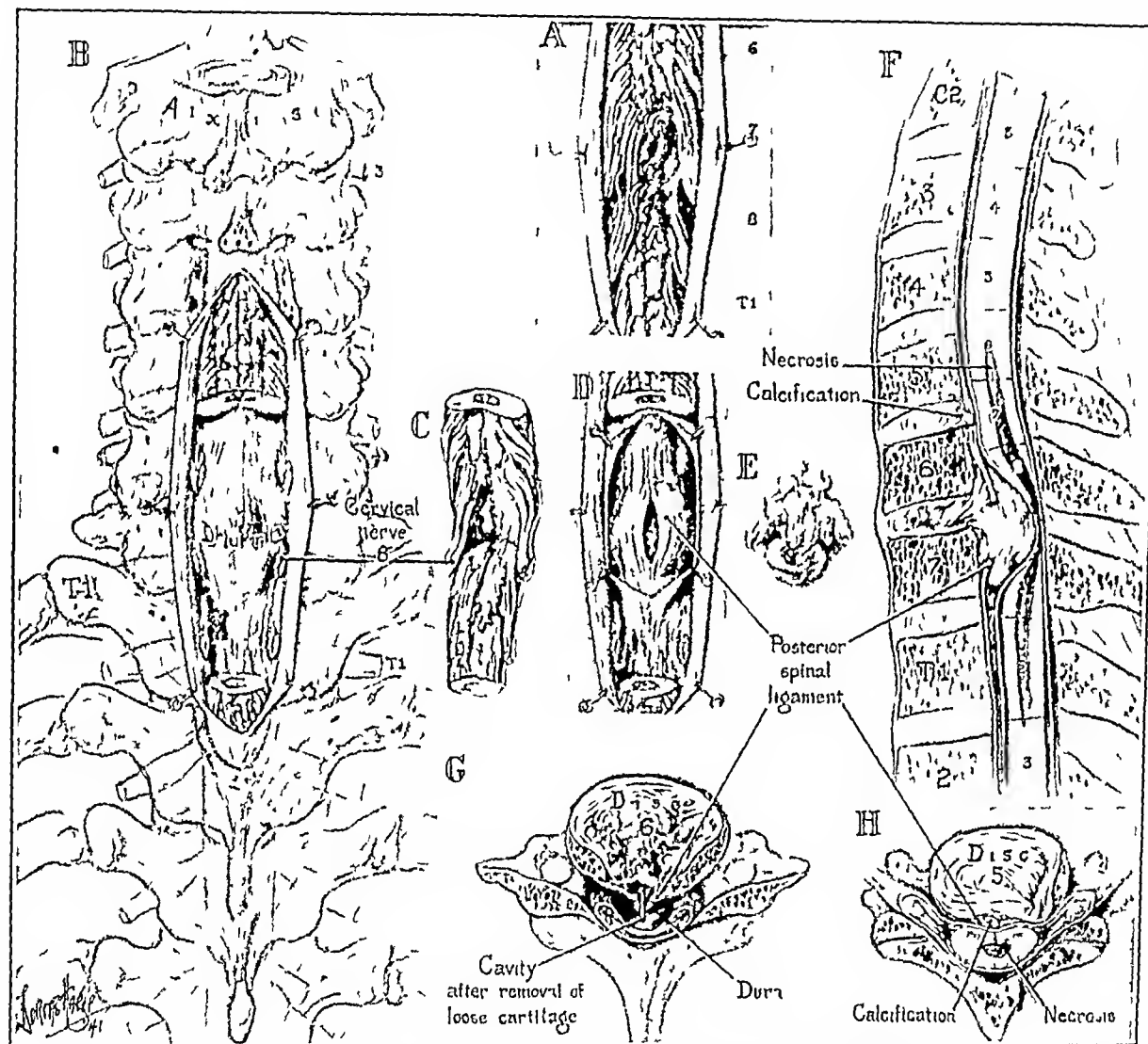


Fig 2 (case 2)—A, the cord with the necrotic interior beginning to protrude at the surface. B, section of the cord removed to show the dura bulging because of rupture of the intervertebral disk. C, a drawing of the cord to show the effects of compression by the disk. D and E, cartilage removed from the bulging disk. F, diagram showing the effect of the lesion on the cord, note the extent of the necrosis of the interior of the cord. G, transverse section of the affected disk, showing the extent of the necrotic interior. H, cross section of a normal disk for comparison with the affected disk (G).

sought beneath the cord by gently retracting it. A rounded hard mass was seen bulging beneath the dura, which did not appear thickened or abnormal. An extradural search quickly revealed the protruding disk. When it was incised several pieces of cartilage extruded spontaneously, more were removed with forceps.

There appeared to be no possibility that return of function could follow so much necrosis of the interior of the cord. With administration of sulfathiazole the pneumonia cleared, but the patient died ten days later of paralysis of the respiratory tract. Examination of only the cervical portion of the cord and vertebrae was carried out.

#### CASE 3—Rupture of second thoracic disk with paraplegia

A Negro man aged 42 was admitted to the medical service Feb 11, 1942 complaining of pain in the neck and inability to walk. The present illness had begun two months before



lesion in the disk had remained dormant for four years and then had sprung up anew from the effects of the trauma incident to heavy lifting. This is the common story. I have suspected but cannot prove that a permanent cure results only when the protruding cartilage actually ruptures through the posterior ligament, where it is gradually absorbed. The reason for such a conception is the course of events after operation. It is now known that the important part of operative treatment is the adequate opening of the returning posterior spinal ligament which permits the eventual extrusion of the defective cartilaginous content of both the disk and the protrusion. The actual removal of a cartilaginous sequestrum doubtless hastens the healing and cure, but rarely it ever can all the defective disk be removed, and frequently, particularly if the disk is concealed, few or none of the fragments are removable without the inducing of an inadvisable degree of trauma. An adequate opening of the ligamentous cover is, therefore, the indicated treatment. This is probably the reason that ruptured disks are not found after severe crushing injuries of the spine or soon after dislocation, i. e., the posterior spinal ligament is torn and permits the injured disk to extrude spontaneously.

The high percentage of permanent cures which follow operation and are without sequelae therefore suggests that the extruded cartilage eventually is absorbed and disappears. Only twice have I seen at operation actual spontaneous rupture of the posterior spinal ligament with freely lying cartilage in the extradural space. I suspected that had operation not intervened a spontaneous cure might have resulted, but it is probable that the trauma (bending the spine) incident to lifting the patient to the operating table may have induced the rupture, in both instances the rupture through the spinal ligament could not long have antedated the operation. In case 1 the acute pressure of the protruded disk eroded the overlying dura and permitted its penetration into the spinal canal—an unusual sequel and almost a cure. Had the protrusion remained extradural a cure would probably have resulted. The long preservation of cartilage in the spinal canal and its incorporation in the scar indicate the disposition of an autogenous graft of cartilage in this situation.

In case 2 a successful result with restoration of spinal functions could not have been possible after the lapse of much time—probably a few hours. Once necrosis of the interior of the cord had begun the loss of function could only be rapidly progressive and permanent. The optimum time for the diagnosis and treatment, therefore, was before the spinal cord had been compressed with such abrupt suddenness. It is true that at the time of operation rupture of a vertebral disk was not suspected, but had the patient been seen earlier and an opportunity of study been provided it would probably have been suspected. Rupture of a cervical disk is far less common than rupture of a lumbar disk (in 10 of our 300 cases the ruptured disk has been in the cervical region), but it is sufficiently frequent to be considered seriously when a patient complains of pain in the neck—especially in the lower part of the neck—the shoulders and the arms. In all our cases the rupture has been at the sixth or the seventh cervical disk.

A postmortem examination in case 2 revealed only the cortical shell of the spinal cord remaining at the level of the rupture. When held to the light it was transparent for a distance of about 2 cm. A large cavity extended up and down the center of the spinal cord from the top of the fifth cervical vertebra to the top of

the second thoracic—a distance of four vertebrae! This cavity was due to the extension of the necrosed spinal cord along the path of least resistance extrusion through the meningeal covering is the more resistant course. The ruptured disk, as large as a hickory nut, pushed the dura posteriorly and in the exact midline. The entire center of the disk was loose cartilage, about one third of the entire disk being grossly destroyed. The area of necrosis extended through the anteroposterior extent of the disk, a seemingly normal cushion remained on each side. The lateral position of so many disks had prepared us to believe that the nucleus pulposus has nothing to do with the development of a ruptured disk. This specimen, however, which I believe is the only one reported post mortem, suggests that the destruction of cartilage did and probably always does begin in the nucleus pulposus. The greater frequency of lateral protrusions doubtless is explained by the looser attachment of the posterior spinal ligament to the vertebral body on the sides than in the center. Moreover, the ligament is definitely thicker in the middle. The much tighter binding of the ligament in the center is easily and strikingly demonstrated by stripping it with forceps. Eventually, however, the pressure beneath the ligament may become great enough to force the central attachment also, as in this case.

#### CONCLUSIONS

1 Though not frequent (occurring in 6 of 300 cases, an incidence of 2 per cent), serious sequelae resulting from rupture of an intervertebral disk produce severe loss of function referable to the spinal cord or the cauda equina (depending on their site).

2 A ruptured disk in the cervical or the thoracic region is a potential source of permanent destruction of the spinal cord. Its diagnosis and treatment before involvement of the spinal cord is of permanent importance. The diagnosis is suggested by localized and referred pain. After the spinal cord is involved operative treatment within a few hours is imperative if any function referable to the spinal cord is to be expected. Iodized oil is indicated for an early diagnosis when the spinal cord is involved, i. e., when the ruptured disk is in the cervical or the thoracic region. It is not indicated for rupture of a lumbar disk because with rare exceptions the diagnosis can be made with much more accuracy and certainty without it.

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**Old Age and Change of Habits**—The mental hygiene of old age is often a crucial factor. Lucky is he who possesses that asset invaluable in senility, a cheerful disposition. The aged must endeavor by every means to curb emotion, promote equanimity and maintain contact with the outside world. Nature checks the emotional life, but this recession must be turned to advantage and not give way to indifference and selfishness. The ability to keep young requires training and exercise, it is the duty of those around the old to support their morale, to encourage their self respect and to convince them that they are loved and useful. As old trees cannot stand transplantation, so old people find it arduous to weather changes of habit and routine. The growing rigidity and unadaptability of the regulatory mechanism produce an automatism in senility which reacts with distinctly deleterious effects to the death of the marital partner, change of residence, retirement or other environmental modifications. Since this progressive automatism is inevitable and irreparable, it is advisable, as far as possible, to avoid habit deviations in senescence unless the change is specifically indicated or unavoidable.—Mueller-Deham, Albert, and Rabson, *S. Milton. Internal Medicine in Old Age*, Baltimore, Williams & Wilkins Company, 1942.

# SUBACUTE BACTERIAL ENDOCARDITIS DUE TO STREPTOCOCCUS VIRIDANS

A SURVEY OF THE PRESENT STATUS OF THE PREVIOUSLY REPORTED CURES AND A CLINICAL STUDY OF FIFTEEN TREATED CASES, INCLUDING ANOTHER CURE

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Previous to the advent of the sulfonamide drugs recovery from Streptococcus viridans subacute bacterial endocarditis was exceedingly rare (table 1). The incidence of spontaneous cure, averaging all reported group studies, is 1 per cent.<sup>1</sup> Libman's series<sup>2</sup> of 150 patients with 3 per cent spontaneous recovery is the most favorable report. Lichtman and Bierman<sup>1</sup> have recently compiled the serial studies of six workers comprising a total of 634 patients. There were six spontaneous recoveries in this group. All patients in these groups were studied before the sulfonamide era.

TABLE 1—Recovery Rates in Subacute Bacterial Endocarditis with Different Forms of Therapy (from All Medical Literature)\*

|   | Number of Cases | Recoveries |            |
|---|-----------------|------------|------------|
|   |                 | Number     | Percentage |
| 1 Nonspecific treatment or spontaneous recovery | 634             | 6          | 1          |
| 2 Chemotherapy alone                            | 198             | 12         | 6          |
| 3 Chemotherapy with heparin                     | 43              | 5          | 11.5       |
| 4 Chemotherapy and hyperthermia                 | 25              | 4          | 16         |
| 5 Chemotherapy and intravenous typhoid          | 21              | 4          | 20         |

\* Only group studies are included in this table. Isolated reports of cases in which recovery occurred are omitted because the percentage of recovery could not be estimated.

Interest in the treatment of this almost universally fatal disease and enthusiasm over the newer therapeutic procedures with the sulfonamides have given rise to many reports in the literature in recent months.

In the earlier part of the sulfonamide era (1936 to 1939) chemotherapy was used without such adjuncts as heparin, neoisphenamine and hyperpyrexia. During this period, 198 patients were treated by eleven groups of workers with twelve recoveries, an average of 6 per cent (table 1).

In 1939 Kelson and White<sup>3</sup> first advocated the use of heparin with the sulfonamides. Since this time 43 cases treated by this method have been reported by three groups of workers<sup>1</sup> with a recovery rate of 11.5 per cent. More recent reports, however, are less favorable.<sup>4</sup> Heparin is both expensive and dangerous, and

the advantage of using it in the treatment of subacute bacterial endocarditis does not at the present time seem to outweigh its disadvantages.

In 1939 H. J. White<sup>5</sup> demonstrated an increase of one hundred fold in the bactericidal properties of sulfanilamide with an increase in the temperature from 37 C to 39 C (99.2 F to 102.2 F). Occasionally, before and since this observation attempts have been made to treat subacute bacterial endocarditis with hyperpyrexia and the sulfonamides. Lichtman and Bierman<sup>1</sup> have collected the reports of 25 cases from three clinics in which hyperthermia induced by diazepam and the sulfonamides were given. The recovery rate in this small group was 16 per cent (4 cases).

The sulfonamides with artificial fever induced by intravenous typhoid-paratyphoid injections have been used by Solomon<sup>6</sup> and others. Of 21 patients treated by this method, 4 have recovered, a recovery rate of 20 per cent, the highest of any reported group.

A follow-up study of the cases in which recovery has occurred after subacute bacterial endocarditis due to Streptococcus viridans that have been reported in the medical literature since the advent of the sulfonamides has been attempted. Letters were sent to thirteen authors, who have reported a total of 35 cases in which recovery occurred. Answers were received from all. The results will be chronologically considered.

In 1938 there was 1 recovery reported.<sup>7</sup> The patient suffered cardiac failure and died a few months later. Autopsy showed complete healing of the recent endocarditis.

In 1939 12 recoveries were reported.<sup>8</sup> The periods of observation of these cases ranged from twenty-five to thirty-six months. Only 1 of these 12 patients is dead. This patient died of congestive heart failure six months after the subacute bacterial endocarditis had been clinically cured; autopsy revealed complete healing of the endocarditis.

In 1940 there were 10 instances of recovery added to the literature.<sup>9</sup> Nine of these patients are living and well today with observation periods ranging from one to three years. One of these patients was observed only three and one-half months after apparent cure and no follow-up is available.

In 1941 there has so far been reported (some not yet published) 12 recoveries.<sup>10</sup> The period of observation in this group of patients varies from eight months to three years, and all are living and well except 1. This patient was killed in an automobile accident five months

5 White, H. J. The Relationship Between Temperature and Streptococcal Activity of Sulfanilamide and Sulfapyridine in Vitro. *J. Bact.* 38: 549 (Nov.) 1939.

6 Solomon, H. A. Subacute Bacterial Endocarditis. Treatment with Sulfapyridine and Intravenous Injections of Typhoid Paratyphoid Vaccine. *New York State M. J.* 41: 45 (Jan.) 1941.

7 Major, R. H., and Leger, L. H. Recovery from Subacute Infectious Endocarditis Following Prontosil Therapy. *J. A. M. A.* 111: 1212 (Nov. 19) 1938.

8 Major, R. H., and Leger, L. H. Recovery from Infectious Endocarditis. *J. Kansas M. Soc.* 40: 324 (Aug.) 1939. Spink, W. W., Crago, F. H. Evaluation of Sulfanilamide in the Treatment of Patients with Subacute Bacterial Endocarditis. *Arch. Int. Med.* 64: 223 (Aug.) 1939. Long and Bliss.<sup>1</sup>

9 Lippmann, Kurt. Subacute Bacterial Endocarditis (Case). *Method of Treatment.* *New York State M. J.* 40: 524 (April) 1941. Heyman, Jacob. Subacute Bacterial Endocarditis Successfully Treated with Sulfanilamide. *J. A. M. A.* 114: 2373 (June 15) 1940. Crago, F. H. Subacute Bacterial Endocarditis Apparently Cured with Sulfanilamide. *J. A. M. A.* 115: 1357 (Oct. 19) 1940. Bierman, W., and Brach, George. The Use of Physically Induced Pyrexia and Chemotherapy in the Treatment of Subacute Bacterial Endocarditis. *J. A. M. A.* 116: 292 (Jan. 25) 1941.

10 Heyer, H. E., and Hick, F. K. Experiences in the Treatment of Subacute Bacterial Endocarditis with Sulfanilamide, Sulfapyridine, and Sulfathiazole. A Review of Previously Reported Cases. *Report of Fifteen Treated Cases Including One Cure and One Death.* *Ann. Int. Med.* 15: 291 (Aug.) 1941. Gibbon, C. M., Case, Ann. *Int. Med.* 15: 291 (Aug.) 1941. Gibbon, C. M., communication to the authors. Merrill, Arthur. Personal communication to the authors. Druckman, J. S. A Case of Subacute Bacterial Endocarditis with Apparent Cure. *J. A. M. A.* 117: 101 (July 1) 1941. Solomon, H. Gross.<sup>11</sup>

From the medical service of the Piedmont and Emory University hospitals.

The following physicians sent the authors follow-up notes and other personal communications: Drs. Ralph Major, Wesley Spink, Perrin Long, Paul D. White, Kurt Lippmann, Jacob Heyman, Amos Christie, William Bierman, Harry Solomon, Howard Heyer, Samuel A. Levine, Sam Gibson, Robert Gross and Arthur Merrill.

1 Lichtman, S. S., and Bierman, William. The Treatment of Subacute Bacterial Endocarditis. *J. A. M. A.* 116: 286 (Jan. 25) 1941.

2 Libman, Emanuel. A Further Report on Recovery and Recurrence in Subacute Bacterial Endocarditis. *Tr. A. Am. Physicians.* 48: 44 1933.

3 Kelson, S. R., and White, P. D. A New Method of Treatment of Subacute Bacterial Endocarditis. *J. A. M. A.* 113: 1700 (Nov. 4) 1939.

4 Leach, E. C., Faulkner, J. M., Duncan, C. N., McGinn, Sylvester, Porter, R. R., and White, P. D. Chemotherapy and Heparin in Subacute Bacterial Endocarditis. *J. A. M. A.* 117: 1345 (Oct. 18) 1941.

after surgical ligation of the patent ductus arteriosus. Postmortem examination showed the ductus to be completely closed and no vegetations could be found.

Of the 12 reported cures for 1941, 4 resulted from surgical ligation of an infected patent ductus arteriosus.<sup>11</sup> Sulfonamide therapy was used in conjunction with the surgical procedures. Observation on these 4 patients was from eight months to twelve months.

#### A CLINICAL STUDY OF FIFTEEN PATIENTS WITH SUBACUTE BACTERIAL ENDOCARDITIS

Fifteen cases of subacute bacterial endocarditis due to *Streptococcus viridans* were studied. This group

The usual drug reactions were encountered. Lack of clinical and cultural response, together with drug intolerance accounts for the periods of omission in therapy and the variety of chemotherapeutic agents employed. Transfusions were carried out in all as a supportive measure. 1 patient receiving a total of forty-five during his nine months of illness terminating in death. Large amounts of vitamins and iron were given as indicated. In 1 patient neocarsphenamine was used with sulfathiazole and a persistent, severe, peripheral neuritis developed. Heparin, maintaining a clotting time of one hour had been previously used for 1 patient who suffered a cerebral embolus during that

TABLE 2—*Infective Reaction from Subacute Bacterial Endocarditis (Streptococcus Viridans) Since Advent of Sulfonamides with Follow Up Through November 1941 (Compiled from the Literature and Personal Communications)*

| Date | Author                                    | Number of Patients   | Associated Cardiac Lesion  | Therapy   | Time of Observation to November 1941   |
|------|---|----------------------|--|---|--|
| 1938 | Major and Lecker                          | 1                    | Rheumatic heart disease with mitral and aortic insufficiency   | Azoxysulfamide and sulfanilamide  | 29 days and died from congestive heart failure autopsy showed healed endocarditis                              |
| 1939 | Major and Lecker                          | 1                    | Rheumatic heart disease with mitral stenosis   | Azoxysulfamide and sulfapyridine  | 3 years  |
| 1939 | Spink and Crago                           | 1                    | Patent ductus arteriosus   | Sulfanilamide   | 3 years well and 3 months pregnant at that time  |
| 1939 | Long                                      | 7 (of 117 patients)  | 4 congenital heart<br>1 rheumatic mitral<br>2 unspecified  | Sulfanilamide   | All living and well in the spring of 1941  |
| 1939 | Kelton and Paul White                     | 3                    | 1 unspecified<br>1 rheumatic heart with mitral systolic murmur<br>1 aortic insufficiency                   | Sulfapyridine and heparin   | 1 28 months<br>1 6 months and died of congestive heart failure autopsy showed healed valvulitis<br>1 26 months |
| 1940 | Leach Faulkner Duncan Porter White Kelton | 3 (6 of 61 patients) | 1 mitral stenosis and aortic insufficiency<br>1 rheumatic heart with mitral insufficiency<br>1 patent duct | Sulfapyridine and heparin or sulfapyridine and sulfathiazole                | 1 over 12 months<br>1 over 12 months<br>1 killed in auto accident autopsy showed healed valvulitis             |
| 1940 | Lippmann                                  | 1                    | Rheumatic heart disease (?)  | Sulfanilamide azoxysulfamide sulfapyridine and arsenic                      | 3½ months patient left town and not heard of thereafter  |
| 1940 | Heyman                                    | 1                    | Patent ductus arteriosus   | Sulfanilamide   | Over 2 years living and well   |
| 1940 | Major                                     | 1                    | Rheumatic heart disease (?)  | Sulfapyridine   | Over 19 months   |
| 1940 | Christie                                  | 2                    | Rheumatic heart disease with congenital heart disease  | Sulfanilamide   | 1 over 2 years living and well<br>1 over 1 year living and well  |
| 1940 | Bierman and Baehr                         | 2                    | 1 apical systolic murmur<br>2 unspecified  | Sulfanilamide and hyperpyrexia  | 1 over 2 years<br>1 over 1 year  |
| 1941 | Solomon                                   | 4                    | 1 mitral stenosis<br>1 mitral stenosis and aortic insufficiency<br>2 aortic insufficiency                  | Sulfanilamide or sulfapyridine with intravenous typhoid paratyphoid vaccine | 1 over 2 years<br>1 over 1 year<br>1 over 1 year<br>1 over 1 year  |
| 1941 | Heyer and Hick                            | 1                    | Coarctation of aorta   | Sulfanilamide   | 3 years living and well  |
| 1941 | Gibson and S. A. Levine                   | 1                    | Unspecified  | Sulfanilamide sulfathiazole and hyperpyrexia                                | 8 months   |
| 1941 | Smith Sauls and Stone                     | 1                    | Patent ductus arteriosus   | Sulfanilamide   | 19 months  |
| 1941 | Gross                                     | 3                    | Patent ductus arteriosus   | Sulfanilamide surgical ligation of patent duct                              | 1 3 months<br>1 over 12 months<br>1 killed by accident 5 months after operation                                |
| 1941 | Merrill and Elkin                         | 1                    | Patent ductus arteriosus   | Sulfonamides surgical ligation of patent duct                               | 5½ months after ligation   |
| 1941 | Druckman                                  | 1                    | Mitral stenosis  | Sulfapyridine sulfamethylthiazole heparin neocarsphenamine                  | 18 months  |

comprises all such cases from Piedmont Hospital (12 cases) and Emory University Hospital (3 cases) in which sulfonamide therapy has been given up to the present time Nov 1, 1941.

#### GENERAL OBSERVATIONS

The average age was 41 years with the youngest patient being a girl of 16 years and the oldest being a man of 71. In general, the younger patients tolerated the chemotherapeutic agents much better than the older group. Sulfadiazine seemed the most acceptable sulfonamide to the older patients.

period. Three other patients not on heparin experienced major embolic phenomena—radial, pulmonary and popliteal. All 15 had minor episodes. The spleen was palpable in only 7 cases.

The average interval between the onset of symptoms and the institution of chemotherapy in this group of 15 was twenty-four days, with the shortest period seven days and the longest eight months. A frequent initial chief complaint of the patient was that he had the "flu." An acute respiratory infection coincided with the prodromal symptoms of 3 patients. Two patients insisted that they were well until they underwent a tooth extraction, and 1 first noticed a gingivitis six days before systemic symptoms became manifest. Another patient

11 Gross R. E. Surgical Closure of the Patent Ductus Arteriosus. Modern Concepts of Cardiovascular Disease No. 12, 10, 6 (Nov.) 1941. Merrill Arthur and Elkin Dan. Personal communication to the authors.

was subjected to intradermal alleigy tests the day of onset The remaining 9 patients offered no clue as to the possible port of entry for the infection

RESULTS

Of these 15 patients, 10 were dead on an average of six and seven-tenths months after the first symptom, the shortest interval being two months and the longest interval twelve months Eight of these 10 patients came to autopsy Underlying rheumatic damage was found in 5 of these 8 patients, congenital pulmonary stenosis in 1, only arteriosclerotic changes in another and infection superimposed on an old syphilitic aortic valvulitis in another This last finding is quite rare, only 4 similar infections with *Streptococcus viridans* having been previously reported<sup>12</sup>

All postmortem examinations revealed splenic and renal infarcts except in 1 case This patient had an

and Dan Elkin) The other patient with apparent cure has had no surgery and remained well nineteen months after discontinuing drug treatment Details of this case follow

REPORT OF CASE IN WHICH RECOVERY OCCURRED

A girl aged 16 years with an asymptomatic patent ductus arteriosus had been under observation since she was 10 A check-up was made at yearly intervals and there had been no evidence of progressing myocardial disease during this time

One month before the onset of the present illness the patient was seen because of the sudden development of a raised black "mole" on her right thigh This was removed by wide surgical excision (Dr Perrin Nicholson) on Dec 16, 1939 The pathologic report on this specimen was hemangioma Recovery was uneventful

The patient was next seen on Jan 17, 1940, one month later, at home At this time there was an influenza epidemic in the

community She presented the clinical picture of fever, aching and a negative physical examination other than the previously noted signs of a patent ductus arteriosus During the first five days, fever was intermittent, the temperature ranging from 99 to 104 F At this time a small petechia was found in the left lumbar region A blood culture made on this day was positive within twenty four hours for *Streptococcus viridans* A second blood culture five days later was positive within forty-eight hours for the same organism

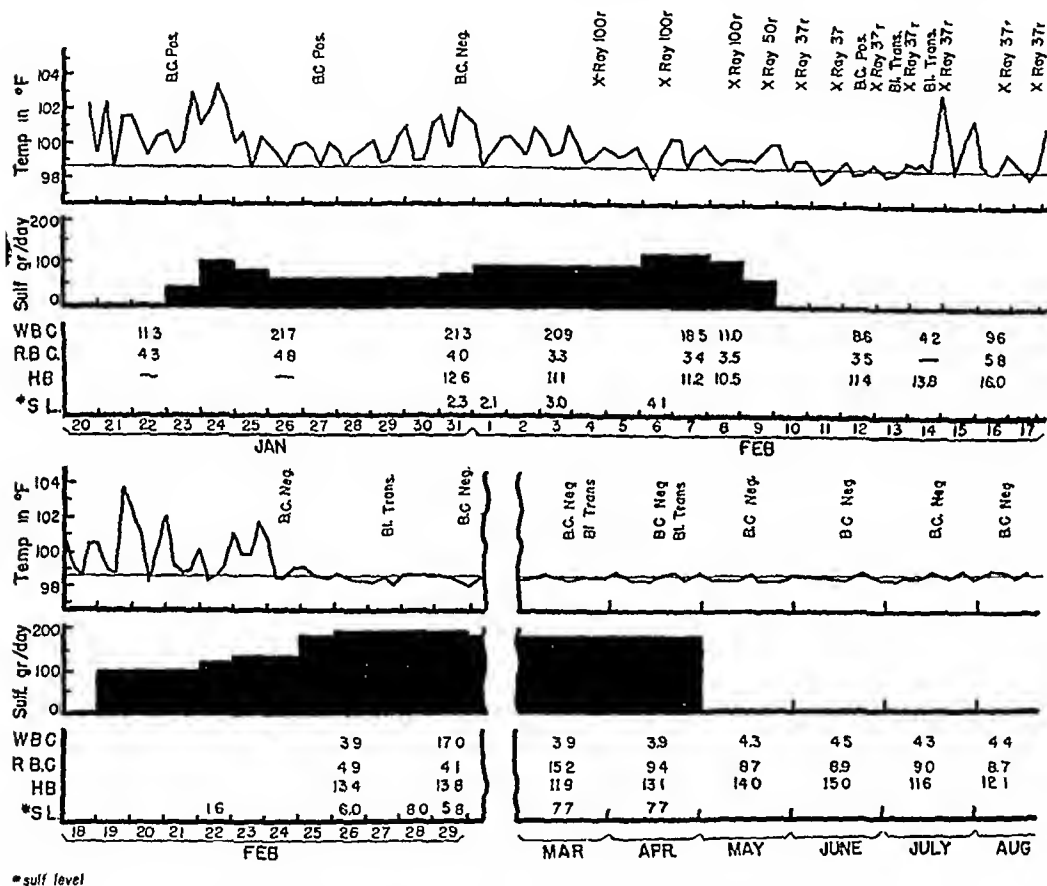
The patient was well developed and well nourished There were no other petechial manifestations and the only abnormal physical finding was a continuous machinery murmur with a systolic thrill over the second and third left inter costal space There was no cardiac hypertrophy except a prominent pulmonary conus The lungs were clear throughout, and the spleen was not palpable

Previous electrocardiographic studies were normal and teleroentgenograms showed only a prominent pulmonary conus A complete blood count was normal except for 11,300 white cells on January 22 and 21,700 white cells on January 26 The differential blood studies were normal Urinalyses were

negative except for occasional red blood cells in the sediment Blood cultures were positive on four occasions for *Streptococcus viridans*

One week after the onset of the present illness sulfanilamide<sup>13</sup> was begun She received on successive days 40 grains (2.6 Gm) 100 grains (6.5 Gm) and 80 grains (5.2 Gm), then 60 grains (4 Gm) daily for six days Fever persisted, but at a lower level On January 31, two weeks after the onset of the present illness, the patient was admitted to the hospital Intravenous sulfanilamide 15 grains (1 Gm) every twelve hours was given in addition to 15 grains by mouth every six hours Blood sulfanilamide concentration on this dose reached 41 mg and there was an appreciable reduction in the temperature curve By the eighteenth day of continuous treatment a secondary anemia developed, and sulfanilamide was discontinued for five days During this time two transfusions were given and 100-voltage roentgen therapy in eleven treatments of 535 r over the second and third left intercostal spaces was given

Blood cultures taken during sulfanilamide therapy on January 31 and February 3 had become negative, but three days after cessation of the sulfanilamide (February 12) the culture again was positive for *Streptococcus viridans*



Hospital record of patient with subacute bacterial endocarditis

infection superimposed on a congenitally stenotic pulmonary artery, and embolic phenomena were limited to the lesser circulation

Five patients remain alive, 3 with evident persistent disease and 2 without Each of the 3 patients with persistent symptoms have rheumatic heart disease Two of these patients received "adequate" therapy with sulfathiazole, sulfapyridine and sulfadiazine Details are lacking in the third but the prognosis in all is equally unfavorable

Two of the 15 are living and apparently well In each of these the streptococcal infection was superimposed on a patent ductus arteriosus In 1 the ductus was ligated successfully by Dr Dan Elkin on June 16, 1941, and the patient remained well four and one-half months after discontinuance of chemotherapy (to be reported in detail at a later date by Drs Arthur Merrill

12 Braunstein, A L, and Townsend, S R Bacterial Endocarditis on Superimposed Syphilitic Aortic Valvulitis Arch Int Med 65 957 (May) 1940

Two transfusions restored the red blood cell count to 5,400,000, and sulfanilamide therapy was resumed on February 19. The dose was started at 100 grams by mouth in twenty-four hours. This was gradually increased to 190 grams (12 Gm) daily and the blood concentration ranged between 5 and 9.1 mg per hundred cubic centimeters. Eight days after beginning this dosage of sulfanilamide the patient became afebrile and the blood cultures again were negative.

On March 1 after one month's stay in the hospital she was given a transfusion for the third time and allowed to go home. There sulfanilamide therapy was continued 180 grams (11.6 Gm) daily for the next two months. During this two-month interval blood counts, blood cultures, blood sulfanilamide levels and urinalyses were done once or twice each week. She remained afebrile. Two other transfusions were given during the two months but in general the drug was tolerated without difficulty and the patient complained bitterly of not being drunk any more after the drug was completely withdrawn on May 1. A total of 894 Gm was given during this period of seventy-three days of continuous therapy.

Since May 1 she has received no chemotherapy and repeated blood cultures have been negative. Twenty-nine months have now elapsed since the last positive blood culture and today (May 15, 1942) she is clinically well. There has been no detectable change in the heart murmur, heart size or contour or in the electrocardiograms when compared with those recorded before the onset of the subacute bacterial endocarditis.

During the past year she has enjoyed a normal high school existence and has gained 16 pounds (7.3 Kg). In February 1941 she contracted whooping cough but the severe coughing paroxysms of several weeks duration did not precipitate a reinfection of the healed endocarditis.

The patient's excellent clinical response to sulfanilamide therapy was probably due to its early administration and to the long-continued administration of large doses. The drug was able to exert its bactericidal effect on the organisms before the 'fibrin-platelet mass' formed a protective coating over the colonies.

#### COMMENT

As has been pointed out by Christian,<sup>13</sup> a most important factor in the treatment of these patients with the sulfonamides is early diagnosis. It has been shown<sup>14</sup> that the bacterial colonies have thrown about themselves a fibrin-platelet protectorate that is practically impervious to the sulfonamides. If this protective wall has had sufficient time to become thick enough to prevent access of the drug to the bacteria, cure is obviously almost impossible. In our case the clinical manifestations of the disease were not of over one week's duration before sulfanilamide therapy was begun.

A second factor of importance is the maintenance of a high blood concentration of the drug. A 10 mg concentration of the blood stream has been arbitrarily determined the optimum level.<sup>15</sup> This requires a variable dosage of the drug, as individual absorption and clearance may be different. In our case, 180 grams of sulfanilamide daily was required to maintain a satisfactory blood concentration.

Intolerance to the drug is a disturbing factor complained of by many patients. This is eliminated largely

now by the more easily tolerated sulfadiazine. Even with this relatively pleasant drug such idiosyncrasias as blood dyscrasias and renal complications may occur.

In evaluating the therapeutic effect of the sulfonamides, it must be remembered that sulfapyridine may exert an antipyretic effect<sup>16</sup> and in this way lower the temperature without appreciably decreasing the infection. False therapeutic optimism may arise from this phenomenon. Likewise, blood cultures may fail to show bacterial growth after the sulfonamides have been given, even though infection is still present. This error may be avoided by adding para-aminobenzoic acid to the culture mediums to neutralize the bactericidal effect of the sulfonamide present in the blood specimen being cultured.<sup>17</sup>

At this time, it seems that a combination of sulfapyridine or sulfadiazine therapy, protein shock and artificially induced fever with intravenous typhoid-paratyphoid vaccine offers the most favorable therapeutic approach to this disease.

Solomon<sup>18</sup> is now administering typhoid-paratyphoid vaccine in 1,000 cc of isotonic solution of sodium chloride and 5 per cent dextrose either slowly or rapidly, depending on the height and the duration of the fever desired. The intravenous typhoid therapy is begun on the night of the second day after sulfapyridine therapy has been instituted. Two Gm is given for the first two doses and then 1 Gm thereafter at four-hour intervals. One-half minim (0.03 cc) of the typhoid vaccine is given in the saline-dextrose solution, and this dose is repeated in one to two hours if necessary to maintain the temperature level above 104 F for at least three hours continuously. The injections are continued nightly several hours after the last meal for seven to ten days. The amount of the vaccine is increased as necessary to maintain the desired level of temperature. Sulfapyridine is usually continued for at least one week after vaccine therapy has been discontinued.

Accessory therapeutic measures such as fluids, adequate nourishment, vitamins, sedatives and transfusions are carried out in addition to specific therapy. Examinations of the blood and urine are performed at frequent intervals in order to ascertain the drug level in the blood and to detect evidences of drug intoxication.

#### CONCLUSIONS

1 There has been a gradually decreasing mortality rate in subacute bacterial endocarditis since the advent of the sulfonamides.

2 The literature has been searched for authentic instances of cure of subacute bacterial endocarditis due to *Streptococcus viridans* and 35 reports were found. The authors of these reports were written to and follow-up notes to date have been obtained.

3 The clinical records of 15 patients treated by several physicians at the Piedmont Hospital and Emory University Hospital which have been tabulated show that there were 2 patients who recovered in this group.

4 Various therapeutic procedures have been used in combination with the sulfonamides including heparin, neosarsphenamine, hyperpyrexia by diathermy, and hyperthermia with typhoid-paratyphoid vaccine. The

13 Christian H A. Earlier Diagnosis of Subacute Streptococcus Viridans Endocarditis. *J A M A* 116: 1048 (March 5) 1941.

14 Friedman Meyer. Use of Sulfanilamide and Sulfapyridine in the Therapy of Subacute Bacterial Endocarditis. *Arch Int Med* 67: 921 (May) 1941. Duncan C N and Faulkner J A. Penetration of the Blood Clot by Sulfanilamide, Sulfapyridine, Sulfathiazole and Sulfamethylthiazole. *Am J M Sc* 200: 492 (Oct) 1940.

15 Long P H and Bliss Eleanor A. The Clinical and Experimental Use of Sulfanilamide, Sulfapyridine and Allied Compounds. New York: Macmillan Company, 1939. Kelson S R and White P D. A New Method of Treatment of Subacute Bacterial Endocarditis. *J A M A* 108: 1700 (Nov. 4) 1939.

16 Bee on P B and Janeway C A. The Antipyretic Action of Sulfapyridine. *Am J M Sc* 200: 632 (Nov.) 1940.

17 Janeway C A. Method for Obtaining Rapid Bacterial Growth in Cultures from Patients Under Treatment with Sulfonamides. *J A M A* 116: 941 (March 8) 1941.

18 Solomon H A. Personal communication to the authors.



latter is most recent and in a small series of cases has afforded the best recovery rate. Because of increased tolerance without decreased efficiency, sulfadiazine with intravenous typhoid is probably the method of choice at the present time and should receive extensive clinical trial.

5 Clinical trial on larger groups of patients with the combined use of sulfadiazine and the intravenous use of typhoid-paratyphoid vaccine should be carried out. This method has so far offered the best recovery rate, but the number of patients treated in this manner is too small to justify final conclusion at this time.

6 Surgical ligation must be considered for those patients having patent ductus arteriosus associated with subacute bacterial endocarditis.

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## LUMBAR PUNCTURE

ITS POTENTIAL ROLE IN THE PRODUCTION OF  
INJURIES TO THE INTERVERTEBRAL DISK

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AND

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The use of lumbar puncture in the investigation of lesions of the central nervous system has become so standardized that it is almost as much of a routine procedure as the systematic study of the reflexes. The saying that "familiarity breeds contempt" may be aptly applied to this procedure, for one seldom considers that there is any real danger associated with its use. Many thousands of punctures have been done by the staff of the department of neurosurgery in the Boston City Hospital during the past ten years and, as far as is known, the occurrence of headache during the ensuing one to three days has constituted their only complication. It may be well, however, at this point to emphasize that the presence of space-occupying lesions within the cranial cavity, as suggested either by the history or by the physical findings including an examination of the optic disks, constitutes a definite contraindication to its use.

During recent years the role of herniation of the nucleus pulposus in the pathogenesis of low back and recurrent pain in the sciatic distribution has been confirmed by many investigators. The fact that even small injuries to the annulus fibrosus may produce a hiatus through which the plastic nucleus pulposus can herniate has led us to reevaluate lumbar puncture as a possible etiologic agent in the production of this entity.

The intervertebral disk is composed of two distinct parts, namely the annulus fibrosus and the nucleus pulposus. The annulus fibrosus is a fibrous tissue structure derived from mesenchymal cells that migrate from the sclerotomes to surround the notochord at about the fifth week of embryologic development. The notochord, which at first is continuous throughout the length of the developing vertebral column, becomes segmented by about the second month. The expanding segments are either squeezed or migrate into the area occupied by the anlage of the developing intervertebral

disk, which at this stage consists of mesenchymal cells previously mentioned. The segments gradually lose their connection with one another, though remnants of this original connecting structure may persist. If they do persist they form a point of weakness which leads in later years to herniation of the nucleus into the body of the vertebra as described by Schmorl.<sup>1</sup> The further evolution of the mesenchymal cells leads to the development of a strong fibrous membrane, which is attached to the margins of the bodies of adjacent vertebrae and internally is intimately fused with the nucleus pulposus, for which it acts as a limiting membrane.

The intervertebral disks constitute one fourth of the entire length of the vertebral column. The mobility of the spinal column as regards flexion, extension and rotation is dependent on the plasticity of this structure. The extremes of movement are limited by the length of the spinal ligaments. It is at once apparent that flexion of the spine will simultaneously relax the anterior spinal ligaments and put the posterior ligaments on a stretch. The anterior portion of the annulus fibrosus will also be relaxed and the posterior section stretched to the same relative degree as the respective spinal ligaments. The fluidity of the nucleus pulposus serves to cushion the alterations in the pressure developed between the vertebrae in all these movements, while the annulus fibrosus acts as its limiting membrane. Any injury to the membrane, whether resulting from excessive stretching or from direct penetration, can be expected to weaken its limiting power and thus permit the plastic nucleus to protrude beyond the limits of the borders of the vertebral bodies. Anteriorly or laterally, such an occurrence will cause few recognizable or significant symptoms. If the nucleus is extruded posteriorly, however, because of the vertebral canal there will be encroachment on and subsequent distortion of the spinal nerve roots, particularly as they enter the intervertebral foramina, and the symptoms will be both significant and common. The greatest strain on the posterior ligaments will be found at the fourth and fifth lumbar and first sacral vertebrae where the lumbar curve is centered. It is at this point that clinically recognizable herniations of the nucleus pulposus most frequently occur.

It is unnecessary for our purpose to enter into a description of the further details of the anatomy and pathology of lesions of the intervertebral disk, as an excellent description of these features may be found in the recent monograph of Bradford and Spurling.<sup>2</sup> The experimental work of Bari<sup>3</sup> demonstrated that he could repeatedly distend the annulus fibrosus by compressing the intervertebral disk. There was always a return to normal subsequent to the release of the pressure except when the annulus fibrosus had been pierced by a needle, in which case herniation of the nucleus pulposus occurred. The same conditions present in his study are associated with the performance of a lumbar puncture. The flexion of the spine, which is the usual position of the patient during the operation

1 Schmorl G. Die pathologische Anatomie der Wirbeln. *Handb. d. deutschen orthop. Gesellsch.* 21: 341, 1927.  
2 Bradford, I. Keith, and Spurling, R. Glen. *The Intervertebral Disk with Special Reference to Rupture of the Annulus Fibrosus and Herniation of the Nucleus Pulposus*. Springfield 111: Charles C. Thomas, 1941.  
3 Bari J. S. "Sciatica" Caused by Intervertebral Disk Rupture. Report of Forty Cases of Rupture of the Intervertebral Disk in the Low Lumbar Spine and Causing Pressure on the Cauda Equina. *J. Bone & Joint Surg.* 19: 323 (April) 1937.

stretches the posterior portion of the annulus fibrosus and produces an associated increase in the tension of the nucleus while the lumbar puncture needle supplies the penetrating force.

The occurrence of injury to the annulus and nucleus by the spinal needle has been reported by several writers. In 1919 Levinson<sup>4</sup> noted that material from the disk might block the needle during puncture. Billington<sup>5</sup> studied 35 cases of back pain in which the clinical and radiologic evidence pointed to damage of the intervertebral disk by lumbar punctures done during the course of meningitis. Twelve cases showing clinical evidence of protrusion of the nucleus following lumbar puncture were reported by Pease.<sup>6</sup> The symptoms were characteristic and the interval between the puncture and the onset of symptoms was less than two weeks. Other cases have appeared in the literature, but those cited will suffice as a representative summary and to indicate that the inherent danger has long been recognized even though neglected.

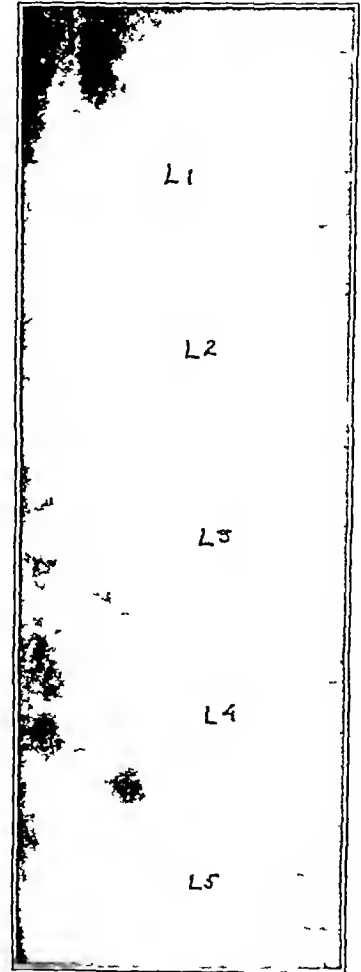
In 1938 one of us<sup>7</sup> described a method of doing lumbar punctures in which it was advocated that flexion of the spine of the patient be abandoned. It was pointed out that such a position was of no actual aid in securing more room for the needle between the adjoining bones and indeed militated against easy puncture. This was because of the adverse physiologic condition engendered in a conscious patient who was held immobile and helpless while a strange and possibly painful procedure that he could not see was being carried out. The x-ray evidence to be adduced offers additional and equally important reasons for abandoning the custom of approximating the patient's neck and knees as a prerequisite to lumbar puncture or as a substitute for the patient's cooperation.

During the past year a two needle technic of myelography has been developed in the neurosurgical department of the Boston City Hospital. In the course of this procedure the spinal needles are permitted to remain in situ while the lateral spine plates are exposed. This has given us an opportunity to study such needles when in position in the subarachnoid space as regards their direction toward the intervertebral spaces. The punctures have all been done by members of the staff of the department. We have studied a consecutive series of roentgenograms containing fifty needles with the following results. Thirty-six per cent of the needles were in such a position that had they been inserted farther in the line of their course they would have penetrated the annulus fibrosus. The distance between the end of the needle and the surface of the annulus averaged between 4 and 5 mm. We explain the depth of the penetration of the needle beyond the anterior dura by a pushing of the arachnoid ahead of the point of the needle. This appears to be a factor which cannot be altered at present. One puncture was made between the eleventh and twelfth dorsal vertebrae. This needle was found directed away from the intervertebral space. Eleven needles were inserted between the last

dorsal and the first lumbar vertebra. In three instances the needle was directed toward the disk. In one of these the needle was only 2 mm from the surface of the annulus fibrosus. Eight needles were placed between the first and second lumbar vertebrae. Six were found directed in such a way that their projection would not have involved the intervertebral space. The three needles between the second and third lumbar vertebrae were all directed toward the bony wall of the body of the bone. The space between the third and fourth vertebrae appeared to be the most dangerous one in this series. Twelve needles were in this space. Nine, or 75 per cent were found directed toward the intervertebral space. Seven needles were inserted between the fourth and fifth lumbar spaces. The projection of the axis of three, or 42 per cent, of these was directed toward the annulus fibrosus. The two latter sets of figures are of particular importance in view of the fact that it is through these two spaces that the majority of lumbar punctures are done in clinical practice. The use of the interspace between the last lumbar and the first sacral vertebra appears from this study to be the safest one because only one of the eight needles photographed in this position was directed toward the dangerous area.

Our findings demonstrate that perforating injury to the posterior part of the annulus fibrosus is a distinct possibility during the course of lumbar punctures done without forced flexion of the spine and by men who are familiar with the procedure. The depth to which the needles have penetrated emphasizes the care that must be taken if perforation of the annulus fibrosus is to be avoided.

The series is too small to be statistically significant but suggests that the interspace between the last lumbar and the first sacral vertebra is the location of choice, and that the spaces between the third and fourth and the fourth and fifth lumbar vertebrae should be avoided whenever possible. We do not wish to imply that this form of injury is a frequent or major cause of herniation of the intervertebral disk but rather that it constitutes a mechanical possibility the danger of which must always be kept in mind.



Position of needles

<sup>4</sup> Levinson, Abraham. *Cerebrospinal Fluid in Health and in Disease*. St. Louis: C. V. Mosby & Company, 1919.  
<sup>5</sup> Billington, R. W. *Spondylitis Following Cerebrospinal Meningitis*. *J. A. M. A.* 83: 683 (Aug. 30) 1924.  
<sup>6</sup> Pease, C. N. *Injuries to the Vertebra and Intervertebral Disk Following Lumbar Puncture*. *Am. J. Dis. Child.* 49: 849 (April) 1935.  
<sup>7</sup> Munro, Donald. *Cranio-cerebral Injuries*. New York: Oxford University Press, 1938.

# THE BLOOD CONCENTRATION AND URINARY EXCRETION OF SULFADIAZINE

FOLLOWING INTRAPERITONEAL ADMINISTRATION

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Since sulfadiazine has been shown, on oral and intravenous administration, to possess certain advantages over the other sulfonamide drugs (it is readily absorbed, is excreted comparatively slowly, is acetylated in blood and urine to a lesser degree, causes fewer toxic manifestations and is effective against a wider variety of pathogenic bacteria),<sup>1</sup> it seemed to us that this would be the drug of choice for intraperitoneal use in abdominal surgery. Although studies on the intraperitoneal use of sulfanilamide have been reported by a number of investigators,<sup>2</sup> we have been unable to find reports of the intraperitoneal use of sulfadiazine. We have studied the blood levels and urinary excretions of sulfadiazine following the intraperitoneal administration of the drug to determine the rate of absorption and hence the depletion of the local intraperitoneal store, since the advantages of this route of administration are dependent on the local concentration of the drug.

## MATERIALS AND METHODS

Six adult male patients were used in this study. The age, clinical diagnosis and operative procedures for each patient are shown in the accompanying table. At operation doses of sulfadiazine powder varying from 5 to 25 Gm, as indicated in the table, were sprinkled into the peritoneal cavity. On returning from the operating room each patient was catheterized and the catheter allowed to remain in the bladder. All urines were collected, the volumes measured and samples taken for analysis at various intervals following the intraperitoneal administration of the drug. At similar intervals samples of blood were taken from the median cubital vein and placed in bottles containing sodium oxalate. Following the initial intraperitoneal dose there was no further administration of any sulfonamide by any route. The sulfadiazine concentration in the blood and urine samples was determined by the method of Bratton and Marshall.<sup>3</sup> The fluid intake during the period of study was noted.

Dr Benjamin Carey of Lederle Laboratories, Inc., furnished the sulfadiazine used in this study.

From the Department of Surgery New York University College of Medicine and the Third Surgical Division Bellevue Hospital.

1 Feinstein, W. H., Williams, R. D., Wolff, R. T., Huntington, Evelyn, and Crossley, M. L. Toxicity, Absorption and Chemotherapeutic Activity of 2 Sulfanilamide Pyrimidine (Sulfadiazine), Bull Johns Hopkins Hosp 67 427 (Dec) 1940. Plummer, W., and Ensworth, H. A. Absorption and Excretion of Sulfadiazine, Proc Soc Exper Biol & Med 45 734 1940. Long, P. H., Bliss, Eleanor A., and Ott, L. The Chemotherapy of Experimental Streptococcal Pneumococcal and Staphylococcal Infections in Mice, Bull Johns Hopkins Hosp 69 297 1941. Trevett, G. I., Nelson, R. A., and Long, P. H. The Clinical Use of Sulfadiazine in the Therapy of Bacterial Infections Other Than Pneumonia, ibid 69 303 1941. Sadusk and Tredway.

2 Rosenberg, S. and Wall, N. The Treatment of Diffuse Peritonitis by the Direct Intraperitoneal Introduction of Sulfanilamide, Surg, Gynec & Obst 72 568 1941. Vireo, R. L., Hay, L. J., and Stevens, B. The Value of the Local Implantation of Crystalline Sulfonamide About Gastrointestinal Anastomoses in Dogs, Surgery 9 863, 1941. Mueller, R. S., and Thompson, J. E. Local Use of Sulfanilamide in Treatment of Peritoneal Infections, J A M A 118 189 (Jan 17) 1942. Keeley, Jackson and Collier.

3 Bratton, A. C., and Marshall, E. K., Jr. A New Coupling Component for Sulfanilamide Determination, J Biol Chem 128 537, 1939.

## RESULTS

The results are shown in the accompanying table. In the patient who received the 5 Gm dose of sulfadiazine, the free blood sulfadiazine concentration thirteen hours after the administration of the drug was 22 mg, the total 26 mg per hundred cubic centimeters, at thirty-four hours the free blood sulfadiazine concentration was 26 mg, the total 28 mg per hundred cubic centimeters, and at sixty hours the free blood sulfadiazine concentration was 13 mg, the total 13 mg per hundred cubic centimeters. The urinary excretion was not determined on this patient. In the 3 cases in which 10 Gm of sulfadiazine was given intraperitoneally the peak of the blood

Blood Concentration and Urinary Excretion of Sulfadiazine Following Intraperitoneal Administration in Six Cases

| Case   | Dose of Sulfadiazine, Gm | Hours After Administration | Blood Sulfadiazine, Mg per 100 Cc |       | Urine Sulfadiazine, Mg per 100 Cc |       | Urine Volume, Cc per 6 hrs | Fluid Intake, Cc per 6 hrs |
|--|--------------------------|----------------------------|-----------------------------------|-------|-----------------------------------|-------|----------------------------|----------------------------|
|  |                          |                            | Free                              | Total | Free                              | Total |                            |                            |
| 1 Age 20, acute appendicitis, appendectomy             | 5                        | 12                         | 22                                | 26    |                                   |       |                            |                            |
|  |                          | 36                         | 26                                | 28    |                                   |       |                            |                            |
|  |                          | 60                         | 13                                | 13    |                                   |       |                            |                            |
| 2 Age 70, carcinoma of stomach, partial gastrectomy    | 10                       | 6                          | 23                                | 35    | 51                                | 93    | 175                        | 650                        |
|  |                          | 12                         | 45                                | 48    | 87                                | 109   | 175                        | 650                        |
|  |                          | 18                         | 50                                | 57    | 221                               | 332   | 185                        | 650                        |
|  |                          | 24                         | 56                                | 60    | 236                               | 350   | 150                        | 650                        |
|  |                          | 30                         |                                   | 60    | 150                               | 281   | 200                        | 750                        |
|  |                          | 36                         |                                   | 61    | 104                               | 280   | 25                         | 750                        |
|  |                          | 42                         | 52                                | 58    | 211                               | 304   | 200                        | 750                        |
|  |                          | 48                         | 30                                | 37    | 161                               | 200   | 50                         | 750                        |
|  |                          | 54                         | 20                                | 35    | 142                               | 192   | 210                        | 750                        |
|  |                          | 60                         | 25                                | 28    | 125                               | 168   | 180                        | 750                        |
| 3 Age 57, carcinoma of stomach, partial gastrectomy    | 10                       | 72                         | 22                                | 25    | 130                               | 170   | 190                        | 750                        |
|  |                          | 6                          | 34                                | 39    | 37                                | 108   | 275                        | 750                        |
|  |                          | 12                         | 50                                | 54    | 160                               | 234   | 275                        | 750                        |
|  |                          | 18                         | 42                                | 45    | 384                               | 493   | 190                        | 750                        |
|  |                          | 30                         | 48                                | 45    | 150                               | 162   | 300                        | 750                        |
|  |                          | 36                         | 35                                | 45    |                                   |       | 300                        | 750                        |
|  |                          | 48                         | 29                                | 37    | 71                                | 92    | 750                        | 750                        |
|  |                          | 54                         | 19                                | 19    | 73                                | 79    | 940                        | 750                        |
|  |                          | 66                         | 16                                | 16    | 47                                | 58    |                            | 750                        |
|  |                          | 72                         | 15                                | 15    |                                   |       |                            | 750                        |
| 4 Age 55, carcinoma of stomach, exploratory laparotomy | 10                       | 6                          | 34                                | 38    | 35                                | 40    | 150                        | 1000                       |
|  |                          | 12                         | 45                                | 47    | 278                               | 374   | 60                         | 1000                       |
|  |                          | 18                         | 37                                | 43    | 292                               | 360   | 60                         | 1000                       |
|  |                          | 24                         | 31                                | 35    | 379                               | 463   | 175                        | 1000                       |
|  |                          | 36                         | 15                                | 16    |                                   |       | 50                         | 1000                       |
|  |                          | 42                         |                                   |       | 79                                | 96    | 300                        | 1000                       |
|  |                          | 48                         | 16                                | 30    | 50                                | 64    | 450                        | 1000                       |
|  |                          | 54                         | 13                                | 16    | 40                                | 80    | 450                        | 1000                       |
|  |                          | 60                         |                                   |       | 82                                | 106   | 900                        | 1000                       |
|  |                          | 66                         | 10                                | 11    | 60                                | 83    | 150                        | 1000                       |
| 5 Age 40, duodenal ulcer, partial gastrectomy          | 20                       | 78                         | Trace                             | Trace | 52                                | 68    | 900                        | 1000                       |
|  |                          | 6                          | 80                                | 100   | 17                                | 24    | 210                        | 1000                       |
|  |                          | 12                         | 140                               | 147   | 60                                | 93    | 275                        | 1000                       |
|  |                          | 24                         |                                   |       | 849                               | 963   | 200                        | 1000                       |
|  |                          | 30                         | 185                               | 207   | 324                               | 608   | 150                        | 1000                       |
|  |                          | 36                         | 180                               | 199   | 254                               | 417   | 900                        | 1000                       |
|  |                          | 42                         | 153                               | 175   | 332                               | 609   | 110                        | 1000                       |
|  |                          | 48                         | 139                               | 143   | 302                               | 531   | 175                        | 1000                       |
|  |                          | 54                         | 83                                | 84    | 264                               | 502   | 200                        | 1000                       |
|  |                          | 60                         |                                   |       | 493                               | 579   | 200                        | 1000                       |
| 6 Age 50, duodenal ulcer, partial gastrectomy          | 25                       | 66                         | 66                                | 69    |                                   |       | 50                         | 1000                       |
|  |                          | 78                         | 48                                | 54    |                                   |       | 50                         | 1000                       |
|  |                          | 84                         | 32                                | 32    | 278                               | 361   | 50                         | 1000                       |
|  |                          | 3                          | 37                                | 38    | 10                                | 11    | 210                        | 1000                       |
|  |                          | 6                          | 73                                | 73    | 86                                | 90    | 75                         | 1000                       |
|  |                          | 12                         | 85                                | 88    | 1121                              | 1177  | 100                        | 1000                       |
|  |                          | 18                         | 91                                | 104   | 157                               | 206   | 400                        | 1000                       |
|  |                          | 24                         | 96                                | 96    | 449                               | 671   | 500                        | 1000                       |
|  |                          | 30                         | 55                                | 58    |                                   |       | 50                         | 1000                       |
|  |                          | 36                         | 73                                | 78    | 768                               | 793   | 50                         | 1000                       |
|  |                          | 42                         | 61                                | 64    | 730                               | 740   | 50                         | 1000                       |
|  |                          | 48                         | 51                                | 56    | 721                               | 809   | 50                         | 1000                       |
|  |                          | 54                         | 30                                | 41    | 766                               | 906   | 100                        | 1000                       |
|  |                          | 60                         |                                   |       | 476                               | 511   | 100                        | 1000                       |
|  |                          | 66                         | 35                                | 37    | 201                               | 211   | 200                        | 1000                       |
|  |                          | 72                         | 31                                | 39    | 218                               | 250   | 200                        | 1000                       |
|  |                          | 96                         | 32                                | 32    | 60                                | 70    |                            | 1000                       |

sulfadiazine level occurred at twelve hours in case 1 and at twenty-four hours in case 2. The highest level obtained was 56 mg per hundred cubic centimeters for free sulfadiazine and 61 mg per hundred cubic centimeters for total sulfadiazine (case 2). The lowest peak occurred

case 4 in which the free blood sulfadiazine was 45 mg per hundred cubic centimeters and the total 47 mg. The blood levels remained elevated in case 2 and case 3 for forty-eight hours and in case 4 for twenty-four hours. Detectable amounts were present in all cases for at least three days following the administration of the drug. In all cases the concentration of the drug in the urine paralleled the blood concentration, the greatest excretion occurring between twelve and twenty-four hours after the administration of the drug. The acetylated sulfadiazine in the urine rarely exceeded 30 per cent of the total urine sulfadiazine in all cases. In case 2 approximately 30 per cent of the drug was excreted in forty-eight hours and 40 per cent in seventy-two hours. The total fluid intake was relatively constant in all cases, the amounts for each six hour period being indicated in the table. The volume of urine excreted varied somewhat in each case as can be seen from the table, but the daily output was comparatively constant.

In the patient who received 20 Gm of sulfadiazine intraperitoneally, the blood sulfadiazine concentration reached its peak twenty-eight hours after the administration of the drug, the free sulfadiazine being 18.5 mg per hundred cubic centimeters and the total 20.7 mg. This level was maintained for fourteen hours, after which time it began to drop relatively slowly and at ninety-four hours the blood level was still elevated, the free blood sulfadiazine concentration being 3.2 mg per hundred cubic centimeters and the total 3.2 mg. There were detectable amounts of the drug present in the blood one week after it was administered. The concentration of sulfadiazine in the urine again paralleled that in the blood, the greatest excretion of the drug occurring between twenty-four and forty-eight hours after its administration. Again the acetylated fraction in the urine rarely exceeded 30 per cent of the total drug. The fluid intake was constant, as can be seen from the table. The volume of urine excreted showed some variation in each six hour specimen, but again the twenty-four hour output was relatively constant.

Following the administration of 25 Gm of sulfadiazine intraperitoneally in case 6 the blood sulfadiazine

the blood, the greatest excretion occurring between twelve and thirty-six hours after the administration of the drug. Exceedingly large amounts of the drug were excreted in the urine during the first sixty hours as can be seen from the table. Twenty hours after the administration of the drug the total urine sulfadiazine was 2.086 mg per hundred cubic centimeters and the free 1.537

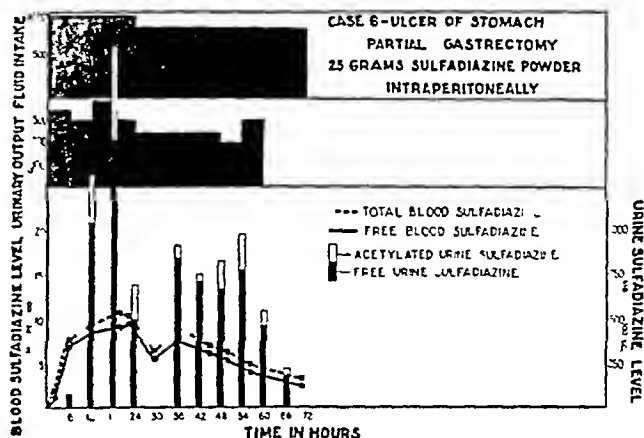


Chart 2 (case 6)—Blood sulfadiazine level, urine sulfadiazine level, urinary output and fluid intake in a patient with ulcer of the stomach with partial gastrectomy, 25 Gm of sulfadiazine powder was given intraperitoneally.

mg. No sulfadiazine crystals were seen in this specimen. The volume of urine excreted again showed slight variation but was fairly constant over the twenty-four hour period. The fluid intake was maintained with slight variations.

#### COMMENT

The concentration of sulfadiazine in the blood following the intraperitoneal administration of the drug rises fairly rapidly and remains elevated for a considerable period of time, depending on the amount of the drug administered. With the administration of 10 Gm of the drug effective levels persist for approximately forty-eight hours, with 20 to 25 Gm for seventy-two to ninety-six hours. Thus one need not administer the drug by any other route for two to four days postoperatively and, in addition, one can be fairly certain that the local concentration of the drug in the peritoneal cavity remains high for the same period of time. Although we have observed no ill effects following the administration of the larger doses of the drug (20 to 25 Gm), it would appear that the administration of 10 Gm is satisfactory for the maintenance of adequate blood levels and high local concentrations in comparatively clean operative cases such as we have studied. In cases of gross contamination of the peritoneal cavity with widespread peritonitis one need not fear giving larger doses.

It can be seen from our results that sulfadiazine powder is readily absorbed from the peritoneum, although not as rapidly as from the gastrointestinal tract. Sadusk and Tredway<sup>4</sup> have shown that the peak of absorption of sulfadiazine given by mouth occurs between three and six hours. The peak of absorption in our cases occurred somewhat later, between twelve and thirty-six hours. The slower absorption of the drug from the peritoneum is to be desired so that the local concentration will remain elevated for a longer period of time. Keeley,<sup>5</sup> injecting a solution of sulfanilamide into the peritoneal cavity of dogs, obtained a peak

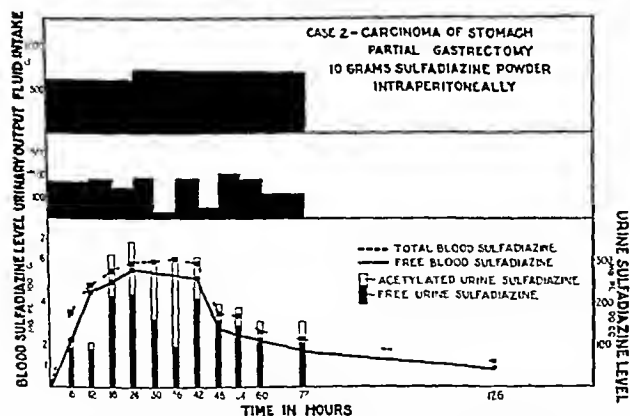


Chart 1 (case 2)—Blood sulfadiazine level, urine sulfadiazine level, urinary output and fluid intake in a patient with carcinoma of the stomach with partial gastrectomy, 10 Gm of sulfadiazine powder was given intraperitoneally.

concentration rose steadily until at eighteen hours the free sulfadiazine concentration was 9.1 mg per hundred cubic centimeters and the total 10.4 mg. This level was maintained for approximately twelve hours and then began to fall, and at ninety-six hours the concentration of both free and total sulfadiazine in the blood was 3.2 mg per hundred cubic centimeters. Here again the concentration of the drug in the urine paralleled that in

<sup>4</sup> Sadusk, J. F. Jr. and Tredway, J. B. Observations on the Absorption, Excretion, Diffusion and Acetylation of Sulfadiazine in Man. *Yale J. Biol. & Med.* 13: 539, 1911.

<sup>5</sup> Keeley, J. I. Intraperitoneal Administration of Sulfanilamide. Concentration in Peripheral Blood in Dogs. *Proc. Soc. Exper. Biol. & Med.* 46: 458, 1911.

of absorption in two to six hours Jackson and Collier,<sup>6</sup> using powdered sulfanilamide intraperitoneally, obtained the peak of absorption within four hours. Since the absorption of sulfadiazine from the peritoneal cavity is slower than that of sulfanilamide, we feel that it is the better drug to use for local intraperitoneal implantation.

## SUMMARY

Blood and urinary concentrations of sulfadiazine were studied in six cases after the intraperitoneal administration of doses of sulfadiazine powder ranging from 5 to 25 Gm.

With 10 Gm of sulfadiazine intraperitoneally effective blood levels of the drug were maintained for forty-eight hours, with 20 Gm for eighty-four hours and with 25 Gm for ninety-six hours.

There were no postoperative complications and no toxic manifestations of the drug observed in any of the cases studied.

477 First Avenue

## WESTERN EQUINE ENCEPHALOMYELITIS OCCURRING SPORADICALLY IN A METROPOLITAN AREA

## REPORT OF CASE

RICHARD B. RICHTER, M.D.

CHICAGO

All previously observed and properly diagnosed cases of the western form of equine encephalomyelitis in man have been encountered only in rural or semirural districts, usually in conjunction with large or small epidemics in areas in which there were or had been epizootics of the disease in horses. The case herein reported presents a unique exception to this epidemiologic rule in that the patient dwelt in the heart of an industrial area of a large city and had not been away from this environment for many years. No other cases of the disease are known to have occurred in the region.

H. A., a painter aged 49, unmarried living in Chicago, was admitted to the Albert Meritt Billings Hospital on Aug. 24, 1941. He had been well and working until three days before his admission when he noticed pain in the back of the head and neck. During the next two days he had diarrhea with frequent watery stools. The day before admission he had malaise and felt chilly. The following day he was feverish and his physician found his temperature to be 105 F. The diarrhea had ceased at this time. He did not have a sore throat or other symptoms of an infection of the upper respiratory tract.

On admission the pharynx was injected and there was a slight enlargement of the cervical lymph nodes. A rough systolic murmur was heard over the aortic area, less distinctly at the base. There was some diffuse abdominal tenderness. He was slightly drowsy and listless but there were no other neurologic signs and no evidence of meningeal irritation. The admission temperature was 105 F., the pulse rate 100 and the respiratory rate 24. The white blood cells numbered 15,000, 50 per cent of which were polymorphonuclear leukocytes and 45 per cent lymphocytes. The urinalysis was normal except for a few granular casts and white blood cells. Nose and throat cultures were not abnormal and there was no growth on repeated blood cultures. Roentgenograms of the chest showed clear lung fields. Agglutination tests against the usual pathogenic intestinal organisms were negative. The Wassermann and Kahn reactions of the blood were negative.

The temperature ranged between 103 and 105 F. for the first three days, 102 and 104 F. on the fourth and fifth days, and then slowly fell to normal by the sixteenth day of hospitalization. On August 27, the third hospital day, the clouding of the sensorium had increased, there was some mental confusion and a slight but definite stiff neck. The spinal fluid, examined for the first time, was under a pressure of 140 mm. There were 180 cells, almost all of which were lymphocytes. There was a faint trace of globulin, the Wassermann reaction was negative and the colloidal gold curve was 0011110000. The total protein was 49 mg. per hundred cubic centimeters and the sugar 83 mg.

On August 28 a neurologic examination revealed distinct mental clouding and disorientation. Responses to simple questions were not intelligible and he followed directions poorly and incompletely if at all. There was moderate rigidity of the neck and the Kernig sign was elicited on both sides. The optic fundi were hyperemic but there was no papilledema. There were no cranial nerve palsies and no selective weakness of the extremities, nor was there any gross incoordination of movements so far as could be determined. The activity of the tendon reflexes was variable, but all were present and equal on the two sides. Plantar and abdominal reflexes were normal. There were no obvious sensory disturbances. Continuous restless plucking movements of the fingers of both hands were observed and there was a coarse, irregular tremor during voluntary movements of either arm. There was a plastic type of resistance to passive movements of the shoulder, elbow, hip and knee joints, greatest in flexor groups and more severe on the left side. At times there was a cogwheel quality to this rigidity.

This state of affairs represented the greatest development of signs and symptoms. Within a few days the sensorium began to clear and in this respect he appeared normal by the fifteenth day. It was then noted that his face was somewhat expressionless. The rigidity of the arms and legs and the tremor of the upper extremities improved slowly and steadily but was still obvious at the time of his discharge from the hospital fifty-six days after the onset of his illness.

He was seen for the last time on November 4, when he felt very well. A slight jerky resistance to passive movements was still present at the right shoulder, elbow and hip and a fine irregular tremor persisted in the outstretched hands, more on the right side.

The results of a series of examinations of the spinal fluid are given in table 1.

TABLE 1—Results of Laminations of the Spinal Fluid

| Date    | Pressure,<br>mm. | Cells | Protein,<br>mg./100 cc. | Sugar<br>mg./100 cc. |
|---------|------------------|-------|-------------------------|----------------------|
| 8/27/41 | 140              | 180   | 49                      | 83                   |
| 8/29/41 |                  | 150   |                         | 77                   |
| 9/3/41  | 160              | 60    | 53                      | 80                   |
| 10/3/41 | 120              | 56    | 42                      | 74                   |

TABLE 2—Western Equine Encephalomyelitis

Equal parts of 1:25 suspension of virus (guinea pig brain) and serum incubated two hours at 37 C., 0.3 cc. inoculated intracranially into a guinea pig.

| Serum of patient<br>plus virus    | No elevation of temperature<br>6 weeks            | No symptoms up to<br>6 weeks   |
|-----------------------------------|---|--------------------------------|
| Control normal<br>serum and virus | Temperature elevated to 104.1<br>death on 5th day | protruding<br>death on 5th day |

Repeated questioning elicited the information that the patient had not been out of the city of Chicago since 1924 and had not even been for a drive in the country during the summer of 1941. He had been employed continuously as a painter of Pullman cars from December 1940 until the onset of his illness. During the summer of 1941 the car was brought in from service all over the country. Most of the cars had been used for the transport of troops. They were cleaned and stripped before being painted. He did not remember ever having seen mosquitoes in the cars or at any time.

<sup>6</sup> Jackson, H. C. and Collier, F. A. The Use of Sulfanilamide in the Peritoneum. J. A. M. A. 118: 194 (Jan. 17) 1942.  
From the Department of Medicine of the University of Chicago. Aided by a grant from the Morton D. Hull Fund for Medical Research.



kitten by one while working. No one in his family had been sick during the summer. No animals were kept in the house in which he lived.

Two guinea pigs were inoculated intraperitoneally with 10 cc of freshly drawn spinal fluid taken on the eighth and the thirteenth day of the disease and two groups of 4 mice each were inoculated intraperitoneally with 0.25 cc

TABLE 3—St. Louis Encephalitis

Serum 0.5 cc and virus 0.5 cc in 0.1 cc. Incubated 2 hours at 7°C. 0.1 cc inoculated intracerebrally into groups of 4 mice each.

| Day                                | Mice Deaths on Days |   |   |   |   |   |   |   |   |    | Comment       |
|------------------------------------|---------------------|---|---|---|---|---|---|---|---|----|---------------|
|                                    | 1                   | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |               |
| Serum patient virus 1:100          |                     |   |   |   |   |   |   |   |   |    | No protection |
| Serum patient virus 1:5000         |                     |   |   | 1 | 2 | 1 |   |   |   |    | No protection |
| Serum patient virus 1:10000        |                     |   |   |   | 1 | 3 |   |   |   |    | No protection |
| Normal control serum virus 1:3000  |                     |   |   | 2 | 2 |   |   |   |   |    | No protection |
| Normal control serum virus 1:5000  |                     |   |   | 2 | 2 |   |   |   |   |    | No protection |
| Normal control serum virus 1:10000 |                     |   |   |   |   | 4 |   |   |   |    | No protection |

and intracerebrally with 0.03 cc of the same material. In none of these animals did significant symptoms develop.

The blood of the patient taken on the fourteenth day of the disease was tested for neutralizing substances against the virus of western equine encephalomyelitis. Blood taken in the sixth week after the onset of the illness was tested for protection against the viruses of St. Louis encephalitis and lymphocytic choriomeningitis. Strong neutralizing antibodies were found against western equine encephalomyelitis virus but there was no protection against St. Louis encephalitis or lymphocytic choriomeningitis as indicated in tables 2, 3 and 4.

These results were checked and corroborated through the courtesy of Dr. F. Howell Wright who using mouse protection tests, found that the patient's serum protected against more than 100,000 intraperitoneal minimum lethal doses and more than 10 intracerebral minimum lethal doses of western equine encephalomyelitis virus but did not protect against either the eastern equine encephalomyelitis or St. Louis encephalitis virus es.

## COMMENT

The interest and the significance of the observations depend on the validity of the specific diagnosis. The seasonal incidence of this case of acute encephalitis, its symptoms and signs, the spinal fluid changes and the course of the disease are all consistent with what is known of the clinical picture of western equine encephalomyelitis in man. The question arises whether or not it is permissible to make an etiologic diagnosis of the disease based on the positive results of the immunologic tests. It is my opinion that such a diagnosis is entirely justified for the following reasons:

It will be agreed that the only possible explanations for the presence of strong specific protection against the western equine encephalomyelitis virus in the blood of this patient are either that the present illness was due to this virus or that he had suffered a previous inapparent infection with the virus which had left him with neutralizing antibodies against it unrelated to the present disease. The large amounts of antiviral substances present and their early appearance in the blood of the patient are in accord with the known facts of active infection of animals and man with both the eastern and the western variety of the equine encephalomyelitis virus. No extensive or systematic studies of the incidence of protective substances in the blood of random samples of the popula-

tions in nonepidemic areas or of asymptomatic contacts in epidemic areas such as have been made with reference to the St. Louis encephalitis and lymphocytic choriomeningitis viruses are as yet available for the equine encephalomyelitis virus. What information does exist on this point indicates that positive neutralization tests against the virus are found only in persons who have had the disease. Thus Gothergill<sup>1</sup> examined the serums of 58 familial contacts of patients with the disease and found them all negative. He concludes that "subclinical infection in man with the equine virus, except possibly under epidemic conditions must be very uncommon." In this connection I can state that I have examined the serums of 11 other patients with acute encephalitis of unknown etiology in the Chicago area together with the serums of 12 random normal controls for neutralizing antibodies to western equine encephalomyelitis and have found no evidence of protective antibodies in any instance. Two of these cases of encephalitis occurred in the summer of 1941. However, it appears that subclinical infections of this kind resulting in the presence of specific antibodies in the blood can occur under exceptional circumstances. Olitsky and Morgan<sup>2</sup> have reported strong neutralization against eastern equine encephalomyelitis in the blood of a laboratory worker who had been exposed to the virus for a period of six years without having symptoms of the disease develop. Five other workers also exposed to this virus showed no protection. It should be noted that the subject of this report was singularly free from any suspicion of exposure to the virus for many years prior to his illness.

In the light of the now established epidemiology of equine encephalomyelitis the implications of this case are twofold. It is possible that a reservoir of the virus has been established in the fauna of a large city and has

TABLE 4—Lymphocytic Choriomeningitis

Equal parts of serum and virus suspension incubated two hours at 37°C. and three hours at room temperature. 0.5 cc inoculated into guinea pigs subcutaneously.

| Days                               | Guinea Pig Deaths on Days |   |   |   |   |   |   |   |   |    |    |    |    |    | Comment       |
|------------------------------------|---------------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|---------------|
|                                    | 1                         | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |               |
| Serum patient virus 1:100          |                           |   |   |   |   |   |   |   | 1 |    |    |    |    |    | No protection |
| Serum patient virus 1:1000         |                           |   |   |   |   |   |   | 1 |   |    |    |    |    |    | No protection |
| Serum patient virus 1:10000        |                           |   |   |   |   |   |   |   |   | 1  |    |    |    |    | No protection |
| Normal control serum virus 1:100   |                           |   |   |   |   |   |   | 1 |   |    |    |    |    |    | No protection |
| Normal control serum virus 1:1000  |                           |   |   |   |   |   |   | 1 |   |    |    |    |    |    | No protection |
| Normal control serum virus 1:10000 |                           |   |   |   |   |   |   |   | 1 |    |    |    |    |    | No protection |

been transmitted by a local insect vector, in which case further urban outbreaks or epidemics may be anticipated. What seems more likely is that this patient was infected by an insect vector transported from an epidemic area in a common carrier (Pullman car).

<sup>1</sup> Gothergill, L. S. Virus and Rickettsial Diseases. Harvard Symposium, Cambridge, Mass. Harvard University Press, 1940.

<sup>2</sup> Olitsky, P. K. and Morgan, I. M. Protective Antibodies Against Equine Encephalomyelitis Virus in the Serum of Laboratory Workers. Proc. Soc. Exper. Biol. & Med. 41: 212 (May) 1939.

## THE RENAISSANCE OF PROSTATECTOMY

WITH PARTICULAR REFERENCE TO MINIMAL  
HOSPITALIZATION, WITHOUT PRE-  
LIMINARY DRAINAGE

EDWIN DAVIS, MD

OMAHA

During the latter half of the past decade, certain definite and well recognized factors have resulted in changes almost revolutionary in character in the conception of prostatic surgery. These changes involve a complete remodeling of both professional and lay points of view with respect to operative indications, operative hazards, operative technic, functional results and, particularly, the necessity for preoperative drainage. I propose to enumerate and discuss briefly the causes of these fundamental changes and to explain and justify the apparent heresy which the title of this article implies.

On many occasions in the past I have expressed myself unequivocally with respect to the vital necessity of preprostatectomy drainage. Certainly until recently this has been the essence of successful prostatic surgery and the one factor of paramount importance responsible for the dramatic lowering of the prostatectomy mortality rate from above 40 per cent to below 3 per cent and for the conspicuous minimizing of the prostatectomy hazard to the end that the risk of this procedure in the aged and debilitated has come to compare favorably with that of appendectomy in the young and robust.

Exemplifying opinions expressed in the past, I cite the following: "As known by every one (but ignored by many), the answer to the uremia question is preoperative drainage, by retention catheter or via the suprapubic route, for days, weeks, or many months, insistently and inexorably carried out, for as long as may be necessary, regardless of urging to the contrary by patient, relatives or physician."<sup>1</sup> "The indispensability of preliminary drainage is too well recognized to require discussion."<sup>2</sup> "To the conservative and to those who have established conspicuously good records in prostatic surgery, the necessity for preoperative drainage is axiomatic. One might just as well seriously question the advisability of hemostasis." With but few exceptions, the patient in no need of preprostatectomy or preresection drainage is in no immediate urgent need of prostatic operation.<sup>3</sup>

Whereas Kretschmer,<sup>4</sup> Bumpus and Massey,<sup>5</sup> Emmett<sup>6</sup> and others interested in prostatic resection have advocated minimizing the preliminary drainage period, there are the enthusiastic supporters of this method who have advised caution. According to T M Davis,<sup>7</sup> "Adequate preliminary treatment is of paramount importance continued until the renal function has become stabilized," while G J Thompson,<sup>8</sup>

referring to patients with impaired renal function, has said "Let me reiterate that preliminary drainage is an absolute essential." The obvious conclusion is that the advisability of drainage depends on the condition of the individual patient rather than on the type of operation. As long ago as 1938, discussing transurethral resection and perineal prostatectomy, I expressed the opinion that "with only moderate amounts of residual urine and without impairment of renal function preliminary drainage may be fairly safely dispensed with," and, in fact, through the years, have occasionally followed this course. It has been my observation, however, that those persons who did not go through with the usual period of several days of preoperative elevation of temperature were most likely to experience a postoperative flare-up of pyelonephritis. Quoting further, "I much prefer to drain than be sorry, and follow this procedure with all but the conspicuously good risks." These statements continue true, and always will, as applied to patients with impaired renal function. Which brings to attention the chief item for emphasis, as well as the occasion for this paper, namely the fact that urologic surgeons, for reasons outlined hereafter, are now seeing a much larger percentage of patients who present a conspicuously good risk.

The factors responsible for this fundamental change in the attitude of the medical profession and of the public may be enumerated as follows:

- 1 The gradual recognition as fallacious of the tradition that prostatectomy is a hazardous ordeal
- 2 The development and popularizing of transurethral prostatic surgery
- 3 Popular lay magazine articles on genitourinary subjects
- 4 Syndicated newspaper articles by reputable medical columnists
- 5 Ethical "public enlightenment" programs, sponsored by medical societies
- 6 "Protect your health" magazine advertisements sponsored by life insurance companies
- 7 Persistent, blatant, radio advertisement by utterly unscrupulous charlatans
- 8 The introduction of the sulfonamide group of urinary tract antiseptics
- 9 What may be termed the modern tendency toward lay enlightenment

These influences combined, increasing public knowledge and the physician's confidence and decreasing the patient's dread, have been responsible for this fundamental and highly desirable change, which has made its spontaneous appearance, unsought and unplanned by the urologist. It has been realized that prostatectomy under proper conditions is not hazardous. Neither is it an ordeal. The dramatic lowering of the prostatectomy mortality rate, resulting from a better understanding of the problems relating to uremia, anesthesia, hemorrhage and infection, has had its influence but has probably been a less important factor than it should be. The popularizing of transurethral prostatic resection, resulting in wide publicity which emphasizes short term hospitalization and perhaps overemphasizes the innocence and simplicity of this procedure, has undoubtedly been an important influence in creating public confidence and willingness. Popular lay magazine writers, often inaccurate in their statements and painting unnecessarily lurid pictures, have aroused interest and curiosity, and have the syndicated newspaper columnists, the public programs sponsored by medical societies and the

From the University of Nebraska College of Medicine

1 Davis, Edwin Factors Tending to Minimize the Prostatectomy Hazard, *Tr Am A Genito-Urin Surgeons* 31 383, 1938

2 Davis, Edwin Technic and Results in Perineal Prostatectomy, *J A M A* 115 582 (Aug 24) 1940

3 Davis, Edwin Prostatectomy or Transurethral Prostatic Resection, *J A M A* 112 681 (Feb 25) 1939

4 Kretschmer, H L Transurethral Resection, *Ann Surg* 104 917 (Nov) 1936

5 Bumpus, H C, and Massey, B D Transurethral Resection Does It Require as Exacting a Preoperative Preparation as Prostatectomy? *California & West Med* 46 89 (Feb) 1937

6 Emmett, J L Prostatic Resection, *J A M A* 110 1807 (May 28) 1938

7 Davis, T M Transurethral Prostatic Resection, with Report of 748 Cases, *South M J* 28 693 (Aug) 1935

8 Thompson, G J Transurethral Surgery, *Texas State J Med* 32:735 (March) 1937

meningitis advertisements. Each of these causes has had its influence, but the most potent factor of all in making "prostate" a household word and in causing this subject to be regarded as fit for general polite conversation has been the blatant program of fraudulent radio advertisement. It now appears that the deluge of malicious radio propaganda of this kind, designed to deceive and to demand has inadvertently rendered a genuine public service. As a certain eminent urologist referring to one notorious offender said "He has made us respectable." Present indications are that the use of sulfonamide derivatives has tended to lessen the frequency of postoperative flare-ups of pyelonephritis, thus increasing the confidence of the urologist in undertaking prostatic resection without preliminary drainage. And, finally, this change in the attitude of the public toward prostatic surgery is part of and in keeping with, the modern trend toward enlightenment and applies in other fields as well. People are now acutely vitamin conscious and sex hormone conscious. In fact the alphabet of vitamins seems to be less bewildering to the public than to the physician.

Prior to the recent days of enlightenment the midnight admission of the distressed and suffering old man with bladder visibly distended and urethra traumatized, bleeding and impassable was a frequent occurrence. I recall the necessity not many years ago in rather a small private urologic practice for emergency suprapubic cystostomy daily for eleven consecutive days. In contrast there was occasion for but one such operation during the twelve months following Jan. 1, 1940. While it is of course true that there are now many more efficiently operated small town hospitals, where such emergency operations are performed, the fundamental reason why comparatively few patients in desperate condition are now seen is the earlier recognition of prostatic obstruction by the intelligent physician and proper advice before the patient is desperately ill, coupled with the willingness of better informed patients to accept such advice. In former days the elderly patient was more or less uremic, often was disoriented and sometimes was delirious or even comatose. Under such conditions to omit preliminary drainage was almost equivalent to signing the death certificate. The patient faced many weeks or even months of hospitalization, with retention catheter or suprapubic drainage. There was no other way except to return the patient to his home burdened with the care of a suprapubic tube.

Today both physician and prospective patient, encouraged by favorable reports on the mortality and functional results of prostatectomy and by the glowing accounts of short term hospitalization offered by transurethral resection, have gradually become more inclined to the view that the hazard of operation is less than the hazard of delay. It has become recognized that to postpone until surgical intervention has become imperative is to increase materially the period of hospitalization, the cost of hospitalization and the risk. By the intelligent, prostatic resection is now regarded as a welcome means of relief rather than *le dernier ressort*.

The so-called conspicuously good risk may be defined as the man of an age for prostatic trouble who is apparently in good general health, with a good appetite, with definitely demonstrable prostatic hypertrophy, with a clearly defined history of recurrent attacks of urinary retention of unquestionable mechanical urinary obstructive symptoms, with residual urine not exceeding a few ounces, with approximately normal reaction to blood

nitrogen and phenolsulfonphthalein tests and without evidence of circulatory disturbance. I am not referring to what may be termed "prophylactic" prostatic operations. Obviously, under these circumstances there is nothing to be accomplished by ten days or two weeks of drainage by retention catheter accompanied by the usual flare-up of pyelonephritis unless one feels that there is advantage gained as a result of the immunity supposed to be conferred by "vaccination" of the urinary tract. I am prepared to express no opinion as to whether such advantage is fact or fancy. At any rate, I have felt justified in undertaking perineal prostatectomy without preliminary drainage on a small series of such patients recently under observation. In this series it seemed advisable also to attempt the prevention of postoperative pyelonephritis and the hastening of wound closure by the oral administration of sulfathiazole. Whether this drug is beneficial under these circumstances or whether the urologist is carried away by undue enthusiasm for the new remains for the future to determine. My present opinion, based on a small series only, is that

*Summary of Essential Data Obtained from the Case Histories and Hospital Records of Twenty-Four Consecutive 'Good Risks' Undergoing Perineal Resection Without Preliminary Drainage*

|   | Average |
|---|---------|
| Age                                     | 67      |
| Residual urine (ounces)                 | 3*      |
| Nonprotein nitrogen (mg)                | 35      |
| Preliminary drainage (days)             | 0       |
| Size of prostate (Gm)                   | 49      |
| Maximum postoperative temperature       | 99.9†   |
| Maintenance of urethral catheter (days) | 12      |
| Perineal urinary drainage (days)        | 3       |
| Last day of perineal drainage           | 7th     |
| Postoperative hospitalization (days)    | 15      |
| Total (necessary) hospitalization       | 16      |

\* This average figure does not include the figure for residual urine in the 3 cases of complete retention.  
† See chart 2.

sulfathiazole given by mouth tends both to lessen the postprostatectomy elevation of temperature and to hasten the closure of the perineal incision. Of importance in this connection is the recent article by Young, Hill and Semans<sup>9</sup> describing decidedly better wound healing following plastic procedures for hypospadias with postoperative oral administration of this drug.

This preliminary report, including 24 case histories summarized in the accompanying table, is presented with the purpose of emphasizing (1) omission of preliminary drainage, (2) negligible postoperative elevation of temperature, (3) rapid closure of the perineal fistula and particularly (4) the almost incredibly short period of hospitalization, which compares favorably with that for transurethral resection. All the patients were in good general condition considering the average age. All were operated on via the perineal route under sacral block anesthesia with no sedative other than  $\frac{1}{4}$  gram (0.01 Gm.) of morphine sulfate. The operative technic, governed by the fundamental principles long since laid down by Hugh Young, has been described elsewhere<sup>2</sup> with emphasis on meticulous care in suture ligation of the bleeding points and on the obliteration by suture of the prostatic cavity, although complete plastic closure

9 Young, H. H., Hill, Justina H. and Semans, J. H. Use of Sulfathiazole Before and After Urologic Operations to Prevent or Combat Infection. *J. Urol.* 44: 714 (Nov.) 1940.

without drainage was carried out in no instance. Each patient received 0.5 Gm of sulfathiazole orally four times daily during the first ten postoperative days, while in half the series 5 Gm of sulfathiazole powder was deposited in the incision. Whether this drug employed locally after perineal prostatectomy tends to accelerate or to retard wound closure is debatable. My impression, based merely on observation of 12 patients who had and 12 who did not have the drug applied locally, is that antiseptic value is outweighed by tissue injury. The combined perineal drainage and hemostatic bag employed as a safety measure and slipped out in most instances after twenty-four hours appeared to interfere in no way with rapid wound healing. Drainage by urethral catheter was maintained for an average period of twelve days. Each of the patients made an uneventful recovery.

The patients came under observation in rapid succession. Except the first, the operations all were performed during a three month period. The point to be stressed is that during this time the admission of "conspicuously good risks" was decidedly the rule rather than the exception. Ten of the patients were consecutive. In fact, of 28 consecutive prostatectomy patients in my own series, 23 were in sufficiently good condition to permit operation without drainage. This recent "run" of good risks has been as amazing to me as I fear it may be incredible to the reader. Although such a high ratio of good risks may hardly be expected to be maintained indefinitely, there can be no question as to the fundamental character of the change in viewpoint which has taken place. The same tendency is apparent to a lesser degree in public wards. Of the 23 patients, 6 were public ward patients.

Chart 1, depicting 24 superimposed first week postoperative temperature curves, attests the innocence of perineal enucleation under the circumstances previously outlined. It is to be noted that only one of the curves exceeded the 101 F level. The average first week temperature curve, computed from the daily maximum temperature of each of the 24 patients, reached a peak of 99.9 F on the second day, as shown in the table and demonstrated graphically by chart 2. No preliminary

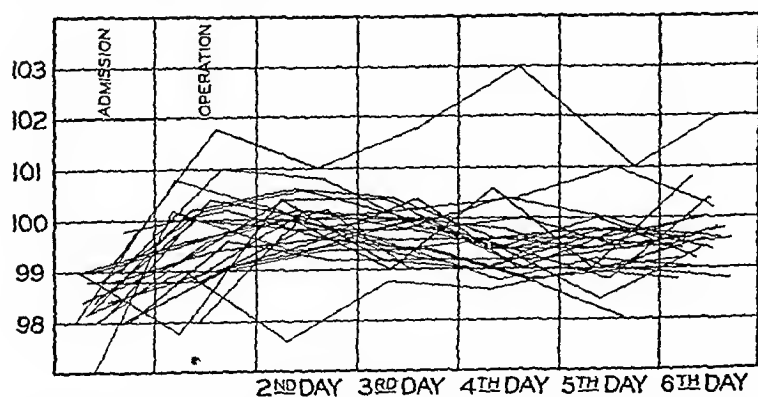


Chart 1—Superimposed first week temperature curves for 24 consecutive perineal prostatectomies on "good risks" performed without preliminary drainage. Each curve is plotted to show only the maximum daily elevation.

drainage was done in any case included in the table, although 1 patient had had interval catheterization prior to admission. It is to be observed that the average number of days of postoperative perineal urinary drainage (three) is by no means identical with the average time (seven days) which elapsed between the date of operation and the last day of perineal drainage. The apparent discrepancy between these two sets of figures is due to the fact that urinary saturation of the perineal

dressings during the average twelve day period of postoperative retention catheter drainage was decidedly the exception. In most instances such perineal urinary drainage as occurred was noted during the first or second postoperative day and also for a day or two after the removal of the retention catheter. The average total number of days of hospitalization exceeded the average period of postoperative hospitalization by one

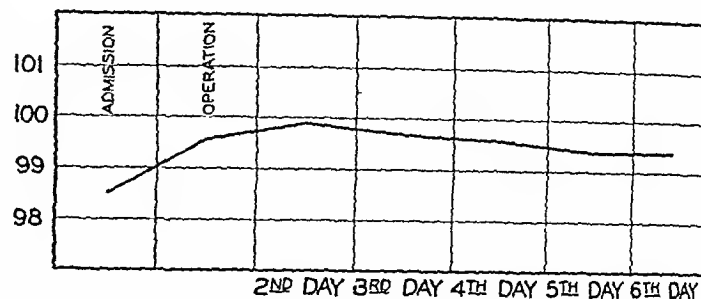


Chart 2—Average maximum daily elevation of temperature following perineal prostatectomy on "good risks," based on the twenty-four consecutive superimposed curves shown in chart 1.

day only, since the patients were operated on the day after admission, after completion of the physical examination and functional tests. The average total hospitalization figure included the figure for 1 charity ward patient who had no postoperative perineal drainage whatever but who remained in the hospital for three postoperative weeks because of unexplained pain in the hip. The expression "total necessary hospitalization" is properly employed, since in a few instances the operation was postponed a day or two in order to suit the convenience of the surgical staff and since the patient himself occasionally elected to remain in the hospital after dismissal awaiting the arrival of relatives or for other reasons wholly unrelated to his physical condition. These extra unnecessary days have been excluded in figuring the total period of hospitalization. The average age was 67, the average residual urine (excluding that in 3 cases of complete retention) 3 ounces (85 cc) and the average size of the prostate 49 Gm. Although the number of days of postoperative perineal urinary drainage averaged three, 7 patients (30 per cent) had no perineal urinary drainage whatever. The total preoperative and postoperative hospitalization averaged sixteen days. These records have been checked by my colleague, Dr. C. A. Owens, who has made similar observations.

#### SUMMARY

By reason of recently increased public enlightenment and "prostate consciousness," the urologic surgeon now sees a much larger percentage of "conspicuously good risks," who permit safe prostatectomy without preliminary drainage.

The results obtained in a series of 24 consecutive cases in which the risk was particularly good indicate that the average total period of preoperative and postoperative hospitalization in the case of good risks may be reduced to a figure not exceeding sixteen days.

This exceedingly short average total hospitalization for perineal prostatectomy tends to nullify the chief argument of authorities advocating routine or indiscriminate transurethral resection rather than selective cases.

The opinion here expressed is not to be interpreted as blanket approval of prostatectomy without preliminary drainage, the necessity of which will also obtain in cases with impairment of renal function.

CUTANEOUS TEST WITH DIODRAST  
TO PREDICT ALLERGIC SYSTEMIC REACTIONS

FROM DIODRAST GIVEN INTRAVENOUSLY

HYMAN I. VATTERMANN, MD

AND

SAMUEL A. ROBINS, MD

BOSTON

Systemic reactions following the intravenous administration of diodrast for excretory pyelography are frequently disturbing and occasionally serious. Many of the symptoms such as sneezing, urticaria and wheezing resemble allergic manifestations so closely as to suggest that allergy to the diodrast may be a cause for the reactions. On one occasion after it was first determined that the intradermal injection of small amounts of diodrast was painless and caused no systemic reaction increasing concentrations of diodrast were injected into the skin of a patient who had recovered from a severe reaction to diodrast given intravenously; there was a strong positive cutaneous reaction when 0.05 cc of undiluted diodrast was injected intradermally. It was therefore decided to test in a similar manner all patients who were to receive diodrast intravenously for pyelography. The methods used and the results in a consecutive series of 404 patients are presented.

## METHODS

On arrival in the roentgen ray department for intravenous pyelography each patient was questioned regarding his family history and personal history relative to allergy. An intradermal cutaneous test was performed with 0.05 cc of undiluted diodrast injected into the skin of the forearm; an injection of the same amount of saline solution being used as a control, the diameter of the wheal and the area of erythema were measured after ten to fifteen minutes. Diodrast was then given intravenously in the usual manner for pyelography regardless of the result of the cutaneous test, symptoms were recorded as they occurred.

## RESULTS

The 404 patients were divided into two groups: 323 patients who had no general reaction to diodrast intravenously and 81 patients who did have a general reaction. Each group was then subdivided according to the severity of the local reaction to the cutaneous test. The local reaction to a cutaneous test resembled that occurring in foreign protein hypersensitivity in that it developed quickly after the injection, reached a maximum in ten to twenty minutes and faded quickly thereafter, disappearing completely. It consisted of an increasing wheal with a surrounding zone of erythema; there was pseudopod formation in the larger reactions. In 15 instances erythema did not appear although a wheal up to 10 mm occurred. Occasionally the wheal did not increase greatly and the erythema predominated in the reaction. The reaction to a cutaneous test was considered (1) negative when the wheal measured less than 8 mm and the erythema less than 10 mm, (2) slightly positive when the wheal measured 8 or 9 mm with no erythema or when the wheal measured less than 8 mm and the erythema 10 mm or more in diameter, (3) moderately positive when the wheal measured 10

to 15 mm and (4) strongly positive when the wheal measured more than 15 mm.

Of the 323 patients with no general reaction (table 1) 235 (72.8 per cent) had negative cutaneous reactions and 88 (27.2 per cent) positive. Of the 81 patients who did have a general reaction on the other hand, only 14 (17.2 per cent) had negative cutaneous reactions while 67 (82.8 per cent) had positive reactions. Of the 88 patients with positive cutaneous reactions and no general reaction (table 2), 75 (85.2 per cent) had only slightly positive cutaneous reactions and 13 (14.8 per cent) moderately positive reactions. No patient who had no general reaction had a strongly positive cutaneous reaction. Of the 67 patients who had both positive cutaneous reactions and general reactions, 43 (64.1 per cent) had slightly positive cutaneous reactions, 22 (32.7 per cent) had moderately positive cutaneous reactions and 2 (2.9 per cent) had strongly positive cutaneous reactions. It is evident that the patients with general reactions had a significantly higher percentage of positive cutaneous reactions than the patients who did not have general reactions. The sites of the cutaneous reactions in the patients with general reactions tended to be larger than those in the patients who did not have general reactions.

There were 249 patients with negative reactions to the cutaneous tests, of these 14 (5.6 per cent) had general reactions. One hundred and eighteen patients had slightly positive cutaneous reactions of whom 43 (36.4 per cent) had a general reaction. Thirty-five patients had moderately positive cutaneous reactions, of whom 22 (62.8 per cent) had a general reaction. There were 2 patients who had strongly positive cutaneous reactions, and both had general reactions. This would indicate that with a negative cutaneous reaction there is approximately one chance in twenty of having a general reaction, and as the cutaneous reaction becomes more strongly positive the chance of a general reaction developing progressively increases.

TABLE 1—Incidence of General Reactions and Positive Reactions to Cutaneous Tests

| General Reaction | Number of Patients | Reaction to Cutaneous Tests |          |          |          |
|------------------|--------------------|-----------------------------|----------|----------|----------|
|                  |                    | Negative                    |          | Positive |          |
|                  |                    | Number                      | Per Cent | Number   | Per Cent |
| All test         | 323                | 235                         | 72.8     | 88       | 27.2     |
| Pre test         | 81                 | 14                          | 17.2     | 67       | 82.8     |

There is no reliable method of determining whether or not a reaction is due to allergy. Therefore, any symptoms following the administration of diodrast was considered a general reaction. The most common reaction involved the gastrointestinal tract and consisted of nausea, with or without vomiting, it occurred in 57 (70.3 per cent) of the 81 patients with general reactions. The next most frequent manifestation of a reaction was urticaria varying from a few localized wheals to generalized urticaria, this occurred in 20 (24.6 per cent) of the patients with reactions. Nasal symptoms of stuffiness and sneezing occurred in 5 of the patients (6.1 per cent). Three patients (3.7 per cent) had "chest" symptoms: 1 with a wheal of 4 mm and erythema of 12 mm from the cutaneous test vomited, coughed and choked for three minutes; the symptoms beginning about one-half minute after the injection, a second, with a wheal of 8 mm and erythema of 11 mm as a result of the cutaneous test choked, coughed, became cyanotic and "brought up yellow fluid" for two to three minutes, the

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third patient, with a reaction consisting of a wheal of 20 mm and erythema of 40 mm, had choking and cardiovascular collapse necessitating admission to the hospital. Seven patients (86 per cent) had miscellaneous symptoms, consisting of (1) pallor, (2) faintness during injection, (3) toxic encephalopathy, (4) pallor and sweating, (5) faintness after injection, (6) nausea, dizziness, increased pulse rate, chill and "shaking" and (7) vomiting, cyanosis, chills and "generalized discomfort" followed by a temperature of 101 F.

Comparison of the reactions to cutaneous tests with the severity of the general reaction revealed considerable variation. Some of the patients with negative or slightly positive cutaneous reaction had general reactions more severe than patients with moderately positive cutaneous reactions. Nevertheless, in general the more severe reactions occurred in those patients having more strongly positive cutaneous reactions. The 2 patients who had strongly positive cutaneous reactions had severe general reactions.

TABLE 2—Degree of Positive Reactions to Cutaneous Tests in Patients Without and With General Reactions

| General Reaction | Number of Patients | Reactions to Cutaneous Tests |          |                     |          |                   |          |
|------------------|--------------------|------------------------------|----------|---------------------|----------|-------------------|----------|
|                  |                    | Slightly Positive            |          | Moderately Positive |          | Strongly Positive |          |
|                  |                    | Number                       | Per Cent | Number              | Per Cent | Number            | Per Cent |
| Absent           | 88                 | 75                           | 85.2     | 13                  | 14.8     | 0                 | 0        |
| Present          | 67                 | 43                           | 64.1     | 22                  | 32.7     | 2                 | 2.9      |

TABLE 3—Family and Personal History of Allergy in Patients with Negative and Positive Reactions to Cutaneous Tests

| History of Allergy | Negative Reactions to Cutaneous Tests (249 Patients) |          | Positive Reactions to Cutaneous Tests (145 Patients) |          |
|--------------------|--|----------|--|----------|
|                    | Number   | Per Cent | Number   | Per Cent |
| Family             | 17   | 6.8      | 27   | 18.6     |
| Personal           | 9  | 3.6      | 31   | 21.3     |

The relation between the history of allergy and the result of the cutaneous test is presented in table 3. The patients with negative reactions to cutaneous tests had familial and personal histories of allergy similar to that in the general population, while among patients with positive reactions to cutaneous tests there was a considerably higher incidence of familial and personal history of allergy.

Each patient was questioned regarding previous contact with iodides. The information obtained could not be considered reliable, however, and no attempt was made to correlate this with the results of cutaneous tests or with the occurrence of general reactions.

COMMENT

The data of the present study have some bearing on the question as to whether or not reactions following intravenous injection of diodrast are due to allergy. Eighty-eight patients had no general reactions but did have positive cutaneous reactions, 75 of which were slightly positive and only 13 moderately positive. On the other hand, 14 patients, 34 per cent of the total number studied, had general reactions with negative reactions to cutaneous tests. This discrepancy is not unusual for allergic conditions. In other forms of allergy, e.g. hay fever, patients with clinical sensitivity may have negative reactions to cutaneous tests, and

other patients with positive cutaneous reactions may not have clinical sensitivity. The disturbances observed clinically during general reactions to diodrast, such as urticaria, nasal obstruction and sneezing, choking, wheezing and vasomotor collapse, are similar to the reactions occurring with "serum sickness." The character of the reaction to the cutaneous test with diodrast is also typical of allergy. Accordingly, allergy to diodrast must be considered a cause for the general reaction. This hypersensitivity, fortunately, must be very slight, since 0.05 cc of the undiluted solution was used in the intradermal tests, whereas in pollen sensitivity comparable intradermal reactions are frequently obtained with dilutions of pollen extract of 1:100,000 or more.

The mechanism of the hypersensitivity must await further study. In an attempt to demonstrate antibodies by inducing passive transfer, 0.1 cc of serum from a patient who had a strongly positive cutaneous reaction was injected intradermally into 2 normal subjects, no reaction occurred when the passive transfer sites were treated with 0.05 cc of diodrast. Since diodrast is a compound rather than a simple chemical substance, cutaneous tests should be done with its various components.

The value of cutaneous tests in predicting serious general reactions to diodrast is demonstrated by the results of this study. The most serious reaction to be expected is vasomotor collapse with death, probably the result of allergy. Other reactions, whether allergic or not, may be mildly or moderately distressing but otherwise are usually not of great importance. In this series, 77 general reactions were mild to moderate and were associated with negative to moderately positive cutaneous reactions.

There were 3 serious reactions. The first of these occurred in a 29 year old woman in whom intravenous pyelography was performed because of hematuria and dysuria. There was no family or personal history of allergy. She had not received diodrast previously. The reaction to a cutaneous test consisted of a wheal 5 by 6 mm, with no erythema. She was given 20 cc of diodrast intravenously, and, according to the nurse in attendance

Three minutes later, she became restless, moved all about the table and failed to respond to questions. The skin was warm and moist. The pulse was regular, of good quality and not rapid. In about ten minutes the patient became quieter. This was soon followed by another episode similar to that just described but less severe. At this time she started muttering irrationally. The skin was still warm and moist and the pulse good. After another ten minutes she quieted down. The skin became cold and pale. The pulse remained good. Epinephrine, 4 minims (0.25 cc), was given after fifteen minutes.

The patient was later observed by a consulting neurologist, who made the following note:

The occurrence of stupor with absent reflexes, followed by great irritability and twitching, with reflexes only partly returned, together with mutism and automatic and limited answers, indicates a widespread cortical, probably encephalopathic, response to a toxic influence.

There was a gradual return to normal in the next few days. This reaction is not typical of the allergic type, and a positive reaction to a cutaneous test could not, therefore, be expected.

Another serious reaction occurred in a 53 year old woman who was studied for pain in the right side. After receiving 20 cc of diodrast she became cyanotic

and dyspneic and collapsed. She was admitted to the ward where she was reported as being cyanotic with a barely perceptible pulse, clammy skin and a blood pressure of 90 systolic and 50 diastolic. She was placed in shock position and given epinephrine subcutaneously in 0.5 cc doses to maintain the blood pressure at 100 systolic and 60 diastolic. The patient gradually became warmer and more comfortable, the cyanosis giving way to erythema without wheals. There was a rise in temperature to 102.5 F which returned to normal the following morning. At this time she felt normal and stated she had previously felt as if she were dying. The reaction to a cutaneous test at this time was strongly positive consisting of a 20 mm wheal and 40 mm zone of erythema. The cutaneous test was repeated one week later and elicited a similar reaction.

The third severe reaction occurred in a 30 year old man with hay fever who was studied because of essential hypertension. A cutaneous test elicited a wheal 20 by 20 mm and a zone of erythema 35 by 30 mm but the control test with saline solution elicited a wheal 6 by 16 mm and a zone of erythema 30 by 30 mm. Because of the strongly positive cutaneous reactions the diodrast was injected slowly according to the attending nurse.

With the injection of a few cubic centimeters [7 cc] the patient became very flushed, the eyes reddened and became itchy, wheals came on the face and neck and the patient felt funny. Five-tenths cc of epinephrine was given subcutaneously, the wheals disappeared and he became pale and felt better.

Cutaneous tests were repeated some weeks later and he showed a wheal 20 by 20 mm and a zone of erythema 60 by 60 mm with both diodrast and saline solution. He was given 13 cc of saline solution intravenously with no reaction. A passive transfer study was done by injecting his serum into 2 recipients but no reaction occurred with diodrast or saline solution.

The 2 patients with severe general reactions typical of allergic reactions had the most strongly positive cutaneous reactions consisting of wheals, with pseudopods, measuring 20 mm, accompanied by large areas of erythema. Until more information is obtained it would seem prudent to perform cutaneous tests on all patients before diodrast is given intravenously and for those patients showing cutaneous reactions with wheals of 15 mm or more suitable precautions should be taken. The precautions should consist in having epinephrine available for instant use and the slow injection of the diodrast, stopping as soon as untoward symptoms develop. Since about 2 out of 3 patients with moderately to strongly positive reactions to cutaneous tests had general reactions, it may be of advantage to give such patients prophylactically one of the drugs, such as epinephrine or ephedrine, which counteracts allergic reactions.

#### CONCLUSIONS

1. One cause for the general reaction following intravenous injection of diodrast is allergy to diodrast.
2. The intradermal cutaneous test with 0.05 cc of diodrast usually elicits a positive reaction in a patient allergic to diodrast.
3. An intradermal cutaneous test with 0.05 cc of diodrast should be done on all patients before diodrast is injected intravenously.
4. If the reaction to a cutaneous test is strongly positive, with a wheal larger than 15 mm, a serious general reaction may be expected, and precautions should be taken.

520 Beacon Street

## Clinical Notes, Suggestions and New Instruments

### ELIMINATION OF COLOR FROM VISUAL HEMOGLOBINOMETRY

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From their recent studies, involving hundreds of carefully controlled determinations by both physicians and technicians, Karr and Clark<sup>1</sup> conclude that "hemoglobin determinations, as they are done in many laboratories of accredited hospitals with accepted methods are so inaccurate that they are not only valueless but may well be detrimental to good medical practice." While not every one might have the blunt candor of these investigators there remains a widely sensed need for a better clinical method of hemoglobin determination than the methods now in use.

A method is here described that can be carried out complete in sixty seconds, including two or three readings, readings which in my practice seldom vary as much as 0.4 Gm (2 per cent) and which can be performed with a relatively inexpensive and reasonably fool-proof photometer that can be folded up and carried in the pocket.

The underlying principle of the method is that green light is absorbed by red such as the red of oxyhemoglobin in a solution. The more hemoglobin present the less green light will pass through the solution. If one has a constant source of light, together with means for measuring the amount of green light that does get through the hemoglobin content can be quickly and accurately measured. This is exactly the principle of the photoelectric colorimetric oxyhemoglobin method which was found by Karr and Clark to be the best of the methods tested by them.

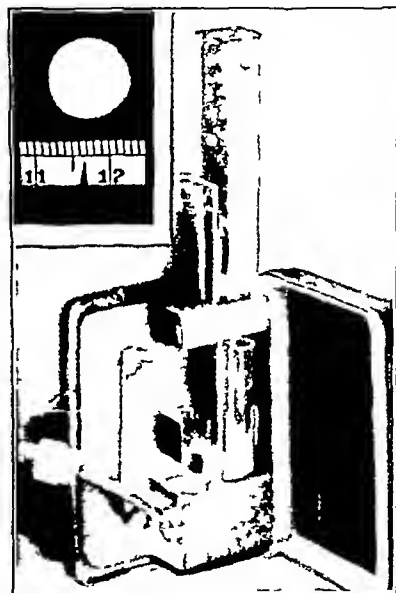


Fig 1—Pocket size photometer for visual determination of hemoglobin by photoelectric methods without recourse to the photoelectric cell. The instrument is shown detached from its base as for use in an automobile. The inset at left shows the view through the eyepiece.

Notwithstanding a scholarly presentation by Kennedy<sup>2</sup> sixteen years ago and its independent application by Sunderman in an unpublished method,<sup>3</sup> it seems to have been quite overlooked that this excellent principle (heretofore inadvertently monopolized by the photoelectric colorimeter) can be most satisfactorily employed visually in any ordinary colorimeter without recourse to the photoelectric eye, yet without sacrifice of accuracy. The specifications for the green light filter, however, are considerably more exacting for visual than for photoelectric use.<sup>4</sup>

It is pertinent to note that the normal retina is appreciably more sensitive to minute differences in intensity of green light than it is to such differences of red, yellow or blue light. This

<sup>1</sup> Karr, W. G. and Clark, J. H. *Am J Clin Path* 11: 127 (Sept.) 1941.

<sup>2</sup> Kennedy, R. P. The Use of Light Filters in Colorimetry, with a Method for the Estimation of Hemoglobin. *Am J Physiol* 78: 56 (Sept.) 1926.

<sup>3</sup> Sunderman, F. W. Personal communication to the author.

<sup>4</sup> Theoretically the transmission of the filter should correspond closely with the absorption spectrum of oxyhemoglobin. A number 62 Wratten filter does well though it does not have very high total transmission. Kennedy used a number 74 filter.

means that green is the color of choice for precision in matching luminosity visually. As for the bogy of visual fatigue, I find distinctly less eyestrain in looking at greens than in peering at the pointer of an electrical device.

So narrow is the transmission band of the filter employed (number 74 and so on) that this same filter gives satisfactory readings in nearly all colorimetric tests, such as blood sugar and sulfonamide drug concentrations. In fact, number 74 is the filter specified by Sunderman and Pepper<sup>5</sup> in their serum concentration sulfathiazole method.

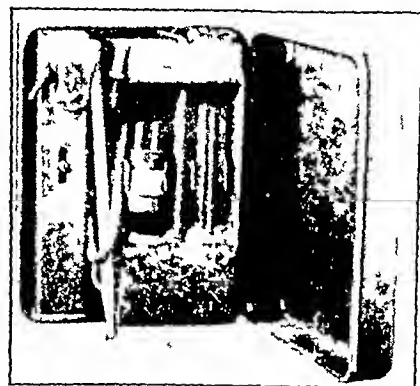


Fig. 2—Instrument and pipet assembly in case for carrying

For utilizing the visual method a simple pocket size photometer (figs 1 and 2) has been constructed. The instrument is similar in principle to the conventional microcolorimeter except that but one solution cup is used and no syringe or plungers are employed. Luminosity

of the controlled half of the visual field is governed by a sliding "optical wedge" of neutral gray interposed between that half field and the illuminant. Through the other half field is seen the cell of blood dilution, so that were it not for the green filter the field would appear half red and half gray.

Seen through the filter, however—and this is the whole point—the halves of the field are neither red nor gray but green. One has only to cause these contiguous areas of green to become of equal brightness by manipulation of the sliding gray wedge and then read the answer directly from the scale without taking the eye from the eyepiece, so several readings may be quickly made. To preclude "wishful" readings the scale is concealed by an occluder until it is desired to take a reading. The scale is divided into equal parts, either grams or percentage as preferred.

In designing the instrument, I took care to choose any parts liable to breakage or replacement so that they would be obtainable at trifling cost almost anywhere. The illuminant, for instance, is a small 6 volt bulb replaceable in nearly any dime store. The pipet is the ordinary 20 cu mm Sahli pipet, carried in stock by all surgical supply houses.<sup>6</sup> The solution cup is an ordinary 14 mm flat bottom vial, carefully selected for size. Contrary to theoretical apprehensions, in reality neither the meniscus of the free fluid surface nor lack of optical planity of the vial bottoms introduces any detectable error. The 6 volt bulb was chosen so that, while it is commonly lighted from a small transformer in the base of the instrument when 110 volt current is available, where this current is not available the detachable base and transformer may be left behind and the instrument lighted directly from the battery of an automobile through a wire from the dashboard or even from a standard lantern battery.

#### PROCEDURE

Precisely 20 cu mm of blood is blown from an accurately calibrated Sahli pipet<sup>2</sup> into approximately 2 cc of dilute alkali in the vial which serves as solution cup. Either 0.1 per cent sodium carbonate or 0.4 per cent ammonium hydroxide (4 cc of 28 per cent ammonium hydroxide to the liter of distilled

water) may be used. The quantity of blood is the only factor requiring precision measurement. Unlike the plunger type of colorimeter, this instrument does not require an exact amount of diluent.

If ammonium hydroxide solution is used, the vial may be slipped into place and the reading made at once if desired, with no waiting for an electric cell to warm up or for color to develop. Corked vials may be collected when one is making rounds, for reading on return to the laboratory.

#### First Attempts of Inexperienced Children

| Reading of Child Aged 14, Gm | Readings of Child Aged 12, Gm |
|------------------------------|-------------------------------|
| 14.2 9.3                     | 9.3                           |
| 14.2 9.3                     | 9.4                           |
| 14.15 9.55                   | 9.5                           |
| 14.2 9.25                    | 9.3                           |
| 14.35 9.4                    | 9.7                           |
| 14.2                         |                               |

I have used the method here described in my practice for nearly two years with utmost satisfaction.<sup>7</sup>

To see what could be done by utterly inexperienced persons who did not know too much, I invited 2 school children aged 12 and 14 years who had never seen a colorimeter to make readings. The results shown in the accompanying table are their first (blind) readings after one minute's instruction with no practice allowed, all readings are given.

#### TYPHOID PULMONARY ABSCESS

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Pulmonary abscess complicating typhoid is not unusual, such an abscess of proved typhoid etiology is more rare. The first available report was that of Mussey to the Anatomy Society of Paris in 1838.<sup>1</sup> Postmortem examination on a patient with typhoid showed multiple metastatic pulmonary abscesses.

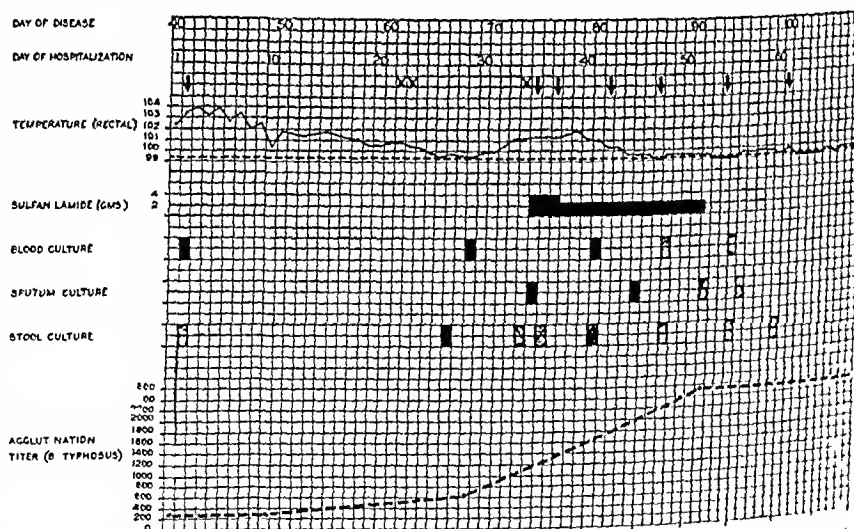


Fig. 1—Course of hospitalization. Temperatures are daily averages of rectal temperatures. Solid blocks indicate positive cultures, stippled blocks negative cultures, arrows indicate chest roentgenograms, X's hemoptyses.

Griesinger<sup>2</sup> reported 7 cases of pulmonary gangrene among 118 patients with typhoid coming to necropsy, and von Liebermeister<sup>3</sup> cited 14 cases of pulmonary gangrene found on necropsy examination of 230 patients with typhoid.

7. Sometimes physicians or technicians are a bit too smug or sure to give even a few moments attention to mastering details of a new method, details of which, however, may be important for accuracy.

From the Medical Service of the University of Michigan Hospital, Ann Arbor.

1. Mussey, G. Excerpts from the Verbal Proceedings of the Bull. Soc. anat. de Paris 2: 41 (April) 1838.

2. Griesinger, Wilhelm, in Virchow, Rudolf, Handbuch der Spec. Pathologie und Therapie, ed. 2, Erlangen, Germany, 1864, vol. 2, p. 172.

3. von Liebermeister, Karl, Typhoid Fever in Ziemssen's Cyclopaedia of the Practice of Medicine, New York, Walter D. Foy, 1874, vol. 1, p. 172.

5. Sunderman, I. W. and Pepper, O. H. P. Am. J. M. Sc. 200: 790 (Dec.) 1940.

6. For any close approach to absolute values the pipet should be calibrated by the United States Bureau of Standards. Accuracy of pipets as purchased is not high, one large manufacturer claiming no closer tolerance than 5 per cent. H. L. Alt of Northwestern University Medical School, said in a personal communication that the Hellige has been found most accurate of the pipets tested by him.

Pulmonary abscess of proved typhoid etiology must of necessity date from the recognition of the stained typhoid bacillus by Eberth in 1880 and of its cultural and differential bacteriologic characteristics by Gaffky in 1884 and Escherich in 1885. Since that period of isolation of the causative organism in 7 cases of pulmonary abscess complicating typhoid and 1 case of such abscess complicating a paratyphoid infection have been reported.<sup>1</sup>

Three of these communications present bacteriologic evidence substantiating the specific typhoid etiology of the complication. Basch<sup>4</sup> reported that a patient with typhoid on the fifteenth day of the illness showed signs and symptoms of lobar consolidation in the right lung. Examination of the sputum revealed a pure culture of *Eberthella typhosa* for a period of two months. Examination for the tubercle bacilli and pneumococci gave negative results. Roentgenograms of the chest showed an abscess at the angle of the right scapula. The outcome was not mentioned.

Chinn<sup>5</sup> presented a patient who for a year had periodic attacks of cough and catarrh lasting from fifteen to twenty days with good health in the intervening time except for continuous pain in the left side of the chest. Immediately prior to examination there was moderate low grade fever

tioned. Roentgenograms of the chest showed a pulmonary abscess with fluid level. Six days later a paroxysm of coughing was productive of foul blood-tinged sputum in which there were numerous paratyphoid bacilli. Roentgenograms nine weeks later showed a small infiltration the size of a quarter (24 mm).

To these 3 reports of typhoid and paratyphoid pulmonary abscess a fourth is here added.

#### REPORT OF CASE

G. R., a white man aged 36, was admitted to the University Hospital Feb. 3, 1938. Thirty-nine days previously he experienced a chill of fifteen minutes' duration followed by a sensation of fever. These chills recurred four or five times a week at no regular intervals and there was daily fever. The week prior to admission there was a morning cough productive of what was thought to be postnasal drip. On several occasions this material had been bloody, but the evaluation of this symptom was complicated by the presence of concurrent epistaxis.

On examination the patient was emaciated and apathetic and was acutely ill. The rectal temperature was 102.8 F, the pulse rate 104, the respiratory rate 18 and the blood pressure 110



Fig. 2—Appearance of the chest on admission to the hospital, negative.



Fig. 3—Appearance of the chest on the forty-second hospital day. There is a large pulmonary abscess at the level of the third left anterior interspace and the fourth rib.

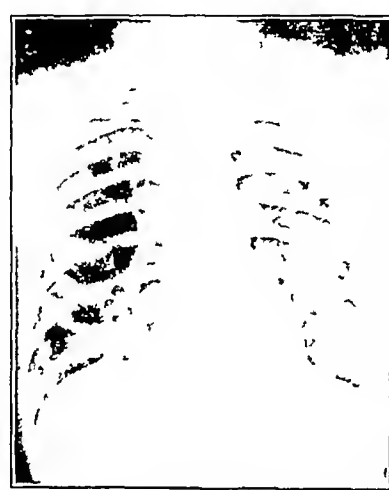


Fig. 4—Appearance of the chest at the time of discharge, persistent pneumatocele at the level of the third left anterior interspace.

epigastric pain and vomiting. Roentgen examination of the chest showed an opacity at the base of the left lung interpreted as free fluid with pulmonary excavation and a bronchopleural fistula. Postural drainage yielded pus of the same character as that obtained by thoracentesis, both of which showed a pure culture of *Eberthella typhosa*. It was the author's opinion that the patient had an ambulatory form of typhoid with abscess localization in a locus minoris resistentiae.

Thumm<sup>7</sup> examined a patient whose history revealed that four weeks prior to examination there had been chills, fever and malaise which subsided but which was followed three weeks later by recurrence of the symptoms with the addition of pain in the anterior part of the left side of the chest. An exudate obtained from the left pleural space yielded a pure culture of *Eberthella paratyphosa*, its subclassification not men-

tioned. A blood clot was present in the left side of the nose. Breath was foul and there was profuse mucopurulent material on the posterior pharynx. At the apex of the left lung breath sounds were slightly diminished in intensity and occasional post-tussive rales were heard. The spleen was palpable at the rib margin and descended 3 cm on deep inspiration, the edge being sharp and nontender. The liver edge was just palpable in the midclavicular line on deep inspiration. The remainder of the physical examination gave negative results.

Leukocytes numbered 6000 per cubic millimeter with 80 per cent polymorphonuclear neutrophils. There was 1 plus albuminuria with occasional red and white blood cells in the urinary sediment. Bacteriologic examination isolated *Eberthella typhosa* from the blood, stool and sputum on numerous occasions as shown in figure 1.

The chest was examined with roentgen rays on seven different occasions. The initial film at the time of admission was negative (fig. 2). Roentgenograms on the thirty-fifth hospital day following a hemoptysis and again one week later (fig. 3) showed a pulmonary abscess in the midaxillary portion of the upper lobe of the left lung. Subsequent roentgen examinations showed progressive clearing of this abscess (fig. 4).

The course of the illness is outlined in the accompanying chart (fig. 1). Each recorded level of temperature is a daily average of six rectal determinations; there being wide fluctuations not apparent on the chart for this reason. The tempera-

4 Ramsey, A. C. I. Contribution to Pulmonary Surgery with Report of Four Cases of Pneumotomy. *Ann. Surg.* 11: 34 (Jan.) 1890.  
Acker, G. N. Gangrene of the Lungs Complicating Typhoid Fever. *Arch. Pediat.* 13: 660 (Aug.) 1896.  
Bullowa, J. G. M. Typhoid Fever with Chills, Fever and Sweats. Typhoid Abscess in Rectus Abdominis Sheath. Typhoid Pulmonary Involvement. Recovery. *M. Clin. North America* 10: 955 (Jan.) 1927.  
Chalier, J. Absces pulmonaire gangreneux au cours de la fièvre typhoïde. *Lyon med.* 154: 475 (Nov. 4) 1934.  
Basch, Thumm.<sup>6</sup>

5 Basch, S. Report of a Case of Typhoid Fever Complicated by a Pure Typhoid Pneumonia and Pulmonary Abscess. *M. Rec.* 87: 539 (March 27) 1915.

6 Chinn, V. Abscesso polmonare tifico con perforazione nel cavo pleurico e pneumotorace consensuale. *Policlinico (sez. prat.)* 39: 3 (Jan. 4) 1932.

7 Thumm, A. Ein Fall von paratyphischen Lungenabszess. *Med. Klin.* 27: 1069 (July 17) 1931.



ture subsided gradually and became normal during the latter part of the fourth hospital week. This was followed by a recrudescence of the febrile course during which sulfamidide was administered. On the twenty-first and twenty-second hospital days (sixty-first and sixty-second days of the illness) there was pain in the left upper anterior part of the chest and blood streaked sputum. Physical examination at that time gave negative results. Except for slight discomfort in the left side of the chest there were no other pulmonary symptoms until eleven days later, at which time there was a small hemoptysis, culture of which yielded *E. typhosa*. On this occasion, roentgenograms of the chest showed a pulmonary abscess. The blood culture was positive at this time. Following this there was a slight cough with small amounts of sputum, cultures of which were positive for the typhoid bacillus ten days later and negative thereafter. With the advent of negative sputum and blood cultures the temperature subsided and the patient proceeded to an uneventful recovery. At the time of discharge roentgenograms of the chest showed, at the site of the former abscess, a persistent pneumatocele with minimal surrounding inflammatory infiltration (fig 4). A follow-up letter from the patient thirteen months later informed me that for two weeks after discharge there was slight pain in the left side of the chest but no subsequent symptoms. At that time he was in excellent health. No further roentgenograms were available.

## COMMENT

It is realized that the positive sputum cultures were obtained at a time when the bacteremia was still present. However, the second positive sputum contained no apparent blood. The positive sputum cultures and the spontaneous healing of the abscess concurrent with the subsidence of the generalized disease lead one to attribute the pulmonary complication to typhoid etiology rather than to a nonspecific process. It is entirely possible that the abscess may have resulted from a septic embolus.

In the years 1935-1940 at the University Hospital there have been 272 other cases of pulmonary abscess. None of these occurred in typhoid patients. During the same period there were 34 cases of typhoid and 12 cases of paratyphoid fever, no other of which was complicated by pulmonary abscess.

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## URETERAL OBSTRUCTION FOLLOWING THE USE OF SULFADIAZINE

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Following the use of sulfapyridine and sulfathiazole there have been numerous reports in the literature of renal complications and ureteral obstruction. The case I am reporting is the first of this type to occur after the use of sulfadiazine. In symptomatology it differs little from ureteral obstruction following the administration of other drugs, but there are several points of practical importance that will be of interest.

According to earlier reports, sulfadiazine was more potent, less toxic and less likely to precipitate in the urine than any of the other sulfonamide drugs. Norman Plummer<sup>1</sup> of Bellevue Hospital, Finland<sup>2</sup> of Boston, Long<sup>3</sup> of Johns Hopkins and Flippin and his associates<sup>4</sup> have used sulfadiazine extensively. When all their cases are grouped it is found that they report renal complications in only 3 to 4 per cent of about 1,500 patients treated and only 1 instance in which suppression of the urine or precipitation followed administration of this newer drug. It has been my misfortune to see several patients recently in whom it obviously caused damage and in 1 instance death.

1 Personal communication to Dr. Ching.

2 Finland, Maxwell, Strauss, Ellis and Peterson, O. L. Sulfadiazine: Therapeutic Evaluation and Toxic Effects on Four Hundred and Forty Six Patients, *J. A. M. A.* **116**: 2641-2647 (June 14) 1941.

3 Long, P. H. Sulfadiazine: The 2 Sulfamidopyrimidine Analogue of Sulfamidide, *J. A. M. A.* **116**: 2399-2400 (May 24) 1941.

4 Flippin, H. F., Rose, S. B., Schwartz, Leon, and Domm, A. H. Sulfadiazine and Sulfathiazole in the Treatment of Pneumococcal Pneumonia: A Progress Report on 200 Cases, *Am. J. M. Sc.* **201**: 585-592 (April) 1941.

## REPORT OF CASE

W. D., a white man aged 69, was in good health until a few months before admission. Following the extraction of some teeth he began to lose his appetite, which was followed by a loss of weight and vigor. Several weeks later he began having a fever of moderate degree and a cough with a feeling of congestion in his lungs. Urinary examinations disclosed no abnormality, and he was admitted to the Baptist Hospital on August 29 under the care of Dr. W. C. Colbert.

His temperature on admission was 99.3 F., his pulse rate 100 and his respiratory rate 26 a minute. The urinalysis was negative. The white blood cell count was 19,560 with 92 per cent polymorphonuclear leukocytes, 3,700,000 red blood cells and 62 per cent hemoglobin. He had lost about 30 pounds (13.6 Kg.). The physical examination suggested a lung abscess, and this diagnosis was confirmed by a roentgen examination. Thirty grams (2 Gm.) of sulfadiazine was given initially, followed by 15 grains (1 Gm.) every four hours. On the second day the temperature became normal and remained so. On the third day after admission the patient experienced discomfort in the lower part of the abdomen with a feeling of indigestion and gaseous distention. He was given an enema and later gastric lavage, followed by sedatives which gave him partial relief. That evening at 6 o'clock, seventy-two hours after beginning the sulfadiazine, he passed a little blood-tinged urine and then stopped voiding. The sulfadiazine was discontinued at once and for two days he was treated symptomatically. During these two days his temperature, pulse and blood pressure remained within normal limits, although he became drowsy and sluggish, and the urinary output remained scanty.

A cystoscopic examination was decided on and on this examination there were found crystals and small concretions on the floor of the bladder. Both ureteral orifices were found bulging and apparently tightly impacted with some substance. I was unable to get a catheter up the right ureter. A number 5 catheter was inserted into the left ureter and met a crunching, crackling resistance in the lower third. After the catheter was inserted several cubic centimeters of cloudy, bloody urine, alkaline in reaction, was obtained. The urine continued to drip a little during the remainder of the manipulation. Thinking that the excretion from one kidney would give the patient partial relief and wishing to spare him the trauma of further forcible manipulations in attempting to open the right ureter, we returned the patient to his room. This catheter drained only 2 or 3 ounces (60 or 90 cc.) a day and he voided about the same amount for two more days. During this time his temperature, pulse, respiratory rate and blood pressure remained within normal limits.

On September 5, four days after the onset of anuria, under spinal anesthesia, another examination of the bladder was done. After considerable forcible manipulation with a heavy blunt-nosed number 7 catheter, a number 5 catheter was finally pushed up through the obstructing material in the lower third of the right ureter. About ½ ounce (15 cc.) of cloudy urine was secured through this catheter. The catheters in both ureters were irrigated and left in place, draining nicely. We continued to give dextrose intravenously, which had been started at the onset of anuria, and finally used some Fischer's solution to aid in stimulating urinary excretion. The output continued scanty and the patient became unconscious.

On the second day after the cystoscopic examination, or six days after the onset of partial anuria, the patient's temperature rose to 103 F. The respiratory rate increased and he began to cough. Dr. Colbert concluded that the infectious process in the lung had become active again. The blood pressure was 105 systolic and 50 diastolic, and the white blood cell count was 20,100 with 94 per cent polymorphonuclear leukocytes. The nonprotein nitrogen in the blood was 86 mg. per 100 cubic centimeters of blood. This was surprisingly low after six days of anuria. The next day, or one week after the beginning of anuria, the kidneys began to excrete urine. This encouraged us somewhat, although the patient remained critically ill and had a daily rise of temperature and rapid respiratory rate. Dr. Colbert aspirated the fluid of the chest and secured about 75 cc. of serous fluid.



pink from the azosulfamide that had been given intramuscularly the night before. The urinary output continued satisfactory and after two more days nine days after the beginning of anuria the temperature went below 100 F and remained there. The pulse became stabilized at about 90 a minute and the respiratory rate at 18. Improvement continued for another twenty-four hours and on the tenth day after the onset of anuria the temperature was 99 F, the pulse rate 70, the respiratory rate 20 and the nonprotein nitrogen 29 mg per hundred cubic centimeters of blood. The patient's general condition seemed greatly improved although he was stuporous and completely unconscious. Since he had received only dextrose intravenously for nourishment for eight days an attempt was now made to feed him. Fluids principally proteins were given by the Levin tube, and at 8 o'clock that night a blood transfusion was given. At midnight he became cyanotic and his muscles began to twitch. His condition grew rapidly worse. The next morning at about 10 o'clock he died.

#### COMMENT

There are several features of this case that seem worthy of discussion. At the onset his pain was in the abdomen and we did not realize that the ureters were completely blocked. A patient who has had sulfadiazine or any other sulfonamide preparation and who has abdominal pain a decrease in the urinary output and hematuria should have a cystoscopic examination performed at once to establish the patency of the ureters. One should not wait for the pain to radiate to the flank and kidney region as it may never do so and valuable time may be lost. Roentgen examinations do not help in the diagnosis, since apparently these concretions do not cast opaque shadows even when present in quantity.

Another patient was seen in the Methodist Hospital by Dr Hubert Turley. The onset was somewhat the same as in our case. Dr Turley promptly inserted catheters, thus relieving back pressure, and obtained a rapid response, and the patient lived. We had no trouble in getting up into the left ureter of our patient, but after we had waited four days it took a spinal anesthetic and forcible pressure to open the right ureter. The obstruction on the right side extended about 2 or 3 inches up, and we made our best progress by alternating the use of a blunt-nosed number 7 catheter and a sharp pointed number 5 catheter with a steel stilet in place.

Another point of discussion is whether or not to give alkalis with the sulfonamide type of drug. In the earlier days of sulfanilamide some men advocated alkalis to enable the patient to tolerate the drug better and avoid vomiting. For that purpose alkalis seem of little value. Possibly it would be of some help in the prevention of acetyl sulfadiazine precipitation. Theoretically, and actually, this drug is more soluble in an alkaline solution. If the urine was alkaline to a pH of 9.6 to 9.7, it would be in the same range as a 10 per cent solution of sodium sulfadiazine. The acetyl form at this same pH would be exceedingly soluble. Dr Burbidge<sup>5</sup> states that "the solubility of acetyl sulfadiazine in urine buffered at a pH of 6.9 is equal to 85 mg per hundred cubic centimeters. From these figures we can conclude that, the more alkaline the urine, the more soluble the acetyl form of sulfadiazine, and therefore the less chance there is of urinary calculi formation." Spence<sup>6</sup> of Dallas, Texas, in reporting on sulfapyridine deposition in the urinary tract, quoted Tsao in China, who had 4 instances of concretion in an alkaline urine. Schwartz and his associates<sup>7</sup> reported that the use of alkalis in the amount equal to the dosage of the drug prevents the occurrence of crystalluria in patients who are receiving sulfathiazole and sulfadiazine. Gershon Thompson<sup>8</sup> of the Mayo Clinic says that in the case of sulfadiazine this is open to considerable question. Grayson Carroll<sup>1</sup> of St. Louis believes that alkalis are not of any value

in this connection and states that heat is the only thing that will dissolve them. It may have been accidental, but I observed that the urine did not begin to excrete during this period of anuria until the temperature had risen to 103 F. On this basis I should consider the use of fever therapy, diathermy or other methods of raising the internal heat level in similar cases.

The consultants raised the question of when to remove the ureteral catheters, pointing out that the mere presence of these catheters sometimes causes a reflex anuria. We were afraid to take them out too quickly for fear there would be sufficient impinged material remaining to block the ureters again. It seemed to me that after the urine began to flow rapidly and was alkalinized we could certainly have removed them safely.

Dr Colbert mentioned that children who are deficient in vitamins and in a poor state of nutrition are much more likely to have ureteral and renal complications following administration of sulfonamides than are others. This might hold true for adults, as in our case. We had a patient who had been in poor general health, was undernourished and probably had a lowered resistance before the drug was given. Dr Spence<sup>6</sup> mentions dehydration as a predisposing cause of these complications.

There are certain precautions that one can and should take routinely for early detection and recognition of this complication. A daily urinalysis is of great importance. If red blood cells are present, the drug should be stopped immediately. The nonprotein nitrogen in the blood can be estimated or the concentration of the drug in the blood measured as a guide for further treatment. Of even greater importance is the measuring of the daily output of urine. Dr E. K. Marshall<sup>1</sup> of Johns Hopkins University stressed the fact that many cases of hematuria and anuria have occurred in patients owing to neglect in maintaining the urinary volume and allowing it to decrease to as little as 500 cc a day or less. Thompson<sup>8</sup> and many others have stressed the fact that the daily urinary volume of these patients should be between 1,200 and 1,500 cc. Physicians have frequently been warned to make regular blood counts on patients taking sulfonamide compounds, but it would seem more essential to examine the urine for volume, red blood cells, specific gravity and albumin.

In response to an inquiry I have an interesting observation from Dr Leon Herman<sup>1</sup> of Philadelphia. "At the moment we have a most fascinating case here in the person of a doctor who has passed seventeen stones and has had prolonged hematuria, notwithstanding the fact that the last dose of sulfathiazole was in April. Strange to say, his blood continues to show a considerable amount of the drug." Of course this was with the use of sulfathiazole, but the same thing might conceivably occur with any sulfonamide preparation.

The cause of death was probably toxemia, since the urinary output was normal and the nonprotein nitrogen was only 29 mg per hundred cubic centimeters of blood. This would apparently exclude the urinary tract as the cause of death. However, without anuria and other renal complications, this patient would most likely have recovered from the pulmonary infection.

#### CONCLUSIONS

- 1 Sulfadiazine, although widely thought to be less dangerous than sulfathiazole, has been shown in at least 2 instances to cause dangerous renal complications.

- 2 Any patient receiving a sulfonamide drug who has pain in the lower part of the abdomen, diminution of urinary output and hematuria should certainly be suspected of having ureteral obstruction from precipitation. Immediate ureteral catheterization should be done.

- 3 Heat seems to be the principal aid in dissolving these crystals.

- 4 Any patient receiving the drug should have daily urinary examinations done.

- 5 Dehydration and malnutrition seem to predispose to urinary complications.

- 6 I do not question the therapeutic effectiveness of sulfadiazine but wish to call attention to complications that many have thought would hardly occur with this drug.

188 South Bellevue Street

<sup>5</sup> Personal communication to the author from Dr Burbidge of Sharp & Dohme.

<sup>6</sup> Spence H. M. Hematuria, Renal Colic and Complete Anuria Following Administration of Sulfapyridine. *Brit J Urol* 13: 16-20 (March) 1941.

<sup>7</sup> Schwartz, Leon, Elppin H. F., Reinhold J. G. and Damm A. H. The Effect of Alkali on Crystalluria and Sulfathiazole and Sulfadiazine. *J. A. M. A.* 117: 514-515 (Aug. 16) 1941.

<sup>8</sup> Thompson G. J. Proc. Staff Meet. Mayo Clin. 16: 609-612 (Sept. 24) 1941.

## ELECTROCUTION BY HOME TREATMENT DEVICE

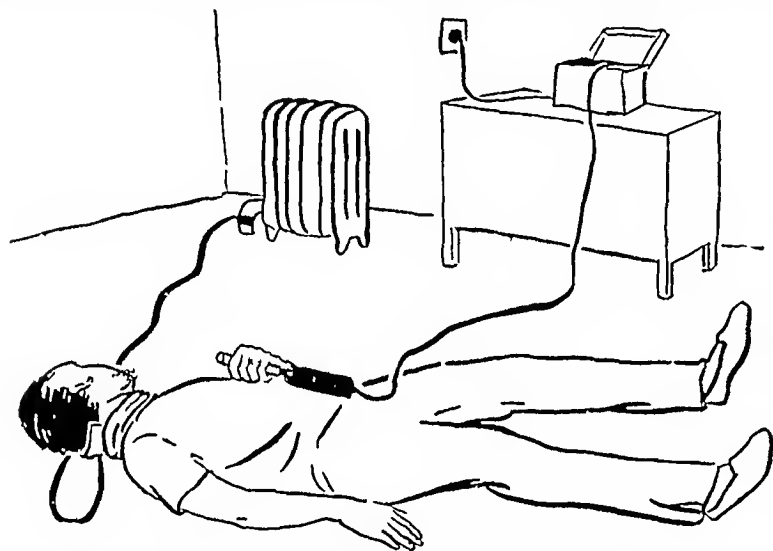
RICHARD KOVACS, M.D., NEW YORK

"Electric Shock Kills Pastor" was the caption of a story in the New York Times of Feb 20, 1942. The Rev L G W of a Long Island Universalist Church was found dead in his room the night before. According to information obtained from the office of the chief medical examiner of Nassau County he was found lying on the floor of his bedroom, fully clothed except for his coat. A metal electrode was on the back of his neck, slipped under the collar and held in place with a scarf. A wire led from the electrode to the radiator and was wired to the radiator. A rheostat was plugged in a wall socket, the handle of a "violet ray" machine was on the deceased's chest and a circular hollow piece of metal was in his left hand, as illustrated in the accompanying sketch.

The pastor had complained of pain in the back of his neck for some time, but neither the landlady nor an osteopath who had given him a few treatments could supply any other facts.

Autopsy performed by the medical examiner showed acute congestion of the brain, liver and kidneys, follicular hyperplasia of the spleen and first degree burns of the left hand, forearm, back of the neck and anterior portion of the chest.

To reconstruct the sequence of events, the deceased undoubtedly attempted to treat his back pain with the violet ray contraption and, in the mistaken belief that "grounding" would



Electrocution from violet ray apparatus

increase the strength of the current and thus the efficiency of treatment, after plugging in the handle of the violet ray outfit, rigged the connection between the radiator and the metal plate on the back of his neck. No better way could have been devised to conduct the alternating current from the return ground through the cardiac area. Hence, as soon as the current flow was started it caused local burns at the point of entry and at the same time cardiac fibrillation and instantaneous death, without giving the victim any chance to disengage himself from the fatal circuit. Cardiac fibrillation is the usual cause of death in electrocution, because of its very short duration before death ensues there occur usually no characteristic pathologic changes in the heart itself. The acute congestion in the vital organs is a secondary effect of death by electricity as in asphyxiation.

The object lesson of this tragic happening is obvious. Any sort of self treatment by electric devices—home made or procured from unscrupulous manufacturers or their sales agents—may cause death by electrocution when applied by inexperienced and unskilled lay persons.

2 East Eighty-Eighth Street

**Doing a Great Favor**—When the faculty of a medical school realizes that a student is indifferent and lacks zeal and that that student is liable to become a tragic figure in the profession, they are doing the public, as well as the profession, a great favor by asking him to withdraw and enter some other field of activity—Sproule, Ralph P. A Doctor Speaks to Students, *Marquette M Rev* 51 (Nov) 1940

## Council on Pharmacy and Chemistry

## REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS  
AUSTIN E. SMITH, M.D., Acting Secretary

## TEN PER CENT SOLUTIONS OF SODIUM MORRHUATE OMITTED FROM N N R

For some time the Council has recognized the use of solutions of sodium morrhuate as a sclerosing agent for the injection treatment of varicose veins, and both 5 per cent and 10 per cent solutions in combination with a local anesthetic, marketed in ampuls and rubber stoppered vials by several pharmaceutical concerns, have been accepted for inclusion in New and Non official Remedies.

Late in 1940 a physician brought to the attention of the Council office the serious results which had occurred in 5 cases following the injection of a Council accepted brand of the 10 per cent solution for treatment of varicose veins in the lower extremities and submitted for examination samples of the product that had been used in these cases. The physician explained that injection of a 5 per cent solution from previous orders had caused no difficulty in similarly treated patients. With the last batch purchased, however, injection of the 10 per cent solution in 5 cases produced fatal results in 2 and unfavorable symptoms in the other 3. One of the deaths occurred a few days after incision for a severe suppurative phlebitis which followed an injection of 2 cc of the solution into the internal saphenous vein some distance above a suppurating ulcer. The patient was previously twice injected for infected suppurative veins. Death (which occurred after the third injection) was attributed to thrombophlebitis and septic pneumonia from small pulmonary septic thrombi. The other death occurred in a robust man of about 50 (who had had an injection of the 5 per cent solution some months before) within twenty-five minutes after injection of 2 cc of the solution into the internal saphenous vein. About four minutes after the injection the patient became dizzy and short of breath. After eight minutes he became comatose and extremely cyanotic. Death was attributed to a large pulmonary embolism. In neither of the two fatalities was permission obtained for an autopsy to establish the cause of death. In the 3 nonfatal cases severe acute localized phlebitis developed with redness and extreme tenderness at the site of injection of the solution. In 2 of these recovery was uneventful, in the third case it was necessary to open the vein and express the apparently sterile clot. The quantity of the 10 per cent solution of sodium morrhuate which was injected in the 3 cases in which recovery occurred was not indicated. The physician expressed the belief that, in view of the previously satisfactory use of the 5 per cent solution, the accidents were due to the stronger solution. That death from pulmonary embolism may occur following sclerosing therapy for varicose veins, in the presence of acute or subacute phlebitis, was recently pointed out by Nunn and Harrison<sup>1</sup> in a brief review of the literature.

Examination of the submitted samples of the solution by the A M A Chemical Laboratory revealed that they conformed to the N N R standards of composition and supported the manufacturer's observation that the accidents were not attributable to chemical or bacteriologic defects in the 10 per cent solution. Accordingly, the Council's referee questioned whether there is need for the 10 per cent solution of sodium morrhuate and whether there is evidence to indicate that it will confer any benefit which a 5 per cent solution cannot accomplish. In the absence of published definite evidence concerning the value or safety of the 10 per cent solution, the firm's offer to conduct a survey of the opinions of authorities on sclerosing therapy of varicose veins, to afford an answer to the referee's question, was accepted. The results of this survey have been

<sup>1</sup> Nunn, L. L. and Harrison, J. H. Death from Pulmonary Embolism Following the Injection of Varicose Veins. *J A M A* 117: 347 (Aug 2) 1941.

been submitted to and considered by the Council. It was the consensus of the authorities who have had experience with both the 5 per cent and 10 per cent concentrations of sodium morrhuate solution that the 10 per cent solution (which is used relatively infrequently) may be potentially more toxic than the 5 per cent solution and that when the latter is inadequate additional surgical measures should be instituted rather than the employment of a stronger solution.

In its consideration of the 10 per cent solution attention was also directed to reports which have been published concerning reactions following injection of the 5 per cent solution for varicose veins. Praver and Becker<sup>2</sup> have reported untoward reactions in the form of cutaneous eruptions in 7 of 176 patients who received a total of seven hundred and eighty-three injections of this solution. Most of the reactions consisted of grouped urticarial wheals at sites of previous injection and were attributed to sensitization with the sodium morrhuate. The amount of protein present was considered too small to account for this but the authors suggested that sodium morrhuate may act as a haptene. Lewis<sup>3</sup> observed that mild localized urticarial rashes are fairly common and reported a case of temporary collapse following the injection of this solution (after a previous similar injection) which he attributed to constitutional anaphylaxis through the development of foreign protein sensitivity. Dale<sup>4</sup> has reported the sudden development of vertigo, faintness, bradycardia resembling heart block and cyanosis of the extremities without manifestation of anaphylactic phenomena following an injection of the 5 per cent solution in a case in which similar injections had previously been made repeatedly. He questioned the validity of sensitization as the explanation for Lewis's case on the ground that the symptoms were not anaphylactic in nature and that there was no period of cessation of treatment during which the patient could have become sensitized. He considered the reaction as specific and attributed it to idiosyncrasy.

McCastor and his associates reported a similar case of collapse following a single injection of the 5 per cent solution in a case in which a similar injection without reaction had been made five days previously. There was a previous history of urticaria. In a recent symposium on varicose veins at the Mayo Clinic, Smith, Weisman, McCallig, Heyerdale and others<sup>6</sup> indicated the successful use of the 5 per cent solution in the patients treated by their group. The use of a preliminary test dose is recommended with observation for twenty-four hours before proceeding with treatment to avoid possible untoward reactions.

These reports not only tend to throw some light on the nature of the reactions which have occurred with sodium morrhuate but indicate the need for reasonable caution in its use as a sclerosing agent. After due consideration of the available information the Council voted to omit all accepted brands of the 10 per cent solution of sodium morrhuate because of its questionable utility and greater toxic potentialities over the 5 per cent solution and because serious accidents have followed the use of the stronger solution for the injection treatment of varicose veins. The Council authorized a revision of N N R to include a recommendation for the use of a preliminary test dose as a precaution against untoward reactions with 5 per cent solutions. The manufacturers whose Council accepted solutions of sodium morrhuate were affected by this action were accordingly informed, and all concerned have agreed to withdraw the 10 per cent solution from the market in view of its greater potential danger.

## DEXTROSE SOLUTIONS WITH BUFFERS OMITTED FROM N N R

Sterile solutions of dextrose-U S P 50 per cent w/v in combination with buffer substances such as sodium and potassium phosphate or sodium citrate (or packaged with a separate ampul of buffer solution for mixing) to render them less acid have been included in New and Nonofficial Remedies for several years. The Council accepted preparations of this type have been marketed by six different pharmaceutical manufacturers in ampuls containing amounts up to 100 cc for intravenous injection. Three of these concerns also market similar solutions of dextrose which are not buffered or packaged with a buffer solution. In view of this and the well established successful use of unbuffered sterile solutions of dextrose intravenously in both small and large quantities the manufacturers of the accepted buffered preparations were requested to furnish evidence to justify the need or value for the addition of buffers to solutions of dextrose; they were advised that unless they could offer such evidence their buffered solutions of dextrose would not be recommended for reacceptance.

The replies received from the firms that attempted to support their buffered dextrose solutions advanced as the principal arguments the claim that buffers are added to avoid excessive acidity and that there is a demand for the buffered preparations. One concern indicated that the buffers serve to stabilize the solution and another that they render the solution isotonic with the blood. The other firms either offered no comments or indicated that they had no evidence to support the inclusion of buffers in solutions of dextrose. None of the concerns gave any reason why it was necessary to supply both buffered and unbuffered solutions of dextrose beyond the argument that they are in demand. The arguments which were advanced were answered by pointing out that the A M A Chemical Laboratory has expressed the opinion (with concurrence of the Council) that the degree of acidity developed in unbuffered dextrose solutions is not clinically significant; that unbuffered solutions may remain stable over a period of three years and that buffers are added for the purpose of altering the  $pH$  of the solution rather than for any direct influence on the toxicity (osmotic pressure) of the solution. Recently in its consideration of a further brand of dextrose solution which was buffered the Council indicated that when a buffer is needed for intravenous administration as in disturbances of acid-base balance it should be given separately in the form of Lactate-Ringer's solution or sodium  $r$ -lactate one-sixth molar (187 per cent w/v).

It is furthermore not altogether clear whether the dextrose solutions are buffered primarily for the purpose of stabilization or to render the  $pH$  of the solutions approximately the same as that of the blood. In either case the need for buffers in solutions administered to supply fluid or physiologic salts or carbohydrate is not supported by past experience. The buffering mechanism of the blood itself is apparently adequate to take care of relatively large volumes of moderately acid or alkaline solutions which are commonly administered intravenously. The use of buffers to control the  $pH$  of solutions should be clearly distinguished from the practice of adjusting the concentration of ingredients in solutions to make them isotonic with the blood in order to avoid damage to the cellular elements. Even the tonicity factor is commonly ignored when it is desired to administer hypertonic solutions for the purpose of causing dehydration of the patient.

All the firms have agreed to make their buffered solutions of dextrose acceptable by elimination of the buffer in the formula or of the buffer solution packaged with the dextrose solution or to withdraw them from active promotion except Eli Lilly and Company. This concern has admitted that it has no evidence to support the addition of buffers to dextrose solutions but on the ground that there is a demand from the trade for its buffered preparations it will continue to market them.

The Council voted to discontinue the acceptance of all brands of dextrose solution with buffers and to omit them from N N R because of the lack of evidence for buffering dextrose solutions.

<sup>2</sup> Praver L L and Becker S W. Sensitization Phenomena Following Use of Sodium Morrhuate. *J A M A* 104:997 (March 23) 1935.

<sup>3</sup> Lewis K M. Anaphylaxis Due to Sodium Morrhuate. *J A M A* 107:1298 (Oct. 17) 1936.

<sup>4</sup> Dale M L. Reaction Due to Injection of Sodium Morrhuate. *J A M A* 108:718 (Feb. 27) 1937.

<sup>5</sup> McCastor J T N and McCastor Mary C. Reaction to Sodium Morrhuate Injections for Varicose Veins and Hydrocele. *J A M A* 109:1799 (Nov. 27) 1937.

<sup>6</sup> Smith F L. Type of Treatment Used at the Clinic for Varicose Veins. *Proc Staff Meet, Mayo Clin* 16:820 (Dec. 24) 1941. Weisman R E and Heyerdale W W. The Use of a Preliminary Test Dose and the Technique for Injection of Varicosities of the Lower Extremities. *ibid.* p. 821. McCallig J J and Heyerdale W W. Diagnosis of Varicose Veins of the Lower Extremities. *ibid.* p. 824. Heyerdale W W and Stalker L K. The Management of Varicose Veins of the Lower Extremities. *ibid.* p. 827.

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SATURDAY, JUNE 6, 1942

## ACTIVE IMMUNIZATION AGAINST TYPHUS

Typhus is an invariable accompaniment of war and famine. Although accurate information on typhus in this war is not yet available, it seems to be increasing in the Balkans, Spain, Poland and the regions about the Russo-German fronts. There are rumors that the disease is spreading in Germany from infected soldiers, though the claim is made that the menace has been banished from Germany.<sup>1</sup>

Ever since the recognition of *Rickettsia prowazekii* as the causative agent, attempts have been made to develop a vaccine suitable for the large scale active immunization of exposed populations. Numerous preparations obtained from human beings, guinea pigs, lice, mice and fleas have been tried. However, today the field has largely narrowed—as far as is known outside of Russia or Germany—to three methods of producing typhus vaccine: Weigl's louse intestine vaccine, Castaneda's mouse or rat lung vaccine and Cox's yolk sac vaccine.

Weigl<sup>2</sup> attempted active immunization by using the phenolized intestinal contents of lice infected by rectum with *R. prowazekii* obtained from the brains of infected guinea pigs. The technic of injection is difficult. Since two or three hundred lice are necessary to provide sufficient vaccine for one person, large scale immunization is difficult. However, these vaccines, composed of killed rickettsias, have been found protective for experimental animals. Although the results have been reported as less satisfactory in man, Weigl's vaccine seems to have been clinically valuable as employed in Poland,<sup>3</sup> Slovakia<sup>4</sup> and Ethiopia.<sup>5</sup>

Castaneda's<sup>6</sup> mouse or rat lung vaccine, prepared from a Mexican murine strain, can be produced in

reasonable quantity. Experimentally this vaccine seems to produce a high degree of immunity. Castaneda has also shown that the vaccine, when prepared from an endemic strain, will protect against infection by the classic strain of European typhus. Dyer,<sup>7</sup> commenting on Castaneda's vaccine, admits that it has been shown to protect man against subsequent inoculation with infectious material, but he points out that neither this vaccine nor the others have yet been thoroughly tested under controlled conditions in the presence of a typhus epidemic.

The most generally favored vaccine is that prepared by Cox<sup>8</sup> from the growth of rickettsias in the yolk sac of developing chick embryos. By this method pure suspensions of rickettsias may be obtained from the yolk sac of infected eggs by centrifugation. Inactivation may be accomplished by the addition of phenol and solution of formaldehyde. Vaccine sufficient for 25 or 30 persons can be obtained from 14 embryos—a practicable quantitative result.<sup>9</sup> The potency of this type of vaccine is usually tested by injecting intraperitoneally at weekly intervals three doses of 1 cc each into guinea pigs. This serves to protect guinea pigs against 1,000 to 10,000 infective guinea pig doses of *R. prowazekii* in the form of infected guinea pig brain. The complicating effect of this course of vaccination on the Weil-Felix reactions and neutralizing antibodies of human beings on whom it has been employed may be due, in part at least, to the size of the dose. However, the only large scale trial of this method of vaccination has been in Spain by Rockefeller Foundation workers. Unfortunately their departure in 1941 did not allow a sufficient period of observation for evaluation of the results. Many more have been inoculated since then.

Spanish observers believe it has helped to control the spread of the disease.

Little is now known concerning the incidence of typhus or the means attempted toward active immunization in any of the other countries most likely to be involved. The Germans are said to be employing a vaccine the nature of which is uncertain. Whether this is restricted to use in Germany or is also used in the Balkans and Poland is not known. Almost certainly the Russians are employing various methods to control the spread of typhus, but whether or not this includes active immunization, what vaccine is employed and what the results have been to date are not known outside that country.

The War Department of the United States has issued a directive<sup>10</sup> to the effect that all military personnel stationed or traveling through areas in which there is

7 Dyer R E Mass Immunization Against Typhus Fever  
Int Med 15 629 (Oct) 1941  
8 Cox, H R Use of Yolk Sac of Developing Chick Embryo  
Medium for Growing Rickettsiae of Rocky Mountain Spotted  
Typhus Groups, Pub Health Rep 53 2241 (Dec 23) 1932  
9 Cox, H R, and Bell E J Epidemic and Endemic Typhus  
Protective Value for Guinea Pigs of Vaccines Prepared from  
Tissues of the Developing Chick Embryo Pub Health Rep 55  
(Jan 19) 1940  
10 Vaccination Against Typhus Fever Cholera and Paratyphoid  
2 139 (Jan) 1942

1 Public Health Under Hitler's Rule, Foreign News, J A M A  
119 359 (May 23) 1942  
2 Weigl, R Ueber aktive Fleckfieberimmunität Med Klin 20  
1046, 1924, Arch Inst Pasteur de Tunis 22 315 1933  
3 Radlo, P Arch Inst Pasteur Afr N 26 667, 1937  
4 Drbohlav, J Bull Off Int Hyg Publ 30 317, 1938  
5 Marian, G Ann Igienie (sper) 49 316, 1939  
6 Castaneda, M R Active Immunization Against Epidemic Typhus  
by Means of Vaccines Prepared from Endemic Virus, Brit J Exper  
Path 22 167 (June) 1941

danger from epidemic typhus are to be minimized with typhus fever vaccine prepared by the Cox yolk sac culture method. The initial vaccination is to consist of three injections of 1 cc each, administered subcutaneously at weekly to ten day intervals. Subsequent vaccinations of a single 1 cc dose are to be administered every four to six months as long as serious danger of infection is present and other single doses may be given whenever in the opinion of the surgeon this additional stimulation of immunity is indicated.

The value of typhus vaccination has not yet been definitely established. One of the major difficulties has been the lack of a suitable experimental animal, though the eastern cotton rat may prove to be such an animal.<sup>11</sup> Adequate controlled clinical trial is also necessary and this too is lacking. Pending acceptable information of this nature none of the vaccines available in this country can be considered acceptable for routine mass administration. The War Department recommendations seem sound, other preventive measures involve satisfactory diets, avoidance of overcrowding and the maintenance of an adequate, trained personnel and mobile delousing equipment for use in emergencies.

#### THE HERITAGE OF CONNECTICUT MEDICINE

The Connecticut State Medical Society is celebrating its one hundred and fiftieth anniversary. Again medical history has been enriched by the publication of a volume commemorating the occasion. The Connecticut State Medical Society was granted a charter in May 1792 after representative practitioners tried for nearly thirty years to convince the legislators that it would be in the public interest. The originator of the idea for a formal medical organization in Connecticut is not known. However, the New Haven County Medical Society still has the minutes of every meeting held since Jan 5, 1784. The first volume of medical transactions issued in this country was published by the Medical Society of New Haven in 1788 in a report of observations on 26 cases by various practitioners. Colonel Leverett Hubbard, the first president of the state society, also commanded the second regiment of militia from 1773 to 1775. "The peaceful laurels to be won in a daily routine of calomel, ipecac and bark were not sufficient for his ardent temperament." Mainly through the efforts of pastors a collegiate school was established at Saybrook in 1701, which after its transfer to New Haven developed into Yale College.

Poorly trained practitioners were numerous, and charlatanry was rife. Ezra Stiles, Yale's president, believed that the teaching of medicine was an obligation of his college. He obtained the advice of physicians in planning a medical curriculum but did not live to see it realized. Timothy Dwight, the next president of

Yale, consulted with the Connecticut State Medical Society in the development of plans for a medical school. Nathan Strong, a minister, induced the Yale corporation to appoint a committee to look into the possibilities of establishing medical professorships and to confer with the Connecticut State Medical Society. The plan was adopted and presented by the joint committees to the legislature, which in 1810 empowered the state medical society to join with Yale in forming the "Medical Institution of Yale College." In the next autumn thirty-seven medical students presented themselves for instruction.

Thomas Lord of Hartford was the first physician licensed to practice by the general court, which also established a fee table. "For visit to any house in Hartford, 12 pence, in Windsor, 5 shillings, in Farmington, 6 shillings." Dr Bryan Rosseter seems to have performed the first recorded necropsy in Connecticut about 1662. He was voted twenty pounds by the general assembly for "opening Kellies child," who in her delirium, possibly the result of bronchopneumonia, had cried out against a local witch. To Dr Jared Eliot, who was also a preacher, the church offered sixty cords of firewood a year if he would marry, which he promptly did. Of his eleven children, three became physicians. Dr Eliot, who was the first graduate of Yale to be elected a trustee of the college, in his will, left "ten pounds of lawful money, the interest of which shall be applied to the use of the library," and that was the beginning of the Yale Library fund. Of Dr John Winthrop Jr, governor of Connecticut for many years, the historian has written "He was the finest flower of New England aristocracy." Among other famous practitioners were Samuel Mather Jr, Alexander Wolcott and Elisha Perkins, whose announcement of the "discovery" of the Perkins metallic tractors in 1775 to the Connecticut Medical Society was received "with doubt and caution" and by some members "even with contempt." Dr Elisha North was one of the first advocates of vaccination and the first in this country to open an eye infirmary. Dr Elihu Hubbard Smith of Hartford belonged to a group called "the Connecticut Wits," which started the first real literary movement in America. He was preeminent also in editing the first medical journal published in this country, and he composed an opera in three acts, which was produced in 1794. Dr Smith died of yellow fever in the great epidemic of 1798. Dr William Beaumont, the young army surgeon and pioneer American physiologist, was born in Lebanon, Conn. The list of great names in American medicine could be lengthened down the years by many additions from Connecticut, including Drs William Henry Welch and William H. Carmalt.

In this interesting anniversary volume, the development of physiology, public health, surgery, psychiatry and medical licensure in Connecticut is reviewed. Connecticut's sesquicentennial celebration came to a climax.

<sup>11</sup> Fosdick, R. B. The Rockefeller Foundation—A Review for 1941



in the meeting at Wesleyan University in Middletown, June 3-4, under the presidency of Dr James Douglas Gold. Wednesday morning was given over entirely to clinical medicine by the various sections. Wednesday noon there was a president's luncheon and in the afternoon a meeting, before which "Medicine of the Present and the Future" was discussed. On Thursday morning the historical meeting was attended by the governor of Connecticut, the president of Wesleyan University and the mayor of Middletown. Addresses were delivered by Dr Howard W Haggard of Yale University on "Connecticut Colonial Medicine" and by Drs Creighton Barker and Stanley B Weld, executive secretary and editor, respectively. The convocation on Thursday afternoon was attended by the chairman of the Board of Trustees of the American Medical Association, Dr Arthur W Booth of Elmira, N Y, and was addressed by Dr Logan Clendening of the University of Kansas School of Medicine, on "Opposition to Change as a Contribution to Social Progress." The Connecticut State Medical Society exercised its ancient privilege at this meeting of conferring honorary degrees of medicine on Dr Alice Hamilton and Dr Yandell Henderson. The speaker at the anniversary dinner Thursday evening was the President-Elect of the American Medical Association, Col Fred W Rankin, M C, U S Army.

Thus was celebrated the 150th anniversary of the fourth state medical society to be established in America and the third to have had continuous existence since its founding. Among many others, much credit is due to the sesquicentennial committee, of which the chairman was Dr George Blumer, the vice chairman, Dr Herbert Thoms, chairman of the historical program, Dr David R Lyman, of public relations, Dr C Charles Burlingame, of historical exhibits, Dr Arthur H Jackson, of the scientific program, Dr Francis G Blake, of the local arrangements and annual dinner, Dr Roy L Leak.

## Current Comment

### EVERY DRUGSTORE A VENEREAL DISEASE FIRST AID STATION

Philadelphia pharmacists, in a statement<sup>1</sup> signed by several Pennsylvania physicians and pharmaceutical leaders, are being urged, in effect, to utilize their stores as prophylactic stations against venereal disease. The drugstore is often the social center of a neighborhood. It is suggested that the socially minded head and personnel of such establishments can "(a) discourage off-color frequenters looking for pick-ups and trouble, (b) give friendly advice and even sober counsel to some who are obviously on the way to going wrong, (c) urge blood tests and medical examination on per-

sons who are known to have exposed themselves." The pharmacist is an educator, and the corner druggist's establishment can be as much of a center for public health as a physician's office, hospital or the health department in the city hall. The pharmacist behind the counter has the first chance to give or sell prevention to persons who may expose themselves to venereal disease, to give or sell prevention to persons who have been exposed already, and "to sell the basic idea of a prompt accurate diagnosis and immediate treatment" to persons who describe a symptom or ask for treatment, attempt to purchase a proprietary remedy, tell a story that shows they are taking risks that they do not realize, or that they have consulted a quack. The pharmacist is urged to place the facts and aims of venereal disease control before the public, and the state pharmaceutical association is prepared to supply a card or posters for counter display and booklets for distribution to inquirers.

### KOCH'S CANCER TREATMENT MEETS THE LAW II

A Current Comment in *THE JOURNAL*, April 18, called attention to the fact that the Koch Laboratories in Detroit and the concern's principals "will face charges of violating the Federal Food, Drug and Cosmetic Law on 11 specific charges." Now comes word that the Federal Trade Commission has also entered the picture. At the time of the Wheeler-Lea Amendment to the Federal Trade Commission Act there was some conjecture as to whether or not it was advisable to have the advertising which was a part of the package come under the purview of the Food and Drug Administration, and all collateral advertising—newspapers, magazines, utterances by radio and mailing—under the purview of the Federal Trade Commission. In this particular instance there is no question as to its advisability. Reproduced herewith is a release of the Federal Trade Commission which requires no further comment.

### TEMPORARY RESTRAINING ORDER

Medicines, Friday, May 22, 1942

Judge O'Brien, of the United States District Court for the Eastern District of Michigan, Detroit, today (May 22) granted a temporary restraining order upon application of the Federal Trade Commission, requiring William F Koch, Louis G Koch, and Koch Laboratories, Inc., 8181 East Jefferson Ave, Detroit to cease disseminating false advertisements concerning medicinal preparations designated "Glyoxylide," "B-Q," and "Malon de Ketene Solution."

The defendants are required to show cause on May 27 why a preliminary injunction should not be issued without bond to restrain them from disseminating the advertisements alleged pending issuance of a complaint against them by the Federal Trade Commission and until its final disposition.

The temporary restraining order of the court requires that two individuals and Koch Laboratories, Inc., until May 27, to cease advertising that Glyoxylide is a competent or effective preparation for use in treating any type or stage of cancer, arteriosclerosis, dementia praecox, epilepsy, tuberculosis, caemia, insanity and other ailments, that "B-Q" is effective for use in treating any infection including gonorrhea, meningitis, infantile paralysis, streptococcus sore throat, pneumonia, and other diseases, and that Malonide Ketene Solution is effective for treatment of allergic diseases, infection, cancer, double pneumonia, or post operative meningitis.

<sup>1</sup> Stokes, J H, Everhart E S, Ingraham, N R, Jr, Fetter Theodore, Griffith, Ivor, Hughes J J, and Woodside, J M. The Help of the Pharmacist in Venereal Disease Control. A Statement

# MEDICINE AND THE WAR

*In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession*

## TWENTY-EIGHT MILLION SURGICAL DRESSINGS MADE BY RED CROSS WORKERS

Between the beginning of September 1939 and the 1st of October 1941 the American Red Cross spent \$49,753,515 on war relief in Europe, Asia and the Middle East. This sum does not take into account the medical, surgical and hospital supplies—estimated at a value of \$200,000—shipped to Russia from Great Britain in behalf of the American Red Cross.

The relief work thus accomplished during the past twenty-five months of the war has been made possible by gifts from the American people and by supplies purchased by the United States government for foreign war relief. Volunteer workers in American Red Cross chapters have played a large part in this work. According to the League of Red Cross Societies they have produced nearly six and a half million articles of clothing and 28,331,772 surgical dressings. These workers have furnished Great Britain alone with 21,786,000 dressings, 565,000 hospital garments, 1,630,000 sweaters, 879,000 other knitted garments, 1,459,000 children's garments, 511,000 articles of clothing for women, 253,000 layettes and 39,000 women's kits. More than eleven hundred thousand blankets have been sent to various countries for the wounded and for homeless civilians.

## MEDICAL DEPARTMENT OPENS NEW SCHOOL

A new school devoted entirely to the training of medical administrative corps officers was opened on May 9 at Camp Berkeley, Texas. Lieut Col G E Armstrong, assistant commandant under Brig Gen Roy C Heflebower, camp commander, will have direct charge of instruction. Major Charles L Driscoll of the medical administrative corps now at Fitzsimons General Hospital, Denver, will be assigned to the new school, as will be the following as heads of departments: Capt Wayne A Starkey, M C, medical tactics; Capt August H Groeschel, M C, training; Capt William H Crosby Jr, M C, chemical warfare; Capt Francis B Elder, S C, military sanitation; 2d Lieut Richard B Quigley, Medical Administrative Corps, logistics. Other schools under the supervision of the medical department are (1) the Army Medical School, Washington, D C which trains officers in military medicine; (2) the School of Aviation Medicine, Randolph Field, Texas, which trains flight surgeons; and (3) Medical Field Service School, Carlisle Barracks, Pa, which trains medical department officers in field work and military duties.

## CIVILIAN DEFENSE

Dr John B Alsever, formerly of Syracuse N Y, and now of Washington, D C, arrived in San Francisco, April 27, to assist Dr Leonard A Scheele, regional medical officer of the Office of Civilian Defense, in setting up blood banks in Pacific Coast hospitals.

Dr Arthur E Lewis of Seattle, assistant state medical officer for civilian defense, returned from Cincinnati April 27, where he took a course in chemical warfare. Dr Lewis will speak throughout the state to Emergency Medical Service units, defense coordinators and in hospitals. Dr Donald G Evans, state chief of the Emergency Medical Service in cooperation with the state defense council, is creating medical areas throughout Washington so that smaller communities may draw on the large cities for medical supplies and personnel in case of air raids.

At nine mass meetings in Tacoma, Wash., April 27, sufficient contributions were made by citizens to equip the ten emergency hospitals which have been located in the public schools. The Red Cross had already equipped the twenty-seven casualty stations in Tacoma, which also are located in school buildings.

Dr Herman N Bundesen, Chicago, chief of the Emergency Medical Service for Civilian Defense, announced on May 11 that Mayor Kelly had appointed the following eleven doctors as district medical adjutants for the Chicago metropolitan area: Warren H Cole, loop; Lester R Dragstedt, south side; John A Wolfer, north side; Frederick A Besley, Waukegan; Frederick Christopher, Evanston; Sumner L Koch, Des Plaines; Frederick G Dyas, Wheaton; James H Skiles, Cicero; Eli S Jones, Gary; Charles F Sawyer, Harvey; and Harry A Oberhelman, Oak Park.

## INDIANA'S GENERAL HOSPITAL UNIT

Special ceremonies were held on May 12 at the James Whitcomb Riley Hospital, Indianapolis, in recognition of the 32d U S Army General Hospital unit formed at Indiana University Medical Center. Already forty-two physicians and five dentists have received their commissions. When completed, there will be attached to the 32d General Hospital unit about seven hundred persons including one hundred and twenty nurses. Drs Cyrus J Clark and Charles F Thompson, both of Indianapolis, who have been in charge of organizing the unit, have been commissioned lieutenant colonels.

At the ceremony were Governor Henry F Schricker, Mayor Reginald H Sullivan, President Herman B Wells of Indiana University, William L Bryan, president emeritus, and Dr W D Gatch, dean of the university medical school, who presided. The military ceremony was conducted by Col R L Shoemaker, commanding officer of the Indiana University R O T C, and the oath of loyalty was administered by Lieut Col I F Peak, commander of the medical school R O T C. In the first world war Base Hospital No 32 was organized at Indiana University Medical School in cooperation with the City Hospital and the American Red Cross.

## COMMISSIONS FOR DENTAL AND VETERINARY STUDENTS

The War Department, Washington D C, April 17 granted authority to corps area commanders to waive the provisions of paragraph 5 AR 140-33 for the appointment as second lieutenant Army of the United States (Medical Administrative Corps) of physically qualified male citizens of the United States above the age of 18 years who are bona fide accepted matriculants at approved dental and veterinary schools within the United States. Officers so appointed will not be ordered to active duty until eligible for appointment as first lieutenant Army of the United States (Dental or Veterinary Corps).

Appointment will be made without reference to an examining board as prescribed in paragraph 20 c, AR 140-5 and without reference to procurement objectives.

Applications and accompanying papers as prescribed in AR 605-10 will be forwarded by the dean of the dental or veterinary school to the commanding general of the corps area in which the school is located together with a certified statement that the applicant is a bona fide accepted matriculant in dentistry or veterinary medicine at the institution.

Officers appointed under these provisions will be discharged for the convenience of the government under the full pay and

cumstances (1) discontinuance of dental or veterinary education, (2) matriculation at an unapproved school of dentistry or veterinary medicine, (3) failure to complete successfully the prescribed four year course of dental or veterinary instruction, (4) failure to secure appointment in the Army of the United States (Dental or Veterinary Corps) within three months after completion of the prescribed four year course of dental or veterinary instruction

Students at approved schools of dentistry and veterinary medicine who already hold reserve commissions in other arms or services will not be ordered to active duty until they successfully complete the prescribed four year course of dental or veterinary instruction. In the latter event they may be transferred to the Dental or Veterinary Corps Reserve in the grade of first lieutenant

#### SOCIETY OF MEDICAL DEPARTMENT OFFICERS AT FORT DEVENS

The Fort Devens Society of Medical Department Officers will be addressed, June 16, by Dr. Alan Moritz, professor of legal medicine, Harvard Medical School, Boston, on "Observations on the Pathology of Mechanically Produced Injuries." The society was addressed, June 2, by Dr. Ernest E. Tyzzer of Harvard Medical School on "Tropical Medicine", May 19, by Lieut. Col. William F. McPhee, chief of the surgical service of the second evacuation hospital, on "Pilonidal Sinus," and, May 5, by Dr. Herman C. Pitts of Providence, R. I., on "Treatment of Cancer of the Cervix." This organization meets on the first and third Tuesday of each month and is attended by the medical department officers stationed at Fort Devens. The society was organized in 1939.

#### MEDICAL COLLEGE OF VIRGINIA HOSPITAL UNIT

U. S. Army General Hospital Unit No. 45, formed at the Medical College of Virginia, Richmond, has been ordered to report at a camp for training preparatory to service abroad. When completely organized, the unit will include seventy-two medical and technical personnel from the staff of the Medical College of Virginia, a corps of enlisted men furnished by the Army Medical Department and more than a hundred nurses. While most of the physicians and dentists are from Richmond, some are from Norfolk, Lynchburg, Roanoke, Fredericksburg, Petersburg and Scottsville. In charge of organization of the unit have been Drs. John Powell Williams and A. Stephens Graham, both of whom have been commissioned lieutenant colonels. During the first world war, Base Hospital No. 45 was organized at the Medical College of Virginia under the leadership of the late Dr. Stuart McGuire of Richmond, and that unit performed distinguished service on the battlefields of France.

#### BLOOD BANKS IN PENNSYLVANIA HOSPITALS

A survey of Pennsylvania hospitals discloses that there is a total reserve of blood and plasma sufficient for treatment of only 2,775 civilian casualties in an emergency, the State Defense Council has reported, according to an article in the *Harrisburg Telegraph*. Dr. Paul Dodds, chief medical officer, said that two hundred and eight hospitals of fifty beds or more from which replies were received in a blood survey included sixty-eight with reserves beyond their regular needs, twenty-one with banks but without emergency reserve and one hundred and nineteen not maintaining banks. Twelve large hospitals of two hundred beds or more are without blood banks.

#### REGISTRATION OF DISTRICT DOCTORS

The District of Columbia Procurement and Assignment Committee conducted the registration of all licensed physicians in the district, May 12, in order to determine the number available for military service and those available for the care of the civilian population in the district. The Office of Civilian Defense

provided thirty-five clerks to conduct the registration, which was carried out at the building of the District Medical Society, 1718 M Street N.W. Some of the clerks also were stationed at the various hospitals in the district. The chairman of the committee is Dr. Francis X. McGovern. The registration was voluntary. Physicians who were out of town at the time were expected to register at the medical society office on their return.

#### RECEPTION SERVICE FOR RETURNED SOLDIERS AND SAILORS

Governor Green announced on May 15 that the state of Illinois is establishing a reception service for returned soldiers and sailors of the present war. He has instructed the director of public welfare to secure the names of all men released from the armed services, of whom about one hundred and fifty soldiers, most of whom are mentally ill, have already returned to the state. The division of veterans' service will get in touch with these returned men, guide them in securing medical and hospital services and proper allowances for disability, and assist in finding employment when such is possible.

#### NEW CHIEFS FOR HEALTH SUPPLIES BRANCH OF WAR PRODUCTION BOARD

Mr. Francis M. Shields, Miami Beach, Fla., formerly vice president of the American Optical Company, Southbridge, Mass., has been appointed chief of the Health Supplies Branch of the Division of Industry Operations of the War Production Board. Mr. William M. Bristol Jr., formerly chief of this branch, has resigned to rejoin his own company. Mr. Fred J. Stock, who has been associated with the Health Supplies Branch as an industrial commodity specialist, has been appointed deputy branch chief. He was formerly an official of the Walgreen Drug Company, Chicago.

#### EMERGENCY DISTRICT CENTERS IN SACRAMENTO

Nine district centers are now ready at Sacramento, Calif., to provide in an emergency everything from medical care to reuniting lost children with families, the *Sacramento Bee* reports. The centers function under the defense council, and one thousand men and women are ready to operate them. The centers will provide food, shelter, clothing, first aid, registration of the injured and emergency transportation. The centers go into action only in a major emergency when normal facilities for such services become inoperative. An educational campaign will be launched to acquaint the citizens with the locations of the nearest district centers.

#### DR. BOUSFIELD IN CHARGE OF HOSPITAL UNIT

Dr. Midian O. Bousfield, member of the Chicago Board of Education and for nine years director of Negro health under the Julius Rosenwald Fund, will leave on June 7, according to the *Chicago Sun*, to take charge of an all Negro medical and nursing unit which will provide the staff for an army hospital in a southwestern state. The personnel has been recruited largely from the Provident Hospital in Chicago. Among the other medical officers in the unit will be Majors Harold Thatcher, John West and Maurice Shaw, Capt. Arthur V. Thomas and Clarence Jamison and First Lieutenants Earl Shepleard and Joseph Mitchell.

#### BLOOD BANKS IN WEST VIRGINIA

The state health commissioner, who is chief of the Emergency Medical Service in West Virginia, has appointed Dr. John W. Crosson to take charge of setting up blood banks in emergency base hospitals in strategic areas of the state and in Wheeling, Huntington and Charleston. To qualify, the hospitals must be approved and have at least a capacity of two hundred beds. When designated they may receive up to \$2,000 to defray expenses of setting up blood banks.

# ORGANIZATION SECTION

## OFFICIAL NOTES

### THE ATLANTIC CITY SESSION

#### Radio Program

Arrangements for radio broadcasts in connection with the annual session of the American Medical Association at Atlantic City have been completed.

The weekly dramatized program *Doctors at Work* on the network of the National Broadcasting Company will close with the broadcast scheduled for Saturday, June 13, at 5 p m eastern time.

In addition, the following programs have been scheduled for broadcasting by National Broadcasting Company and Columbia Broadcasting System networks, the Blue Network and local stations in Atlantic City (eastern time)

WFIL (Blue Network), Monday June 8, 2 p m Dr J Harry Murphy, Omaha Childhood type tuberculosis

WBAB (C B S), Monday, June 8, 4 p m Col F W Rankin, M C, U S Army, Louisville, Ky 'Your Doctor's Responsibilities in Wartime'

N B C, Tuesday, June 9, 12 30 p m Dr Frank H Lahey, Boston "The Place of Medicine Today"

WBAB, Tuesday, June 9, 2 30 p m Dr Irwin Schulz Injuries in children

WFGP, Tuesday, June 9, 7 45 p m Dr Don Carlos Peete, Kansas City, Kan Acute rheumatic fever

WBAB, Wednesday, June 10 See local papers for time Round table discussion "Doctors at War" Dr George Baehr, Washington, D C, Dr Willis S Knighton, New York, Rear Admiral H W Smith, M C, U S Navy, Washington, D C, Dr Charles S White, Washington, D C, and Dr W W Bauer, Chicago

N B C, Thursday, June 11, 6 30 p m Dr W W Bauer, Chicago Convention news

WFGP, Thursday, June 11, 7 45 p m Dr Elmer H Loughlin, Brooklyn Pneumonia

## MEDICAL ECONOMIC ABSTRACTS

### FEDERAL AND STATE AID

A rapid and far reaching centralization in financial administration in recent years is traceable to the accelerated growth in the amounts given by the federal government to the states and by the states to local governments<sup>1</sup>. In 1941 \$851,000,000, or 10.7 per cent of the total federal revenues, was distributed in the form of aid. Of this amount \$744,000,000 was paid to states, \$96,000,000 was paid to local governments and \$11,000,000 to territorial governments.

This is a comparatively recent development in public finance. Although federal aid has been given for education, agriculture and highways for many years, the total amount of such aid distributed in 1925 was only \$113,600,000. While federal aid for all the aforementioned purposes has increased the most rapid growth has been in public assistance, which amounted to \$155,000,000 in 1937 and to \$331,000,000 in 1941. Under this classification \$259,000,000 constituted aid to the aged.

The following sums were given to aid public health

|                           |              |
|---------------------------|--------------|
| Crippled children         | \$ 5 071 000 |
| Maternal and child health | 3 739 000    |
| Public health work        | 10 284 000   |
| Venereal disease control  | 5 483 000    |
| Total                     | \$24 577 000 |

That this movement toward the centralization of finance is not confined to the federal government is evidenced by the increase in the aid given by states to local governments from \$535,800,000 in 1925 to \$1,697,800,000 in 1941. Education still receives the largest share of state aid but public assistance has shown the most rapid growth in recent years. This is partly due to more extensive participation by the states in all forms of public assistance and especially to payments for the categorical forms of public assistance—old age assistance aid to dependent children and aid to the blind—which consist almost exclusively of unemployable people. In some states of which Pennsylvania is an outstanding example the state has taken over functions formerly performed by elected county officials so that the county boards are in reality state agencies working directly under the state department of public assistance.

<sup>1</sup> Federal and State Aid, 1941 U S Department of Commerce Jesse H Jones Secretary State and Local Government Special Study No 19 April 1942

### FARM SECURITY PLAN IN OKLAHOMA

That there is considerable dissatisfaction with the working of the farm security plan for medical care is indicated in the report of the Committee on Medical Economics to the House of Delegates of the Oklahoma State Medical Association which says

"In the main the reports from the different societies were to the effect that the programs were not satisfactory for reasons of administration, inequalities and low fee payments for services rendered.

"Upon meeting with F S A representatives concerning this program, certain objectionable features seemed to have been eliminated, but your committee at this time cannot report further upon the attitudes of the county societies concerning the operations of the plans under the revised system.

"Your committee recommends that no endorsement of the Farm Security Administration plans be made by the House of Delegates, but that the cooperation of organized medicine be left to the discretion of the local county societies after careful and complete study.

### EFFECT OF THE WAR ON CLINIC VISITS

An increase in employment accompanying the economic changes attendant on war activity is apparently responsible for a rapid decline in the number of visits to Milwaukee clinics. A report of the Milwaukee County Community Fund and Council of Social Agencies found that while there were nearly 128,000 such visits during the last quarter of 1940 there were only 91,000 in the corresponding months of 1941—a decline of over 25 per cent. The decline was 33 per cent in public and 12 per cent in private clinics.

Data for January and February 1942 indicate that the rate of decline is increasing for most of the clinics. In explanation of this trend the council says: "In recent months men have reentered industry who formerly were on relief or barely getting by. Many families whose incomes were formerly qualified them for clinic care a year ago now have incomes which place them outside of the group entitled to health agency clinic care."

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH)

### CALIFORNIA

**Examinations to Fill Laboratory Positions**—The California State Personnel Board has announced that applications will be received from citizens throughout the United States for the position of chief, bureau of laboratories (entrance salary \$360 a month), and assistant chief, bureau of laboratories (entrance salary \$320 a month), in the state department of public health. The requirements for the position of chief are graduation from a college of medicine, five years' experience in a laboratory devoted to bacteriologic and chemical work, and ability to obtain a medical certificate in the state of California. The entrance requirements for the position of assistant chief are the equivalent of three years of graduate study in bacteriologic science and two years' experience in a public health laboratory in a biologic producing laboratory, in an educational institution laboratory producing, testing or analyzing biologic preparations or as a teacher of bacteriology in a university. Application forms and information may be obtained from the California State Personnel Board, 1015 L Street, Sacramento. Applications must be filed by June 30.

### FLORIDA

**Venereal Control Officer**—Dr Wilson T Sowder, Tampa, U S Public Health Service, who was health officer of Hillsborough County, has been placed in charge of the bureau of venereal disease control of the state board of health. He succeeds Dr Leo C Gonzalez, Jacksonville, who has been in charge of the work for the last four years and who, it is reported, was to retire on May 1 to engage in private practice in Tampa.

**Annual Graduate Course**—The Florida Medical Association and the state board of health will conduct their annual graduate short course for doctors in medicine at the George Washington Hotel, Jacksonville, June 22-27. Included among the instructors will be Drs Nicholson J Eastman, professor of obstetrics Johns Hopkins University School of Medicine, Baltimore, Edward W Alton Ochsner, William Henderson professor of surgery, Tulane University of Louisiana School of Medicine, New Orleans, and Robert W Wilkins, assistant professor of medicine at Harvard Medical School, Boston.

### GEORGIA

**Industrial Hygiene Service**—The Georgia State Department of Health recently created an industrial hygiene service in its division of preventable diseases with Dr Lester M Petrie, Atlanta, as director.

**State Medical Election**—Dr William A Selman, Atlanta, was named president-elect of the Medical Association of Georgia at its annual meeting in Augusta, April 28-May 1, and Dr James A Redfearn, Albany, was inducted into the presidency. Other officers include Drs Samuel J Lewis, Augusta, and Cleveland Thompson, Metter, vice presidents. Dr Edgar D Shanks, Atlanta, was reelected secretary. The next annual meeting will be in Atlanta, May 11-14.

**District Meetings**—The Seventh District Medical Society was addressed at Dalton, April 1, among others, by Drs Hal M Davison, Atlanta, on "Management of the Asthmatic Patient" and Frederick B Ragland, Dalton, "Treatment of Abortions"—Dr Seale Harris, Birmingham, addressed the Fifth District Medical Society in Atlanta, April 6, on "Endocrinopathies and Carbohydrate Metabolism"—The Eighth District Medical Society was addressed in Valdosta, April 14, among others, by Dr Charles M Carpenter, Rochester, N Y, on "Community Control of Gonorrheal Infection."

### ILLINOIS

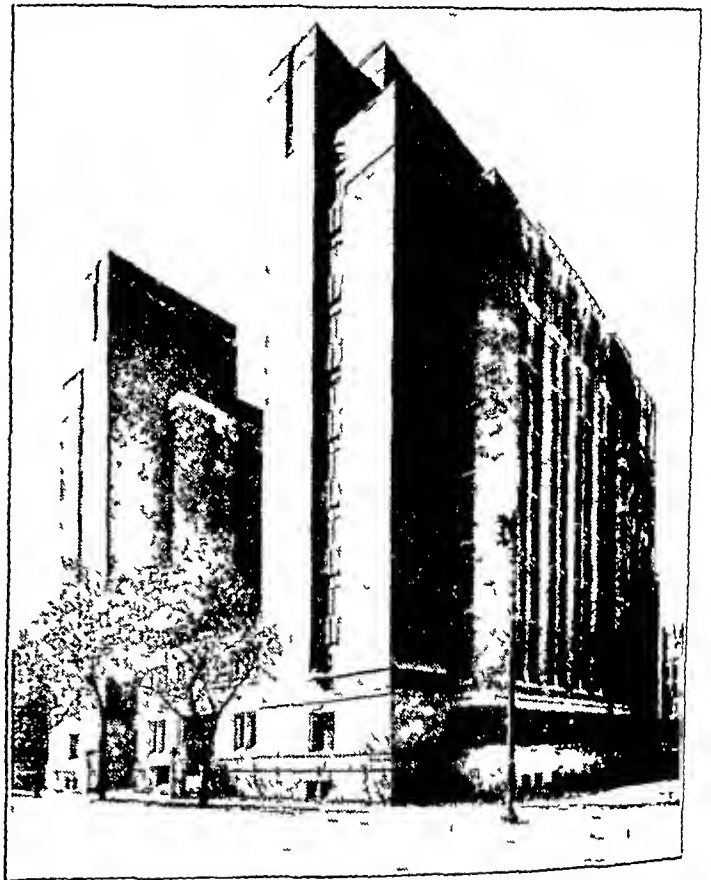
**Changes in Health Personnel**—Dr Reuben F Reider, New York, U S Public Health Service, has been named health officer of the Champaign-Urbana health district, succeeding Dr Walter C Earle, Champaign, who has been granted a leave of absence to do special work for the federal government, it is reported—Dr Henry C Scholer has been named health officer of Monmouth, succeeding Dr James W Firoved, who resigned to enter the medical corps of the navy.

### Chicago

**Reunion at Illinois**—The alumni-faculty-student smoker of the University of Illinois College of Medicine will be held June 11 at 6 30 p m at the Chicago Illini Union. Reservations may be made with the Medical Alumni Association, 1833 West Polk Street. Dr Michael H Streicher is the secretary.

**Alumni to Dine with Last Class at Rush**—The alumni banquet of Rush Medical College will be held in the Red Lacquer Room, Palmer House, June 13, at 6 30 p m. The occasion will mark the graduation of the last class of Rush Medical College. Dr Morris Fishbein, Editor of THE JOURNAL, will deliver the principal speech, on "Military and Civilian Aspects of Medicine in War."

**Neuropsychiatric Institute Dedicated**—The Illinois Neuropsychiatric Institute on the grounds of the Illinois Research and Educational Hospital is being formally dedicated June 6. Dr Harry R Hoffman, executive officer, is presiding. Dr Edward A Strecker, professor and head of the department of psychiatry, University of Pennsylvania School of Medicine, Philadelphia, and president-elect, American Psychiatric Association, is delivering the principal address entitled "Neuropsychiatric Perspectives." Dr Ralph C Hamill will deliver a



Illinois Neuropsychiatric Institute

tribute to the late Willoughby G Walling, chairman of the board of welfare commissioners, whose idea it was that the institute's facilities be available for teaching and research to all qualified medical schools in the state. A L Bowen, Springfield, will offer a tribute to the late Dr Harold Douglas Singer. Other speakers will include Arthur Cutts Willard LL D, president of the University of Illinois, and Gov Dwight H Green, Springfield. Three bronze plaques will be unveiled and dedicated to the memories of Dr Singer, the late Governor Henry Horner and Mr Walling. The unit which was constructed as a joint project of the state department of public welfare and the University of Illinois, with the financial assistance of the PWA, cost more than \$1,500,000. Dr Francis J Gerty was chosen by the university as director of the psychiatric division and Dr Eric Oldberg as director of the neurologic and neurosurgical divisions. The institute is composed of three distinct but interrelated units. The north tower houses organic neurology, the south tower houses psychiatry, the air conditioned ground or basement floor contains the physiologic unit. Each nine story tower is an independent hospital, research and teaching institute. The psychiatric unit has facilities for 98 patients, including those for 14 children. The children's ward will be directed by Dr Paul L Schrier, who will have immediate charge of the conduct of treatment, research and teaching. The neurologic tower has a capacity of 54, including facilities for 3 infants and 9 children.



**Portrait of Dr H Douglas Singer**—A portrait of the late Dr Harold Douglas Singer professor of psychiatry at the University of Illinois College of Medicine, was presented to the university at a memorial dinner in the Chicago Illinois Union on May 27. Dr Francis J Gerty, head of the department of psychiatry, presided. A L Bowen, Springfield former director of the state department of public welfare gave the address of presentation. Dr David J Davis, dean of the medical school delivered the address of acceptance and the psychiatric staff under the chairmanship of Dr Alfred P Solomon presented a sketch "As We Knew Dr Singer." The portrait was painted by Mrs Lucile Stevenson Dalrymple from photographs. The cost was met by contributions from friends and associates. Dr Singer was made director of the newly created Illinois State Psychopathic Institute in 1907. In 1917 he was appointed state alienist and was at the same time special examiner for the Illinois Exemption Board and advisory consultant in neuropsychiatry to the surgeon general of the U S Public Health Service. He was also advisory consultant to the U S Veterans Bureau. At the time of his death in 1940 he was president of the American Board of Psychiatry and Neurology, president of the American Neurological Association and president-elect of the American Psychiatric Association.

### MAINE

**State Medical Meeting**—The ninetieth annual session of the Maine Medical Association will be held at the Poland Spring House, Poland Spring June 21-23, under the presidency of Dr Perry L B Ebbett, Houlton. A tentative program lists the following speakers:

Rev George W Shepherd Boston The Battle for Freedom in China and India  
Dr Joe V Meigs, Boston Endometriosis Its Etiology Symptoms and Treatment  
Dr Howard T Karsner Cleveland (Subject not announced)  
Dr Merrill C Sosman Boston Observations on Reversible Heart Disease  
Dr Samuel C Harvey New Haven Surgery of the Sympathetic System  
Dr Chester S Keefer Boston Differential Diagnosis of Obscure Cases  
Dr Delmer Allan Craig Bangor Medical Aspects of Civilian Defense

There will be conferences on traumatic surgery and other subjects. On Tuesday evening the annual banquet will be addressed by Dr Morris Fishbein, Chicago, Editor of THE JOURNAL, on "Medicine and the War." Presentation of the fifty year medals will take place at this time.

### MARYLAND

**New Secretary of State Society**—Dr William Houston Toulson, professor of genitourinary surgery, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, was chosen secretary of the Medical and Chirurgical Faculty of Maryland at the annual meeting April 28-29, to fill the unexpired term of Dr Richard T Shackelford, Baltimore who has entered army service. Dr Robert Lee Hall Pocomoke City is president. It was also decided to cancel the semiannual meeting of the society, usually held in the early fall.

**Personal**—Dr Huntington Williams commissioner of health of the city of Baltimore, who studied air raid medical administration in England for the Office of Civilian Defense recently spoke on this subject at the annual postgraduate clinic at George Washington University School of Medicine, Washington, D C.—Elsa Orent Keiles, ScD, formerly of the department of biochemistry, Johns Hopkins University School of Hygiene and Public Health, Baltimore, is now in charge of the nutrition research laboratories and assistant chief of the foods and nutrition division of the Bureau of Home Economics, U S Department of Agriculture, Beltsville Research Center, according to Science.

### MICHIGAN

**Graduate Work for Physicians**—The Michigan State Medical Society in cooperation with the Wayne University College of Medicine, Detroit the University of Michigan Medical School, Ann Arbor and the Michigan Department of Health, Lansing has arranged a series of meetings to help practicing physicians keep abreast of recent developments in medicine. Weekly conferences made up the program in various places throughout the state. They opened in April and continued until the last week in May.

**Past Presidents' Night**—The Bay County Medical Society marked its past presidents' night, April 8 with a dinner honoring twenty-four physicians who formerly served as president. A gold key was awarded to each one. Dr Charles H

Baker, president of the state medical society in 1919, who served as president of the county society in 1887, is dean of the group. Others at the dinner included Drs William Kerr, Virgil L Tupper, William R Ballard Roy C Perkins, George W Moore, Joseph C Grosjean Rowston E Scrafford, Aloysius J Zarembo Edward C Warren Paul R Urmon, Vanny H Dumond Charles W Ash Matthew R Slattery, Edward S Huckins John H McEwan Sylvester L Ballard, Arthur D Allen Charles L Hess L Fernald Foster Robert H Criswell Relza N Sherman, all of Bay City. Guy M McDowell Howell and Maurice C Miller, Auburn. Dr Foster is now secretary of the state medical society.

### NEW JERSEY

**Diathermy Machine Seized in Alien Raid**—On May 23 newspapers reported that a short wave radio transmitter of the diathermy machine type capable of transmitting messages 50 miles out to sea was seized by Federal Bureau of Investigation agents in one of thirty-eight raids which they made the previous evening on the homes of aliens of enemy nationalities in different sections of New Jersey. The apparatus was found in the home of a 36 year old unmarried German who said he bought the machine for use in treating rheumatism but admitted that he had never consulted a physician concerning such an ailment. The man was arrested. A recent order by the federal communications commissioner directs all owners of diathermy machines to register them with the commission by June 8.

### NEW YORK

**Hospital News**—A fifty-eight bed addition will be constructed to the St Francis Hospital Poughkeepsie, at an estimated cost of \$298,000. About \$100,000 will be available under a federal grant.

**Scarlet Fever Traced to Raw Milk**—About thirty cases of milk-borne scarlet fever occurred between April 6 and April 20 among workers in a cheese plant in Delaware County or among persons using milk obtained from the plant. The bureau of milk of the state department of health is attempting to determine the origin of the infection. All the milk now used in the plant is being pasteurized prior to the processing of the cheese whereas raw milk was largely used in the process prior to the outbreak.

### New York City

**Graduate Courses**—The New York University Graduate School announces the following courses as part of the regular twelve weeks summer session June 29-September 18: biochemistry and nutrition (biology) hematology and microtechnic (biology) advanced laboratory techniques (physics), semimicroqualitative organic analysis (chemistry) and organic synthesis (chemistry).

**Merrit Cash Prize Awarded**—The Merrit H Cash Prize of the Medical Society of the State of New York for the best original essay on some medical or surgical subject has been presented to Dr Emanuel Goldberger for his paper on "The Value and Advantages of Augmented Unipolar Extremity Leads (aV-Leads) in the Diagnosis of Myocardial Infarction (Coronary Thrombosis and Acute Coronary Insufficiency)." The research on which the paper was based was conducted at Lincoln Hospital.

**Changes in Faculty at Long Island College of Medicine**—Dr Fred L Moore has resigned as professor of preventive medicine and community health of the Long Island College of Medicine Brooklyn effective when his successor has been appointed. He has been named director of the division of public health studies of the Commonwealth Fund. The college of medicine announces the promotions of the following Brooklyn doctors to professional rank effective July 1:

Dr Edwin P Maynard Jr medicine  
Dr George Freeman ophthalmology  
Dr Howard F Peakey medicine  
Dr Martin A Murphy medicine  
Dr Charles B Jones surgery  
Dr Mortimer A Laikin ophthalmology  
Dr Louis J Frank dermatology and syphilology

**Three Cents a Day Plan Benefits Increase**—The Associated Hospital Service has announced that the three cents a day plan benefits to member hospitals will be increased from the present rate of \$6.75 to \$7 per day of hospital care received by subscribers on or after July 1. The increase which is subject to the approval of the state department of insurance and social welfare was voted in recognition of the increased cost of hospital service. The present rate of \$6.75 a day has been in effect since Oct 1, 1941 when it was increased from \$6.50.

former daily payment of \$6.50. The Associated Hospital Service also announces that seventy hospital boards with their medical staffs and more than two thousand four hundred individual physicians are now participating in the Community Ward Plan, the new prepayment plan for low income workers which is jointly sponsored by Associated Hospital Service and Community Medical Care, Inc.

**Annual Graduate Fortnight**—"Disorders of the Nervous System" will be the theme of the fifteenth graduate fortnight of the New York Academy of Medicine, October 12-23. The program will include morning panel discussions, afternoon hospital clinics, evening lectures, scientific exhibits and demonstrations. Evening lectures will be delivered by

Dr Timothy Leary, Boston, Pathology of Head Injuries  
Dr Derek E Denny Brown, Boston, Principles of Treatment of Closed Head Injuries

Dr William V Cone, Montreal, Quebec, Canada, Principles of Treatment of Penetrating and Perforating Wounds of the Brain

Dr Eli Jefferson Browder, Brooklyn, Subdural Hematoma (and Other Late Results of Head Injury)

Dr Edward A Strecker, Philadelphia, Military Psychiatry

Dr Harold G Wolff, The Emotions and Disease

Dr Donald Munro, Boston, Tidal Drainage and Cystometry in the Treatment of the Bladder in the Presence of Spinal Cord Injuries

Dr Joseph E J King, Diagnosis and Treatment of Brain Abscess

Dr Gilbert Horrax, Boston, Differential Diagnosis and Prognosis of Brain Tumors

Dr Frank B Walsh, Baltimore, Neuro Ophthalmology

Dr Byron P Stookey, Wounds and Injuries of the Spinal Cord

Dr Francis C Grant, Philadelphia, Surgical Treatment of Pain

Dr Stanley Cobb, Boston, Treatment of Speech Disorders

Dr Tracy J Putnam, Multiple Sclerosis and "Encephalomyelitis"

Dr Charles D Aving, Cincinnati, Limitations of Vitamins in Neurology

Dr Nolan D C Lewis, Present Status of Shock Therapy

Dr Walter Freeman, Washington, D C, Prefrontal Lobotomy

Dr Lawrence S Kubie, Types of Psychotherapy and Indications for Them

Dr Henry A Riley, Migraine and Other Forms of Headache

Dr William G Lennox, Boston, Epilepsy and Its Treatment

## OHIO

**Personal**—Dr Robert M Andre, Waverly, has been appointed supervisor of the medical section of the state industrial commission during the absence of Dr Henry P Worstell, Columbus, now on active duty as a lieutenant commander in the medical corps of the U S Navy. Dr Addison L Kefauver has been named assistant supervisor of the medical section.—Dr Barbara A Hewell, pediatric coordinator of the Cincinnati Anti-Tuberculosis League, has resigned to become specialist in child hygiene in the division of research in child development in the U S Children's Bureau, Washington, D C.—Dr Harold O Crosby, Findlay, coroner of Hancock County, was guest of honor at a dinner given by the county medical society on April 14 to mark his departure for army service. He was presented with a gladstone bag and a traveling clock.

**Traveling Exhibit on "Food for Health"**—The Cleveland Health Museum announces its first traveling exhibit on "Food for Health." Nine units are included in the exhibit. The "Wheel of Life" reveals in essential part protective foods, "How Many Calories" is an exhibit which shows the varying quantities of food needed for work and play, "Why We Eat" illustrates food elements necessary to various parts of the bodily structure, "Food Building Blocks" are especially for elementary class room nutrition. The exhibit "A Nickel's Worth" shows variance of return on money spent for wholesome foods rather than luxury foods and drinks. Twelve food fallacies are illustrated. An exhibit shows how to get double food value for prices which the average buyer pays. The foods are demonstrated in average servings in colored wax models, and most of them have their own individual lighting. Dr Bruno Gebhard is director of the Cleveland Health Museum.

## OKLAHOMA

**Long Memorial Lecture**—Dr Charles W Mayo, Rochester, Minn, recently delivered the third LeRoy Long Memorial Lecture at the University of Oklahoma School of Medicine, Oklahoma City, under the auspices of the Phi Beta Pi fraternity. Dr Mayo's subject was "Principles of Surgery of the Colon."

**Spring Clinical Conference**—The Pottawatomie County Medical Society recently held an annual spring clinical conference at the Aldridge Hotel, Shawnee. Dr Arthur E Hertzler, Halstead, Kan, spoke on "Surgical Aspects of Acute Conditions of the Gallbladder" and Dr Andrew C Ivy, Chicago, "The Physiology of the Gallbladder." In the evening Dr Hertzler discussed "The End Results of Total Thyroidectomy" and Dr Ivy "The Physiology of the Thyroid Gland."

## OREGON

**Change in Meeting Place**—The Oregon State Medical Society will hold its annual session in Portland instead of in Corvallis. The change was made because of the probable inadequate hotel accommodations resulting from increased need of housing facilities. The meeting will be held September 9-11.

## PENNSYLVANIA

**Personal**—Staff members of the Braddock General Hospital, Braddock, gave a dinner recently to honor Dr Harry F Fisher, Braddock, for his completion of fifty years in the practice of medicine. Dr Fisher is chief obstetrician and oldest member of the hospital staff.

**Society News**—Dr Herbert T Kelly, Philadelphia, addressed the Lehigh County Medical Society in Allentown, May 12, on "Nutrition as It Appears to General Disease."—Dr I Newton Kugelmass, New York, discussed "War Nutrition for Children in Health and Disease" before the Cambria County Medical Society in Johnstown recently.

## Pittsburgh

**Psittacosis Reported**—Two cases of psittacosis were reported in Springdale on May 5, according to the Pittsburgh Telegram. The disease occurred in two neighbors, aged 68 and 38.

**Society News**—Dr Charles B Huggins, Chicago, addressed the Pittsburgh Urological Association, May 1, on "Endocrine Relationship of Prostatic Carcinoma."—Dr Joseph Stokes Jr, Philadelphia, discussed "Studies on Active Immunization Against Measles" before the Pittsburgh Pediatric Society on April 24.—Among others, Drs Louis W Statti, Pittsburgh, addressed the Pittsburgh Ophthalmological Society, April 27, on "Pentothal Sodium Anesthesia in Ophthalmology" and Edmund B Spaeth, Philadelphia, treatment of chronic dacryocystitis.

## VIRGINIA

**Federal Grant to Assist in Hospital Expansion**—A grant of \$695,880 by the Federal Works Agency to King's Daughters' Hospital, Portsmouth, will finance the addition of a four story wing, providing one hundred and thirty additional beds, it is reported. The grant will also provide a new nurses' home and complete equipment.

**State Conference of Social Work**—The program of the medical and health section of the Virginia State Conference of Social Work in Richmond, April 24-25, included a morning session devoted to the recent trial of the United States versus the American Medical Association in Washington. Mr John H Lewin, special assistant, attorney general's office, and Mr Seth Richardson, counsel for the American Medical Association, presented a discussion. Mr Watson B Miller from the Federal Security Agency's Office spoke on "Federal Plan for Extending Health in Medical Services." All are of Washington, D C.

**New Dean at Medical College**—Dr Jacques P Gray, director of the Hillsdale County (Mich) department of health, Hillsdale, under the auspices of the W K Kellogg Foundation has been appointed professor of preventive and public health medicine and dean of the Medical College of Virginia, Richmond, effective July 1. Dr Lee E Sutton Jr, who has been dean at the medical school since 1932, will continue as professor of pediatrics. Dr Gray graduated at Johns Hopkins University School of Medicine, Baltimore, in 1928. At one time he served as director of public welfare of San Francisco County and lecturer in public health, University of California, Berkeley.

**Changes in Health Personnel**—Dr Daniel Hope Jr, Lawrenceville, formerly assistant health officer of the Brunswick Greenville-Mecklenburg health district, has been appointed health officer of the Alleghany-Botetourt health district with offices in Covington, succeeding Dr Wyatt E Royce, Covington, who has been transferred to the tuberculosis outpatient service of the state health department at Richmond. Dinwiddie County has joined with Sussex-Prince George counties as a health district under Dr Francis J Clements, Stony Creek, health officer.—Dr Wallace E Baker, Petersburg, has been appointed assistant epidemiologist in the division of venereal disease control of the state department of health. Dr William E Chapin, Richmond, has been named to succeed Dr F. L. E. Chapman, Richmond, in his former position of field epidemiologist for the Camp 1 area with headquarters in Petersburg.—Dr Beverly L Herday, Wytheville, has resigned as health officer of Wythe County effective April 1.

## WYOMING

**State Society Meeting in August**—At a special meeting of the council of the Wyoming State Medical Society in Cheyenne April 20, it was decided to hold the 1942 annual session in Cheyenne, August 16-18

## WASHINGTON

**Meeting of Obstetricians**—Dr David H Houston Seattle was chosen president of the Washington State Obstetrical Association at its meeting in Seattle, April 18 succeeding Dr Richard S Mitchell, Wenatchee Dr Robert H Stewart, Seattle, was named vice president and Dr Henry H Skinner, Yakima, was reelected secretary-treasurer Dr Robert D Mussey, Rochester, Minn., was the guest speaker, on "Hypertension in Pregnancy" and "Endometriosis"

## GENERAL

**Golf Prizes for Specialists**—Nine silver pitchers have been presented by members of the "old guard" in the American Medical Golfing Association to be won by players representing each specialty during the annual golf tournament at the Seaview Country Club in Atlantic City, N J, June 8 These prizes are in addition to the numerous other prizes announced in THE JOURNAL, May 2, page 47

**Russian Memberships Conferred on Americans**—The Russian Academy of Science, Moscow, has elected to honorary memberships three Americans and two Britons, the first foreigners to be so honored since the revolution, according to the New York Times, May 10 The Americans are Dr Walter B Cannon, George Higginson professor of physiology, Harvard Medical School, Boston, Ernest O Lawrence, Ph D, professor of physics and director of the Radiation Laboratory, University of California, Berkeley, and Gilbert Newton Lewis, Ph D, since 1912 professor of chemistry and dean of the college of chemistry at the University of California The Britons are Sir Henry H Dale, M D, physiologist, and John B S Haldane, F R S, professor of biometry, University College, London

**Reduction in Potency of Digitalis**—Examinations of a number of samples of each of the various pharmaceutical forms of digitalis indicate that a substantial reduction in potency will result in changing from U S P XI to U S P XII standards The exact reduction is not predictable, but data indicate that the reduction will amount to 40 per cent or more in at least half of the cases In a drug in which standardization is as important as with digitalis, a change in potency of this magnitude is of the greatest interest to the physician and the patient In a statement to manufacturers of digitalis preparations, W G Campbell, commissioner, Food and Drug Administration, suggests that during the transition period in which U S P XI and U S P XII products may both be available, conspicuous notice of the reduction in potency be given on the labels

**Committee to Direct Morale**—The American Psychiatric Association appointed a committee at its annual meeting in Boston, May 21, to present forcefully to the authorities in Washington the need for a greater use of psychiatry in the armed forces and for the maintenance of civilian morale Members of the committee are Drs Arthur H Ruggles Providence, R I, Edward A Strecker, Philadelphia and Frederick W Parsons, New York A program seeking to obtain "the emotional adjustment of the nation as a whole by teaching school children the laws of social and mental hygiene was outlined by Drs Mesrop A Tarumian, Farnhurst Del director of mental hygiene clinics of Delaware, Persis F Einfeld Wilmington, assistant director and H Edmund Bullis Wilmington executive director of the Delaware State Society for Mental Hygiene

**Special Society Elections**—Dr Eli K Marshall Jr, Baltimore, was chosen president of the American Society for Pharmacology and Experimental Therapeutics at its annual meeting recently Other officers include Drs Carl A Dragstedt, Chicago vice president Raymond N Bieter Minneapolis secretary, and Erwin E Nelson New Orleans treasurer The next annual session is planned for the first week in April in Cleveland—The American Institute of Nutrition elected the following officers at its meeting in Boston April 1 Leonard A Maynard Ph D Ithaca N Y president Howard B Lewis Ph D, Ann Arbor Mich, vice president Arthur H Smith Ph D, Detroit, secretary, Dr William H Sebrell Jr, Washington D C treasurer

**Warring of Impostor**—A middle aged man giving the name of Henry Calvin Van Dyke (or Van Dyke) has been victimizing laboratory workers, particularly biochemists and bacteriologists He pleads exhaustion of funds, asks for temporary work, accepts loans of money He claims to have a Ph D in chemistry from the University of Leyden and to have studied at Oxford and Bonn He claims to have inherited wealth from his Dutch father and Scotch mother but to have lost it in 1939, and to have served as a volunteer worker in various scientific laboratories especially in and around San Francisco Recently he has been "working" around New York and Baltimore He is about 60, is 5' 7" tall, weighs 150 pounds His clothes are good his manners excellent, his English is perfect save for a somewhat guttural accent He can converse in French, German or Dutch and has a know ledge of history, art mathematics and scientific methods His laboratory technique shows excellent training He has made claims of working with reputable men and institutions in this country, none of which have been found to be true, according to reliable reports This matter has been placed before the Federal Bureau of Investigation and the New York Police Department Should he approach physicians for funds or employment, they should notify local police authorities

**American Gynecological Society**—The sixty-seventh annual meeting of the American Gynecological Society will be held at Skytop Lodge, Skytop Pa, June 15-17, under the presidency of Dr William C Danforth, Evanston, Ill Included among the speakers will be

- Dr George W Kosmak New York The Gynecologic and Other Implications Which Relate to an Aging Female Population
- Dr John I Brewer Chicago Studies of the Human Corpus Luteum Evidence for Early Regression of the Corpus Luteum
- Dr Willard M Allen St Louis The Effect of Progesterone in Adolescent Girls and Young Women with Functional Uterine Bleeding
- Dr Edward G Waters Jersey City N J, Selective Hysterectomy for Nonmalignant Uterine Disease
- Dr Daniel G Morton San Francisco Observations on the Development of Pelvic Conformation
- Dr Kyle B Steele New York The Classification of the Obstetrical Pelvis Based on Mensuration and Morphology
- Dr Andrew C Ivy Chicago The Functional Anatomy of Labor with Special Reference to the Human
- Dr Franklin F Snyder Chicago The Experimental Production of Toxemias of Pregnancy

The annual dinner of the society will be held on Tuesday, June 16, at 8 p m

**Registration Under Harrison Narcotic Act and the Marihuana Tax Act**—On or before July 1, every physician registered under the Harrison Narcotic Act or under the Marihuana Tax Act, or under both must reregister with the collector of internal revenue of each district in which he maintains an office or a place for the treatment of patients Failure to reregister within the time allowed by law adds a penalty of 25 per cent to the annual tax payable at the time of registration and in addition makes the physician in default liable to a fine not exceeding \$2000 or to imprisonment for not exceeding five years or to both In recent years the Commissioner of Internal Revenue has given some negligent or recalcitrant physicians the choice between paying substantial sums by way of compromise in lieu of the penalties for their offenses or as an alternative accepting criminal prosecution with resultant publicity and liability to fines and possible imprisonment This was an act of grace on the part of the commissioner he might have instituted criminal prosecutions without allowing the offending physicians any choice in the matter If the course that the commissioner has adopted does not produce the desired promptness in registration he will have no recourse other than criminal prosecution to attain that result

**First Fellowship Under Lawrason Brown Fund**—Mr Henry Clark Jr Scotland Neck N C who was a student at the University of Rochester School of Medicine New York has been designated the first fellow under the Lawrason Brown Memorial Fund Mr Clark who became ill with tuberculosis at the end of his third year (1939-1940) and was treated at Trudeau Sanatorium Saranac Lake will carry on research on the influence of anesthesia on respiration in health and tuberculous patients The fund was established by friends of the late Dr Lawrason Brown to finance one or more fellowships for research in diseases of the chest The selection of the fellows preferably those who have recovered from tuberculosis is made by a committee comprising Drs Leroy U Gardner Saranac Lake Louis Hartman Baltimore Leonard R Long Philadelphia David R Lyman Willingford Conn James Woods Price Saranac Lake and William P Thompson New York The fund is managed by the Saranac Lake Society for the Control of Tuberculosis Should the society ever cease to exist the management of the fund shall be vested in the trustees of the Saranac Lake Sanatorium

first to Johns Hopkins University and then to another competent organization selected by the unanimous vote of the memorial committee. The establishment of the fund was announced late in 1940 and now stands at more than \$31,000. The original goal was set at \$50,000.

**Northwest Medical Association**—The twentieth annual session of the Pacific Northwest Medical Association will be held at the Hotel Multnomah, Portland, Ore., June 17-20. The speakers will include:

Dr. Anton J. Culson, Chicago, On Inadequate Criteria of Health, The Machinery of Appetite for Foods, What is the Matter with the American Diet, and Some Unknowns in the Physiologic Pathology of Aging.

Dr. Arlie R. Barnes, Rochester, Minn., Pulmonary Embolism, Changing Concepts of Coronary Artery Disease and Electrocardiographic Abnormalities in Various Types of Heart Disease.

Dr. Jerome W. Conn, Ann Arbor, Mich., Nature of Obesity and Its Management, Spontaneous Hypoglycemia, Changing Concepts of Diabetes Mellitus.

Dr. Elmer L. Sevringhaus, Madison, Wis., Diagnostic and Therapeutic Problems Associated with the Menopause, The Use of Pituitary Preparations in the Treatment of Dwarfism and of Sex Retardation and Survey of Endocrine Preparations in Therapy by the General Practitioner.

Dr. Warfield M. Fitor, Baltimore, The Treatment of Tetanus and the Use of Tetanus Toxoid, Treatment of Wounds Involving Soft Parts and Intestinal Antisepsis with Sulfonamides.

Dr. Frederic E. Templeton, Chicago, Mucosal Relief Technique for the Roentgenologic Examination of the Esophagus, Stomach and Duodenum, Correlation of Roentgenologic and Gastroscopic Methods in Diagnosis of Gastric Disease and Roentgenologic Aspects of Esophageal, Gastric, Duodenal and Jejunal Ulcer.

Lieut. Daniel W. Wheeler, U. S. Navy Medical Corps, Bremerton, Wash., Physiologic Aspects of War Injuries.

Lieut. Comdr. Lawrence R. Gowan, U. S. Navy Medical Corps, Bremerton, Psychiatric Aspects of Military Disabilities.

Brig. Gen. Lewis B. Hershey, U. S. Army, Washington, D. C., American Medicine and the War.

Col. Paul W. Gibson, U. S. Army Medical Corps, Vancouver, Wash., The Doctor as a Medical Officer in the Army.

## HAWAII

**New Society of Clinical Pathologists**—The Hawaii Society of Clinical Pathologists was recently organized in Honolulu with Drs. Carl F. Tessmer, Honolulu, president, and Ivin L. Tilden, Punahoa, secretary-treasurer. The first regular meeting was addressed by Dr. Eric A. Fennel, Honolulu, who discussed the development of pathology in Hawaii during the last twenty years and Drs. Isaac A. Kawasaki, Abram S. Benenson and Philip P. Green, all of Honolulu, "A Consideration of Common Diarrheal Diseases of Bacterial Origin."

## LATIN AMERICA

**Personal**—Dr. Edgar D. Adrian, professor of physiology, Cambridge University, Cambridge, England, is giving a series of lectures under the auspices of the British Council in Buenos Aires, according to *Science*.

**Urologic Meeting**—The Mexican Urological Association met in annual session in Mexico City, May 11-14. Among the speakers were Drs. Hugh H. Young, Baltimore, William F. Braasch, Rochester, Minn., and Robert Gutierrez, New York, who have been elected honorary members of the association.

## FOREIGN

**Hadassah University Pharmacological Institute**—The establishment in Palestine of a pharmacologic institute for clinical research and a pharmaceutical laboratory for the extraction of vitamins, hormones and allied substances has been announced by the Women's Zionist Organization of America, Inc., to be known as the Hadassah-University Pharmacological Institute. Scientists associated with the Hebrew University and the Rothschild-Hadassah-University Hospital, both of which are situated on Mount Scopus outside of Jerusalem, will be jointly responsible for the project. A Geiger, now head of the laboratory of general physiology of the Hebrew University, will have charge of the pharmaceutical program. The Hebrew group, which last year was granted priority space free of charge by the British War Relief Society and the British Ministry of Shipping on all vessels leaving this country for Palestine, has been sending consignments in different products to supplement shortages which have already developed. It is hoped that the new laboratory will work out methods to develop and encourage the pharmaceutical industry as far as possible with local raw materials.

### Deaths in Other Countries

**Sir Thomas Oliver, M.D.**, London, authority on industrial diseases, died on May 16 at Newcastle, aged 89. He was former president of the University of Durham College of Medicine, Newcastle, a consulting physician of the Royal Vic-

toria Infirmary, Newcastle, and former medical expert of the Dangerous Trades Committee of the Home Office. He was delegate of the Australian Commonwealth International Labor Conference at the League of Nations in 1921 and honorary president of the International Congress of Accidents and Industrial Diseases at Geneva in 1931.

## CORRECTIONS

**Professional Dentistry in American Society**—In a review of this book in *THE JOURNAL*, May 2, page 114, the second sentence in the review should not have been placed in quotations and it should have read: The period of professional awakening, 1820-1840, is discussed with respect to the establishment of medical schools and the rise of medical journalism.

**Medical Recruiting Boards**—In the list of twenty-seven medical recruiting boards published in *THE JOURNAL*, May 16, page 271, the Ohio board should have been as follows: Major H. S. Perry of the Adjutant General's Department and Capt. Clarence E. Northrup, M.C., representing the medical department. Captain Northrup was erroneously listed as on the Indiana board. The names as published in *THE JOURNAL* were taken from the *Army and Navy Journal* of May 2.

## Government Services

### Dr. Pelouze Named Consultant in Gonorrhea Program

Dr. Percy S. Pelouze, assistant professor of urology, University of Pennsylvania School of Medicine, Philadelphia, has been appointed consultant for the gonorrhea control program with the U. S. Public Health Service. His first field assignment was to the state of North Carolina.

### Annual Report of Veterans Administration

During the year ended June 30, 1941 there were 187,374 admissions of U. S. veterans to hospitals, an increase of 4 per cent over those for 1940 and the highest for any fiscal year to date, according to the annual report of the Administrator of Veterans' Affairs. The hospital load at the end of the year was 58,417 as compared with 56,841 in the previous year, an increase of about 3 per cent. The neuropsychiatric load increased 1,509 while the tuberculosis load decreased 19. At the close of the year 78.53 per cent of the U. S. veterans under hospitalization were receiving treatment for disabilities not of service origin. Of the total patient load 52,088 were World War veterans, Spanish-American War 2,992, Civil War 13, all other wars, expeditions and occupations 66 and regular establishment 2,999. Of the patients at the close of the year, 8.02 per cent were under treatment for tuberculosis, 59.14 per cent for neuropsychiatric diseases and 32.84 per cent for general medical and surgical conditions.

During the year 251,293 patients were under hospitalization of whom 246,777 were United States veterans. The total number treated represents an increase of about 55 per cent over 1940. Of the group treated 188,617 were discharged after an average of 73.8 inpatient days. Deaths in hospitals totaled 12,891.

At the end of the year the Veterans Administration was operating hospital facilities at ninety-one locations in forty-five states and the District of Columbia with a capacity of 61,849 beds, an increase of 2,212 over the number available on July 1, 1940. In addition, the administration was using 2,570 beds in other government hospitals. There were 18,747 beds set aside for domiciliary care. On completion of new construction and progress in June of this report there was a combined total of 86,171 beds of all types for beneficiaries of the Veterans Administration.

The net operating expense for all hospital and domiciliary facilities controlled by the administration totaled \$61,113,968. The per diem cost of operation for all types of cases was \$27. A total of 1,111,589 outpatient physical examinations were made and 1,176,685 outpatient treatments furnished. Two per cent of the examinations and 9 per cent of the treatments were dental.

During the year a new chest surgery center was established in the facility at Livermore, Calif., supplementing the center already in operation at Castle Point, N. Y., Queen's Legion, Texas, Tucson, Ariz., and San Fernando, Cal. A fever therapy clinic is being organized at Northport, L. I.



## Foreign Letters

### LONDON

(From Our Regular Correspondent)

April 18, 1942

#### The Rations of Enemy Prisoners

A revised scale of rationing for enemy prisoners has come into force. Excepting those employed in working parties the foodstuffs issued will be limited to the quantities allowed to British troops employed on sedentary duties. Working parties will continue to receive the normal home service ration but modified to meet the taste of the nationals concerned. In working parties the Germans will get 6 ounces of meat daily and the Italians 4 ounces. But the Italians will receive 16 ounces of bread daily compared with the Germans' 10 ounces, and 16 ounces of potatoes against 13 ounces for the Germans. The Germans' ration of sausage or offal will be three issues of 4 ounces weekly, the Italians will get none. Both will receive daily 1½ ounces of margarine, 1½ ounces of bacon, 4¼ ounces of cheese, 1 ounce of jam, 2 ounces of sugar, 1⅞ ounces of coffee, 3 ounces of condensed milk and 5½ ounces of fresh vegetables. Prisoners not in working parties receive daily 2½ ounces of meat, ¾ ounce of margarine, ¼ ounce of bacon, 2⅞ ounces of cheese, 1¼ ounces of sugar, 32 ounces of potatoes and 5½ ounces of fresh vegetables. Italian prisoners will get 1¼ ounces of tobacco weekly.

#### Cross Infection in Hospital Wards

In the Section of Epidemiology of the Royal Society of Medicine a discussion on cross infection in hospital wards was opened by Dr Robert Cruickshank, who defined cross infection as infection of a patient with the causal agent of a disease other than that for which he had been admitted. This definition included both manifest and latent infection. Persons might be cross infected with other biologic types of the organism responsible for the primary infection, e.g. in streptococcal, pneumococcal and diphtheritic infections. An example was a streptococcal cross infection rate of over 50 per cent in a measles ward, in which two thirds of the patients were clinically infected and one third latently. More than 60 per cent of the complications in scarlet fever were due to cross infection. The streptococcus was the arch enemy, but staphylococcal infections in infant nurseries, outbreaks of infantile diarrhea and cross infection with the diphtheria bacillus in scarlet fever and measles wards were too frequent.

Cruickshank divided cross infection into three forms: respiratory or inhalational, intestinal or ingestion and contact or implantation. More attention should be given to the air as the vehicle for the spread of respiratory infections. For the control of cross infection the reservoirs must be attacked and the channels blocked. Sulfonamide derivatives were proving useful, and sprays might be used more frequently for the streptococcal throat. Patients should cover their coughs and sneezes with a handkerchief. Masks should be more freely worn by nurses and convalescents must not be allowed to come in contact with the sick. Infected dust was a major problem in hospital wards and should be prevented by oiling bed linen and clothes. Search for carriers had proved valuable in the control of outbreaks of Flexner and Sonne dysentery.

Dr R. H. Dobbs said that in children's wards the solution was threefold: (1) hospital design with admission cubicles, small ward units and adequate isolation accommodation; (2) alertness to detect infection in new admissions and in the ward; (3) isolation of suspected or manifest infection, bacteriologic search for carriers, passive or active immunization against measles, diphtheria and scarlet fever.

Dr N. D. Begg dealt mainly with gastroenteritis and streptococcal infections in infectious disease hospitals. In a London

hospital patients admitted with enteritis were nursed in completely separate cells, feeds were prepared in a special room and the full technic of an isolation block was used. In two years among 390 admissions there were only 3 instances of secondary infection.

#### Danger of Famine and Pestilence

A conference on scientific problems in the postwar reconstruction of peasant agriculture in Europe, arranged by the British Association for the Advancement of Science, has taken place. The chairman, Sir John Russell, director of the Rothamsted agricultural experiment station, said that the Germans as they were expelled from the occupied countries would do damage that would stagger humanity and leave behind only famine and pestilence. Diseases of malnutrition, tuberculosis, malaria and typhus would be rife. The task of reconstruction would be difficult, and large scale relief imperative. As an integral part of the relief measures, we must get the agriculture of each country going, so that food would be produced on the spot, especially milk and the protective foods necessary to save children from growing into deformed men and women. Plans could be made with more certainty than in some other directions. The peasants would need seeds, animals, food for animals, implements for cultivation, cottages, stables and other buildings for animals.

Mr Kenneth G. Brooks of the Society of Friends said that the society had centers in nearly all European countries during and after the last war. Its experience established four main principles: 1. It is impossible to separate relief from rehabilitation. 2. Short and long term policies in agriculture must run concurrently. 3. International coordination of monetary and fiscal policy is essential. 4. Personnel aid must be provided on a generous scale and must have special qualities of human sympathy as well as professional and practical qualifications.

Mr A. J. Drexel-Biddle, American ambassador accredited to the allied governments in London, presided over one session and said that Russia's 'scorched earth' policy meant not only the burning of Russian villages but the destruction of live stock, crops and all that could not be carried away. These conditions would call for large scale postwar relief and agricultural reconstruction. In Poland also reconstruction would be a serious problem. For the restoration of the crops, various types of good seeds would be required. In the reestablishment of live stock, artificial insemination, in which Russian scientists had made great advances, would play an important part. American and Canadian organizations should get ready to supply breeding stocks for live stock in Poland in the scorched earth areas of Russia and in other European countries where live stock had suffered huge losses.

#### The British Medical Students' Association

In these days, when every calling has its organization and every branch of the medical profession has one it is not strange that medical students should organize. Until April 1940 there was no organization which could claim to represent them. There was then in existence an organization of students in general, the National Union of Students, which was holding a congress. At this the first move was made to form the British Medical Students Association as a faculty subcommittee of the National Union of Students. For a year no substantial change occurred. The British Medical Students Association represented only a minority of the National Union of Students, about 30 per cent, and most were members of provincial medical schools whose universities were members of the National Union of Students. Many attempts were made to increase the membership of the British Medical Students Association but with little success until July 1941 when it approached the Medical Planning Committee of the British Medical Association which informed it that a memorandum representative of medical student opinion on reform of medical education would be welcome. The need to make this memorandum representative of



all medical schools was realized and their cooperation was sought. But for various reasons the connection with the National Union of Students proved an insuperable obstacle. An alternative organization to be fully representative of all medical schools is being formed.

The reform of medical education is the most important matter which the British Medical Students' Association has taken up. In the last ten years papers on this subject have been published in this country and in America. The most comprehensive is the final report of the American Commission on Medical Education, which was abstracted in *THE JOURNAL*, Dec 24, 1932, page 2206. Another subject is the measures taken to safeguard the health of students. They vary greatly and are excellent in most hospitals, but there are exceptions. The conditions of admission of women to medical education have been the subject of much controversy and must be faced in order that a sound solution may be reached.

### Scheme for Training the Disabled

In addition to the members of the fighting services, the merchant navy and the civil defense services disabled in the war, civilians are injured in air raids and accidents in factories. The Ministry of Labor has introduced a scheme for the resettlement in civil life of these disabled persons, including training for a new occupation when this is desirable. The winning of the war demands the full use of all available labor, and disabled men and women can make a valuable contribution to this, in some cases by entering the munitions industry.

The Ministry of Labor has arranged for its officers to get into direct touch with disabled persons while still in the hospital to ascertain individual requirements in the way of employment and to do everything possible to meet them. The matter will also be discussed with the physician or surgeon attending the disabled person. In amputation cases there will be a special report from the limb fitting surgeon at the center where the artificial limb is supplied. Many disabled will want to return to their former occupation but will not know whether changes produced by the war in industry prevent this. Others will want to know which of the industries open to them will be of most value in the war effort. Some, prevented by their disablement from resuming their former occupation, will want to know what other occupation is available.

In many cases disabled persons will require training. Two schemes are administered by the ministry: the existing training scheme for munition work and a new scheme for the special benefit of the disabled. The cost of training is paid by the ministry, and the trainees are paid wages. Foreigners disabled in the war are eligible. There is medical supervision during the training course to ensure that this is suitable to the particular disablement.

### Roentgen Examination in Pulmonary Tuberculosis

The National Association for the Prevention of Tuberculosis has issued a memorandum enjoining the greater use of radiographic methods in the discovery of tuberculosis, particularly of the symptomless cases in young apparently healthy persons. It points out that pulmonary tuberculosis begins without any warning to the patients. By the time they voluntarily come for treatment the disease is advanced and perhaps they have infected others. In the British Isles there are about a quarter of a million cases of pulmonary tuberculosis, of which about 1,500 between the ages of 15 and 50 prove fatal each month. For prevention we must more persistently try to discover early cases before they have become infectious, as this would ultimately mean the conquest of tuberculosis. The only method of detecting tuberculosis before it produces symptoms is x-ray examination of the chest. The association holds that when these facts are known public opinion will insist on this method taking the

place of older less effective methods. The ideal would be examination of every young person on leaving school and at intervals during early adult life. Entry into the various occupations or into secondary schools and colleges provides an opportunity for this examination. Under the Factory Acts the certifying surgeon examines those who enter industry under the age of 16. This should include x-ray examination. At present our tuberculosis services deal only with those who come to them because they have symptoms of tuberculosis. Earlier detection would mean a better hope of eradicating the disease.

### Soap Rationed

The latest substance to be rationed is soap. Every person's consumption per week is limited to 4 ounces of household soap, 3 ounces of toilet soap, 3 ounces of soap flakes or chips, 6 ounces of soft soap, 6 ounces of soap powder No 1 or 12 ounces of powder No 2. Shaving soap, scourers, shampoo, liquid soap and dental soap are not rationed. The decision to ration soap has been made not because there is a scarcity but to secure economy in the use of imported oils and fats and to make certain that available shipping space may be used to import edible fats. The Ministry of Food has been supplying soap manufacturers with 300,000 tons of fats yearly. Eighty-two per cent of the total soap consumption is for domestic purposes. The ministry estimates that, with rationing, 80 per cent of the present consumption can be maintained.

### The First \$50,000,000 of the Red Cross Fund

The duke of Gloucester, president of the British Red Cross Fund, stated at a meeting that the collection by the fund of its first \$50,000,000 was an encouraging achievement. Now in the third year of the fund it was hoped to add a further \$25,000,000. Mrs Churchill's Aid to Russia Red Cross Fund stood at \$7,500,000. The Red Cross would in any case have helped Russia, but it congratulated Mrs Churchill on her remarkable result. At present money is being collected weekly for the Red Cross at the following rates: workshops \$125,000, house to house \$85,000. The total weekly collections, mostly subscribed in amounts of 2 cents, amount to over \$10,000,000 annually. Owing to the spread of the war to the Far East the demands on the Red Cross must continue to expand.

### American Ambulances for the Allies

The thousandth vehicle for which the allies have to thank the British War Relief Society of America has been handed over for Russia by Mr B N Cruger. The ambulance was accepted by Mme Maiskay, wife of the Soviet ambassador. The vehicles already given or maintained by the society represent only part of its activities for the allied cause. It maintains two hundred and seventy vehicles in Britain. In the quieter days now following the heavy air raids they carry 2,500 hospital patients weekly besides performing other duties. Traveling canteens are maintained for one year by their American donors. Some of the thousand vehicles are of unusual types. One is a mobile bathroom, given to the people of Plymouth for use in their evacuation area.

### Heroism of a Woman Physician

The award of MBE has been made to Dr Adaline Nancy Miller, ship surgeon. Her ship was approached by a raider, which opened fire at long range. The defensive armament replied, but a shell put the main gun out of action and heavy structural damage was done. As the speed was less than that of the enemy, the captain gave orders to abandon ship. A signal to this effect was made to the enemy, but he continued to shell and holed many of the lifeboats. He then sank the ship with gunfire and made off. During the action Dr Miller, with feet calm, attended to the wounded and dying. She continued her work after the company had taken to the lifeboats.

## BRASIL

(From Our Regular Correspondent)

March 31, 1942

### Inguinal Hernia from the Legal Point of View

According to a paper by Dr. Carlos Roberto de Barros, inguinal hernia usually is not a suitable fit since it is not cured but is merely treated, and it is often noticed of months and years. From the legal point of view, inguinal hernia as an occupational disease and accidental hernia are well defined entities. The patients are prone to attribute any hernia to some violent incident during their work, while the physicians are in the habit of regarding hernia as a congenital disease. According to the theory of hernia as an occupational disease, legal textbooks do not take into consideration professional conditions concerning hernia as an occupational disease, but compensation has to be examined for accurate evaluation of the degree of incapacitation. Chiefly the differentiation between inguinal hernia as a professional disease and as an occupational condition seems to be impossible, even microscopic examination of the protruded hernia sac cannot be an important method of differentiation being of value only in proving that the patient has or has not an accidental hernia. Jurists emphasize that although he can be forced to have a hernia operation, but a worker who has broken a bone is obliged to submit to adequate treatment, surgical or surgical. Dr. Roberto does not believe a man who has an occupational hernia should not have to submit to surgical treatment. The latter should be obligatory and an indemnity should be paid only in those rare cases in which permanent partial incapacity results. However, inguinal hernia is among the conditions for which there is indemnification and the worker chooses between operation or indemnification. This is not fair. The surgical treatment for hernia should be compulsory as a benefit to the employee and the worker. Only permanent partial incapacity resulting from surgical treatment would be subject to compensation, in the same way as the sequelae of amputated fracture.

### Births and Deaths Among Negroes

There seems to be a decrease in the number of Negroes in Brazil. The following numbers refer to births and deaths in 1939 in the state of São Paulo, the population of which is estimated at 7,200,000 inhabitants:

| Race   | Births  | Deaths |
|--------|---------|--------|
| White  | 97,390  | 9,476  |
| Negro  | 39,167  | 10,506 |
| Yellow | 9,500   | 1,477  |
| Total  | 146,057 | 21,459 |

Rubens de Amaral, who has made statistical studies in all regions of the state of São Paulo, said that the mortality is higher among the Negroes in populous centers than it is in the country. He advises that the Negroes should live only in the country and he suggests several measures that would tend to improve their standard of living.

### Vital Statistics in São Paulo

During 1941, 19,413 people died in the city of São Paulo, of whom 10,469 were males and 8,944 females. Cancer caused 1,190 deaths, tuberculosis 1,011, pneumonia 1,021, heart disease 1,824 and intestinal troubles 1,020. In the same period, 1,333 children (1,781 boys and 1,074 girls) were born and 2,312 marriages were registered. Among the races, the deaths were as follows:

| Race    | Deaths | Births |
|---------|--------|--------|
| White   | 1,882  | 1,077  |
| Mulatto | 1,122  | 1,077  |
| Negro   | 1,077  | 1,077  |
| Yellow  | 1,077  | 1,077  |
| Total   | 5,163  | 4,331  |

### Personal

Dr. Fernando Lazzarini, professor of surgery in the São Paulo Faculty of Medicine, died last night at 8:15 after a long illness, having been ill for several days after performing a hysterectomy for uterine cancer.

## MEXICO CITY

(From Our Regular Correspondent)

March 1, 1942

### Barter System for Workers

An act has been signed by the president of the republic and the minister of labor according to which all employees are obliged to provide sanitary examinations for their workers. But it will be free and the law fixes several terms to contract the different types of diseases among employees and to build new ones and besides different penalties for negligence to such regulations.

### National Academy of Surgery

The National Academy of Surgery held its first session of the year on January 30 in the National Academy of Sciences in the School of Medicine. The session was presided over by Dr. Gustavo Echeverría, minister of education. Dr. Aquilino Talamo, president of the Academy of Surgery, Leticia de la Cruz, a doctor in the University of Mexico, Dr. José Torres, director of the academy and Dr. Joaquín Cárdenas, executive secretary of the academy.

### Control of Chemicals by the Department of Economics

In February the Department of Economics served a decree requiring all manufacturers and dealers to send within fifteen days a manifest of their stock of acetone, ammonia, aniline oil, carbon tetrachloride, ether, acid, copper sulfate, pyrophosphoric, potassium salts, sulfuric acid, methyl alcohol and several other chemicals, dyes and pigments. Manufacturers are ordered to use their stock only in their own factories. Exportation is forbidden as well as raising of prices. The Union of Drug Stores and chemical laboratories complained in a recent meeting that many dealers have raised unduly the price of most medicines and chemicals.

## Marriages

JAMES PATTERSON SMITH, 3000 10th St. N.W., to Miss Margaret Elizabeth Smith of Earthquake, Pa. February 21.

JOHN J. JONES, 1000 1st St. N.W., to Miss Katherine Louise Jones of Washington, Pa. March 1.

ALBERT ROBERTSON, 1000 1st St. N.W., to Miss Ann (Betty) Lillian of Orange, Pa. March 1.

WILLIAM MARTIN, 1000 1st St. N.W., to Miss Anna Marie of Birmingham, Pa. March 1.

EDWARD J. SMITH, 1000 1st St. N.W., to Miss Jane (Coke) Smith of Atlanta, Pa. April 1.

CAROL ROBERTSON, 1000 1st St. N.W., to Miss Anna Marie of Orange, Pa. April 1.

JOHN J. JONES, 1000 1st St. N.W., to Miss Anna Marie of Orange, Pa. April 1.

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WILLIAM MARTIN, 1000 1st St. N.W., to Miss Anna Marie of Birmingham, Pa. March 1.

EDWARD J. SMITH, 1000 1st St. N.W., to Miss Jane (Coke) Smith of Atlanta, Pa. April 1.

## Deaths

**James Dowling Trask** \* associate professor of pediatrics at the Yale University School of Medicine, New Haven, Conn., died, May 24, in the Albert Merritt Billings Hospital, Chicago, of septicaemia and acute peritonitis, aged 51. Dr Trask was born in Astoria, L I, N Y, Aug 21, 1890. He graduated from the Cornell University Medical College, New York, in 1917, and was an intern at the Bellevue Hospital, New York. He served during World War I from May 1918 to December 1919. He was assistant resident physician at the Hospital of the Rockefeller Institute for Medical Research, New York, from 1919 until 1921, when he joined the faculty at Yale University School of Medicine as an instructor in medicine. In 1925 he was made an assistant professor of medicine and in 1927 an associate professor of pediatrics. Since 1927 he had been an associate attending pediatrician at the New Haven Hospital and dispensary. In 1939 he was appointed a commissioner of the city board of health. He was a member of the American Pediatric Society, New England Pediatric Society, Association of American Physicians, American Society for Clinical Investigation, American Clinical and Climatological Association and the Society of American Bacteriologists. He was also a member of the American Board of Pediatrics. In 1931 he was a member of the original Yale Poliomyelitis Commission to fight infantile paralysis after an epidemic of the disease had swept through Connecticut. At the meeting of the American College of Physicians in April 1942 he received jointly with Dr John R. Paul the John Phillips Memorial Medal. Dr Trask was a nationally known investigator in the field of infantile paralysis and during the last month was working in Army posts in the Chicago area on problems of hemolytic streptococcus infection as a member of the Commission on Hemolytic Streptococcal Infections of the Board for the Investigation and Control of Influenza and Other Epidemic Diseases in the Army, under an appointment as consultant to the Secretary of War.

**Julius P Dworetzky** \* Liberty, N Y, Long Island College Hospital, Brooklyn, 1910, member of the American Laryngological Rhinological and Otolological Society and the American College of Chest Physicians, fellow of the American College of Physicians, member of the American Board of Internal Medicine, Inc, and the American Board of Otolaryngology, served during World War I as a captain with the American Red Cross and with the Rockefeller Commission for the control of tuberculosis in France, director of medicine and visiting physician, Municipal Sanatorium, Otisville, visiting physician, Maimonides Hospital, consulting physician, Ulster County Tuberculosis Hospital (Kingston), Elizabeth A Horton Memorial Hospital (Middletown), St Francis Hospital (Port Jervis) and St Clare's Hospital (New York), medical examiner, Veterans Administration, aged 55, died, April 20, of brain tumor.

**Philip Allen Halper** \* Chicago, University of Minnesota Medical School, Minneapolis, 1923, member of the American Academy of Ophthalmology and Otolaryngology, fellow of the American College of Surgeons, member of the American Board of Ophthalmology and the American Board of Otolaryngology, formerly instructor in otolaryngology, associate in laryngology, rhinology and otology and associate in ophthalmology at the University of Illinois College of Medicine, assistant city and county physician, St Paul, 1924-1925, associate ophthalmologist, Illinois Eye and Ear Infirmary, attending ophthalmologist, Michael Reese Hospital and the Mandel Clinic, on the visiting staff of the Grant Hospital, associate editor of *Cyclopedia of Medicine*, aged 44, died, April 21, in Palm Springs, Calif, of hypertension.

**Thomas Henry Culhane** \* Rockford, Ill, Rush Medical College, Chicago, 1890, past president of the Winnebago County Medical Society, formerly vice president of the Illinois State Medical Society, fellow of the American College of Surgeons, on the staffs of the Rockford and Winnebago County hospitals, for many years member and at one time president of the school board, aged 73, died, April 14, in Rochester, Minn.

**Andrew Merriman Young Jr**, Oklahoma City, Vanderbilt University School of Medicine, Nashville, Tenn, 1909, served during World War I, at one time served as assistant surgeon in the U S Public Health Service, a former director of the state venereal disease bureau, aged 55, died, March 18, of heart disease at Kerrville, Texas.

**Bernice Turner Wright** \* Memphis, Tenn, University of Tennessee College of Medicine, Memphis, 1927, fellow of the American College of Surgeons, on the staff of the Vet-

erans Administration Facility, aged 39, died in March at the Baptist Memorial Hospital of an injury received in an auto mobile accident.

**Samuel Edward Sibley** \* Sioux City, Iowa, State University of Iowa College of Medicine, Iowa City, 1893, fellow of the American College of Surgeons, past president of the Woodbury County Medical Society, on the staffs of St Vincent's and Methodist hospitals, aged 72, died, March 18, of heart disease.

**Sidney L Feldstein** \* Harrisburg, Pa, Medico Chirurgical College of Philadelphia, 1902, formerly on the staffs of the Jewish and Stetson hospitals, Philadelphia, director of the x-ray service of the state department of health, aged 61, died, April 27, in the Jefferson Hospital, Philadelphia, of cerebral hemorrhage.

**George Wyckoff Cummins** \* Belvidere, N J, College of Physicians and Surgeons, medical department of Columbia College, New York, 1890, for many years county physician, member of the city board of health and board of education, aged 77, died, April 17, in the Easton (Pa) Hospital.

**Roscoe C Field**, Sheridan, Ore, University of Oregon Medical School, Portland, 1905, University of Louisville (Ky) Medical Department, 1910, for many years city councilman, member of the school board and mayor, aged 63, died, April 6 in a hospital at Portland of pneumonia and meningitis.

**Clarence Crane**, Fernbridge, Calif, Boston University School of Medicine, 1900, formerly assistant professor of surgery at his alma mater, fellow of the American College of Surgeons, at one time on the staff of the Massachusetts Memorial Hospitals, Boston, aged 70, died, April 13.

**Wilbur Curtis Hunsucker**, Bennettsville, S C, Medical College of the State of South Carolina, Charleston, 1934, member of the South Carolina Medical Association, on the staff of the Marlboro County General Hospital, aged 31, died, April 2, of cerebral hemorrhage.

**Joseph Albert Gregory**, Buffalo, University of Buffalo School of Medicine, 1908, member of the Medical Society of the State of New York, for many years a member of the board of health and a school inspector, aged 58, died, April 7, of carcinoma of the esophagus.

**Archibald Wallace Dunn** \* New York, University of Pennsylvania School of Medicine, Philadelphia, 1912, fellow of the American College of Surgeons, served during World War I, aged 59, died, April 29, in the Lenox Hill Hospital of cerebral hemorrhage.

**Robert Burnside Dawson**, Smiths Ferry, Pa, Western Reserve University Medical Department, Cleveland, 1893, member of the Medical Society of the State of Pennsylvania, aged 78, died, April 17, in the City Hospital, East Liverpool, Ohio, of uremia.

**Wilton F Blackford**, Louisville, Ky, Kentucky School of Medicine, Louisville, 1901, medical director of the Commonwealth Life Insurance Company, aged 69, died, April 2, in the Kentucky Baptist Hospital of carcinomatosis with obstruction of the intestine.

**Lynn J Tuttle**, Douglas, Ariz, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1902, fellow of the American College of Surgeons, for many years mayor of Douglas, aged 72, died, March 19, of coronary occlusion.

**Seth De Blois**, Newport, R I, University of Maryland School of Medicine, Baltimore, 1905, formerly county medical examiner, aged 59, president of the medical staff of the Newport Hospital, where he died, April 26, of coronary thrombosis.

**David Erastus Peek**, Six Mile, S C, Emory University School of Medicine, Atlanta, Ga, 1918, member of the South Carolina Medical Association, served during World War I, owner of a hospital bearing his name, aged 51, died, March 16.

**M Russell Wilcox**, Los Angeles, University of Minnesota College of Medicine and Surgery, Minneapolis, 1897, formerly assistant professor of physiology at his alma mater, member of the California Medical Association, aged 73, died March 25.

**John Tinkler** \* Buffalo, University of Buffalo School of Medicine, 1907, formerly instructor in anatomy at his alma mater, aged 62, died, March 9, in the Buffalo General Hospital of gastric ulcer and massive gastric hemorrhage.

**John Riegelman**, Mamaroneck, N Y, Bellevue Hospital Medical College, New York, 1894, formerly coroner's physician and assistant medical examiner in the Bronx, died, March 4, in the United Hospital, Port Chester.

Samuel Kendig Wallace @ Baltimore Johns Hopkins University School of Medicine Baltimore 1927 aged 40 died, March 3, in the Johns Hopkins Hospital of massive hemorrhage due to carcinoma of the transverse colon

Sigfrid J Cheleen, Fergus Falls Minn University of Minnesota College of Medicine and Surgery, Minneapolis, 1906, formerly on the staff of the Swedish Hospital, Minneapolis, aged 68 died April 1 of coronary occlusion

Russell Herbert Andrew @ Massena, N Y McGill University Faculty of Medicine Montreal Que, Canada 1935 aged 32 died April 28 in the Potsdam (N Y) Hospital of injuries received in an automobile accident

Henry Shelby Van Cleave, Burkburnett Texas University of the South Medical Department Sewanee Tenn 1898 formerly health officer of Burkburnett aged 78, died, March 5 of uremia in a hospital at Fort Worth

Andrew Fremont Wagner @ Los Angeles University of Pennsylvania Department of Medicine, Philadelphia, 1899 for many years autopsy surgeon for Los Angeles County, aged 74 died March 28 of arteriosclerosis

Charles Reiter @ New York Hahnemann Medical College and Hospital of Philadelphia 1937, was called to active duty May 23 1941 as a lieutenant (j g) medical corps U S Naval Reserve aged 29, was killed on the destroyer U S S *Trurton* which was wrecked in a storm on the coast of Newfoundland February 18

Inez Louise Clarke, Cambridge, Mass, Tufts College Medical School Boston 1904 member of the Massachusetts Medical Society aged 73 was found dead March 7 presumably of cerebral hemorrhage

Daniel Matthews Carter, Madison Ga Atlanta College of Physicians and Surgeons, 1912 member of the Medical Association of Georgia past president of the county board of education, aged 60 died, April 11

Burt Davis Harrington @ Brooklyn, Long Island College Hospital Brooklyn 1896 fellow of the American College of Surgeons, president of the board of directors of the Midwood Hospital, aged 68, died April 15

William James Dobbie, Toronto, Ont, Canada University of Toronto Faculty of Medicine 1905, for many years on the staff of the Toronto Hospital for Consumptives, Weston aged 69 died April 20

William Robert Haynie, West Memphis Ark Memphis (Tenn) Hospital Medical College 1895 served during World War I, formerly member of the state legislature aged 79 died April 12

Edward Parker Moser, San Francisco, University Medical College of Kansas City Mo 1903 Rush Medical College Chicago, 1910 aged 70, died, March 13, of arteriosclerosis and heart disease

Persons Walton Wing, Canaan N H Long Island College Hospital Brooklyn 1902 served during World War I aged 64 died March 20, in Orlando Fla, of coronary occlusion

Theodore Burton Ackerly, Glastonbury Conn, Long Island College Hospital Brooklyn 1897 formerly health officer of New Hartford aged 68 died April 15 of coronary occlusion

Monroe Holben Sollday @ Taylorville Ill Jefferson Medical College of Philadelphia 1901 on the staff of St Vincent's Hospital aged 68 died suddenly March 28 of coronary occlusion

Robert Ophenalia Currey, Chattanooga Tenn University of Tennessee College of Medicine Memphis 1912 member of the Tennessee State Medical Association aged 60, died April 26

Willard Parker Beach, New York College of Physicians and Surgeons medical department of Columbia College New York 1881 aged 82, died April 18 of congestive heart disease

Johan Alfred Rundstrom, Torsebro, Sweden, Karolinska Mediko-Kirurgiska Institutet, Stockholm, Sweden, 1892 formerly a practitioner in Chicago, aged 80, died, March 27

Jeremiah M Lindsey, Ranburne, Ala, Chattanooga (Tenn) Medical College, 1897, member of the Medical Association of the State of Alabama, aged 73, died March 1

Charles Leicester Rybke @ Portland Ore, University of Oregon Medical School, Portland 1909, on the staff of the Good Samaritan Hospital, aged 61, died, March 19

Jacob R Welch, Spencerville, Ohio, Fort Wayne (Ind) College of Medicine, 1882, member of the Ohio State Medical Association, bank president, aged 82, died in March

Harvey Reyburn Glenn @ Cochranville, Pa, Medico-Chirurgical College of Philadelphia, 1906, aged 57, died March 19 in the Lancaster (Pa) General Hospital

Lawrence Chamberlain Grosh Jr @ Toledo, Ohio, Johns Hopkins University School of Medicine, Baltimore 1930, aged 37 died April 17, of a self-inflicted bullet wound

John Franklin Jones, Le Roy, Ill, Colorado School of Medicine Boulder 1895 served during the Spanish-American War and World War I, aged 81, died March 16

Daniel Bluford Stough, Vinita Okla, Kentucky School of Medicine Louisville, 1887 member of the Oklahoma State Medical Association, aged 85, died March 19

Linton Turner @ Philadelphia University of Pennsylvania Department of Medicine Philadelphia 1903 on the staff of the Memorial Hospital, aged 63, died March 15

David D Wickson, Toronto Ont, Canada, Trinity Medical College Toronto, 1893, aged 71, on the staff of the Toronto Western Hospital where he died March 16

Louis Neuwelt, New York Columbia University College of Physicians and Surgeons, New York 1905 aged 60 died, March 13 in the Jewish Memorial Hospital

William Robert Shortridge, Flasher N D, Keokuk (Iowa) Medical College, 1898 aged 74 died March 16 in a hospital at Bismarck of intestinal obstruction

Charles Anthony Squires, Plainfield N J Cornell University Medical College, New York 1904 served during World War I aged 64 died March 21

John Wallace Henderson, Kennedy, N Y, Cleveland Homeopathic Medical College 1899 veteran of the Spanish-American War aged 67 died March 30

John Nathan Eisman, Cincinnati Harvard Medical School Boston 1938 aged 30, was found dead April 27, of an overdose of sleeping tablets self administered

Duncan Smith, Fingal Ont Canada University of Toronto Faculty of Medicine and the Western University Faculty of Medicine London 1890 died March 26

Melville F Boulden @ Frankfort Ind Illinois Medical College Chicago 1903 aged 72 on the staff of the Clinton County Hospital where he died April 7

John Ellsworth Witham, Waverlyville Ohio Miami Medical College Cincinnati 1889 aged 79 died March 11 in Venia of chronic myocarditis

Henry Philip Diekmeier @ Cincinnati Miami Medical College Cincinnati 1895 aged 70, died, April 2 of nephritis and dilatation of the heart

Paul Burmaster, Orlando Fla. Hahnemann Medical College and Hospital Chicago 1895 aged 74 died February 15 of coronary sclerosis

John Albert Riley, Alameda Calif California Medical College San Francisco 1900 aged 76 died March 28 of angina pectoris

John Ernst Barnstein, Manitowish Wisconsin Medical College 1897 also a pharmacist aged 89 died April 20 of myocarditis

# DIED IN MILITARY SERVICE



CHARLES REITER M D  
1912-1942



## Bureau of Investigation

### CEASE AND DESIST ORDERS

#### Abstracts of Certain Federal Trade Commission Releases

The work of the Federal Trade Commission, in helping to protect the public against misrepresentation or fraud in the medical as well as other fields, has been greatly extended by the provisions of the Wheeler-Lea Amendment to the Federal Trade Commission Act. The Food, Drug and Cosmetic Act of 1938 added to the Food and Drug Administration's control of the advertising claims and statements made on the labels of medicine or on the carton or in the accompanying leaflet, whereas what might be termed collateral advertising, that which appears in newspapers and magazines and over the air, comes more actively under the purview of the Federal Trade Commission by virtue of the Wheeler-Lea Amendment.

THE JOURNAL has at various times commented on the activities of the Federal Trade Commission in this connection, even before the Wheeler-Lea Amendment gave it its added rights. In some cases the Commission may accept from the person or concern involved a stipulation that the objectionable practices or claims cited will be discontinued. In other cases the Commission issues what is known as a Cease and Desist Order, in which the individual or company cited is ordered to cease and desist from practices which have been declared objectionable. Abstracts of some of the orders issued during 1941 follow.

**A B C Gauzband**—This was advertised by the American Bandage Corporation, Chicago, as being "medicated with an antiseptic and germicidal material rendering it self sterilizing." This, according to the company, was the result of "a secret process used exclusively by the manufacturer," and the bandage was further claimed to remain sterile even after it is removed from the package. The Federal Trade Commission declared that these claims were untrue and in September 1941 ordered the promoters of the A B C Gauzband to discontinue them.

**Clairol**—This hair coloring is put out by Joan Gelb, Morris Gelb and Leon A. Spilo, formerly of New York, who operate under the title Clairol, Incorporated with headquarters at Stamford, Conn. There are two Clairol products—the "Instant" and the "Progressive." The "Instant" was found some years ago by the American Medical Association's chemists to belong to the aniline derivative type of hair dyes, after reports of inflammation of the skin following its use had been received. The "Progressive" Clairol apparently was at first only a simple tint but seems to have had some aniline substance later added to it. In October 1941 the Federal Trade Commission ordered Joan and Morris Gelb and Leon A. Spilo to cease representing that their preparations are not hair dyes, that they recondition the hair or restore its natural or youthful color or that the results obtained are permanent, that the products supply nourishment to the hair, that they are made or compounded in France, that Instant Clairol is safe to use and that the number of treatments of their preparations used by the public is greater than is the fact.

**Copinol**—This product, also known as "Copinol Nasal Medicine," is put out by a Robert E. Overell of Los Angeles, who does business as the Copinol Company. In September 1941 the Federal Trade Commission ordered Overell to cease representing that his product is a cure or remedy for head colds, catarrh, choked nose and throat or sinus congestion, or has any value in treating such conditions beyond furnishing temporary relief to congested mucous membrane or will rid the nose and throat of, or protect the nose from, germ-laden mucus, instantly clear the head or afford quicker and more lasting relief than similar preparations. Overell also was ordered to discontinue any advertisements which failed to reveal that Copinol should not be used by persons suffering from heart trouble, high blood pressure, diabetes or thyroid disorders or that the use of his mixture over a long period may produce prolonged nasal constriction resulting in tissue damage from anoxemia, provided, however, that if the label of the preparation contains a warning of the potential dangers in its use, such advertisements need contain only the cautionary statement "Caution, use only only as directed on the label." THE JOURNAL, Aug. 17, 1935, page 528, contained an abstract of an action brought by the Food and Drug Administration against the Copinol Company of Los Angeles for making fraudulent claims on the labels which represented Copinol as a remedy for catarrh, hay fever, sinus trouble and some other things. In the same connection the government chemists had reported that Copinol consisted essentially of mineral oil, with a trace of an alkaloid such as berberine, and perfume.

**Duncan's Ozon**—The Ozon Chemical Company, Inc., trading as Duncan Chemical Company, St. Louis, was ordered by the Federal Trade Commission in September 1941 to discontinue the following misrepresentations in the sale of this product: that it is a cure or remedy or has any value in the treatment of sore throat, poison ivy, athlete's foot, colds or coughs or affords any benefit in the treatment of coughs beyond such comfort as it offers through its expectorant properties. THE JOURNAL, Aug. 26, 1933, page 725, reported a case in which a shipment of Duncan's Ozon was declared to violate the National Food and Drugs

Act because the labels falsely represented it as a remedy for rheumatism, kidney and bladder disorders, indigestion, pyorrhea and some other things. Government chemists at that time reported that it consisted essentially of pine oil.

**"Dupree" and "Dr. Gordon's" Nostrums**—Ben Gordon and Louis Gordon, trading as Bengor Products Company and Golf Products Company, New York, put out two products, one known as "Dupree Pills" and "Dr. Gordon's Single Strength Pills" and the other as "Dupree Pills Double Strength" and "Dr. Gordon's Double Strength Pills." In July 1941 the Federal Trade Commission reported that the single strength product contains, among other ingredients, extracts of cotton root bark and black hellebore and the double strength pills, ergotin. The Commission ordered the Gordons to cease disseminating any advertisements that represent these products as safe and effective treatments for amenorrhea and dysmenorrhea or that fail to reveal that the use of them may result in gastrointestinal disturbances leading to other serious ailments. In September 1939 the Commission had issued a similar order against Robert C. Oberlin, trading as Research Products Company, Cleveland, which was distributing these preparations.

**Helena Rubinstein Products**—Four of these, the "Town and Country Face Powder," "Eye Lash Grower Cream," "Eye Lash Cream and Darkener" and "Egg Complexion Soap," were advertised by Helena Rubinstein, Inc., New York, under exaggerated, false and misleading representations, according to the Federal Trade Commission. In July 1941 the Commission ordered the Rubinstein concern to discontinue such misrepresentations as that its face powder is, among other things, "proof against drying of the skin," "enlarging the pores," "the onslaughts of weather," that the "eyelash grower" is intended for "lovely long lashes," that the eyelash cream and darkener "makes the lashes dark and silky," or "prevents them from breaking" and that the egg complexion soap "purifies the skin" and "is made of eggs and soothing oils."

**Hy Phen**—In June 1937 Bradley's Laboratory, Inc., of Matoaka, W. Va., signed a stipulation with the Federal Trade Commission that it would cease representing that its "Hy Phen Tablets" relieve all types of pain and headache, are safe in all instances and constitute a competent treatment for colds. The concern also agreed to drop the words "laboratory" and "manufacturers." In July 1941 the Commission ordered Hy Phen Corporation, Matoaka, W. Va., successor to Bradley's Laboratory, Inc. to discontinue the following misrepresentations in its advertising: that Hy Phen will prevent or cure colds or is anything other than an analgesic giving temporary relief from painful symptoms, that it is superior to other products of its type or has any therapeutic value in treating such conditions as migraine headaches, infectious diseases, headaches due to infection, pains caused by abscessed teeth or by pressure on nerves, or that its use is entirely free from danger. In fact, the Commission reported that the product contains acetophenetidin, caffeine and hyoscyamus.

**Improved White Ribbon Remedy**—This product of the Gates Medicine Co., Inc., Charleston, W. Va., was known as "White Ribbon Remedy" prior to January 1940. The Federal Trade Commission reported in August 1941 that as the original preparation, White Ribbon Remedy contained tartar emetic it would not be a safe or reliable remedy for the liquor habit, that in the product as sold under the newer and longer name, tartar emetic was eliminated and there were substituted in each box 2,160 international units of thiamin chloride (vitamin B<sub>1</sub>) with sugar of milk as a carrying body, and no other ingredient. The Commission's findings were that, though the new product may contribute a negligible portion of normal human vitamin requirements, it is not effective as a liquor habit cure and the Commission thereupon issued an order against the Gates Medicine Company, Inc., to cease representing it as such a cure and to discontinue any advertising which fails to reveal that the use of the preparation may cause depression of the cardiovascular system, chronic irritation of the stomach and intestinal tract, nausea and failure to eat and get the proper amount of food minerals and vitamins necessary to maintain health.

**Jacks or Jacque**—This product, put out by Lambert Agin, trading as Jacks Chemical Company and Jacque Chemical Company, Pleasant Ridge Station, Cincinnati, was reported by government chemists to be nothing more than a diluted aqueous solution of nitric, hydrochloric and acetic acids, approximately 10 per cent in strength. The Federal Trade Commission in August 1941 declared that the product is wholly incapable of effecting any of the results claimed for it in the treatment of the conditions designated, and ordered Agin to cease representing it as a cure or remedy for gall, kidney and bladder stones, diabetes, rheumatism, swollen limbs, hives, excess acid and excess uric acid.

**"Kemico" Products**—These are put out by one F. W. Johnson trading as Kemico Park Ridge, Ill. In August 1941 Johnson was ordered by the Federal Trade Commission to cease misrepresenting in his advertisements the alleged effectiveness of preparations compounded from the formulas: (1) for certain skin preparations, such formulas being known as "Greaseless Massage Cream," "Lemon Greaseless Cream," "Pine Oil Balm," and "Debest Skin Treatment"; (2) for the hair, such formulas being known as "Hair Lay Cream" and "Dandruff Remedy"; (3) for catarrh, colds and similar ailments, the formulas being known as "Catarrh Cream," "Vapor Inhalant," "Nasal Jelly," "Pine Oil Nasal Spray," and "Menthol and Camphor Nasal Spray"; and (4) for the teeth, such formulas being known as "Teeth Whitener Formula A" and "Formula B." Specifically Johnson was ordered to cease representing, through the use of the words "remedy" or similar terms, that the mixture compounded from the "Dandruff Remedy" formula will cure dandruff or have any other effect, except giving certain temporary relief, and that the preparations compounded from his "Teeth Whitener Formula A," "Pine Oil Nasal Spray," "Menthol and Camphor Nasal Spray" and "Nose Inhalant" are safe to use.



**Madame Bea's Capsules**—That there are a safe and effective treatment for delayed unnatural or suppressed menstruation is a misrepresentation that the Federal Trade Commission in October 1941 ordered David L. Silver and O. C. Cowles trading as Mrs. C. R. Rye Drugs Beckley, W. Va. to discontinue in their advertising. They were also ordered to cease disseminating any advertisements that failed to reveal that the use of the product may cause gastrointestinal disturbances, excessive congestion and hemorrhage of the pelvic organs and in cases of pregnancy may result in uterine infection and blood poisoning.

**Marrills**—This was put out as a weight reducer by one I. Burman trading as Burtley Company, New York. Burman, according to the Federal Trade Commission, represented that by coating the body with a film of Marrills the pores of the skin would be closed and could not take in oxygen, that the body would then undertake to supply this lack of oxygen from the system and that the result of the pouring out of perspiration and burning up of fat would reduce body weight. The Commission found this theory to be false and in July 1941 ordered Burman to discontinue the foregoing misrepresentations as well as the implication that his product was compounded by one of the world's leading cosmetic scientists.

**Martha Beasley's Compound Formula No. 2 and No. 3**—These were advertised by J. V. Cordes and Mrs. J. H. Cordes doing business as Martha Beasley Associates, Detroit, and represented as safe and effective treatments for delayed menstruation and as being recommended by physicians generally. The Federal Trade Commission, however, found that they contained dangerous drugs which might produce serious results if taken in the doses recommended. In September 1941 the Commission ordered the promoters to discontinue the foregoing representations and to cease disseminating advertisements which failed to reveal that the use of the products may cause gastrointestinal disturbances and excessive congestion and hemorrhage of the pelvic organs and in case of pregnancy, bring about uterine infection and blood poisoning.

**Perfect Voice Institute**—This Chicago concern was said to have had for its chief officers a Eugene Feuchtinger, Walter A. Jordan and Mary E. Murphy. The institute promoted a correspondence course in voice development which according to the Federal Trade Commission consisted of approximately thirty lessons with which were furnished mechanical aids including a mirror, flash light, pitch pipe, tongue supports and depressors, a tape measure and a mouth gauge. In September 1941 the Commission ordered the Perfect Voice Institute and its officers to cease and desist from representing that the development and control of the muscles of the tongue or the use of their course of instruction has any beneficial effect on the voice other than to make it louder or stronger or representing that by use of their course of instruction physical defects of the vocal organs may be corrected or stammering overcome.

**Pond's New Skin Vitamin Creams and Danya Lotion**—The creams in question consist of a liquefying cream, a cold cream and a vanishing cream. Since 1938 according to the Federal Trade Commission each of these products of the Pond's Extract Company, New York, has contained 3,100 vitamin A units and 165 vitamin D units and the advertising has described the vitamin A as a skin vitamin and as having the effect of nourishing the skin. The lotion was represented as storing up the skin vitamin in the hands of the user. The creams were further represented to penetrate to the under skin of the user, stir it to vigorous action and keep it active and also apparently to wipe away lines and blemishes and freshen and smooth the skin. The Commission found that the small amount of vitamin A in the creams is in contact with the skin for so short a time that no effective absorption can take place and even if it could and were carried into the blood stream the effect would be systemic and not local. Accordingly in September 1941 the Commission ordered the Pond concern to discontinue the foregoing misrepresentations.

**Rosse Rheuma Tabs**—In August 1941 the Federal Trade Commission ordered Edward C. Rosse trading as Rosse Products Company, Chicago, to discontinue false and misleading representations in the promotion of this product such as that it is a cure or remedy for rheumatism, rheumatic pains or sensitive joints or furnishes anything beyond temporary relief from the symptoms of pain.

**Spencer System**—Under this name John L. Shea, William J. Hagerty, Jean G. Mitchie and Glenda S. Hills, all of Boston, sold courses in which they instructed students in the design and fabrication of arch supports and foot exercisers. In September 1941 the Federal Trade Commission ordered the Spencer System and the persons named to cease and desist from the following misrepresentations: that their courses of instruction or any substantially similar ones will equip anyone with learning and proficiency adequate to diagnose and determine whether foot troubles require surgical treatment and to treat effectively nonsurgical foot troubles or any foot disorders whatever.

**Sterling Diathermy Machine**—According to the findings of the Federal Trade Commission this device consisted principally of a high frequency generator encased in a portable wooden cabinet and was applied to the patient by placing the condenser pads in such position that the power might pass between them through the affected area at stated intervals for varying periods of time. The Commission found further that the use of this device for self treatment by the unskilled layman would not accomplish the results claimed by its promoters and that it was not a safe, scientific and effective method for the relief, cure or treatment of self diagnosed ailments of the human body. In September 1941 the Commission ordered Nolan B. Stadler, trading as the Sterling Appliance Company, Los Angeles, to cease making false and exaggerated claims for his mechanism and to discontinue any advertisements which failed to reveal that the unsupervised use of the device by persons not skilled in the diagnosis, analysis and methods of treatment of disease may result in serious and irreparable injury to health.

**Thermalaid**—This is an electrical device promoted by Thermalaid Method Inc., Steubenville, Ohio. In July 1936 when the device was being put out under the name of the Electro Thermal Company of Steubenville, the Federal Trade Commission ordered this concern to cease representing that the use of the device constitutes a competent treatment or cure for prostatitis, hypertrophy or any other ailment and that those who use it may expect immediate relief from backache, pains, worry and debilities due to prostatic trouble. The case was discussed at some length in this department of THE JOURNAL, Oct. 3, 1936, page 1150. Perhaps it was because of this government action that the Electro Thermal Company changed its name for in August 1941 the Commission ordered the Thermalaid Method Inc., the trade style now used and its president, Charles H. McFarland of Steubenville, to discontinue the following misrepresentations in the advertising of their device: that the use of the Thermalaid will prolong the vigorous years of one's life and recuperate one's vitality or sex virility, provide a cure or remedy for prostatic gland disorders or offer any relief from prostatic disorders besides what might result from the local application of heat in cases of acute or chronic prostatitis in its milder forms. (The original Electro Thermal Company was once reported to be run by a John G. Homan who branched out into other fields of quackery. A Post Office fraud order which closed the mails to his rupture cure outfit, the 'New Science Institute' was dealt with in this department of THE JOURNAL, Nov. 16, 1935, page 1625.)

**Trox Tablets**—In September 1941 the Federal Trade Commission ordered W. S. and G. L. McClymonds, formerly known as Oxol Laboratories, Denver, to discontinue the following misrepresentations in the sale of this product: that Trox Tablets constitute a cure or remedy for various diseases and ailments of the kidneys and the prostate gland or possess any therapeutic value in the treatment of such conditions. In THE JOURNAL, Nov. 11, 1939, page 1828, a case was reported in which the Food and Drug Administration had declared Trox Tablets put out by Oxol Laboratories, Denver, to be fraudulently represented on the labels as effective for urinary infections, cystitis, prostatic and venereal disorders in violation of the Food and Drugs Act. In this connection government chemists had reported that the product was essentially a mixture of charcoal, starch, magnesium carbonate, extracts of plant materials, containing saponins and a small amount of oxyquinoline sulfate.

**Vibratherm**—The Vitaphore Appliances Inc., South Bend, Ind., signed a stipulation with the Federal Trade Commission in January 1938 in which it promised to cease representing that the Vibratherm produces a tonic effect on the entire nervous system immediately, also that it gives almost immediate relief to sufferers from prostatic disorders, is a competent remedy for constipation and relieves hemorrhoids. In April 1941 the Commission definitely ordered this concern to cease representing that the Vibratherm is a cure or remedy for prostatitis or is of any value in that condition in excess of giving temporary relief from symptoms of pain or that the use of this device is a remedy for bladder weakness, backache, headache, limb pains or nervousness or that it has any value in the treatment of hemorrhoids, constipation, sexual decline or women's disorders.

**Vitale Instantaneous Hair Dye**—This product put out by Castmire Mujojo trading as Alvi Inc. and Alvi Company, New York, was also known as Vitale Hair Coloring, Vitale Rapid Hair Coloring, Vitale Rapid Vitale Hair Dye and simply as Vitale. In August 1941 the Federal Trade Commission ordered Mujojo to discontinue advertisements which represent that this product is a safe or scientific one and free from harmful, injurious or dangerous chemicals, that its use will end prematurely gray hair or produce a permanent natural uniform shade or give the warmth, color, luster or glint of youth to the hair and also to discontinue advertisements which fail to carry conspicuously the caution that the product contains ingredients which may cause skin irritation in certain individuals, that preliminary tests described in accompanying directions should first be made and that to use the preparation for dyeing the eyelashes or eyebrows may cause blindness. Mujojo was permitted however to limit this warning in the advertisements to the statement: CAUTION: Use only as directed on label, if and when such label bears the first described caution conspicuously displayed and the accompanying labeling gives adequate instructions for such tests before each application.

**Witol Cosmetics**—These include Witol's New Liquid Skin Peel and Take Off. In May 1941 the Federal Trade Commission ordered Witol Inc. and its president, William Witol, as well as Witol Beauty Laboratories Inc., New York, to discontinue advertisements which represent that these two products will remove the outer layer of the skin and give the user a new, fresh surface skin, that these are effective in treating pimples, blackheads, whiteheads, freckles or superficial blemishes or will cause large pores or fine lines to diminish.

**Woodbury's Cosmetics**—In November 1933 the Jergens Woodbury Sales Corporation, Cincinnati, signed a stipulation with the Federal Trade Commission in which it agreed to cease representing that its facial creams constitute a new or unique protection from the danger of blemishes or will give the skin the care that makes beauty safe or change aging dryness to supple youth. That Element 576 directly gives the skin vital energy or such energy as vitamins in foods bring to the body or that Element 576 in Woodbury's Cold Cream causes the oil glands beneath the skin's outer surface to function better. In September 1941 the Commission ordered the Jergens Woodbury Sales Corporation, Cincinnati, to discontinue the following misrepresentations in the sale of a facial soap, a facial powder, a cleansing cream, a facial cream, a cold cream and a skin use cream: that the powder and cold cream are a skin and perm guard both before use and continuously during use, that they will guard the skin against blemishes, prevent infections from germs and kill germs under conditions of normal use, that the powder will spread farther than competitive products, that the presence of vitamin D in the creams will help users fulfil their fondles for beauty and that the vitamin D present in the soap will benefit the skin.

## Correspondence

## SULFONAMIDE DERIVATIVES AND BACTERIAL CONTAMINATION OF STORED PLASMA

To the Editor—In THE JOURNAL, February 14, appeared an article by Dr Milan Novak entitled "The Use of Sulfonamide Derivatives as a Solution to the Problem of Bacterial Contamination in Stored Plasma"

or serum, with and without the drug, were inoculated with less than 20 bacteria per cubic centimeter and then held at 37 C, 22 C and 6 C. The highest temperature was used to simulate summer room temperature. Subcultures of 1 cc were made at intervals of three, ten and twenty-two or thirty days in semisolid agar containing para-aminobenzoic acid. In certain instances dilutions were made before cultures were taken. Some plate counts were also made of the motile bacteria. However, plate culturing alone, which was apparently used by Dr Novak, was found inadequate, for certain bacteria after having been in contact with the drug would not start growing for several days, during which time the plate became too dry to support growth,

TABLE 1—The Influence of 0.2 per Cent Sodium Sulfathiazole on Bacteria in Normal Human Plasma Pooled from Nine Donors and Held in the Liquid State

| Bacterium Inoculum | Days | Staphylococcus aureus<br>8 Bacteria/Cc |                 | Pseudomonas aeruginosa<br>10 Bacteria/Cc |               | Bacillus subtilis<br><1 Bacterium/Cc |                   | Streptococcus bovis<br>8 Bacteria/Cc |                  |
|--------------------|------|--|-----------------|--|---------------|--------------------------------------|-------------------|--------------------------------------|------------------|
|                    |      | Control,<br>1 Cc                       | Drug,<br>1 Cc   | Control,<br>1 Cc                         | Drug,<br>1 Cc | Control,<br>1 Cc                     | Drug,<br>1 Cc     | Control,<br>1 Cc                     | Drug,<br>1 Cc    |
| 37 C               | 3    | +++                                    | 10 <sup>3</sup> | >10 <sup>3</sup>                         | 0             | >10 <sup>3</sup>                     | >10 <sup>2*</sup> | ++++                                 | ++++             |
|                    | 10   | ++++                                   | 10 <sup>4</sup> | ++++                                     | 0             | ++++                                 | Lost              | 10 <sup>4</sup>                      | 10 <sup>4</sup>  |
|                    | 22   | ++++                                   | 10 <sup>4</sup> | ++++                                     | 0             | ++++                                 |                   | 10 <sup>4</sup>                      | 10 <sup>4</sup>  |
| 22 C               | 3    | ++                                     | 20              | ++++                                     | 0             | ++++                                 | +++               | ++++                                 | ++++             |
|                    | 10   | ++++                                   | +++             | ++++                                     | 0             | 10 <sup>7</sup>                      | 10 <sup>8</sup>   | >10 <sup>4</sup>                     | >10 <sup>4</sup> |
|                    | 22   | >10 <sup>4</sup>                       | 10 <sup>4</sup> | ++++                                     | 0             | ++++                                 | +++               | >10 <sup>4</sup>                     | >10 <sup>4</sup> |
| 6 C                | 3    | 4                                      | 5               | +  | +             | 0†                                   | +++               | 9                                    | 11               |
|                    | 10   | 2                                      | 3               | 14                                       | 12            | 0                                    | 0                 | 16                                   | 40               |
|                    | 22   | 0                                      | 1               | +  | +             | 0                                    | 0                 | >200                                 | >600             |

\* Test was repeated. No bacteria were recovered on third day or subsequent days. † Test was repeated. Bacteria were recovered on third day but none on subsequent days. +, +++, ++, + = innumerable, very many, moderate number and few bacteria.

TABLE 2—The Influence of 0.2 per Cent Sodium Sulfathiazole on Bacteria in Human Serum Which Had Previously Been Pooled, Frozen and Dried in an Approved Manner

| Bacterium Inoculum | Days | Staphylococcus aureus<br>16 Bacteria/Cc |                  | Pseudomonas aeruginosa<br>Approximately<br>10 Bacteria/Cc |               | Bacillus subtilis<br>Approximately<br>10 Bacteria/Cc |               | Streptococcus viridans<br>2 Bacteria/Cc |               |
|--------------------|------|---|------------------|---|---------------|--|---------------|---|---------------|
|                    |      | Control,<br>1 Cc                        | Drug,<br>1 Cc    | Control,<br>1 Cc  | Drug,<br>1 Cc | Control,<br>1 Cc                                     | Drug,<br>1 Cc | Control,<br>1 Cc                        | Drug,<br>1 Cc |
| 37 C               | 3    | ++++                                    | >10 <sup>2</sup> | ++++  | ++++          | ++++   | ++++          | 4                                       | 1             |
|                    | 10   | ++++                                    | +++              | ++++  | Contaminated  | ++++   | ++++          | 0                                       | 0             |
|                    | 30   | ++++                                    | +++              | ++++  |               | ++++   | ++++          | 0                                       | 0             |
| 22 C               | 3    | ++++                                    | +++              | ++++  | +++           | ++++   | ++++          | Contaminated                            | 3             |
|                    | 10   | ++++                                    | +++              | ++++  | +++           | ++++   | ++++          |   | 3             |
|                    | 30   | ++++                                    | +++              | ++++  | +++           | ++++   | ++++          |   | 0             |
| 6 C                | 3    | 2                                       | 12               | +   | +             | 0  | 0             | 4                                       | 7             |
|                    | 10   | 12                                      | 12               | +   | +             | 0  | Contaminated  | 8                                       | 7             |
|                    | 30   | 0                                       | 2                | +   | +             | 0  |               | 3                                       | 6             |

\* Six days elapsed before growth was present in this subculture.

TABLE 3—Influence of 0.2 per Cent Sodium Sulfathiazole on Bacteria in Pooled Citrated Blood from Four Donors

| Bacterium             | Bacteria Added per Cc | Bacteria Recovered per Cubic Centimeter |        |        |        |                           |        |        |        |
|-----------------------|-----------------------|---|--------|--------|--------|---------------------------|--------|--------|--------|
|                       |                       | Control                                 |        |        |        | 0.2% Sodium Sulfathiazole |        |        |        |
|                       |                       | 2 Hrs                                   | 24 Hrs | 48 Hrs | 72 Hrs | 2 Hrs                     | 24 Hrs | 48 Hrs | 72 Hrs |
| Staphylococcus albus  | 18                    | 9                                       | 15     | 9      | 16     | 8                         | 23     | 13     | 6      |
|                       | 180                   | 125                                     | 105    | 84     | 63     | 103                       | 130    | 83     | 61     |
| Staphylococcus aureus | 8                     | 3                                       | 9      | 10     | 6      | 10                        | 13     | 16     | 8      |
|                       | 80                    | 85                                      | 77     | 86     | 67     | 79                        | 100    | 73     | 67     |
| Streptococcus bovis   | 6                     | 8                                       | 13     | 7      | 5      | 15                        | 20     | 14     | 8      |
|                       | 60                    | 72                                      | 81     | 76     | 97     | 65                        | 117    | 76     | 77     |

In view of the present interest in human plasma for use in both military and civilian medicine, Dr Novak's report will attract widespread attention. Particularly is this true since so many laboratories and clinics are eagerly awaiting methods which offer simplification of the complicated and exacting procedures required for safely processing plasma. My attention was called to this report by the author's results being at wide variance with other available data. Because of the urgency of the problem, Dr Margaret Pittman was assigned the task of checking Dr Novak's work as nearly as could be done from reading his report. Dr Pittman's report follows:

Two different experiments have been done, one with pooled liquid human plasma and the other with restored frozen and dried human serum. With each a concentration of 0.2 per cent sodium sulfathiazole was used. Tubes containing the plasma

hence no growth developed. The pooled liquid plasma was inoculated with Staphylococcus aureus, Pseudomonas aeruginosa (pyocyaneus), Bacillus subtilis and Streptococcus bovis (isolated from frozen and dried cow serum), the restored dried serum was inoculated with the first three species and Streptococcus viridans. The results are given in tables 1 and 2.

At 37 and 22 C the staphylococci rapidly multiplied in the presence of the drug in both the plasma and the serum, the rate of growth, however, was slower than in the control tubes. Nevertheless, at the end of twenty-two days 10<sup>4</sup> bacteria per cubic centimeter were counted in the plasma containing the drug at both temperatures. Contrasting results were obtained with P. aeruginosa in the liquid plasma and in the restored serum. In the liquid plasma with the drug at 37 and 22 C no bacteria were recovered, at 6 C they were recovered through the twenty-second day. In this instance Dr Novak's observations

were confirmed. However, in the restored serum with the drug there was rapid multiplication of this bacterium in the presence of the drug.

*B. subtilis* grew in both the plasma and the serum at 37 and 22 C but at 6 C it could not be recovered from the tubes with or without the drug after the third day. The tube of plasma plus the drug at 37 C was lost after the third day of culturing, and another tube was set up with plasma of the same lot but from another bottle. Bacteria could not be recovered from this tube while in the control tube there was luxuriant growth.

With *Str. bovis* in the plasma there was not the slightest indication of bacteriostasis, in fact there was some indication that the drug acted as a stimulant.

*Str. viridans* did not multiply in the restored serum with or without the drug but it was recovered in equal number from serum containing the drug and from the control tubes over the same time interval.

An additional experiment was made with pooled citrated blood. Concentrations of 0.02 and 0.2 per cent sodium sulfathiazole were used. The bacteria added were *Staph. aureus* and *Str. bovis* used in the preceding experiments and a *Staphylococcus albus* isolated two days previously from human skin. The inoculated tubes were held at 5 C and cultured at different intervals up to seventy-two hours. At no time was there any significant difference in the number of bacteria recovered from the blood containing either amount of the drug as compared with the number from the blood containing no drug. The results obtained when 0.2 per cent of the drug was used are given in table 3.

Dr Pittman's report is not intended as a complete study of bacteriostatic or bactericidal influence of the sulfonamide drugs when dissolved in normal human plasma. However, using five different species of bacteria and one lot of pooled plasma and one of serum, and after exposing the bacteria to the drug-treated plasma or serum at three different temperature levels, and culturing three times during a period of approximately thirty days, she was unable to find any evidence that 0.2 per cent sodium sulfathiazole had an inhibiting effect to a degree to be of significance when used in processing plasma or serum. Since this study was undertaken Heath and Province (*THE JOURNAL*, March 28, p. 1034) have reported their observations, which confirm Pittman's results.

This study was repeated with whole blood in order to ascertain whether the action of sodium sulfathiazole would be different in the presence of the cellular elements of the blood. Here again the drug failed to exert any retarding action on the bacteria used and under the conditions of the test as described by Dr Pittman.

It is regrettable that Dr Novak should hold (paragraph 2 of his conclusions) that the addition of 0.2 per cent sodium sulfathiazole to the bleeding bottle is justification for indifferent technic in drawing blood or in recovering the plasma. Up until now there is no known acceptable bactericidal agent which will accomplish this. On the other hand, qualified technicians using the aseptic bleeding technic, followed by a closed system of processing the plasma, can produce a sterile product even on large scale production. This is being illustrated in the present program of collecting blood and processing it to the dried plasma for the armed forces. Operating under the minimum requirements specified by the National Institute of Health for licensed laboratories, one bleeding clinic (under Red Cross auspices) has, to date delivered 6,606 consecutive uncontaminated bleedings. Two processing laboratories which receive blood from this and seven other bleeding clinics have to date processed to the dried state 60,685 bleedings with a loss of 286 bleedings, or 0.47 per cent, because of contamination. Some bleeding clinics and processing laboratories where less regard is given to essential details have records less good. We have yet to find the easy short cut to preparing uncontaminated citrated normal human plasma.

M. V. VELDEE, M.D., Washington, D. C.  
Chief, Division of Biologics Control,  
National Institute of Health

## THROMBOSIS OF RENAL ARTERY SIMULATING CORONARY THROMBOSIS

*To the Editor*—In their paper "Thrombosis of Renal Artery Simulating Coronary Thrombosis" (*THE JOURNAL*, May 2, p. 27) Drs. Wolfe and Donnelly state "The clinical manifestations of renal artery thrombosis are as yet not well recognized."

There is no complete description, as far as we can find, in any textbook or periodical of the clinical manifestations of thrombosis of the renal artery. I should like to call their attention to a paper published by me in the *Archives of Internal Medicine* in April 1908 on "Clinical Manifestations of Hemorrhagic Renal Infarct." The clinical signs and symptoms of thrombosis of the renal artery are there described and discussed in great detail. In my study of the literature on the subject at that time I found descriptions of the syndrome characterized by that painstaking attention to physical signs so characteristic of the masters of the art of diagnosis of the era when urography was unknown. I have reference to the contributions on the subject by Traube, Leube, Senator, von Recklinghausen and particularly Rudolph Schmidt, who reported 3 cases from Neusser's clinic all of which he diagnosed ante mortem. I had the good fortune to study and to report the first case in English literature. The historical value of my case may be somewhat enhanced, at least to American readers, by the fact that my two consultants in the case each were outstanding figures, one in internal medicine, the other in surgery. I have reference to Bertram W. Sippy and John B. Murphy. Evarts Graham was the intern on the case. The gross specimens were presented to the Pathologic Museum of the Rush Medical College.

GEORGE HALPERIN, M.D., Chicago

## SULFANILAMIDE FAST GONOCOCCI

*To the Editor*—In an editorial in *THE JOURNAL*, May 2, "Sulfanilamide Fast Gonococci," the writer refers to the publications of Boak, Westphal, Carpenter, Bang, Mahoney and others. He concludes from the possibility of artificially fastening gonococcus strains to sulfanilamide or sulfapyridine, and the failure of attempts to fasten them to sulfathiazole, that "the failure of the gonococcus to develop resistance to sulfathiazole suggests that sulfathiazole fast strains are not likely to be developed in the clinic or to be spread to the general population."

The author apparently overlooked the recent publication of my associates and myself on the behavior of various gonococcus strains to sulfathiazole (Cohn, Alfred, Steer, Arthur, and Seijo, Irma. Correlation Between Clinical and In Vitro Reactions of Gonococcus Strains to Sulfathiazole, *Am J Hyg* 203:276 [Feb.] 1942). With the method described in the article we have been able to demonstrate the existence of gonococcus strains naturally resistant to sulfathiazole both in vitro and in vivo. There was a close correlation between the clinical response of the patient to the drug and the reaction of the strain to sulfathiazole in the test tube.

ALFRED COHN, M.D., New York

## ARMY NURSE CORPS

*To the Editor*—The story "The Army Nurse Corps" in the April 18 issue, page 1374, is incomplete. Women trained nurses entered the United States Army Medical Service in August 1898 at Montauk, N. Y. The deaths at the General Hospital where I was executive officer averaged fifteen a day. Nursing was our great need. Through Howard Townsend, Red Cross executive at Montauk, I asked President McKinley for these nurses. Authority was at once given. During the period left out in your article nurses served in the United States in the Philippines in Cuba and in Puerto Rico, also on the hospital ship *Relief*. It seems too bad that the pioneer nurses should not be given credit for the heroic work done then and since.

IPA C. BROWN, M.D., Seattle

**Medical Examinations and Licensure****COMING EXAMINATIONS AND MEETINGS**

**ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE**  
CHICAGO, Feb 15-16, 1943 Sec, Council on Medical Education and Hospitals, Dr H G Weiskotten, 535 North Dearborn Street, Chicago.

**NATIONAL BOARD OF MEDICAL EXAMINERS  
EXAMINING BOARDS IN SPECIALTIES**

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in THE JOURNAL, May 30, page 439

**BOARDS OF MEDICAL EXAMINERS**

**ALABAMA** Montgomery, June 16-18 Acting Sec, Dr B F Austin, 519 Dexter Ave., Montgomery

**ARIZONA** \* Phoenix, July 7-8 Sec, Dr J H Patterson, 826 Security Bldg., Phoenix

**CALIFORNIA** Written San Francisco, June 29-July 2 Oral examination (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California), San Francisco, June 17 Sec, Dr Charles B Pinkham, 1020 N St., Sacramento

**COLORADO** \* Denver, July 7-10 Application must be on file not later than June 21 Sec, Dr George R Buck, 831 Republic Bldg., Denver

**CONNECTICUT** \* Medical, Hartford, July 14-15 Endorsement Hartford, July 28 Sec to the Board, Dr Creighton Barker, 258 Church St., New Haven Homoeopathic Derby, July 14-15 Sec, Dr Joseph H Evans, 1488 Chapel St., New Haven

**DELAWARE** Dover, July 14-16 Sec, Medical Council of Delaware, Dr Joseph S McDaniel, 229 S State St., Dover

**FLORIDA** \* Jacksonville, June 22-23 Sec, Dr William M Rowlett, Box 786, Tampa

**GEORGIA** Atlanta and Augusta, June Sec, State Examining Boards, Mr R C Coleman, 111 State Capitol, Atlanta

**HAWAII** Honolulu, July 13-16 Sec, Dr James A Morgan, 55 Young Bldg., Honolulu

**ILLINOIS** Chicago, June 23-25 Superintendent of Registration, Mr Philip M Harman, Department of Registration and Education, Springfield

**INDIANA** Indianapolis, June 16-18 Sec, Board of Registration and Examination, Dr J W Bowers, 301 State House Indianapolis

**MAINE** Augusta, July 7-8 Sec, Dr Adam P Leighton, 192 State St., Portland

**MARYLAND** Medical Baltimore, June 9-12 Sec, Dr John T O'Mara, 1215 Cathedral St., Baltimore Homoeopathic Baltimore, June 16-17 Sec, Dr John A Evans, 612 W 40th St., Baltimore

**MASSACHUSETTS** Boston, July 14-17 Sec, Dr H Q Gallupe, 413 F State House, Boston

**MINNESOTA** \* Minneapolis, June 16-18 Sec, Dr Julian F Du Bois, 230 Lowry Medical Arts Bldg., St Paul

**MISSISSIPPI** Jackson, June 24-25 Assistant Sec, State Board of Health, Dr R N Whitfield, Jackson

**MONTANA** Helena, Oct 6 Sec, Dr Otto G Klein, First National Bank Bldg., Helena

**NEBRASKA** \* Omaha, June 8-10 Dir, Bureau of Examining Boards, Mrs Jeannette Crawford, 1009 State Capitol Bldg., Lincoln

**NEW HAMPSHIRE** Concord, Sept 10-11 Sec, Board of Registration in Medicine, Dr T P Burroughs, State House, Concord

**NEW JERSEY** Trenton, June 16-17 Sec, Dr Earl S Hallinger, 28 W State St., Trenton

**NEW YORK** Albany, Buffalo, New York and Syracuse, June 22-25 Chief, Bureau of Professional Examinations, Mr Herbert J Hamilton, 315 Education Bldg., Albany

**NORTH CAROLINA** Raleigh, June 22 Sec, Dr W D James, Hamlet

**NORTH DAKOTA** Grand Forks, July 7-10 Sec, Dr G M Williamson, 4½ S Third St., Grand Forks

**OHIO** Endorsement July 7 Sec, Dr H M Platter, 21 W Broad St., Columbus

**OREGON** \* Portland, July 22-24 Application must be on file not later than July 9 Exec Sec, Miss Lorienne M Conlee, 608 Fairing Bldg., Portland

**PENNSYLVANIA** Philadelphia and Pittsburgh, July 7-11 Act Sec, Bureau of Professional Licensing, Mrs Marguerite G Steiner, 358 Education Bldg., Harrisburg

**RHODE ISLAND** \* Providence, July 2-3 Chief, Division of Examiners, Mr Thomas B Casey, 366 State Office Bldg., Providence

**SOUTH CAROLINA** Columbia, June 22-24 Sec, Dr A Earle Boozer, 505 Saluda Ave., Columbia

**SOUTH DAKOTA** \* Pierre, July 21-22 Dir, Medical Licensure, Dr J F D Cook, State Board of Health, Pierre

**TENNESSEE** Knoxville, Memphis and Nashville, June 17-20 Sec, Dr H W Qualls, 130 Madison Ave., Memphis

**UTAH** Salt Lake City, June 29-30 Assistant Dir, Department of Registration, Mr G V Billings, 324 State Capitol Bldg., Salt Lake City

**VERMONT** Burlington, June 16-18 Sec, Board of Medical Registration, Dr F J Lawless, Richford

**VIRGINIA** Richmond, June 17-20 Sec, Dr J W Preston, 30½ Franklin Rd., Roanoke

**WEST VIRGINIA** Charleston, July 6-8 Commissioner, Public Health Council, Dr C F McClintic, State Capitol, Charleston

**WISCONSIN** \* Milwaukee, June 30-July 3 Sec, Dr H W Shutter, 425 E Wisconsin Ave., Milwaukee

\* Basic Science Certificate required

**BOARDS OF EXAMINERS IN THE BASIC SCIENCES**

**ARIZONA** Tucson, June 16 Sec, Mr Franklin E Roach, Science Hall, University of Arizona, Tucson

**CONNECTICUT** June 13 Address State Board of Healing Arts, 1945 Yale Station, New Haven

**MICHIGAN** Ann Arbor and Detroit, June 12-13 Sec, Miss Eloise LeBeau, 101 N Walnut St., Lansing

**NEW MEXICO** Springer, June 12 Sec, Miss Pia Joerger, State Capitol, Santa Fe

**OREGON** Corvallis, July 11 Application must be on file not later than June 24 Sec, Mr Charles D Byrne, University of Oregon Eugene

**Bureau of Legal Medicine  
and Legislation****MEDICOLEGAL ABSTRACTS**

**Hospitals Liability for Electric Lamp Burn**—The plaintiff was admitted to the defendant hospital one morning preparatory to undergoing an operation. Sometime during the afternoon a hospital attendant attached an electric lamp and reflector to the bedstead at the foot of the plaintiff's bed. The lamp was attached by means of hooks similar to the ear bows of eye glasses. The operation was performed about 8 o'clock in the evening, under a spinal anesthetic, and the plaintiff was returned to his room an hour or so later. In the middle of the night the plaintiff complained of a burning sensation in his feet. When the bed clothes were removed a nurse discovered the lamp which had formerly been attached to the foot of the bed. The plaintiff's foot had been seriously burned. Subsequently the plaintiff sued the defendant hospital for damages on account of the injuries sustained as a result of the alleged negligence of the defendant's servants. The trial court refused to submit the case to the jury and dismissed the plaintiff's complaint, so the plaintiff appealed to the Court of Appeals of New York.

The defendant contended that the trial court ruled correctly in dismissing the complaint because the plaintiff had not produced sufficient evidence to warrant the submission of the case to the jury. It argued that the plaintiff had not negated the possibility that the burn was caused by his own negligence or that of some one for whose actions the defendant hospital was not responsible. It also insisted that there was no proof that the burns were caused by the lamp. The Court of Appeals said that circumstantial evidence was sufficient if it supported the inference of causation, even though it did not negative the existence of a remote possibility that the injury was not caused by the defendant. The plaintiff's evidence, said the court, was sufficient, if believed, to show that the plaintiff was not burned when he was put to bed after the operation, that he felt the burn later, that the lamp was removed from under the bed clothes and that the burn was of the kind which could be caused by the lamp in question. Furthermore, said the court, it was unreasonable to assume that some complete stranger, or even the plaintiff's physician, entered the plaintiff's room during the operation and tampered with the bed lamp. The court therefore concluded that the plaintiff's evidence negated all but the barest possibility that the defendant was free from negligence and held that the case should have been submitted to the jury. The court also held, although the defendant claimed no immunity because of its charitable nature, that it is now well settled in New York that even a charitable hospital is liable for the acts of its servants. Judgment for the defendant was accordingly reversed and a new trial granted.—*Dillon v Rockaway Beach Hospital & Dispensary*, 30 N E (2d) 373 (N Y, 1940)

**Medical Services Right of Court to Order Operation on Child**—Section 85 of the Domestic Relations Court Act of the city of New York provides that whenever a child within the jurisdiction of the court and "under the provisions of this act appears to the court to be in need of medical or surgical care a suitable order may be made for the treatment of such child in its home, in a hospital or other suitable institution." The child involved in this case, a 10 year old girl, suffered from a deformity of her right leg induced by poliomyelitis, and an operation to correct it was necessary. The mother desired that the operation be performed but the father refused his permission. On petition of the mother, the case came before the domestic relations court of the city of New York, children's court, Kings County.

It was doubtful, the court said, whether under the common law a court had the power to order treatment for children to the extent of even a surgical operation or to require that parents do that which is promotive of the interests and is protective of the rights of a child. There has been an emergence from that period in the history of man and its prejudice

and limitations of a community interest in the child population have been left behind. The law is a growth, otherwise it could not serve the purposes of man and his needs. Like life, the law constantly undergoes change. Law is instituted among men for the protection of the individual against the community as well as for the protection of the community against the individual. It also protects children against parents when there is neglect. The physical well being of children is the basis for the moral care, proper training and guidance. A child, the court pointed out, deprived of the use of its limb and the limb becoming progressively worse cannot have a sense of security. It feels itself different from others. It suffers from a sense of rejection. It cannot take its proper place in the group in which it lives. To the extent that medical science can correct the deformity or the limitation of the use of the limb, that service should be accorded. When the legislature devolved on the court the power to make an order for surgical care, the court said, it cannot be said that an order is to be made only in a case in which the parents consent to such an order. The court may order an operation not only in an instance in which the life of the child is to be saved but also in instances in which the health, the limb, the person and the future of the child are at stake.

A report submitted to the court by the New York Orthopedic Hospital specifically stated that an operation was necessary to correct the deformity from which the child was suffering and which was becoming aggravated. Three physicians testified to the need for the operation. The father of the child testified in opposition to the operation. He gave no reason for his opposition. On all the testimony submitted there was no doubt in the mind of the court that a successful operation would correct the condition, and in the opinion of the court it was in the best interests of the child that the operation be performed. The court therefore entered an order accordingly.—*In re Rotkowitz*, 25 N Y S (2d) 624 (N Y 1941).

**Governmental Hospitals Liability for Negligence of Agent in Performance of Administrative Duties**—The plaintiff who was engaged as a nurse in the Bellevue Hospital at a salary of \$90 a month plus 'board, maintenance and proper medical and surgical attention' became ill while on duty and was sent to the nurses infirmary. To stop the vomiting and nausea from which she was suffering a physician prescribed hypodermic injections of Magendie's solution. Four injections in the upper part of her left arm were administered by various nurses on duty in the infirmary. In a few days her arm commenced to swell and became painful at the place at which the injections had been made. Although an operation, as well as numerous lancements was performed the plaintiff finally lost practically the entire use of the arm and hand. In a subsequent suit by the plaintiff against the city of New York, owner of the Bellevue Hospital, a public institution to recover damages for the injury sustained, a witness for the plaintiff testified that Magendie's solution is an aqueous solution of morphine sulfate and is subject to decomposition in three or four days. This witness further stated that when the solution is freshly prepared it is colorless but as it decomposes it changes to a yellowish brown and finally to dark brown. The plaintiff testified that the fourth injection put into her arm was of a brownish liquid. The evidence also showed that the hospital nurse supervisor had for at least six months before the plaintiff received the injections been aware of the state of decomposition of the solution and had pronounced it unfit for use. It was not destroyed, however, but was retained in the drug cabinet with the request by the supervisor that it not be used. From a subsequent judgment for the plaintiff in the trial court and its reversal by the supreme court, appellate division, the plaintiff appealed to the Court of Appeals of New York.

The defendant first contended that the plaintiff was not entitled to maintain this action against the city because her sole and exclusive remedy was under the workmen's compensation act. The Court of Appeals held, however, that the risk of the injury suffered by the plaintiff was not incidental to her employment as a nurse but was a risk to which any one receiving such treatment in a hospital would be subjected. Since the occurrence of the injury was not made more likely because of her employment, the injury did not arise out of

and in the course of employment and was, therefore, not subject to the provisions of the compensation act.

The defendant next contended that the negligence complained of was that of the nurse who administered the solution acting in her professional capacity rather than in the performance of a mere administrative act on behalf of the hospital. It was conceded that the doctrine of respondeat superior is not applicable between nurses engaged in professional tasks in the treatment of patients in a hospital, and their employer, yet if a hospital is negligent in the performance of an administrative function, it is liable in damages. The plaintiff did not contend that there was any negligence in the administration of the injection, she contended that the hospital was negligent in allowing decomposed medical supplies to be made available for use. The Court of Appeals said that among the administrative duties of a hospital was the providing of proper and necessary food and medicine. The court therefore held that the supervisor, having known for six months that the Magendie's solution was stale, was obligated to see that it was either removed or destroyed and a fresh solution supplied. Her failure in that respect, was a failure of the hospital in an administrative capacity for which the owners were liable.

Finally, the defendant contended that it was immune from liability because in the operation of the Bellevue Hospital it was exercising a governmental function. The Court of Appeals admitted that when a city furnishes medical and surgical treatment to those of its citizens who cannot afford to pay it is performing a governmental function. The infirmary in which the plaintiff was treated, however, was not operated for the benefit of the public, it was open only to nurses. Furthermore, the plaintiff was not a recipient of charity but was, in effect, a pay patient since part of her salary as a nurse in the Bellevue Hospital was "proper medical and surgical attention." The infirmary was therefore, maintained in the performance of a contractual duty and not as either a governmental obligation or a public health measure.

Accordingly the judgment of the appellate division was reversed and that of the trial court in favor of the plaintiff affirmed.—*Volk v City of New York*, 19 N Y S (2d) 53, 30 N E (2d) 596 (N Y 1940).

## Society Proceedings

### COMING MEETINGS

- American Medical Association Atlantic City N J June 8 12 Dr Olin West 535 North Dearborn Street Chicago Secretary
- American Association for the Study of Allergy Atlantic City N J June 8 9 Dr J Harvey Black 1405 Medical Arts Bldg Dallas Texas Secretary
- American Broncho-Esophagological Association Atlantic City N J June 8 9 Dr Paul H Holinger 700 North Michigan Blvd Chicago Secretary
- American College of Chest Physicians Atlantic City N J June 6 8 Dr Paul H Holinger 500 North Dearborn St Chicago Secretary
- American Diabetes Association Atlantic City N J June 7 Dr Cecil Striker 630 Vine Street Cincinnati Secretary
- American Gastro Enterological Association Atlantic City N J June 8 9 Dr J Arnold Barger 102 Second Ave SW Rochester, Minn Secretary
- American Gynecological Society Skytop Pa June 15 17 Dr Howard C Taylor Jr 842 Park Ave New York Secretary
- American Human Serum Association Atlantic City N J June 8 Dr William L Wheeler 348 West 22d St New York Secretary
- American Medical Women's Association Atlantic City N J June 6 7 Dr Ada Chree Reid 102 East 22d St New York Secretary
- American Physiotherapy Association Lake Geneva Wis June 28 July 3 Miss Evelyn Anderson Stanford University Calif Secretary
- American Proctologic Society Atlantic City N J June 7 Dr William H Daniel 1930 Wilshire Blvd Los Angeles Secretary
- American Radium Society Atlantic City N J June 8 9 Dr Axel N Arneson 4952 Maryland Ave St Louis Secretary
- American Rheumatism Association Atlantic City N J June 8 Dr A R Shands Dupont Institute Wilmington Del Secretary
- Association for the Study of Internal Secretions Atlantic City N J June 8 9 Dr Henry H Turner 1200 North Walker St Oklahoma City Secretary
- Maine Medical Association Poland June 21 23 Dr Frederick R Carter 142 High Street Portland Secretary
- Minnesota State Medical Association Duluth June 29 July 1 Dr B B Souster 493 Lowry Medical Arts Bldg St Paul Secretary
- Montana Medical Association of Missoula July 8 10 Dr Thomas F Walker 206 Medical Arts Bldg Great Falls Secretary
- New Mexico Medical Society Santa Fe June 25 28 Dr L B Cohenour 221 W Central Avenue Albuquerque Secretary
- Pacific Northwest Medical Association Portland Ore. June 17 20 Dr C W Countryman 407 Riverside Ave Spokane Secretary
- West Virginia Medical Association White Sulphur Springs July 13 15 Mr Charles Lively 1031 Quarrier St Charleston Executive Secretary



**Current Medical Literature****AMERICAN**

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints are a rule the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

**Alabama State Medical Assn Journal, Montgomery**

11 293-336 (March) 1942

- Respiratory Obstruction G E Fisher, Birmingham —p 293  
Epidemiology of Acute Anterior Polymyositis J M Kimney, Anniston —p 295  
Infant Feeding Principles and Problems in General Practice A Wilkerson Marion —p 297  
Acute Indigestion H M Simpson, Florence —p 298  
Alabama's Industrial Hygiene Program E H Placc, Birmingham —p 301

**American Heart Journal, St Louis**

23 147-290 (Feb) 1942

- Peripheral Circulatory Failure A Block, Baltimore —p 147  
Cardiology as Specialty P D White, Boston —p 161  
Effect of Sex Hormones on Production of Ergotamine Gangrene in Rats E Krueger, J B Ludden and I S Wright, with technical assistance of J Wiland, New York —p 164  
Rheumatic Carditis in Tropical Country E G Carrillo, San Jose, Costa Rica —p 170  
Peripheral Blood Flow in Myxedema as Compared with That in Hyperthyroidism H J Stewart and W F Evans New York —p 175  
Study of Rate of Water Loss from Surfaces of Finger Tips and Toe Tips of Normal and Senile Subjects and Patients with Arterial Hypertension G E Burch, A E Cohn and C Neumann, New York —p 185  
Infected Thrombi of Heart J R Lisa and C Solomon, New York —p 197  
Syphilitic Cardiovascular Disease and Bacterial Endocarditis S Koletsky Cleveland —p 208  
Lumbar Sympathectomy in Treatment of Intermittent Claudication Selection of Cases by Claudication Test with Lumbar Paravertebral Procaine Injection N C Freeman and H Montgomery, Philadelphia —p 224  
Cedilanid, with Special Reference to Its Intravenous Use M Sokolow and F L Chamberlain, San Francisco —p 243  
Clinical Experience with Oral Administration of Cedilanid, and Comparison of Oral and Intravenous Preparations of Cedilanid with Digitalis Purpurea F L Chamberlain and M Sokolow, San Francisco —p 245  
Acute Pericarditis Simulating Acute Coronary Occlusion Report of Fourteen Cases A R Barnes and H B Burchell Rochester Minn —p 247

**Rheumatic Carditis in Tropical Country**—Carrillo encountered from April 1936 to April 1939 22 cases of rheumatic fever, chorea and endocarditis among 3,771 clinical records from the pediatric ward of the Hospital San Juan de Dios, at San José. Electrocardiograms were not made and it is possible that other cases were not noticed. The incidence of mitral stenosis in the last thousand necropsies performed at the hospital during the five years preceding May 1941 was 1.1 per cent. Climate alone should not be given undue importance in the etiology of rheumatic infection, as other factors may play a determining role in the evolution and the cardiac sequelae of the disease.

**Syphilitic Cardiovascular Disease**—The frequency with which syphilitic heart disease and bacterial endocarditis are associated was ascertained by Koletsky in reviewing 4,000 consecutive necropsies performed at the University Hospitals of Cleveland. The study revealed 5 cases with a diagnosis of cardiovascular syphilis and bacterial endocarditis. In four of these hearts stigmas of rheumatic fever were also present, and in at least two there was a combined syphilitic and rheumatic lesion of the aortic valve. In the fifth case syphilis was confined to the root of the aorta, and the acute bacterial endocarditis was apparently superimposed on a normal aortic valve. These observations do not support the belief that syphilis is a significant predisposing factor in bacterial endocarditis.

**American Journal of Medical Sciences, Philadelphia**

203 157-312 (Feb) 1942

- \*Use of Sulfanilamide in Treatment of Acute Glomerular Nephritis R H Williams, Boston, W T Longcope, Baltimore, and C A Janeway, Boston —p 157  
Effect of Various Sulfonamides on Hemolytic Staphylococcus Measured with Manometric Technique W Kempner, C Schlayer and P Summers, Durham, N C —p 172  
\*Cavity Healing and Bronchial Occlusion W Pagel and F A H Simmonds, London, England —p 177  
Hypoprothrombinemia in Pernicious Anemia E D Warner and C A Owen, Iowa City —p 187  
Influence of Active and Inactive Antianemic Principles on Erythrocytes of Immature Opossum (*Didelphys Virginiana*) J Stasney and E L Burns, New Orleans —p 191  
Syphilitic Aortic Insufficiency Asymptomatic Phase W McDermott, R R Tompsett and B Webster, New York —p 202  
Prolongation of PR Interval in Patients with Paroxysmal Atrial Fibrillation and Flutter Following Myocardial Infarction M J Klainer and M D Altschule, Boston —p 215  
Justification for Increasing Use of Electrocardiography in Hospital Practice A J Geiger, M Calabresi and L F Blaney, New Haven Conn —p 219  
\*Danger of Procrastination in Biliary Tract Disease Until Irreversible Liver and Kidney Changes Occur A O Wilensky, New York —p 231  
Aguogenic Congenital Clubbing of Fingers and Toes H B Thomas York, Pa —p 241  
Standardization of Congo Red Test for Amyloidosis A Tarr and A Eekstein, Staten Island, N Y —p 246  
Effect of Diet and Meals on Maximal Urea Clearance L P Longley and M Miller, Cleveland —p 253  
Bronchopneumonia of Unknown Etiology in Girls' School W D Daniels, Washington D C —p 263  
Correlation Between Clinical and In Vitro Reactions of *Gonococcus* Strains to Sulfathiazole Preliminary Report A Cohn, A Steer and Irma Seijo, New York —p 276  
Formol Gel Test in Rheumatic Fever J S Butterworth and C A Poundexter, New York —p 278

**Sulfanilamide in Acute Glomerular Nephritis**—Williams and his associates compared the course of acute hemorrhagic nephritis in 42 patients treated with sulfanilamide and 108 patients similarly treated but not given the drug. In the subjects receiving sulfanilamide foci of infection cleared up more rapidly, signs of renal damage disappeared more rapidly, the nephritic exacerbations following tonsillectomy occurred less frequently, the duration of edema and hypertension was shorter and the incidence of clinical recovery was greater. One of the 42 patients treated with sulfanilamide died in the acute stage of the disease. Recovery was complete in 15 of the 33 who returned for observation after six months and in 29 of the 39 followed for at least two years. Three other patients followed for only a few weeks are in a quiescent stage. Five of the 39 patients are in the quiescent stage and 2 are in a progressive stage. Conversely there were 12 deaths during the acute stage among the 108 patients and 5 deaths following a progression to chronic nephritis. Only 56 patients recovered completely, 11 are in the quiescent stage and 24 are in the chronic progressive stage of the disease. The immunologic reactions, as exemplified by the antistreptolysin titer of the blood serum, have been practically the same in the two groups of patients. There was no evidence that sulfanilamide caused renal damage.

**Cavity Healing and Bronchial Occlusion**—Pagel and Simmonds state that three anatomic forms of healed cavities can be differentiated at roentgen study or at necropsy: (1) the solid focus due to retention, inspissation and final calcification of the cavity contents, (2) the radiating scar and (3) the bronchiectatic area remaining after the caseous and tuberculous elements in the wall of the cavity are replaced by ordinary granulation tissue, with subsequent epithelization and fibrous shrinking of the space. Six examples of cavity healing by conversion of the space into a solid, caseous and calcified focus are presented. At necropsy no cavity could be traced but corresponding in shape, size and location there was a caseous nodule resembling an ordinary "round focus." Various stages of the development were represented by the 6 cases. Regarding the frequency of the three anatomic forms of cavity healing, the authors have encountered 11 of these, and only 2 of them presented healing of the wall of the cavity with persistent cavitation, while 9 were instances of cavity closure by conversion into a caseous or calcifying nodule. The frequency (16 cases) is approximately the same when the 33 cases (16 cases) reported in the literature are analyzed. This frequency of cavity healing by conversion into a

focus vindicates the assumption made by many clinicians that a calcified nodule often represents the last remnant of a healed cavity. Why some cavities heal by scar formation and others by conversion into a solid nodule is a matter of speculation. The following tentative explanation is advanced. In the authors' cases pneumothorax was the therapy used, following the operation there may be a rapid closure of the bronchus which has already been partially obstructed by crassation. The thick crassous lining of the cavity does not have time to be discharged or to become absorbed but absorption of the air in the cavity allows a collapse and the crassous lining appears as a solid encapsulated focus. When the bronchus is more patent drainage is more free and there is less material to form a solid nodule. The closure of the cavity also may then be a slower process and be accomplished by concentric shrinking of the wall of the cavity by fibrosis and obliteration of the lumen with final scar formation. Four weeks appears to be the minimum time required for cavities to heal.

**Biliary Tract Disease**—Wilensky has observed that the prognosis in obstruction of the common bile duct is favorable provided infection of the biliary tract does not set in. Once infection gains a foothold, whether the obstruction is relieved or not frequently the course is rapidly downhill. Subsequent operative release of the obstruction is often too late to reverse the preceding sequence of events. The resulting cholangiohepatitis does not appear to be due to any particular bacterial organism although it is probably derived from the alimentary canal. The quantitative extent to which the hepatic parenchyma is functionally involved will determine the final outcome but frequently there are no recognizable corresponding anatomic changes. Infection in the biliary radicals is not the only means of causing sufficient hepatic damage to produce the terminal picture, for direct trauma with pulpification of the liver and other mechanisms have produced the liver-kidney syndrome. In his cases the characteristic changes were degenerative alterations in the renal tubules and at times in the glomeruli, with occasional hemorrhages in the renal parenchyma. He saw 1 patient with milary abscesses. Myocardial changes when present were also of a degenerative nature. A severe degree of periportal cellular necrosis of the liver was present in all cases.

### Am J Roentgenol & Rad Therapy, Springfield, Ill 47 191-352 (Feb) 1942

- \*Treatment of Cancer of Tongue G E Richards Toronto Canada —p 191  
Tumor Response to Roentgen Irradiation as Influenced by Host Tumor Relation A W Oughterson J Plaut and E A Lawrence New Haven Conn —p 207  
Dosage Determinations with Radioactive Isotopes L D Marinelli New York —p 210  
\*Treatment of Lymphosarcoma with Radioactive Phosphorus Preliminary Report J M Kenney L D Marinelli and L F Craver New York —p 217  
Relation of Phosphatase Activity in Bone Tumors to Deposition of Radioactive Phosphorus Helen Q Woodard and J M Kenney New York —p 227  
Roentgenologic Manifestations of Tumors of Small Intestine H M Weber and B R Kirklin Rochester Minn —p 243  
\*Hemorrhage from Gastritis Report Based on Pathologic Clinical Roentgenologic and Gastroscopic Findings E B Benedict Boston —p 254  
Diagnosis of Gastric Cancer Analysis of Gastroscopic and Roentgenologic Findings F E Templeton and R C Boyer Chicago —p 262  
Roentgenographic Study of Craniofacial Dysostosis Report of Cases Nonfamilial and Nonhereditary M Arce and F Arce Madrid Spain —p 275  
Riblike Shadows in Gluteal Muscles Produced by Oil Suspension of Bismuth Used in Antisyphilitic Therapy J W Lawlah Washington D C and H M Pollack Chicago —p 291  
Bronchocolic Fistula Report of Case A J Ackermann Oklahoma City —p 294  
Internal Biliary Fistula P J Delano Chicago —p 298  
Differentiation Between Direct and Indirect Effects of Roentgen Rays on Organs of Normal and Adrenalectomized Rats C P Leblond Montreal Canada and G Segal Rochester N Y —p 302  
Foreign Body Localization as Provided with United States Army Table Unit A A de Lorimier Washington D C —p 307

**Treatment of Cancer of Tongue**—Richards considers the first essential step toward a better understanding of the general problem of the treatment of cancer of the tongue to be the adoption of some uniform classification which would at least bring into one group those patients for whom there is reasonable hope of cure. Of approximately 200 cases of cancer of the tongue that

he treated during the last ten years 167 have been analyzed in some detail and classified into four groups with primary lesions (according to size) and into three groups with secondary lesions (according to the extensiveness of the metastasis). In treating and handling cancer of the tongue the avoidance of traumatism is as essential as is asepsis in general surgery. The policy has been to complete the treatment of the primary lesion before the secondary involvement if such is present, is treated, usually by neck dissections if the primary lesion can be or is likely to be controlled. When neck dissection is not advisable, irradiation of secondary involvement has been carried out concurrently with that of the primary lesion. When the diagnosis of a primary lesion has been verified and the mouth prepared by careful oral hygiene treatment is begun by external roentgen irradiation at 400 kilovolts or with the radium bomb containing 4 to 5 Gm of radium. With either of these forms of irradiation effective control of the lingual cancer can be secured provided tumor doses (5500 roentgens) are delivered to the entire tumorous area. Roentgen rays at this voltage appear somewhat more satisfactory than radium. The other factors employed are a composite filter equivalent to 6 mm of copper, with a half value layer of 4.5 to 5 mm of copper and an intensity of 7 to 10 roentgens per minute. The skin distance is 100 to 110 cm. The depth dose at 10 cm is 36 per cent. Each treatment represents a dose of 200 roentgens delivered in forty minutes. Allowing for individual variations, fully established tissue reactions will be reached at total doses of 2100 to 4500 roentgens per port in approximately four weeks. When about half of the external dose has been administered, the irradiation is supplemented by intraoral irradiation for which roentgen rays at 200 kilovolts through an intraoral cone at 43 cm distance are used. The daily dose from this source is 280 roentgens, and approximately 3,000 roentgens is delivered within two weeks. Thus the final tissue reaction produced in the tongue is the summation of the external and intraoral radiation, which should reach maximal intensity simultaneously. If after the tissue reaction has subsided completely all visible and palpable evidence of the primary lesion has disappeared, no further treatment is given. If there is evidence of residual disease, radium in reduced doses is applied by the interstitial method. Of 119 patients treated three or more years ago 37 per cent are living and are free from disease, 27 per cent are living and free from disease for five or more years. Palpable lymph nodes have never developed in 60 of these 119 patients. The three year survival rate for these 60 patients is 63.3 per cent and the five year rate is 49 per cent without recurrence to date. Clinically, of 19 patients with a primary lesion in stage 1 all were controlled, of 78 with stage 2 lesions 67, or 78 per cent, were controlled, of 67 with stage 3 lesions 40 or 54 per cent were controlled, and of 27 with stage 4 lesions 4 or 13 per cent, were controlled.

**Radioactive Phosphorus for Lymphosarcoma**—Kenney and his collaborators administered tracer doses of radioactive phosphorus to 18 patients with lymphosarcoma. From one to thirty-one days later a lymph node was excised from each patient and its radioactivity was measured and corrected for decay to the date of administration of the radioactive phosphorus. The average lymph node invaded by lymphosarcoma had a differential absorption ratio of about 3. Application of suitable formulas for estimating the amount of radiation that might be delivered to such tissue indicated that radioactive phosphorus might be a useful therapeutic agent for this disease. Courses of 70 to 100 microcuries of radioactive phosphorus per kilogram of body weight were administered in divided doses every seven to fourteen days. Of the 18 patients who have been or are being treated 5 have had complete regression or all evidence of disease and have been free from recurrence for one to eight months. 1 patient has had complete regression in one area and more than a 50 per cent regression in the other area, 1 had a good initial regression followed by rapid recurrence, 1 did not respond to the therapy and 1 died during treatment. The 9 remaining patients are still under treatment. The tissue most liable to early and serious damage from radioactive phosphorus therapy is bone marrow, but damage should be preventable by frequent blood counts and marrow aspirations and compared during the course of treatment. Serious damage

(marrow aplasia) to the bone marrow of 1 patient has been encountered and in 2 moderate anemia followed the administration of the isotope, but the blood picture improved after treatment was withdrawn.

**Hemorrhage from Gastritis**—The evidence for bleeding from gastritis is considered by Benedict from the pathologic, clinical, roentgen and gastroscopic points of view. Before 1933 the diagnosis of gastritis with hemorrhage was rare. Only 4 such cases are listed in the records of the Massachusetts General Hospital. In 3 of the cases the diagnosis was presumptive and in 1 it was suggested by roentgen examination and proved at operation. Since 1933, with the use of the flexible gastroscope, a positive diagnosis of hemorrhage from gastritis has been made in 42 cases. Although a positive roentgen diagnosis was made in only 3, it was suggested in 6 others. The superficial character of the erosions or ulcerations seen by gastroscopy makes them particularly difficult to demonstrate roentgenologically. In addition to the 42 cases there are records of 24 cases of gastritis and hemorrhage in which the question of ulcer was also raised. In the 5 cases with roentgen evidence of a healed duodenal ulcer at the time of the hemorrhage the bleeding evidently was from gastritis alone, as bleeding does not occur from a healed ulcer. In 9, previous or subsequent roentgen examination revealed a duodenal deformity without a crater or a duodenal ulcer. In 10 cases there was a positive roentgen diagnosis of duodenal or gastric ulcer at the time of the bleeding. Since gastroscopic study disclosed gastritis in all these cases it is more than likely that at least some of the hemorrhage was from the gastritis. In addition to the 66 cases of gastritis with hemorrhage, gastroscopy or esophagoscopy has revealed gastritis in the region of the hernia in 4 cases of hiatus hernia with bleeding. Also in 1 case of gastric varices, 1 of scurvy, 1 of chronic thrombocytopenic purpura and 1 of familial hemorrhagic telangiectases, all with hematemesis or melena, chronic gastritis was demonstrated by gastroscopy.

## American Journal of Surgery, New York

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- Reduced Temperatures in Surgery III Experiments on Pelvic and Abdominal Refrigeration, with Special Reference to Traumatic and Military Surgery. I. M. Allen, New York—p. 451.
- Clinical and Anatomic Investigations of Deep Intra-abdominal Infections of Hand. J. E. Lynn, Boston—p. 467.
- \*Ultraviolet Irradiation of Autotransfused Blood in Treatment of Post-abortional Sepsis. E. W. Rebbbeck, Pittsburgh—p. 476.
- Mortality of Cholecystectomy in Male. C. A. Bachhuber, Los Angeles—p. 487.
- Abdominal Neuralgia in Relation to Superficial Abdominal Nerves. J. L. Ingham, Easton, Pa.—p. 492.
- \*Acute Appendicitis in Children. P. D. Allen, New York—p. 495.
- Gastric Resection for Ulcer. Experience in Forty-Four Cases. C. F. Vale, Detroit—p. 500.
- \*Continuous Spinal Anesthesia. Report of 100 Cases in Which This Method Was Employed. I. P. Ansbro and L. J. Pico, Brooklyn—p. 504.
- Suprapubic Trocar Drainage of Bladder. G. Austen Jr., Boston—p. 509.
- Proctology in General Office Practice. R. Turell, New York—p. 516.
- Periphrastic Vascular Surgery. Lessons from Six Years' Experience. I. M. Al Ald, A. Singer and C. B. Roesch, Brooklyn—p. 520.
- Cephalic Bruit. Review of Literature and Report of Six Cases. M. J. Muehly, Brooklyn—p. 527.
- \*Prolonged Stupor Produced by Subdural Hygroma. Relief by Trephine and Drainage. M. Scott, Philadelphia—p. 534.
- Method of Suspending Uterus Without Open Abdominal Incision. Use of Peritoneoscope and Special Needle. J. K. Donaldson, J. H. Sanderlin and W. B. Harrell Jr., Little Rock, Ark.—p. 537.
- Diagnosis of Uterine Rupture. A. Sadowsky, Jerusalem, Palestine—p. 544.
- Partial Giant Growth. Operative Reduction in Size of Foot. E. Bergmann, New York—p. 548.
- Use of Transfibular Approach in Arthrodesis of Ankle Joint. T. Horwitz, Philadelphia—p. 550.
- Pathogenesis of Arthritis Following Intravenous Injection of Staphylococci in Adult Rabbit. R. H. Rigdon, Memphis, Tenn.—p. 553.
- Postoperative Infection. Its Control by Surgical Technique. J. L. De Courcy, Cincinnati—p. 562.

**Postabortional Sepsis**—From July 1938 through July 1941 Rebbbeck used ultraviolet irradiation of autotransfused blood as an adjunct to surgical intervention in the preoperative treatment of 17 and the postoperative treatment of 4 patients with post-abortional sepsis. Nine patients admitted instrumentation to produce abortion, 2 admitted taking medication, 8 had apparently spontaneous abortions, 1 patient with psychosis was treated after a therapeutic abortion because of apparent sepsis and 1

used medication and instrumentation. Ten patients were in a state of advanced infection on admission and 11 had early to moderately advanced infection. The pathologic condition ranged from simple, uncomplicated, acute septic endometritis to acute salpingitis, bilateral, "frozen" pelvis, pelvic abscess and septicemia. Following preoperative irradiation of the blood, infection did not spread. The 4 patients treated postoperatively were promptly relieved of toxemia, and their fever decreased. The temperature and toxemia of these 4 patients increased after operation and they were treated postoperatively because of apparent acute endometritis. The other patients had no significant rise of temperature, although their blood was irradiated immediately or up to nineteen days before operation. The results strongly indicate the preventive value of irradiating autotransfused blood. The patients were discharged from four to eight days after curettage.

**Acute Appendicitis in Children**—Allen reports a mortality of only 17 per cent (five deaths) among 293 children with acute appendicitis. He attributes the reduced mortality rate to earlier hospitalization, the use of fewer cathartics, more preoperative care aimed at correcting fluid balance (especially in the presence of toxic dehydration with spreading peritonitis), better anesthesia and the use of the McBurney incision. This incision is likewise believed to have been the chief factor in reducing hospitalization to fifteen and six-tenths days. Follow-up observation of cases in which drainage was employed and in which only the peritoneum was sutured reveals a decreased incidence of hernia.

**Fractional Spinal Anesthesia**—Ansbro and Pico employed the continuous spinal anesthesia developed by Lemmon in one hundred and five surgical interventions ranging from a radical mastectomy taking three hours and requiring 1,020 mg of procaine hydrochloride to removal of a fibroma taking twelve minutes and requiring 30 mg of the drug. The author believes that the term "fractional spinal anesthesia" would be more accurate than "continuous." Continuous suggests a long period of time, whereas the method is adaptable to the shortest as well as the longest surgical procedure. It is an unquestioned procedure in other types of anesthesia to give a sufficient amount of the drug to produce the desired depth of anesthesia, and it is logical that the fractional dose should be used in spinal anesthesia. The drop in blood pressure under continuous spinal anesthesia is notably less than with other methods of spinal anesthesia. This is probably due to the small amount of solution injected into the subarachnoid space at any one time. If alarming toxic symptoms should follow the injection of the drug with the fractional technique, 3 to 6 cc of cerebrospinal fluid can be withdrawn and it has been noticed that the nerves recover promptly from the anesthesia. Headache occurred in only 2 cases. There was no infection of the skin, muscles or meninges, although in 1 case fecal material had collected about the needle and remained there for two hours as the result of the spilling of intestinal contents through a colostomy under the surgical drapes. The incidence of urinary retention was 4 and of pulmonary atelectasis 3 per cent. There was no transient palsy, permanent paralysis or vertebral arthritis. The immediate operative mortality among 15,652 administrations of spinal anesthesia in eighteen American hospitals was forty deaths, or about 1/500.

**Subdural Hygroma**—In 3 cases of head injury with prolonged periods of unconsciousness, Scott found and drained much clear subdural fluid. In 1 of these the elastic type of xanthochromic subdural cyst was found. Consciousness in the 3 cases returned after the drainage. The subdural hygroma produced symptoms identical to those of subdural hematoma. The lesion should be suspected whenever a person with an injury to the head does not tend to recover after the usual proper measures for relief of intracranial pressure and evacuation have been carried out. The treatment is similar to that used for liquid subdural hematomas. An exploratory trephine or Hudson burr opening is made, the dura is opened, the subdural fluid is evacuated and the space is drained for twenty to forty-eight hours with a small cigaret drain. If there is an excess of fluid on the suspected side or relief is not obtained by drainage in three to five days, the opposite side should be inspected.

## American Review of Tuberculosis, New York

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- \*Nontuberculous Pulmonary Infections Complicating Pulmonary Tuberculosis O S Baum and J B Amberson Jr New York —p 243  
Tuberculosis in Old Age A Reet Spivak Colo —p 280  
Compulsory Isolation for Tuberculosis Its Effect on Spread of Tuberculosis in Contacts During One Decade P K Telford and E Bogen, Olive View Calif —p 284  
\*Chemotherapy of Tuberculosis Sulfanilamide by Intravenous Drip Method C Zucker M Pinner and H T Hyman New York —p 292  
Promin in Experimental Tuberculosis Sodium P P Diaminodiphenyl sulfone N N Dextrose Sulfonate W H Feldman H C Hinchman and H E Moses Rochester, Minn —p 301  
Survival of Tubercle Bacilli Viability of Dried Tubercle Bacilli in Unfiltered Room Light in Dark and in Refrigerator C R Smith Los Angeles —p 334  
Blood Serum Calcium in Negroes with Tuberculosis H D West and N C Jefferson Nashville Tenn —p 346  
Results of Thoracoplasty R Adams Boston P Dufault Rutland, Mass G F Skinner L Macpherson Irene Allen East St John, N B Canada R H Dieffenbach Newark N J A D Creech, Verona N J G G Linney Baltimore, H Meltzer Ninette Mann, Canada A M Vinberg D Ackman M Aronovitch Montreal, Canada and A H Aufses New York —p 349

**Tuberculosis and Suppuration**—Baum and Amberson encountered pneumonia one hundred and two times in 97 tuberculous patients, fifty-five pulmonary abscesses with suppurative pneumonia in 54 patients who ultimately showed tuberculosis and 32 patients with bronchiectasis and tuberculosis. Pneumonia in the tuberculous population has potentialities of activating the tuberculous lesion. Suppuration within a pneumonic area is the most important factor in the subsequent activation of the lesion. Such suppuration frequently complicates pneumonia caused by the type III pneumococcus and is usually present to some degree in infection caused by the hemolytic streptococcus and other invaders of the interstitial tissue. The bronchorrhea and local hyperemia of pneumonia are factors that also may play an important part in activating a tuberculous lesion. The fibrocalcific lesion and the lesion successfully controlled by collapse therapy are the least likely to be activated by pneumonia. Suppurative pulmonary lesions, such as pulmonary abscess, gangrene and initially suppurative pneumonia, frequently coexist with pulmonary tuberculosis. The course of pulmonary tuberculosis is affected adversely by the complicating nontuberculous suppurative lesion. Tuberculosis may be superimposed on a preexisting suppurative lesion and on bronchiectasis. The activation of tuberculosis by a suppurative disease usually depends on the local destructive process, which disrupts the capsule, if any, and breaks down the tuberculous focus. Tuberculosis, once it develops in bronchiectasis, is likely to progress by being disseminated by copious purulent discharges and hemorrhage, but it may be arrested by collapse therapy. Suppuration in bronchiectasis favors progression of the tuberculosis, particularly if the latter is established in a bronchiectatic lobe.

**Chemotherapy of Tuberculosis**—Two patients with minimal, 1 with moderate and 10 with far advanced tuberculosis were given massive doses of sulfanilamide by the intravenous drip method. Several patients had extrapulmonary foci. In judging the results, Zucker and his colleagues evaluated the outcome in each case on the basis of the expected future course of the disease on bed rest alone. A time limit for therapeutic efficacy was set at about two months after completion of treatment. At the end of the five day period of intravenous sulfanilamide most of the patients were given small to moderate doses of sulfanilamide by mouth for from one to five days. Nine of the 13 patients received only one five day course of treatment, 2 received two courses and 2 received three courses. The interval between courses varied from three weeks to three and a half months. Only those patients were retreated who tolerated the therapy well and whose disease indicated that some benefit might be expected. Five of the treated patients showed no clinical change, 3 improved slightly, 4 showed continued progression of the disease and 1 patient with disseminated hematogenous tuberculosis, whose prognosis prior to chemotherapy was considered hopeless, died. The sputum of no 1 patient was permanently or completely converted from positive to negative. The sputum of 1 patient with minimal tuberculosis became negative immediately after the first course of treatment, as did the gastric content on two occasions, but four months later, while the patient was on a semiambulant regimen, the sputum was again positive. No beneficial or adverse effect on the pulmonary

tuberculosis was observed that could be attributed to chemotherapy. Effective chemotherapy in pulmonary tuberculosis would probably be most successful in patients in good general health and with early, exudative lesions. If a sufficient amount of a drug was to be given to such a patient and rapid improvement was not obtained, then it could be said that the drug lacked any specific effect. Of the 3 patients who showed some improvement, 2 with minimal pulmonary tuberculosis received two courses of treatment and showed slight resorption over a period of two and a half months and four months, respectively. In neither instance was the improvement better than could be expected on bed rest alone. The third patient after three courses of sulfanilamide had some resorption of infiltrate in both apices after six months and complete healing of a tuberculous pharyngeal ulcer in three months.

## Annals of Internal Medicine, Lancaster, Pa

16 221-414 (Feb) 1942

- Metabolic Studies in Patients with Cancer of Gastrointestinal Tract II Hepatic Dysfunction J C Abels P E Rekers G E Binkley, G T Pack and C P Rhoads New York —p 221  
\*Vitamin D in Treatment of Infectious Arthritis C H Slocumb, Rochester Minn —p 241  
\*Mental Symptoms Following Carbon Disulfide Absorption and Intoxication F J Braceland Chicago —p 246  
\*Sulfanilamide in Treatment of Erysipelas L S Siegel L Rosove and A G Bower Los Angeles —p 262  
\*Sulfadiazine and Sodium Sulfadiazine Comparison of Certain of Their Clinical and Pharmacologic Values C Wheeler and N Plummer, New York —p 269  
\*Advantages and Clinical Uses of Desiccated Plasma Prepared by Adtevac Process E E Murhead and J M Hill, Dallas Texas —p 286  
\*Observations on Specific Treatment (Type A Antiserum) of Staphylococci Septicemia Second Report L A Juhanelle St Louis —p 303  
William Withering His Contribution to Medicine J C Meakins Montreal, Canada —p 327

**Vitamin D in Treatment of Infectious Arthritis**—Slocumb states that large doses of vitamin D have partially controlled the symptoms of infectious rheumatoid or atrophic arthritis in 7 of 14 cases in which twenty-five courses of treatment (daily dose from 52,500 to 386,000 units for twelve days to fifteen and a half months) were administered. If there was no immediate clinical improvement the administration of the vitamin was continued for at least one and a half months. There was little objective effect. The beneficial effects were only transitory, as the symptoms usually recurred after treatment was discontinued. There was some risk of renal damage. However, the occurrence of toxic symptoms or renal damage was not necessary for clinical improvement to ensue. There was no definite correlation between the clinical improvement and toxic symptoms or renal damage and retention of urea. Gastrointestinal upset was the most frequent warning sign of toxicity, though in 1 case the urea became elevated without any gastrointestinal upset.

**Carbon Disulfide Absorption and Intoxication**—Braceland discusses the mental symptoms of carbon disulfide psychosis occurring in 8 of 120 workers in a viscose rayon plant and in 9 similar cases discovered in mental hospitals. The psychosis was characterized by confusion, combativeness, hallucinations, delusions, depression and, finally, amnesia for the acute attack. While the onset of the psychosis is usually acute, attentive observers have noticed a gradual personality change accompanied by a phase of irritability, depression, headache and insomnia. The libido is lessened, and dreams of a terrifying nature occur. The symptoms are not dependent on physical habitus or heavy exposure but to individual susceptibility to carbon disulfide. Once an individual has shown toxic symptoms, he should be removed from further exposure. A diet rich in vitamins should be procurable in the cafeterias of plants and the homes of workers employed by the carbon disulfide industry. Recovery takes from two to six months or more.

**Sulfanilamide for Erysipelas**—From April 1937 to August 1939 Siegel and his co-workers state that the 303 patients with erysipelas who entered the Los Angeles County Hospital were treated with sulfanilamide. The average number of days of illness before admission was two and six-tenths. The precipitating factor in 37 per cent was trauma, furunculosis and ulceration. The ages of the patients ranged from less than 1 year to 65 years. On admission 153 patients had one or more



associated diseases. The dose of sulfanilamide for patients up to 5 years of age was 0.065 Gm per pound of body weight for twenty-four hours. Half of the total dose was given at once and the other half was given in divided doses every four hours over the remaining twenty-four hours. After twenty-four hours the initial dose was reduced by one third and on the third day to one half. This maintenance dose was given for three to five days after clinical cure ensued to prevent relapse. Older children and adults were given similar treatment except that the dose was calculated at 1 Gm for 20 pounds (9 Kg) of body weight for twenty-four hours. The average sulfanilamide level in the blood of 121 patients determined forty-eight or more hours after admission was 5.8 mg per hundred cubic centimeters. The general average period of hospitalization was eight days, the general average time required for the temperature to reach normal was forty-eight hours and the general average time required for the lesion to regress was fifty hours. The lesion did not spread after treatment was instituted, and there was only one recurrence. Eight patients had complicating abscesses, 1 pneumonia with hemolytic staphylococcus septicemia and pulmonary abscess and 1 nephritis with uremia. The mortality rate for the hospital from 1929 to 1933 was 32.9 per cent for infants less than 1 year of age, and the average mortality rate was 8.1 per cent. There were four deaths among the 303 patients treated with sulfanilamide, or a gross mortality rate of 1.3 per cent. Two and possibly three of the four deaths were due to the drug, however, the consistently reduced morbidity and mortality from erysipelas that use of the drug brings about by far exceeds the dangers.

**Sulfadiazine and Sodium Sulfadiazine**—Wheeler and Plummer determined the absorption, excretion and acetylation of sulfadiazine orally and of sodium sulfadiazine orally and intravenously in 218 cases in which the drugs were administered over long periods of time. Sulfadiazine given orally yielded higher concentrations but smaller proportions of acetylated drug in the blood and in the urine than did any of the other sulfonamide drugs. Sodium sulfadiazine after oral administration yielded even higher concentrations of drug in the blood than did sulfadiazine and, like the latter, it acetylated to only a slight degree in the blood and in the urine. Initial doses of 4 Gm of sulfadiazine and of sodium sulfadiazine were much more effective than initial doses of 2 Gm in establishing a high concentration of the drug in the blood soon after treatment was begun. Sodium sulfadiazine given intravenously yielded a high level of the drug in the blood, it acetylated to only a slight degree and it appeared to be relatively nontoxic. Toxic reactions after sulfadiazine were less frequent and less serious than after any of the other sulfonamide drugs. Pharmacologically, this suggests that sulfadiazine and sodium sulfadiazine possess definite advantages over the other generally used sulfonamide drugs.

**Advantages and Uses of Desiccated Plasma**—Muirhead and Hill emphasize the importance of producing a large volume of desiccated plasma and report the experience they have gained from its clinical use in 276 cases in a routine hospital service during twenty-one months. A total of six hundred and seventy-four doses of four times concentrated plasma ranging from 50 to 7,690 cc per dose have been given. Only five febrile reactions, all of the pyrogenic type, were encountered. The disorders for which the plasma was given were shock, shock prevention, burns, protein feeding, edemas, head injuries, toxemias of pregnancy and other conditions. Distinctions between plasma and serum as a therapeutic agent can be disregarded, as the proper preparation of either gives an innocuous product. Adtevac or desiccated plasma is literally neither plasma nor serum. The use of Filter cel during Seitz filtration removes most of the fibrinogen fraction, leaving a plasma that approaches serum in composition. The main emphasis in the treatment of shock is to restore the circulating blood volume, prevention of exposure, warm surroundings and the giving of oxygen are of additional value. In military medicine one of the greatest problems is shock, and in this regard a therapeutic agent of high efficiency having ideal storage properties is essential. Properly desiccated plasma appears to be such an agent. For mass production bulk desiccation, first mentioned by Elser, is safe and can be easily performed.

**Specific Treatment of Staphylococcic Septicemia**—Julianelle has given specific antibacterial serum (obtained from rabbits following immunization with intact organisms treated with solution of formaldehyde, particularly prepared to contain high titers of antibody capable of reacting with the somatic carbohydrate extractable from pathogenic [type A] staphylococci) to 98 unselected patients with genuine staphylococcic septicemia and 4 with severe infection and unverified septicemia. All the patients received whatever supplementary treatment was indicated. Osteomyelitis was the most frequent forerunner of septicemia and responded best to serum, with a survival of 24 out of 27 patients. Fifteen patients had endocarditis, it was refractory to type A serum, and the fatality rate was 100 per cent. Of 14 patients with furunculosis and varying metastatic infection, 7 survived and 7 died. Of 8 patients with septicemia secondary to primary pneumonia, 4 died and 4 survived. In comparison, of 22 patients with pneumonia secondary to a primary surface lesion 12 died and 10 survived. Four patients with cellulitis with metastasis and 4 with septicemia terminal to some other condition died. The 3 patients with pericarditis and the 3 with sinus thrombosis with secondary meningitis died, whereas 3 with primary meningitis and 2 with endometritis following abortion survived. Of the remaining 19 patients with a variety of conditions, 8 recovered and 11 died. Staphylococcic septicemia in diabetes was encountered on five occasions. Although these 5 patients died there were other factors involved, so that the combination of diseases need not necessarily imply a fatal termination. Of the 54 patients who died, 15 did so within seventy-two hours after serotherapy was begun. The usual survival rate has been doubled, but the actual evaluation of the efficacy of the serum must await future work from different sources.

### Archives of Otolaryngology, Chicago

35 355-512 (March) 1942

- Physiology of Vocal Cords in Phonation and Respiration J J Presman, Los Angeles—p 355  
 \*Local Use of Sulfathiazole in Management of Simple Mastoidectomy Wounds D Guerry 3d and F J Putney, New York—p 399  
 Importance of Control of Pulmonary Lesion When Tuberculous Tracheobronchitis Coexists B J Elwood, B P Potter, A G Sacco and J J Pagliughi, Jersey City, N J—p 408  
 Increased Sensitivity to Bone Conducted Sounds A G Pohlman, Los Angeles—p 418  
 Functional Examination of Hearing A Lewy and N Leshin, Chicago—p 437  
 Anatomy and Physiology of Ear J R Richardson and E M Holmes, Boston—p 480

**Mastoidectomy Wounds**—Guerry and Putney used sulfathiazole locally in the simple mastoidectomy wounds of 20 unselected patients, while in 20 others, serving as controls the sulfathiazole was omitted. The drainage period of the patients whose wounds were treated locally averaged sixteen and seven tenths days, or 52.8 per cent less than that of the control series and the postoperative period of hospitalization was reduced to an average of eleven and four-tenths days, or 55 per cent. The use of sulfathiazole also enhanced healing and reduced suppuration to a minimum.

### Archives of Pathology, Chicago

33 295-410 (March) 1942

- Observations on Dry Films of Cultures of Lymphoid Tissue I P man, Detroit—p 295  
 Changes in Osseous Tissues of Young Dogs After Prolonged Administration of Estradiol Benzoate C J Sutro and L Pomerantz, New York—p 305  
 Reaction of Bone to Metastasis from Carcinoma of Breast and Prostate W S Sharpe and J R McDonald, Rochester, Minn—p 317  
 Evolution of Experimental Radiation Ulcers of Intestine A B Friman and S Warren, Boston—p 326  
 \*Factors Influencing Development and Time of Appearance of Mammary Cancer in Rat in Response to Estrogen C F Geschickter and Elizabeth W Byrnes, Baltimore—p 334  
 Histamine Theory of Anaphylactic Shock with Special Reference to Anaphylaxis in Rabbit M Rocha e Silva, São Paulo, Brazil—p 341

**Mammary Cancer in Rat**—According to Geschickter and Byrnes, a mammary cancer developed in 202 of 555 albino rats treated with estrogens. The animals were mated for 10 years, during which time spontaneous mammary cancer developed in a colony of more than 5,000 animals. The percentage of rats in which estrogenic mammary cancer develops varies but the disease might possibly develop in all of them.



were allowed to survive the required time but only a few animals with microscopic growths were allowed to survive. Only 2 such animals showed multiple metastases to the lungs and lymph nodes. To produce mammary cancer, the dose of estrogen must be well beyond the physiologic limit (ten or more times the threshold dose) and the treatment continuously applied for months. The production of mammary cancer is not influenced by the amount of the daily dose but by the duration of estrogenic activity and the method of administration. It is difficult to demonstrate that sex, age or castration influences susceptibility to estrogenic mammary cancer. Important species differences were evident in the experiments carried out in monkeys, rabbits and rats. The administration of testosterone or progesterone together with or following estrogenic stimulation does not prevent mammary cancer from appearing. However, the growth of estrogenic cancer is inhibited by anterior pituitary extract. Various changes in the endocrine glands make their appearance with mammary cancer and a cancerous change has been observed in other organs. Experiments on rats with atrophic and fibrotic mammary tissue suggest that mammary cancer in women may result from one or a combination of the following factors: (1) abnormally intense estrogenic stimulation during the mammary development of adolescence or during a previous pregnancy, (2) prolonged ovarian dysfunction during the menopause resulting in relative hyperestrogenism and having the characteristics of adenosis or Schimmelbusch's disease and (3) intense or continuous estrogenic stimulation during the menopause superimposed on the two foregoing factors.

### California and Western Medicine, San Francisco

56 55-110 (Feb) 1942

- So-Called Fungous Infections of Hand S Ayres Jr and N P Anderson Los Angeles—p 63
- Hypertension and Surgical Kidney T E Gibson San Francisco—p 66
- Tuberculin Patch Test Its Reliability Comparison with Mantoux Test P Cohen Santa Barbara—p 70
- Pernicious Anemia Adequate versus Optimal Treatment J M Askey Los Angeles—p 72

### Canadian Public Health Journal, Toronto

33 51-98 (Feb) 1942

- Britain's Health in Wartime W Jameson Toronto—p 51
- Development of Municipal Health Department and Provision of Health Districts in City of Montreal A Groulx Montreal—p 60
- \*Studies on Influenza Antibody Level Isolation of Virus R Hare W J Auger and Laurella McClelland Toronto—p 72
- Health Teaching in Primary School J Gilbert Granby Quebec—p 79
- Fourth Outbreak of Staphylococcal Food Poisoning in Hamilton Canada (May 1941) J E Davey W J Deadman and F J Elliott Hamilton Ont—p 82
- Special Report on Food Poisoning Outbreak in Hamilton Canada May 1941 R J Wilson Toronto—p 86

**Antibody Level and Susceptibility to Influenza**—In an effort to determine whether there is a distinct correlation between a person's antibody level and his susceptibility to influenza A Hare and his colleagues carried out studies along these lines among an urban population. The subjects were asked to gargle 10 cc of isotonic solution of sodium chloride and eject it into a screw capped bottle for transport to the laboratory. Inoculation of ferrets was carried out as described by Hare and Yen and neutralization tests were carried out by the method described by Francis, Rickard and Beck. The immunity of the subject to influenza was ascertained by titration of the neutralizing antibody or the complement fixing antibody. The results suggest that there may be a correlation between the antibody level and the person's susceptibility to the disease. The investigation suggests that a high proportion of the normal population is susceptible to influenza A, for about 90 per cent have an antibody level which is at or below the highest level that is found before infection in persons who become infected. Attempts to raise this generally low level with the complex vaccine of Horsfall, Lennette and Rickard have not always proved successful nor does the immunity produced by one dose of the vaccine persist. A stronger vaccine, and possibly more than one dose, is therefore required to raise the titer in as many persons as possible with initially low titers. The most serious objection to mass immunization with vaccines of known

influenza virus is the fact that many influenzas, even during an epidemic, are due to agents as yet not identified. Therefore the isolation and identification of these other agents is a prime necessity before mass immunization is seriously contemplated.

### Connecticut State Medical Journal, Hartford

6 155-238 (March) 1942

- Effect of Recent Developments in Nutrition on Rationing of Army P E Howe Washington, D C—p 157
- \*Treatment and Nationwide Control of Gonococcal Infections O F Cox Boston—p 161
- \*Treatment of Influenzal Meningitis Hattie E Alexander New York—p 167
- Carcinoma of Uterine Fundus A F Resnisky Hartford—p 173
- Cancer of Lip R E Dunne Hartford—p 175
- Accessory Diagnostic Procedures E J Whalen Hartford—p 177
- Diagnosis and Treatment of Hysterical Paralysis by Intravenous Administration of Pentothal Sodium Case Reports M L Garofalo New Haven—p 180
- Medical Licensure in Connecticut C J Bartlett New Haven—p 182

**Gonococcal Infection**—Cox analyzed 500 consecutive men with gonorrhea admitted to the Boston Dispensary and treated with sulfathiazole. At the end of the second week following the beginning of treatment 453 patients were still under observation, of whom 296 (65 per cent) reached a cure status within two weeks. Exaggerated propaganda of this two week cure rate is not needed to convince the public that great advances have been made in the treatment of gonorrhea. The numbers cured in subsequent weeks (up to sixteen weeks) raised the total to 416. However, as an attempt is made to get a minimum of ten negative smears and cultures at weekly intervals before a patient is discharged as cured, only 234 of the 416 patients can be classified as cured. Some of the 36 men thought cured on the evidence of one or two negative cultures may have had a subsequent clinical relapse or positive culture, and also some of the 47 closed out before the end of the second week may have been actually cured. There is apparently no doubt that the 65 per cent two week cure rate can be attributed to sulfathiazole. The other patients may have been benefited by chemotherapy, but there is little justification for claiming a sulfonamide cure in a patient who did not reach such a status for six or more weeks after chemotherapy was begun. Sulfathiazole is the drug of choice at the moment, it is highly efficient and it is almost entirely free of toxic reactions. Because of the threat of war, an increase in genital infection is probable. Continued effort must be made to educate the public as to the dangers of infection, how the infection may be prevented and what to do if infection is suspected. Under no circumstances should the impression be allowed to prevail that gonorrhea is no longer a serious disease.

**Treatment of Influenzal Meningitis**—Alexander presents the data on 45 patients with influenzal meningitis who were given rabbit antiserum intrathecally and intravenously in conjunction with chemotherapy. The recovery rate was 74 per cent, or 33 patients. There is reason to believe that the amount of free specific polysaccharide in the blood and the spinal fluid is an index to the severity of the infection and together with the quantity of the same substance within the capsule of the organisms determines the amount of antibody necessary. Direct measurement is impossible. Only gross evaluation is possible on the basis of objective laboratory evidence. Increasing experience suggests that limiting the administration of serum by the intravenous route constitutes the method of choice. Rabbit antibody passes readily from the blood to the meninges (detected in the spinal fluid by the presence of agglutinins). While the evaluation of the size of the initial dose necessary for the total antibody needs of a given patient is in the experimental stage, certain criteria are of value. In mild cases of early meningitis in which examination of spinal fluid smears fails to reveal organisms but culture yields a growth in twelve to twenty-four hours, 50 mg seems to be sufficient. If the meningitis is moderately severe, if chemotherapy had been given for four to five days prior to the patient's admission to the hospital if the spinal fluid sugar is only slightly decreased and if organisms are difficult to find, approximately 75 mg seems adequate. If the meningitis is severe and no previous therapy had been given the patient, or if he has had chemotherapy for three to four weeks and the spinal fluid shows infection but the sugar is almost normal a minimum of 100 mg seems indicated. The

serum should be given intravenously for forty-eight hours and if at the end of this time the spinal fluid has not improved significantly and organisms are still demonstrable on smear, serum should then be administered intrathecally. Data on the 12 patients who died reveal that 3 were inadequately treated according to present criteria, 1 after apparent complete recovery for sixteen days continued to have leukopenia after the drug was discontinued and had a fulminating recurrence which failed to respond to therapy, 1 was improving and the spinal fluid became sterile for three days when leukopenia intervened, following which the course was rapidly downhill. Of the remaining 7 patients in whom leukopenia developed, 6 fall into the young infant group. The greatest problem is to improve the results in infants aged less than 7 months. It is chiefly a question of recognizing clinical evidence of meningeal involvement at an earlier stage, and for this the clinician must be depended on.

### Indiana State Medical Assn. Journal, Indianapolis

35 123-186 (March) 1942

- Selective Service and the Medical Profession L B Hershey, Washington, D C—p 123  
Functions of Procurement and Assignment Service S F Seeley, Washington, D C—p 126  
Arteriosclerotic Heart Disease A N Ferguson, Fort Wayne—p 129  
Social Security Medical Problems C H Phifer, Chicago—p 139  
Rational Use of Physical Medicine C F Voyles, Indianapolis—p 148

### Journal Industrial Hygiene & Toxicology, Baltimore

24 43-58 (March) 1942

- Absorption, Accumulation and Excretion of Ingested Silica J L Webb, R M Selic and C H Thienes, Los Angeles—p 43  
Response of Guinea Pigs and Rats to Repeated Inhalation of Vapors of Mesityl Oxide and Isophorone H F Smyth Jr, Jane Seaton and Louise Fischer, Pittsburgh—p 46  
Observations on Preparation of Slides for Particle Size Determination L Silverman and W Franklin, Boston—p 51  
Arrested Tuberculosis and Hospital Employment L Brady, New York—p 53

### Journal of Neurophysiology, Springfield, Ill

5 89-166 (March) 1942

- Effects Evoked in Axon by Activity of Contiguous One A Arvanitaki, Tamaris, France—p 89  
Localization of Enzymes in Nerves I Succinic Dehydrogenase and Vitamin B<sub>1</sub> D Nachmansohn and H B Steinbach—p 109  
Cerebellar Action Potentials in Response to Stimulation of Cerebral Cortex in Monkeys and Cats R S Dow, Portland, Ore—p 121  
Effects of Polarization on Nerve Action Potentials Helen Tredway Graham, St Louis—p 137  
Stimulation of Peripheral Nerve Terminations by Active Muscle D P C Lloyd, New York—p 153

### Maine Medical Association Journal, Portland

33 21-42 (Feb) 1942

- Critical Survey of Treatment of Burns R H Aldrich, Boston—p 21  
Looking Back Fifty Years W E Sincock, Caribou—p 31

33 43-64 (March) 1942

- Toxemias of Pregnancy C W Sewall Boston—p 43  
Acute Intestinal Obstruction Some Important Points in Its Diagnosis and Treatment H Brinkman, Wilton—p 51

### Missouri State Medical Assn Journal, St Louis

39 65-94 (March) 1942

- Etiology of Hypertension F C Helwig Kansas City—p 65  
Arterial Hypertension Definition of Normal Blood Pressure Classification of Arterial Hypertension J V Bell, Kansas City—p 67  
Treatment of Hypertension M G Berry, Kansas City—p 68  
Management of Hypertensive Heart Failure C R Ferris, Kansas City—p 70  
\*Tumor Cells in Body Fluids Evaluation of Diagnosis E B Helwig, St Louis—p 73  
Barnard Free Skin and Cancer Hospital Research Report for 1941 E W Cowdry, St Louis—p 76  
Opportunity Presented to Barnard Free Skin and Cancer Hospital Today M G Seelig, St Louis—p 80  
Report of Executive Committee of Barnard Free Skin and Cancer Hospital F J Taussig St Louis—p 82  
A Two Year Old Child Swallows a Mill J S Knight, Kansas City—p 83

**Tumor Cells in Body Fluids**—Helwig searched for tumor cells in sixty-five peritoneal or pleural fluids obtained from 56 patients. Paraffin sections of the fluids were stained with hematoxylin and eosin. In most instances several consecutive sections were made and examined on a morphologic basis without knowledge of the patient's history or of the cavity from which the

fluid was obtained. Of eighteen fluids reported as positive, fifteen were proved or presumed correct by biopsy, by examining the cavity at operation or at necropsy, by roentgen study or by palpation of a mass in the cavity, one was proved incorrect and the exact nature of two was not established. Of forty-seven fluids reported as negative the diagnosis of fifteen was proved correct, of fifteen it was presumed to be correct, of three it was proved incorrect, of eleven it was presumed incorrect and of four it was not established. In 2 of the 3 cases in which the diagnosis of the fluid was "negative for tumor cells" but neoplastic disease was present, ascites was associated with the neoplasm but in neither instance was it a manifestation of metastasis to the peritoneum. Obviously the ascitic fluid could not show tumor cells when the neoplasm did not involve the peritoneum and therefore the diagnosis was actually correct for the specimen examined. In the other case the ascitic fluid failed to show identifiable tumor cells, although a neoplasm involving the peritoneum was present at necropsy. The eleven fluids, from patients with clinical evidence of a neoplasm but whose body cavities were not examined, that were "negative for tumor cells" might have been influenced by some mechanism other than the direct peritoneal involvement by the tumor. Thus in any analysis conducted to judge the accuracy of the test it is necessary not only to know whether a neoplasm was present in the patient but also whether the serous surface of the particular cavity from which the fluid is withdrawn is involved. Even though a patient has a neoplasm, tumor cells cannot possibly be identified in fluid obtained from an uninvolved cavity. Fragments of tissue composed of stroma and acini or papillae, atypical mitotic figures and bizarre multinuclear cells are indicative of malignant cells. Desquamated cells from the lining of the serous cavities may be confused with tumor cells. Cells arranged in clumps or acini should be accepted as tumor cells only when they exhibit pronounced pleomorphism. Both positive and negative fluid may contain cells in mitotic division, cells with vacuoles, erythrocytes and fibrin.

### New England Journal of Medicine, Boston

226 367-410 (March 5) 1942

- Evaluation of Regional Lymph Node Dissection in Treatment of Carcinoma G W Taylor, Boston—p 367  
\*Use of Stilbestrol in Relief of Essential Dysmenorrhea S H Sturgis Boston—p 371  
Pyruvic Acid Studies in Peripheral Neuropathy of Alcohol Addicts H Wortis, E Bueding and N Jolliffe, New York—p 376  
Regional Anesthesia Its Use in Obstetrics and Gynecology E G Waters, Jersey City, N J—p 380  
Hematology Diseases Other Than Anemia W Dameshek, Boston—p 383

**Diethylstilbestrol for Essential Dysmenorrhea**—Nine teen consecutive patients complaining of dysmenorrhea every month but having no organic disease of the pelvis were given "control" injections of estradiol benzoate and one or more courses of 1 or 2 mg of diethylstilbestrol daily by mouth for various periods. Sturgis considered the result of the diethylstilbestrol courses satisfactory only when the patients were free from any cramps in the month that treatment was given. In each instance the control injections satisfactorily eliminated pain during the next flow. The 19 patients received seventy-nine courses of oral treatment, and cramps were satisfactorily eliminated fifty-nine times. In the twenty failures pain was present during the flow immediately following treatment. The twenty failures occurred in 11 cases. In seventeen of these twenty courses treatment was started too late in the cycle to prevent ovulation, as the menses in each instance occurred less than three weeks after treatment was begun. One of the three other failing courses was started twenty-two days before the next period, emphasizing the difficulty of attempting to establish an arbitrary time limit for a given medication to produce a biologic effect. The other two courses were started thirty-three and thirty-four days, respectively, before the next periods occurred. It is believed that in these cases ovulation was delayed but not prevented by the medication. Diethylstilbestrol primarily inhibits the follicle stimulating hormone fraction of the pituitary gland and secondarily suppresses the growth of ovarian follicles and hence ovulation during the time that treatment is given. After a course of treatment is concluded the normal ovarian cycle is reestablished, and invariably dysmenorrhea is

recurs in about one month if therapy is not resumed. In about 20 per cent of the cases treatment must be discontinued because of gastrointestinal complaints, therefore the therapy is of value for temporary, rather than for permanent, relief.

### New Orleans Medical and Surgical Journal

94 411-460 (March) 1942

- Health for Victory I J Underwood Jackson Miss—p 411  
Coronary Occlusion in Private Practice M W Hunter Monroe La—p 414  
Tachycardia: Diagnosis and Treatment G R Herrmann and C M Dechard Galveston Texas—p 417  
Value and Limitations of Electrocardiography W R Wirth New Orleans—p 423  
Sympathetic Nerve Blocks in Rehabilitation of Injured Extremity: Report of Cases and Discussion of Causalgia H Mahorner, New Orleans—p 426  
Pitfalls in Early Diagnosis of Leprosy G H Paget Carville La—p 432  
Allergic Respiratory Disease and Pneumonia in Childhood S Cohen New Orleans—p 440  
Venereal Diseases Among Selectees and Volunteers in Louisiana J H Musser and R H Onstott New Orleans—p 442

### Public Health Reports, Washington, D C

57 285-324 (Feb 27) 1942

- Appraisal Technique for Urban Problem Areas as Basis for Housing Policy of Local Governments: Illustrative Results from Three Test Surveys: Report of the Subcommittee on Appraisal of Residential Areas: Committee on Hygiene of Housing American Public Health Association—p 285  
Pathologic Histology in Guinea Pigs Following Intraperitoneal Inoculation with Virus of Q Fever R D Lillie—p 296

57 325-368 (March 6) 1942

- State Diphtheria Immunization Requirements: Comparative Analysis of Statutes and Health Department Regulations W Fowler—p 325

### Southern Medical Journal, Birmingham, Ala

35 225-324 (March) 1942

- Ventricular Strain Changes in Electrocardiogram Produced by Acute and Chronic Compression of Pulmonary Artery H M Winans J V Goode and C T Ashworth Dallas Texas—p 225  
\*Certain Constitutional Manifestations of Thyrotoxicosis H J Morgan Nashville Tenn—p 232  
\*Staphylococcal Pneumonia During Epidemic Influenza in North Carolina (1941) R D Baker Durham N C—p 240  
Present Status of Operative Treatment for Hydrocephalus A D Errico Dallas Texas—p 247  
Congenital Chanal Occlusion W L Bonham Oklahoma City—p 252  
Transplants to Thumb to Restore Function of Opposition: End Results C E Irwin Warm Springs Ga—p 257  
Surgical Management of Colonic Cancer C Rosser Dallas Texas—p 262  
Some Pitfalls in Proctologic Diagnosis L J Hirschman Detroit—p 269  
Clinical Conclusions on High Spinal Anesthesia E G Wolff and H B Stewart Tulsa Okla—p 274  
Evaluation of Audiometer in Testing Hearing C C Swann Asheville N C—p 280  
Subluxation of Head of Radius: Pediatric Condition S A Anderson Jr Richmond Va—p 286  
Prophylactic Use of Vitamin K in Obstetrics L M Hellman and L B Shettles Baltimore—p 289  
Care of Prematures in the Small Hospital J L Blanton Fairmont W Va—p 293  
Treatment of Vincent's Infection with Fuadin D C Smith Charlottesville Va—p 299  
Sulfamylguanidine in Treatment of Enteric Infections J G Ehlen Knoxville Tenn—p 302  
Unclassified Type of Ulcerative Disease of Colon P W Brown L A Buie and H M Weber Rochester Minn—p 305  
Scope of Pharmacology H B Haag Richmond Va—p 312

**Manifestations of Thyrotoxicosis**—Morgan discusses the constitutional disorders, osteoporosis, myopathy, exophthalmopathy and avitaminosis, that are intimately associated with hyperactivity of the thyroid and which may be so conspicuous as to alter the usual pattern of thyrotoxicosis and lead to mistakes in diagnosis and treatment. Illustrative cases of each disorder are presented, and the conclusion is reached that the concept, expressed by Means in 1941, that thyrotoxicosis is a constitutional disturbance involving a complicated hormonal imbalance having widespread effects in which the thyroid is but one item is both sound and useful.

**Staphylococcal Pneumonia**—Baker states that in the course of the relatively mild epidemic of influenza that reached North Carolina in January 1941 several cases of pneumonia

developed, some of which led to rapid death. The pneumonia presented unusual appearances at necropsy, was regularly associated with the hemolytic *Staphylococcus aureus* in cultures from the lungs and was reminiscent of pneumonia of the great influenza pandemic of the first world war. The 4 cases studied at necropsy at Durham were characterized by ulcerative and diphtheritic tracheobronchitis and massive fulminating, edematous and hemorrhagic pneumonia. In addition to hemolytic *Staph aureus* being cultivated from the lungs, it could be demonstrated in the sections of the larger air passages and lungs in luxuriant growth. Necrotizing foci were present in the early cases and clusters of abscesses in the older ones. *Staphylococcal pneumonia* with this distinctive morphologic appearance in the larger air passages and lungs scarcely occurs except in association with epidemic influenza. It seems highly probable that the pathologic changes observed represent the combined effect of virus and bacterium. Evidence in the literature suggests that influenza virus in itself is capable of producing pneumonia in man and experimental animals (ferrets and mice). In most cases of epidemic influenzal pneumonia the concept of a synergistic action between virus and bacteria appears to fit the various observations.

### Southwestern Medicine, El Paso, Texas

26 33-66 (Feb) 1942

- Surgical Considerations in Jaundice K A Meyer Chicago—p 35  
Senile Heart: Observations on Prognosis and Management L F Bishop Jr New York—p 38  
Osteopathia Condensans Disseminata: Two Case Reports D S Kellogg and J F Linsman El Paso Texas—p 44  
Effect of Electromagnetic Radiations on Flocculation Tests for Syphilis E L Breazeale Tucson Ariz—p 47  
\*Thrombocytopenic Purpura Following Administration of Sulfathiazole: Case Report W I Werner, Albuquerque N M—p 49

**Thrombocytopenic Purpura Following Administration of Sulfathiazole**—Werner reports a case of thrombocytopenic purpura which was due to idiosyncrasy to sulfathiazole. The patient was given 139 Gm of sulfathiazole over a period of five days, at which time a slight rash developed. Twenty days later he was given 1 Gm of the drug, and purpuric symptoms developed within twelve hours. A thrombocytopenia existed, as no platelets were present. Sulfathiazole is not a harmless drug. Daily studies of the blood are important, as special changes may suggest an impending blood dyscrasia.

### Texas State Journal of Medicine, Fort Worth

37 703-760 (March) 1942

- Angina Pectoris: Etiology and Treatment W J Kerr, San Francisco—p 711  
Amebiasis Cutis R J Jermetad Fort Worth, and G V Launey Grand Prairie—p 713  
Bone Changes in Some of Nutritional and Metabolic Disorders in Children J B Johnson and H M Anspaeh Galveston—p 715  
Banti's Syndrome T P Churchill Amarillo—p 720  
Childhood Tuberculosis J P Gihson Ahilene—p 723  
Reactions to Arsenic Therapy A C King San Antonio—p 726  
Indications for Partial Gastrectomy W E Crump Wichita Falls—p 729  
Safeguards in Cataract Surgery F H Newton Dallas—p 735  
Influence of Racial Factors on Infant Mortality in Texas A M Dashiell Austin—p 738  
Hyperthyroidism in Childhood A W Pierce Wichita Falls—p 740  
Use of Contrast Mediums in Urology S Cooper Ahilene—p 744

### Virginia Medical Monthly, Richmond

69 117-174 (March) 1942

- Can Mental Hygiene Prevent Neurosis? M Moore Boston—p 118  
Gastric Cancer G W Horsley Richmond—p 126  
Surgical Indications for Use of Blood Plasma C S White and J L Collins Washington D C—p 134  
The Physician's Responsibility in Local and National Defense E T Trice Richmond—p 137  
Rorschach Ink Blot Method J B Funkhouser Marion and D M Kelley San Francisco—p 139  
Sinuses C T St Clair Sr Bluefield W Va—p 144  
Selective Service as Applied to City of Norfolk C L Harrell Norfolk—p 146  
Unilateral Twin Ectopic Pregnancy J M Habel Jr Suffolk—p 150  
Dacryolithiasis with Stricture of Lacrimal Ducts: Case Report N H Turner Richmond—p 151  
Perforated Diverticulitis of Sigmoid with Two Case Reports C F James Jr Fort Monroe—p 152

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Ophthalmology, London

26 93-140 (March) 1942

- Operation for Cataract Closure of Wound, Frequency of Complications with Different Methods of Extraction M Klein—p 93  
Investigation Concerning Lens Capsule Its Importance in Technic of Intracapsular Cataract Extraction M Klein—p 118  
Conjunctival Implantation Cyst Following Operation for Detachment of Retina Case J R Ascott—p 126  
Diagnostic Significance of Retrobulbar Neuritis Rosa Ford—p 128

## Indian Medical Gazette, Calcutta

76 705-768 (Dec) 1941

- Endemic Typhus in Mysore R Herlig and V R Narudu—p 705  
Trichostrongylus Infection in Man P A Mapleston—p 710  
\*Sulfaguanidine in Cholera R N Chopra, A J H de Monte, S K Gupta and B C Chatterjee—p 712  
Method for Ascertaining Overlapping of Pubis by Hand by Means of Abdominal Examination Alone N A Purandare and B N Purandare—p 714  
Dystocia Due to Anomalies of Fetus Associated with Dilatation of Fetal Urinary Bladder Grace Edwards Barr—p 715  
Developmental Anomalies of Kidney and Ureter H E Murray and H Ahmed—p 718  
Arsenic in Food R B K N Bagchi and H D Ganguly—p 720  
Detection of Arsenic in Burned Human Bones and Ashes S N Chakravarti, M Z Faruqi and K R Ganguly—p 722  
Combined Digitalis and Rauwolfia Poisoning in Human Subject M N De and T Chatterjee—p 724  
Postsulfapyridine Anuria Case Report S K Sundaram—p 726  
Prevailing Types of Pneumococci in Pneumonia and Pneumococcal Infections R B J Lal and N L Chitkara—p 728  
Blackwater Fever in Darjeeling Terai J C Bhattacharjee—p 734  
Stains Other Than Blood Stains as Medicolegal Evidence S D S Greval and S N Chandra—p 737  
Method of Oiling Streams and Drains by Automatic Drip System A K Misra—p 739

**Sulfaguanidine in Cholera**—Of 613 patients with cholera that Chopra and his associates treated, 301 were given 0.5 Gm of sulfaguanidine as an initial and 0.25 Gm every six hours for seventy-two hours as a maintenance dose, 218 were given 1 Gm of the drug as an initial and 0.5 Gm as the maintenance dose, and 94 control patients were treated only with saline solution intravenously. Of the first group of patients 282 were cured and 19 died, of the second group 211 were cured and 6 died and of the last group 88 were cured and 6 died, making the respective mortality rate 6.31, 3.21 and 6.38 per cent. The patients given the larger doses of sulfaguanidine required less saline solution than the two other groups. All the patients receiving chemotherapy had fewer stools per day. Larger doses than those used may be still more efficacious.

## Journal of Hygiene, London

41 463-622 (Nos 5 and 6) (Dec) 1941

- Comparison Between Direct and Indirect Occupational Risk in Mortality from Pulmonary Tuberculosis E A Cheeseman—p 463  
Chemical and Physical Investigation of Germicidal Aerosols I Germicidal Smokes S R Finn and E O Powell—p 473  
Freezing of Human Serum and Plasma in Medical Research Council Transfusion Bottles, Before Drying by Sublimation from Frozen State R I N Greaves—p 489  
Further Observations on Longevity of Dry Spores of Bacillus Anthracis G S Graham Smith—p 496  
Papillary Variation in Coliform Bacteria F H Stewart—p 497  
Experiments in Connection with Attempt to Produce Neurotropic Strain of Vaccinia Virus in Sheep E C Smith, E S Horgan and M A Haseeb—p 509  
Detection of Acetylmethylcarbinol in Bacterial Cultures Comparative Study of Methods of O'Meara and of Barritt C G Batty Smith—p 521  
History of Six Old Cultures of Mycobacterium Tuberculosis A S Griffith—p 530  
Milk Spread Epidemic of Scarlet Fever R Douglas, J Smith, I N Sutherland and R J P Watson—p 543  
Outbreak of Paratyphoid B Fever C B Hogg and R Knox—p 553  
Examination of Modified Eijkman Method Applied to Pure Coliform Cultures Obtained from Waters in Singapore G E Bozot—p 566  
\*Infectious Diseases in Semiclosed Community S Thomson and A J Glazebrook—p 570

**Infectious Diseases in Semiclosed Community**—In the course of a year Thomson and Glazebrook observed 1,902 cases of tonsillitis and 115 cases of rheumatic fever in a training center with an average population of 1,200. The center had dormitories, classrooms, recreation rooms and hospital accom-

modations. All the recruits were passed as fit before entry. A quota from every batch of entrants was received at fortnightly intervals at this center. This probably played an important part in continuing the epidemic. The incidence of tonsillitis fell as the ages of the entrants rose. As the ages rose the incidence of tonsillitis among those not previously attacked fell in a geometric progression. Violent exposure to streptococcal tonsillitis in the absence of a clinical attack raised the resistance to a high level in a short time. Acute rheumatism did not appear among those who had been in the institution for a long time and had experienced several attacks of tonsillitis. There was no real difference in the incidence of the two diseases in boys drawn from different parts of the country. An epidemic of common cold did not occur in an institution in which conditions were favorable to its spread, but a severe epidemic of tonsillitis occurred during the period of investigation. In this institution the incidence of the common cold was related to the seasons, yet the conditions of living were the same all the year round. The attack of common cold left little or no resistance. There was no "silent" immunization against the common cold.

## Lancet, London

1 159-188 (Feb 7) 1942

- \*Peritoneoscopy Report Based on 125 Cases R M Walker and P L Playfair—p 159  
Mass Radioscopy in Factories Two Small Surveys A S Hall—p 161  
Blood Viscosity P Evans—p 162  
Well Leg Extension for Fractured Pelvis Improved Splint W E Joseph—p 166  
Chronic Meningococcal Infection Two Cases A S Watts—p 168  
\*Incidence of Clinical Acne in Men E L Cohen—p 168  
Effect of Electrotherapy on Denervated Muscles in Rabbits E Gutmann and L Gutmann—p 169

**Peritoneoscopy**—Walker and Playfair performed peritoneoscopy under local anesthesia in 95 cases, under general in 29 and under spinal in 1. General anesthesia was employed when it was probable that open operation would follow. Peritoneoscopy is usually called for as an alternative to an exploratory laparotomy and should be employed only when definitely indicated. It will save many patients the risk and discomfort of an open abdominal exploration. The authors have not encountered any serious complications, the only minor one being surgical emphysema of the abdominal wall in a few cases. Peritoneoscopy was found particularly useful in gastric and hepatic conditions. Of 32 patients with gastric carcinoma examined 9 showed metastasis and were considered inoperable. In 20 no metastasis was seen and laparotomy was undertaken, 11 had a subsequent gastrectomy, while at operation 9 were found inoperable because of an extension of the growth not seen through the peritoneoscope. In 2, no growth was seen with the peritoneoscope, but operation revealed a carcinoma, 1 patient without metastasis was not operated on because of a poor general condition. Of 18 patients with either palpable enlarged livers or ascites 10 showed malignant nodules, 4 cirrhosis, 2 hepatitis and 2 fatty degeneration. Of 8 with suspected cholecystitis or gallstones 6 showed a pathologic gallbladder, confirmed at operation, while in 2 the gallbladder appeared to be normal but at operation it was found to contain a single stone. The ovaries of 16 were examined, 8 because of menstrual irregularities, in 6 of whom multiple unruptured graafian follicles were revealed and in 2 polycystic ovaries, and 8 for ovarian cysts, 3 of which were malignant with peritoneal metastasis while in 5 the diagnosis was confirmed and the cyst subsequently removed. In 2 other patients who had had malignant ovarian cysts removed previously metastasis was found and confirmed at necropsy in 1. Of 8 patients with cervical or uterine carcinoma 3 had peritoneal metastasis, 1 hepatic metastasis and evidence of invasion of the broad ligament. Other conditions which have been diagnosed were ectopic pregnancy, metastatic retroperitoneal melanotic sarcoma, tuberculous peritonitis, tuberculous salpingitis, endometrioma and splenomegaly.

**Incidence of Acne in Men**—Cohen states that among 59 soldiers that he examined 59 had obvious acne vulgaris. The ages of the last 207 varied from 20 to 39 years. It seems that most authorities have put the upper age limit too low and that acne is relatively common in men more than 30, 8 of 51 between 30 and 39 had acne.



## Archivos de Medicina Interna, Havana

6 255 316 (Sept-Dec) 1940

- Coarctation of Aorta I Salá-Panissello and F. González Peña—p. 255  
Epidemic Megalerythema Infectious Erythema Fifth Disease J de Castro Palomino I A. Armentero and L. Laposito—p. 275  
Considerations of Radiologic Diagnosis of Persistence of Arterial Canal I. Govea Peña Lont and A. Lont—p. 282  
Paroxysmal Hemoglobinuria Due to Cold I. López Fernández and R. Dorticos—p. 287  
Chronic Aleukemic Myelosis L. E. Pascual Gispert and L. Díaz de Villegas—p. 293  
Arthritic Form of Leukemia M. Michado Espinosa S. Tallet Crenier F. Leon Leon and F. López Hidalgo—p. 300

**Coarctation of the Aorta**—Salá-Panissello and González-Peña point out that coarctation of the aorta was as a rule detected accidentally in the course of a necropsy until modern methods of examination made its detection during life possible. They present a review of the literature on stenosis of the aortic isthmus and a classification of congenital anomalies of the heart. The prognosis is somewhat unfavorable because of the possibility of a bacterial endocarditis. As prophylaxis removal of all foci of infection is indicated. Digitalization may be required in some cases in order to maintain the hemodynamic equilibrium. The authors present the clinical history of a man aged 20 in whose shoulder a collateral circulation was discovered.

## Boletín de la Soc de Obst y Ginec, Buenos Aires

20 699 878 (Dec 30) 1941 Partial Index

- \*Placental Blood Transfusion Indications in Tocologic and Gynecologic Diseases G. Ricci and M. Balaguer—p. 830

**Placental Blood Transfusion**—Ricci and Balaguer believe that placental blood because of its high hormone content is of therapeutic value in obstetric and gynecologic diseases. The blood is aseptically collected from the placenta immediately after delivery. It is preserved in a solution of 5 Gm of sodium citrate, 9 Gm of sodium chloride and sufficient amount of twice distilled water to make 1 liter. The mixture of blood for transfusion contains the same amount of blood and of the sodium citrate-sodium chloride solution. It can be preserved for five days. Placental blood of the same group or from universal donors is used. Blood serum is obtained from centrifugated blood of the groups A, B and AB. It can be used without regard for blood grouping. Blood or blood serum is transfused in amounts of 20 cc every other day up to a total of six to ten transfusions. The treatment was given to ambulant patients with chronic and subacute adnexal disease, and disorders of menstruation. The patients exhibited transient local and general reactions of malaise, fever, aggravation of local pain and local inflammation which lasted for a few hours. The reactions diminished in severity as the treatment progressed. By the end of the treatment local pain, inflammation, vaginal discharge and swellings disappeared. Menstruation became regular and the patients were able to lead a normal active life. Recurrences were observed in 2 of 32 cases and were due to insufficient treatment. A new series of six transfusions completed the cure. In cases of juvenile and menopausal metropathies previous treatment and blood transfusion had failed. Placental blood transfusion controlled the hemorrhages and regulated menstruation. Good results were also obtained in grave puerperal pyelitis after failure of the usual treatments, including sulfanilamide.

## Revista Médica de Chile, Santiago

70 1-100 (Jan) 1942 Partial Index

- Vascular Disorders of Extremities A. Velasco S. and E. Acevedo D—p. 3  
\*Diagnosis and Treatment of Peripheral Arterial Disorders R. Zúñiga Latorre—p. 16  
Surgically Treated Subdural Hematomas Four Cases I. Alessandrini and H. Lea Plaza—p. 24  
\*Sulfadiazine in Treatment of Meningococcic Meningitis A. Horwitz J. Perroni R. Kraljevic and J. García Huidobro—p. 31

**Diagnosis and Treatment of Peripheral Arterial Disorders**—Zúñiga Latorre discusses the treatment of acrocyanosis, erythromelalgia (Weir Mitchell), Raynaud's disease, thromboangitis obliterans, localized obliterating arteriosclerosis, generalized obliterating arteriosclerosis, syphilitic arteritis and diabetic arteritis. Although these disorders represent distinct clinical entities from the point of view of pathologic anatomy

they are gradations of an arteritis which is functional in the beginning, spasmatic in its later course, obstructive and causing in the end stages, grave lesions in the arterial coats. The etiology of the syphilitic and diabetic arteritis is known, the cause of the others has not been determined. The author has treated surgically since 1927 107 cases. In his experience ganglionectomy gives the maximum assurance of cure in thromboangitis obliterans while the operative risk is small. Medical treatment must complement the surgical but by itself cannot cure the thromboangitis. There exist two causes of vascular spasm in thromboangitis obliterans: a general, endocrine, adrenal, which maintains the hypertony of the sympathetic, and a local arterial, which originates in the nervous fibers of the wall and is brought on by an obstruction of an artery, which in turn provokes a spasm in the entire collateral network. The effect of the surgical treatment on the latter is so certain and permanent that it counteracts to a large extent the primary cause and prevents grave alterations. Moreover, ganglionectomy seems to exert a direct influence on the general cause. The author tried to induce both effects in some patients by performing a paravertebral ganglionectomy to eliminate the second cause of spasm and splanchnicectomy, freeing or extirpating the semilunar ganglion to attenuate the first. The results obtained have been optimal but the majority of cases demonstrated that ganglion extirpation to the customary extent is sufficient to obtain definite clinical improvement. The operation is indicated in all cases in which the collateral network still reacts. It is contraindicated in generalized arteriosclerosis and in diabetic gangrene. Medical treatment should complement the surgical therapy. Early diagnosis is important in order that surgical treatment may be performed in time to avoid mutilating amputations.

**Sulfadiazine in Treatment of Meningococcic Meningitis**—Horwitz and his collaborators administered sulfadiazine in 38 cases of meningococcic meningitis. The mortality so far has been zero. This is noteworthy when it is considered that with the use of other sulfonamides the mortality fluctuates between 8 and 10 per cent. The initial dose was 4 Gm and was followed by 1 Gm given every three hours. The average duration of the treatment was 8.5 days. The average total dose was 60 Gm but many cases were cured with 30 Gm. Because of the low toxicity and the favorable results sulfadiazine may eventually replace nearly all of similar drugs.

## Wiener medizinische Wochenschrift, Vienna

91 677-692 (Aug 16) 1941

- Detection and Treatment of Lupus Vulgaris A. Kropatsch—p. 677  
Acute Abdominal Complication as Result of Embolism of Superior Mesenteric Artery D. Antic—p. 680  
Tropical Malaria with Symptomatology of Tuberculous Meningitis V. B. Kurdoglu—p. 682  
\*Atropine and Iron in Treatment of Gastric Ulcer A. Henszelmann—p. 684

**Atropine and Iron in Treatment of Gastric Ulcer**—It is not generally appreciated that in large doses atropine exerts a therapeutic effect by way of the sympathetic. It has a paralytic effect on the parasympathetic nerve terminations. In this way a spasmolytic effect is exerted on the smooth muscles and the secretion of the digestive glands is inhibited. The spasms of the smooth musculature, irritation of the antrum, hypertonia, insufficient opening of the pyloric sphincter and the contraction of the antrum are the result of nervous hyperirritability. By counteracting these spasmodic contractions with atropine rest is secured, which is necessary for the healing of the ulcer. The customary doses of atropine do not have this effect. Henszelmann found that intravenous administration of atropine sulfate solves this problem. Depending on the nature of the case, he administers daily for ten or twenty successive days from 0.33 to 0.66 mg of a 1:1,000 solution of atropine sulfate. Reduced iron is given three times daily in doses of from 0.1 to 0.2 Gm. Intravenously administered atropine heals the peptic ulcer more rapidly than does protein treatment, amino acid or any other treatment. In the presence of hemorrhages the atropine treatment is combined with the administration of reduced iron. The ferrous chloride formed by the metallic iron and the hydrochloric acid exerts a local hemostatic, astringent and coating effect, it promotes granulations and has an acid neutralizing effect. Its strengthening and hemopoietic action counteracts the predisposition to hemorrhage.



## Book Notices

**Encephalitis A Clinical Study** By Josephine B. Neal, A.B., M.D., Sc.D., Associate Director, Bureau of Laboratories, Department of Health, New York et al. Foreword by Hubert S. Howe, A.M., M.D., Clinical Professor of Neurology, College of Physicians and Surgeons, Columbia University, New York. Cloth. Price, \$6.75. Pp. 563, with 16 illustrations. New York: Grune & Stratton, Incorporated, 1942.

The common worldwide and devastating disease encephalitis has become familiar to every physician. This book satisfies a present need. The difficulty in seeking information on encephalitis has not been that so little but that so much has been written on the subject. To have the accumulated information and the relevant world literature brought up to date is an accomplishment of merit.

Since 1918 Dr. Neal has been actively and prominently interested in this field. In the spring of 1927 Mr. William J. Matheson, himself a sufferer from encephalitis, gave generously to make possible exhaustive study of this disease. As executive secretary of the commission established by his grant, Dr. Neal and her associates could give their entire attention to the care of more than 700 patients afflicted with the disease. In addition, her experience with more than 200 patients who had acute infections of the central nervous system as diagnosed by the members of the Division of Acute Infections of the Central Nervous System of the Bureau of Laboratories, Department of Health, New York City, of which Dr. Neal is in charge, gave her the background necessary for an appraisal of the problem. No other person has had such wide experience in this field. The presentation in a single volume of such a wealth of experience in itself reflects thoughtful preparation of the work.

The book is introduced by historical and clinical orientation of encephalitis. Dr. Ralph S. Muckenfuss next considers the epidemiology of the various types of epidemic encephalitis. Chapter III, written by Dr. Neal and Dr. Helen Harrington, deals with the neurologic complications that may follow measles, German measles, vaccination, smallpox, antirabic treatment, whooping cough, scarlet fever, pneumonia and other bacterial infections. In chapters IV and V Dr. Neal covers the clinical course and the medical treatment admirably and includes the results of a vast amount of long, difficult and original work. The salient features of the surgical treatment of postencephalitic symptoms are briefly but, for the medical reader, adequately presented by Dr. Tracy J. Putnam. In chapter VII Dr. Albert A. Rosner deals with the psychiatric sequelae of epidemic encephalitis, and in the next chapter Dr. Lauretta Bender provides the reader with an informative survey of the postencephalitic disorders in behavior of childhood.

In the last chapter Dr. Lewis D. Stevenson describes clearly and well, with the help of illustrations, the pathology of encephalitis lethargica, congenital and infantile encephalitis, hemorrhagic encephalitis, St. Louis encephalitis, Japanese encephalitis, influenza encephalitis, acute disseminated encephalomyelitis and neuromyelitis optica, multiple sclerosis, the encephalitis of measles and German measles, postvaccinal (cowpox) encephalitis, the encephalitis of smallpox, chickenpox, mumps, scarlet fever, choriomeningitis, typhus fever, Rocky Mountain spotted fever, rheumatic fever and chorea, equine and other animal types of fever transmissible to man, rabies, louping ill, psittacosis, virus myelitis, tularemia encephalitis, animal encephalitis not transmissible to man, encephalitis of malaria, trichinosis and cysticercosis, toxoplasmic encephalomyelitis, trypanosomiasis, purulent encephalitis, the North Dakota epidemic, the Guillain-Barré syndrome, some less usual forms of encephalopathy and botulism.

It will be seen that the book covers much territory, but it does this well and with evidence of authoritative acquaintance with most of the material. The more recent views concerning the place of nutritional deficiencies in the brief reference to Wernicke's syndrome are omitted. This condition, however, belongs to a group that is not related primarily to infections. The book is well indexed. It is widely useful, and most physicians will find in it the information they are likely to seek expressed in words they will understand.

**Anquilostomiasis y paludismo en Venezuela** Por el Dr. R. B. Hill y Dr. E. I. Benarroch. Paper. Pp. 204, with illustrations. Caracas: Editorial Elite, 1940.

This book contains a general outline of conditions affecting health in Venezuela, including topography, climate, living conditions, population in general and the activities of the public health department followed by reports of hookworm and malarial surveys carried out in 1927-1928 in Venezuela by the International Health Division of the Rockefeller Foundation in collaboration with the Venezuelan National Health Department. Following the introductory statement there appears a bibliography of articles published separately by the authors in various journals in South America and the United States during the period 1928-1934 inclusive. Four of these articles are reproduced in an appendix.

The first three chapters of the book, setting forth acknowledgments, discussing general conditions and dealing with the activities of the Venezuelan Health Department, are a frank discussion of public health in Venezuela, the failure of administration of public health measures by the Public Health Department, and of the developments necessary to improve the public health in that country. Chapter IV is a report of findings of an extensive hookworm survey in the northern coastal and plain states, the mountainous areas of Lake Maracaibo northward to the Caribbean Sea, and the state of Bolívar lying south of the Orinoco River. The high incidence of hookworm infection found throughout most of these areas, making up an average of 69 per cent infection of the 11,235 individuals examined, is astounding. Chapter V is the report of the study of malaria carried out for the same general area and is an excellent presentation of the malaria situation in Venezuela, including the prevalence of malaria as based on more than four thousand spleen examinations and more than three thousand three hundred blood studies, the species and the distribution of species of anophelines and a discussion of the agricultural and industrial practices producing large breeding areas for anopheline mosquitoes. Chapter VI is a more detailed report of general health conditions and especially of malaria and anopheline mosquitoes in the general area of the city of Maracay. An appendix in chapter VII deals with various notes of interest, such as a report of the necropsy in a case of cerebral malaria, an experiment with epinephrine for the reactivation of malaria parasites and the use of gumme. The articles reproduced in this appendix discuss the various anopheline mosquitoes found in Venezuela, the feeding habits of Venezuelan anophelines, notes on the frequency with which various malarial parasites are encountered and a study of the various malarial parasites and notes on their frequency.

This book is recommended as presenting a comprehensive picture of general health conditions in Venezuela with detailed information on hookworm, malaria and the anopheline mosquitoes. The binding and paper are poor, and the photography, while adequately giving an impression of the great health problems to be encountered in Venezuela, is of inferior quality. Numerous tables and charts summarize the surveys. Vital statistics based on official reports of the Venezuelan Health Department are obviously inadequate.

**Anatomy of the Nervous System. A Textbook from the Developmental and Functional Point of View and Atlas of the Nervous System of Man** By Olof Larsell, M.A., Ph.D., Sc.D., Professor of Anatomy, University of Oregon Medical School, Portland. Cloth. Price \$6.00. Pp. 411, with 341 illustrations. New York & London: D. Appleton-Century Company, Inc., 1942.

This is a revision and enlargement of a previous book by Larsell, "Textbook of Neuro-Anatomy and the Sense Organs," reviewed in THE JOURNAL, May 20, 1939. Although the present volume is an improvement over the previous one, a number of the confusing statements pointed out in the first review persist in this volume. On page 103 is the statement "injury to the [spinal] cord which affects this tract [the anterior spinothalamic] results in failure of tactile and pressure sense to reach the brain," while on page 116 it is stated that "destruction of the anterior spinothalamic tract, 'touch and pressure sensibility remain virtually intact' because 'the fine touch fibers' sensibility, however, is also served by fibers in the posterior funiculus." And on pages 104 and 105 Stopford is quoted as

approval to the effect that the fasciculus gracilis and fasciculus cuneatus, the principal tracts of the posterior funiculus, have to do only with position senses and two point discrimination. The reviewer is aware that these apparently contradictory statements are, at least in some measures, susceptible of explanation, but does the first year medical student for whom this book was written know it? Neuroanatomy is one of the most difficult subjects that the young student encounters. Every effort should be made to have this intriguing and important subject as interesting and as free from confusion as possible.

Although the important lateral spinothalamic tract has been added to figure 112, it is still not indicated on most of the diagrammatic figures of the brain stem (figs 110, 114, 116, 119, 123). The erroneous implication that Walker and Le Gros Clark found evidence that some of the fibers of the optic radiation to the cerebellum cortex arise in the pulvinar has also been allowed to persist (p. 292).

These points are particularly annoying in that they persist in spite of having been called to the author's attention. They are not serious perhaps but they are not the only inconsistencies. For example, on page 254 is the erroneous statement that the posterior lobe and pars nervosa of the hypophysis are synonymous, on page 260 that the basal ganglia are found in the floor and ventrolateral wall of the cerebral hemisphere, on page 268 that the external capsule lies between the thalamus and the claustrum, to mention a few.

On the whole the book is carefully written. The illustrations are well chosen and well reproduced. There is a good bibliography and a useful index. The volume will prove to be a useful textbook for students in neuroanatomy.

Atti del Convegno sulla silicosi Torino 22-23 febbraio 1941. Edizione dell'Ente nazionale di propaganda per la prevenzione degli infortuni. Cloth. Price 60 lire. 1 p. 236 with illustrations. Turin: S. A. N. Stamperia Artistica Nazionale [n. d.]

The convention reported in this publication represents an attempt to bring together physicians, engineers, chemists, physicists, jurists, sociologists and economists for a discussion of the problem of silicosis in industry.

The collection of papers presented cannot readily be construed as an extension of the already existing knowledge of the disease; rather, it is an affirmation of its vital and ever increasing significance and a recognition of the varied sources from which must come contributions toward its ultimate solution.

The papers possess a commendable degree of homogeneity, consecutiveness and readability despite their multiplicity of authorship. They are in essence a compilation of basic information—a summary of the salient issues presented by the disease. Among the phases specifically considered are the pathology of silicosis, roentgenologic diagnosis, clinical diagnosis, prevention, medicolegal evaluation and insurance and employer liability.

It is obviously difficult to abstract from the reports items of preeminent general interest. The individual reader with individual interests will naturally find points of value on the basis of his own relation to the problem and his own predilections. References to the context are therefore of more or less arbitrary selection and are offered not with the implied suggestion that they are the primary contributions of the work but with the view of merely indicating the range and character of the material the reports cover.

In the paper on pathologic considerations, Professor Mottura of the Royal University of Turin refers to the slight compromise of pulmonary function attributable to the silicotic nodule *per se*. He makes mention of the alveolar compression and final obliteration consequent to massive sclerotic changes. Reference is also made to the possible difficulty of detecting slight tuberculous disease in the silicotic lung.

The need of supporting the roentgenologic findings by an adequate anamnesis before a definite diagnosis of silicosis can be made is mentioned by Professor Lupo of the Maggiore Hospital of Novara.

Concerning the removal of the affected subject from his work, Professor Vigliani of the University of Turin urges the reminder that such removal does not guarantee arrest of the process nor does it obviate the danger of tuberculosis. The psychic dangers to the worker, the possibility of seeking employment by concerns less meticulous in their examination and the danger of

doubling the number of the silicotic through replacement of affected workers by others are discussed.

Professor Baader of the University of Berlin states that the number of grave cases of silicosis in the old reich reported during the first nine years following the legal institution of compensation for such cases was 38,500 and that up to January 1938 the benefits paid to the silicotic and their heirs amounted to 65,000,000 marks. He avers that "the fight against dust is impossible without good organization and without methodical instruction of the workmen."

The reports of the Turin convention are of primary interest to the industrial physician and others directly concerned with the ever important question of silicosis. However, the papers could be read with profit by the internist and the student of pulmonary disease.

Clinical and Experimental Histological Studies on Effects of Salicylate and Quinine on the Ear. By Jørgen Falbe Hansen. Translated from Danish by Hans Andersen M.D. Denne Afhandling er af det lægevidenskabelige Fakultet antaget til offentlig al forsvares for den medicinske Doktorgrad. København 1941. Paper. Price 10 Danish kroner. Pp. 216 with 12 illustrations. Copenhagen: Einar Munksgaard 1941.

The war apparently has not been able, even in Europe, to smother entirely the type of detailed clinical study represented by this monograph, which evidences a great deal of work and is in the true continental style with full preliminary remarks on the pharmacology of the drugs investigated, namely salicylic acid and quinine, and it includes an extensive critical survey of all available pertinent preexisting contributions on the subject of the author's studies. He then relates the manner in which he tested hearing and labyrinthine functions in order to establish normal criteria. Under proper controls both tuning forks and the audiometer were used, healthy volunteers were examined after ingestion of sodium salicylate and quinine sulfate, patients with abnormal hearing were similarly tested and there were a number of instances in which individuals with acute quinine poisoning and protracted salicylate ingestion were observed. There were, in addition, controlled animal experiments with microscopic examinations of the internal ear after lethal doses of quinine sulfate and sodium salicylate. The author's conclusions were that in the main, 0.6 to 1.5 Gm. of quinine sulfate as a single dose or fractionated over a period of six hours produced deafness of the conduction type which, as a rule, cleared up in twenty-four hours. The same was true of single or fractionated doses of sodium salicylates to the amount of 3 Gm. or over. No permanent aural changes were noted. The microscopic studies show changes in the cells of the spiral ganglion, in the organ of Corti and in the position of the membranes. Hypothetically this may be due to an increase in secretion of the labyrinthine fluids, especially the perilymph induced by the drugs used. The increased endolabyrinthine pressure acts on the fenestra and explains the aural findings. Those interested in the effects of quinine and salicylates on the ear should read this work. It seems carefully done and differs in its conclusions from commonly accepted opinion to date, which appears to feel that quinine and the salicylates, when they adversely affect the hearing mechanism, produce a perception type of deafness which is often more or less permanent.

From Infancy Through Childhood. By Louis W. Sauer M.D. Ph.D. Assistant Professor of Pediatrics, Northwestern University Medical School, Chicago. Cloth. Price \$2. Pp. 200 with 17 illustrations. New York & London: Harper & Brothers 1942.

This book was written for mothers who are intelligent enough and well educated enough to use a book of advice in connection with the rearing of a child. It is not planned to replace the physician but to aid him. The discussion takes up the care of the mother through pregnancy and the nursing period, the care of the child in infancy and through various stages of development. There are special sections dealing with the prematurely born infant and the adopted child. In the appendix are a glossary, charts concerning immunization and record of weight and height, also some information on first aid. The reputation of the author gives assurance of the authoritative character of the advice given. Some sections of the book are technical so that the mother may require a dictionary or supplementary information from her own doctor in addition to the material in the book itself.

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

### EFFECT OF SMOKING ON APPETITE AND ON PERIPHERAL VASCULAR DISEASE

**To the Editor**—It is claimed that smoking lessens the appetite, many women who are anxious to reduce take up smoking. How does it bring about this result? What is the effect of tobacco on metabolism, especially the metabolism of carbohydrates? Does smoking cause hyperglycemia (temporary)? Why is smoking considered harmful in peripheral vascular disease?

M D, Michigan

**ANSWER**—That smoking lessens appetite and interferes with weight gain is one of the few claims in cigaret advertisements which have been substantiated by clinical and experimental observations. The ill effects of the induced anorexia were discussed in an editorial in *THE JOURNAL* many years ago as follows: "The human appetite is a delicate mechanism, and the attempt to urge that it be aborted or destroyed by the regular use of tobacco is essentially vicious." Temporary elevation of the blood sugar following smoking—reported by several, but not all, observers—varies with the dose and the subject and seems too small to account for the effect observed. Local effects on taste buds, the mucous membranes of the mouth and the upper portion of the alimentary tract in general and on gastric secretion and motility appear more plausible. The central effect of nicotine, inducing nausea in novices, may also play a part. Some of the effect, however, may be due to psychologic mechanisms, such as preoccupation of attention on smoking diminishing the tendency to nibble or eat for psychic reasons and conditioned reflexes set up by after dinner smoking leading to the cessation of hunger pains.

The effect of smoking on peripheral vascular disease is ascribed to the peripheral vasoconstriction caused by nicotine. This is shown by pallor, reduced temperature and lowered volume of the extremities after smoking. It is best exemplified in the unanimous condemnation of smoking in cases of thromboangitis obliterans but may be noted also in other disease states and in normal persons.

#### References

- Bogen, Emil. The Composition of Cigarets and Cigaret Smoke, *THE JOURNAL*, Oct 12, 1929 p 1110.  
Unappreciated Paths of Absorption in the Body, editorial, *ibid*, Dec 8, 1928, p 1807.  
Haggard, H W, and Greenberg, L A. *Science* 76 165 (Feb 16) 1934.  
Cates, H B and Giovanazzi, J G. *J Lab & Clin Med* 24 729 (April) 1939.  
Carlson, A J. The Control of Hunger in Health and Disease, Chicago, University of Chicago Press 1916.  
Silbert, Samuel. Thromboangitis Obliterans, *THE JOURNAL*, May 31, 1930, p 1730.  
Abramson, D I. *J Med* 20 289 (Sept) 1939.

### INGROWING HAIRS

**To the Editor**—A man has been troubled for the past year with a condition involving the roots of the hair of the face. He shaves every day but never seems to get a clean shave because some of the hairs have a tendency to curl on themselves and turn into the skin. They seem to become encysted and when pulled out always have a hyaline-like sack involving the root and most of the lower portion of the hair. This condition has spread. I should like to know (1) the name of the condition, (2) what can be done to prevent the hairs from growing inward and (3) what can be applied to the skin to prevent further formation of the hyaline-like sacks?

M D, Massachusetts

**ANSWER**—1 The condition is a common one, but there are very few articles on it in the literature. It is known as *pili incarnati* and commonly called ingrowing hairs.

2 The only way to prevent the hairs from growing inward is to keep them pulled out or to have them permanently removed by electrolysis.

3 There is no medication which applied to the skin will prevent the formation of the cysts, which are more often pustules. They result from the irritation caused by the penetration of the skin by the hairs, without emerging from the follicle on the skin surface the hairs often bore along in the superficial corneum, through which they can be seen as though through ground glass, or emerge from the follicle and then reenter the epidermis, forming an arch or bridge. From this point the

course of the hair may be seen as it passes superficially, or it may go deeper and disappear from sight. The resulting papules, cysts or pustules are oftenest between the follicle mouths, because the hairs that emerge and then reenter the skin are more common than those that remain in the follicle or begin boring without emerging. Sometimes, however, as Weninger (*Sur les poils incarnés, Ann de dermat et syph* 9 687 [Aug] 1928) reported, the inflammatory reaction occurs at the follicle mouth and the hair can be fished out of the center, where it has lain curled up. As mentioned by the Suttons (*Diseases of the Skin*, ed 10, St Louis, C V Mosby Company, 1939, p 1394) this suggests keratosis pilaris, the horny skin-colored papules resembling goose flesh seen often on the arms about the elbows or on the outer side of the legs, sometimes elsewhere and occasionally on the cheeks and submaxillary regions, the favorite location of *pili incarnati*. Sofoteroff (*Das Harr als Ursache von Neuralgien, Zentralbl f Chir* 55 841 [April 7] 1928) reported on 4 patients, 2 of whom had painful nodules, the largest the size of a cherry, in the axillas, the other 2 had similar nodules in the pubic region. In these nodules, which showed no outward sign of inflammation, he found curled up hairs the removal of which relieved the tenderness and pain. This suggests an unusual form of keratosis pilaris. The lesions of *pili incarnati* are usually inflamed, partly because of a foreign body reaction to the presence of hair in the skin outside the follicle and partly because of external irritation from shaving and attempts to get rid of the hair. Most writers on this subject have thought of a possible relation to dystrophies of the teeth and nails and have recorded the absence of these but have not mentioned the presence or absence of keratosis pilaris in its common locations.

The reason for the localization of ingrowing hair at the side of the neck just below the jaw is that this is the meeting place of two opposing streams of hair, well depicted by Danforth (*Studies on Hair, Arch Dermat & Syph* 11 804 [June] 1925), who writes in explanation (p 820) "The natural direction of the hair in the submaxillary region is downward, while in the lower part of the neck it is upward, the two streams meeting in a line well within the beard covered area of most men. Despite the frequent irritation that comes from shaving against the natural direction of the hair on the part of a considerable proportion of men for many generations, this peculiar arrangement, apparently not shared by apes, still persists as a characteristic human trait."

Added to the confusion of hair direction is the fact that the hair in this region emerges from the follicles at an acute angle to the surface of the skin, favoring penetration of the skin by any crooked hairs. Keratosis pilaris might cause crookedness of the hairs. Both it and *pili incarnati* are familial in occurrence, and the association of these two and mild forms of ichthyosis should be investigated.

### SENSITIVITY TO EGG

**To the Editor**—For the past four years I have had during certain summer months a dermatitis of the hands. This varies in intensity. Not until a few months ago did I find by elimination diet that the dermatitis is due to egg in any form. Now the taking of egg in the slightest amount brings on this reaction without any seasonal relation. How can I desensitize myself, and where can I obtain the egg extract? What prognosis has the condition?

M D, Indiana

**ANSWER**—The diagnosis should first be confirmed beyond any doubt by eliminating egg in all forms, either as used alone or as employed in the preparation of other foods (such as cake, certain candies and ice cream). If egg is the sole cause for the dermatitis the condition should clear completely within a few days to several weeks, depending on the severity and chronicity of the cutaneous lesion. When the diagnosis is definitely established, one of two procedures may be followed. First there should be continuation of complete avoidance of egg in any form for several months to several years. In many cases considerable tolerance to a food develops after this type of avoidance. The length of time necessary is, unfortunately, not predictable. One might try a small amount of egg after six months of avoidance. If this is tolerated, egg may be used in the minimum amount necessary for a comfortable diet. It is inadvisable to attempt to approach the threshold of symptoms if tolerance is gained.

The second method is oral desensitization. It is not so easy to give a definite dose schedule that can apply to the individual case. The slower the immunization the more likely it is to be effective. For the extremely sensitive person one might start with a drop of raw fresh egg white added to a quart of water and a teaspoon of this dilution taken on an empty stomach once a day. If no symptoms occur the dose is doubled the next day by adding 2 drops of egg white to a quart of water.

increase is continued in this manner until symptoms appear. With the first appearance of redness or itching of the hands the taking of egg white is discontinued until the lesions clear. A dose about two thirds to one-half the one producing symptoms may then be taken daily, with occasional attempts to increase it. It after a number of trials the threshold of tolerance is found to be the same as in the original experience no attempt should be made to increase tolerance. The maintenance dose should then be about 50 per cent of the threshold dose. This is replaced by egg as used in the preparation of foods rather than a daily intake of raw egg white. Parenteral injection of egg white or other foods in an attempt to gain tolerance not only is usually unsuccessful but is often dangerous.

#### BITE OF A SHEEP TICK AND PROBABLE ERYSPELOID

To the Editor—While shearing sheep about three months ago a young man felt an insect bite him on the right hip. As soon as he was through he examined the spot and found a tick with its head buried in the skin. He pulled the tick off but the insect's head broke off and remained embedded in his skin. He attempted to remove the head but was unsuccessful. A small ulcer developed at the site of the bite and has not yet healed. About a week later he began to feel sick and a little feverish and has continued to feel that way although he has been well enough to do most of his work. A few days before he came to see me he noticed a rash on the thighs. The past history was noncontributory. Examination showed no abnormalities except a slight elevation of the oral temperature (99.6 F) a macular eruption on the thighs the lower part of the abdomen and the arms and the unhealed ulcer. There was no adenopathy. Blood was sent to the state laboratory in Hartford for Wassermann and agglutination tests. The Wassermann reaction was negative and reactions for typhoid O and H negative for paratyphoid A and B negative for brucellosis negative and for tularemia negative. The Weil-Felix test gave in a dilution of 20 a 4 plus reaction in a dilution of 40 a 3 plus reaction in a dilution of 80 a reaction of 2 plus and in a dilution of 160 a  $\pm$  reaction. The Weil-Felix test was performed on the X19 strain of *Proteus vulgaris*. I feel that the patient must have a rickettsial infection of some sort. I do not believe it can be typhus fever because he has not been sick enough. Have you any suggestions as to further diagnostic procedures diagnosis or treatment? Would it be worth while to try giving him sulfathiazole?

Norman P. Rindge M.D. Clinton Conn.

ANSWER—It is not certain whether the insect in question was a tick. Tick bites ordinarily do not hurt and many hours are required before the head is buried in the skin. It is possible that the insect was a sheep tick which resembles a tick but is actually a wingless fly. Its bite is painful, like that of the horsefly, and its head does become embedded.

The brief clinical description of the case does not resemble that of any known rickettsial disease either in its characteristics or in its long duration. The low titer of the Weil-Felix reaction is not conclusive. Incidentally typhus fever, like any other infection, varies greatly in severity and may indeed be so mild as to pass unrecognized.

In diagnosis several diseases may be considered. First of all is erysipelas, or swine erysipelas, which is commonly found among fish handlers and abattoir workers (Klauder, J. V. Erysipelas as an Occupational Disease, *THE JOURNAL* Oct 8 1938 p 1345). The causative organism has been found in sheep (Prausnitz, quoted by Pick, E. *Dermat. Wchnschr.* 35 292 1927) but no reports of actual infection from sheep are available.

Undulant fever is a possibility but not a very likely one. The ulcer may be secondarily infected with a fungus or kept open by the abrasive action of clothing. The possibility of a "new" disease is also to be considered.

Further diagnostic procedures would be attempts to culture the causative organism from the lesion. Sulfonamide therapy would be purely empirical if the cause was not discovered and experimental if it was discovered.

#### VACCINE IMMUNIZATION

To the Editor—What diseases do we prevent by immunization in vaccination?  
M.D. New York

ANSWER—The procedures generally regarded as the most reliable for active immunization are those used for the prevention of smallpox, scarlet fever, diphtheria, whooping cough, tetanus, cholera, typhoid and the paratyphoids, typhus fever and rabies. There are also preventative vaccines which are less commonly used and which are not generally available commercially. In this group is the vaccine provided by the United States government for protection against Rocky Mountain spotted fever and also one for the prevention of yellow fever. Vaccine for immunization against typhus fever has only recently become available on a large scale.

#### HEMOGLOBIN ESTIMATION

To the Editor—I have in my office the colorimeter the Sahli and the Dore instruments along with the Hellige type which used the ordinary colored standards of solid glass. Could you give me information as to which of these instruments is the most desirable for use for the average practitioner not especially trained in the use of the colorimeters but who wishes one that is rapid and reasonably accurate? M.D., Idaho

ANSWER—Satisfactory hemoglobin estimations for all clinical work can be made with any accurately standardized hemoglobinometer. The instrument used should be adjusted so the hemoglobin value of a normal subject with a red cell count of 5,000,000 reads 100 per cent. A hemoglobinometer can be standardized in any laboratory by making a correct erythrocyte count and hemoglobin estimation in grams on at least ten normal persons as illustrated in the following example.

| Patient No | Erythrocyte Count in Millions | Hemoglobin in Grams per 100 Cc of Blood |
|------------|-------------------------------|---|
| 1          | 4.92                          | 15.1                                    |
| 2          | 5.80                          | 16.9                                    |
| 3          | 5.02                          | 15.5                                    |
| 4          | 5.31                          | 16.5                                    |
| 5          | 4.57                          | 14.2                                    |
| 6          | 4.25                          | 13.5                                    |
| 7          | 4.78                          | 15.0                                    |
| 8          | 5.50                          | 16.8                                    |
| 9          | 4.65                          | 14.9                                    |
| 10         | 4.00                          | 12.6                                    |
| Mean       | 4.88                          | 15.1                                    |

The hemoglobin in grams per hundred cubic centimeters in the example cited is thus 15.4 Gm corresponding to 5,000,000 erythrocytes. If a colorimeter is employed for the determination a disk or standard with a color value corresponding to 15.4 Gm per hundred cubic centimeters could be utilized. A Dare instrument is difficult to standardize, but the same principle may be used.

The Sahli type instrument should have a glass standard. A square tube preferably marked in grams should be used to insure a uniform internal diameter. The calibration of the tube should be checked as described.

The Sahli hemoglobinometer if correctly made and standardized is probably the method of choice in most small laboratories. The principal difficulty with the original Sahli type is in telling when the match is correct as the specimen is diluted. This objection is overcome in the Sahli-Haden hemoglobinometer by the use of three color standards corresponding to 105, 100 and 95 per cent. The Haden-Hausser hemoglobinometer utilizes the Sahli principle of reading the hemoglobin as acid hematin but employs a fixed dilution of the unknown blood and a wedge of colored glass corresponding to varying hemoglobin values.

Some of the photoelectric colorimeters are satisfactory but expensive. The calibration has to be done as with any other color comparison method.

Hemoglobin readings with all methods will be satisfactory if the instrument is technically correct and properly calibrated.

#### RESPIRATORY DISINFECTANTS FOR BRONCHITIS OF CHILDREN

To the Editor—Why is it that children in certain European and Latin American countries apparently cannot recover from bronchitis without numerous injections of the so called respiratory disinfectants such as oil of eucalyptus, guaiacol and camphor while in the United States there is not a medical school that teaches the parenteral administration of such drugs in cases of bronchitis? Have they not proved to be valueless? I should appreciate references to any such study.

A. Rodriguez Macedo M.D. Mexico City Mexico

ANSWER—The literature on the value of the parenteral administration of the so-called respiratory disinfectants is meager and not conclusive. Nammack and Tiber in a paper on the treatment of lung abscess by means of intravenously administered guaiacol (*THE JOURNAL*, July 31, 1937 p 330), concluded that this therapy caused symptoms to subside and pathologic conditions to regress without unfavorable reactions. Most of the published studies deal with guaiacol or its esters. There is little evidence to show that when such preparations are administered orally they reach the respiratory system in any effective concentration. This was demonstrated by Bufalini as early as 1904 and the entire evidence for the use of such preparations was reviewed by the Council in *THE JOURNAL* Jan 15 1938 page 209. The parenteral use of guaiacol dates from observations like those of Hofbauer, who found that when guaiacol was injected hypodermically a small amount of it could be found in the lungs (*Therap. Monatsh.* 29 237 1915).



There is some evidence that guaiacol, if given intravenously in the proper form (free guaiacol rather than its soluble esters) and dosage, may be excreted by the lungs and appear in the sputum. However, controlled clinical studies on this phase of the problem are few. The evidence for the parenteral use of camphor and eucalyptus is negligible. It is doubted whether these drugs have any appreciable systemic action in therapeutic doses apart from reflex stimulation of the central nervous system. As a result of these meager data the parenteral use of the so-called respiratory disinfectants has not enjoyed much popularity in this country.

### SENSITIVITY TO ETHYL ALCOHOL

*To the Editor*—What would be the best method of desensitizing an adult person to ethyl alcohol? Sensitivity was apparently acquired by the use of a 70 per cent solution of ethyl alcohol dressings applied to compounded fracture wounds over a period of two weeks. Local applications cause a rather severe cutaneous reaction at the site of application. No reaction occurs from the use of other forms of rubbing alcohols. There is no previous history of allergy of any type. Fear of reaction has enforced total abstinence from all forms of alcoholic beverages, which were previously only rarely indulged in.

M D, Illinois

*ANSWER*—Search of the literature reveals no report of sensitivity of ethyl alcohol per se. Ethyl alcohol is made from various foods, especially wheat, corn, rye, barley, potato and fruits. Most likely the patient, if sensitive at all, is allergic to the food from which the alcohol is made rather than to the alcohol itself. If this is true the patient should be able to consume small amounts of ethyl alcohol made from foods other than the one shown to be the cause. Cutaneous and intracutaneous tests should be done with these various foods to determine if possible the source of the allergic reaction. If all tests are negative, trials with ethyl alcohol derived from various sources should be made, using small quantities. Desensitization to ethyl alcohol has never been done, as far as is known, but it could be tried by the oral method, the alcohol could be diluted with 1,000 parts of distilled water, the first dose would be 1 drop of this dilution, followed by 2, 3, 4, 6, 9, 13 and 20 drops, then give 1 drop of 1/100 dilution and increase to 20, then the 1/10 dilution, and finally the full strength ethyl alcohol could be tried, beginning with 1 drop and increasing 1 drop each time as far as expedient. The doses could be given every other day.

Local reactions to pure ethyl alcohol are also rare but can be tested for by the usual patch test, full strength of 70 per cent alcohol can be applied to a piece of gauze and laid against the skin for forty-eight hours. Contact dermatitis to ingredients mixed with alcohol to make rubbing alcohols is not uncommon.

### MIRROR WRITING

*To the Editor*—I have recently had referred to me a girl aged 8 who writes backward. She is of good general health and physique. She has moderate hyperopia, of +2.50 D in the right eye and +3.00 D in the left eye, with slight esotropia of the left eye. She uses the left hand in writing. She obviously has some mental deficiency. Will you kindly give me some information about this condition—diagnosis, cause and treatment?

I V Berney, M D, West Frankfort, Ill

*ANSWER*—There are two current theories of the cause of mirror writing. One of them has to do with cerebral dominance, i.e., the child is learning to use the left hand when she is really right handed by virtue of a left side speech center in the cerebrum, or vice versa. The other is interpreted in accordance with what the psychologist knows of eye and hand dominance, in that she is learning to use one hand, whereas to use the other one would be easier for her because of training and specialization factors. The visual defect would not be particularly important, except that a secondary reaction might develop from the child's mild anisokonia. The nature of the mental deficiency would be of some importance in determination of the cause, particularly if it was due to a birth injury, but it is obviously not correctable. The usual treatment for a condition of this sort is careful diagnosis in a psychologic clinic having among its personnel both speech and reading diagnosticians and therapists, followed by consistent retraining pointed at overcompensation for the special malaptitude. The assistance of a neurologist who has seen similar patients is sometimes of avail but is primarily useful only when the physician works with the reading expert.

The inquirer can get in touch with the Institute for Juvenile Research, 907 South Wolcott Street, Chicago, which has throughout the state branch clinics dealing with the type of treatment mentioned, to learn the date of the clinic nearest to West Frankfort to which he can send the patient. The institute works with the referring physician.

### "NORMOCHROMIC" ANEMIA

*To the Editor*—Occasionally difficulty is encountered in increasing the hemoglobin and the red blood cell count in hypochromic anemia in spite of ample dosage of thoroughly potent preparations, generally on exhibition of ferrous salts. All questions of blood loss, nutritional disturbances and the like have been satisfactorily eliminated. Recently certain authors have taken the stand that some individuals normally have a lowered hemoglobin and red cell count and apparently no amount of therapy will change this finding. I refer particularly to the work of the University of Iowa Medical School workers Fowler and Barer (*Am J M Sc* 201:642 [May] 1941). I should appreciate some opinion as to the worthiness of the above contention.

M D, Illinois

*ANSWER*—There is unquestionably a group of patients who have an iron deficiency anemia and who do not respond to iron therapy by an elevation of the hemoglobin content of their blood above a certain subnormal limit. If the color index or mean corpuscular hemoglobin concentration is low, one may usually attribute the lack of improvement to continued loss of blood or to defective absorption or utilization of iron or other substances necessary for hemoglobin formation. There may be abnormal hemoglobin loss or an inhibiting factor (e.g. infection). The most common cause of lowering of both red blood cells and hemoglobin so that a "normochromic" anemia exists is a chronic kidney lesion, often without albuminuria or hypertension. This condition does not improve with iron therapy. Some individuals have a low hemoglobin content of their blood over long periods of time and they are apparently in normal health. Under the circumstances this condition appears to be "normal" for these people, although it is pathologic in that it is beyond physiologic limits. It probably represents an equilibrium between the requirements of the body and its defective ability to make hemoglobin. All such cases are entitled to a thorough study to determine the cause of the abnormality. In some individuals of this type, correction of a lesion which was followed by an improvement in the hemoglobin content of the blood (lessening a tendency to bleed, removal of a chronic infection) the patients have volunteered the information that their present feeling of well being makes them believe that they had previously never known real health.

### PROSTITUTION AND PREGNANCY

*To the Editor*—In carrying out a program for the prevention of venereal disease, one encounters opposition to certain methods employed. In certain groups there is opposition to the use of the condom on the basis that this method prevents conception. It is my impression that, because of the high gonorrheal rate among prostitutes and the concomitant sterility pregnancy among this group of women is rare. Can you furnish any information on the relative frequency with which pregnancy has been observed in the prostitute? Of course, I am aware that it is difficult to draw a line between the professional and the "loose woman," who is also a prolific source of venereal disease.

M D, Mississippi

*ANSWER*—Pregnancy among professional prostitutes, especially those who have followed the vocation for some time, is not common. Percentage incidence figures are not available, for obvious reasons. If pregnancy does occur, usually an abortion, intentional or unintentional, is apt to occur. This is commonly followed by salpingitis, which bars future pregnancy. In this group there is apt to be either complete sterility or one pregnancy, sterility as the result of infections which cause tubal occlusion. In a series of more than 1,000 cases of gonorrhea in the female there were thirty-one pregnancies. There were no means of knowing how many of these were prostitutes. It would seem to be a rather low incidence of pregnancy in a rather large series of exposures.

### CHIGGER INFESTATION

*To the Editor*—In *Queries and Minor Notes* in *The Journal* (Aug 2, 1941, p 406) recommendations were printed for prevention and treatment of chigger infestation. While the suggestions possess some merit where only a small number of bites are concerned, they fall short of meeting the situations arising from children on vacation and soldiers on maneuvers. The submitted suggestion deals only with the relief of itching. Plain gasoline is the greatest factor in making a person hors de combat. Plain gasoline or carbon tetrachloride is applied with gauze or cotton by frassage to each local itching area, as if effort were made to dry clean the spot. In a minute a pleasant counterirritant effect is induced. Sleep seems to follow readily and will last three to four hours, when a second treatment is necessary, and is likely to be followed by a third application at the same time interval. New areas of itching are not infrequent as early as thirty-six to forty-eight hours and are dealt with in similar manner. Since clothing at exposure may continue to harbor the infestation, a change or rapid dry cleaning in gasoline is indicated. For availability and particularly for mass application it will be difficult to extract gasoline. (I have hesitated advocating leaded gasoline for safety—caution only.) Carbon tetrachloride is nearly as efficacious and is inflammable but should be used under well ventilated conditions. It may be of some interest to note that a drying and puckering of the lesions appear more rapidly than with other remedies suggested.

George F. Fasting, M D, New Orleans



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## THE RESPONSIBILITIES OF MEDICINE IN WARTIME

PRESIDENT'S ADDRESS

FRED W. RANKIN, M.D.  
LEXINGTON, KY

It is now a quarter of a century since the American Medical Association met during wartime to install a President. In 1917 its annual session was held in New York two months after the opening of World War I. Again we find ourselves involved in a global conflict the magnitude and implications of which are unpredictable and the ferocity, savagery and barbarity of its technic in comparison with wars of the past, unbelievable.

Since the armistice of 1918 the world has moved in a fluid cycle. Obvious currents of universal unrest and revolution have continued to accelerate their tempo to the final culmination in strife which is shaking the planet with furious frenzy. When European democracy and totalitarianism joined battle in September 1939, following the brutal subjugation of numerous small individual nations, with ruthless sacrifice of life and unbelievable destruction of property, it was evident to many that this revolutionary tide would sooner or later sweep us into its embrace. We applauded the gallant Anglo-Saxon spirit of the heroes of Dunkirk and the British Isles and aided their cause with monies and materiel, as we surely and inexorably approached active participation in the maelstrom of war. Throughout this period the vast majority of our citizens, with clear vision and resolution, followed enthusiastically all steps in the assistance of the allied defenders of freedom. They clearly envisioned that America could not live apart and that the destinies of the two hemispheres were inextricably intertwined.

Came Dec 7, 1941, and in the dawn of that Sunday morning a treacherous, characteristically foul attack on our defenses in the Pacific hurled this nation into an unsought war, which now engages our full effort. Unbelievable as this episode was, unthinkable to civilized man as it is that any enemy, without warning, should precipitate such an attack, the bitter losses of that battle, the bloodshed and wounds inflicted on our gallant forces at Pearl Harbor, were a worthy sacrifice in the cause of national unity. It is difficult to believe that the firm, unyielding unity which now is ours could have come so quickly, even after such an episode of infamy. Factionalism was forgotten, groups abandoned their hostile antipathy to one another, self-seeking units of our population laid down their quarrels, and one hundred and thirty million people became

true Americans within the hour. Today, at long last, the issue is joined and our position is clear. The inescapable struggle of our generation has begun, the ultimate test between the powers of a free world and a slave world is at hand, appeasement has failed, since it could only postpone the inevitable. Our test in the defense of democracy is beginning.

As one passes in review world events, it is clear that ideological casualties have been numerous and that processes of expediency, now as always, have dictated strange alliances. This is a war of unpredictable mutations and unprecedented paradoxes from which have arisen the strangest ironies of contemporary history. This war no longer masquerades under the guise of a struggle between ideologies, its hideous face has been unmasked as a conflict to destroy western civilization and gain world domination.

Our task both now and in the days and weeks to come, as each succeeding phase of the conflict develops, is a staggering one. Production of materiel, mobilization of manpower, the direction of war strategy and the administration of the vast economic problems which confront us are in the capable hands of our national leaders. To them the medical profession offers its all. Our part is the mobilization and utilization of all our facilities in the most efficient and helpful manner to the end that this struggle may be terminated successfully.

### MEDICAL MOBILIZATION

The mobilization of the medical profession actually began in June 1940, when the Surgeon General of the Army, with wise forethought and understanding of the situation, sought cooperation from the American Medical Association at its meeting in New York. Immediately thereafter work was begun on a plan, and the entire personnel of the medical profession has been mobilized and classified to implement the forces of the government in waging this war.

The initial step in this enterprise was the circularization by the medical profession itself of its entire personnel to determine the willingness of each individual to serve, his personal estimate of his own physical condition, and his professional capability. A second evaluation of every physician of the United States was carried out by fact-finding committees of his colleagues to arrive at a definite estimate of his professional capability in the eyes of his peers, as measured by experience and training. The result of these efforts was the accumulation of an enormous amount of data which were available to the medical departments of the armed forces and which would permit them to employ men in their proper numbers and in their proper professional niches under wartime conditions, thus avoiding much of the confusion, irritation and error which are inevitable under conditions of rapid expansion and mobilization.

President's address before the American Medical Association at the Ninety-Third Annual Session, Atlantic City, N. J., June 9, 1942.

A selective service act was enacted which, with its subsequent modification requiring the registration of all male citizens of the United States between the ages of 18 and 64, was of particular importance to the medical profession, affecting as it did all elements from premedical students to veteran practitioners. It was immediately recognized by all the authorities that the production of physicians up to the present output of the medical schools must be maintained. Consequently provisions were made to secure deferment of premedical students, medical students and first year interns under properly recognized conditions. These conditions assured the admission of graduates of all approved medical schools, who could pass the physical examinations, into the service of the armed forces after the internship year had elapsed.

The sympathetic understanding and farsightedness of the selective service officials, from the heads of the service down through the local draft boards, have been of inestimable advantage in handling these particular problems of medical men. It is one of the foundations on which the future successful distribution of professional services is based.

During the period of training there was but slight dislocation of the profession from its civil duties because of the availability of medical reserve corps officers, volunteers and men within the draft age limits of 21 to 36 years. With the opening of hostilities the immediate demand for large numbers of medical men necessitated another rapid expansion of the available professional forces, and with the elevation of the selective service age to a maximum of 45 years for combat duty it became immediately apparent that additional organizational steps were indicated. In consequence the Procurement and Assignment Service, under the Office of Defense Health and Welfare Services, was formed. This agency, representing the medical, dental and veterinary professions, is functioning to meet the immediate demands of the Army and Navy for additional men and to provide for future needs as the combat forces increase their personnel.

The additional circularizations by this agency have resulted in medical men volunteering for service in a capacity in which they themselves deem their services most useful. By the transference of these data from the roster of the American Medical Association's office in Chicago (a duplicate of which is kept in Washington) to a punch card system, the agency has been able to function wisely and effectively. The fact should be emphasized that there are available in this country only some one hundred and fifty to one hundred and sixty thousand practicing physicians of all ages, sex, color, creeds and physical states. It is reasonable to expect that, as the Army increases, more and more of the arduous military duties will fall on physicians in the lower age groups. The medical reserve corps has been exhausted. The entire personnel of the medical profession may be distributed efficiently through the Procurement and Assignment Service to meet military and civilian needs.

A greater and greater strain will undoubtedly be placed on medical resources in this country. There is no question that the demands on us will become greater, and unavoidably so in the ensuing months. Indeed, it is calculated that approximately twenty-five thousand physicians will be serving with the colors by the end of 1942.

The task of handling medical mobilization has been given to the medical profession by the Chief Executive

The job is ours. The complex and searching problems associated with its execution are our responsibilities. That these problems have been met courageously and with a minimum amount of confusion to the present time may not be gainsaid, nor is it too much to predict that the medical profession will continue its patriotic service in a manner consonant with its performances in the past under emergency conditions.

#### MEDICAL EDUCATION

The needs of both the military and the civilian population for adequate medical care emphasize the danger of reduction of either the present day standards of medical practice or the number of physicians. At present approximately five thousand physicians are graduating yearly from the seventy-six accredited medical schools of the country. When one considers, however, that the loss due to death, retirement and other causes is approximately three thousand a year, it becomes apparent that it is impossible to build a reserve pool of any size in a short period.

The standards of medical education in this country today undoubtedly are superior to those found in any other country in the world. Our public has available to it a quality of medical service elsewhere unsurpassed. One of the main problems in medical care is and has been for many years a distribution of talent, for admittedly the concentration of physicians in urban areas has been too great, whereas the dilution among rural populations has been a major and perplexing affair. However, this question of distribution of more physicians and of maintaining present medical standards is one which we can hardly expect to be satisfactorily solved during the present period. The method of production of more physicians and of maintaining present medical standards is one which demands untrusting scrutiny and should not be decided in a hurried manner under pressure of emergency.

#### POSTGRADUATE EDUCATION

Postgraduate education, as it is carried out at present, must inevitably suffer from wartime circumstances. Continuing education as it is applied to general practitioners and specialists differs materially because of the very nature of the essential instruction. The education of a specialist has been largely influenced by the wide spread adoption of the residency system of training. Within the past three decades this system of apprentice teaching in the wards, plus a long term service in the hospital after graduation, has spread to most parts of the country. It is definitely recognized, although somewhat belatedly in hospitals in many larger cities, that residencies are the most useful method of teaching young men surgical diagnosis, surgical judgment and handicraftsmanship under controlled conditions. The length of time devoted to specialized training in the various fields naturally differs but, measured by what ever yardstick one may use, ranges from three years upward, following a year's rotating internship.

That this type of training successfully answers the professional requirements of all specialized groups is beyond cavil, that it is practicable in wartime and under the stress of emergency is distinctly debatable. Younger physicians who have just completed or are in the process of completing a relatively long term of specialized instructions obviously comprise the group which can furnish most useful professional services in specialized fields to the armed forces, for the tempo of modern warfare is so exhausting even to those of superb physique.

cal statement that it is the policy of the War Department to utilize younger officers with troops if they can be found available. Because of these circumstances in which men in residencies and entering the age group for residencies find themselves, it is distinctly probable that much dislocation will be inevitable in postgraduate instruction in specialized fields. Nevertheless, the principles of continuing education along specialized lines must be recognized and adhered to with whatever flexibility allows its most advantageous adjustment in the mosaic of wartime medical education.

It is worth while to note here that an opportunity to continue their professional apprenticeship will be given, wherever possible, to those men who are in the midst of their specialty training and have been called into service. Some of the specialty boards have already agreed to apply the time spent in acceptable army hospitals on the training time required by that board. Only a small number of men can enjoy this privilege because of the exigencies of the times, but the principle of postgraduate education is so fundamental that it must be maintained in wartime in every available institution.

Basic principles in medical education must not be jettisoned, they may be held in abeyance, but the enormous damage which becomes unavoidable in the wake of war may be mitigated by every endeavor to maintain as high a level of both practice and education as is humanly possible.

#### RESEARCH

Research is a part of a planned postgraduate medical education, which languishes under the exigencies of catastrophe. To date the effect of the present day war on research has been to direct its attention mostly in channels of military medicine, and from these efforts unquestionably many advantageous developments in special research regarding useful drugs and other substances in the treatment of wounds, shock, infections and burns have resulted. The inevitable letdown in experimental investigation in postgraduate medical education may properly be bridged over but feebly during this period, yet a comprehensive view of the situation suggests that all efforts at maintenance of as many opportunities for scientific research as possible, within the emergency program, are necessary.

It happens that not infrequently science is exposed to programs and tendencies which, because of political considerations, may justifiably be viewed with little enthusiasm and often with forebodings. Obviously, scientific bodies must remain independent, their work should never be influenced by either political expediency or legislation. While it is easy to argue the thesis that such organizations remain within the framework of government, of necessity the hazards of governmental subsidization must ever be kept in mind because of "the danger that he who pays the piper may call the tune and that research may be required to be devoted primarily to objects which the politician, or the civil servant, regard for the moment as of national importance."

Research is a part of scientific development which no longer need be carried on in the sabbatical solitude of a laboratory but may be indulged in by all who wish. Every clinician, every practicing physician, is a research worker in a true and practical sense. Observation of symptoms, observation and recording of the action of therapeutic agents as applied to disease, and the correlation of clinical data are obviously of comparable

importance in the general scheme of application of medical knowledge. We clinical men of medicine must recognize the necessity of a proper balance between scientific research and clinical investigation and remember the urgent necessity of this dual approach to all problems of healing the sick. Tolerance should temper the interchange of views between the group of academic teachers habituated to investigation and that part of our profession inclined solely to clinical practice.

#### TRENDS IN MEDICAL PRACTICE

Among the interesting developments of the first questionnaire which was sent out to the medical profession was the surprising fact that only 41 per cent of the physicians classified themselves as general practitioners. Of the remainder, 25 per cent were classified as full time specialists and 34 per cent as part time specialists, the latter group indicating that they paid particular attention to some special line of work while at the same time carrying on a general practice. Thus it becomes apparent that approximately one medical man in three is devoting his entire time to a specialty. That these specialists are of varying degrees of proficiency and training is beside the point, for their numbers indicate definitely a trend in the practice of medicine which is apparently most satisfactory to both the public and the profession, and therefore the number of specialists is likely to increase rather than otherwise. Such a trend has been quite apparent to the most casual observer over the last two decades, and the profession itself, as is its wont, has taken steps to evaluate the capabilities of specialists through the establishment of authoritative examining bodies in fifteen special fields.

This development of specialty boards is a milestone on the road of medical progress which represents self-imposed restrictions and standards of training on physicians who elect to practice in limited fields. It is a part of the scientific discipline of medical men which began in the nineteenth century and has been maintained until today. These boards are like licensing boards, which were established primarily for the protection of the public except that they interest themselves only in standards of training, ethics and proficiency. They do not seek to interfere with any freedom of action of medical schools or licensing bodies or hospitals, and certainly their usefulness would be decidedly impaired should they undertake to arrogate to themselves such prerogatives. It should be emphasized here and now that these boards were formed by groups of specialists with the approval and consent of the Council on Medical Education and Hospitals of the American Medical Association and the Advisory Board of Medical Specialties. In no sense was pressure applied in their birth, and operation under the auspices of national authoritative bodies has been one of their basic principles. That they were formed in the spirit of idealism and that the members of the boards have performed a monumental service which has demanded sacrifice of huge amounts of effort and time from their various other duties is, I think, worth pointing out. As a member of one of these original boards, I can testify to the conscientious fairness and undeviating sense of duty with which each candidate, not only for certification by examination, but in the Founders' Group, has been scrutinized. It is with considerable pride that I assure you that in no instance as far as the Board of Surgery, with which I am most familiar, is concerned, has any decision been arrived at save on merit.

That there are two dangers from which specialty boards are not entirely free must be admitted first, that there be too many specialty boards and, second, that the boards, because of their very independence, make certain decisions affecting medical education or hospital staffs which could be adjudged either as arrogant or dogmatic and therefore harmful.

Relative to the number of boards, it may be pointed out that the Board of Internal Medicine, for example, has appointed a Committee on Medical Specialties in the fields of allergy, cardiovascular disease, gastroenterology and tuberculosis. Each candidate in these specialties must first pass the general examination of the parent board, and members of the board of examiners will sit in with the subspecialties in evaluating all candidates. This seems a wise provision if subspecialties are to be recognized by special certification, since it presupposes that the candidate is adjudged a competent physician in general internal medicine before he undertakes a more confined field of specialization. Too many boards for minor specialties can add confusion and destroy much of the usefulness of the general plan, but, as long as parent boards supervise examinations and give certificates only after the basic requirements of a major specialty have been satisfied, there is small likelihood of this development occurring.

Enthusiasm for service should continue to be one of the outstanding characteristics of specialty boards, but this enthusiasm should be tempered with common sense, practicality and freedom from any savor of applying pressure. That their programs must be flexible enough to meet changing demands is a truism, and that their decisions must be of an elastic form albeit tempered with resolution and foresight is essential to their continued usefulness. These boards have performed a service to the profession and the public by identifying the well trained and competent specialists, and for this accomplishment they deserve tolerant cooperation, thoughtful scrutiny and helpful constructive criticism.

#### OUR OBJECTIVES AND OBLIGATIONS

Our nation has now passed from a stage of prebeligerancy into a phase of mobilization and active participation in warfare. We have emerged from a stage of preliminary training to take station in battle lines. Our forces are already fighting on many battle fronts and in foreign seas. War is now our principal business, all national efforts are ancillary to its successful termination in a permanent peace by decisive victory. In this struggle the entire nation is mobilized and, as an integral part of its citizenry, the medical profession cheerfully and enthusiastically offers its all. Our profession is the trustee of the nation's health, and as such its obligations are to furnish adequate medical care to the armed forces while at the same time maintaining faithful service to the civilian population and productive war industry installations. It further demands that public health programs be cheerfully guarded, maintained or even increased as the need grows larger and larger. We are committed to the decision that provision for graduate education and for special education to develop specialists be continued at their present high level of efficiency. These and other essential duties which unfold continually in our daily duties must, and will be, accepted and accomplished to the extent of our capacity. In the inescapably somber times ahead, often our fortitude will be challenged, often our ideals will appear frustrated by circumstance, but the true mettle of a profession emerges only when tried in the fires of adversity.

Changes, unavoidable and unpleasant, face us in our daily and professional lives, we do not speak of the inevitable essential sacrifices, we speak rather of the glories of service. To serve is our destiny, to serve freely, faithfully and effectively is our wish and ambition.

Our duty is plain to see we shall go forward to our task, and we shall not fail.

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## AIR RAID MEDICAL ADMINISTRATION IN ENGLAND

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BALTIMORE

Air raid medical administration in England is merely one part of the general ARP services, Air Raid Precautions services, under the Ministry of Home Security or the Home Office, but the medical services are split between two ministries, the other half being the Emergency Medical Services which are under the Ministry of Health at Whitehall, just next door to the Home Office.

The three major subdivisions of blitz medical administration are the first aid services, the ambulance services and the hospital services. I would have you picture these as integrated most closely in the field or at the site of what the British call the "incident." This is a carefully selected word because of its minimum of panic producing power. At the site of a bombing the medical services are closely tied with all the other civil defense services—those of the air raid wardens, fire and police workers and the like.

The matter of "digging them out" is extremely important, one cannot do much first aid until the debris has been picked off mostly by hand. Let me recommend the phenomenally well written book called "Digging for Mrs. Miller." If you want a bad dream it will take you about an hour to get one, but at least you will know what the medical man, the rescue man, the digger, the stretcher bearer and all the others, firemen and policemen and allied workers, have as joint tasks. And this in London was not just occasionally—not for half an hour or an hour or two, not just for one or two nights in a week or a month, but twelve hours on end and ninety nights in a row. That was the blitz at its worst in London. This book was written by John Strachey, an air raid warden who went through these incidents in London, and he describes verbatim what the people say to one another as they are digging them out, what was said at the "incident" and at the hospital and as the families tried to find their kin or friends the next day.

The other best text is Colonel Prentiss's superior book entitled "Civil Air Defense," published by the McGraw-Hill Book Company. This gives a clear picture of the whole civil defense program as set up in England.

#### FIRST AID WORK

The English language is not the same on the two sides of the Atlantic Ocean. That is always a surprise and means that occasional key words have to be more or less translated. Here and there in this study of the administration of blitz medicine we had to translate English words into American English. For instance, in first aid

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work the first term you come to is "first aid party." That means a group of four trained workers and a leader and an automobile, what we would call a "squad." Then next is a "first aid post." That we would call a casualty station. It is a place in the neighborhood that has been set up in a protected basement and that word "protected" itself in a technical sense means that the ceilings and the walls have been so strutted and supported that if the whole building above is blitzed off the work can go on without disturbance. The word comes up in its technical sense in hospitals and ambulance depots and wherever any essential work is going on during a blitz.

The term "first aid depot" indicates protected sleeping quarters where the first aid workers sleep and rest because with ninety nights in a row of this kind of work naturally fatigue comes on. Here are double decker beds and strutted ceilings and walls so that there can be an opportunity to rest.

Another technical word in first aid is the "first aid point." I spent nearly a month trying to find one, and the explanation was simple—you couldn't find it in London because it is a rural first aid post that you would only find at a four corners in a county somewhere. Here there is a trained worker, man or woman, there are some bandages and splints and a stretcher and a telephone so that if there should be an incident in the neighborhood a wounded person could be cared for and then taken to a hospital or a mortuary. I mention mortuary with purposeful emphasis. This is a type of casualty service different from anything before, I believe. About one half of the casualties are fatal. You can imagine, with the buildings tumbling in all directions, that it would be so.

The first aid workers in parties or squads like all the other ARP or civil defense workers in England (and it is being developed similarly here) are specially trained for their work. They must enroll often as volunteer unpaid people and take courses of instruction, and then they are given insignia which they wear proudly, and those who have been through the blitz have developed the most superb morale and team spirit for mutual aid. The victims themselves in England have done likewise, so that things don't count any more, the matter in England that counts is to win the war, property damage doesn't seem to bother anybody so much, but it's "What can I do to help the person who is being blitzed down the street?" There is a really phenomenally spiritual element that has come in after the terrible blitz winter of a year ago. The officials in charge of the ARP service in the Home Office, and especially Wing Commander John Hodson, who is the Inspector General under Mr. Herbert Morrison, the Minister, were most gracious and helpful in the studies we were making. The Home Office gave us the latest reports of how improvements had been brought into their various services, and I can give you only a few examples because the time is short.

They discovered that an Incident Doctor, as he is called, was one of the most helpful in later developments. In other words, when a series of bombs have dropped—and they don't drop just one at a time, but they drop any number of explosives, not to mention these little incendiaries—all the services are called out, the fire, the engineering, the police and the medical services, first aid, ambulance and so on. There will be trapped casualties and there will be nontrapped casualties in different areas around perhaps ten or fifteen city blocks. Lately they have had what is known as an Incident Doctor, a resi-

dent usually of the neighborhood, called from a roster. He will have a corps of nurses and will visit one spot after another in this group of stricken street corners or residential or industrial areas. He will size up the situation, give morphine where needed, assign a nurse to watch and encourage persons who have not yet been liberated, and go on and do likewise at the second or third or fourth subdivision of the greater incident. They had not planned that at first, and they were pleased with the good effect this had on the morale of the wounded persons as well as of the workers to have a doctor there with his morphine as soon as they could dig in horizontally to reach the person they wanted to extricate maybe an hour or six hours or twelve hours later. That is the type of administrative development that they stressed for our consideration.

Of course all the medical men, like the other ARP workers, are in various categories, as to whether they are volunteers or paid service workers, and, if paid, whether on a full time salary or a part time salary. For the most part the medical men are paid either an annual salary or a retainer fee, or they are on a fee basis for the time that they spend doing blitz medical work.

#### THE AMBULANCE SERVICE

The ambulance service is the next step in the removal of casualties and a most important one. First they showed us that this was under the administrative control of a transportation or ambulance officer. By telephone he could call out a fleet of ambulances from an ambulance depot in the neighborhood if it was a small incident. If it was a greater incident the responsibility would rest on the chief transportation officer. Let us say for Greater London, when more than one area or borough needed aid the telephone would call on an adjacent administrative unit, and it would send in ambulance services or medical or first aid services to aid the more stricken area. This goes by the technical term of "mutual aid," which is nationwide in these services and is quite remarkable and helpful in all fields of civil defense.

Among the ambulances they have, first, the straight automobile for what they call the sitting cases, then the motor truck, which is reconditioned for 4 stretcher cases, 2 above and 2 below with a passageway between. They showed us in one borough a new device, developed locally, where the upper stretcher by a simple little metal release lock could be folded down against the wall so the lower stretcher could be used for sitting cases, if there were 2 stretcher cases and 2 sitting cases, by this simple little mechanism the 4 could be taken in the same car, which would be inconvenient otherwise. That device has since been approved by the Home Office and has been standardized and printed up and sent out for the use of the entire country.

The whole matter of stretchers is planned with extreme care in England, and one practically never sees more than one type of stretcher anywhere in that country. It is important to have metal holders with little legs on them, but they are identical all over the nation, which means that, if a big or little ambulance service drives up to a hospital and has 4 or 14 or 40 or 140 patients to evacuate, the patients aren't taken off the stretchers. The stretchers are deposited on horses, and there is a stack of identical stretchers over against the wall in a pile maybe 6 feet high, and 40 stretchers, or the equivalent number, are taken down and go out with the ambulances. That exchangeability is one of the things they stress as most important for the rapid handling of many wounded.



Next, for evacuating big city hospitals out to rural areas, the Green Line bus was used, reconditioned for ambulance use. The Green Line bus, translated into American language, is nothing more than a Greyhound bus, and they have large fleets of these. These are reconditioned for stretcher use, two tiers, upper and lower, so that after a bad blitz a central downtown hospital can send from 50 to 100 patients out to a rural evacuation hospital and have the beds available for the casualties of the next night. That was done during the winter of the 1940-1941 blitz all over England whenever there was necessity. That is the third item, the Green Line or Greyhound bus turned into an ambulance that could handle perhaps 20 or 30 casualties lying down.

Fourth, the ambulance or hospital train, which might have nine or ten coaches set up and reconditioned for ambulance service, and by this I mean what would in this country be similar to our open baggage car with stretchers on both sides in two tiers. These are always standing by on the railway siding in readiness in case of invasion or a severe blitz. They were used mostly when the army from Dunkerque was evacuated back from Dover and have been used only occasionally since that time.

A series of specific questions which Dr. Baehni wished answered by Prof. F. R. Fraser, who is the Director General of Emergency Medical Services in the Ministry of Health, are illuminating. Dr. Fraser in every regard has the same position in England that Dr. Baehni has in this country as Chief Medical Officer of the Office of Civilian Defense. He and Hodson and Sir Wilson Jameson, the Chief Medical Officer of the Ministry of Health, were most kind and patient in helping us get our information together.

Dr. Fraser said "It is essential that there should be elasticity in planning and rendering medical services in order to meet the actual blitz needs at any given time. The expected and the unexpected occur and create needs in entirely unpredictable proportions. The medical and dispensary squads are needed in the hospitals and probably should stay there during periods of blitz. The so-called incident doctors from the neighborhood of an incident are better to have on call to go to the place of a bombing. Mobile teams are not used very much." That means mobile surgical units in specially equipped motor trucks, but this opinion on their usefulness varies in different parts of the country and with the different feelings of the local medical chiefs in charge. "The hospital would do well to call for needed assistance to aid its own staff when overworked in an emergency. This is not done very much, for the following reasons: first, local hospital pride, second, the hospital medical staff is very busy and does not realize that it is being pushed, but it could do better work if it asked for help from another hospital at a distance where there was not a rush of cases at the moment, third, communications break down, the telephone may be blitzed out and the messenger services inadequate, fourth, the hospital called to render the assistance may be too busy to send it. The loan of medical and other teams from hospitals works well where you have an isolated incident or bombing, not so well if there are several incidents at the same time, which is quite usual.

"First aid party workers have a doctor and a nurse as a rule, and an auxiliary nursing force, or nurses' aides or stretcher bearers, with morphine and strychnine and surgical dressings. Each doctor is more or less in charge of his own equipment, and if he needs more than

he has he asks for aid by telephone from the control center, which will send a mobile unit if requested."

Another matter was stressed not only by Professor Fraser but by many other workers, and it is a point of great difference of opinion both in England and in this country. I was repeatedly told that the latest experience indicates the wisdom of trying to do as little first aid work at the incident or in the field as possible but to get the patient to a hospital unless the trouble seems to be trivial, in which case the first aid post or casualty station in the neighborhood can do the work.

No heat and a minimum of light was used at the first aid posts or at an incident. There is a great dread of any light, for fear of attracting more bombs from above. The mobile unit, however, and the ambulance unit would have a hot water bottle and a primus stove for warmth, filling hot water bags and making hot tea. The latter is of the utmost help in resuscitation and assisting morale, and for the British ranks alongside the cigaret.

"The rescue party, that is the digging party, which is a group that hand picks the masonry and debris off the victims with or without mechanical aid, has as its first job to get out the trapped casualties and to make the casualties accessible to the stretcher parties, but to know first aid is essential for them as well as for the first aid parties themselves. The rescue party man, while he generally is lifting off the debris, must also be able to give first aid and must know how to do so in order to guard against his hurting the casualty.

"Tetanus serum is never given at the incident or bombing but is always given whenever the skin is broken, either at a first aid post or at a hospital, and is recorded. You know of the kind of baggage tag or casualty card that is attached to each casualty. On that is recorded identification and other information and  $M\frac{1}{4}$  or  $M\frac{1}{2}$  to show the dosage of morphine given. This is also marked on the forehead of the victim so that a second dose will not be given." Professor Fraser recommended a half grain of morphine as a minimum dose for blitz casualties. He said we should give plenty, although he said probably a quarter grain is given as routine in the field in most English ARP work.

The best way to black out a first aid station, he said, is to brick up each window and bond the brickwork into the wall, that is by using steel, if one can. Electric light is used indoors day and night. The door coming out must be a light lock which will show no light from the outside. A brick baffle wall  $13\frac{1}{2}$  inches thick is used.

#### HOSPITAL ADMINISTRATIVE SERVICES

The British have evolved a regional hospital administrative setup for the entire nation which they hope to carry over into the peacetime future. In London there are nine medical schools, and the teaching hospital for the medical school is the central sector hospital for an area extending about 50 miles out into the rural country on a pie shaped sector basis, some broad and some narrow. All the hospitals in a given sector are commanded by the hospital chief at the sector or apex hospital in London. Every day he gets telephone messages of how many beds are available in each of the twenty or thirty hospitals in his sector. Picture this during ninety consecutive nights of blitz, as they had during that terrible winter. He picks up his telephone and he says to a hospital here or there "I am sending you a hundred patients." There are no questions raised as to who will pay the bill or "We will take it up with the board of trustees" or "This is a private hospital." "We will call you back in a half hour" or "We have

got the beds." This is blitz war medical administration and it works to perfection. I am sure you know that they planned for many more casualties than actually developed.

I would share with you a few of the things reported to me by Sir Girdling Ball who is the sector chief for the hospitals in sector III, radiating from St Bartholomew's in London. St Bart's as it is known, has about five hundred nurses, either registered or student. Peacetime nurses were sent out as a rule to the sector peripheral hospitals. Oddly enough they call a base hospital something that is out of the city, we might call it an evacuation hospital.

The peacetime nurses were sent to these peripheral hospitals to the extent of about four hundred, which left just a little over one hundred at St Bart's. Even this was not enough for the peripheral hospitals. To meet the needs the Ministry of Health organized the Civilian Nursing Reserve and these have been added at St Bart's and elsewhere as needed. In other words, the nurses are aided by trained assistants and auxiliaries or volunteers. If the hospitals in the outlying areas are not large enough to take care of the patients evacuated to them they build one story cottage huts adjacent to the hospitals. This they call "upgrading" the hospital by adding one hundred or two hundred or five hundred more beds. It means anything up to doubling the size of the hospital by the building of "hatted annexes."

The sector out of St Bart's had about two thousand five hundred nurses, including student nurses and reserve personnel. About two thousand of them were peacetime hospital staff nurses, and the other five hundred came from the group that had been trained, just as we are training extra nurses now in America.

Sir Girdling was asked what were the main problems in hospital administration under the blitz, and these were his replies:

First, personnel. The great difficulty is staffing the base hospital, that means the outlying hospital, with medical, nursing and lay personnel, including cooks, orderlies, masseurs and other such workers. There is a shortage of physicians, of nurses, of workers, of every one and certainly hospital administration is not made any the easier by that.

Another problem, again under personnel, has to do with the billeting of nurses and others transferred out to the rural hospitals. The latter might be a mental hospital or a communicable disease hospital or a private hospital or a county or poor law or welfare hospital. In the country there is no housing available to care for the added personnel of the upgraded hospitals. These would need three hundred extra beds in the St Bart's sector, and south of the Thames River the situation is even worse. The first planning was to meet the needs of the patients expected, but the needs of the hospital personnel were not anticipated, so it was necessary actually to use ward beds for sleeping the professional and other hospital workers who were sent out to do the nursing and other extra work.

Second, equipment. There is great difficulty in securing adequate equipment such as operating tables, x-ray and laboratory supplies, and kitchen equipment for upgraded hospitals. In London in peacetime there were just over twenty-one thousand voluntary hospital beds, that means private hospital beds, not government hospital beds, and seventeen thousand London County Council beds, these are public beds. In general the national government pays practically all the blitz hospital costs.

Sir Girdling said "We greatly overestimated the number of casualties that we would have in London. Up to a figure of 30,000 casualties a day was forecast, when we actually had somewhere around 300." They overestimated by one hundred fold, but they never regretted it for a moment and they continually said that to have had the opposite situation occur would have been tragic, even criminal. I think we have a big lesson to learn in this country from that.

Then, transportation of patients. The manner of transporting the patients was not a great difficulty, but it was hard to secure the proper equipment in this matter. Lorries or trucks were needed, and there was a great need for more x-ray and pathology and surgical equipment, as well as beds and equipment for kitchens.

Each hospital in the sector retains its own autonomy, and this is true I believe in a general way throughout England. Each hospital has a medical officer, a lay superintendent and a matron, and each of these has a deputy. The hospitals in London channel through the London County Council to the Ministry of Health. In other parts of England the administrative channel is through a local and a regional hospital office.

Sir Girdling then discussed blitz hospital financing. He said that the Ministry of Health pays for the casualty beds used. The hospital pays for the civilian sick. The Ministry of Health pays for all transfer of patients from the central to the outlying hospitals. If there is a crowding from the blitz, the civilian patients are sent out of the hospital to their homes or are crowded to make room to meet the need. In order to avoid delays in meeting the expenses in the hospitals, the Ministry of Health authorizes the lay sector official to pay for personnel and equipment. It may be a matter of purchasing twelve pillows or hiring an extra cook. Each quarter or semiannually an expense account is sent to the Ministry of Health for repayment. In other words, the hospital goes ahead and pays the bills out of its own pocket, knowing that it will be repaid by the central government.

We paid a visit to a part of St Bart's and to some of the other hospitals in sector III. Great emphasis was placed on the need for a one way ambulance route, incoming and outgoing, the swapping of stretchers, such as I have mentioned, and the careful keeping of records, which is not unusual in any hospital. Our host said the clerks who make the entry records when the blitz patients first come in to be admitted need to be tough, because these patients look mighty bad when they arrive and the clerk must be able to stand the sight of blood. I imagine he remembered instances in which the clerks had not been tough enough to take it.

At the receiving end of the hospital there must be a subdistributing office with wall charts and spot maps pins indicating the beds which are full and which are available, and what operating room facilities are available at the moment. This brought up the question of the operating room being underground and protected, in that technical sense that I mentioned, where you could go on operating if the rest of the hospital was blitzed away. In Liverpool I saw such a hospital, a thousand bed hospital, where there remained hardly anything that was less flat than this table top. All this happened one night in May 1940, when the city was heavily hit and the hospital was made just a shambles.

Often the operating room must be on an improvised basis because the main one, or the *protected one even*, may have gone. Then there must be a provision for transferring the patients upstairs by elevator if that is

*Care in the Delivery Room*—Immediately after delivery the baby is placed in the Trendelenburg position in a warmed premature infant jacket and covered with warmed blankets. After the pharynx has been cleared of mucus by gentle suction with an ear bulb syringe, 100 per cent oxygen inhalations are started. Although the intratracheal catheter is rarely necessary, it is kept ready for immediate use. Because of their potential danger, respiratory stimulants such as caffeine, nikethamide or metiazol are seldom used but are available if needed. As a last resort in establishing respiratory action they may be used in doses which we feel should be no larger than 1 to 2 minims (0.06 to 0.12 cc).

Silver nitrate is instilled into the eyes, but no attempt is made to replace the clamp on the cord with a tie and dressing. The baby is transferred to the nursery in its incubator or crib to minimize handling.

*Bathing, Weighing and Diaper Care*—It is of utmost importance that the child be handled as little as possible. Weighing and bathing are postponed until these procedures will not jeopardize the life of the baby. In some instances this has been as long as three or four weeks after delivery. The baby may be removed from the incubator or crib only after it appears able to maintain its body temperature. Whenever the infant is moved it should be well wrapped in blankets as a precaution against loss of heat.

After the initial weighing and oil bath, both of which have been delayed until the baby is in good condition, the premature infant is bathed and weighed only on written order. Until a weight of 1,800 Gm is reached, bathing and weighing at weekly intervals are usually sufficient. This interval is gradually decreased, until the baby is weighed and bathed daily when it has reached a weight of about 2,500 Gm. All baths are given with oil until the weight is 2,500 Gm, when soap and water may be used.

A diaper is placed under the buttocks inside the premature jacket on admittance to the nursery, but no effort is made to pin it. The diapers are changed and the buttocks and perineum oiled after each feeding. During this procedure gentle handling is imperative.

*Incubator Care*—The final criterion for the proper control of incubator heat is the temperature of the baby. Axillary temperatures are taken every one to two hours until the infant's thermal regulating mechanism is stabilized, and thereafter the temperature is taken every six hours. Regardless of the reading of the incubator thermometer, the indication for the increase or decrease of external heat rests exclusively with the baby's reaction. As an aid in conserving body heat, all premature infants are kept in premature jackets even while in the incubator. The incubator humidity is usually maintained at 50 to 60 per cent, but again these limitations may be altered to aid in controlling the temperature of the individual baby.

*Oxygen*—An infant whose estimated weight is less than 1,800 Gm is placed in a tent or closed incubator into which 100 per cent oxygen is administered at a rate of from 2 to 4 liters per minute. This procedure is followed regardless of the presence or absence of cyanosis, its principal purpose being to reduce the respiratory effort and to conserve energy. Many of the larger premature babies also are placed in oxygen tents until the respiratory mechanism has demonstrated its ability to function normally.

Inhalations of a mixture of 5 per cent carbon dioxide and 95 per cent oxygen are used at frequent intervals during the first few days of life to stimulate respiration and to aid in expanding the lungs. The administration of this mixture is of particular value before and after feedings. In giving such inhalations the mask is held at least 1 to 2 inches from the face, and the infant is allowed to breathe the gas for a period of about one minute.

*Feeding*—While few premature infants have starved to death, many have died as a result of aspiration of the formula. Feedings are withheld for twelve to twenty-four hours after birth, or until the swallowing reflex is present and the infant is strong enough to expend the energy required for eating. During the first day of feeding only 5 per cent dextrose is given to assist in washing swallowed mucus through the stomach and to supply fluid, thereafter breast milk is given if available, or a dilute evaporated milk formula may be used. The initial feedings may be as little as  $\frac{1}{8}$  ounce (3 cc) and are given at one to two hour intervals, depending on the size and strength of the baby. The amount offered and the time interval between feedings both are increased as the infant grows stronger and is able to take more food. Each baby is fed in its crib in a semi-Fowler position and is removed for feeding only after a weight of approximately 2,200 Gm has been attained. After each feeding the baby is "bubbled" by raising its head and gently patting its back without removing it from its crib. The position is then changed and the head is turned to one side to prevent aspiration in case the food is regurgitated. Crib feedings are continued until the infant becomes accustomed to the handling necessitated by daily bathing and weighing.

The small initial feedings may be given from an eye dropper, the tip of which is covered with soft rubber tubing. As the sucking reflex develops and strength is gained, the infant may be graduated to a Breck feeder and finally to a nursing bottle with a small nipple. If during a feeding any sign of respiratory distress appears nothing more is offered at that time, and it is often wise to omit the next scheduled feeding.

Isotonic solution of three chlorides or isotonic solution of sodium chloride may be given subcutaneously to supplement the fluid taken in the formula. The amount that may be given at one time, however, may be limited by the lack of subcutaneous fat in the premature infant, and all parenteral administration of fluids should be made with care because resistance to infection is relatively low. In general, subcutaneous administration of fluids is preferred to gavage feedings because of the dangers associated with the latter procedure, especially when it is carried out by inexperienced persons.

With the exception of vitamin K, which is usually given during the first two to three days of life, no other supplementary feedings are added until about eight to ten days after birth. At this time vitamin B, usually in the form of an elixir of thiamine or concentrated whole yeast extract, may be started. One drop is added to the formula and increased by 1 drop daily until 8 drops are being given. Iron, in the form of iron and ammonium citrates, is added in the same manner after the baby has become accustomed to the vitamin B. A total of 10 drops of the iron solution is used daily until diarrhea develops, in which case the dose is reduced. A concentrated vitamin D preparation is added next and is increased 1 drop daily until the therapeutic dose is reached. Ascorbic acid, usually in the form of d h . . .

orange juice, is the fourth addition to the supplementary medications and usually is incorporated in the feeding program by the time the baby is 1 month old.

Protein milk may be added to the formula after two to three weeks to increase the caloric and protein contents without increasing the bulk, and lactic acid is often added to the evaporated milk formulas in a concentration of 3 to 5 drops per ounce of milk. An attempt is made to maintain the caloric intake at about 75 to 100 calories per pound of body weight.

**General Procedures.**—Every precaution is observed to protect the infant from infection. Separate gowns and masks are worn when caring for the baby, and no one with an infection of any type is allowed to come in contact with it. The infant is shown only to its parents, and then only when its condition is such that it can be taken to the window in its crib. Until it weighs 2,500 Gm it is shown no oftener than once weekly. Premature babies are discharged when the weight is between 2,500 and 3,000 Gm, depending on home conditions and the baby's general health.

#### SUMMARY

A program of premature baby nursing care applicable to any newborn infant nursery has resulted in the University of Michigan Maternity Hospital in a 23 per cent increase in survival rate of all premature babies born alive during the past five years. The survival rate during this period was 90.5 per cent for all viable infants whose weight was between 1,000 and 2,499 Gm. This figure, as well as the corrected survival rate of 95 per cent for those premature infants who lived longer than twenty-four hours, justifies continuation and improvement of this regimen.

## THE INCIDENCE OF ACUTE LEUKEMIA IN CHILDREN

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It has long been recognized that the acute forms of leukemia are far more common in children than in adults and that younger children are more frequently affected than older ones. In the third decade acute leukemia occurs far less than in the second, and, after the age of 30 years, it is relatively rare as compared with earlier ages. In the acute forms of the disease as well as the chronic types seen in adults, males are more commonly affected than females, the figures showing from 60 to 79 per cent of males in various groups reported. There are no statistics available which warrant more than the foregoing general statements, since all reports have dealt with relatively small groups of 100 cases or less. The only series of sufficient size to allow an age incidence analysis was that reported by Ward,<sup>1</sup> who collected 729 cases of all varieties of leukemia, in 398 of which the condition was classed as acute. His figures have been widely cited as showing the age incidence. He gave no actual figures but expressed the age incidence in acute leukemia as a histogram curve of semi-decades, showing a peak at 0 to 5 years and a second lower peak at 16 to 20 years. His only statement about the source of the cases is that "the series includes cases described in many countries but the majority are British." It is likely that they may have been taken

largely from published literature. Since the age incidence in his report varies considerably from that to be reported in this paper, it may be mentioned that, as far as acute leukemia is concerned, there are several features in Ward's series which suggest the possibility that the cases were selected in such a manner as to misrepresent the true age incidence. For example, apparently only 163, or 41 per cent, of the 398 patients were under 15 years of age, which is quite unexpected in a disease notoriously much more common in childhood, while almost 40 per cent more patients in his series were between the ages of 16 and 25 than between the ages of 5 and 15, which would also be very unusual.

#### MATERIAL

In an analysis of 126 cases of acute leukemia in children observed in the St. Louis Children's Hospital, certain features in the incidence of the disease were observed which suggested a similar examination of a large series of cases. This report is based on the analysis of the age and sex incidence in 1,500 cases of acute leukemia in children admitted to thirty-three children's hospitals or pediatric services in the United States and Canada during a period of years. In some of the institutions the older diagnosis files were not always considered trustworthy as to accuracy of diagnosis or did not permit the easy tabulation of cases, so that the series reported includes only the admissions in a recent period of years and may appear smaller than is expected from some clinics. In every instance, however, the figures represent successive admissions for the disease over consecutive years and can, therefore, be considered as representative of an unselected group so far as age and sex incidence is concerned. All forms of acute leukemia were included. Most of them were called lymphatic, although some were classified as acute myeloblastic, acute monocytic or acute myelogenous. The few cases of chronic myelogenous leukemia were omitted. Four of the hospitals (furnishing 15 per cent of the total cases) did not admit children over the age of 12 or 13 years.

#### RESULTS

The data from thirty-three children's services are shown in detail in table 1, in which the location of the clinics is given together with the name of the physician who collaborated by collecting the data. These data have been condensed in table 2, in which the age and sex incidence is summarized. The following features are to be noted.

**SEX.**—Of the entire group of children, 59.3 per cent were males although there is a definite tendency in younger children to less disproportion in sex incidence than in the older ones. For example, in the first year of life more girls were found than boys and in the first five years, in which more than half of all cases occurred, the percentage of boys was only 55.8, while in the second semidecade the percentage of boys had increased to 62.5 and in the third to 65. There appears to be a definite rise in the proportion of males starting with the age of 6 years. While the fluctuation in percentage in yearly age groups is such as to make a somewhat irregular curve the differences between the larger groups of younger and older children and the progressive increase in proportion of boys with the disease appear of sufficient degree to be statistically significant. The explanation for this difference is at present obscure although one might speculate as to whether it is to be interpreted as a progressive decrease

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<sup>1</sup> Ward, G. The Infective Theory of Acute Leukemia. *Brit. J. Child Dis.* 11: 10 (Jan. March) 1917.

TABLE 1—*Age and Sex Incidence of 1,500 Cases of Acute Leukemia in Children, Collected from Thirty-Three Clinics in North America*

| Clinic and Physician<br>Who Supplied Data                              | Age (Years) and Sex of Patients |     |     |     |     |     |     |     |     |      |       |       |       |       |       |    |     |    |      |    |       |    |       |    |       |    |       |    |       |   |       |    |    |    |
|--|---------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|-------|-------|-------|-------|-------|----|-----|----|------|----|-------|----|-------|----|-------|----|-------|----|-------|---|-------|----|----|----|
|  | 0 1                             |     | 1 2 |     | 2 3 |     | 3 4 |     | 4 5 |      | 5 6   |       | 6 7   |       | 7 8   |    | 8 9 |    | 9 10 |    | 10 11 |    | 11 12 |    | 12 13 |    | 13 14 |    | 14 15 |   | Total |    |    |    |
|  | ♂                               | ♀   | ♂   | ♀   | ♂   | ♀   | ♂   | ♀   | ♂   | ♀    | ♂     | ♀     | ♂     | ♀     | ♂     | ♀  | ♂   | ♀  | ♂    | ♀  | ♂     | ♀  | ♂     | ♀  | ♂     | ♀  | ♂     | ♀  | ♂     | ♀ | ♂     | ♀  |    |    |
| Ann Arbor, Mich<br>University Hospital<br>(Dr C F McKhann)             | 2                               | 2   | 1   | 0   | 1   | 1   | 3   | 1   | 8   | 1    | 3     | 1     | 0     | 0     | 1     | 0  | 2   | 0  | 2    | 2  | 0     | 1  | 1     | 0  | 2     | 0  | 0     | 0  | 1     | 0 | 30    | 13 | 43 |    |
| Baltimore<br>Harriet Lane Home<br>(Dr H G Guild)                       | 2                               | 3   | 3   | 2   | 5   | 6   | 7   | 6   | 9   | 1    | 2     | 3     | 5     | 5     | 1     | 0  | 3   | 0  | 3    | 1  | 1     | 1  | 4     | 1  | 0     | 0  | 0     | 0  | 0     | 0 | 1     | 43 | 33 | 73 |
| Boston<br>Children's Hospital<br>(Dr L K Diamond)                      | 1                               | 3   | 4   | 3   | 3   | 1   | 3   | 1   | 0   | 2    | 1     | 3     | 4     | 1     | 1     | 2  | 2   | 1  | 0    | 3  | 1     | 0  | 2     | 0  | 1     | 1  | 0     | 1  | 1     | 0 | 24    | 25 | 51 |    |
| Chicago<br>Boys Roberts Memorial Hosp<br>(Dr F W Schütz)               | 2                               | 2   | 0   | 2   | 4   | 0   | 2   | 1   | 0   | 0    | 2     | 0     | 2     | 0     | 0     | 0  | 0   | 0  | 0    | 0  | 0     | 1  | 1     | 1  | 0     | 0  | 3     | 0  | 2     | 1 | 18    | 8  | 26 |    |
| Chicago<br>Children's Memorial Hospital<br>(Dr M Pierce)               | 3                               | 6   | 6   | 5   | 12  | 8   | 7   | 6   | 2   | 3    | 1     | 7     | 3     | 1     | 3     | 3  | 3   | 0  | 0    | 1  | 3     | 2  | 2     | 1  | 0     | 2  |       |    |       |   | 47    | 43 | 90 |    |
| Cincinnati<br>Children's Hospital<br>(Dr G M Guest)                    | 1                               | 3   | 1   | 1   | 3   | 1   | 3   | 1   | 5   | 5    | 1     | 1     | 0     | 0     | 3     | 1  | 0   | 1  | 1    | 0  | 0     | 0  | 2     | 1  | 1     | 1  |       |    |       |   | 21    | 16 | 37 |    |
| Cleveland<br>Babies and Children's Hosp<br>(Dr H J Gerstenhaber)       | 1                               | 2   | 1   | 2   | 5   | 3   | 2   | 2   | 6   | 0    | 0     | 0     | 1     | 0     | 0     | 0  | 0   | 0  | 0    | 0  | 1     | 0  | 0     | 0  | 0     | 0  | 0     | 0  | 0     | 0 | 18    | 9  | 27 |    |
| Denver<br>Children's Hospital<br>(Dr F P Gungenbach)                   | 0                               | 0   | 1   | 0   | 0   | 0   | 3   | 0   | 2   | 1    | 1     | 0     | 1     | 0     | 3     | 1  | 1   | 1  | 0    | 1  | 0     | 1  | 1     | 0  | 1     | 0  | 2     | 0  | 0     | 0 | 16    | 5  | 21 |    |
| Detroit<br>Children's Hospital<br>(Dr A Klinkowstein)                  | 1                               | 3   | 3   | 2   | 8   | 10  | 7   | 5   | 4   | 3    | 3     | 2     | 4     | 0     | 5     | 2  | 5   | 2  | 1    | 0  | 1     | 5  | 1     | 2  |       |    |       |    |       |   | 43    | 36 | 79 |    |
| Durham N C<br>Duke Hospital<br>(Dr W C Davison)                        | 1                               | 1   | 0   | 1   | 5   | 2   | 0   | 4   | 5   | 1    | 0     | 3     | 1     | 0     | 1     | 1  | 0   | 2  | 0    | 1  | 1     | 0  | 1     | 0  | 1     | 0  | 2     | 2  | 1     | 1 | 19    | 19 | 38 |    |
| Indianapolis<br>Riley Hospital<br>(Dr M Winters)                       | 2                               | 3   | 2   | 0   | 3   | 0   | 3   | 2   | 1   | 1    | 3     | 0     | 1     | 0     | 0     | 0  | 3   | 0  | 1    | 1  | 0     | 0  | 0     | 1  | 0     | 0  | 0     | 0  | 0     | 0 | 1     | 19 | 9  | 28 |
| Iowa City<br>University Hospital<br>(Dr M L Floyd)                     | 1                               | 0   | 4   | 1   | 5   | 2   | 5   | 4   | 7   | 3    | 4     | 5     | 3     | 3     | 1     | 1  | 4   | 0  | 1    | 2  | 2     | 1  | 4     | 2  | 2     | 1  | 1     | 0  | 1     | 1 | 43    | 26 | 69 |    |
| Kansas City, Kan<br>University of Kansas Hosp<br>(Dr F C Neff)         | 3                               | 1   | 8   | 1   | 2   | 1   | 2   | 2   | 1   | 1    | 5     | 2     | 0     | 0     | 1     | 1  | 1   | 2  | 0    | 0  | 2     | 1  | 1     | 1  | 3     | 0  | 2     | 0  | 1     | 0 | 32    | 13 | 45 |    |
| Los Angeles<br>Children's Hospital<br>(Dr M Fallon)                    | 1                               | 2   | 6   | 2   | 8   | 1   | 5   | 9   | 6   | 2    | 4     | 2     | 4     | 2     | 1     | 1  | 3   | 0  | 2    | 2  | 2     | 1  | 1     | 1  | 1     | 0  | 0     | 2  | 0     | 0 | 44    | 21 | 65 |    |
| Minneapolis<br>Minnesota General Hospital<br>(Dr A V Stoesser)         | 2                               | 0   | 0   | 0   | 1   | 0   | 0   | 0   | 0   | 0    | 0     | 0     | 2     | 0     | 0     | 1  | 3   | 0  | 2    | 0  | 1     | 0  | 0     | 1  | 0     | 0  | 1     | 1  | 1     | 1 | 13    | 4  | 17 |    |
| Minneapolis<br>University of Minnesota Hosp<br>(Dr I McQuarrie)        | 3                               | 2   | 3   | 0   | 6   | 1   | 4   | 2   | 2   | 2    | 3     | 3     | 3     | 0     | 2     | 2  | 2   | 2  | 2    | 1  | 2     | 1  | 2     | 2  | 0     | 1  | 2     | 1  | 1     | 0 | 37    | 20 | 57 |    |
| Montreal, Canada<br>Children's Memorial Hospital<br>(Dr H B Cushing)   | 2                               | 0   | 3   | 1   | 3   | 0   | 3   | 0   | 0   | 1    | 2     | 0     | 2     | 1     | 2     | 0  | 0   | 0  | 2    | 0  | 1     | 0  | 1     | 1  | 0     | 0  | 0     | 0  | 1     | 1 | 20    | 5  | 25 |    |
| Nashville, Tenn<br>Vanderbilt University Hosp<br>(Dr H Casparis)       | 0                               | 2   | 3   | 2   | 0   | 5   | 0   | 4   | 1   | 2    | 1     | 1     | 0     | 1     | 0     | 2  | 0   | 1  | 0    | 0  | 2     | 0  | 1     | 0  | 1     | 0  | 2     | 0  | 3     | 2 | 14    | 22 | 36 |    |
| New Haven, Conn<br>New Haven Hospital<br>(Dr G Powers)                 | 2                               | 0   | 1   | 2   | 4   | 3   | 2   | 0   | 0   | 2    | 0     | 3     | 1     | 1     | 1     | 0  | 0   | 1  | 0    | 2  | 3     | 0  | 1     | 1  | 1     | 0  | 0     | 0  | 1     | 1 | 17    | 16 | 33 |    |
| New York<br>Babies Hospital<br>(Dr R McIntosh)                         | 1                               | 0   | 1   | 2   | 3   | 1   | 2   | 5   | 4   | 3    | 1     | 0     | 2     | 0     | 2     | 0  | 2   | 1  | 1    | 0  | 0     | 0  | 0     | 0  | 1     | 0  |       |    |       |   | 20    | 18 | 38 |    |
| New York<br>Bellevue Hospital<br>(Dr Robert Cox)                       | 0                               | 2   | 1   | 0   | 2   | 0   | 4   | 1   | 4   | 3    | 5     | 2     | 1     | 1     | 1     | 0  | 2   | 0  | 1    | 1  | 1     | 2  | 1     | 0  | 1     | 0  | 0     | 0  | 1     | 0 | 20    | 18 | 38 |    |
| New York<br>Mt Sinai Hospital<br>(Dr B Schick)                         | 1                               | 0   | 1   | 0   | 0   | 0   | 6   | 4   | 2   | 0    | 0     | 1     | 0     | 0     | 0     | 1  | 0   | 1  | 2    | 2  | 1     | 0  | 2     | 0  | 1     | 0  | 0     | 0  | 1     | 0 | 17    | 9  | 26 |    |
| New York<br>New York Hospital<br>(Dr S Z Levene)                       | 0                               | 1   | 0   | 0   | 0   | 1   | 1   | 3   | 1   | 1    | 3     | 1     | 3     | 0     | 0     | 2  | 0   | 0  | 2    | 0  | 1     | 1  | 0     | 0  | 0     | 1  | 0     | 0  | 0     | 0 | 11    | 11 | 22 |    |
| Oakland, Calif<br>Children's Hospital East Bay<br>(Dr C Sweet)         | 5                               | 2   | 1   | 1   | 0   | 2   | 4   | 1   | 1   | 0    | 1     | 0     | 1     | 1     | 0     | 0  | 2   | 1  | 0    | 1  | 1     | 0  | 0     | 0  | 0     | 0  | 0     | 0  | 0     | 0 | 16    | 9  | 25 |    |
| Philadelphia<br>Children's Hospital<br>(Dr I J Wolman)                 | 0                               | 1   | 3   | 1   | 1   | 3   | 3   | 2   | 1   | 0    | 1     | 0     | 0     | 1     | 1     | 0  | 0   | 0  | 1    | 0  | 0     | 1  | 0     | 0  | 0     | 0  | 0     | 0  | 0     | 0 | 11    | 9  | 20 |    |
| Pittsburgh<br>Children's Hospital<br>(Dr H T Price)                    | 3                               | 0   | 0   | 1   | 3   | 0   | 3   | 4   | 7   | 3    | 0     | 0     | 0     | 0     | 0     | 0  | 4   | 0  | 3    | 1  | 0     | 0  | 1     | 0  | 1     | 0  | 1     | 0  | 0     | 0 | 20    | 9  | 29 |    |
| Portland, Ore<br>University of Oregon Hosp<br>(Dr J B Bilderbach)      | 3                               | 3   | 0   | 0   | 2   | 7   | 2   | 4   | 6   | 2    | 2     | 0     | 2     | 2     | 1     | 4  | 0   | 0  | 4    | 0  | 0     | 1  | 1     | 1  | 1     | 0  | 1     | 0  | 0     | 0 | 20    | 21 | 41 |    |
| Rochester, Minn<br>Mayo Clinic<br>(Dr S D Mills)                       | 0                               | 1   | 3   | 3   | 10  | 3   | 0   | 3   | 1   | 4    | 2     | 0     | 1     | 2     | 4     | 3  | 3   | 1  | 1    | 0  | 0     | 1  | 2     | 0  | 1     | 2  | 1     | 0  | 0     | 0 | 33    | 27 | 60 |    |
| Rochester N Y<br>Strong Memorial Hospital<br>(Dr S J Clausen)          | 1                               | 0   | 1   | 3   | 2   | 3   | 2   | 4   | 2   | 2    | 1     | 0     | 2     | 2     | 2     | 1  | 1   | 0  | 2    | 1  | 1     | 0  | 1     | 0  | 1     | 0  | 1     | 1  | 0     | 1 | 20    | 1  | 21 |    |
| St Louis<br>Children's Hospital  | 2                               | 7   | 1   | 2   | 6   | 11  | 12  | 6   | 3   | 8    | 7     | 6     | 8     | 1     | 6     | 1  | 2   | 3  | 4    | 3  | 5     | 1  | 5     | 1  | 3     | 3  | 3     | 3  | 2     | 1 | 61    | 17 | 78 |    |
| San Francisco<br>Stanford University Hospital<br>(Dr H K Faber)        | 2                               | 0   | 0   | 1   | 0   | 1   | 2   | 0   | 0   | 1    | 1     | 0     | 1     | 1     | 1     | 0  | 0   | 0  | 0    | 2  | 0     | 0  | 0     | 0  | 0     | 0  | 0     | 0  | 0     | 0 | 7     | 6  | 13 |    |
| San Francisco<br>University of California Hosp<br>(Dr J B Castiglione) | 2                               | 2   | 0   | 0   | 3   | 2   | 3   | 1   | 3   | 0    | 2     | 3     | 0     | 1     | 3     | 0  | 1   | 0  | 4    | 0  | 3     | 0  | 0     | 0  | 0     | 0  | 0     | 0  | 0     | 1 | 1     | 20 | 1  | 21 |
| Toronto, Canada<br>Hospital for Sick Children<br>(Dr J F McCreary)     | 4                               | 5   | 4   | 4   | 7   | 7   | 8   | 4   | 6   | 12   | 7     | 3     | 6     | 2     | 2     | 1  | 4   | 3  | 1    | 2  | 2     | 2  | 0     | 0  | 1     | 1  | 2     | 0  | 1     | 0 | 4     | 1  | 4  |    |
| Totals by sex  | 54                              | 59  | 68  | 45  | 120 | 89  | 122 | 93  | 100 | 76   | 69    | 52    | 64    | 29    | 49    | 31 | 53  | 23 | 43   | 30 | 38    | 24 | 39    | 18 | 23    | 13 | 23    | 11 | 2     | 1 | 1     | 1  | 1  |    |
| Totals by year   | 113                             | 113 | 209 | 220 | 176 | 121 | 93  | 80  | 76  | 73   | 62    | 57    | 38    | 26    | 11    | 1  |     |    |      |    |       |    |       |    |       |    |       |    |       |   |       |    |    |    |
| Age, years   | 0 1                             | 1 2 | 2 3 | 3 4 | 4 5 | 5 6 | 6 7 | 7 8 | 8 9 | 9 10 | 10 11 | 11 12 | 12 13 | 13 14 | 14 15 |    |     |    |      |    |       |    |       |    |       |    |       |    |       |   |       |    |    |    |



in susceptibility in girls or a gradual increase in susceptibility in boys. Also the possibility of some relation of sex hormones to the variation in incidence suggests itself but present knowledge of the distribution and effect of these substances before sexual maturity is vague.

*Fig. 1*—The yearly age incidence from table 2 has been plotted in a curve in chart 1. The regularity of this curve is rather striking. From a moderate elevation in the first two years it rises abruptly and shows the highest incidence in the third and fourth years, with a sharp decline in the next three years and a progressive fall throughout the latter half of childhood. It is of interest that 40 per cent of all cases were in the period from 3 to 5 years and that almost half (48 per cent) occurred in the period from 3 to 6 years. The slight lowering of the curve after the age of 12 may be related to the fact that a few of the clinics did not admit children in these later years of childhood.

## COMMENT

It is of some interest to examine the age incidence curve of acute leukemia for features on which some deductions with regard to the etiology or nature of the

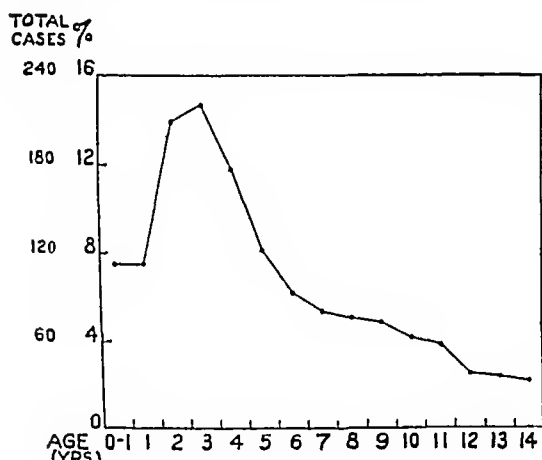


Chart 1—Age incidence of acute leukemia in 1 500 cases

disease might be made. Two of the most widely held hypotheses concerning acute leukemia regard the disease as of (a) neoplastic or (b) infectious origin.

So far as a comparison with malignant neoplasms is concerned, Warthin<sup>2</sup> states that "malignant tumors are relatively rare before puberty, but there is a steady ascending line of occurrence from childhood onward to middle life, both sarcoma and carcinoma showing a parallelism of occurrence." No collection of cases of malignant tumor in children exists of sufficient size to give accurate information about age incidence. Of other neoplasms in children the most frequently observed are those of the nervous system and of the kidney, although neither of these can be considered common. The majority of the latter are of embryonic origin (Wilms's tumor) and consequently develop only in the early years of life. Brain tumors are less frequent in childhood than in adult life, but Cushing<sup>3</sup> observed 148 verified cases (excluding tuberculomas) in children under 15 years of age. Most of these were gliomas. A comparison of the age incidence of these with the cases of

acute leukemia (table 3) shows a wide discrepancy, since there are a progressive increase in incidence of brain tumors in older children and a progressive decrease in the incidence of acute leukemia. No statistical evidence is available to suggest a relationship in the incidence of acute leukemia to that of other neoplastic growths.

TABLE 2—Age and Sex Incidence in 1,500 Cases of Acute Leukemia in Children

| Age Years | Boys | Girls | Total Cases | Yearly Per Cent of All Cases | Per Cent of Males |
|-----------|------|-------|-------------|------------------------------|-------------------|
| 0 1       | 54   | 59    | 113         | 7.5                          | 47.8              |
| 1 2       | 63   | 46    | 113         | 7.5                          | 60.0              |
| 2 3       | 120  | 89    | 209         | 13.9                         | 57.4              |
| 3 4       | 122  | 98    | 220         | 14.7                         | 55.5              |
| 4 5       | 100  | 76    | 176         | 11.7                         | 56.7              |
| 5 6       |      |       |             | 5.3                          | 5.8               |
| 6 7       | 69   | 52    | 121         | 8.0                          | 51.4              |
| 7 8       | 64   | 29    | 93          | 6.2                          | 68.8              |
| 8 9       | 49   | 31    | 80          | 5.3                          | 60.1              |
| 9 10      | 53   | 23    | 76          | 5.0                          | 69.7              |
| 10 11     | 43   | 30    | 73          | 4.9                          | 59.0              |
| 11 12     |      |       |             | 29.4                         | 62.5              |
| 12 13     | 38   | 24    | 62          | 4.1                          | 61.3              |
| 13 14     | 39   | 18    | 57          | 3.8                          | 68.4              |
| 14 15     | 23   | 13    | 38          | 2.5                          | 65.8              |
| 15 16     | 25   | 11    | 36          | 2.4                          | 69.5              |
| 16 17     | 20   | 13    | 33          | 2.2                          | 60.6              |
| Totals    | 889  | 611   | 1 500       | 15.0                         | 65.0              |

The theories of the infectious origin of acute leukemia may be divided into two types. The first considers that the disease is due to a specific acute infectious agent as yet unidentified and is based chiefly on similarity of certain clinical manifestations in acute leukemia and acute infection, the chief symptoms common to the two being fever, prostration, asthenia and evident toxicity. The irregular occurrence of acute leukemia, its lack of communicability and the failure to identify any infectious agent have placed some doubt on its specific infectious origin. The second hypothesis assumes that the relation to acute infections is of a less specific character and that many types of infection may initiate the changes which result in acute leukemia. Since this complication is relatively unusual after infections, it is

TABLE 3—Comparison of Age Incidence of Acute Leukemia and Brain Tumors in Children

| Age Yr | Acute Leukemia |          | Brain Tumors (Cushing Series) |          |
|--------|----------------|----------|-------------------------------|----------|
|        | Number         | Per Cent | Number                        | Per Cent |
| 0 5    | 831            | 55.5     | 22                            | 14.9     |
| 6 10   | 443            | 29.5     | 53                            | 35.8     |
| 11 15  | 226            | 15.0     | 73                            | 49.3     |
| Totals | 1 500          |          | 148                           |          |

necessary to assume that it occurs only in certain persons in whom a constitutional inferiority of the hemopoietic system makes it vulnerable to injury by infections and possibly by other types of trauma.

That antecedent acute infection is directly concerned with the development of acute leukemia in a considerable number of cases is supported by many observations. It is relatively common to obtain the history that immediately preceding the development of symptoms of acute leukemia the child suffered from some acute infectious

<sup>2</sup> Warthin, A. S. The Occurrence of Malignant Neoplasms in the Young. Arch. Int. Med. 15: 444 (March) 1915.

<sup>3</sup> Cushing, Harvey. The Intracranial Tumors of Preadolescence. Am. J. Dis. Child. 33: 551 (April) 1927.

illness, from which he had apparently recovered  
Pierce,<sup>4</sup> for example, noted that this was true in 48.7  
per cent of her series of 41 cases. In 126 cases from  
the St. Louis Children's Hospital such a history was  
given in 56, or 44.4 per cent, although no special inquiry  
about preceding infection was made. These antecedent

TABLE 4—*Directly Antecedent Acute Infections in 126  
Cases of Acute Leukemia*

|   |    |
|---|----|
| Acute tonsillitis   | 18 |
| Acute infection of respiratory tract, with fever and bronchitis | 10 |
| Acute cervical adenitis   | 6  |
| Measles   | 6  |
| Acute otitis media  | 4  |
| Mumps   | 3  |
| Acute febrile illness, undiagnosed                              | 3  |
| Scarlet fever *   | 3  |
| Acute bronchopneumonia  | 2  |
| Impetigo contagiosa   | 1  |
| Total   | 56 |

\* An additional child had acute leukemia soon after scarlet fever  
immunization, with unusually severe febrile reaction after each injection.

acute infections varied, although most of them were of  
the respiratory tract. They were classified as shown in  
table 4. The relatively high incidence of such antecedent  
acute infections gives support to the view that they  
may play an important role in the development of  
acute leukemia.

In considering the relation of acute infections to the  
etiology of acute leukemia in children, additional infor-  
mation may be obtained from comparing the relative  
age incidence of the two conditions. By far the com-  
monest infections during childhood are those related  
to the respiratory tract. Although no statistics are  
available as to the age incidence of such infections, all  
pediatricians will agree with Brennemann,<sup>5</sup> who said  
"These [respiratory] infections have their greatest inci-  
dence and severity both as to the primary infections and  
the complications and sequelae in infancy and earliest  
childhood." In certain of the acute readily communi-  
cable childhood infections, however, morbidity figures  
as related to age incidence are available for comparison.  
In table 5 are given the age distribution of 7,379 cases  
of measles and 3,311 cases of diphtheria representing  
admissions to the Willard Parker Hospital during the  
five year period of 1919 to 1923, from the data reported

the department of health. These values are shown  
graphically in chart 2, in which will be noted the strik-  
ing similarity in the age distribution curve of acute  
leukemia and those of diphtheria and measles in the  
Willard Parker Hospital series, each showing a rapid  
rise after infancy and a high proportion of cases in  
the early years of life. The cases from the Willard  
Parker Hospital include those of the more serious forms  
of the disease, and many of them were complicated by  
secondary infection. It is believed that these hospital  
cases illustrate the tendency of younger children to  
suffer more severely from acute infections in increasing  
numbers and, therefore, that this age distribution may  
be of value for comparison with the age incidence of  
acute leukemia. The figures are not cited to illustrate  
the true age incidence of these communicable diseases,  
since it is well known that such infections tend to show  
a second striking increase in the early school years.  
This is well illustrated in the distribution of the larger  
series of cases of measles in Detroit, although here  
also is seen the rapid primary rise in early childhood.  
It appears reasonable to conclude that the age inci-  
dence curve of acute leukemia tends to follow closely

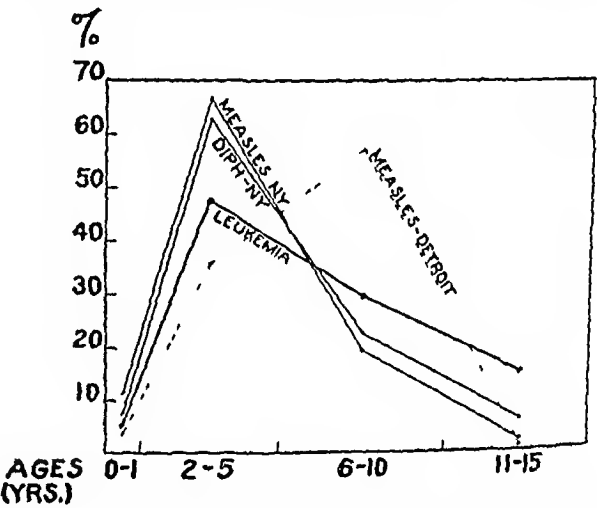


Chart 2—Age incidence curves of acute leukemia, diphtheria and measles

that of acute infections and that a rather high percentage  
of cases of acute leukemia develop shortly after an acute  
infection.

SUMMARY

An analysis of the sex and age incidence of 1,500  
cases of acute leukemia in children showed the following  
trends:

- 1 During childhood there is a gradual increase in  
the proportion of males over females who have acute  
leukemia, the predominance of boys being greater in  
later childhood than during infancy. In the first year  
of life more cases were observed in girls than in boys.
- 2 The age incidence follows a regular curve, which  
rises from a moderate elevation in the first two years  
of life to a peak of highest incidence in the third and  
fourth years, with a sharp decline in the next three years  
and a more gradual progressive fall throughout the  
latter half of childhood.

It is concluded that acute infections form one of  
the factors in the production of the disease and there-  
fore play an important part in its causation, since (1) the  
highest incidence in acute leukemia occurs in early  
childhood, (2) the type of its age incidence curve tends  
to follow the frequency of acute infections in childhood,  
and (3) some acute infection frequently precedes the  
development of acute leukemia.

TABLE 5—*Comparison of Age Incidence of Acute Leukemia  
and Diphtheria and Measles in Children*

| Age, Yr | New York City, 1919-1923 |             |             |             |             |             | Detroit, 1936-1940 |             |
|---------|--------------------------|-------------|-------------|-------------|-------------|-------------|--------------------|-------------|
|         | Leukemia                 |             | Diphtheria  |             | Measles     |             | Measles            |             |
|         | Num-<br>ber              | Per<br>Cent | Num-<br>ber | Per<br>Cent | Num-<br>ber | Per<br>Cent | Num-<br>ber        | Per<br>Cent |
| 0-1     | 113                      | 7.5         | 672         | 7.8         | 377         | 11.4        | 1,433              | 3.5         |
| 2-5     | 718                      | 47.8        | 4,659       | 63.1        | 2,213       | 66.8        | 14,405             | 35.8        |
| 6-10    | 443                      | 29.5        | 1,701       | 23.0        | 651         | 19.7        | 22,987             | 57.0        |
| 11-15   | 226                      | 15.1        | 447         | 6.1         | 70          | 2.1         | 1,449              | 3.6         |
| Totals  | 1,500                    |             | 7,379       |             | 3,311       |             | 40,274             |             |

by Emerson and Hopping,<sup>6</sup> and, in addition, that of  
40,274 cases of measles reported in Detroit during five  
years (1936 to 1940), furnished by Dr. F. H. Top,  
director of the division of communicable diseases of

4 Pierce, Milla. Childhood Leukemia, J. Pediat. 8:66 (Jan) 1936.  
5 Brennemann, Joseph. Respiratory Infections, in Brennemann's  
Practice of Pediatrics, Hagerstown, Md., W. F. Prior & Co., Inc., 1937,  
vol. 2, chapter 39, p. 3.  
6 Emerson, H., and Hopping, A. Scarlet Fever, Diphtheria and  
Measles at the Willard Parker Hospital, New York City, 1919-1923, Am  
J. Pub. Health 15, supp. February 1925.

HYPERTENSION DUE TO RENAL  
EMBOLISMARTHUR M. FISHBERG, M.D.  
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Since 1938 I<sup>1</sup> have observed 4 cases in which embolization of one or both renal arteries was followed by a pronounced rise in arterial pressure. Prinzmetal<sup>2</sup> has studied a similar case in detail. Since the 4 cases observed in the span of four years were detected without special search in the course of routine ward work it would appear that hypertension is more than a rare manifestation of renal embolism. For this reason, and because of the theoretical and practical connotations of the elevation of blood pressure occasioned by embolic plugging of a renal artery the cases seem worthy of publication.

CASE 1—T. H., a man aged 42, was admitted on Oct. 22, 1938. He had felt entirely well until three weeks before admission, when he suddenly had severe constricting substernal pain which radiated down the right arm. Accompanying the pain were extreme apprehension and moderate shortness of breath. He sweated profusely. The attack lasted about ten minutes and subsided spontaneously. He had similar seizures about every other day for two weeks. Most of the attacks occurred while he was walking but others came on while he was in bed. He was then free of symptoms until the morning of admission, when he was awakened from sleep by an attack similar to the others.

Physical examination on admission disclosed no abnormalities other than moist rales audible at the base of the left lung. The electrocardiogram showed changes indicative of anterior infarction of the heart. The diagnosis of myocardial infarction was later confirmed by a roentgen kymogram.

Apart from occasional substernal discomfort the patient felt well during his first days in the hospital. The rales at the base of the left lung disappeared. The temperature, pulse rate, urine and leukocyte count were normal. However, on November 2 the picture suddenly changed. The patient complained of malaise, the temperature rose to 101 F and the leukocyte

TABLE 1—Blood Pressure in Case 1 After Renal Embolism

| Date                  | Blood Pressure |           |
|-----------------------|----------------|-----------|
|                       | Systolic       | Diastolic |
| 10/22                 | 108            | 70        |
| 10/24                 | 100            | 64        |
| 10/26                 | 76             | 46        |
| 10/29                 | 108            | 60        |
| 11/2 (renal embolism) |                |           |
| 11/3                  | 142            | 95        |
| 11/4                  | 142            | 98        |
| 11/5                  | 150            | 100       |
| 11/6                  | 115            | 80        |
| 11/7                  | 114            | 76        |
| 11/8                  | 112            | 80        |
| 11/11                 | 116            | 85        |
| 11/14                 | 122            | 85        |
| 11/15                 | 110            | 80        |
| 12/6                  | 100            | 80        |

count increased to 13,000 per cubic millimeter. The temperature rose November 3 to 102 F and the next day to 103 F, with the heart rate up to 100 per minute. He complained of pain in the left costovertebral region and the left upper quadrant. There was exquisite tenderness and muscular rigidity in the left costovertebral region. In the urine which had previously contained only occasional white blood cells there appeared a considerable amount of protein, and the sediment contained a few red blood cells and granular casts. These conditions lasted for about a week. After this the temperature, pulse

and urine returned to normal and the pain and tenderness in the left costovertebral region disappeared. The blood pressure readings are shown in table 1.

Summary—In a patient with myocardial infarction there developed an infarct of the left kidney due doubtless to embolization of an intraventricular thrombus. The renal embolization was accompanied by a definite rise in the systolic and the diastolic arterial pressure. The blood pressure returned to its previous level *pari passu* with the disappearance of the symptoms of renal infarction.

TABLE 2—Blood Pressure in Case 2 After Renal Embolism

| Date | Blood Pressure |            |
|------|----------------|------------|
|      | Systolic       | Diastolic  |
| 3/16 | 118            | 60         |
| 3/17 | 120            | 70         |
| 3/18 | 142            | 90         |
| 4/1  | 170            | 100        |
| 4/2  | 148            | 90         |
| 4/3  | 156            | 95         |
| 4/5  | 170            | 100        |
| 4/6  | 175            | 100        |
| 4/7  | 165            | 98         |
| 4/8  | 178            | 88         |
| 4/8  | 150            | 88 (death) |

CASE 2—I. B., a woman aged 26, was admitted March 15, 1939, complaining of pain in the right loin of four days' duration. She had had rheumatic fever at the age of 4 years and had been hospitalized several times in the past eight years because of heart disease.

Four days before entering, when feeling unusually well, she suddenly suffered excruciating pain in the right loin. The pain radiated anteriorly and to the right groin and lasted unabated for about ten hours. A physician then summoned diagnosed embolism from the heart to the right kidney. Slight pain in the right groin persisted until admission and the patient vomited occasionally. For two days before entering the hospital she was febrile, with a temperature as high as 103.6 F. She did not observe bloody urine.

Physical examination disclosed mitral stenosis with auricular fibrillation. There was tenderness in the right upper quadrant and the right flank. In the right side of the abdomen, below and behind the slightly enlarged liver a tender rather poorly defined mass was felt which was thought to be the right kidney. The urine was of specific gravity 1.026 and had a 1 plus reaction for protein but no red cells were observed.

Intravenous urography on March 18 disclosed no abnormality in the left side of the urinary tract but the right upper part of the tract did not visualize. Cystoscopy was performed on March 23. Both ureters were catheterized the full distance. There was a prompt flow from the left side with a good concentration of indigo carmine in three minutes. Though there was no flow of urine on the right side a retrograde pyelogram showed no abnormality of the upper part of the urinary tract on this side.

Severe pulmonary engorgement and then bronchopneumonia gradually developed. Tachycardia was more pronounced, and the patient became edematous. The venous pressure rose to 19.5 cm. of water and the saccharin circulation time to twenty-five seconds. Because of the likelihood that the hypertension due to embolism of the left renal artery contributed to the cardiac strain Dr. George Bachr considered the possibility of performing a nephrectomy on the left side but decided that the patient's poor general condition precluded operation.

Of interest is the fact that red blood cells were only rare in the sediment on many examinations.

The patient did not suffer from renal excretory failure, two days before death the urea nitrogen content of the blood was 23 mg. per hundred cubic centimeters.

Necropsy was limited to the kidneys. It revealed embolic occlusion of the trunk of the right renal artery with massive, though not total, infarction of the right kidney.

Summary—In a woman with mitral stenosis embolic occlusion of the right main renal artery with massive infarction of the right kidney was followed by a rise in arterial pressure.

From the Medical Service of the Mount Sinai Hospital.

1. Fishberg, A. M. Hypertension and Nephritis. ed. 4. Philadelphia, Lea &amp; Febiger, 1939, p. 264.

2. Prinzmetal, Myron, Hartz, Nathan, and Tragerman, L. J. Hypertension in a Patient with Bilateral Renal Infarction. J. A. M. A. 118: 44 (Jan. 3) 1942.

CASE 3—S B, a woman aged 45, was admitted April 22, 1940 to the orthopedic service of the Mount Sinai Hospital

Six weeks before admission the patient fell from a street car and sustained a fracture of the left femur. There was no head injury. May 1 auricular fibrillation was detected. Operative reduction was performed, with insertion of a pin through the condyles. After the operation bronchopneumonia developed. May 22 the patient had a tonic followed by a clonic convulsion, which were repeated. There were three subsequent convulsive episodes. Numerous retinal hemorrhages appeared. The composition and dynamics of the cerebrospinal fluid were normal. The neurologic and electroencephalographic examinations suggested lesions in the right temporal lobe and the left hemisphere. There was no renal insufficiency. The day before death the urea nitrogen content of the blood was 13 mg per hundred cubic centimeters.

Necropsy showed mitral stenosis with a large thrombus in the left auricle. The right renal artery was completely occluded by a massive embolus. The right kidney was extensively but not completely infarcted. There were multiple areas of softening in the brain apparently due to embolization and also embolic infarcts in the spleen.

Summary—A woman with mitral stenosis and auricular fibrillation was admitted to the hospital for treatment of a fracture of the femur. While she was under observation, the blood pressure rose and proteinuria appeared. Necropsy showed embolic occlusion of the right main renal artery with infarction of the right kidney.

CASE 4—F J, a woman aged 36, was first admitted to the gynecologic service of Dr I C Rubin Dec 15, 1941 for interruption of a seven week pregnancy. She had had rheumatic heart disease with mitral stenosis since childhood. In recent years there had been repeated bouts of heart failure. On admission she had auricular fibrillation with signs of failure of both the right and the left side of the heart. She was given radiation in a dose calculated to produce abortion and castration and then discharged.

She was readmitted Jan 10, 1942 because of vaginal bleeding and cramps in the lower part of the abdomen of eight hours' duration. With the onset of labor, dyspnea and orthopnea had been accentuated. There were physical signs of mitral stenosis and regurgitation with auricular fibrillation and evidences of pulmonic and systemic venous engorgement. The lower part of the abdomen was diffusely tender.

TABLE 3—Data on the Blood Pressure and Urine After Renal Embolism in Case 3

| Date | Blood Pressure |                  | Urine   |
|------|----------------|------------------|---|
|      | Systolic       | Diastolic        |   |
| 4/27 | 160            | 90               | No protein, normal microscopically  |
| 5/1  |                |                  |   |
| 5/20 |                |                  | No protein, normal microscopically  |
| 5/28 |                |                  | 4 plus reaction for protein, few red blood cells                                  |
| 5/29 | 210            | 90               | 3 plus reaction for protein, few red blood cells and hyaline casts                |
| 5/31 | 210            | 110              |   |
| 6/1  | 260            | 95               | 3 plus reaction for protein many red blood cells, many hyaline and granular casts |
| 6/2  | 190            | 100              |   |
| 6/2  | 120            | 60 (ante mortem) |   |

The patient's intake of fluid and of salt were restricted, and she was digitalized. Solution of posterior pituitary was administered. January 10 the uterus was curetted during anesthesia.

January 11 severe pain and tenderness in the left costovertebral region developed. The temperature rose to 103.2 F. The urinary output fell to 350 cc in twenty-four hours. On cystoscopy, both ureters were readily catheterized. The urinary flow and the excretion of dye were normal on the right side, but there was no flow from the left kidney. The urine from the right kidney contained a few casts and many red blood cells. The urea nitrogen content of the blood was 56 mg per hundred cubic centimeters. The next day the blood urea nitrogen had risen to 78 mg per hundred cubic centimeters.

Tenderness was now present in both costovertebral regions. After the patient had been completely anuric for twelve hours, cystoscopy was again performed, but neither ureter could be catheterized. A nephrostomy was done on the right side, inspection revealed extensive infarction of the right kidney. The patient died about five hours after the operation.

Necropsy revealed mitral stenosis with pronounced dilatation of the left auricle. The left auricular appendage was almost

TABLE 4—Data on Blood Pressure and Urine After Renal Embolism in Case 4

| Date  | Blood Pressure |                          | Urine  |
|-------|----------------|--------------------------|--|
|       | Systolic       | Diastolic                |  |
| 12/15 | 178            | 70                       | Normal microscopically   |
| 1/10  | 162            | 86                       | 2 plus reaction for protein numerous clumped white blood cells, occasional red blood cells |
| 1/20  | 182            | 105                      | 4 plus reaction for protein numerous clumped white blood cells, occasional red blood cells |
| 1/21  | 182            | 90                       | 3 plus reaction for protein clumped white blood cells 4 to 6 red blood cells               |
| 1/22  | 175            | 100                      | 3 plus reaction for protein many white blood cells 4 to 5 red blood cells                  |
| 1/23  | 152            | 98                       | 2 plus reaction for protein numerous red blood cells                                       |
| 1/24  | 114            | 62 (shortly ante mortem) |  |

completely filled by a partially adherent thrombus. The middle branch of the right renal artery was totally blocked by an embolus. The right kidney was extensively infarcted. The left main renal artery was entirely obstructed by an embolism just before its branching. The left kidney was almost completely infarcted.

Summary—In a woman with mitral stenosis, emboli from the left auricular appendage produced occlusion of the left main renal artery with widespread infarction of both kidneys and consequent renal insufficiency and uremia. The renal embolization was accompanied by the development of hypertension.

COMMENT

The hypertension that may follow renal embolism offers further and direct clinical evidence that elevation of the blood pressure may result from an impediment to the flow of blood through one or both kidneys. It appears to present a particularly close analogue in man to the hypertension that Goldblatt<sup>3</sup> first produced in the dog by the application of his clamp to the renal artery and Page<sup>4</sup> duplicated by wrapping the kidney in cellophane or silk with resulting constricting perinephritis. The obstruction to the renal circulation produced by the embolus lodged in a large renal artery is more nearly akin to that of the Goldblatt clamp than that occurring in association with the other lesions of the kidney and its vessels which result in hypertension. There would seem little room for doubt that the same mechanism operates to elevate the blood pressure in the clinical case of renal embolism and in the dog with experimental obstruction to the renal blood flow. This conception accords with the finding of Prinzmetal and his associates<sup>2</sup> that perfusates from the infarcted kidney of a patient with hypertension due to renal embolism contained a pressor substance similar to that which they found in the totally ischemic kidneys of animals with clamped renal vessels.

Puzzling is the fact that while renal embolism produces hypertension in some patients, in others it does not, or at least not to an unequivocal degree.

3 Goldblatt H, Lynch J, Hanzal, R F and Sumner W: Studies on Experimental Hypertension. Production of Persistent Hypertension by Means of Renal Ischemia. J Exp Med 59: 347 (March) 1934.  
4 Page I H: A Method for Producing Persistent Hypertension in Cellophane Science 89: 273 1939.

dilemma is the same one that occurs in connection with all forms of unilateral renal disease that may produce hypertension. Thus, since the original publication of Butler,<sup>5</sup> it has been known that sometimes unilateral pyelonephritis results in hypertension, as proved beyond civil in some cases by the return of the blood pressure to normal after nephrectomy, but in the vast majority of instances of unilateral pyelonephritis hypertension does not result. The conditions still remain to be formulated which determine whether or not in man a unilateral impediment to renal blood flow elevates the blood pressure. Their formulation is of urgent practical importance because in many cases of hypertension associated with unilateral pyelonephritic or hydronephrotic renal disease, nephrectomy has not been followed by any improvement in the hypertension. Among the factors that may be concerned in deciding whether or not a unilateral impediment to renal blood flow produces hypertension are the following:

(a) *The ratio of the partially ischemic but still functioning renal parenchyma to the total mass of functioning kidney tissue.* Recent experimental work suggests that whether or not hypertension occurs in association with a unilateral renal lesion depends on the balance between the precursor pressor substance (renin) formed in the ischemic renal parenchyma and the ability of the intact kidney tissue either to neutralize this substance by the elaboration of an antipressor body or to destroy or excrete it. In accord with this view hypertension seems to result from renal embolism only when a large mass of the kidney is rendered ischemic.

(b) *The individual predisposition to hypertension.* Clinical and statistical investigations of recent years have demonstrated that in the large majority of instances so-called essential hypertension develops in persons of the sthenic constitutional habitus with an inherited familial predisposition to high blood pressure. At least a high proportion of these persons pass through a prehypertensive stage of many years' duration, during which the blood pressure is most of the time within normal limits but in which the liability to hypertension is demonstrated by an abnormally great response to the cold pressor test of Hines and Brown<sup>6</sup> or the precipitation of transitory hypertension by such emotional stimuli as an insurance examination. It would appear probable that the occurrence of unilateral renal disease in a person who has a hereditary predisposition to essential hypertension but who is still in the prehypertensive stage is especially apt to evoke a rise in blood pressure. I have seen a number of patients with hypertension following unilateral pyelonephritis or hydronephrosis who seemed to have this pathogenesis. Likewise, it seems probable that a large renal embolism would be especially likely to produce hypertension when affecting a person with a hereditary predisposition to essential hypertension. It should be remembered that this hereditary predisposition is extremely common, for almost one quarter of all deaths over the age of 50 are due to hypertensive disease.

(c) *The general condition of the patient.* This may militate against the development of hypertension. Especially important in this regard is the presence of fever. It has long been known that during fever established hypertension may fall. This drop in blood pressure

has been assumed to be due to widespread arteriolar dilatation. The recent investigation of Smith and Goldring and their colleagues<sup>7</sup> indicate that at least some pyrogens produce a remarkable increase in renal blood flow, and fever would therefore be expected to be especially potent in counteracting hypertension of renal origin. It may well be that the presence of fever explains the great rarity of hypertension following even massive renal emboli in subacute bacterial endocarditis. Another important factor in determining the occurrence of hypertension is doubtless the necessity for a functional capacity of the circulation adequate to maintain a high blood pressure. The terminal fall in blood pressure in cases 3 and 4 was doubtless due to the failure of the circulation.

Excretory insufficiency of the kidneys plays no part in the production of the hypertension due to renal embolism. Only in patient 4, the 1 patient in whom the embolism was bilateral, did significant azotemia develop. That renal embolism can produce hypertension without seriously impairing the excretory accomplishment of the kidney would be anticipated in the light of the observations on experimental hypertension, in which appropriate clamping of the renal arteries produces elevation of the blood pressure without evident impairment of excretion.

The appearance of hypertension may be of diagnostic help in the sometimes difficult differentiation of renal embolism from such conditions as splenic or pulmonary infarction or diaphragmatic pleurisy. But it should be remembered that unequivocal hypertension does not occur in association with all large renal emboli. A fact perhaps worthy of reiteration from the diagnostic point of view is that massive infarction of the kidney may be present even though the urine contains only rare red blood cells; it is presumably due to suppression of the function of the infarcted kidney.

#### SUMMARY

Hypertension may result from embolism of one or both main renal arteries.

#### ADDENDUM

CASE 5—May 13 1942 I saw with Dr M. F. Stemberg another patient in whom he had observed the development of hypertension due to renal embolism. This man had had a myocardial infarction several years previously. His blood pressure for two years had been less than 130 mm systolic and 70 mm diastolic. In December 1941 and March 15 1942 he had emboli to the right kidney without change in blood pressure. April 19 1942 he had an embolism to the left renal artery. Following this his blood pressure rose to 185/100 and has remained at about this level to the present writing (May 20 1942).

7 Goldring W., Chasis H., Ranges H. A., and Smith H. W. Effective Renal Blood Flow in Subjects with Essential Hypertension. *J. Clin. Investigation* 20: 637 (Nov.) 1941.

**Public Opinion**—Public health to keep down epidemics education for jobs, an acceptable dietary standard (enough bulk and variety to keep people healthy) are social objectives that are widely approved. Opposed are the colossal costs, the growing dependence of millions of people on public money, the sacrifice of initiative and resourcefulness, the continued breeding of the unfit too little checked by existing sterilization laws. Public opinion is required not on these things as separate items one by one but as related items. Public opinion is therefore hard to form. The relation of item to item rather than the items by themselves may be the critical part of the business. The worth of a man is also a part of it and how shall we determine worth?—Bowman Isaiah. *Enduring Purpose Assn. Int. Coll. Bull.* 26: 195 (May) 1940.

5 Butler A. N. Chronic Pyelonephritis and Arterial Hypertension. *J. Clin. Investigation* 16: 889 (Nov.) 1937.

6 Hines E. A. and Brown G. E. The Cold Pressor Test for Measuring Reactibility of Blood Pressure. *Am. Heart J.* 11: 1 (Jan.) 1936.



AN EVALUATION OF RHEUMATIC  
NODULES IN CHILDREN

A CLINICAL STUDY OF 167 CASES

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Subcutaneous rheumatic nodules were first described by Wells<sup>1</sup> in 1812. In reporting a case of "rheumatism of the heart" he said:

Many of the tendons of the superficial muscles in this patient were studded with numerous small hard tumors, an appearance I have observed only in one other person, a thin and feeble man of 41 years who also labored under rheumatism.

In 1875 Meynet<sup>2</sup> gave a clear description of rheumatic nodules occurring in a boy of 14 years who was 1 with rheumatic heart disease. The first comprehensive report on rheumatic nodules was that of Barlow and Warner<sup>3</sup> in 1881. Their study comprised 27 patients with rheumatic nodules. They described the number, size, location and duration of the nodules. They emphasized the fact that of the 27 patients 26 had a definite mitral murmur and the remaining 1 had a "murmurish first sound." Eight patients died. This presentation of the place of subcutaneous nodules in the rheumatic syndrome remains a classic after sixty years. Later English writers continued to observe and record the occurrence of nodules in a fairly large percentage of cases of severe rheumatic fever. Observers in our own country failed to find rheumatic nodules with anything like the same frequency with which they were detected in England. Holt,<sup>4</sup> who was familiar with the work of Barlow and Warner, stated in the first edition of his textbook, published in 1897:

They are certainly not common in this country, notwithstanding that I have made it a rule to examine rheumatic patients for them, I have seen them but seldom, and they have been marked in only two or three cases. Thus, I think, has also been the experience of most observers in New York. From published reports, however, they appear to be much more frequent in England.

During the following twenty years the same opinion was voiced by other leading American pediatricians. In 1919 Brennemann<sup>5</sup> challenged this view. He said:

In the last five years since we have been especially interested in these nodules and have really looked for them we have become increasingly convinced that they occur in our cases quite as frequently as they do in an equal number of similar cases of rheumatism in England.

Not only did his paper serve to call attention to the frequency of nodules, but, by giving the most accurate clinical description of nodules which we have found anywhere, he taught other observers how to identify them. More recent studies in many clinics have established the fact that rheumatic nodules are frequently found wherever severe rheumatic fever occurs.

It is now generally conceded that subcutaneous nodules are pathognomonic of rheumatic fever, that they are usually associated with severe rheumatic heart disease and that the prognosis in instances in which they occur is always uncertain. In spite of the numerous observations which have served to establish the place of nodules in the rheumatic series, there are few detailed reports in a large number of cases as to their incidence, location, number, duration, relationship to other rheumatic phenomena and prognostic significance. The privilege of working in a large and active children's heart clinic, where hospital facilities are available for the seriously sick children, has given us the rather unique opportunity of making careful clinical studies on a large number of patients.

Our material comprised 167 children who exhibited rheumatic nodules. They were for the most part house patients at the Children's Memorial Hospital. Some were seen at St. Luke's Hospital, and a few were observed in the outpatient clinic at both institutions. All were observed within the past ten years, and all were seen personally by one of us.

Of the group of 167 patients, 86 were boys and 81 girls. This contrasts sharply with the sex incidence of our total group of patients with rheumatic fever and chorea, in which girls exceeded boys in a ratio of 1.35:1. Findlay,<sup>6</sup> in a series of 73 cases of rheumatic nodules, also found the proportion of boys to girls relatively high, being 1.13 in cases of rheumatic nodules, as compared with 1.18 in the entire rheumatic group.

The age incidence in our group showed a close parallelism to the age incidence for rheumatic infection in general. Ages at the time of onset of rheumatic nodules were: 2 years, 2 cases; 3 years, 4 cases; 4 years, 4 cases; 5 years, 17 cases; 6 years, 18 cases; 7 years, 20 cases; 8 years, 29 cases; 9 years, 29 cases; 10 years, 21 cases; 11 years, 12 cases; and 12 years, 11 cases.

Rheumatic nodules occur most noticeably over the bony prominences of the joints of the extremities, but they are by no means limited to these locations. In this series of cases we have seen them over the elbows, knees, scalp, knuckles, fingers, ankles, spine, toes, dorsum of the feet, wrists, scapula, sternum, ribs, clavicle and iliac crest and along the tendons of the muscles above the wrist and above the malleoli and of the hamstring muscles. There were, however, certain favorite locations. The most frequent site was the elbows, nodules occurring in this location in 117 of the 167 cases. They were present on the knees in 82 instances, on the scalp in 50, on the knuckles in 50, about the malleoli in 47 and on the vertebral spines in 46. When numerous nodules were present they were usually widely distributed, whereas when only a few nodules were present they were likely to be limited in their distribution. In 26 cases they were found only on the elbows, in 8 only on the spine, in 4 only on the occiput and in 2 only on the knees. In 1 instance each the location was the wrists, knuckles and ankles.

Barlow and Warner,<sup>3</sup> in their original article, called attention to the frequent symmetrical distribution of nodules on the extremities. This point has seldom been mentioned in the recent literature, though it is worthy of emphasis. Thus, if nodules appear on one elbow, they are usually seen on the opposite elbow, and often in an identical location. They may not appear at exactly the same time, but, when a nodule or a crop of nodules

This study was aided by the Harold A. Bachman Memorial Fund. From the Cardiac Service of the Children's Memorial Hospital and the Pediatric Heart Service of St. Luke's Hospital.

1 Wells, W. C. On Rheumatism of the Heart, *Tr. Soc. for Improvement of M. & Chir. Knowledge* 3: 373, 1812.

2 Meynet, P. Rhumatisme articulaire subrugi avec production de tumeurs multiples dans les tissus perrarticulaires et sur le périoste d'un grand nombre d'os, *Lyon med.* 20: 495, 1875.

3 Barlow, Thomas, and Warner, Francis. On Subcutaneous Nodules Connected with Fibrous Structures in Children the Subjects of Rheumatism and Chorea, *Seventh Internat. M. Cong.* 4: 116-128, 1881.

4 Holt, L. Emmett. The Diseases of Infancy and Childhood, New York, D. Appleton & Co., 1897.

5 Brennemann, Joseph. The Incidence and Significance of the Rheumatic Nodules in Children, *Am. J. Dis. Child.* 18: 179-186 (Sept.) 1919.

6 Findlay, Leonard. The Rheumatic Infection in Children, New York, William Wood & Co., 1932.

seen in a given location the opposite extremity should be carefully searched in the same region. Thus in 89 of our cases nodules were found in identical locations on the right and left extremities. They were for the most part symmetrical in 26 others.

The duration of nodules is difficult to determine accurately. In the first place the exact time of appearance is uncertain unless the patient is inspected every day. Even if this is done there is often uncertainty as to whether a slight elevation which one observes is actually a nodule until it has been watched for several days. We have however seen sizable nodules which have apparently appeared overnight. The exact time of disappearance is as uncertain as the onset. Moreover in the presence of several nodules in close proximity the fate of the individual nodule is not easy to follow. We can only say that some nodules have disappeared within a few days whereas others have persisted for months. The duration of crops of nodules as opposed to the individual nodule may be much longer. We had 1 case in which nodules were exhibited continuously over a two year period and several in which they persisted for more than a year.

The number of nodules in the individual case varied widely. In many instances, particularly in our earlier cases, the exact number was not stated, the number being designated as few or many. In 67 cases the number was recorded and ranged from a single nodule to 108 nodules. In 15 cases 20 or more were present at one time and in 7 of these there were more than 50.

Eighteen patients had one or more recurrences of rheumatic nodules. We were interested to ascertain whether the nodules followed a pattern similar to that of the original attack. We found no such relationship. In location, number and duration the nodules showed considerable variation from those in the first attack.

The relationship of rheumatic nodules to other rheumatic phenomena lends to them their chief importance. It is significant that in every 1 of the 167 cases other evidence of rheumatic fever was present. Chorea occurred in 18 cases, and joint pains in 144 cases during the period in which nodules were present. Definite signs of heart disease were found in 163 cases, or in all save 4 of the entire group. This is the outstanding fact in connection with rheumatic nodules. It is generally taught that heart disease is invariably present when nodules are discovered. This may be true, though we were unable to demonstrate its presence in 4 of our cases. Of the 163 cases of definite cardiac involvement, mitral damage was found in all. Aortic insufficiency was observed in 38 instances. A pericardial friction rub was encountered in 30. Both by physical and by roentgenographic examination, cardiac enlargement was detected in practically all cases, and in the majority it was well defined. In short, the physical and roentgenologic findings indicated in most cases a severe degree of cardiac damage.

Because of the severity of the cardiac lesions in the presence of rheumatic nodules, it is obvious that these nodules imply a serious prognosis. In this group of 167 patients 52 are known to be dead, a mortality of 31 per cent. It is interesting to recall at this point the mortality in Barlow and Warner's<sup>3</sup> series of cases published in 1881. Of their group of 27 patients, 8 died, a mortality of practically 30 per cent. Doubtless the close approximation of the mortality percentages in the two groups of patients is largely accidental, yet we could not but be struck by the fact that these patients studied in England sixty years ago were apparently closely

comparable to our own in the seriousness of their cardiac lesions. The mortality rate of our patients with nodules was practically twice that of our entire series of patients with rheumatic heart disease. Forty-eight died of congestive heart failure, 2 died of bacterial endocarditis and 2 died suddenly without signs of advanced heart failure. Nodules were present at the time of death in 43 instances.

It has often been stated that the number of nodules is significant in prognosis, the greater the number the more serious the outlook. We have not found this to be true. The number of nodules averaged no higher in those who succumbed than in those who survived. As a matter of fact the 2 children who had the greatest number of nodules, 105 and 108, made excellent recoveries from their active infection and are getting along comfortably at the time of writing.

From the practical standpoint, nodules may be said to occur in a fairly characteristic clinical setting. They usually arise days or weeks after the onset of a rheumatic episode in which protracted infection is present, in which there is evidence of cardiac damage, usually severe in type, as shown by signs of valvular damage, cardiac enlargement and often pericarditis. Low grade fever is the rule, though the temperature may be normal for weeks at a time. The patient is pale and waxy in appearance. He seems fatigued, the appetite is poor, and signs of congestive heart failure are frequently present. The course may continue relentlessly downhill to a fatal termination. When recovery occurs, improvement is slow and many months usually elapse before convalescence is established. The disappearance of nodules does not necessarily indicate the cessation of active infection. Their continued presence, particularly when new nodules are appearing from time to time, is good evidence that the rheumatic process is active. We have encountered a few patients who showed all the signs of convalescence, including a normal sedimentation rate, before the complete disappearance of the nodules.

In a consideration of rheumatic nodules in relation to prognosis, something should be said on the negative side. Though the presence of nodules usually signifies severe rheumatic infection, the absence of nodules does not necessarily imply a mild type of infection. Indeed, in the case of the acute fulminating type, in which death occurs within a few weeks of the onset, nodules are likely to be absent. It is in the severely infected child whose illness is protracted that the rheumatic nodule is prone to appear.

#### SUMMARY

- 1 Of 167 children with rheumatic nodules, 86 were boys and 81 were girls.
- 2 The age incidence of patients with nodules closely paralleled the age incidence in the group with rheumatic infection in general.
- 3 Nodules were found in many regions the most frequent locations being the elbows, knees, scalp, knuckles, malleoli and vertebral spines.
- 4 Nodules on the extremities tended to be symmetrical in their distribution.
- 5 The duration of nodules varied from a few days to several months.
- 6 Other rheumatic phenomena were present in every case.
- 7 Rheumatic heart disease was found in 163 cases.
- 8 Fifty-two patients (31 per cent) died.
- 9 The number of nodules in the individual case was not found to be important in determining the prognosis.

## DEATH FROM ASTHMA

## A WARNING

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AND

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Miss V. S., aged 17, seen in September 1940, had asthma of thirteen years' duration. It was perennial and was present every day but was worse in winter. She had had many years of treatment. As is usual with this type of asthma, the etiologic factors were multiple, the basic condition being intrinsic, associated with long standing sinus infection but exaggerated by extrinsic factors such as sensitization to house dust and feather dust.

Miss S. was hyposthenic and undernourished. The therapeutic program consisted in improvement of her general condition and increasing the allergic tolerance with injections of the appropriate extrinsic allergens and an autogenous vaccine. Treatment covered the interval from September 1940 until her death in 1942. During this time her condition was about 50 per cent improved. She was usually quite free in the daytime, having mild attacks each night frequently requiring one injection of epinephrine and with some exacerbation during the catamenia. In fact she improved to such a degree that she married in May 1941. She had three severe attacks of several days' duration occurring in February, August and November 1941 and accompanying acute respiratory infections. During these attacks she required epinephrine hourly or more often and at times became refractory to it. Fortunately, when she became epinephrine fast she responded to intravenous aminophylline.

On Feb. 16, 1942 she was having a fourth severe attack in which epinephrine was no longer effective, but she was still well enough to come to the office, requesting an injection of aminophylline. This relieved her temporarily, but the following day asthma again became severe. The family physician was called. An injection of morphine was given. Her respiration fell to 4 a minute and she died within a short time.

There is no doubt that this patient was suffering from very severe asthma, but she had had three attacks equally severe or nearly so during the period of observation from which she had recovered.

The danger of opiates in intractable asthma and status asthmaticus is widely recognized among allergists, who have attempted to disseminate this information in their writings. For several years every consultation report concerning an asthmatic patient, sent from our office, has contained a cautionary paragraph concerning the dangers of morphine. The number of asthmatic patients reporting for allergic study who state that morphine has been given them for acute attacks indicates the need for special emphasis on this subject.

Death from acute intractable asthma is quite rare. We have observed 8 such deaths among the several thousand asthmatic patients whom we have examined in the last twenty years.

CASE 1—A woman in her fifties had severe asthma (not status asthmaticus) and valvular heart disease with decompensation. Death was due to the combination of circulatory and respiratory factors and was not associated with the administration of opiates.

CASE 2—A woman after several quiescent months had a severe acute attack of asthma. She died within an hour after the second dose of  $\frac{1}{6}$  grain (0.01 Gm.) of morphine given her by her husband. She had been acutely ill less than twenty-four hours.

CASE 3—This patient had had intractable asthma for two years. Receiving no great benefit from allergic therapy, she consulted another physician, who gave her digitalis, presumably on the theory that after such long-continued asthma there must be some resultant heart strain. There was no decompensation. At autopsy the heart was found to be smaller than normal, "contracted into a small mass," according to the report of the pathologist.

A dilated heart delivers reduced minute volume of blood into the vessels. Digitalis increases muscle tone, and as the heart approaches normal the minute volume increases, resulting in greater circulatory efficiency. But digitalis given to a normal size heart further contracts it, resulting again in diminished output, thus further impairing oxygen delivery to the tissues. This is particularly harmful to an asthmatic patient who is already anoxic.

CASE 4—A man aged 23, suffering from severe recurrent asthma and generalized dermatitis, had improved under allergic and dermatologic therapy and was sojourning in Florida when a severe acute asthmatic attack developed. The local physician gave him  $\frac{1}{6}$  grain (0.004 Gm.) of dilaudid hydrochloride. The report concerning his death four hours later stated that "after the injection he went to sleep and slept until some one realized that he wasn't breathing any more."

CASE 5—A married woman aged 26 had had incessant attacks of asthma for five years. She had had a long period of treatment in the Johns Hopkins Protein Clinic, then by a competent allergist in Washington, D. C., followed by five months of treatment by us. The cause of death was unknown, but from the nature of the symptoms and the fact that she had been most despondent suicide was suspected. Autopsy could not be obtained.

CASE 6—The patient had typical severe status asthmaticus which was not responsive to epinephrine, aminophylline, oxygen or avertin with amylene hydrate. The hospital intern had given her two injections of morphine,  $\frac{1}{4}$  grain each (0.016 Gm.) the day before her death. We feel that the interval is rather long to implicate morphine, but morphine certainly did not help her, and her condition steadily grew worse. Permission for autopsy was not granted.

CASE 7—An elderly woman in status asthmaticus had failed to respond to the customary measures of treatment. We first saw her but a short time before her death. Arrangements were quickly made for bronchoscopy in the hope that a plug of mucus might be found, but the patient died in the operating room before bronchoscopy could be started.

This is of interest because when there are obstructing plugs causing status asthmaticus bronchoscopy may be life saving. Not long before, bronchoscopic treatment of a patient with a similar condition, apparently moribund, had resulted in prompt recovery. The patient's asthma was then treated allergically and she has remained nearly free during the intervening four years. The latter case helps to answer the question which might have been raised had bronchoscopy actually been started in case 7, as to whether the manipulation might have caused death.

The eighth case is the one described in the opening paragraphs.

## COMMENT

The administration of opiates for severe asthma is definitely contraindicated on two counts. First, to the person fighting for his breath and trying to get enough air to prevent anoxia, a drug which depresses the central nervous system, including the respiratory

center increases the difficulty. Second, morphine is a parasympathomimetic drug, exerting a slight but definite bronchospastic effect. This is precisely what one is trying to avoid in the treatment of asthma. We recognize that many asthmatic patients receive injections of opiates without serious consequences but would emphasize that the sicker the patient is, the greater is the risk.

Opiates should be rigorously avoided in the treatment of severe asthma and especially so when other drugs, such as the ephedrine derivatives, epinephrine and aminophylline are far superior. Even when these fail, morphine and its derivatives should not be used.

Supplementary drugs such as digitalis should not be employed unless the need for them has been clearly established.

Bronchoscopy may occasionally be life saving.  
201 West Franklin Street

## Clinical Notes, Suggestions and New Instruments

### SEVERE ANGIOEUROTIC EDEMA FOLLOWING DIETHYLSTILBESTROL THERAPY

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Ever since its recent release by the Food and Drug Administration diethylstilbestrol has enjoyed wide popularity among physicians as well as the public. Its real value has been attested by numerous clinical and experimental studies.<sup>1</sup> In view of the fact that toxic manifestations have already been reported,<sup>2</sup> a word of caution seems in order.

Toxic reactions reported were nausea, vomiting, abdominal distention and cramps after meals, anorexia, diarrhea, vertigo and paresthesias. Other toxic manifestations observed were cutaneous rashes such as diffuse brawny erythema and pruritic papular and macular eruptions.

In this paper we present a hitherto unreported toxic reaction to diethylstilbestrol, namely a severe and alarming form of angioneurotic edema.

#### REPORT OF CASE

Mrs. A. H., aged 53, appeared at the office of one of us (W. S.) on Nov. 21, 1941 with complaints of hot flushes, nervousness, palpitation and insomnia. The symptoms dated back three years, when she had stopped menstruating but recently they have increased in intensity. The past history was insignificant, and in particular there was no history of previous allergic manifestations such as hay fever, asthma or urticaria. Physical examination was entirely negative except for a moderately elevated arterial blood pressure of 160 systolic and 95 diastolic and a slightly accentuated aortic second sound. The heart was not enlarged, the action was regular and rhythmic and no murmurs were heard. Counts of the white and red blood corpuscles and urinalysis were normal.

A diagnosis of menopausal syndrome was made, and diethylstilbestrol was prescribed 0.5 mg. to be taken nightly at bedtime. No other prescription was given.

Six days later the patient returned to the office and stated that she felt much better in general but that for the past twenty-four hours she had noted a painless swelling of the right wrist. Examination revealed pitting edema of the

right dorsum manus. Because of the possibility of a traumatic accident a roentgenogram was taken and showed no evidence of a pathologic condition. Conservative measures were recommended and the patient continued with diethylstilbestrol medication.

The next day the patient reported by telephone that the swelling of the right hand had subsided considerably but that a similar painless edema had suddenly appeared on the left dorsum pedis. Although the possibility of an allergic edema was then considered the situation was not deemed serious enough to warrant immediate attention, and the patient was advised to appear at the office the next morning.

The same night, however, one of us (W. S.) was frantically summoned to the patient's home. The picture then indeed seemed alarming. The patient had retired without any discomfort, she suddenly awakened at 2 a.m. in great distress. There was extensive edema and eversion of both the upper and the lower lip. The edema extended well into the submaxillary and lateral cervical regions. The mouth could be opened only with great difficulty, and the tongue appeared swollen and enlarged. There was considerable cyanosis of the face and a slight laryngeal stridor was audible.

In view of the possibility of an impending edema of the glottis, the patient was immediately hospitalized. Calcium gluconate 15 grains (1 Gm.) was administered intravenously, repeated after two hours and again after six hours. Epinephrine was not given because the blood pressure had risen to 200 systolic and 100 diastolic, but ephedrine  $\frac{1}{8}$  grain (0.024 Gm.) was given at four hour intervals, as soon as the patient was able to swallow.

The alarming picture subsided rapidly, and the patient made an uneventful recovery. After twenty-four hours the edema had subsided, with the exception of some swelling of the lower lip and the submaxillary region, where it persisted for several days longer.

In order to ascertain, if possible, the etiologic relationship between the angioneurotic edema and diethylstilbestrol medication the following cutaneous tests were performed:

1. Patch tests over the sternum with diethylstilbestrol in 0.85 per cent saline solution were negative after forty-eight hours, as well as the controls (of plain saline solution).

2. Scratch tests of the same solution on the left forearm produced a faint redness and slight edema after thirty minutes, whereas the saline controls remained unaffected.

3. Intradermal tests on the right forearm of 0.1 cc. of a diethylstilbestrol solution of 1:10,000 in 0.85 per cent saline solution produced a definite redness and nodulation measuring 1 cm. in diameter at the height of the reaction at forty-eight hours. Intradermal tests over the right forearm of 0.1 cc. of diethylstilbestrol solution of 1:2,000 in 0.85 per cent saline solution produced a strong reaction with considerable pain, edema, nodulation, pseudopod formation and erythema measuring 3 cm. in diameter at the height of the reaction at from eight to twenty-four hours. The reaction gradually disappeared during the next two days.

#### SUMMARY AND CONCLUSIONS

Available evidence indicates that diethylstilbestrol, an effective synthetic estrogen, is being widely used, perhaps partly because of the publicity given this drug in the lay press. Toxic reactions have already been described. The present report deals with a severe angioneurotic edema of the face and neck which appeared after a six day course of 0.5 mg. of diethylstilbestrol daily. Danger of edema of the glottis necessitated hospitalization.

The etiologic relationship between diethylstilbestrol medication and the angioneurotic edema is believed confirmed because of a strongly positive cutaneous reaction to diethylstilbestrol, because of the absence of other possible allergic factors in a hitherto nonallergic person and finally, because of the complete disappearance of symptoms following cessation of diethylstilbestrol.

104 South Michigan Avenue

1. Dodds, E. C., Lawson, W. and Nohle, R. L. Biological Effects of the Synthetic Estrogenic Substance 4,4'-dihydroxy Alpha, Beta Diethylstilbene. *Lancet* 1: 1389 (June 18) 1938. Kellar, R. J. and Sutherland, J. K. Clinical Experiences with New Synthetic Estrogen Stilbestrol (Diethylstilbestrol). Report to Therapeutic Trials Committee of Medical Research Council. *J. Obst. & Gynaec. Brit. Emp.* 46: 1 (Feb.) 1939. Shorr, Robinson and Papanicolaou.

2. Shorr, Ephraim, Robinson, F. H. and Papanicolaou, G. N. A Clinical Study of the Synthetic Estrogen Stilbestrol. *J. A. M. A.* 113: 2312 (Dec. 23) 1939.

APLASTIC ANEMIA DUE TO SULFATHIAZOLE  
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The protean toxic manifestations of the sulfonamide group of drugs are generally well known and have recently been summarized by Long and Bliss<sup>1</sup> and Long, Haviland, Edwards and Bliss.<sup>2</sup> The hematologic changes have largely fallen into two main groups, namely agranulocytosis and hemolytic ane-

TABLE 1—Hematology

|        | Hemoglobin<br>Gm | Red Blood Cells<br>Millions | Reticulocytes<br>per Cent | Hematocrit,<br>per Cent | White Blood<br>Cells | Polymorphonuclears,<br>per Cent | Lymphocytes,<br>per Cent | Monocytes per<br>Cent | Platelets Smears | Blood Transfu-<br>sion Cc | Liver Extract<br>Cc | Pentnucleotide<br>Cc |
|--------|------------------|-----------------------------|---------------------------|-------------------------|----------------------|---------------------------------|--------------------------|-----------------------|------------------|---------------------------|---------------------|----------------------|
| Oct 12 | 5                | 1.71                        |                           |                         | 1,600                | 8                               | 88                       | 4                     | None             |                           |                     |                      |
| 13     |                  |                             | 0.8                       |                         |                      |                                 |                          |                       |                  | 100                       | 5                   | 40                   |
| 14     | 5.5              | 1.63                        |                           | 14                      | 1,620                | 20                              | 65                       | 13                    | None             | 500                       | 5                   | 40                   |
| 15     | 6.5              | 1.50                        | 5                         | 18                      | 3,100                | 17                              | 45                       |                       | Rare             | 500                       | 5                   | 40                   |
| 16     |                  | 2.67                        |                           |                         | 8,600                | 59                              | 30                       | 1                     | None             | 500                       | 5                   | 40                   |
| 17     | 9.0              | 2.33                        |                           |                         | 8,400                | 61                              | 37                       | 2                     | Rare             | 500                       | 5                   | 40                   |
| 18     | 10.5             | 3.00                        |                           | 32                      | 9,300                |                                 |                          |                       |                  | 250                       | 5                   | 10                   |
| 20     | 11               | 2.51                        |                           |                         | 13,000               | 64                              | 35                       | 1                     | Rare             |                           |                     |                      |
| 22     | 11               | 2.95                        | 7                         |                         | 14,600               | 69                              | 26                       | 2                     | Rare             |                           |                     |                      |
| 27     | 9.5              | 1.57                        |                           |                         | 9,000                | 72                              | 21                       | 1                     | Moderate         | 250                       |                     |                      |
| 30     | 9.5              | 1.65                        |                           |                         | 8,900                | 74                              | 22                       | 2                     | Moderate         | 500                       |                     |                      |
| Nov 3  | 7.0              | 1.77                        |                           |                         | 20,500               | 38                              | 55                       | 7                     | Rare             |                           |                     |                      |

mia Leukemoid reactions are also mentioned Thrombopemic purpura due to sulfathiazole has recently been observed<sup>3</sup> The following case, showing the picture of aplastic anemia following the administration of sulfathiazole, represents the first to be reported in the literature, so far as we are aware

B C, a housewife aged 55, an Assyrian, was admitted to the Long Island College Division of Kings County Hospital on Oct 12, 1941 with a history of fever and malaise of two weeks' duration One year previously the patient was told that she had "infected kidneys" At that time she had a mild febrile course Two weeks before admission she noted the onset of malaise and fever and the temperature varied between 102 and 105 F Four days before admission to the hospital vague nonlocalized abdominal pains appeared Two days later the family physician, having diagnosed pneumonia, prescribed 1 Gm of sulfathiazole every four hours This was administered for two days before her admission to the hospital

TABLE 2—Bone Marrow Studies

| Date                            | 10/14  | 10/20     |
|---------------------------------|--------|-----------|
| Total nucleated cell count      | 40,000 | 150,000   |
| Megakaryocytes                  | 0      | 22        |
| Platelets                       | 0      | Plentiful |
| Segmented polymorphonuclears    | 2      | 8         |
| Nonsegmented polymorphonuclears | 3      | 23        |
| Myelocytes                      | 27     | 10        |
| Myeloblasts                     | 1      | 1         |
| Plasma cells                    | 0      | 2         |
| Lymphocytes                     | 19     | 9         |
| Normoblasts                     | 30     | 41        |
| Erythroblasts                   | 14     | 3         |
| Megaloblasts                    | 1      |           |
| Hematogones                     | 3      | 2         |
| Monocytes                       | 0      | 1         |

On admission the temperature was 102.6 F, the pulse rate 100, the respiratory rate 36 and the blood pressure 110 systolic and 60 diastolic Physical examination revealed that the patient was well developed and obese, she was pale and appeared acutely ill Respirations were shallow and rapid, with slight wheezing Numerous purpuric spots were noted over the

entire body There was a slight icteric tint to the skin The conjunctivas and scleras were pale and slightly icteric No petechiae were noted No aural discharge or tenderness was present There was no nasal bleeding The mouth was edentulous Ulceration of the gums was not present The pharynx was not inflamed The neck revealed no adenopathy and no venous distention Examination of the lungs showed poor expansion bilaterally There was no change in percussion There were numerous fine crepitant inspiratory rales and coarse expiratory wheezes throughout both lungs There was no detectable enlargement of the heart The rhythm was regular and no murmurs were heard The abdomen was obese and distended Moderate tenderness was noted throughout There was bilateral tenderness of the costovertebral angle, more severe on the right than on the left Neurologic examination was negative

The results of laboratory investigations are listed in the accompanying tables

The temperature ranged between 102 and 103 F, slowly dropping to 98 F on the fifth to the sixth day of hospitalization Clinically the patient appeared to improve until the seventh day of her hospital stay (October 18) At that time the temperature rose and she became disoriented There were a few inspiratory rales at the base of the right lung The abdomen was distended but not tender There were red areas on the buttock which

TABLE 3—Urinalysis

|        | Specific Gravity | Reaction | Albumin | Dextrose | White Blood Cells | Red Blood Cells | Casts         | Crystals             |
|--------|------------------|----------|---------|----------|-------------------|-----------------|---------------|----------------------|
| Oct 12 | 1.014            | Acid     | 0       | 0        | 0                 | 0               | Many granular | Sulfathiazole 4 plus |
| 14     | 1.015            | Acid     | 0       | 0        | Few clumps        | 0               | Many granular | Sulfathiazole 4 plus |
| 17     | 1.010            | Acid     | 0       | 0        | Occasional        | 0               | 0             | 0                    |
| 21     | 1.010            | Alkaline | 2 plus  |          | Innumerable       | Occasional      | Few granular  | 0                    |
| 22     | 1.010            | Alkaline | 0       |          | Innumerable       | 0               |               |                      |
| 24     | 1.007            | Acid     | 1 plus  |          | Innumerable       | 0               |               |                      |
| 29     | 1.012            | pH 4.5   | 3 plus  |          | Grossly purulent  |                 |               |                      |
| 30     |                  | pH 5.0   |         |          | Grossly purulent  | 0               |               |                      |
| 31     |                  | pH 5.0   |         |          | Grossly purulent  | 0               |               |                      |

appeared to be due to pressure There was a mild intergluteal erosion A lumbar tap was performed despite lack of signs of meningeal irritation The spinal fluid pressure was 260 mm of water No other abnormalities were found At this time the patient was incontinent and had to be catheterized A specimen of urine contained a large number of pus cells Methenamine and ammonium chloride were administered Despite this and repeated bladder irrigation with boric acid, mild protein silver and 1 5,000 potassium permanganate, the pyuria became worse The temperature ranged between 101 and 104 F During the last week of the patient's life the intergluteal erosion became deeper, with sloughing of the deeper tissues The patient slowly lapsed into coma and died on November 3, twenty two days after admission

At autopsy<sup>4</sup> the most significant gross findings were those of bronchopneumonia Microscopic sections of the brain disclosed several areas of fresh and moderately recent hemorrhage The bone marrow appeared hyperplastic with all the normal cellular constituents present

SUMMARY

The patient presented the typical blood picture of aplastic anemia on admission to the hospital (table 1) Sternal puncture two days later revealed a hypoplastic marrow with depletion of all the cellular components (table 2) With cessation of sulfathiazole administration plus repeated transfusions of blood there was a rapid rise in the number of platelets, the hemoglobin level and the number of red and white cells No new purp

From the Medical Service, Long Island College Division, Kings County Hospital, Dr J Hamilton Crawford, director  
1 Long, P H, and Bliss, Eleanor A The Clinical and Experimental Use of Sulfanilamide, Sulfapyridine, and Allied Compounds, New York, Macmillan Company, 1939, pp 282-287  
2 Long, P H, Haviland, J W, Edwards, Lydia B, and Bliss, Eleanor A The Toxic Manifestations of Sulfanilamide and Its Derivatives, J A M A 115 364 (Aug 3) 1940  
3 Rosenfeld, S Personal communication to the authors  
4 The autopsy was performed by Dr Caspar Burn



spots appeared. Sternal puncture repeated only six days later (table 2) showed a remarkable recovery with an essentially normal differential smear. Megakaryocytes were present in normal numbers. Postmortem sections of the bone marrow showed a moderate hyperplasia with all the usual cellular elements present.

TABLE 4—Blood Chemistry

|        | Urea | Crat<br>inim | Chlorides | Carbon<br>Dioxide | Icteric<br>Index | Sulfathiazole |
|--------|------|--------------|-----------|-------------------|------------------|---------------|
| Oct 11 | 1.5  | 2.7          |           |                   | 9                |               |
| 11     | 1.0  | 6            |           |                   | 11               | 4.5 mg.       |
| 1      | 1.0  | 2.7          |           |                   |                  |               |
| 1      |      |              |           |                   |                  | Too low       |
| 17     | 8    | 0.4          |           |                   |                  |               |
| 20     | 40   | 0            | 4.0       | 15.5              |                  |               |
| 22     | 13   | 1            |           |                   |                  |               |
| 23     | 71   | 1.5          |           |                   |                  |               |
| 24     | 65   | 1.7          | 540       |                   |                  |               |

It is important to note that the aplastic picture was evident after the administration of only 1 Gm of sulfathiazole every four hours for two days a total of 12 Gm. The immediate improvement on cessation of the drug with return of the bone marrow picture to normal indicates that the process is not an irreversible one if discovered early. It is also significant that there was no relapse to the aplastic state even though the patient subsequently died with evidence of sepsis.

224 Ocean Parkway

#### THE INTRAPERITONEAL USE OF SULFATHIAZOLE WITH SPECIAL REFERENCE TO THE PRO- DUCTION OF ADHESIONS

REPORT OF A CASE WITH SECONDARY INTESTINAL OBSTRUCTION

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The intraperitoneal use of sulfanilamide and sulfathiazole to combat infective processes is without question an established procedure. These drugs are most frequently applied in those infections secondary to acute appendicitis.

Sulfanilamide, the most frequently used, is said not to produce peritoneal adhesions. There is considerable evidence to support this view.<sup>1</sup> Several authors express the same conviction concerning sulfathiazole.<sup>2</sup> However, there is evidence<sup>3</sup> that it produces peritoneal irritation in the dog, while sodium sulfathiazole produces dense peritoneal adhesions in the same animal.<sup>3</sup>

A difference of opinion exists on the question of inhibition of wound healing after local implantation of these drugs,<sup>4</sup> but there seems little question that in certain instances this does occur.<sup>5</sup>

My purpose in this communication is to report a case of acute perforative gangrenous appendicitis with peritonitis in which the intraperitoneal use of sulfathiazole was followed by adhesions, intestinal obstruction and secondary operation. In this case implantation of sulfathiazole into the wound was followed by long delayed wound healing and a keloid scar.

#### REPORT OF CASE

A boy aged 10 years had been ill three days when seen on Sept. 23, 1941. The onset and progress during this time had been typical of acute appendicitis. The attack was initiated

by generalized abdominal pain with later localization in the right lower quadrant, nausea and vomiting. Examination revealed a temperature of 101.2 F and 20,600 leukocytes with 90 per cent polymorphonuclears. The abdomen was rigid over the right lower quadrant with exquisite tenderness on direct pressure and also rebound tenderness at McBurney's point.

At operation a gangrenous appendix was found with a small perforation. There was considerable thin purulent exudate about the appendix which was retrocecal in the iliac fossa. The peritoneum was injected but there were no adhesions. The organ was removed in the usual manner with inversion of the stump and 3 Gm of sulfathiazole crystals was sprinkled in the iliac fossa and on the adjacent peritoneum covering the cecum and ileum where the exudate had been abundant. A Penrose drain was inserted to this point and the peritoneum closed tightly around it. The rest of the wound was closed loosely after 2 Gm of sulfathiazole had been sprinkled throughout its entire extent. When he had recovered from the anesthetic he was given 0.5 Gm of sulfathiazole by mouth every four hours.

His convalescence was not remarkable. The drain was removed on the fifth day after discharging copiously, a sero-sanguinous fluid for the first seventy-two hours. Sulfathiazole crystals produced a troublesome bladder irritation for several days. The healing of the wound was retarded and was not complete until the twenty-eighth day. At that time the scar was elevated, very thick ( $\frac{1}{4}$  inch, or 0.6 cm), broad ( $\frac{1}{2}$  inch, or 1.3 cm) and tender.

After his dismissal from the hospital on October 14 he was well for one month when he began to have attacks of severe abdominal cramps. These had become progressively more severe and frequent but not at any time was there definite evidence of obstruction until on December 14 when he had another severe attack associated with nausea and vomiting. There was stormy defeated peristalsis and enemas returned clear. He was operated on immediately and a loop of ileum was found bound down to the parietal peritoneum posterior to the cecum. This produced a sharp kink with obstruction. The omentum was also firmly adherent at several points to the parietal peritoneum, the ileum and the cecum. No adhesions were present except in the area hereafter described. The peritoneum over an area corresponding exactly to that with which the sulfathiazole had been placed in contact was covered with a very fine reddish granular looking tissue. There were areas in which this was 2 by 5 mm thick. The surface had the appearance of pale granulation tissue and was attached to the surface of the peritoneum. The subserosal tissue was not invaded.

All the adhesions were freed, a piece of the abnormal tissue was excised for study and the wound closed without drainage. Microscopic study showed only dense connective tissue with many small blood vessels. There was no evidence of sulfathiazole crystals. The microscopic diagnosis was collagenous connective tissue. This same type of tissue was found in the abdominal scar which was excised at the initial incision. The thick surface scar described before extended through all layers of the abdominal wall, again the area corresponded exactly with the distribution of the crystalline sulfathiazole.

The convalescence was smooth, the wound healed by primary union with a hair line scar and the patient was discharged in excellent condition on the ninth postoperative day. Two months later he was without complaint and in splendid health.

#### COMMENT

It seems reasonable to suppose that the excessive production of fibrous tissue both in the wound and on the peritoneum with its attendant complication was caused by an unusual tissue response to sulfathiazole. He has several other scars which have shown no tendency to keloid formation.

The widespread area involved and the location of adhesions at divergent points but only where the sulfathiazole had been placed seem sufficient reasons to rule out the presence of the single Penrose drain as a causal factor in this unusual peritoneal reaction.

106 East State Street

1 Ravid, I. S., Rhoads, J. E. and Lockwood, J. S. The Use of Sulfanilamide in the Treatment of Peritonitis Associated with Appendicitis. *Ann. Surg.* 111: 53 (Jan.) 1940. Thompson, J. E., Brisson, J. A. and Walker, J. M. The Intra-Abdominal Application of Sulfanilamide in Acute Appendicitis. *Surg., Gynec. & Obst.* 72: 722 (April) 1941. Harrison and Key.<sup>4</sup> Bick.<sup>4</sup> Mueller and Thompson.<sup>2</sup>

2 Mueller, R. S. and Thompson, J. E. The Local Use of Sulfanilamide in the Treatment of Peritoneal Infections. *J. A. M. A.* 115: 189 (Jan. 17) 1942. Anderson, R. K. Sulfathiazole as an Adjunct to Surgery in Advanced Acute Appendicitis. *ibid.* 115: 892 (March 14) 1942. Harrison and Key.<sup>4</sup>

3 Jackson, H. C. and Collier, F. A. The Use of Sulfanilamide in the Peritoneum. *J. A. M. A.* 118: 194 (Jan. 17) 1942.

4 Harrison, S. P. and Key, J. A. Local Implantation of Sulfanilamide and Its Derivatives in Wounds: Its Relation to Wound Healing and to Peritoneal Adhesions. *Arch. Surg.* 44: 22 (Jan.) 1942. Bick, E. M. Topical Use of Sulfanilamide Derivatives. *J. A. M. A.* 115: 511 (Feb. 14) 1942.

5 Ochsner, Alton and Collier, F. A. in discussion on Chemo-therapy. *J. A. M. A.* 115: 199 (Jan. 17) 1942.

## ACQUIRED SENSITIVITY TO SULFONAMIDE DRUGS

JACK NELSON, M.D., NEW YORK

With the growing use of sulfonamide drugs the problem of sensitivity to these drugs is taking on added importance. Besides the reactions which are known to occur one to two weeks following the institution of therapy there are also seen early reactions characterized by fever, chills, rash and pruritus within a few hours after the administration of these drugs and often in response to minute doses. Salvin<sup>1</sup> in 1937 reported a case of such sensitivity to sulfanilamide. In 1939 Thompson<sup>2</sup> described a similar response to sulfapyridine. And in 1940 Davidson and Bullock<sup>3</sup> noted fever with chilliness, erythema, pruritus and conjunctival injection some hours after the administration of sulfamethylthiazole. As far as I am aware, such reaction has not previously been reported with sulfadiazine, presumably because this drug is the most recent addition to the group.

These reactions have been termed "hypersensitivity" or "acquired sensitivity" by most authors. Their nature is as yet

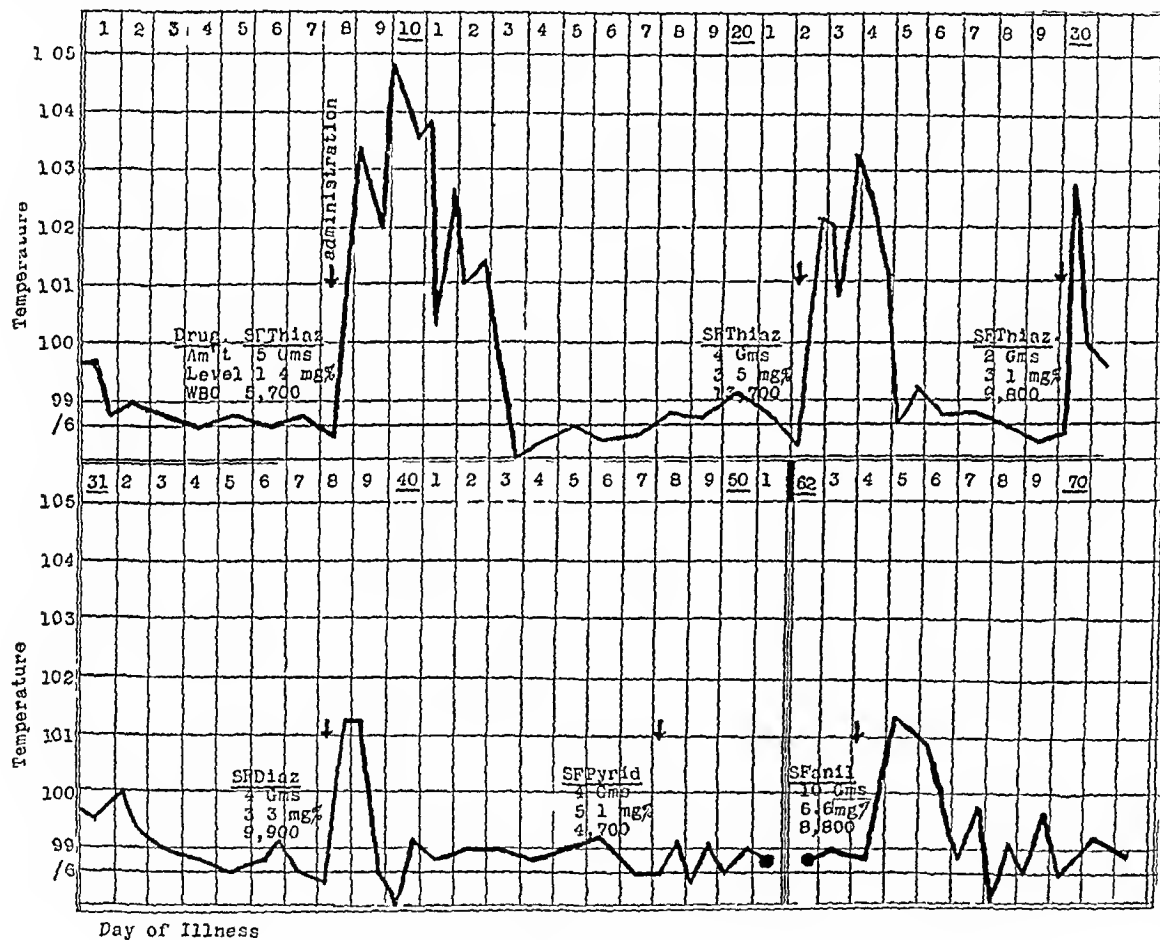
febrile response to the administration of sulfanilamide two years after the original dosage, which had been well tolerated.

Although reports of early reaction are few, there is reason to believe that the condition is far from rare. In an important study, Lyons and Balberor<sup>4</sup> gave two courses of sulfathiazole to each of 49 patients. The first course was uniformly uneventful. However, on administration of the second course (on an average of eight to nine days after the first) 18 of the 49 patients had a prompt febrile reaction, and half of these had chills, weakness and exhaustion. That is, approximately one third of the patients receiving a sulfonamide drug were rendered so sensitive as to interfere with its subsequent administration. This is a fact of great practical importance, particularly in view of the finding that any one sulfonamide derivative may bring about sensitivity to the others of the group. In the case of Davidson and Bullock the use of sodium sulfapyridine was followed by sensitivity to sulfapyridine and sulfamethylthiazole.

A case is reported of acquired sensitivity to sulfonamide drugs, including sulfadiazine, a case which exemplifies some of the problems already discussed.

## REPORT OF CASE

**History**—B. O., a white woman aged 62, was admitted to the hospital on Aug 22, 1941 with a history of hemoptysis for one day. Seventeen years previously there had been a pleuritic pain on the right side. Nine years before there had been hemoptysis of one month's duration. At neither time did she obtain medical attention. In May 1940 a diagnosis of inactive pulmonary tuberculosis was made. There were no further symptoms until January 1941, when the patient began to have hematuria and some dysuria, for which she was readmitted to New York Hospital. The abnormal findings were related mainly to the genitourinary tract, a walnut sized tender nodule was found at the urethral orifice, the urine showed a faint trace of albumin and an occasional pus cell, culture revealed *Escherichia coli* communis, direct microscopic examination of the urine and inoculation of a guinea pig failed to reveal tubercle bacilli. The roentgenogram showed bilateral apical apparently healed



Rise of temperature after administration of various sulfonamide derivatives

unclear. Except for the case of Salvin, in which there was no history of previous ingestion, the early reactions have occurred on repeated administration of the drug, the first course being tolerated either without incident or with fever and rash after eight to nine days. Patch tests and passive transfer have generally been negative, eosinophilia has not been the rule. It is stated that an interval of at least nine days is required after the initial administration for a prompt reaction to appear on repeat dosage. And, on this basis, some consider these reactions to be identical in nature with the drug fever which occurs about the ninth day of continuous administration. As to the duration of the sensitivity, Gallagher<sup>4</sup> reports a

pulmonary tuberculosis, three concentrates of the sputum were negative for that organism by microscopic examination. On the eighth day of hospitalization, cystoscopy revealed inflammation and purulent exudation at the trigone. The urethral caruncle was removed by means of a loop cautery. Postoperatively the temperature rose to 101.4°F, but it fell to normal on the fifth postoperative day. Beginning on that day sulfathiazole was administered for the persistent cystitis, 1 Gm every four hours, until discharge three days later. During this time there was no temperature rise nor any other untoward reaction. The concentration of sulfathiazole in the blood was not measured. The patient asserted that following discharge from the hospital she noted no ill effects, and she remained asymptomatic until the small hemoptysis which occasioned the present admission. There was no past history of any allergy or of any contact with tuberculosis.

**Physical Examination**—The patient was thin. She did not appear acutely ill, and the temperature was normal. The

5 Lyons, R. H., and Balberor, Harry. Development of Febrile Reactions During Second Course of Sulfathiazole, *Ann. Int. Med.* 1941; 19: 19 (March) 1941.

From Bellevue Hospital, service of Dr. J. Burns Amberson.  
1 Salvin, Monte. Hypersensitivity to Sulfanilamide, *J. A. M. A.* 109: 1038 (Sept. 25) 1937.  
2 Thompson, A. R. M. & B. 693. Rashes with Particular Reference to Exanthemata, *Brit. M. J.* 2: 13 (July 1) 1939.  
3 Davidson, Arnold, and Bullock, J. G. M. Acquired Sensitivity to Sulfapyridine and Sulfamethylthiazole, *New England J. Med.* 223: 811 (Nov. 14) 1940.  
4 Gallagher, J. R. Sulfanilamide Drug Fever. Second Attack of Sudden Onset, *New England J. Med.* 221: 132 (July 27) 1939.

important abnormal findings were a few moist rales at the right pulmonary base and impairment of the percussion note below the left clavicle. Pelvic examination revealed slight inflammation at the urethral orifice.

**Laboratory Examination.**—A roentgenogram of the chest showed moderate fibrosis and emphysema with blunting of the left costophrenic sinus and productive nodular infiltration with pleural thickening at the left apex. The urine showed a very faint trace of albumin and 60 to 75 white blood cells per low power field many in clumps. The blood showed 3,500,000 erythrocytes per cubic millimeter, hemoglobin 11 Gm leukocytes 7,600 polymorphonuclears 64 per cent, lymphocytes 31 per cent monocytes 1 per cent and stab cells 3 per cent. The Wassermann reaction was negative the sedimentation rate 42 mm an hour. Sputum concentrates were microscopically negative for tubercle bacilli.

**Course.**—There was no hemoptysis after admission. The patient remained asymptomatic except for some urgency and frequency. The finding of pyuria together with the previous history led to the diagnosis of chronic cystitis and urethritis. Accordingly, on the eighth hospital day sulfathiazole was administered, 5 Gm was given in the course of forty-eight hours. The day following the institution of this therapy the temperature rose precipitously to 103.6 and then to 104.4 F. At this time there were slight nausea and retching, moderate headache with 'swimming' feeling in the head and pronounced malaise. Physical examination was not revealing. The urine was normal but for a very faint trace of albumin the leukocyte count was 5,700 with 66 per cent mature and 29 per cent immature polymorphonuclear cells 3 per cent lymphocytes and 2 per cent monocytes, there were no eosinophils. Urine culture revealed *E. coli* communis. The sulfathiazole was discontinued after a total of 5 Gm had been given. Within twelve hours the feeling of 'fulness and swimming' in the head which had been the most distressing symptom, had cleared, and within two more days the temperature returned to normal. It was felt that we were dealing with a reaction to sulfathiazole by a patient who had previously not displayed such a reaction. The repeated administration of this and other sulfonamide drugs was planned in order to test the degree and extent of this sensitivity. The patient's subsequent course can best be summarized with the aid of the temperature chart.

On the twenty-second hospital day, in the presence of a normal temperature and leukocyte count but with numerous leukocytes in the urine, sulfathiazole was again administered. A total of 4 Gm was given. Six hours after the first dose the temperature abruptly rose to 102.2 F. During this and the following day, in which the temperature reached 103.8 F and the leukocyte count 13,700 with 92 per cent polymorphonuclears and no eosinophils, the patient complained of headache and a "swimming" feeling in the head, nausea and vomiting, and she exhibited a morbilliform rash over the forehead. The blood showed 3.45 mg of sulfathiazole per hundred cubic centimeters. On discontinuance of the drug the symptoms promptly disappeared and the temperature fell to normal on the third day.

On the thirtieth hospital day the administration of 2 Gm of sulfathiazole was followed by an identical reaction after six hours. The blood showed 3.1 mg of sulfathiazole per hundred cubic centimeters.

On the thirty-eighth hospital day 4 Gm of sulfadiazine was administered in divided doses. Within eight hours there was a temperature rise to 101.2 F and a reaction identical with the reactions previously noted but for the absence of rash. The blood showed 3.3 mg of sulfadiazine per hundred cubic centimeters.

On the fiftieth hospital day 4 Gm of sulfapyridine was administered in divided doses. The patient complained of nausea and vomiting of such severe degree that she refused further doses. But she did not have headache, a 'swimming' feeling of the head or any rash and she stated that she did not feel at all as she had felt after the previous drugs. There was no febrile response. The blood showed 5.1 mg of sulfapyridine per hundred cubic centimeters.

On the sixty-fourth hospital day 10 Gm of sulfanilamide was given in divided doses in the course of two days. After twenty-four hours the temperature rose to 101.2 F and the patient manifested symptoms identical with those which had followed sulfathiazole and sulfadiazine except for the absence of rash. The blood showed 6.6 mg of sulfanilamide per hundred cubic centimeters.

No further drugs were administered. The patient remained afebrile and asymptomatic and without change in the pulmonary status till discharge on the seventy-sixth hospital day.

#### SUMMARY

A case was observed of acquired sensitivity to sulfathiazole seven months after an initial course was tolerated without reaction. The sensitivity included sulfadiazine and sulfanilamide. Sulfapyridine was administered without similar reaction, but the prompt withdrawal of the drug precludes definite decision in this regard.

#### COMMENT

Prompt febrile reactions such as those described are not rare. Indeed since many patients have been treated with sulfonamide drugs (often for minor ailments) it is likely that the reaction of acquired sensitivity will be seen with increased frequency. This is a matter of some importance and deserves investigation.

#### FATAL ANURIA FOLLOWING SULFADIAZINE THERAPY

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AND

H. LESTER REED, M.D.

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The literature contains reports on nearly 1,000 patients treated with sulfadiazine. Only 2 instances have been recorded in which urinary suppression followed the administration of this compound. In both cases cystoscopy and pelvic lavage promptly relieved the renal failure.<sup>1</sup>

In contrast to these clinical reports, which suggest a low toxicity of sulfadiazine, observations on experimental animals are less optimistic. Lehr and Antopol<sup>2</sup> found that, in albino rats, sulfadiazine may produce acute precipitation of the free acid in the renal tubules and because of the poor solubility of the drug severe degeneration of the tubular epithelium may result.

Gross, Cooper and Hagan<sup>3</sup> gave sulfadiazine in different doses to mice and rats. Of 70 mice, 15 died following the medication. In one third of all the animals almost all collecting tubules were blocked by crystalline masses. In about one fifth of the animals crystals were found also in the convoluted tubules.

The following case of fatal anuria after sulfadiazine therapy which we observed at St. Francis Hospital is reported to emphasize the fact that sulfadiazine is not as harmless as the preliminary claims made for this new compound would suggest.

#### REPORT OF CASE

R. L. B., a white man aged 29, was admitted to the hospital Jan. 23, 1941, because of fever, cough and pain in the chest. He had been treated at home for two weeks and had received during the last three days 45 grains (3 Gm.) of sulfadiazine daily.

On admission the temperature was 99.6 F., the pulse rate 100 a minute and the respiratory rate 24. The leukocyte count was 9,000 per cubic millimeter and the hemoglobin content 18 Gm. per hundred cubic centimeters. The specific gravity of the urine was 1.020; the reaction was acid. Chemical tests

From the Department of Pathology, St. Francis Hospital.  
1. Thompson, G. I., Herrell, W. E. and Brown, A. E. *Anuria After Sulfadiazine Therapy*. Proc. Staff Meet. Mayo Clin. 16: 699 (Sept. 24) 1941.

2. Lehr, D. and Antopol, William. *Toxicity of Sulfadiazine and Acetylsulfadiazine in Albino Rats with Special Reference to Renal Lesions and Their Significance*. Urol. & Cut. Rev. 45: 335 (Sept.) 1941.

3. Gross, Paul, Cooper, T. B. and Hagan, M. L. *Urolithiasis Medicamentosa Caused by Sulfadiazine*. Am. J. Clin. Path. 11: 4 (1941).

for albumin, sugar and blood were negative. The sediment contained very few crystals of sulfadiazine.

The throat of the patient was red. Numerous coarse rales were audible over both sides of the lungs, especially over the right lower lobe. The patient received 15 grains (1 Gm) of sulfadiazine every four hours. On the next day the leukocyte count was 12,800 per cubic millimeter with 16 per cent stab forms, 60 per cent segmented and 18 per cent lymphocytes. The temperature was 101.2 F and the pulse rate 120. A roentgenogram of the chest showed mottled dense areas throughout the right lung and to a less extent also in the left lung, suggesting bronchopneumonia. The sputum contained many pneumococci. Attempts to type the organisms with the Neufeld method and after mouse inoculation were unsuccessful. In the sediment of the urine many red blood cells were present.

On January 27 an erythema appeared over the whole body. The urinary output during twenty-four hours was only 390 cc in spite of intravenous administration of 2,500 cc of fluid. The concentration of blood urea was 74 mg per hundred cubic centimeters. Sulfadiazine was discontinued and the patient was referred for cystoscopic examination. No urine was found in the bladder. Both ureteral orifices were swollen and hemorrhagic. After the catheters were passed into the renal pelvises dark brown urine was obtained. Both renal pelvises were irrigated with warm distilled water. The first specimens obtained through the catheters had 250 mg of sulfadiazine per hundred cubic centimeters.

On January 29 only a few cubic centimeters of bloody urine was voided. The temperature rose to 107 F, the pulse rate was 144 and the respiratory rate 36. Large liquid stools were passed and there was profuse sweating. The patient became comatose and died ten days after sulfadiazine therapy had been started, twenty-six hours after it had been discontinued.

The total amount of sulfadiazine given during the nine days was 360 grains (24 Gm).

Necropsy was performed by one of us (H L R). The pertinent findings were as follows:

The two kidneys were similar. The right kidney weighed 176 Gm, the left 210 Gm. The capsule stripped easily, leaving a smooth surface. The superficial blood vessels were dilated. The cortex was 8 mm thick, the striations of the pyramids were unusually distinct. Fine, glistening, whitish stippling

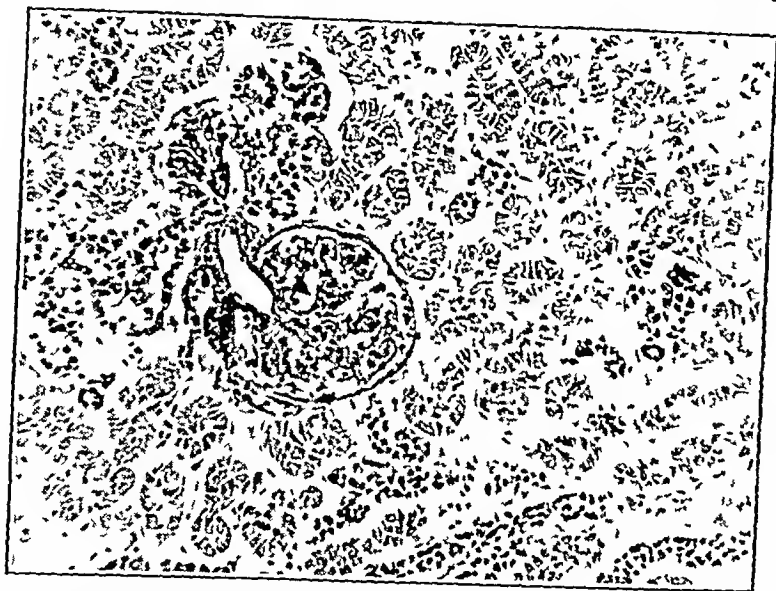


Fig 1—Section of a kidney in a case of fatal anuria following the use of sulfadiazine, severe degeneration of epithelium in convoluted tubules and in ascending limbs of Henle's loops ( $\times 75$ )

was noted in the lower portion of the pyramids outlining the course of the collecting tubules. The renal pelvises and the upper thirds of both ureters were completely filled out with dark coagulated blood. In the blood clots small whitish concretions of sulfadiazine were recognized. There were many petechiae in the mucosa of the pelvises and ureters.

Microscopically most glomeruli appeared normal. In a few tufts capillary thrombi and small hemorrhages were found.

The spaces of Bowman's capsules seemed slightly dilated and several contained granular, light blue stained, albuminous material. The basement membrane in most of the malpighian bodies was thin and the nuclei were well stained. There was widespread injury to the convoluted tubules (fig 1). Their epithelial cells were swollen, many nuclei were unstained, the cytoplasm was vacuolated and stained deep red. Finest hyaline

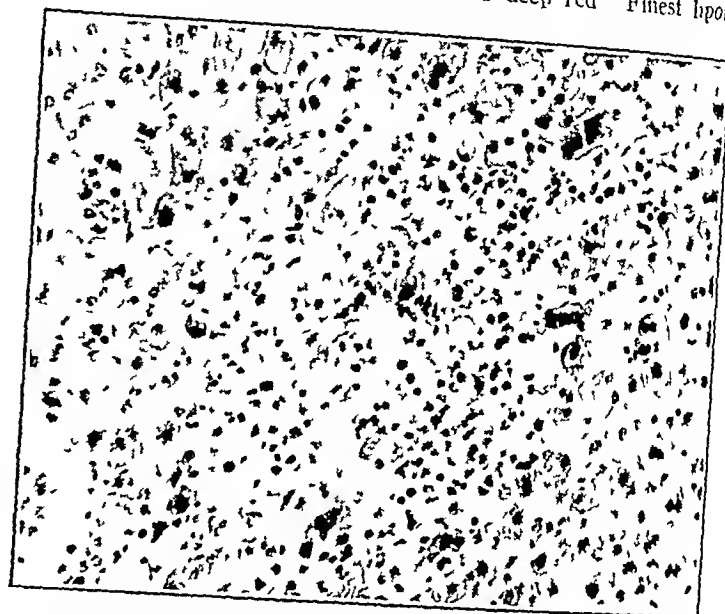


Fig 2—Focal necrosis in the liver following the use of sulfadiazine ( $\times 75$ )

granules could be demonstrated in the tubular epithelium with Sudan stain. The descending limbs of Henle's loops appeared normal, while the thick ascending limbs showed the same severe cellular degeneration as the convoluted tubules. There were hyaline casts and occasionally crystals of sulfadiazine in the lumens of the convoluted tubules. Calcification of degenerated epithelial cells, as described by Lehr and Autopol in experimental animals after sulfadiazine medication, was absent in our case. While in most sections the collecting tubules were of normal structure, some of the terminal portions in the renal papillae showed cystic dilatation. There was desquamation of the epithelium and the lumens contained crystals of sulfadiazine.

The epithelium of the calices and of the ureters was destroyed in many places. Large hemorrhages were found in the subepithelial tissue and plasma cells, lymphocytes and leukocytes were numerous.

Microscopic examination of the liver revealed few small areas of necrosis of the liver cells with round cell infiltration. In the epicardium, edema and infiltration with leukocytes and plasma cells were noted. There was no evidence of interstitial myocarditis as observed by French and Weller<sup>4</sup> after the use of sulfonamide drugs.

The anatomic diagnosis was bilateral bronchopneumonia (pneumococcal), subacute pericarditis, focal necrosis of liver parenchyma, large spleen, severe degeneration of the epithelium of the convoluted tubules and ascending limbs of Henle's loops, cystic dilatation of the terminal portion of the collecting tubules, blood and sulfadiazine concretions in the renal pelvises and ureters, and hemorrhagic pyelitis and ureteritis.

#### COMMENT

The histologic findings in our case are not in accord with the belief of most clinicians<sup>5</sup> that renal failure after sulfadiazine therapy is caused by mechanical blocking of the urinary passages and not by actual tissue damage due to toxicity of the drug. In our case, the most striking alterations were present in the convoluted tubules. The severe degenerative changes that we observed in the tubules were similar to those seen in mercuric poisoning. It is our contention that

4 French A J and Weller C V. Interstitial Myocarditis Following the Clinical and Experimental Use of Sulfonamide Drugs. *Am J Path* 18:109, 1942.

5 Dourmashkin R L and Worton M. Anuria Due to Bilateral Ureteral Impaction with Concretions Following Sulfapyridine in Pneumonia. *New York State J Med* 41:1, (1) 1941.

the histologic study of our case and on experimental observations of Lehr and Antopol that sulfadiazine is a tubular poison and that anuria may follow the use of this drug not from interference with renal drainage but from degeneration of the tubular epithelium. Richards<sup>6</sup> pointed out that poisoning of the tubular epithelium permits water to pass back into the blood by simple diffusion. In this way complete anuria may follow the administration of a tubular poison though filtration in the glomeruli continues.

If our contention is correct then we have to regard anuria following sulfadiazine as a much more serious complication than is generally believed. If the suppression of urine is caused not by simple mechanical blocking of the lower urinary passages but by damage of the tubular epithelium lavage of the renal pelvis and ureters may not relieve the anuria as in our case.

#### SUMMARY

Death in the case reported was due to renal failure following sulfadiazine medication. The total amount of the drug given during nine days was less than 24 Gm. Cystoscopy with irrigation of the renal pelvis and ureters intravenous administration of fluid and alkalization were without success.

The kidneys showed severe degeneration of the convoluted tubules similar to that seen in mercuric poisoning. Our studies suggest that anuria following sulfadiazine may be due to actual tissue damage rather than mechanical blocking of the lower urinary passages.

It is not our intent in this report to discourage the use of sulfadiazine but to call attention to a possible toxicity of the drug to the renal epithelium.

Since lavage of the renal pelvis and ureters will not relieve renal failure caused by tissue damage prevention of renal complications cannot be overemphasized.

Careful attention to the daily urinary output of patients receiving sulfadiazine appears to be a simple and efficient method to prevent renal failure.

## Council on Pharmacy and Chemistry

### REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING STATEMENT  
AUSTIN E SMITH M.D. Acting Secretary

#### HEXESTROL, NONPROPRIETARY DESIGNATION FOR DIHYDRODIETHYLSTILBESTROL

Bishop and his co-workers (*Lancet*, April 6, 1940, p 629) have suggested that the synthetic estrogen dihydrodiethylstilbestrol may be of value as an estrogen. A pharmaceutical firm informed the Council's office that it contemplated the preparation of quantities of this substance for clinical trial, pointing out that the name suggested by Dodds for this compound is hexoestrol or, as the spelling would be in this country, 'hex-estrol'.

Realizing the great value of timeliness in matters of nomenclature, the Council gave consideration to the matter of an acceptable name to forestall the development of several names or a name that might be otherwise unacceptable.

The Council has considered a number of proposed terms to signify the substance dihydrodiethylstilbestrol. These were considered unsatisfactory nor could any other term be coined which possessed a root that would be more specific from a chemical standpoint for this compound than 'hex-'. Under these conditions the Council approved of the term hexestrol inasmuch as it has been the exclusive designation for this compound since it was first described.

<sup>6</sup> Richards A. N. quoted by Best C. H. and Taylor N. B. *The Physiological Basis of Medical Practice* Baltimore: Williams & Wilkins Company 1939 p 617.

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AUSTIN E SMITH M.D. Acting Secretary

**CALCIUM GLUCONATE** (See New and Nonofficial Remedies 1941, p 176)

The following dosage form has been accepted

GEORGE A. BREON & COMPANY, INC., KANSAS CITY, MO

Calcium Gluconate Solution 10% W/V 10 cc ampuls. Each ampul contains a sterile distilled water solution of calcium gluconate-U S P 10 Gm, stabilized with calcium d-saccharate 0.02 Gm.

**SOLUTION OF EPINEPHRINE HYDROCHLORIDE-U S P** (See New and Nonofficial Remedies, 1941, p 254)

The following dosage form has been accepted

GEORGE A. BREON & COMPANY, INC., KANSAS CITY, MO

Solution Epinephrine Hydrochloride 1:1,000 1 cc ampul. A brand of solution epinephrine hydrochloride-U S P containing chlorobutanol 0.5 per cent and sulfurous acid not more than 0.06 per cent in isotonic solution of sodium chloride.

**PYRIDOXINE HYDROCHLORIDE** (See THE JOURNAL Jan 10 1942, p 140)

The following dosage form has been accepted

MERCK & CO., INC., RAHWAY, N. J.

Crystals Hexabione Hydrochloride 0.05 Gm and 0.1 Gm sealed tubes.

**SULFATHIAZOLE** (See New and Nonofficial Remedies, 1941 p 519)

The following dosage form has been accepted

MCKENIL LABORATORIES, INC., PHILADELPHIA

Tablets Sulfathiazole 0.5 Gm (7½ grains)

**LIVER AND STOMACH PREPARATIONS** (See New and Nonofficial Remedies 1941, p 328)

**REFINED SOLUTION LIVER EXTRACT PARENTERAL-LEDERLE** (See THE JOURNAL Nov 15, 1941, p 1706)

The following dilution dosage form has been accepted

LEDERLE LABORATORIES, INC., PEARL RIVER, N. Y.

Refined Solution Liver Extract Parenteral, 5 U S P injectable units per cc. 5 cc and 10 cc vials.

**MERCURIC SALICYLATE** (See New and Nonofficial Remedies 1941 p 349)

The following dosage forms have been accepted

THE LAKESIDE LABORATORIES, INC., MILWAUKEE

Ampul Solution Mercuric Salicylate (in oil) 0.065 Gm (1 grain) 0.097 Gm (1½ grains) 0.13 Gm (2 grains) in 1 cc. Each ampul contains mercuric salicylate U S P suspended in vegetable oil containing 3 per cent chlorobutanol.

**PERCOMORPH LIVER OIL** (See New and Nonofficial Remedies 1941 p 577)

FLINT CATON & COMPANY, DECATUR, ILL.

Oleum Percomorphum 8 cc bottle.

**AMPULS OF CAMPHOR** (See New and Nonofficial Remedies 1941 p 178)

The following dosage form has been accepted

GEORGE A. BREON & CO., INC., KANSAS CITY, MO

Ampuls Camphor in Olive Oil 1 cc. Each cubic centimeter contains camphor 0.2 Gm (308 grains) in olive oil q. s.

**SODIUM CITRATE** (See THE JOURNAL June 7 1941 p 2597 and Revised Supplement to N. N. R., 1941 p 26)

The following dosage form has been accepted

LAKESIDE LABORATORIES, INC., MILWAUKEE

Ampuls Sodium Citrate 2.5% 50 cc.



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SATURDAY, JUNE 13, 1942

## VITAMIN C AND WOUND HEALING

Many factors investigated in recent years, including vitamins, have been claimed to influence the healing of wounds. Attention has been drawn to vitamin C in particular because of the frequently noted fact that spontaneous breakdown of surgical wounds in the absence of infection occurs commonly in patients with cachexia and in young patients, especially those who have some congenital anomaly of the gastrointestinal tract. In all these groups of patients there is likelihood of deficiency of ascorbic acid. With the newer methods of estimating more accurately the ascorbic acid content of tissues, tests and experiments have been devised aimed at the accurate evaluation of the role of vitamin C in wound healing.

Lanman and Ingalls<sup>1</sup> in 1937 recorded observations on the behavior of wounds in guinea pigs under the influence of varied vitamin C content of tissues. They concluded that vitamin C plays an important part in the healing of experimentally produced wounds in guinea pigs and suggested that there may be in human beings a degree of vitamin C deficiency that cannot be recognized by ordinary methods of physical examination but which may be significant in this regard. These conclusions were later confirmed by Taffel and Harvey<sup>2</sup>. Now Bartlett, Jones and Ryan,<sup>3</sup> in studies based on experimental wounds in guinea pigs and on observations of healing wounds in human beings, clarify still further the part played by vitamin C.

For their animal experiments one group of guinea pigs was maintained on a scorbutic diet for two weeks. Then an abdominal incision was made and a control biopsy obtained. The scorbutic diet was continued postoperatively, and at arbitrary intervals varying from four to fourteen days the animals were killed and tissue assays done, however, a significant variation in

the tissue levels at the shorter and longer postoperative intervals was not observed. Another group of 10 pigs was given a high ascorbic acid intake for a preliminary period of two weeks and submitted to similar operation and tissue assays at varying intervals. Again a significant difference in the results was not obtained at the shorter and longer postoperative intervals, however, a definite increase in ascorbic acid content of the healing wound over that of the control biopsy of the abdominal wall was found. In the final group of animals the tensile strength of the abdominal incision was determined and compared with the ascorbic acid content of the tissue. This was done by inflation of the peritoneal cavity with air until rupture of the wound occurred, the pressure necessary to produce rupture was recorded by a manometer in millimeters of mercury by a method similar to that used by Lanman and Ingalls. The ruptured wounds were then excised and the adjacent tissue was assayed for ascorbic acid content. Variations of ascorbic acid content could be demonstrated in a healing wound of the abdominal wall depending on the vitamin C intake. On a high ascorbic acid intake a striking increase in vitamin C content of the wound over that of the control biopsy occurred. Furthermore the tensile strength of wounds with a high content of ascorbic acid was demonstrated to be much greater than that of wounds with low vitamin C values.

Although the effect of prolonged reduced intake of vitamin C on wound healing in otherwise normal subjects has been studied before, the microscopic appearance of the wound alone was used as an index of abnormal healing. The human wound studies of Bartlett and his co-workers were undertaken in an attempt to obtain further information on this subject by means of direct observations on the tensile strength of healing wounds and to correlate these with the tissue content of ascorbic acid and the plasma levels of ascorbic acid. Six men subjected to repair of inguinal hernias, on whom the use of fascia lata in the repair was contemplated, were selected for study. During the preliminary preoperative period of two to four days the plasma ascorbic acid was determined and the daily urinary output measured. Throughout the hospital stay the patients were maintained on a diet containing 100 mg of vitamin C daily. Supplementary ascorbic acid was given to some patients before and after operation. The wounds were allowed to heal for ten days, the skin sutures being removed on the eighth day. At the end of ten days the skin incision in the thigh was excised with a margin slightly less than 1 cm of skin on each side of the scar. An incision in the fascia was excised with the same margin of tissue. The tensile strength of the healing wound and the ascorbic acid content of the tissue were determined on the skin and fascia. This was measured by the application of a direct pull on the healing scar by means of a simple apparatus. As a result, however, duplicate determinations of portions of the same scar and scars it became evident that there was con-

1 Lanman, T. H., and Ingalls, T. H. Vitamin C Deficiency and Wound Healing. Experimental and Clinical Study, *Ann Surg* 105: 616 (April) 1937.

2 Taffel, M., and Harvey, S. C. Effect of Absolute and Partial Vitamin C Deficiency on Healing of Wounds, *Proc Soc Exper Biol & Med* 38: 518 (May) 1938.

3 Bartlett, M. K., Jones, C. M., and Ryan, A. E. Vitamin C and Wound Healing. I. Experimental Wounds in Guinea Pigs, II. Ascorbic Acid Content and Tensile Strength of Healing Wounds in Human Beings, *New England J Med* 226: 469 (March 19) 1942.

variation of tensile strength when measured by this method, and only gross differences should be considered significant. With the exception of 1 case the Boston investigators could not find a significant variation in the behavior of the healing fascia regardless of the variation in the preoperative content of ascorbic acid in the plasma. With the 1 exception mentioned, the ascorbic acid contents of the control biopsies of fascia were fairly consistent. They believe, therefore, that the tensile strength of the specimens obtained from these 5 patients could be considered normal and that even a plasma ascorbic acid level as low as 0.2 mg. per hundred cubic centimeters (contrary to most previous opinions) would not cause a significant variation from normal in vitamin C content or tensile strength of healing fascia. The 1 exceptional case however, demonstrates conclusively, they believe, two points: (1) that a sufficient depletion of vitamin C reflected in a low plasma ascorbic acid interferes with normal wound healing as measured by tissue ascorbic acid content and tensile strength, and (2) that normal wound healing can be brought about by adequate vitamin C therapy during the healing period in spite of a low plasma ascorbic acid at the time of operation.

These observations would seem to imply that under usual conditions of diet and absorption the average person possesses a high enough ascorbic acid content in tissue for normal wound healing. The practical question, however, is the determination by a simple method, of which persons require supplementary vitamin C administration preoperatively or postoperatively. The answer to this question is not yet clear.

#### DEATHS OF PHYSICIANS IN 1941

Last year 3,527 obituaries of physicians were published in *THE JOURNAL*. Of the total 3,354 were residents of the United States and 173 of Canada. Two physicians died in Puerto Rico, 3 in the Philippine Islands, 2 in Hawaii and 1 in China. One was killed in West Africa while serving as captain in the British Army. The total group included 122 obituaries of women physicians.

Some obituaries are reported too late for publication and some are withheld for lack of suitable data with which to compile a satisfactory notice. Thus 241 more deaths were totaled in the American Medical Directory Report Service, including the United States possessions and Canada, than were listed in 1941 in *THE JOURNAL*. A total of 3,460 is considered here for the United States alone or 106 more than the 3,354 deaths reported in *THE JOURNAL*.

For the academic year ended in June 1942 there were 5,275 graduates of medical schools in the United States. Deducting the number of physicians whose obituaries were published, there was an indicated net increase to the profession of 1,921. Including those who received their first license to practice medicine

during the calendar year, there was a gain of 2,327. This difference is accounted for principally by graduates of foreign schools.

**Age**—The average age at death of those classified as of the United States was 65.9 as compared with 66.3 years for a total of 3,450 deaths published in 1940. Thirty physicians died between the ages of 25 and 29, 42 between 30 and 34, 72 between 35 and 39, 102 between 40 and 44, 151 between 45 and 49, 210 between 50 and 54, 361 between 55 and 59, 459 between 60 and 64, 510 between 65 and 69, 518 between 70 and 74, 413 between 75 and 79, 299 between 80 and 84, 131 between 85 and 89, 50 between 90 and 94, 1 between 95 and 100 and 4 were 100 or over. The exact age of death was unknown in 1 case.

**Causes**—Heart disease again accounted for the greatest number of deaths among physicians. As is customary, contributory causes have been included in the tabulation. Coronary thrombosis and occlusion led the list with 1,034 deaths. Other coronary diseases totaled 119. Other diseases of the heart and circulatory system accounted for 781 deaths. Four hundred and two were classified under cerebral hemorrhage and 353 under arteriosclerosis. Cancer and tumors in various forms accounted for 328 deaths. Tuberculosis was designated the cause in 39 deaths, diseases of the blood and lymphatic system in 35, diabetes in 56, bronchopneumonia in 197, lobar pneumonia in 58, other diseases of the respiratory system in 62, allergy and asthma in 5, appendicitis in 14, peptic ulcers (stomach or duodenum) in 26, other diseases of the gastrointestinal tract in 107, cirrhosis of the liver in 41, acute nephritis in 26, chronic nephritis (including cardiovascular renal and cardiorenal disease and uremia) in 219, diseases of the genitourinary system in 36, bacteremia and other infectious diseases in 39, influenza in 24, abscesses and carbuncles in 10, acute and chronic rheumatism in 6, diseases of the thyroid in 2, postoperative in 21, Addison's disease in 1, alcoholism in 3, poliomyelitis in 3, pulmonary embolism in 16 and other ill defined or unspecified causes and senility in 90. Each of the following accounted for 1 death: typhus fever, toxemia of pregnancy, tetanus and heat prostration. Two deaths were attributed to Rocky Mountain spotted fever.

**Accidental Deaths**—There were 152 accidental deaths in 1941. Automobile accidents accounted for 83 deaths as compared with 105 in 1940. Other accidents were falls 21, burns 7, airplane accidents 6, drowning and poison 4 each. One death was recorded in a train accident, and 4 involved automobile and train collisions. Twelve unexplained fractures were included in the accidental deaths. One physician was killed when he fell down an elevator shaft, and another was electrocuted by a short circuit in an x-ray machine. One accidental death was ascribed to x-ray burns. Bullet wounds, carbon monoxide explosions, overdoses or

medicine and asphyxiation were among the causes of accidental deaths classified in 1941 reports

*Suicides and Homicides*—Suicides accounted for 67 deaths in 1941. Bullet wounds led the list with 25. Carbon monoxide, poison and drugs were next in classification of method with 7 deaths each, hanging 6, cut artery 5, illuminating gas 3, drowning 1, and 1 death occurred from a fall. In 5 cases the method was not reported. Four homicides were recorded.

*Civil Positions*—Among the decedents were 191 physicians who were or had been teachers in medical schools, 518 who had served in World War I, 157 veterans of the Spanish American War and 5 Civil War veterans. One hundred and twenty-three physicians were or had been health officers, 101 members of boards of education, 86 members of boards of health and 21 members of boards of medical examiners. There were 58 coroners, 44 mayors, 32 authors, 31 bank presidents, 17 editors and 17 legislators. 14 police surgeons, 13 missionaries, 12 dentists, 11 members of city councils, 9 pharmacists, 8 senators, 7 clergymen, 6 lawyers, 5 postmasters, 4 fire surgeons, 1 sheriff, 1 justice of the peace and 1 governor. One was a member of the U. S. Pharmacopeia and 1 was a member of the state board of agriculture. One had formerly served as a British vice consul.

There were 19 who had served in the regular medical corps of the U. S. Navy, 17 served in the regular corps in the U. S. Army, 19 in the U. S. Public Health Service, 7 in the Veterans' Administration and 4 in the Indian Medical Service.

*Association Officers*—Among those who died, 1 had been President of the American Medical Association, 2 had been Vice President, 19 section officers and 4 members of councils. Thirty-nine had been members of the House of Delegates, 38 presidents of state medical associations and 4 secretaries. One hundred and eighty-seven were or had been presidents of county medical societies.

## Current Comment

### FOOD VALUE OF BEER

British opponents of the brewing industry, quick to take advantage of war conditions, have called attention to the fact that an appreciable percentage of all available English grain is now being used for the production of beer. They allege that this grain would be of greater social value if used for the raising of poultry or pigs. "Pigs versus beer" has thus become a current political slogan. The brewers of England<sup>1</sup> have countered by quoting experimental evidence previously published by nutritional experts of London University. Waller, for example, found that the food value of beer is more than half that of the grain and other material used in its production, while pig meat has less than one fifth the food value of the same materials if used in raising swine.

Moreover, 25 per cent of the food value of the grain used in brewing is returned to the farmer in the form of brewers' grains, malt culms or yeast, foods especially high in vitamin content and nutritive value if used in the animal industry. The use of beer has also been under investigation by the food controller, who finds "no evidence that beer is doing anything to increase crime or bad health, or to reduce the output of munitions." From such testimony it is officially concluded by the British cabinet that "it is in the public interest that the production of beer should continue at the present amount" (4 per cent of all available grain).

### THE FEDERAL TRADE COMMISSION

The annual report of the Federal Trade Commission for the year ended June 30, 1941 summarizes some interesting factual data concerning the work of this commission. The commission charged false and misleading representations in advertising and labels and otherwise in 219 complaints. Of these, 96 alleged false and misleading representations as to the therapeutic value of various medicinal and food preparations and devices, 22 alleged misrepresentations as to the potency, performance or results to be obtained by the use of various products, and 22 charged misrepresentation as to composition, quality, ingredients, instruction or condition, including alleged misrepresentation of old products for new. Summary of several charts indicates that in 1921, the commission disposed of 153 complaints, 116 of which resulted in orders to cease and desist, whereas in 1941 the commission disposed of 407 complaints, of which 348 resulted in cease and desist orders. In 1921 there were 14 lower court proceedings, only 2 of which resulted in a decision for the commission, whereas in 1941 there were a total of 35 decisions out of 44 in favor of the commission in the lower courts. In 1921 513 applications for complaints were disposed of, with only 156 resulting in actual issuance and none in stipulation to cease and desist, whereas in 1941 the commission disposed of 1,364 applications for complaints, which resulted in actual issuance of 332 complaints and 498 settlements by stipulations to cease and desist. During the past year the commission was also being requested to perform the same relative duties as in 1917 and 1918, when it made approximately 370 investigations of war time costs, prices and profits covering such basic commodities as coal, steel and iron, building materials and cotton textiles. During the fiscal year reported, the commission aided the Office of Production Management and the Office of Price Administration. Other activities in connection with the national defense program included an investigation of price increases in the bread and bakery industry and an investigation in connection with the priorities orders in the steel industry. These added duties should not be permitted to lessen the diligence of the commission in executing its functions in the maintenance of honesty and fair trade in the more ordinary channels of commerce. The Federal Trade Commission has played an important part in the maintenance of the national economy and national health, and the continuance of such action is paramount to the welfare of the nation.

<sup>1</sup> Stone, M. *Am Brewer* 74:46, 1941

# MEDICINE AND THE WAR

*In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association announcements by the Surgeon Generals of the Army, Navy and Public Health Service and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession*

## DECONTAMINATION SERVICES

Operations Letter No 42 dated May 20 1942 presented here in an abridged form sets forth the recommendations of the Office of Civilian Defense Washington D C for the organization and administration of decontamination services

### I DECONTAMINATION OF PERSONS

The decontamination of persons is the responsibility of the Emergency Medical Service Military authorities consider the use of gas against American cities unlikely It is desirable, however that key personnel be trained and that plans be prepared so that facilities can be improvised and placed in operation on short notice if necessary

Decontamination stations should be of simple construction with facilities for disrobing bathing and chemical neutralization of agents that may have reached the skin Wood is to be avoided because it absorbs mustard or lewisite and is difficult to decontaminate Brick concrete or metal structures are preferable All porous materials including brick and concrete should be painted with sodium silicate paint Gasoline filling stations are widely distributed in most communities and offer many advantages in view of their isolation washing facilities and comparatively impervious construction

The chief of Emergency Medical Service is responsible for organizing and training medical and other personnel to operate decontamination stations Physicians and nurses must know (1) how to protect themselves while handling contaminated cases (2) the effects of the various agents on the eyes skin and respiratory tract, (3) measures for decontamination of skin and eyes at various stages after exposure Stations for ambulant personnel do not necessarily need a physician in attendance but the person in charge should understand the dangers and limitations of chemical decontamination He should also be on the alert for victims with respiratory tract eye or severe skin exposure, who should be transferred to a hospital as soon as decontaminated All members of emergency medical field units should be trained and drilled in decontamination

The chief of Emergency Medical Service may appropriately request the local health department to establish and staff facilities for decontamination of uninjured persons Decontamination services organized and staffed by the health department for the decontamination of persons will operate as a branch of the Emergency Medical Service under the commander of the Citizens' Defense Corps

### II DECONTAMINATION OF STREETS BUILDINGS AND VEHICLES AND OF FOOD AND WATER SUPPLIES

The chief of Emergency Public Works has responsibility for organization training and administration of decontamination squads Their first task is rough decontamination of areas and of things in those areas They will use equipment especially street flushing machines which presumably will be found in the public works department of the usual municipality

Their first responsibility is the decontamination of streets, public buildings and the approaches thereto

The inspection and testing for gas contamination and the decontamination of food and public water supplies is the responsibility of the municipal health department

### III APPOINTMENT OF GAS OFFICERS

It is suggested that the commander of Citizens' Defense Corps appoint as a member of his staff, a senior gas officer who normally will be chosen from the city health department His functions will be to supply technical direction and assistance with respect to action to be taken before during and after gas attacks

*Duties of the Senior Gas Officer*—A During the period of preparation 1 He should become familiar with the chemistry of war gases and the technics and chemistry of decontamination This information can be acquired from the Office of Civilian Defense publications and by attendance at the War Department civilian protection schools and at special schools being established by the medical division of the Office of Civilian Defense in cooperation with the U S Public Health Service and the War Department schools

2 He should recommend for appointment assistant gas officers with qualifications similar to his own and train them to serve as his technical assistants to supervise decontamination of food and water

3 He should with the Chief of Emergency Medical Service select the sites for decontamination stations and provide consulting and technical service in the design and construction of these facilities

4 He should instruct laundries in the technics of handling various types of contaminated clothing and arrange for the safe transfer of contaminated clothing from decontamination stations to laundries and for the return of clean clothing For this purpose he may appoint a Laundry Officer from the trade in the city

B During the period of operation The senior gas officer and his staff will be responsible for

1 Identification of chemical agent or agents used in an area

2 Determination of the extent of the area contaminated and advice to wardens and police in the vicinity concerning type of agent and extent of contamination

3 Inspection and technical advice concerning the decontamination of streets and buildings and reports to the police and wardens when an area is safe for movement

4 Inspection of food and water supplies and supervision of proper measures for their decontamination

5 Collection and safe transportation to laundries of contaminated clothing and return of clean clothing to decontamination stations or hospitals (through laundry officer)

6 Inspection and technical control of decontamination of vehicles equipment and machinery including ambulances and other vehicles used in the transportation of casualties

JAMES M LANDIS, Director,  
Office of Civilian Defense

## ADAPTING GASOLINE FILLING STATIONS FOR DECONTAMINATION

Persons contaminated with liquid vesicants must be treated within five minutes to avoid severe burns Complete preparations would therefore require that facilities be sufficiently numerous so that every individual is within five minutes walk of a decontamination station Gasoline filling stations are widely distributed and may be adapted for this purpose

The Office of Civilian Defense, Washington D C has made the following suggestions for adapting gasoline filling stations for decontamination

1 Use stations with washing and greasing facilities under cover

2 Establish temporary disrobing area outside and adjoining washroom shielded by canvas parked automobiles or other device providing some privacy Allow abundant natural ventilation Every one entering disrobing area must walk through

a box of sand and bleaching powder to decontaminate his shoes (three parts of sand to one part of bleach containing 30 per cent hypochlorite)

3 Provide gas lock to washroom with foot bath of bleach slurry of sodium hypochlorite solution

4 Install temporary showers or improvise pipe with several outlets for multiple bathing Use hoses operated by attendants for washing large numbers of people Supply soap

5 Eyes should be irrigated with soda near entrance of washroom or hosed gently with plain water in the event of large numbers

6 Use grease room for dressing

7 Partition off grease room from washroom with wall board or other temporary material if the rooms are not already separated

8 Provide a gas lock between wash and dressing rooms

9 Use station office of the ladies' rest room for first aid if necessary

10 It is advisable to ventilate wash and dressing rooms by means of ordinary cooling fans blowing out of window

11 Supply numbered paper, burlap or cloth bags for each individual's clothing, and record name and address opposite number

12 Keep contaminated clothing outside station and place bags of clothing in covered metal containers until decontaminated

13 Provide supply of clean clothing of assorted sizes in dressing room

14 Apply bleach, sodium hypochlorite solution such as chlorox or zonite, or peroxide as indicated for liquid contamination either in the disrobing or in the wash room

15 It is advisable to paint wall board, wood, concrete or brick with sodium silicate paint to prevent persistent contamination

16 Consult Office of Civilian Defense publications "Protection Against Gas" and "First Aid in the Prevention and Treatment of Chemical Casualties" for detailed instructions

Decontamination of uninjured persons may be assigned by the chief of Emergency Medical Service to the local health department Stations for decontamination of persons may be operated under the supervision of public health nurses where physicians are not available Decontamination of food and water supplies should be assigned to the local health department

JAMES M LANDIS, Director

### PLANS TO COMBAT EPIDEMICS

Surg Gen James C Magee has announced that the fifth meeting of the Army's civilian board of consultants on problems of communicable diseases has been concluded Established in January 1941 by order of the Secretary of War on recommendation of the Surgeon General, the Board for the Investigation and Control of Influenza and Other Epidemic Diseases in the Army consists of a central body of seven leaders in the fields of research on infectious diseases and epidemiology These members, all of whom were present at this meeting, are Dr Francis G Blake of Yale University School of Medicine, Dr O H Perry Pepper of the University of Pennsylvania Medical School, Dr Alphonse R Dochez of Columbia University College of Physicians and Surgeons, Dr Ernest W Goodpasture of Vanderbilt University, Dr Kenneth F Maxcy of the Johns Hopkins University School of Hygiene and Public Health, Dr Andrew J Warren of the Rockefeller Foundation and Dr Oswald T Avery of the Rockefeller Institute for Medical Research

During the past year nine commissions have been organized and put into operation under the direction of the board At the current meeting all directors of these commissions attended as follows

Dr O H Robertson, University of Chicago Medical School, Commission on Cross Infections in Hospitals

Dr M H Dawson, Columbia University College of Physicians and Surgeons, Commission on Hemolytic Streptococcal Infections

Dr Thomas Francis Jr, University of Michigan School of Public Health, Commission on Influenza

Dr Perrin H Long, Johns Hopkins University School of Medicine, Commission on Meningococcal Meningitis

Dr Colin M MacLeod, New York University College of Medicine, Commission on Pneumonia

Dr John R Paul, Yale University School of Medicine, Commission on Neurotropic Virus Diseases

Dr Wilbur Sawyer, Rockefeller Foundation, Commission on Tropical Diseases

Dr Joseph Stokes Jr, University of Pennsylvania, Commission on Measles and Mumps

Dr Stanhope Bayne-Jones, Yale University School of Medicine, Commission on Epidemiological Survey

Through the board and commissions the services of one hundred and sixteen consultants are available to the Surgeon General for advice and investigations on all problems of infectious diseases in relation to the health of the Army The board and commissions carry out their work in direct association with the Preventive Medicine Service of the Surgeon General's Office The meeting was attended also by representatives of all the services and many divisions of the Surgeon General's Office and by members of the staff of the Army Medical Center and the Army Medical Museum

### TUBERCULOSIS CASE FINDING IN DEFENSE INDUSTRIES

A photofluorographic unit for tuberculosis case finding in war industries has been assigned to North Carolina A second unit is now being prepared for service in New Jersey

Requests for the use of these units should be made through the state division of industrial hygiene to the Division of Industrial Hygiene of the National Institute of Health, Bethesda, Md A waiting list will be maintained at headquarters and requests filled in order of receipt, consideration being given to the importance and location of the industry making the request

Personnel accompanying each unit include a medical officer trained in interpreting 35 mm films, a medical technician and a clerk A portable condenser discharge x-ray machine has been added to the equipment, thus making it possible to obtain 35 mm films in the absence of 400 milhampere x-ray equipment The U S Public Health Service will maintain the equipment and furnish x-ray films and developing supplies, repairs and replacements

At the end of each survey of a particular industrial plant, a statistical and narrative report on the extent and result of the survey will be sent to the state health officer and plant medical director, after clearing the Division of Industrial Hygiene, National Institute of Health, and the States' Relations Division U S Public Health Service The films will be retained as permanent records in the Office of Tuberculosis Control of the Public Health Service

### GENERAL PERSHING AND THE BALTIC SOCIETY

Members of the Baltic Society called at the quarters of Gen John J Pershing in Washington, D C, May 28, to honor their former chief In the group were Major Gen James G Harbord, Major Gen Merritte W Ireland, former surgeon general of the Army, Major Gen Walter Bethel, Col George C Adamson and Ray T Middleton, Capt Charles B Sha and Serpts Harry Cooper and Louis A Beaman General Harbord, in presenting a walking stick to General Pershing said "As commander in chief of the American Army in France you stood like a rock for the immutable principles of war unchanging through the ages Through all the chattering gabble of postwar years your dignity has not been touched by intrigue or cheapened by futile striving You still stand as a symbol of victory and personification of constant faith"

The Baltic Society is composed of the members of the party which sailed to France with General Pershing on May twenty-five years ago



## INVESTIGATIONS OF DERMATOSES

The first meeting of the Consulting Staff of the Dermatoses Investigations Section of the National Institute of Health was held on April 20-21. Members of the staff are Dr. Paul A. O'Leary, Rochester, Minn., chairman; Dr. Samuel M. Peck, New York; Dr. S. William Becker, Chicago; Dr. Howard Fox, New York; Dr. Richard L. Sutton, Jr., Kansas City, Mo.; and Dr. Harry I. Templeton, Oakland, Calif. Dr. O'Leary was unable to be present, and Dr. Fox was selected temporary chairman. Notable among the many matters discussed by the consulting staff were the definition of a primary cutaneous irritant and the definition of a cutaneous sensitizer. The staff agreed with the plan devised by this section for testing new fabrics, finishes, dyes and cosmetics as to their possible skin irritating properties before selling them to the public. It also endorsed the plan of giving a special course on occupational dermatoses to dermatologists located in various parts of the country, so these physicians in turn can teach the subject to dermatologists in their locality and thus make available to our war industries physicians trained in occupational dermatoses. Such physicians are now badly needed to prevent and treat dermatoses—which make up approximately two thirds of all occupational diseases—among the workers in our war industries.

## GAS DEFENSE AND DECONTAMINATION COMMITTEE

Prof. W. L. Beuschlein of the chemical engineering department of the University of Washington in Seattle has been appointed chief of the decontamination service in Seattle. Professor Beuschlein first will establish a decontamination center where five hundred volunteers for this work will be trained. This number will be recruited from students and graduates of the university. Additional decontamination centers are planned for each one of the seven defense zones of Seattle.

The Plainfield, N. J. Defense Council has made appropriations for gas decontamination and casualty depots to be located on the athletic field at the high school, where the field houses will be remodeled and equipment installed to handle possible gas casualties.

Three thousand five hundred air raid wardens in Hartford, Conn., have been trained to recognize and deal with the war gases. The chairman of the Emergency Public Works Committee of the Hartford Defense Council has appointed a committee which will survey Hartford's equipment and needs in case of gas attack.

## PROTECTION OF INDUSTRIAL PLANTS AGAINST AIR RAIDS

About twelve hundred representatives of management and labor in Detroit industrial plants and factories attended an institute held at the Rackham Memorial Building, Detroit, May 21, and were expected to meet twice a week for the following three weeks under the sponsorship of the Detroit Industrial Safety Council in cooperation with the Office of Civilian Defense. The purpose of the instruction was to outline a practical operating plan to protect industrial plants against possible air raids. The city health commissioner, Dr. Bruce H. Douglas, Lieut. Bernard A. Preo, bomb specialist of the police department, A. S. Moreau, director of the Detroit chapter of Red Cross, and Edwin C. Denstaedt, communications controller of the Office of Civilian Defense, were among the speakers.

## SOUND FILMS ON THE EMERGENCY MEDICAL SERVICES

A series of sound slide films on the emergency medical services is being developed by the medical division of the Office of Civilian Defense and when completed will be shown throughout the country and used as illustrative material for lectures on emergency medical techniques. The films are being made at Mount Vernon, N. Y., where with the cooperation of various officials the workings of the Mount Vernon emergency medical services is being filmed.

## LONG BEACH INSTRUCTS FORTY THOUSAND IN AIR RAID PRECAUTIONS

A three day educational program in the form of a play entitled "It May Happen Here," enacted by volunteer members of the Emergency Medical Service and the Community Players, was presented in May at the Long Beach Municipal Auditorium and was attended by more than forty thousand persons. Doctors, nurses and Red Cross personnel acted out the training program under conditions simulating air raids. The program on medical preparedness was arranged by Dr. Robert W. Wilcox, chief of the Emergency Medical Service for Long Beach and the exhibits in various fields of civilian war effort were demonstrated under the arrangements of Dr. Fred B. Clarke. Stanley K. Cochems, who wrote and directed the play, was master of ceremonies and was borrowed from the Los Angeles County Medical Association to put on the play.

## EMERGENCY MEDICAL FIELD SETS

At the recent annual meeting of the Medical Society of the State of New York in New York City, the medical director of the Medical and Surgical Relief Committee of America, Dr. Joseph P. Hoguet, presented an emergency medical field set to the research director of the New York State Health Preparedness Commission, Dr. John J. Bourke, who turned it over to Dr. Louis Bauer, chief of emergency medical services of the Nassau County War Council, for use at Mitchell Field. The Medical and Surgical Relief Committee aims to carry on a nationwide drive to provide sufficient emergency medical field sets to the medical directors of civilian defense areas throughout the country. Each emergency set contains two portable cases completely equipped with instruments and supplies in accordance with specifications of the Office of Civilian Defense. The sets are to be placed in first aid posts and hospitals, from which they can be readily carried to points of disaster.

## TRAINING IN CHEMICAL WARFARE AND GAS PROTECTION

The New York State Health Preparedness Commission, following meetings at the New York Academy of Medicine, has formulated a program of instruction which will be available to all physicians in the state for training in the medical aspects of chemical warfare and gas protection techniques. The chairman of the Health Preparedness Commission has appointed Dr. David D. Rutstein, chief of the Cardiac Bureau of the State Department of Health, as deputy medical officer for gas protection in the emergency medical services. Physicians who have taken the courses will then instruct other physicians throughout the state.

## PLANS TO PREVENT SABOTAGE OF WATER SUPPLIES

Every city and village in Wisconsin was invited to send representatives to a special water works school to be conducted at the University of Wisconsin, May 12-13, for instruction in the prevention of sabotage in making emergency repairs of damage resulting from enemy action. The course was arranged by the Wisconsin State Board of Health, the Wisconsin section of the American Water Works Association, the League of Municipalities and the university.

## CHECK ON EFFECTS OF ARMY TRAINING

The War Department announced on May 25 that about twenty thousand enlisted men will be retested to determine the effect of training on a soldier's score in the general classification test. This test, which is given to every man on induction into the service, is designed to test his ability to learn and not his educational background. Its chief object is to serve as a guide to classification officers in assigning men to work and organizations for which they are best qualified. About five thousand of the enlisted men will be retested at replacement training centers prior to their assignment with field forces. This will afford a check on the effect of training given at replacement training centers.

# ORGANIZATION SECTION

## WOMAN'S AUXILIARY

### California

At the February meeting of the Alameda County auxiliary Miss Beatrice Carpenter of the California Dairy Council spoke on nutrition. Carol Mills, violinist, played several solos. Heretofore auxiliary members have been working in the various departments of the Red Cross. The auxiliary now has several of its own units. Sixty members are in the first aid class, which is under the instruction of Drs Dorothy M Allen and Helen Snook. A Red Cross sewing unit, with twenty members, is sewing one day a week under the direction of Mrs Kenneth Neilson and Mrs W W Cross.

In January, Capt M D Willcutts, M C, of the Naval Hospital, addressed the San Diego auxiliary on the blood bank. The auxiliary is working with the San Diego Medical Association in establishing a blood bank in San Diego for civilian defense. Mr Quon, Chinese lecturer, spoke on "America's Position in the Pacific." He ended his talk with a reading of the new Chinese national anthem.

Nearly all the membership of the San Francisco auxiliary is engaged in some activity with national defense. On Christmas day many members did valiant work when many evacuees reached San Francisco. They spent hours on the docks waiting to transport people to hotels, hospitals and the various clubs which had facilities to receive them. Many of the members are taking instruction in first aid and attending nutrition classes, while others in the mobile canteen go out in station wagons to feed soldiers who are guarding different parts of the city.

Members of the San Francisco auxiliary recently responded 100 per cent in entertaining men in the service at the San Francisco Hospitality House. At least one thousand men were served sandwiches, doughnuts and coffee. In the afternoon, daughters of members acted as junior hostesses and helped to entertain by dancing and playing cards. In the evening the girls from the training schools of Stanford and of the University of California acted as hostesses. Proceeds from a previous bridge party were sent to the California and Stanford universities as a loan fund for senior medical students.

### Delaware

Mrs Erwin L Stambaugh of Lewes was elected president of the woman's auxiliary to the Medical Society of Delaware at the annual meeting recently and assumed office on Jan 1, 1942 for a two year term. Other officers elected are vice president for New Castle County, Mrs George C McElfatrick, vice president for Kent County, Mrs I W Mayerberg of Dover, vice president for Sussex County, Mrs James Beebe of Lewes, recording secretary, Mrs Sylvester W Rennie of Wilmington, corresponding secretary, Mrs Lawrence Fitchett of Milford, treasurer, Mrs Albert J Strikol of Wilmington.

### Indiana

Forty-six hundred people heard Dr W W Bauer, director of the A M A Bureau of Health Education, during his lectures in Fort Wayne recently, sponsored by the woman's auxiliary to the Allen County Medical Society. "Popular Beliefs That Are Not So" was the subject of his lectures to the pupils of the three public high schools, and at the regular meeting his topic was "The Doctor's Wife." The evening meeting was preceded by a dinner given in the Old Fort Room at the Indiana Hotel, at which time Dr Bauer spoke to the guests who were members of the auxiliary board of directors and their husbands, the physicians of the auxiliary advisory council and the executive board of the Fort Wayne Medical Society and their wives.

The Lake County auxiliary has decided to do Red Cross sewing every other Tuesday in the home, with two members acting as hostesses.

Miss Mary Sinclair, assistant director of woman's activities for the Indiana Defense Council, talked on "Women in Defense" before the Marion County auxiliary in January.

The Porter County auxiliary met in Valparaiso on January 27, Mrs G R Douglas talked on "The Philippines."

In January the Vigo County auxiliary held the annual guest dinner in the Student Union Building of the State Teachers College. Dr Hazel Pfennig talked on her trip to South America.

### Kansas

The Woman's Auxiliary to the Sedgwick County Medical Society voted to cancel the February guest day tea and substitute a war relief donation of \$25 to the Red Cross as a part of the auxiliary program. Plans for organizing a Red Cross unit within the auxiliary are being considered. Mrs W J Kiser, Hygeia chairman, announced that more than one hundred subscriptions had been placed.

### Mississippi

At the December meeting of the Northeast Mississippi Thirteen Counties Auxiliary, at which Dr and Mrs Henry Boswell were guest speakers, the members made a contribution to the work of the preventorium. The meeting was held at the home of Mrs V B Philpot of Houston. Mrs Boswell spoke on "Objectives and Its Accomplishments of the Auxiliary" and Dr Boswell on "What the Auxiliary Means to Doctors and Some of the Capacities in Which It Can Serve."

### New Jersey

The Atlantic County's new welfare project is to aid financially a student nurse in the training school of the Atlantic City Hospital. In March 1942 candidates' names from the various high schools will be submitted to the Nurses Committee which will give each candidate consideration and in June, on graduation from high school, the student will be selected. The student will enter the training school in September 1942. The stipulated amount to be lent the candidate is \$200 for her three year period of training. A gift of \$25 will be given the nurse by the auxiliary on her graduation from the training school. The Medical Preparedness Committee has been actively engaged in collecting instruments, drugs and samples and in assisting physicians.

To assure sufficient funds to pay the tuition and maintenance of the student nurse whom the Burlington County auxiliary sends through training school (Burlington was the first county in New Jersey to do this), every member has been urged to guarantee a \$4 table at a large card party. The auxiliary is making and sending thousands of cookies to Fort Dix each week, and many members of the auxiliary serve as hostesses at the fort.

### West Virginia

The McDowell County auxiliary met on February 12 at Welch. Mrs H P Evans, president, presided. Mr Joe Swane discussed the method being used to assign doctors for service with the armed forces.

The Parkersburg County auxiliary met on January 13 at Mrs A C Wooster, presiding. Miss Frances Inslee reviewed Victor Heiser's book "You're the Doctor." Mrs James I Wade discussed procurement and assignment service for the medical profession. At the auxiliary meeting, February 10, Margaret Joseph, dietitian for St Joseph's Hospital, spoke on "Diet in Defense and the Mobile Kitchen." Going "all out for defense," auxiliary members plan no more luncheon sessions during the duration. Members contributed books for the victory book drive and voted to give ten subscriptions to Hygeia to the schools of the county.

## Medical News

(PHYSICIANS WILL CONFERR A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS CENTRAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

### ARKANSAS

**State Medical Election**—Dr Samuel J. Allbright Searcy was named president-elect of the Arkansas Medical Society at its recent annual session in Hot Springs National Park. Dr Rufus B. Robins Camden, was inducted into the presidency and Dr William R. Brookshire Fort Smith was reelected secretary. The next annual meeting will be in Little Rock, the dates to be determined later.

**District Meetings**—The North East Arkansas Medical Society was addressed at Tyronza May 7 among others, by Drs William H. Anderson, Booneville, Miss on Problems and Progress in Medicine', Henry King Wade, Hot Springs, 'Psychiatry', Charles H. Lutterloh Hot Springs 'Problems of Arthritis', Francis W. Carruthers Little Rock 'Treatment of Fractures of the Forearm', and Silas C. Fulmer Little Rock, 'Clinical Syndromes of Coronary Artery Disease'. At a meeting of the Second District Medical Society in Searcy, April 13, Drs Henry E. Mobley Morrilton and John N. Compton Little Rock spoke on 'Surgical Emergencies' and 'Generalized Diagnosis' respectively.

### CALIFORNIA

**Physicians Wanted**—The Los Angeles County Civil Service Commission announces positions open as physician and assistant physician at Olive View Sanatorium San Fernando. To be eligible an applicant should be between 21 and 55 years of age, a graduate of an approved medical school who has completed one year internship in an approved hospital. Applications should be filed on or before June 16.

**Society News**—The Alameda County Medical Association was addressed, May 18 by Drs Edward G. Ewer on 'The Treatment of Femoral Neck Fractures by Nailing', Douglas D. Dickson, 'Ankle Fractures' and Leonard B. Barnard 'Advances in the Treatment of Poliomyelitis'. All are of Oakland.—Dr Lawrence K. Gundrum Los Angeles discussed 'Effect of the Newer Sulfonamides on the Nasal Mucosa of Rabbits' before the San Diego County Medical Society, May 12.

**Personal**—The University of California recently conferred the honorary degree of LL.D. on Dr Langley Porter dean emeritus of the university's school of medicine San Francisco.—Dr John H. Lawrence, assistant professor of medicine, University of California Medical School Berkeley, has been awarded an honorary degree of doctor of science at the University of South Dakota Vermillion, for 'successful therapeutic use of radioactive phosphorus to produce remissions in leukemia in man and for his development of the medical applications of neutrons and artificially radioactive elements'.

**Dr Legge Retires as Professor of Hygiene**—Dr Robert T. Legge announces his retirement as professor and chairman of the department of hygiene at the University of California, Berkeley, with the title professor emeritus after twenty-eight years' service at the university. Dr Legge was born in San Francisco in 1872. He received his degree in medicine at California in 1899 and joined the university faculty in 1915. Dr Legge is also lecturer on industrial medicine at the University of California Medical School in San Francisco and director of the Ernest V. Cowell Memorial Hospital at the university, Berkeley. He is a member of the Council on Industrial Health of the American Medical Association.

### DISTRICT OF COLUMBIA

**District Society Election**—Dr Fred R. Sanderson was chosen president-elect of the Medical Society of the District of Columbia at its meeting May 6. He will take office on July 1, 1943. Dr Andrew Magruder MacDonald district coroner will take office as president of the society on July 1. Other officers chosen to take office this coming July are Drs Thomas S. Lee and Alma J. Speer, vice presidents.

**Personal**—Watson Davis, director of Science Service, was presented with the award of the American College Publicity Association at its meeting, May 9. According to *Science* Mr. Davis was cited for his 'Years of faithful interpretation of

research in science and its translation into terms understandable to the reading public with no loss of dignity or essential meaning'.—Dr George W. Creswell has been appointed a special consultant in the division of venereal diseases, U. S. Public Health Service.

### IDAHO

**Society News**—Dr George W. Holmes, Boston, addressed the Southwestern Idaho Medical Society recently in Boise on 'Obstructive Lesions of the Bronchi'.—Dr Richard P. Howard, Pocatello presented a review of ulcerative colitis before the Pocatello Medical Society, April 2, and Dr Carroll W. Dewey, Fort Hall, presented a patient aged 10 years with interstitial emphysema.

**Annual Registration Due July 1**—All practitioners of medicine and surgery holding licenses to practice in Idaho are required by law to register annually, on July 1 with the Department of Law Enforcement and at that time to pay a fee of \$2. If a licensee has not paid the annual registration fee by October 1 his license can be canceled but will be restored within five years thereafter on payment of the delinquent fees and a \$10 penalty. If a license has been canceled for more than five years it can be reinstated only on the payment of \$25 and on the licensee's passing an examination the nature of which shall be determined by the Department of Law Enforcement.

### ILLINOIS

**Physician Cited for Bravery in Java**—Major Leon E. Robinson Aledo now stationed with the medical staff of the headquarters, U. S. Army forces in Australia, has been cited for outstanding performance of duty under fire in the campaign in Java, newspapers reported on May 20. The citation from Col. E. L. Eubank of the army air corps, commended Major Robinson for his 'splendid performance of duty while serving as senior medical officer of the nineteenth Bombardment group during the recent campaign in Java'.

**Changes in Hospital Superintendents**—Dr Edward F. Ross, managing officer of Alton State Hospital, Alton has been named to a similar position at the Manteno State Hospital, Manteno succeeding Dr. Walter H. Baer, who resigned to enter military service. Dr. Alfred P. Bay, assistant managing officer of Alton, has been named in charge. Dr. Edward A. Welch chief medical officer of the Veterans Administration Facility at Excelsior Springs, Mo., has been placed in charge of the new \$1,500,000 veterans' hospital near Marion.

### Chicago

**Dr. Newton Named Chairman of Chemical Section**—Roy C. Newton, Ph.D., vice president in charge of the research laboratories of Swift & Company has been elected chairman of the Chicago Section of the American Chemical Society. He will assume the position July 1. Dr. Newton received his degree of doctor in philosophy at the University of Chicago in 1924. He has been with Swift & Company since 1924.

**The Jessie Horton Koessler Fellowship**—The Jessie Horton Koessler Fellowship of the Institute of Medicine of Chicago for the aid of research in biochemistry, physiology, bacteriology or pathology will be available on September 1. The stipend is \$500 a year with the possibility of renewal for one or two years. Only such applications will be considered as are approved by the head of a department in the fields mentioned or by the director of a research institute or laboratory in Chicago and which stipulate that the recipient of the fellowship shall be given adequate facilities for carrying out the proposed research concerning which full information is required in the application. Applications will be received up to July 1 and should be sent to Dr. H. Gideon Wells, 950 East 59th Street, chairman of the committee on the Jessie Horton Koessler Fund. Since there are no formal blanks, application should be made by letter.

**Blood Grouping Tests Upheld in Illinois Paternity Case**—On March 15 newspapers reported the annulment of a marriage on evidence of blood tests that excluded the husband as the father of his wife's child. The annulment was granted to the husband on the ground of fraud, the judge holding that the young man was wrongfully induced to marry his wife on her claim that he was the father of her child now 1 year old. The newspaper stated that the case is the first in Illinois in which a court has voided a marriage on complaint of paternity fraud, with blood tests serving as proof. With the consent of attorneys Judge Harrington appointed Drs. Josiah J. Moore and Benjamin H. Neiman to make blood tests. Both physicians indicated in their reports that the husband in the case

could not be the father of the child. Included among the states that have passed legislation recognizing blood grouping tests for paternity are New York, Wisconsin, Maine, Ohio and New Jersey.

### INDIANA

**New District Health Unit**—Dr. John D. Winebiennner, Princeton, has been named director of the newly created district health department number five, with offices in Columbus. The district includes Bartholomew, Johnson, Shelby, Jackson and Decatur counties.

**Physician Interned by Japanese**—The St. Louis County Red Cross has been notified that Dr. Lawton E. Shank, Angola, has been interned by the Tokyo government, newspapers reported on May 18. Dr. Shank, who is said to have been on Wake Island when the Japanese attacked, graduated at the Indiana University School of Medicine, Indianapolis, in 1938.

**Personal**—Dr. Henry Vernon Madsen, Richmond, has been appointed superintendent of Smith-Esteb Memorial Hospital, Richmond, succeeding the late Dr. James R. Cooper. Dr. Paul D. Williams, assistant superintendent of the Logansport State Hospital, has been appointed medical superintendent of the Richmond State Hospital, effective April 1. He succeeds Dr. Paul S. Johnson, who resigned to enter private practice.

### IOWA

**Spotted Fever Vaccine Available**—The Rocky Mountain Laboratory of the U. S. Public Health Service, Hamilton, Mont., has given the Iowa State Department of Health, Des Moines, a supply of spotted fever vaccine, prepared from the chick embryo by the method of Herald R. Cox, Sc.D., Hamilton. Vaccine for active immunization of children and adults at the Tama Indian Reservation was forwarded by the state department of health and administered by Drs. Ira D. Nelson and Arthur A. Pace of the Indian Service at Toledo. The department is prepared to furnish vaccine free of charge in response to requests from physicians for immunization of persons subject to frequent exposure to the common dog tick.

### KANSAS

**Society Appoints Executive Secretary**—Mr. R. W. Callahan, who has been assisting the Shawnee County Medical Society in its medical care program for the indigent, has been appointed executive secretary for the society with offices at 311 National Reserve Building, Topeka.

**Changes in Health Personnel**—Dr. Donald E. Bux, Manhattan, has been appointed full time health officer of Cherokee County, with offices in Columbus, succeeding Dr. Joseph W. Spearing, who resigned to become medical director of the Kansas Ordnance Plant at Parsons.

**Institute for Psychoanalytic Training**—The Topeka Psychoanalytic Society will establish a Psychoanalytic Training Institute, according to the Bulletin of the Shawnee County Medical Society. Approval of the proposed institute was given by the American Psychoanalytic Association at its meeting in Boston recently.

**New State Health Officer**—Dr. Floyd C. Beelman has been appointed secretary and executive officer of the state health department of Kansas, according to the *Register* for April 15. He succeeds Dr. Fred P. Helm, who has been doing post-graduate work at Johns Hopkins University, Baltimore, under a leave of absence. Dr. Beelman had been serving as acting secretary until the recent appointment.

### KENTUCKY

**State Board Activities**—A \$125,000 three story addition to the state board of health will soon be started, newspapers reported on May 7. It is hoped that the structure will be completed by October. Plans have also been announced for the expansion of the state bureau of industrial hygiene providing for additional personnel and laboratory equipment.

**Changes in Health Officers**—Dr. Paul Q. Peterson, Hardinsburg, has been transferred from his position as health officer of Hancock County to a similar position in Warren County. Dr. Everett A. King, formerly of Fort Wayne, Ind., captain, U. S. Public Health Service, has taken over the work of the health officer in the Tri-County Unit composed of Hancock, Breckenridge and Meade counties. Dr. Peterson will succeed Dr. Lewis Fine, Bowling Green, who is retiring from the work because of ill health. Dr. Nicholas A. James, Tell City, Ind., is the new health officer of Perry County, it is reported.

### MAINE

**Annual Meeting of Medico-Legal Society**—The Maine Medico-Legal Society will hold its annual meeting at the Poland Spring House, Poland Spring, June 23. One session will be devoted to a discussion of legal angles of the medical examiner system. Dr. Joseph E. Porter, Portland, will address the meeting on "Medicolegal Aspects of Coronary Occlusion" and Dr. Alan R. Moritz, Boston, will discuss "Forensic Pathology."

### MARYLAND

**State Medical Election**—Dr. Charles R. Austrian, Baltimore, was elected president of the Medical and Chirurgical Faculty of Maryland at its meeting in Baltimore on April 29. He will be inducted into office on January 1. The next annual session will be held in Baltimore, April 27-28, 1943.

**Annual Health Conference**—The twenty-second annual health conference of the state department of health was held at the Longfellow Hotel, Baltimore, May 15-16. Included among the speakers were Dr. Allen W. Freeman, "A Public Health Program in Wartime" and Miss Marjorie M. Heseltine, consultant in nutrition, U. S. Children's Bureau, Washington, D. C., "Nutrition in Wartime." One session was devoted to a symposium on venereal diseases with the following Baltimore physicians:

Dr. Joseph Earle Moore, consultant in venereal diseases, state department of health.

Dr. Ferdinand O. W. Reinhard, director of the bureau of venereal diseases, Baltimore City Health Department.

Dr. Nels A. Nelson, deputy state health officer, state health department.

Dr. Edgar W. Norris Jr., surgeon, U. S. Public Health Service liaison officer, Third Corps Area, U. S. Army.

Dr. Albert F. Doyle, venereal disease control officer, Third Corps Area U. S. Army.

Dr. Thomas B. Turner, professor of bacteriology, Johns Hopkins School of Hygiene and Public Health.

There was also a round table discussion on the public health nurse as a teacher of home nursing on Saturday morning, May 16.

### MASSACHUSETTS

**Dr. René Dubos Appointed Professor at Harvard**—Rene Jules Dubos, Ph.D., member of the Rockefeller Institute for Medical Research, New York, has been appointed George Fabyan professor of comparative pathology and professor of tropical medicine at Harvard Medical School, Boston. He succeeds Dr. Ernest E. Tyzzer, who becomes professor emeritus. Dr. Dubos was born in France in 1901. He studied at the Institut National Agronomique, Paris, 1919-1921. He came to the United States in 1927 and became a naturalized citizen in 1938. He was instructor in bacteriology at Rutgers University, New Brunswick, N. J., from 1925 to 1927, when he became assistant at the Rockefeller Institute for Medical Research, serving there in this capacity until 1930. He was associate at the institute from 1930 to 1938 and associate member from 1938 to 1941 when he became a member. In 1940 Dr. Dubos received the John Phillips Memorial Award of the American College of Physicians and in 1941 the Mead Johnson Award of the American Academy of Pediatrics, in recognition of his development of gramicidin. Dr. Tyzzer graduated at Harvard in 1902 and joined the faculty the following year.

### MINNESOTA

**Institute for Human Genetics**—The Charles Fremont Dight Institute for the Promotion of Human Genetics is now in operation at the University of Minnesota, Minneapolis, according to the *Bulletin* of the Hennepin County Medical Society. Clarence P. Oliver, Ph.D., of the department of zoology, is in charge. Under the will of the late Dr. Dight the income of a fund of more than \$100,000 was bequeathed to the university to endow the institute. Studies will be directed particularly at present to "a search for traits, such as metabolic disturbances, which may have genetic bases but are recognized as hereditary traits." Dr. Dight once served on the staff of the University of Minnesota Medical School.

### MISSOURI

**State Medical Election**—Dr. Andrew W. McAlester Jr., Kansas City, was chosen president-elect of the Missouri State Medical Association during its annual meeting in Kansas City, April 27-29, and Dr. Homer L. Kerr, Crane, was installed president. Mr. E. H. Bartelsmeyer, St. Louis, is expected to be secretary of the association. The next annual session will be in St. Louis.



## NEW JERSEY

**Aurora Institute Lectures**—Dr George T Pack, New York delivered the first of the 1942 medical lectures sponsored by the Aurora Institute, Morristown, May 24, on 'Problems in Cancer Surgery'

**State Medical Election**—Dr Ralph H Hollmshed, Westville was named president-elect of the Medical Society of New Jersey at its annual meeting in Atlantic City in April. Dr Elms J Marsh Paterson, who was inducted into the presidency, is the third physician with this name to head the society. His father was president in 1891 and his grandfather in 1850. Dr Alfred Stahl, Newark, is the secretary of the society.

**Medical-Surgical Plan Approved**—The board of trustees of the state medical society has approved the organization of the Medical-Surgical Plan of New Jersey, to supersede plan number 2 of Medical Service Administration. The purpose of the plan will be to provide payment for eligible medical and surgical services rendered by fully licensed physicians to persons admitted as bed patients in approved hospitals. The plan will operate under an agreement with Hospital Service Plan of New Jersey, by which the physical work of administration will be performed by existing facilities of the Hospital Plan without profit to the latter. Matters relating to professional services, patient-physician relationship, payment of physicians services and other administrative details will be performed by the administrative personnel of Medical-Surgical Plan. The new project will be operated as a separate corporation from Medical Service Administration. The subscription rate will be 75 cents for each subscriber and \$2 for each family a month with certain limitation on the amount of services eligible for payment. The plan will not operate in any county of the state unless 51 per cent of the physicians participate.

## NEW YORK

**School Physicians Conference**—The New York State Association of School Physicians will hold its annual meeting and conference on June 22 at the Grand Union Hotel Saratoga Springs. The program has been arranged to interest school physicians, nurses, dental hygienists, health officers and general practitioners of medicine.

**Rabies in a Horse**—For the first time rabies in a horse has been reported to the state health department, according to a release of May 24. The horse became ill in his stable at a race track in Nassau County and bit its groom on the arm. The animal developed partial paralysis, tremors and staggering and was ordered destroyed. The horse's head was sent to the state laboratory, which later confirmed the diagnosis of rabies. The horse had come from a ranch in Texas and had been trained at Columbia, S C. It had raced in Florida and was later sent back to Columbia for further training. From there it was taken by rail to a race track in Nassau County. There were eighteen known contacts to the horse. The animal was said to have been under careful supervision, and no history could be obtained of its having been bitten by a dog or having been in contact with any rabid animal while in Nassau County. According to the state department of health, animal rabies had been prevalent in the vicinity of the Columbia stables where the horse had been in training.

## New York City

**Dr Jean Curran Chosen President of Long Island College**—Dr Jean A Curran, since 1937 dean of the Long Island College of Medicine, Brooklyn, has been elected president of the school. He fills the vacancy that occurred when Dr Frank Babbott, president since 1931, resigned last fall because of ill health. Since then he had been acting president.

**Retirements at Columbia**—The retirement of the following members of the faculty at Columbia University has been announced. James H McGregor, Ph D, since 1924 professor of zoology and a staff member since 1897. Dr Horatio B Williams, Dalton professor of physiology since 1922 and a member of the faculty since 1911, and Ernest L Scott, Ph D, since 1922 associate professor of physiology and a member of the staff since 1912.

**New Unit at Home for Incurables**—A new \$250,000 building was recently completed at the Beth Abraham Home for Incurables. The new unit considered the hospital wing of the home and offers accommodations for 62 additional patients as well as the following services: surgery, x-ray, electrocardiograph, laboratory and dental treatment, physical therapy and hydrotherapy. The original four story building cared for 256 incurable men and women of all types.

**Dr Loeb Named First Lambert Professor of Medicine**—Dr Robert F Loeb, professor of medicine, Columbia University College of Physicians and Surgeons, has been named Lambert professor of medicine at the school. Dr Loeb is the first incumbent of the chair, which was established in honor of Dr Samuel Waldron Lambert, dean of the school from 1904 to 1919, who died on February 9. A native of Chicago, Dr Loeb graduated at Harvard Medical School in 1919. He is 47 years of age.

**Lectures in Honor of Dr Schick**—A fund has been given to Mount Sinai Hospital to inaugurate a series of lectures in honor of Dr Bela Schick, who has retired after serving as pediatrician in chief at the hospital. The fund to finance the lectures was contributed by friends and associates. Dr Schick was born in Boglar, Hungary, in 1877. He received his degree in medicine at the Karl Franz University, Graz, Germany, in 1900. He practiced in Vienna and served as professor of pediatrics until 1923, when he came to the United States. He became a naturalized citizen in 1929. In 1913 he discovered the "Shick test" for determining susceptibility to diphtheria. He has received many awards. Dr Schick is now consultant to Mount Sinai Hospital.

## NORTH DAKOTA

**Personal**—Dr Paul T Cook has been made district health officer of six counties with headquarters in Valley City, succeeding Dr Robert G White, Valley City, who has been transferred to Bismarck, according to the *Journal-Lancet*.

**Meeting of Ophthalmologists**—Dr Gustaf A Larson, Fargo, was chosen president of the North Dakota Academy of Ophthalmology and Otolaryngology at its annual meeting in Jamestown May 19. Other officers are Drs Tracy W Buckingham, Bismarck, vice president, and Frederick L Wicks, Valley City, secretary-treasurer. Re-elected Dr Lawrence R Boies, Minneapolis, addressed the meeting on "The Problem of Deafness."

## OHIO

**State Medical Election**—Dr Clifford C Sheehurne, Columbus, was chosen president-elect of the Ohio State Medical Association at its meeting in Columbus, April 2 and Dr Edward J McCormick, Toledo, was inducted into the presidency. The next annual session will be in Toledo, the date to be announced later.

**Latin American Physician Awarded Fellowship**—Dr Leopoldo Luis Benedetti B, Panama, has been awarded a fellowship in pediatrics by the American Academy of Pediatrics, the training to be carried out at the University of Cincinnati College of Medicine. Dr Benedetti graduated at Georgetown University School of Medicine Washington D C, in 1936 and has recently been working for the Public Health Service of Panama.

**Conservation Conference**—"Our Health Depends on Our Soil" will be the theme of a conference on conservation nutrition and human health presented as a featured event of the Conservation Laboratory at Tar Hollow Camp near Chillicothe, June 27-28. The program arranged by Dr Jonathan Forman, Columbus, director general of the International Correspondence Club of Allergy, will consist of the following:

Wilbur Stout B E Columbus Water the Life Blood of Ohio  
William A Albrecht Ph D Columbia Mo The Nutrient Quality of the Soil  
Kenneth C Beeson Nutrient Quality of Plants and Its Relation to Soil and Animals  
Paul B Sears Ph D Oberlin Influence of Ohio's Climate on Plant Life  
Dr Clarence A Mills Cincinnati Influence of Ohio's Climate on Human Health  
Dr Forman Hidden Hunger in Man

The Conservation Laboratory is jointly sponsored by the department of education of the state of Ohio, the division of conservation and natural resources of the state of Ohio and Ohio State University, Columbus.

## OKLAHOMA

**Isolation Unit for University Hospital**—The Federal Works Agency has recently allotted \$125,000 to the University of Oklahoma School of Medicine Oklahoma City, to erect an isolation building adjacent to the University and Crippled Children's hospitals on the campus at Oklahoma City. The sum will cover the cost of building and equipment.



**State Medical Election**—Dr James Stevenson, Tulsa, was chosen president-elect of the Oklahoma State Medical Association at its annual meeting in Tulsa, April 23, and Dr James D Osborn Jr, Frederick, was installed as president. Dr Galvin L Johnson, Pauls Valley, was chosen vice president. Dr Lewis J Moorman, Oklahoma City, is secretary. The 1943 session will be in Oklahoma City.

## PENNSYLVANIA

**Half Century of Milk Sanitation**—The completion of fifty years in milk sanitation was observed at a meeting in Pittsburgh, May 14, by the Pennsylvania Public Health Association in cooperation with the Pennsylvania Association of Dairy Sanitarians and the Tri-State Food and Health Officials. The program reviewed the start of the bacteriologic control of milk quality in this country through the laboratory work done in Boston by the late Dr William T Sedgwick and his associates and recalled that in 1892 a paper by Sedgwick and Batchelder on "A Bacterial Examination of the Boston Milk Supply" was published in the *Boston Medical and Surgical Journal* and that in the following year the late Dr Henry L. Coit began his "memorable work on certified milk," and pasteurized milk stations were established in New York City by Nathan Straus. As a result of papers presented at the anniversary meeting, the Pennsylvania Public Health Association at its regular annual meeting on May 14 adopted a series of resolutions acknowledging Sedgwick's contributions to public health and urging the continued pasteurization of milk and the control of raw milk as a public health measure.

## Philadelphia

**Pathologist Given Strittmatter Award**—DaCosta Oration—Dr Joseph McFarland, emeritus professor of pathology, University of Pennsylvania School of Medicine, was presented with the 1941 Strittmatter Award of the Philadelphia County Medical Society on May 7. The award, which consists of a scroll describing the accomplishments of the recipient and a gold medal, was presented by Dr Jacob Parsons Schaeffer, chairman of the society's committee on the Strittmatter Award. Dr William Wayne Babcock, professor of surgery and clinical surgery, Temple University School of Medicine, delivered the annual DaCosta Oration before the society on "The Life of a Surgeon."

**Annual Postgraduate Lectures**—The Ninth Annual Postgraduate Clinical Lectures given under the auspices of the attending staff of Mercy Hospital and the school for nurses were offered May 18-22 by

Dr William D Stroud Effort Syndrome

Dr Clyde H Kelehner, Allentown, Pa, Nonarticular Rheumatism and Its Treatment

Dr Donald Guthrie, Sayre Pa. Diagnosis of the Diseases of the Thyroid with Special Reference to the Treatment of Different Cases

Dr William Bates, Abdominal Emergencies with Regard to the General Practitioner

Brook J Masuda, D D S, Acute Infections, Traumatic Injuries and Surgery of the Head and Neck

Dr Harrison F Flippin, Factors Responsible for Successful Sulfonamide Therapy

## TEXAS

**Brinkley Dies**—Dr John R Brinkley, "goat gland" specialist, died May 26 at a hospital in San Antonio. Newspapers report that he had been under treatment for a heart ailment since the amputation of a leg in Kansas City, Mo, last winter. He was 56 years of age.

**Study Courses**—The Dallas Southern Clinical Society announces a series of summer courses for the continuation of medical study to be held in Dallas June 22-24, covering cardiovascular disease, dermatology, fractures and obstetrics. Additional information may be obtained from the secretary of the society at 1133 Medical Arts Building.

**Tuberculosis Study at San Antonio**—The U S Public Health Service recently conducted a tuberculosis survey in San Antonio at the request of city officials and its health officer Dr William A King. Suspects between the ages of 12 and 50 were examined at various centers. A feature of the study was the use of a new 35 mm camera, with which it was estimated that some thirty thousand roentgenograms would be made. The staff sent by the public health service included a physician, technician, secretary and several employees, according to the state medical journal.

## WASHINGTON

**Annual Registration Due July 1**—All practitioners of medicine and surgery holding licenses to practice in Washington are required by law to register annually on or before July 1 with the director of licenses and at that time to pay a fee of \$5, thereby renewing their licenses for one year. Failure on the part of a licensee timely to register and pay the required fee renders his license to practice invalid, but his license may be reinstated on written application to the director and on payment of the delinquent fees and a penalty of \$10.

**Society News**—The King County Medical Society devoted its meeting, May 4, to a panel discussion on therapy selection for cancer in various parts of the body, the speakers were Drs Donald V Trueblood, Charles B Ward, Simeon T Cantel, Paul R Rollins and Erroll W Rawson, Seattle.—Dr Leon A Goldsmith, Portland, Ore, addressed the Walla Walla Valley Medical Society, Walla Walla, April 9, on "The Heart in Pregnancy"—Dr Frederick Lemere, Seattle, discussed "The Conditioned Reflex Treatment of Alcoholism" before the Multnomah County Medical Society in Portland, May 6.

## GENERAL

**American Physiotherapy Association**—The twenty first annual conference of the American Physiotherapy Association will be held at College Camp, Williams Bay on Lake Geneva Wis, June 28 to July 3. The program will be devoted to discussions on the treatment of war injuries and anterior poliomyelitis. A short course in applied anatomy is also included. The association also announced a graduate program in physical therapy at Northwestern University Medical School, Chicago, July 6 to 24.

**Association of Neoplastic Diseases**—The summer meeting of the American Association for the Study of Neoplastic Diseases will be held at the University Hospital, Baltimore, June 25-27, under the presidency of Dr Julian L Rawls, Norfolk, Va. Wilson C Grant, M S, and John C Krantz Jr, Ph D, Baltimore, will discuss "Effect of Certain Substituted Ureas on Enzyme Systems of Walker Sarcoma 319." Two sessions will be devoted to microscopic pathology and one to tumors of the lung. Physicians are asked to bring their microscopes.

**Planned Parenthood**—The Tennessee and Florida state medical associations adopted resolutions at their recent annual meetings approving the furnishing to women by physicians of information on family planning. This action brings the total to six states that have now adopted resolutions endorsing the dissemination of family planning advice by physicians. According to an announcement from Dr Claude C Pierce, medical director of the Planned Parenthood Federation of America Inc, New York, three states have been providing family planning information to the indigent in health department clinics with the approval of the local county medical society.

**Sight-Saving Classes**—The National Society for the Prevention of Blindness, Inc, New York, announces a group of sight-saving classes to train teachers and supervisors to be conducted at the following universities in cooperation with the national society: Peabody College for Teachers, Nashville, Tenn, June 22-August 1, Wayne University, Detroit, June 29-August 7, State Teachers College, Buffalo, June 29-August 7 and Teachers College, Columbia University, New York, July 6-August 14. The courses will interest teachers of special classes for the education of children with seriously defective vision and will help nurses and social workers in conserving the sight of children in their care.

**Harvey Cushing Society**—Dr Eric Oldberg, Chicago, was chosen president of the Harvey Cushing Society during its meeting in New York, May 18-20. Dr Francis D Ingraham, Boston, is vice president and Dr Louise Eisenhardt, New Haven, Conn, secretary-treasurer. Among the speakers at the meeting were Drs Lawrence S Kubie and Sydney G Marzolin, New York, on "A New Quantitative Method for Studying Variations of the Respiratory Cycle" and "A Physiological Method for the Induction of States of Partial Sleep." Dr Stafford L Warren, Rochester, N Y, "Ethyl Iodophenylcyanate (Pantopaque): A New Contrast Medium for the Visualization of the Central Nervous System," and Drs James Watts and Robert H Groh, Washington, D C, "Vascular Facial and Cranial Neuralgia." The session concluded with a panel discussion on war injuries. The next meeting will be held in Chicago in 1943.

**Resolutions Urge Coordination in Industrial Hygiene Services**—At a meeting in Washington, D C, of the Conference of Governmental Hygienists, April 9-11, resolutions were adopted governing participation in local and national

defense service. One resolution recommends that the division of industrial hygiene of the National Institute of Health U S Public Health Service in cooperation with the special committee on industrial health and medicine of the Office of Defense Health and Welfare Service assume the leadership in developing plans to extend health services in small industries and in promoting the voluntary establishment of such programs by management. Another resolution urged the health service to direct the development and administration of the immediate mobilization of medical nursing and hospital facilities in critical war industries areas stressing the need for effecting closer working relationships with state and local departments of health for the extension of general public health services to war workers and their families.

**Special Society Elections**—Dr George Blumer New Haven was elected president of the Association of American Physicians during its annual meeting in Atlantic City May 5-6. Other officers include Drs Warfield T Longcope, Baltimore vice president and Joseph T Wearn Cleveland, secretary. Dr John B Barnwell Ann Arbor Mich, was chosen president elect of the American Trudeau Society at its meeting in Philadelphia May 8. Drs Henry Franklin Carman Dallas Texas was chosen vice president and Julius L Wilson New Orleans secretary treasurer. Dr James L Gamble Boston was chosen president of the American Pediatric Society at its meeting in Skytop Pa April 30-May 2. Dr Hugh McCulloch St Louis is the secretary. Dr Charles J Imperatori New York was elected president of the American Laryngological Association at its meeting in Atlantic City May 26. Dr Harold I Lillie Rochester Minn was chosen vice president to succeed Dr Arthur W Proetz St Louis who was named secretary. Dr Edward A Strecher professor of psychiatry, University of Pennsylvania School of Medicine, Philadelphia was chosen president-elect of the American Psychiatric Association at the meeting in Boston May 18-22 and Dr Arthur H Ruggles Providence R I was installed as president. The winner of the contest for the design of an emblem announced last year, was Wheeler Williams New York sculptor. The emblem is to be used in the centennial celebration of the association in 1944. Philadelphia where the association was founded, has been designated the place for the centennial celebration. The 1943 meeting will be held in Detroit.

**Guggenheim Fellowships**—The John Simon Guggenheim Memorial Foundation New York has announced eighty-two fellowships carrying total awards of \$196,600. Included among the many fellowships are the following for work in biology.

Thomas Rogers Forbes Ph.D. instructor in anatomy Johns Hopkins University School of Medicine Baltimore studies of the physiology of reproduction.

Robert Gaunt Ph.D. assistant professor of biology New York University studies of the functional control of the adrenal cortex.

Dr Salvador E Luria research assistant in surgery Columbia University New York studies of certain biologic and physicochemical properties of bacteriophage.

Jane Marion Oppenheimer Ph.D. instructor in biology Bryn Mawr College Bryn Mawr Pa studies of the development of structure and function in the central nervous system of fishes.

Charles L Huskins Ph.D. professor of genetics McGill University Montreal Quebec Canada the preparation of a book on the cytology and genetics of plants animals and man.

David R Goddard Ph.D. assistant professor of botany University of Rochester New York a study of the respiratory enzymes of higher plants.

Mr Dietrich Bodenstern research associate in biology Stanford University Stanford University investigations of the problem of metamorphosis in insects with special emphasis on the role of hormones in development.

Since the establishment of the foundation seventeen years ago, one thousand two hundred and ten fellowships have been awarded under stipends totaling \$2,488,000.

**Grants Awarded for Research in Nutrition**—Grants totaling \$125,000 have been awarded by the Nutrition Foundation, Inc., New York, to finance a broad program for fundamental research in the science of nutrition. The grants are the first allotted by the foundation which was formed in December. Thirty-six grants ranging from \$250 to \$7,000 each went to twenty-five universities and research groups in various parts of the United States and Canada. Five universities received multiple grants, these were Columbia, Yale and the Universities of Illinois Wisconsin and Minnesota. Institutional grants went to the Children's Fund of Michigan, Detroit, the Food and Nutrition Board of the National Research Council and the New York Agricultural Station, Geneva, N Y. The projects to be financed were chosen from eighty-one applications by the foundation's scientific advisory committee, of which Charles Glen King, Ph.D. is director. Among the studies to be considered are nutrition in relation to fatigue, effects of environment on nutritional requirements and a natural butter of high nutritional value and high melting point suitable for use in the tropics.

**Survey of Philanthropic Foundations**—A survey of reports of three hundred and fourteen foundations recently completed by Raymond Rich Associates, New York, indicates that for medical research medical education, the erection and support of hospitals and other purposes related to medicine and public health, the foundations granted individuals and institutions 30.4 per cent of their total disbursement, or \$12,273,590, during 1940. Twenty-nine per cent of the total gifts, or \$11,696,605 was given to general education. The other leading fields in which foundations subsidize projects are, in the order of volume of grants social welfare \$4,395,898, the physical and biologic sciences \$3,783,643, social sciences \$1,528,510, religion \$1,224,044 and government and public administration \$1,062,917. In bringing together these and other figures covering foundation activities and structures, the Rich organization restricted its report to foundations that paid out at least \$1,500 during 1940 for projects not directly controlled by foundation staff members. Previous surveys provide comparable figures for 1937, 1934 and 1931. Although the grants of several large foundations provided an important part of the subsidies for medical and public health projects, gifts over one million dollars in 1940 accounted for only 5.6 per cent of the total grants in this field as compared with the 1937 gifts of over one million dollars, which accounted for 7.9 per cent of the total for that year. However, the smaller foundations have devoted an increasingly larger share of their income to medical research. The four gifts of more than a million dollars in this field in 1940 were the Rockefeller Foundation \$2,884,054 W K Kellogg Foundation \$1,505,480 the Commonwealth Fund \$1,401,730 and the Duke Endowment \$1,086,581. Gifts of the Carnegie Corporation of New York for medicine and public health amounted to \$796,104 in 1940. John and Mary R Markle Foundation \$685,805 and the National Foundation for Infantile Paralysis Inc \$515,048. Projects in the educational field received 29 per cent \$11,696,605 of the grants paid in 1940. In the education field the General Education Board a Rockefeller fund, once again led with grants of \$3,033,084 in 1940 and the Duke Endowment contributed \$1,873,825. The third and fourth largest source for foundation funds in support of educational projects were the Board of Directors of City Trusts of the City of Philadelphia and the Carnegie Corporation of New York, which granted \$1,756,471 and \$1,624,446 respectively. In addition to the general educational projects surveyed in the main section of the report, a special survey has been made for the first time of support available for education through student loan funds. The thirty-two funds under survey made loans totaling \$1,158,740 during 1940 applicable to tuition in more than one institution. Social welfare received \$4,395,897, or nearly 11 per cent, of the total reported. Although ranking third in volume of grants more foundations contributed to this field than to any other. The largest two donors to social welfare projects in the year under survey were the Carnegie Foundation for the Advancement of Teaching \$1,929,443 and the New York Foundation \$285,300. The board of directors of City Trusts of the City of Philadelphia gave the third largest contribution in this field, \$127,559. The physical and biologic sciences received the fourth largest share of the grants a total of \$3,783,643. The leading donors of these funds were the Rockefeller Foundation with gifts of \$2,882,027 in 1940 the General Education Board \$478,825 and the Carnegie Institution of Washington \$151,697. Grants for the field of social sciences totaled \$1,528,510 a substantial increase over the total contributions in 1937 which puts this in fifth place in 1940 as compared with seventh place in the last study. Large grants in this field were made by the Rockefeller Foundation \$576,213 and the Carnegie Corporation of New York, \$428,996. This survey brings up to date a similar survey of two hundred and forty-three foundations published in 1939.

## FOREIGN

**Personal**—The William Julius Mickle Fellowship of the University of London has been awarded to Dr Alexander Fleming, professor of bacteriology in St. Mary's Hospital Medical School, London according to *Science*.—Dr Robert K. S. Lim, who until the war with Japan broke out in 1937 was professor of physiology, Peiping Union Medical College, Peking, China, and who since then has been in charge of the medical services of the Chinese Red Cross, has been elected foreign associate of the National Academy of Sciences. Charles Galton Darwin, Sc.D. since 1938 director of the National Physical Laboratory, London, has been named scientific adviser to the British Army Council, according to the *New York Times*.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

April 25, 1942

#### The Increase in Tuberculosis

The slight increase in tuberculosis since the outbreak of war has been reported in previous letters. In a letter to the *Times* Sir Charles Wilson, president of the Royal College of Physicians, states that the increase is probably due to more than one cause. To limit the spread of the disease we must recognize it early, before the person affected has become a source of infection, when indeed he does not know that he is ill. This can be done only by x-ray examination of the chests of all the men and women in the community. During the past eight years the Royal College of Physicians has carried out a survey of his kind on seven thousand nurses, students and office workers. Cannot this be done on a national scale in time of war? In the United States, Canada and Germany the chest of every recruit is roentgenographed as a matter of routine. In England every rating in the navy is thus examined when he passes through the depot and also the flying personnel of the air force. The army has made a beginning by examining five thousand men at a special center. The question is not whether such examinations are possible but on what scale in time of war. Only a limited personnel is available, and months must elapse before apparatus ordered for mass radiography can be delivered. However, it is possible to examine every recruit for the fighting forces and desirable to extend the examination to some limited field of industry. For the individual with a latent focus there would be the advantage that he would not be submitted to work for which he is physically unfitted and that he would be treated in the most hopeful stage, for his fellow workers, that they would not be exposed to infection. The state would gain by a drastic cut in pensions for tuberculosis. During and since the last war the United States spent \$900,000,000 in pensions for the tuberculous.

#### Hospital for Treatment of Industrial Injuries

The first of a new type of hospital—one specialized for the treatment and rehabilitation of persons injured in industry or road accidents—has been established. In the great industrial city of Birmingham the Queens Hospital, an important general hospital and medical school for a century, has been specialized for this purpose. The process of conversion was begun nearly a year ago but is not yet completed. In the first nine months 1,500 inpatients and 11,000 outpatients were treated in this accident hospital. The latter are now attending at the rate of 350 a week. The expenditure of the hospital is estimated at \$300,000 a year and is to be met by contributions from the Ministry of Health, the Hospital Contributory Association, the Birmingham Corporation and a subsidy from industry.

All hospitals in industrial areas of course afford service to industry, but the Birmingham Accident Hospital, in addition to being entirely a casualty service, is intended to be a training center for industrial nurses and ambulance and first aid workers. It will be connected with Birmingham University as a teaching center for undergraduate and postgraduate medical students. It will also be a center for industrial medical officers attached to the various works. Regular meetings with the medical staff of the hospital will be held and cases will be discussed. It may become a center from which medical officers are recruited. As the full title, "Birmingham Accident Hospital and Rehabilitation Center" shows, the patients will be treated until they are fit to return to work. Vocational training centers may be established in the larger factories in association with the hospital for those who cannot resume their former occupation.

#### Sir Thomas Lewis Awarded Medal

The Copley medal, the highest honor of the Royal Society, has been awarded to Sir Thomas Lewis. The president, Sir Henry Dale, pharmacologist, described Lewis as "renewing and carrying forward with special directness the great tradition which William Harvey created before the society was founded." The Copley medal is given yearly for eminence in any branch of natural science and is entirely free from national restrictions. Among biologists who have received it are Darwin (1864), Pasteur (1874), Bernard (1876) and Virchow (1892). Few men have gained this honor at such an early age as Lewis. Only once in the last hundred years has it been given to a clinician (Lord Lister in 1902). The president described Lewis's work as still in vigorous progress but for interruption by war duties and as the application of precise and controlled methods of experimental research to problems of clinical medicine. This has enabled him to achieve a detailed analysis of abnormalities of function produced by disease, injury or hereditary defect. So far his attention has been centered on the circulation of the blood and its disorders. Attracted by the work of Mackenzie to the study of abnormal rhythms of the heart, he recognized, about 1908, the opportunity for closer investigation offered by the string galvanometer of Einthoven. With its aid he identified auricular fibrillation as the cause of a particular kind of complex irregularity. He traced with astonishing precision of measurement and timing the point of origin and course of the rhythmic waves of excitation and contraction in the normal heart of the dog and finally, for comparison, in other vertebrates. This is one of the noteworthy achievements of experimental physiology in our time and has given to physiology much of the present detailed knowledge of the nature of the heart beat. But for Lewis its greater importance lay in giving to clinical medicine the background for an accurate picture of disturbances of the normal mechanism and an advance in the diagnosis, prognosis and treatment of disordered action of the heart.

In 1917 Lewis began investigations by direct experiment on the blood vessels of the human skin. He elucidated the means by which the resistance to the flow of blood is maintained and varied, including their complex reactions to chemical substances akin to histamine, which he showed were released from the cells of the epidermis by injury or irritation. He extended these investigations to vascular disorders of the limbs and more recently to pain and functional defects in muscles and nerves due to interruption of the blood supply. He has been an inspiring leader of young workers in clinical research as an experimental science.

#### The Food Situation

In the House of Commons Major Lloyd George, parliamentary secretary to the Ministry of Food, stated that twelve months ago the country was enduring the worst trials of the war on the food front. Our principal sources of supply had been cut off, we were subjected to intensive aerial bombardment of our ports and industrial centers and our shipping was attacked by submarine and airplane. During the winter of 1940-1941 our food imports showed a substantial decline. Moreover, food importing was reduced both by the loss of ships and by diversion to the support of military operations abroad. But thanks to stocks which had been accumulated we maintained our supplies. During the second half of 1941 a substantial improvement occurred and stocks in December 1941 were 30 per cent higher than in 1940. This was due to two factors: increased agricultural production and substantial help from the United States in which canned meats and milk products gave us exactly what we wanted to improve our dietary.

This year would be a difficult period. We had to decide whether any particular ship could best contribute to us by bringing food or by supplying our armies abroad. It might be necessary to reduce our existing rations. We had passed through two and one-half years of war without any...

sacrifice, though with inconvenience and loss of freedom. The system of rationing and price control had worked very well and enabled each consumer to get a fair share. The ministry was trying to look after food according to the needs of the people. There were five thousand five hundred workers' canteens serving substantial meals as well as snacks. Eighty per cent of the miners had canteen facilities, and before long 95 per cent would have them. Special efforts were made, with every evidence of success, to prevent children suffering from the restrictions of food supplies. About six hundred and fifty thousand were receiving meals at school and three and a half million were obtaining milk in addition to priority supplies at home. Supplies of black currant juice and cod liver oil were made available to them, and they had priority for oranges. Need rather than ability to pay had been the mainspring of the ministry's policy.

### The Importance of Dried Foodstuffs

In a series of lectures on planned nutrition in wartime, Prof J C Drummond called attention to the importance of dried foodstuffs. Recently the Low Temperature Research Station at Cambridge produced experimental batches of dried vegetables containing about 80 per cent of the original vitamin content of the fresh vegetable. The vitamin loss from exposure to air had been prevented by packing the dried product in an inert gas. Thus dried vegetables could be kept indefinitely at the full vitamin value of the material as put in the container. In the case of meat the Cambridge experiments resulted in a product which, on addition of water, was reconstituted so as to be practically indistinguishable from a cooked mincemeat and usable in the form of rissoles and the like. The product also maintained its character for several years when kept in a gas pack and was a great advance on anything heretofore produced as dried meat. A combination of dried vegetables and meat in the form of powder has also been produced and on addition of hot water gives a palatable soup. Professor Drummond thinks that the drying of foodstuffs will become as important as the canning industry has been during the last thirty years. The dried product, when reconstituted, is similar in palatability to the fresh material, while the vitamin content and other materials specially valuable in wartime nutrition are preserved.

### Increased Rationing

Dried fruits and certain cereals and pulses have been rationed for the first time. They include rice, sago, tapioca, lentils, dried peas and all dried fruits, including evaporated fruits and dates. They are not rationed by quantity per head, but coupons must be surrendered in order to obtain them, according to a scale laid down.

### The Use of Vitamins in Hemorrhagic States

At the Section of Therapeutics and Pharmacology of the Royal Society of Medicine Dr Harold Scarborough said that the effect of vitamin D in controlling the bleeding tendency in jaundice had been shown by Ivy and his associates but was in some danger of being forgotten in the spate of literature about vitamin K. No satisfactory explanation of the effect of vitamin D was available, but it was known to increase the serum calcium, which had a function in coagulation. As to the effect of vitamin C on the hemorrhagic state, a low capillary condition was found in scurvy, but save in special circumstances he had never found that ascorbic acid increased capillary resistance. Lack of capillary resistance did not appear to be due to lack of ascorbic acid. Scurvy was a complex deficiency state and in certain conditions capillary resistance might be temporarily increased. There was evidence that petechial bleeding might be produced by deficiency of vitamin P. Many of the bleeding diseases were associated with low capillary resistance, i.e. with excessively fragile capillary walls. If purpura depended on this administration of vitamin P would be the logical treatment. Scarborough reported a case of petechial bleeding and epistaxis

in a woman of 75 in which petechial bleeding stopped under administration of vitamin P and recurred when this was stopped.

Dr R G Macfarlane said that hemorrhagic disease in the newborn responded to vitamin K. Mr A L Bacharach described animal experiments with vitamin P which showed that when ascorbic acid failed to improve purpuric bleeding in deficiency states the purpuric spots cleared up under vitamin P. Such cases had also been seen in clinical practice. In reply Scarborough said that only certain forms of purpura were susceptible to treatment by vitamin P. The form found in congestive heart failure was not, at least with such preparations as were now available.

### Naval Surgeon Who Worked to the End

Among those saved when the battleship *Prince of Wales* was sunk by Japanese air attack is Surgeon Lieut-Comdr E D Caldwell. While the vessel was sinking he remained on board administering morphine, bandaging the wounded and placing them on rafts. Only when the ship heeled over a minute before her last plunge did he follow his patients into the sea.

## BRAZIL

(From Our Regular Correspondent)

April 4, 1942

### War Medicine in Brazil

The problems of war medicine are being studied by Brazilian doctors as a means of cooperating in the struggle against the common enemy. Many doctors are devoting all their time to military medicine. The medical societies have held many discussions about war medical problems.

In São Paulo, which is one of the principal centers of the country, the Associação Paulista de Medicina is engaging in an extensive series of conferences. At the first meeting Prof Bernardes de Oliveira emphasized the good results from the use of sulfanilamide applied at once locally to wounds on the battlefield. This method has already been used on injured workers of the Paulista Railway, and patients have been removed safely after fifteen or sixteen hours as far as 400-500 kilometers. At the same meeting excellent effect of sulfanilamide by arterial injection was pointed out, according to the method proposed by Dr Eurico Branco Ribeiro, in the treatment or prevention of infection of the extremities.

Later Prof Alípio Correa Netto discussed the modern management of burns.

### Tuberculosis and Syphilis in Prostitutes in Rio de Janeiro

The problem of tuberculosis among prostitutes has been studied by Drs Aloisio de Paula, Francisco Benedetti and Cecilia Ribas Ferreira. Chest roentgenograms of 1,684 women revealed active tuberculosis in 36. Among 26 with the infiltrative type 19 had the initial form, in 5 of whom it was so slight as to be considered borderline. There was observed a high incidence of syphilis. According to roentgenographic demonstration by Abreu's method the rate of aortitis was 11.1 per cent in 1,684 women.

### Immunization Against Tuberculosis

The wide use of BCG vaccine against tuberculosis in Rio de Janeiro is demonstrated by recent statistics published concerning the work of the Instituto Viscondessa de Moraes. In 1941 the institution administered the vaccine to 14,632 children. Since 1927 the number of immunized children has increased to 105,858.

### Death of Professor Torres

Prof Lemos Torres, director of the Escola Paulista de Medicina, was thrown from a horse and died immediately. He was a well known Brazilian scientist whose works on cardiol-



ogy and phthisiology are spread throughout all Latin America. He proposed a personal sign to indicate small pleural effusion. As the new director of the Escola Paulista de Medicina Prof Alvaro Guimarães Filho, teacher of obstetrics in the school, has already been named.

PALESTINE

(From Our Regular Correspondent)  
April 30, 1942

Report of the Health Department

In the report of the health department for the year 1940 just published some data are remarkable. Out of the total expenses of the government, only 3 per cent went to the expenses of the department of health. The general death rate per thousand population rose from 3.90 in the year 1939 up to 18.49 in 1940. This increase is to be referred mainly to the existing epidemic of measles. For each of the communities births, deaths and child mortality have been as follows:

|            | Population | Mortality<br>per<br>Thousand<br>Population | Births<br>per<br>Thousand | Child<br>Mortality<br>per<br>Thousand<br>Births |
|------------|------------|--|---------------------------|---|
| Christians | 118,866    | 12.21                                      | 31.11                     | 107.00  |
| Moslems    | 873,451    | 24.74                                      | 47.42                     | 147.14  |
| Jews       | 456,001    | 8.18                                       | 23.72                     | 59.07   |
| Others     | 12,413     | 18.13                                      | 50.75                     | 106.35  |

The main causes of death have been diarrhea and enteritis 18.1 per cent, pneumonia 18 per cent, diseases of the heart 6.9 per cent, cancer and other malignant tumors comes sixth, 4 per cent, followed by measles, 3.4 per cent. The infectious diseases during the year 1939 in comparison with the year 1940 show incidence of measles rose from 237 up to 14,469 cases, with deaths from 11 in 1939 up to 1,422 in 1940, typhoid 1,235 cases in 1939 with 134 deaths and 1,684 cases in 1940 with 165 deaths. Two new endemic fields for leishmaniasis have been discovered in Jericho and Haifa, where 200 patients were treated during the year.

Second Nutrition Conference in Jerusalem

In December 1941 Col G. W. Heron, head of the health department, controller of supply, spoke at the second Nutrition Conference in Jerusalem. A list of the simplest of all daily rations from commodities of local production was given by Colonel Heron. This list included flour, wheat, millet, olive oil, onions, lentils, raisins, oranges, grapes, melons and vegetables. Milk, the supply and distribution of which had been announced as being the main topic for consideration at the conference, was not included. Later Colonel Heron included milk in his list of highly desirable foods rather than among the essentials.

Control of Malaria in Palestine

Recently the government published "A Review of the Control of Malaria in Palestine (1918-1941)," which, with the help of very instructive maps, shows the most successful efforts to fight this disease undertaken by the department of health. In 1918, when the Palestine administration was taken over by Great Britain and Jewish colonization was just starting, malaria was one of the main scourges of the country. As the report states, the great success of the antimalarial work has been made possible mainly by "that unique cooperation from both Arab and Jew which is a distinctive feature of the Palestinian campaign against this disease." The rate of enlarged spleens, for example, dropped in Jerusalem—a notorious center of malaria—from 44.3 per cent in 1918 to 1.6 per cent in 1940. While in 1922 about 7.2 per cent of government dispensary patients in urban districts were treated for malaria, only 0.5 per cent

attended dispensaries all over Palestine in 1940. According to the heading of the brochure, one would expect to find more about the antimalarial work done by the Jewish health authorities, that is by the hygiene department of the Hebrew University with its Malaria Research Station at Rosh Pina. The great progress achieved with the assistance of this part of the population has already been mentioned in the Report of the British Royal Commission under the late Earl Peel in 1937.

Fourth Microbiological Congress

In October 1941 the fourth Microbiological Congress took place in Jerusalem under the chairmanship of Prof I. J. Kligler. The subjects treated included general biology and physiology of micro-organisms, the effectiveness of certain chemotherapeutic drugs and immunobiologic questions. Papers were read by Leibowitz, Hossain and Avineri Shapiro on the fermentation of polysaccharides and disaccharides through micro-organisms. As a result of these investigations, it appears that direct fermentation of complex sugars with no preliminary hydrolysis (maltose) is possible. Ernst Simon reported on the fermentation of butanol-acetone through Clostridium (Weizmann), Kligler and Grossowitz reported on the effect of nicotinic acid on the bacterial metabolism, Sulman on the degradation of estrogenic hormones by means of certain germs, stressing the importance of proteus X and certain kinds of yeast in this connection. Adler and Foner gave an outline, among other subjects, on their cultivation methods of intestinal protozoa on semisolid culture mediums, especially the cultivation of Endameba histolytica on twenty-four hour cultures.

Diagnostic problems were preponderantly referred to by Gurevitch, who gave an account of his diagnostic and differential diagnostic results obtained with the typhoid material of the Rothschild Hadassah University Hospital.

Guest Lecturers

Dr E. G. Holmes, fellow and tutor of Downing College, Cambridge, and university lecturer in biochemistry, gave two guest lectures on the "Effects of Toxemia on Metabolic Processes" at the Strauss Health Center in Jerusalem in November 1941.

In September 1941 Lieutenant Colonel Fruchaud, professor of surgery (chief medical officer of the Hadfield Spear Hospital Unit, consulting surgeon of the Free French Forces), reported on "War Wounds and Their Treatment." He presented two methods—the French method of wound excision ("ephuchage") and the Spanish method (occlusion with adhesive plaster). Fruchaud was in favor of the former and stressed the necessity of completely removing the entire dead tissue, while later only a simple dressing with no rinsing of the wound is necessary.

Dr Henry Wigderson, Appointed Head Neurosurgeon, Hadassah, Jerusalem

Dr Henry Wigderson, former instructor in surgery (neuro surgery) at New York University College of Medicine, who has been appointed head neurosurgeon in the Rothschild Hadassah University Hospital, Jerusalem, gave his first public lecture, on the occasion of the second Congress of Neurology in Tel-Aviv, April 17-19.

Army Ambulances

Three standard army ambulances built and equipped by the people of Tel-Aviv were presented to the army. The ambulances, decorated with the Tel-Aviv crest, were handed over in March to the area commander, Colonel Wilkins, by the mayor of Tel-Aviv, Mr. Rokach.

Plague in the Haifa Region

For the first time after a long period plague infected rats appeared in the Haifa region in 1941. Ten human cases (resulting in two deaths) were reported.



## Deaths

**John Miller Turpin Finney** <sup>†</sup> professor emeritus of surgery at Johns Hopkins University School of Medicine, died, May 30 at his home in Baltimore aged 78.

Dr Finney was born in Natchez, Miss., June 20, 1863. His fundamental education included Princeton from which he graduated in 1884 and where he played on the football team, Harvard Medical School, Boston with graduation in 1889 and the Massachusetts General Hospital. He joined the faculty of Johns Hopkins University School of Medicine in 1893 and was subsequently associate professor of surgery, professor of clinical surgery and professor of surgery. He had been professor emeritus since 1933. Concurrently during his long teaching career Dr Finney held many staff positions at the Johns Hopkins Hospital serving too on the staffs of the Union Memorial Hospital, Church Home and Infirmary Hospital for Women and Sinai Hospital.

Dr Finney was a member and past president of the American Surgical Association, Medical and Surgical Faculty of Maryland, Inter-State Post Graduate Association of North America, a founder and past president of the American College of Surgeons, a past president of the Southern Surgical and Gynecological Association and a member of the Society of Clinical Surgery. Included among the organizations in which he held honorary fellowships were the Medical Society of London, the Hunterian Association of London, the Royal College of Surgeons of England and the Royal College of Surgeons of Ireland. At one time he was offered the presidency of Princeton and he was for long a member of its board of trustees.

Dr Finney entered World War I with the title of major as director of the Johns Hopkins Hospital medical unit. He was awarded the Distinguished Service Medal by the American government for his services as chief consultant with the rank of brigadier general to the American Expeditionary Forces. In 1920 he was decorated with the insignia of an officer of the French Legion of Honor on behalf of the French government for his ministrations to French soldiers in American hospitals overseas. He was also made *Commandeur de l'Ordre de la Couronne* Belgium. In 1931 he was awarded the Henry Jacob Bigelow Gold Medal by the Boston Surgical Society for his scientific contributions to and distinguished services in the field of surgery. In 1931 he was appointed consultant to the Committee on the Costs of Medical Care and in 1934 to the Baltimore City Health Department. Honorary degrees have been conferred on him by many universities including Tulane, Harvard and Jefferson Medical College. In 1939 he directed the establishment of the blood transfusion bureau of the Baltimore chapter of the American Red Cross.

In 1937 Dr Finney was honored when the Finney-Howell Research Foundation for cancer fellowships was created under the will of the late Dr George Walker. At the time of his death Dr Finney was president of the foundation. In 1938 he was accorded many honors to commemorate his seventy-fifth birthday including the presentation of a bust of himself executed by Hans Schuler. He had made numerous contributions to the literature and had devised a method of performing gastro-duodenostomy which bears his name.

Dr Finney's death closes a long and distinguished career in the field of surgery. He was active in the civic affairs of his community in the Presbyterian Church and in public education in Baltimore. He was a broad minded man with a sense of

humor that carried him through many difficult situations. Frequently he was called to attend great statesmen and leaders, whom he impressed invariably with the dignity of medicine as a profession. In his autobiography, published in 1940 he wrote "Are our ideals too high? Are we striving after the unattainable? After over fifty years of close association with members of the profession, frankly I do not think so. Unquestionably, not all members of the medical profession measure up to these requirements. But doctors are only human as a class perhaps more human than any similar group of individuals because from the very character of their work they gain such insight into human nature and thus come to understand it so well and respect it so highly. This is one of the chief characteristics of the true doctor and one of the crowning glories of a profession most exacting in its demands upon the time and talents of its members, and at the same time offering unlimited opportunities for usefulness in the way of service to humanity. It is this human element, this call to the aid of his fellowmen, wherein lies the charm that appeals so strongly to the true physician."

The joy and satisfaction experienced in relieving the ills and ministering to the wants of humanity more than compensate him for the loss of the larger social and pecuniary returns that come from other less onerous and responsible locations. The true physician is supremely happy in his work. He could not be happy doing anything else. Once having caught the vision as it unfolds before his gaze all else fades into insignificance."

**David Bryson Delavan** <sup>†</sup> New York, College of Physicians and Surgeons, medical department of Columbia College, New York, 1875, an Affiliate Fellow of the American Medical Association, diplomate of the American Board of Otolaryngology, fellow of the American College of Surgeons, corresponding secretary of the New York Academy of Medicine from 1914 to 1926 when that office was abolished, honorary fellow of the American Laryngological Association and its president in 1893 and in 1918, past president of the New York Laryngological Society, fellow of the Congress of American Physicians and Surgeons, honorary fellow of the Philadelphia Laryngological Society, a charter member of the American Society for the Control of Cancer, member of the Harvey Society, New York Clinical Society and many other societies, for many years president of the Russell Sage Institute of Path-

ology, at one time professor of laryngology and rhinology at the New York Medical School and Hospital, consultant in laryngology and rhinology at the Mount Sinai Hospital, the Skin and Cancer Hospital, St. Luke's Hospital, Memorial Hospital and the Hospital for Ruptured and Crippled, the latter hospital now being known as the Hospital for Special Surgery, president of the medical board of St. Luke's Home, president of the Grenfell Association of America from 1917 until 1930, in 1931 was awarded the De Roaldes gold medal by the American Laryngological Association, aged 92, died May 23 of arteriosclerosis.

**George Sellers Graham** <sup>†</sup> Birmingham, Ala., Dartmouth Medical School, Hanover, N. H., 1905, professor of pathology at the University of Alabama School of Medicine, instructor of pathology and bacteriology from 1906 to 1910 and assistant professor of pathology from 1910 to 1913 at his alma mater, formerly professor of pathology at the University of Alabama Graduate School of Medicine, professor of pathology at the Albany (N. Y.) Medical College from 1917 to 1921, member of the American Association of Pathologists and Bacteriologists and the American Society of Clinical Pathologists, member of the American Board of Pathology, Inc., assistant bacteriologist for the New Hampshire State Board of Health from 1907 to 1913, first assistant in pathology 1914-1915 and second



JOHN M. T. FINNEY, MD 1863-1942

assistant in pathology, 1915-1916, Boston City Hospital, pathologist and director of laboratories of the Vancouver (B C) General Hospital, 1916-1917, aged 63, died, May 2

**John Brooks Wheeler** ♂ Burlington, Vt, Harvard Medical School, Boston, 1879, instructor in surgery at the University of Vermont College of Medicine from 1881 to 1890, professor of clinical and minor surgery from 1890 to 1900 and professor of surgery from 1900 to 1924 and since 1924 emeritus professor of surgery, member, past president and vice president of the New England Surgical Society, past president of the Vermont State Medical Society, fellow of the American College of Surgeons, member of the American Board of Surgery, trustee of the University of Vermont from 1916 to 1920, consulting surgeon, Mary Fletcher and Bishop de Goesbriand hospitals, Burlington, and the Fanny Allen Hospital, Winooski, served during World War I, author of "Memoirs of a Small Town Surgeon", aged 88, died, May 1

**John Gardner Hayden** ♂ Kansas City, Mo, Rush Medical College, Chicago, 1904, assistant in surgery at his alma mater, 1906-1907, assistant professor of surgery at the University of Kansas School of Medicine, Kansas City, from 1909 to 1926 and since 1926 associate professor of clinical surgery, past president of the Jackson County Medical Society and the Kansas City Academy of Medicine, formerly vice president of the American Association of Railway Surgeons, fellow of the American College of Surgeons, served during World War I, division surgeon for the Rock Island Railroad, the Chicago, Milwaukee and St Paul Railroad and the Pullman Company, aged 62, attending surgeon, Bell Memorial Hospital, Kansas City, Kan, and St Luke's Hospital, where he died, April 17, of bacterial endocarditis

**James Hugh Finch** ♂ Champaign, Ill, College of Physicians and Surgeons, Baltimore, 1895, member of the Clinical Orthopedic Society, fellow of the American College of Surgeons, past president of the Champaign County Medical Society, served during World War I, retired lieutenant colonel in the Medical Reserve Corps of the U S Army, for many years physician for the University of Illinois athletic teams, on the staffs of the Burnham City Hospital, Champaign, and the Champaign County and Mercy hospitals, Urbana, aged 71, died, April 21, of coronary thrombosis

**William Jacob Frick**, Kansas City, Mo, Kansas City (Mo) Medical College, 1888, member of the House of Delegates of the American Medical Association, 1916-1917, member of the Missouri State Medical Association, past president of the Jackson County Medical Society, fellow of the American College of Surgeons, formerly clinical professor of surgery at the University of Kansas School of Medicine, Kansas City, served during World War I, surgeon, Research and Kansas City General hospitals, aged 78, died, April 1

**Frederic Mortimer Johnson** ♂ Yonkers, N Y, Syracuse University College of Medicine, 1904, member of the National Gastroenterological Association, member of the American Board of Internal Medicine, at one time adjunct professor of gastroenterology at the New York Polyclinic Medical School and Hospital, New York, past president of the Westchester Society of Gastro-Enterology, physician for the draft board, on the staff of St John's Riverside Hospital, aged 67, died in April

**Manson M Lairy** ♂ Lafayette, Ind, Medical College of Indiana, Indianapolis, 1893, fellow of the American College of Physicians, at one time medical director of the Lafayette Life Insurance Company, formerly member of the city council and for many years member of the board of education, formerly on the staff of St Elizabeth's Hospital, aged 79, died, April 13, of mesenteric embolus and auricular fibrillation

**Harry Roy Lohnes** ♂ Buffalo, University of Buffalo School of Medicine, 1904, professor of pediatrics emeritus at his alma mater, member of the American Board of Pediatrics, Inc, member of the American Academy of Pediatrics, served during World War I, for many years on the staffs of the Buffalo General, Children's and Edward J Meyer Memorial hospitals, aged 63, died, April 1, of coronary sclerosis

**Nelson Ferguson McClinton**, Saginaw, Mich, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1898, member of the Michigan State Medical Society, past president of the Saginaw County Medical Society, at one time mayor of Alma, member of the American Urological Association, on the staffs of St Mary's, St Luke's and Saginaw General hospitals, aged 67, died, April 8

**Joe Newton Sisk** ♂ Madison, Wis, Baylor University College of Medicine, Dallas, Texas, 1921, member of the Radiological Society of North America, Inc, and the Ameri-

can College of Radiology, member of the American Board of Radiology, Inc, for many years associated with the Jackson Clinic, on the staff of the Methodist Hospital, aged 51, died, April 25, of cerebral hemorrhage

**James Frederic Clarke** ♂ Fairfield, Iowa, University of Pennsylvania Department of Medicine, Philadelphia, 1889, fellow of the American College of Surgeons, an Affiliate Fellow of the American Medical Association, formerly mayor of Fairfield, veteran of the Spanish-American War and World War I, on the staff of the Fairfield County Hospital, aged 78, died, April 12, of uremia

**Sidney King Morrison** ♂ Reno, Nev, Cooper Medical College, San Francisco, 1902, member of the House of Delegates of the American Medical Association in 1924, formerly county physician, was chief medical examiner for the draft board during World War I, past president of the state board of medical examiners, aged 63, died, April 5, of carcinoma of the lung

**Lyston D Howe**, Streator, Ill, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903, member of the Illinois State Medical Society, formerly county coroner, served in the Streator district in connection with the Selective Service System, aged 61, died, April 11, in St Mary's Hospital of hemorrhage and duodenal ulcer

**Charles Maddox Hammett** ♂ Washington, D C, Georgetown University School of Medicine, Washington, 1892, professor of ophthalmology emeritus at his alma mater, member of the American Board of Ophthalmology, fellow of the American College of Surgeons, on the staffs of the Providence and Georgetown University hospitals, aged 70, died, April 21

**Nelson McLaughlin**, Detroit, Eclectic Medical Institute, Cincinnati, 1907, member of the Michigan State Medical Society, past president and secretary of the Michigan State Board of Registration in Medicine, served during World War I, aged 59, on the staff of the Highland Park (Mich) General Hospital, where he died, April 8, of heart disease

**John Street Fulton**, Topeka, Kan, College of Physicians and Surgeons, Medical Department Kansas City University, Kansas City, Kan, 1901, formerly health officer of Lyon County, public school physician, served during World War I, aged 69, died, April 10, in the Veterans Administration Facility, Wadsworth, of cerebral hemorrhage

**John Clement Cowden**, Tonopah, Nev, Pacific Coast Regular College of Medicine, San Francisco, 1900, veteran of the Spanish-American War, county health officer, formerly on the staff of the Tonopah Mines Hospital, aged 78, was burned to death, April 20, when his home caught fire from a faulty oil burner in the kitchen stove

**John Sherman Leffel** ♂ Connersville, Ind, Indiana University School of Medicine, Indianapolis, 1917, past president of the Fayette-Franklin Counties Medical Society, served during World War I, member of the school board, examining physician for the local Selective Service System, aged 53, died, April 20, of coronary thrombosis

**Harry Bayne Magee**, Peoria, Ill, University of Pennsylvania Department of Medicine, Philadelphia, 1908, member of the Illinois State Medical Society, past president of the Peoria City Medical Society, member of the Radiological Society of North America, Inc, aged 57, died, April 20, of rheumatic heart disease and mitral stenosis

**William Binford King** ♂ Arlington, Va, George Washington University School of Medicine, Washington, D C, 1925, formerly associate professor of anatomy at his alma mater, assistant chief medical and liaison officer of the emergency medical service in the metropolitan area defense organization, aged 53, died, April 10

**James Frederick Hazlewood**, Toronto, Ont, Canada University of Toronto Faculty of Medicine, 1907, medical officer on the Workmen's Compensation Board, formerly director of the Toronto Public Health Laboratories, served with the Canadian Army during World War I, aged 57, died, April 6

**Alice E Kelly Higgins** ♂ Rockville Centre, N Y, Tufts College Medical School, Boston, 1907, member of the American Academy of Pediatrics, on the staffs of the Brooklyn (N Y) Hospital, the Meadowbrook and Mercy hospitals, Hempstead, aged 58, died, April 28, of carcinoma of the breast

**Henry Charles Krohn**, New Holstein, Wis, Marquette University School of Medicine, Milwaukee, 1914, member of the State Medical Society of Wisconsin, for many years chief officer of New Holstein, aged 59, died, April 15, in the Marquette Hospital, Sheboygan, of cerebral hemorrhage

Walter Maurice Lacey & Chevenne W. Harvard Medical School Boston, 1912 served during World War I, formerly member of the state board of medical examiners, on the staff of the Laramie County Memorial Hospital, aged 58, died April 6, of acute myelogenous leukemia

John T. Lemmel, Beloit Wis. College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois, 1907 member of the draft board of Green County during World War I, aged 59 died April 14, in the Beloit Municipal Hospital of coronary occlusion

William Douglass Martin, Washington Pa., Western Pennsylvania Medical College, Pittsburgh 1892 member of the House of Delegates of the American Medical Association in 1919, formerly medical director of Washington County, aged 82, died April 8 of pneumonia

Orlando Conrad Hankison, Pine Bluff Ark., Vanderbilt University School of Medicine Nashville Tenn., 1892, member of the Arkansas Medical Society past president and secretary of the Jefferson County Medical Society, aged 75, died, April 14, of hypostatic pneumonia

John Wilson Frost, Lobelville, Tenn. Memphis Hospital Medical College, 1913 served during World War I, formerly health officer of Humphreys and Obion counties, aged 55, died, April 22 in the Veterans Administration Facility Memphis, of myocarditis and hypertension

James Haydn Higgins, Marston's Mills Mass., College of Physicians and Surgeons Boston 1894 member of the Massachusetts Medical Society aged 71 on the staff of the Cape Cod Hospital, Hyannis, where he died, April 7, of malignant tumor of the pituitary gland

Merrill E. Liston & South Bend, Ind., University of Kansas School of Medicine Kansas City, 1935, member of the American Society of Anesthetists, Inc., aged 33, died, April 24, in the Epworth Hospital of abdominal carcinomatosis

Jesse Myron Hays, Columbus, Ohio, Ohio State University College of Medicine, Columbus 1924 served during World War I, aged 46, on the staff of the White Cross Hospital, where he died, April 19 of lymphosarcoma

Douglas S. Bonar, Newport Ky. Kentucky School of Medicine, Louisville, 1886, member of the Kentucky State Medical Association, aged 83, died April 16, at his home in Southgate of coronary occlusion

Edwin Gaillard Adams, Greensboro Ga., Vanderbilt University School of Medicine Nashville Tenn., 1899, member of the Medical Association of Georgia, served during World War I, aged 64, died, March 18

Martin K. Kreider, Goshen, Ind., Chicago Homeopathic Medical College, 1878, member of the Indiana State Medical Association, at one time county coroner, aged 95, died, April 16, of hypostatic pneumonia

John Wade Chambliss, Americus, Ga., Atlanta School of Medicine, 1907, member of the Medical Association of Georgia, was associated with the Prather Clinic, aged 61 died, April 5, of coronary occlusion

Albert Lee Alderson, Pana Ill., University of Illinois College of Medicine, Chicago, 1913 served during World War I, aged 54, died, April 27 of injuries received in an automobile accident

William Galvin, North Adams Mass. University of Vermont College of Medicine, Burlington 1892, member of the Massachusetts Medical Society, aged 83, died, April 8 of arteriosclerosis

Dan German Sr., Franklin, Tenn., University of Nashville Medical Department, 1906, part owner of the German-Rice-Guffee Hospital, aged 66, died April 20 of cerebral hemorrhage

Christopher Fleming Keefe, Kingston N. Y. Bellevue Hospital Medical College New York, 1878 aged 87, died April 2 of cardiac hypertrophy with decompensation and arteriosclerosis

Sydney Lee Martin, Leaksville, N. C., Baltimore Medical College, 1892 also a druggist, formerly member of the school board for many years bank president, aged 78, died, February 21

Edward Soule Dickey, East Chicago Ind., Western Pennsylvania Medical College Pittsburgh 1902 aged 67 died, April 14, in St. Catherine's Hospital of coronary thrombosis

Bertrand Francis Dunn, Portland Maine Medical School of Maine Portland, 1866 member of the Maine Medical Association, Civil War veteran aged 98, died, April 11 of senility

Jacob A. Grekin & Pittsburgh, University of Pittsburgh School of Medicine 1908, aged 61, on the staff of the Montefiore Hospital, where he died April 5, of coronary thrombosis

Aaron Jeffery, Newport News, Va., Medical College of Virginia Richmond, 1884, member of the Medical Society of Virginia, aged 79, died, April 14 of carcinoma of the bladder

Harvey H. Koons, New Castle, Ind., Medical College of Ohio, Cincinnati, 1897, member of the Indiana State Medical Association, aged 68, died, April 4, of coronary occlusion

Ralph Adolphus Butler & Clinton, Iowa State University of Iowa College of Medicine Iowa City, 1912, aged 56, died, April 7, in Safety Harbor, Fla., of chronic myocarditis

William Walter Smith, New York, College of Physicians and Surgeons, medical department of Columbia College, New York 1895, aged 73, died, March 2, of myocarditis

Charles Perry Clarke, Rochelle Ill., Chicago Homeopathic Medical College, 1897, served during World War I, aged 68, died, April 30, of coronary thrombosis

Orestes A. Brownson, Los Angeles, St. Louis College of Physicians and Surgeons, 1906, served during World War I, aged 57, died, April 6, of coronary thrombosis

Stanley Burton Minish & Carrollton Ky., University of Cincinnati College of Medicine, 1941, aged 29, died, April 1, of a self-inflicted bullet wound

William Henry Crowder, Kansas City, Mo., University Medical College of Kansas City, Mo., 1903, aged 64, died, March 11, of myocarditis

Charles Manning Keep, Brookline, Mass., Harvard Medical School, Boston, 1888, also a dentist, aged 75, died, April 4, of cerebral thrombosis

Irwin Hiram Le Barre, Mansfield Ohio Trinity Medical College, Toronto, Ont., Canada, 1897, aged 67, died, April 15, of coronary occlusion

John De Witt Du Mond, Olivebridge, N. Y., Bellevue Hospital Medical College, New York, 1886, aged 77, died, March 9, of nephritis

Noah Montroville Robinson & Vinton, Va., Medical College of Virginia, Richmond, 1904, aged 66, died, March 5, of heart disease

Aaron B. Grove, Shadygrove, Pa., Jefferson Medical College of Philadelphia, 1880, aged 84, died, March 30, of chronic nephritis

Abraham Lincoln Howe, Pacific Palisades, Calif., Western Pennsylvania Medical College, Pittsburgh, 1894, aged 80, died, April 5

Robert W. Dulaney, Johnson City, Tenn., University of Louisville (Ky.) Medical Department, 1898, aged 70, died, April 5

Louis Howell Beck, Glendale, Calif., College of Physicians and Surgeons, Keokuk, Iowa, 1885, aged 86, died, April 15

Francis Osborne Tyler, St. Charles, Mo., Meharry Medical College Nashville, Tenn. 1927, aged 45, died, March 10

Levi Hulbert Fuller, Pasadena, Calif., Dartmouth Medical School, Hanover, N. H., 1888, aged 76, died, March 8

William Francis Zander, Fort Meade, Fla. (licensed in Florida in 1914), also a minister, aged 88, died, March 12

Robert M. Sterrett, Jamaica, N. Y. College of Physicians and Surgeons of Chicago, 1890, aged 85, died March 31

Luther Pascal Bowers, Philadelphia, Medico-Chirurgical College of Philadelphia, 1900, aged 77, died, March 8

Ella H. Griffith, Denver, Denver Homeopathic College, 1900 aged 79, died, April 11, of cerebral hemorrhage

Harriet Bailey Clark, Altamont, N. Y., Ohio Medical University Columbus, 1906, aged 82, died, March 15

David Westwood, Provo, Utah, College of Physicians and Surgeons Baltimore, 1902, aged 71, died, March 8

William Alfred Lawson, Halifax N. S., Canada, Halifax Medical College, 1903, aged 66 died, January 11

Lawrence James Dailey Jr., Albany N. Y., Albany Medical College, 1920 aged 45, died, April 17

Walter Burgess, Pana Ill. Marion-Sims College of Medicine St. Louis, 1897, aged 68, died April 26

James Stewart Morris, Stuart Fla. Harvard Medical School Boston 1888 aged 76 died in April

Ira E. Sloan, Johnstown Pa., Baltimore Medical College 1892, aged 74, died February 6

## Correspondence

### STATUS OF GASTRODUODENAL ULCER

*To the Editor*—I have been much interested in the editorial in THE JOURNAL April 25 entitled "Status of Gastroduodenal Ulcer." It emphasizes a point which has not been particularly stressed in recent years, namely the effect of hypersecretion and hyperacidity on the ulcer patient. The editorial strongly suggests and marshals evidence to prove that just such an increase in the acidity and secretion of the stomach predisposes to ulceration, prolongs the attack and favors recurrence. With this view I am heartily in accord.

It is probably true that gastroduodenal ulcer is primarily a medical problem, but I think that we may now add another surgical indication for duodenal ulcer—persisting hyperacidity and hypersecretion. By some this may be included under the heading of intractability, but, as intractability is a broad, general, nonspecific term, it would seem to be far more scientific and definite to recognize the pathologic-physiologic state of hyperacidity and hypersecretion. I feel that it should be thoroughly emphasized that no one should treat duodenal or gastric ulcer without being cognizant of the state of the gastric secretion in every given patient and, unhappily, this is frequently not the case. Just as the chest internist and thoracic surgeon should be interested in and familiar with the pulmonary secretions which are raised by the patient, just as the urologist takes the personal trouble and pains to inspect the urine by the two glass test and examine it microscopically on many occasions, so should the internist and the surgeon dealing with gastric disorders be personally familiar with the gastric secretion in all its aspects. By so doing they will greatly enhance their ability to evaluate and treat their patients.

In closing, may I thank you for your splendid editorial and reemphasize the essentials which Sippy taught for a number of years—that the surgical indications for duodenal ulcer are complications, namely acute perforation, massive hemorrhage, cicatricial obstruction and intractability, which should include persisting hypersecretion and hyperacidity.

JESSE P. EDDY 3D, M.D., Providence, R. I.

### TOXIC EFFECTS OF PHENYTOIN SODIUM

*To the Editor*—The article on the toxic effects of phenytoin sodium by Drs. Isidore Finkelman and A. J. Arieff, which appeared in THE JOURNAL, April 4, had been read before the Chicago Neurological Society at its October 1941 meeting. I had the privilege of discussing the paper at that time and I should like to take this opportunity of referring to some of the points included in that discussion.

Most physicians who have had experience with phenytoin sodium are well aware of its toxic properties, but it would seem, to me at least, that the toxic symptoms which may result from it are not as frequent or as severe as the authors have indicated. Merritt described mild toxic symptoms as having occurred in about 15 per cent of his patients and more severe toxic symptoms in 5 per cent. The usual toxic signs and symptoms encountered are ataxia, dizziness, staggering, diplopia, nystagmus, nausea and vomiting and, at times, a slight fever. These symptoms usually occur about the tenth day of treatment and in the majority of cases will disappear when the dose of the drug is decreased. After the disappearance of these symptoms administration of the drug may be resumed either in a reduced dose or, in many cases, in the original dose without the recurrence of toxic symptoms. The ability to manipulate and vary the dosage in the face of toxic symptoms is

probably the most important factor in reducing such symptoms and at the same time maintaining an effective anticonvulsant action. Some patients are not able to tolerate the drug even in very small doses, but fortunately such patients are rare.

The authors stated that "status epilepticus" was a toxic symptom of the ingestion of phenytoin sodium in some of their cases. After all, "status epilepticus" is a well known manifestation or symptom of epilepsy itself, and I do not see how the occurrence of such an outbreak can be attributed to phenytoin sodium just because the patient happens to be using the drug at the time. Certainly this condition occurs in patients who are being treated with other anticonvulsant drugs, and such drugs have not been accused of the responsibility. All know, furthermore, that "status epilepticus" may occur if phenytoin sodium is either suddenly withdrawn or substituted for another anticonvulsant drug which is suddenly withdrawn before the phenytoin sodium can be accumulated in the body. I should also question the statement that phenytoin sodium itself produced the peripheral neuritis which the authors listed as a toxic manifestation of the drug.

The authors referred to a case reported by Dr. Charles Aring and myself as illustrating the toxic effects of the drug (Ingestion of Large Doses of Dilantin Sodium, *Arch. Neurol. & Psychiat.* 45:265 [Feb.] 1941). A boy took large doses of phenytoin sodium (60 and 70 capsules, or 6 and 7 Gm.) over a short period (ten hours) as a suicidal attempt. True, severe toxic symptoms developed, but he recovered. The case thus illustrates the high safety factor of the drug.

The mild toxic symptoms encountered are well compensated by the striking and gratifying anticonvulsant action of the drug in many cases.

MILTON ROSENBAUM, M.D., Cincinnati

### TREATMENT OF TYPHOID CARRIERS WITH IODOPHTHALEIN

*To the Editor*—There appeared in a recent issue of THE JOURNAL (April 25, p. 1447) an article by Drs. Windsor C. Cutting and G. Bernard Robson entitled "Treatment of Typhoid Carriers." According to this paper, treatment of 5 typhoid carriers with soluble iodophthalein failed to cure the carrier state.

Although it is realized that the authors did not have knowledge of our recently published study (*ibid.*, March 21, p. 964), it appears that the reader of THE JOURNAL may be wrongly impressed with the value of such treatment. It is for this reason that we desire to make the following statements:

1 The iodophthalein treatment is not an all out cure of all typhoid carriers. Only a definite, well defined group of carriers will respond to treatment. These are carriers who present typhoid bacilli in their bile, as obtained by duodenal drainage, and a well functioning gallbladder, as determined by cholecystography.

2 Without first carrying out these two tests, treatment of typhoid carriers with iodophthalein appears irrational and unecological and may well bring the treatment into disrepute.

3 It is well realized that, the longer the typhoid carrier state persists, the more likely the gallbladder function will be found to be impaired. Furthermore, additional enteric foci may sometimes establish themselves in cases of long standing and excretion of bile. Therefore the iodophthalein treatment will be found of greatest value in carriers recently recovered from typhoid who have infected but otherwise not seriously damaged gallbladders.

WILLIAM SAPHIR, M.D., Chicago  
WALTER H. BAER, M.D., Mantoloking, N. J.  
FREDERIC PLOTKE, M.D., Mantoloking, N. J.



## Medical Examinations and Licensure

### COMING EXAMINATIONS AND MEETINGS

#### BOARDS OF MEDICAL EXAMINERS

##### BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic science were published in THE JOURNAL June 6 page 520

##### NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS *Parts I and II* Various centers June 22-24 *Part III* Various centers June or July Exec Sec Mr Everett S Ilwood 225 S 15th St Philadelphia

##### EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF DERMATOLOGY AND SYPHILIGOLOGY *Oral Groups 4 and B* Cleveland Jan 14-15 1943 Final date for filing application is Dec 7 *Written* Various centers Nov 16 Final date for filing application is Oct 5 Sec Dr C Chy Lane 416 Marlboro St Boston

AMERICAN BOARD OF INTERNAL MEDICINE *Written* Oct 19 Final date for filing application is Sept 1 Sec Dr William S Middleton 1501 University Ave Madison Wis

AMERICAN BOARD OF OPHTHALMOLOGY *Oral* Chicago Oct 9-10 Sec Dr John Green 6930 Waterman Ave St Louis

AMERICAN BOARD OF ORTHOPAEDIC SURGERY *Oral and Written* Chicago Jan 9-10 Final date for filing application is Nov 1 Sec Dr Guy A Caldwell 3503 Pryor St New Orleans

AMERICAN BOARD OF PATHOLOGY *Oral and Written* Richmond Va Nov 9-10 Final date for filing application is Sept 1 Sec Dr F W Hartman Henry Ford Hospital Detroit

AMERICAN BOARD OF PEDIATRICS *Written* Locally Sept 18 *Oral* Chicago Nov 23 Final date for filing application is July 1 Sec Dr C A Aldrich 707 Fullerton Ave Chicago

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY New York December Final date for filing application is Oct 1 Sec Dr Walter Freeman 1028 Connecticut Ave NW Washington D C

AMERICAN BOARD OF UROLOGY If a sufficient number of applications are received an examination will be held in the east at the same time or shortly after one of the national meetings Sec Dr Gilbert J Thomas 1409 Willow St Minneapolis

### Minnesota January Report

The Minnesota State Board of Medical Examiners reports the written examination for medical licensure held at Minneapolis Jan 20-22 1942 The examination covered 12 subjects and included 60 questions An average of 75 per cent was required to pass Forty-three candidates were examined, 42 of whom passed and 1 failed Five physicians were licensed to practice medicine by reciprocity and 1 physician so licensed on endorsement of credentials of the National Board of Medical Examiners The following schools were represented

| School  | PASSED                  | Year Grad     | Number Passed    |
|---|-------------------------|---------------|------------------|
| Stanford University School of Medicine                            | (1939)                  | (1941)        | 2                |
| Yale University School of Medicine                                |                         | (1940)        | 1                |
| Northwestern University Medical School                            |                         | (1941)        | 2                |
| Rush Medical College  |                         | (1939)        | 1                |
| University of Illinois College of Medicine                        |                         | (1941)        | 2                |
| University of Kansas School of Medicine                           |                         | (1940)        | 1                |
| Johns Hopkins University School of Medicine                       |                         | (1940)        | 1                |
| Harvard Medical School  | (1939)                  | (1940)        | 2                |
| University of Minnesota Medical School                            |                         | (1940)        |                  |
| (1940)* (1941-6) (1941-12)* (1942)                                |                         |               | 21               |
| University of Rochester School of Medicine and Dentistry          |                         | (1938) (1939) | 2                |
| Ohio State University College of Medicine                         |                         | (1940)        | 1                |
| University of Cincinnati College of Medicine                      |                         | (1941)        | 1                |
| Western Reserve University School of Medicine                     |                         | (1938)        | 1                |
| University of Pennsylvania School of Medicine                     |                         | (1939)        | 1                |
| Medical College of Virginia                                       |                         | (1940)        | 1                |
| University of Manitoba Faculty of Medicine                        |                         | (1940)        | 1                |
| McGill University Faculty of Medicine                             |                         | (1940)        | 1                |
| School  | FAILED                  | Year Grad     | Number Failed    |
| University of Minnesota Medical School                            |                         | (1941)        | 1                |
| School  | LICENSED BY RECIPROCITY | Year Grad     | Reciprocity with |
| Loyola University School of Medicine                              |                         | (1936)        | Missouri         |
| The School of Medicine of the Division of the Biological Sciences |                         | (1935)        | Illinois         |
| State University of Iowa College of Medicine                      |                         | (1936)        | Iowa             |
| University of Minnesota Medical School                            |                         | (1934)        | New York         |
| University of Nebraska College of Medicine                        |                         | (1940)        | Nebraska         |

| School                                 | LICENSED BY ENDORSEMENT | Year Grad |
|--|-------------------------|-----------|
| Northwestern University Medical School |                         | (1941)    |

These applicants received the M B degree and will receive the M D degree on completion of internship

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Drunkenness Evidential Value of Chemical Tests—**The defendant was convicted of murder and appealed to the Supreme Judicial Court of Massachusetts During the trial of this case issue arose as to whether or not the deceased was drunk at the time of the altercation that led to his death The trial court admitted in evidence the testimony of a witness who had examined and determined the percentage of alcohol present in the brain blood and stomach contents of the deceased This witness testified that the amount of alcohol found in the deceased would cause the average normal man of 49, the age of the deceased to be definitely under the influence of liquor and to manifest some unsteadiness of motion On appeal, the defendant assigned as error the admission of this testimony

In the opinion of the court, it was not error to admit the testimony The witness, since his graduation, had been engaged in biologic and chemical research and for many years had been the chemist of the Boston police department, working in conjunction with the medical examiners and their associates He had worked on more than 140 cases for the department in matters involving blood stains and fibers and various problems relating to toxicology On many occasions he had qualified and testified in courts of the Commonwealth as an expert in chemistry and biology The record did not indicate the court said, that at any time during the trial the defendant questioned the qualifications of this witness Whether the witness possessed the qualifications adequate to enable him to testify as an expert rested in the first instance with the trial judge and his decision is conclusive unless it appears from the evidence to be erroneous as a matter of law Furthermore, the effect that a specified amount of alcohol found in a man's organs and bodily fluids would have on the steadiness of his gait was in the opinion of the court, a proper subject for expert testimony The opinions of experts as to the effect a certain amount of alcohol found by an analysis of the blood or urine would have on a person have been held competent in a number of cases

The court could find no error in the record and the judgment of conviction was affirmed—*Commonwealth v Capalbo*, 32 N E (2d) 225 (Mass, 1941)

**Medical Practice Acts Codification of Laws No Bar to Revocation of License for Prior Unprofessional Conduct—**In 1937 the legislature of the state of California enacted a Business and Professions Code thereby repealing the existing provisions of the medical practice act of 1913 Both the act of 1913 (section 14) and the Code of 1937 (section 2377), however provided that a physician who procured an abortion should be deemed guilty of unprofessional conduct in the practice of his profession On May 24 1939 a complaint was filed before the defendant state board of medical examiners charging the plaintiff with certain designated acts allegedly constituting unprofessional conduct in the practice of medicine in that on three specified dates he had violated section 2377 of the Business and Professions Code of 1937 The acts charged against the plaintiff were all committed prior to 1937 and at a time when the medical practice act of 1913 was in effect Accordingly the plaintiff filed a petition for a writ of mandate to restrain the board from holding any hearings on the complaint From a judgment granting the writ the defendant appealed to the district court of appeal, first district, division 1 California

The plaintiff contended that the legal effect of the adoption of the Business and Professions Code in August 1937 repealing the medical practice act was to prohibit the institution of disciplinary proceedings for any offenses committed prior to that date He further contended that this result followed even though the acts complained of constituted a violation of both the prior and the existing law The plaintiff admitted however that the Business and Professions Code merely codified existing provisions of law and neither intended nor attempted



to change any of the substantive provisions of the medical practice act. It is a general rule of law, said the district court of appeal, that "When a statute, although new in form, reenacts an older statute without substantial change, even though it repeals the older statute, the new statute is but a continuation of the old." This rule is especially applicable to the codification of statutes and no saving clause, or other expression of legislative intent, is necessary. Consequently the court held that, independently of a saving clause, a person may be prosecuted under a repealed and reenacted statute, even though the offense was committed prior to the date of the reenactment.

The Business and Professions Code, however, contains a saving clause. Section 2 provides:

The provisions of this code in so far as they are substantially the same as existing statutory provisions relating to the same subject matter shall be construed as restatements and continuations thereof, and not as new enactments.

Section 4 provides:

No action or proceeding commenced before this code takes effect, and no right accrued, is affected by the provisions of this code, but all procedure thereafter taken therein shall conform to the provisions of this code so far as possible.

The plaintiff contended that section 2 was a general statute and that section 4 was a special statute, that a special statute controls a general one and that therefore only actions actually commenced and rights actually accrued under the medical practice act were saved. In other words, the plaintiff's argument was this: Without any saving clause the plaintiff could be prosecuted, with only section 2 the plaintiff could be prosecuted, with sections 2 and 4 the plaintiff could not be prosecuted because, by specifically saving actions commenced and rights accrued, the legislature impliedly prohibited all other prosecutions. The district court of appeal said that, whenever possible, all the provisions of a statute must be reconciled. No repugnancy existed between sections 2 and 4, continued the court, if section 2 was construed as a saving clause where no substantial change was made in the law and section 4 was construed as a saving clause in case some future legislature amended the law in some substantial manner. The plaintiff's argument completely abrogated section 2 and attributed to the act a meaning which the legislature did not intend. Said the court:

We cannot believe that the legislature was so solicitous of doctors who had violated their responsibilities to the public and who had been false to their trust, that it intended to abrogate all prosecutions for offenses committed prior to the codification of the law. It is much more reasonable to assume that no such intent existed.

The judgment appealed from in favor of the plaintiff was accordingly reversed.—*Sobey v Molony et al*, 104 P (2d) 868 (Calif, 1940)

**Dental Practice Acts. Validity of Restrictions on the Operation of Chain Dental Parlors.**—Those provisions, said the Supreme Court of Washington, of the Washington dental practice act, which prohibit any person from conducting a dental office in his name or advertising his name in connection with any dental office or offices unless he is personally present in such office operating as a dentist or personally overseeing such operations as are performed during a majority of the time such office or each of such offices is being operated constitute a valid exercise of the police powers of the state and do not infringe on the equal protection and due process clauses of either the state or the federal constitution.

A statute enacted pursuant to the police power of the state cannot be held unconstitutional if it reasonably tends to protect the public welfare from a threat or menace of evil, even though the law operates to deprive a citizen of the right which he might otherwise enjoy to maintain a business, pursue a profession or endeavor to gain a livelihood, in the manner proscribed by law. The modern tendency of the courts is to restrict the authority of the legislature acting pursuant to the police power only when it clearly appears that constitutional rights are violated and courts will not interfere with the exercise of the legislative authority unless the statute should be held arbitrary and without a reasonable relation to any evil sought to be corrected or guarded against. In passing on the constitution-

ality of a statute enacted pursuant to the police power, it is not necessary that the court find the existence of a state of facts which would justify the particular statute in question, it is sufficient if it is deemed within the bounds of reasonable possibility that such a state of facts may exist. The safeguarding of the public health, and particularly the residents of the state as individuals, from the evils of incompetent and improper dental practices is beyond question a justifiable exercise of the police power of the legislature.

The provisions of the statute herein questioned must be considered with reference to the entire act of which it is a part. It may be presumed that, in the opinion of the legislature, the conduct of a dental office under the name of one who, although a licensed dentist, was not personally present in the office a majority of the time was a pernicious practice, tending to mislead persons patronizing such office in the expectation that the services sought and paid for would be personally rendered or supervised by the dentist whose name is held out to the public as conducting the office. It cannot be held that the legislature was mistaken in acting on that premise. The relationship between dentist and patient is inherently personal in the highest degree. Certainly it is within the province of the legislature to protect the public against all forms of fraud and deception tending to conceal the professional identity of the dentist who is in fact rendering the service in the particular office frequented by one in need of dental assistance. By the practice denounced by the act, the public may be unwittingly deprived of a personal relationship which may rightfully be expected and have another personality substituted therefor. The use of the name of a certain dentist as conducting an office for the practice of dentistry should mean something more than merely physical ownership of the office or the right to use the name, which may have a value because of long continued use or commercial advertising. It may well be that in respect to a particular individual the operation by him of more than one dental office would result in no harm to the public. The legislature, however, is entitled to consider and deal with the general problem of the commercial exploitation of the dental profession. If in the opinion of the legislature chain office dentistry and dental offices conducted under corporate or fictitious names, or under the name of a dentist who has nothing to do with the practice of the profession in connection with the carrying on of the office, tend to introduce into the profession unscrupulous practices which tend to lower the ethics and standards of the dental profession, to the injury of the health of the community and the public welfare, the legislature has the power to place the limitation in question on the general practice of the profession, even though in certain cases the act forbidden might not result in any of the evils which was believed might follow from the frequent employment of the forbidden practice.

The Supreme Court, accordingly, refused, in effect, to restrain the director of licenses of the state from preventing the plaintiff, a licensed dentist who operated a dental office under his own name in Seattle, from opening and operating, also under his own name, another office in Tacoma.—*Campbell v State*, 122 P (2d) 458 (Wash, 1942)

## Society Proceedings

### COMING MEETINGS

American Association for the Study of Neoplastic Diseases, Baltimore  
June 25-27 Dr Eugene R Whitmore, 2139 Wyoming Ave NW  
Washington, D C, Secretary  
American Gynecological Society, Skytop Pa, June 15-17 Dr Horard  
C Taylor Jr, 842 Park Ave New York Secretary  
American Physiotherapy Association, Lake Geneva Wis June 28-July 3  
Miss Evelyn Anderson, Stanford University, Calif, Secretary  
Maine Medical Association, Poland, June 21-23 Dr Frederick R Co  
142 High Street Portland Secretary  
Minnesota State Medical Association, Duluth June 29-July 1 D B F  
Souster, 493 Lowry Medical Arts Bldg, St Paul Secretary  
Montana Medical Association of Missoula July 8-10 Dr Thomas F  
Walker, 206 Medical Arts Bldg Great Falls Secretary  
New Mexico Medical Society, Santa Fe June 25-28 Dr L B Co  
221 W Central Avenue, Albuquerque Secretary  
Pacific Northwest Medical Association, Portland Ore June 17-19 D  
C W Countryman, 407 Riverside Ave, Spokane Secretary  
West Virginia Medical Association, White Sulphur Springs June 11-13  
Mr Charles Lively 1031 Quarrier St Charleston Executive Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

#### American Journal of Clinical Pathology, Baltimore

12 129-188 (March) 1942

- Phenol Studies. I. Review of Literature. II. Quantitative Spectrophotometric Estimation of Free and Conjugated Phenol in Tissues and Fluids. III. Phenol Content of Normal Human Tissues and Fluids. W. Deichmann and L. J. Schaffer, Cincinnati—p. 129.
- Pulmonary Ventilation in Health and Disease. A. T. Bruce, San Francisco—p. 144.
- Determination and Distribution of Sulfathiazole in Blood. F. B. Cooper, P. Gross, and M. I. Hagen, Pittsburgh—p. 149.
- Acute Isolated Myocarditis (Fiedler's Myocarditis). Case Report. G. W. Covey, Lincoln, Neb.—p. 160.
- Specificity in Serodiagnosis of Syphilis. Differential Method. F. Rytz, Minneapolis—p. 166.
- Further Serologic Studies in Infectious Mononucleosis. R. Straus and M. T. Bernstein, Cleveland—p. 174.

#### American Journal of Diseases of Children, Chicago

63 433-642 (March) 1942

- Behavior Disorders Associated with Intracranial Tumors in Childhood. Report of Cases. W. S. Langford and W. O. Klingman, New York—p. 433.
- Whooping Cough Vaccine. Leila Daughtry, Denmark, Atlanta, Ga.—p. 453.
- Spread of Poliomyelitis Virus Along Axons of Peripheral Nerves. J. A. Toomey and W. S. Takacs, Cleveland—p. 467.
- \*Toxoplasmic Encephalomyelitis. Further Observations of Infantile Toxoplasmosis. Intrauterine Inception of Disease. Visceral Manifestations. B. H. Paige, D. Cowen, and A. Wolf, New York—p. 474.
- Nutritional Edema in Children. Ji Chen, Shanghai, China—p. 552.

**Toxoplasmic Encephalomyelitis.**—Paige and his associates report 3 cases of infantile toxoplasmic encephalomyelitis and record the finding of *Toxoplasma* in reexamined sections of the brain in a previously reported case of chronic acquired hydrocephalus with meningoencephalitis of undetermined cause. The first patient with toxoplasmic encephalomyelitis, a white female slightly premature infant who died at 9 weeks, was noticed, two hours after birth, to have a progressively increasing hydrocephalus. Cerebral calcification was present on the sixth day, microphthalmos and membranous masses in the vitreous of each eye during the second and third weeks of life. The spinal fluid showed xanthochromia and a high protein content and there were tremors and convulsions late in the course. Necropsy revealed a diffuse necrotizing encephalomyelitis with many granulomas and extensive calcification. *Toxoplasmas* were present in the lesions of the brain, spinal cord and eyes, and mice inoculated with cerebral tissue acquired a typical murine toxoplasmosis. The second case establishes the fact that the infantile form of the infection may be prenatal in origin. The infant had given evidence of hydrocephalus in utero necessitating craniotomy for delivery. The child, born at term, was normally developed except for the enlarged head and was viable up to the time of delivery. On pathologic examination the stillborn child presented an advanced toxoplasmic encephalomyelitis with extensive calcification of the lesions and an associated chorioretinitis. *Toxoplasmas* were found in the cardiac and striated muscle fibers and in cells of the adrenal cortex. The third patient, who died at 3½ days of age, is of interest because of the widespread involvement of organs other than the nervous system and the less advanced state of the neural lesions. Necropsy revealed *toxoplasmas* in the lungs, heart, brain, adrenals, ovaries, thyroid, striated muscles and adipose tissue. These had given rise to interstitial pneumonia, to acute diffuse myocarditis, to encephalomyelitis characterized by focal necrotizing and inflammatory lesions and many granulomas and to

focal lesions in the adrenals and ovaries. In the other organs in which they were present, the parasites produced no reaction. Diagnosis should be rendered possible during life by the following data: (1) onset of symptoms at birth or early infancy, (2) varied neurologic symptoms, (3) chorioretinitis, (4) roentgen demonstration of intracerebral calcification, (5) determination of clinically inapparent internal hydrocephalus by pneumoencephalography, (6) xanthochromia, round cell pleocytosis and high protein content of the cerebrospinal fluid, (7) recovery of *toxoplasmas* from the blood or cerebrospinal fluid by inoculation of mice and/or rabbits and (8) demonstration of *Toxoplasma*-neutralizing antibodies in the blood of the infant or of the mother.

#### American Journal of Medical Sciences, Philadelphia

203 313-468 (March) 1942

- \*Autohemolytic Anemia with Autoagglutination. Improvement After Splenectomy. E. H. Reiser, Jr. and M. Kalkstein, New York—p. 313.
- \*Chronic Leukemia in Three Sisters. J. H. Hornbaker, Hagerstown, Md.—p. 322.
- \*Normal Plasma Coagulation Time. G. Cheney, San Francisco—p. 325.
- Effect of Parity on Average Blood Pressure and on Incidence of Hypertension. C. E. Ikenhour, K. Kuder, and L. V. Dill, New York—p. 333.
- Primary Thrombosis of Axillary and Subclavian Vein. L. Felner and I. Cohn, Brooklyn—p. 340.
- Effect of Barbituric Acid Derivative on Lobeline Circulation Time. K. Berliner and A. Lihensfeld, New York—p. 349.
- Electric Convulsion Therapy in Psychoses. D. Goldman and E. A. Baber, Cincinnati—p. 354.
- Assimilation Rate of Intravenously Injected Glucose in Hospital Patients. J. C. Cain, Rochester, Minn., and W. P. Belk, Philadelphia—p. 359.
- Fatal Hyperinsulinism with Cerebral Lesions Due to Pancreatic Adenoma. A. J. Kerwin, Toronto, Canada—p. 363.
- Prognosis of Pneumococcal Meningitis Treated with Chemotherapy. G. Hollander, Philadelphia—p. 370.
- \*Pneumococcal Capsular Polysaccharide and Antibody in Pleural Exudates. P. F. de Gara, J. G. M. Bullowa, and S. C. Bukantz, New York—p. 376.
- Method of Determining Probability of Constitutional Reactions During Treatment of Ragweed Hay Fever Patient. W. B. Sherman and S. Hehal, New York—p. 383.
- Studies on B Vitamins in Human Subject. IV. Mental Changes in Experimental Deficiency. Harriet E. O'Shea, Lafayette, Ind., K. O. Elsom, with technical assistance of Ruth V. Highe, Philadelphia—p. 388.
- Chancere of Gum. Case Report. J. F. Sadusk, Jr. and B. G. Anderson, New Haven, Conn.—p. 397.
- Duration of Action and Activity of Different Size Doses of Protamine Zinc Insulin. Helen Eastman, Martin, and P. O. Greeley, Los Angeles—p. 402.
- Observations on Oral Administration of Citrated Blood in Man. II. Effect on Stools. L. Schiff, R. J. Stevens, A. Shapiro, and S. Goodman, Cincinnati—p. 409.
- Calcium Bile. Clinical and Pathologic Study. M. McCall, New York, and A. Tuggle, Charlotte, N. C.—p. 413.
- Diagnosis, Incidence and Significance of Essential Achlorhydria. A. Winkelstein, New York—p. 419.
- Immediate Feeding versus Initial Starvation in Treatment of Bleeding Peptic Ulcer. J. P. Eichhorn, Cleveland—p. 428.

#### Autohemolytic Anemia with Autoagglutination—

Reiser and Kalkstein encountered a case of acute hemolytic anemia apparently due to the spontaneous action of autohemolysis within the body. The case fulfilled the criteria for such a diagnosis. There were icterus, anemia, hemoglobinuria, microcytosis and definite evidence of new blood formation with reticulocytosis. There was no evidence of parasitic infestation or of exposure to a toxic agent which could cause the anemia. Therefore the case is regarded as one of acute hemolytic anemia due to the spontaneous action of some intrinsic factor, an auto-antibody. Autohemolysis, which was undoubtedly active, could not be demonstrated in vitro owing to the overwhelming presence of an autoagglutinin whose action persisted at body temperature and it could not be split off from the erythrocytes. The unusually high titer of the agglutinin was probably due to repeated transfusion reactions with hemolysis of blood and liberation of more antigen. The factor that precipitated the initial hemolysis remains unknown but a vicious circle was established: the hemolysis necessitated transfusion which in turn led to increased hemolysis. The only treatment that could break this cycle was splenectomy. This proved correct as the patient was given transfusions without a reaction in spite of a persistently high autoagglutinin titer. This also suggests that the spleen was the actual site of hemolysis. Fifty-four cases of autoagglutination are reported in the literature.

**Chronic Leukemia**—Hornbaker reports 3 cases of leukemia in 3 sisters in an unusual combination in 2 of them it was of the lymphatic and in 1 of the myelogenous type. The history of the remainder of the family (parents, other siblings and the patients' children) does not reveal or suggest a blood dyscrasia.

**Normal Plasma Coagulation Time**—Cheney determined the coagulation time of the plasma of 340 normal adults and of 107 patients with nonhemorrhagic disorders to test the serviceability of the test for vitamin K deficiency. A clean venipuncture must be performed, and the blood withdrawn must be rapidly transferred to a test tube containing a weighed amount of dry potassium oxalate in the ratio of 10 mg to 5 cc of blood. The oxalate must be thoroughly mixed with the blood by inverting the corked tube ten or fifteen times. The oxalated blood is centrifuged in a constant speed centrifuge at 3,500 revolutions per minute for five minutes, and the plasma is pipetted off and then 0.2 cc of the plasma is pipetted into each of two small chemically clean test tubes and 0.2 cc of 0.4 per cent calcium chloride is added to the first tube and 0.1 cc to the second. The tubes should be shaken gently five to ten times. The coagulation time of the plasma should be read in minutes. The end point is taken when the solution no longer flows when the test tube is held horizontal. The shortest time of coagulation for the two tubes is the plasma coagulation time. The room temperature at the time the test is carried out should be recorded, a variation between 23 and 26 C causes no gross variation in the test. The test should be completed within the first hour after the venipuncture. The results of the plasma coagulation time of the 340 normal individuals show that clotting occurs in 86.35 per cent in four to seven minutes, the average for the group was five and one-fourth minutes. The trend for the curves for the 107 patients with nonhemorrhagic disease is similar with few exceptions. The short time of two minutes was more than twice (four as against five in the normal group) as common and a prolonged coagulation time above the normal upper limit of eight minutes in 6 patients as against 17 normal controls. Of 2 patients with times of nine minutes, 1 was suffering from prolonged malnutrition and 1 was receiving sulfanilamide therapy for a streptococcal sore throat, 1 patient with a time of ten minutes suffered from severe allergy, 1 with a time of twelve minutes had chlorotic achlorhydric anemia and 2 patients with a time of thirteen minutes were malnourished. It is evident that occasionally a patient may have a disturbed plasma coagulation time without evident hepatic or biliary tract disease, hemophilia or purpura. The constancy of the results warrants the use of the plasma coagulation time as a simple laboratory test, provided the physical conditions are closely adhered to.

**Pneumococcal Capsular Polysaccharide**—Gara and his associates record studies on the diagnostic and prognostic significance of pneumococcal capsular polysaccharide and of agglutinative and precipitative antibodies in 44 specimens of pleural exudate from 27 patients with pneumococcal pneumonia. The observations were correlated with other bacteriologic, immunologic and clinical data. An attempt was made to determine the type of pneumococcus responsible for an illness by identifying with pooled serums the specific capsular polysaccharide in the pleural exudate. The results indicate that the detection of capsular polysaccharide in "sterile" pleural effusion may reveal the pneumococcus type involved. The mortality rate for the group was 29.7 per cent, or 8 deaths, in 6 of which capsular polysaccharide was detectable. This indicates the desirability of performing various tests on body fluids, because capsular polysaccharide may be found in the blood when no organisms can be detected. Twenty-four pleural exudates from 16 patients were positive on culture and contained detectable capsular polysaccharide but no antibody. Capsular polysaccharide was found in 6 sterile pleural fluids from 4 patients. On one occasion the pleural culture was positive. Fourteen fluids from 9 patients were negative on culture and contained no capsular polysaccharide, in 8 of these fluids (from 4 patients) antibodies could be detected. More recoveries (8 of 11) occurred in thoracotomized patients who had had bacteremia than in those given repeated thoracenteses (11 of 16). The blood, pleural exudate and urine of 9 patients were studied for capsular polysaccharide, and it was detectable in 7 pleural exudates, in 5 urines after

concentration and in 2 bloods. Pooled serum was satisfactorily used for the detection of capsular polysaccharide in pleural exudates. The same optimal concentrations of antibody are used for detecting capsular polysaccharide in the pleural exudate as are used for urine, broth and plasma.

## Am J Syphilis, Gonorrhea and Ven Dis, St Louis 26 133-264 (March) 1942

- Comparative Effectiveness of Neosarsphenamine, Sulfathiazole, Sulfadiazine, Sulfapyridine, Sulfanilamide and Other Sulfonamide Drugs Against *Neisseria Gonorrhoeae* in Marrow Cultures E E Osgood, Portland, Ore., with technical assistance of Inez E Brownlee—p 133
- Studies on Role of *Spirocheta Pallida* in Wassermann Reaction III. Complement Fixation and Agglutination in Syphilis with Antigens of Tissue *Spirocheta Pallida* J A Kolmer, Clara C Kast and Elsa R Lynch, Philadelphia—p 142
- Note on Survival of *Treponema Pallidum* in Preserved Citrated Human Blood and Plasma J A Kolmer, Philadelphia, with technical assistance of Anna M Rule—p 156
- Bismuth Excretion and Storage in Rabbits After Oral and Intramuscular Administration of Solubisminol Solution and Water Soluble Potassium Bismuth Tartrate H Brown and J A Kolmer, Philadelphia—p 159
- Study of Certain Factors Influencing Absorption of Water Soluble Bismuth Compounds R C Sproull and R A Lehman, New York—p 166
- \*Analysis of Deaths Following Therapeutic Malaria Study of Twenty Nine Cases U J Wile and L K Mundt, Ann Arbor, Mich—p 181
- Significance of Pus Cells in Smear Diagnosis of Gonococcal Infection A Steer, New York—p 191
- Use of Dry Ice in Shipment of Material for *Gonococcus* Cultivation E S Sanderson and G G Allison, Atlanta, Ga—p 196
- New Preparation of Antigen for Intracutaneous Diagnosis of Chancroidal Infection R B Dienst, Augusta, Ga—p 201
- \*Treatment of Early Syphilis by Massive Dose Method N E Berry, Kingston, Ont., Canada—p 204
- Seasonal Injuries of Liver and Kidneys Due to Neosarsphenamine A J Nedzel, Chicago—p 209
- Remission in Congenital Syphilis S D Allison, Baltimore—p 217
- Gastric Lesions Associated with Early Syphilis F W Reynolds, Portsmouth, Va—p 218
- Effect of Immunization with Extracts of Syphilitic Tissue on Course of Experimental Syphilis in Rabbits E K Stratton, San Francisco—p 227
- Agglutination of Suspensions of Bentonite by Syphilitic Serum E L Breazeale, Tucson, Ariz—p 231
- \*Combined Artificial Fever, Chemotherapy and Vaccinotherapy in Treatment of Neurosyphilis Three and One Half Years' Report A Marin, Montreal, Canada—p 234
- Study of Gonococcal Vaginitis in Institution for Mental Defectives A Cohn, A Steer, New York, H C Storrs and J K Pettit, Thiel, N Y—p 241

**Deaths Following Therapeutic Malaria**—Since 1925 there have been 29 deaths among the 1,026 patients with neurosyphilis submitted to inoculation malaria. The deaths occurred during or immediately after the paroxysms. Wile and Mundt point out that sudden peripheral circulatory failure or vascular collapse accounted for 12 of the deaths. The collapse was unpredictable, it appeared early in the course of paroxysms in some patients and toward the end of the fever in others. Necropsies were performed on 6 of these patients and, except for 1 patient who had syphilitic heart disease with an aortic aneurysm, nothing was found to account for death. The death of 5 patients could be attributed either directly or indirectly to extreme hyperpyrexia. Five patients died from pneumonia confirmed by clinical signs and roentgen study. Only 1 other patient died from an intercurrent acute infection, erysipelas, which developed at the puncture site at which typhoid bacilli were injected intravenously. The death of 1 of the remaining patients was due to cerebral thrombosis, of 2 to internal hemorrhagic exsanguination, of 1 to suicide and of 1 to respiratory failure with convulsions.

**Treatment of Early Syphilis by Massive Dose Method**—Since November 1939 Berry has treated 50 patients within three months of acquiring syphilis with massive dose of mapharsen. He has found it convenient to dissolve 60 mg of mapharsen in a 500 cc flask of distilled water, to which is added a 50 cc ampule of 50 per cent dextrose. This is given in about three hours by continuous drip. Four such doses constitute the day's treatment. The patient is given a carbohydrate diet and encouraged to take fruit juice. The treatment has usually been well tolerated. Nausea in 31 per cent, associated with vomiting in 30 per cent, was the most frequent disturbance. One treatment may not give a cure, and prolonged follow-up is just as important as the methods of treatment. Unfortunately many of the early failures

were soldiers who are now overseas. However, the author knows that 2 of them who were seronegative became positive during treatment but reverted to negative and were still negative six months later. A third patient who was seronegative remains so a year after treatment. A close follow-up was maintained of 19 patients with secondary syphilis all of whom were treated more than six months ago. Ten of these became negative after six weeks and all except 1 were negative after three months and have remained so to date. Five patients have now been under observation for more than a year and 1 treated in November 1940 is still seropositive and must be considered a treatment failure. Although sufficient time has not elapsed to determine the permanence of serologic reversal the author feels certain that the massive dose method constitutes a real advance in the treatment of syphilis. Although its present form may not be accepted, some modification of it will become the treatment of choice for early syphilis.

**Treatment of Neurosyphilis**—According to Marin artificial fever therapy combined with chemotherapy and vaccines as an adjunct for inducing hyperpyrexia has been given to 265 patients with no deaths. Of 58 patients with dementia paralytica 46 per cent obtained a complete remission. Nine of 22 patients with tabes were definitely improved as were 6 of 9 with tabes and dementia paralytica. Of 7 patients with meningovascular neurosyphilis, 3 recovered and 1 was improved. Of 173 patients who received one complete course of hyperpyrexia, vaccines and chemotherapy, the spinal fluid became immediately negative in 6 (4 per cent). Of 84 patients who subsequently received twelve months of chemotherapy (following artificial fever) the spinal fluid became negative in 17 per cent. Of 34 patients treated for twenty-four months with chemotherapy following the hyperpyrexia course, the spinal fluid became negative in 18 per cent. The spinal fluid of 3 of 9 patients treated for three years has become negative.

## Annals of Surgery, Philadelphia

115 321-480 (March) 1942

- \*Early Skin Grafting in War Wounds of Extremities J. M. Converse New York—p. 321  
Brain Abscess of Uncommon Origin—Relation to Osteomyelitis of Skull Clinicopathologic Study V. W. Eisenstein Pittsburgh E. D. Friedman and C. Davison New York—p. 336  
Gastric Polyposis Report of Case of Polyadenomas en Nappe Diagnosed Gastroscopecally W. G. Heeks and W. T. Gibb New York—p. 356  
Adenoma of Pancreas Case Report S. S. Quarrier and C. T. Bingham Hartford Conn.—p. 363  
Management of Ureteral Calculi C. C. Higgins Cleveland—p. 369  
Malignant Tumors Developing in Sacrococcygeal Teratomas H. Lisco Baltimore—p. 378  
Studies on Blood Histamine in Cases of Burns B. Rose and J. S. L. Browne Montreal Canada—p. 390  
\*Study of Weight of Celiac Ganglion and Its Relationship to Essential Hypertension Report on 201 Celiac Ganglions M. O. Cantor Detroit—p. 400  
Malignant Tumors of Synovial Origin C. D. Briggs Washington D. C.—p. 413  
Choice of Bone Graft Methods in Bone and Joint Surgery R. K. Ghoramley Rochester Minn.—p. 427  
Interinnomino-Abdominal Amputation Case Report A. H. Whittaker and D. J. Sobin Detroit—p. 435  
Operative Treatment for Recurrent Dislocation of Shoulder S. Wahl New York—p. 441  
Subtalar Dislocations Case Report of Inward Type R. A. Wise New York—p. 445  
Third Phase of Surgery Total Sterilization as Basis of Integral Asepsis and of Pasteurian Cicatrization M. Gudim Rio de Janeiro Brazil—p. 452

**Early Skin Grafting for War Wounds of Extremities**—Converse believes that many complications following extensive skin losses with their consequent delay in the patient's return to work or duty could be prevented by the early replacement of lost skin by grafting. When a considerable loss of superficial tissue exists healing may be incomplete and of poor quality. When bone is exposed through the loss of superficial covering and periosteum it becomes devitalized and sequestered and is open to infection and osteomyelitis. A tendon left uncovered is destined to slough. The pathologic picture of an unhealed wound is one of gradually diminishing blood supply, progressive increase of fibrous tissue and retarded epithelial growth. This can repeat itself indefinitely. Therefore the rapid covering of a wound by epithelium appears desirable. Skin

grafting is indicated when the cutaneous loss is such that function may be impaired when spontaneous healing appears improbable and when rapid healing is desirable. Skin grafting makes secondary nerve suture or grafting, tendon suture or bone surgery possible earlier. One hundred and ten skin grafting operations were performed two to nine months after injury on infected granulating wounds. Aside from the technical details of fixation and adequate pressure, wound infection which creates suppuration and wound fibrosis which diminishes the local blood supply influence the success of skin grafting. Therefore, particularly in older wounds, it seems preferable to excise the wound whenever possible to obtain a vascular base for the graft. When secondary wound excision was done the occurrence of skin graft take was 88 per cent in 54 cases. (A complete take was spoken of as 100 per cent.) When this was not done the occurrence of skin graft take was 52 per cent in 56 cases. In 22 instances of the latter group the granulating layer was superficially excised or scraped, exposing the fibrous layer before grafting, and in these cases the skin take was 68 per cent. Skin grafting is generally unsuccessful when acute hemolytic streptococcus infection is present. By the local use of chemotherapy it has become possible to obtain wounds free from streptococci within a few days when skin grafting is possible. Eighty-one of the 110 patients with granulating wounds harbored hemolytic streptococci at some time. Wounds containing *Bacillus pyocyaneus* should be excised before grafting is attempted. The staphylococcus influences the take only in proportion to the amount of exudate present in the wound. When secondary debridement, that is, excision of the whole wound, is not possible the wound must be freed from suppuration and good local circulation brought about by other means such as moist dressings, the Bunyan envelop, firm elastic pressure, avoidance of the dependent position and complete immobilization. Skin grafts are not successful over bone deprived of periosteum. In such cases it is necessary to cover exposed structures with a flap of skin consisting of subcutaneous tissue and fat. The immediate covering of tendon is imperative to prevent sloughing.

**Gastric Polyposis**—Heeks and Gibb report the occurrence of gastric polyposis in a woman of 35 whose condition was diagnosed as gastroscopy and confirmed at operation. The patient's chief complaint for nine years was epigastric pain one hour after eating. Alkalis gave no relief. Dietary regimens, which she did not conscientiously follow, gave temporary relief. A bland diet and bismuth and soda powders gave prompt relief. On gastroscopic examination the rugae of the entire posterior wall extending distally to the angulus were finger-like in size, velvety, finely nodular and congested resembling cerebral convolutions. At operation the stomach was seen to be hypertrophied. An indurated, whitish spot on the anterior surface of the duodenum proved to be a chronic ulcer. When the stomach was opened, the mucous membrane of the posterior wall was found to be hypertrophied and lying in succulent folds. There was no evidence of carcinoma or of metastasis. After partial gastric resection a retrocolic Polya type of gastrojejunostomy was performed. Microscopically a portion of the normal mucous membrane of the stomach and also the tall, branching and overhanging rugae simulated a papillary adenomatous growth. The patient made excellent progress and when last seen, one year after operation, she felt fine, had no gastric symptoms and had gained 14 pounds (6.3 Kg.).

**Celiac Ganglion and Hypertension**—There are three surgical concepts (hyperepinephrinemic, neurogenic and hereditary) of the etiology of essential hypertension and consequently three surgical approaches. Cantor proposes to determine the validity of the last concept that of Crile, who states that 'only those individuals who have by inheritance large celiac and aortic ganglia can and do have hypertension,' by testing the relationship of the size of 201 celiac ganglions to essential hypertension. The left celiac ganglion was larger than the right sometimes two to three times as large. Most of the large ganglions weighing around 1,000 mg or more were obtained from patients with a blood pressure well within the normal range. The ganglions from hypertensive patients actually weighed somewhat less. The largest ganglion weighed 2,100 mg and was found in a non-hypertensive individual whereas the largest ganglion found in



a hypertensive individual weighed 1,250 mg. Both of these ganglions were on the left side. The largest right celiac ganglion from a nonhypertensive subject weighed 1,950 mg, while the heaviest right celiac ganglion from a hypertensive patient weighed 1,225 mg. The average weight of the left celiac ganglion from nonhypertensive subjects was 968.4 mg and for the right it was 745 mg, and the average weight for the ganglions from hypertensive patients was respectively 867.9 and 674.4 mg. The celiac ganglions increase in size from birth until the age of 40 to 55. After this their weight declines gradually until in the octogenarian their weight is near the childhood level. The largest ganglions were found in the male sex. Apparently there is no relationship between the weight of the celiac ganglions and essential hypertension.

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- \*Mustard Gas Injuries to Eyes W. F. Hughes Jr., Baltimore—p. 582

**Mustard Gas Injuries to Eyes**—The present treatment of ocular injuries due to mustard gas—dichlorodithylsulfide—Hughes states, is largely symptomatic, it helps prevent the development of secondary complications. By opening the swollen lids the patient can be assured that he is not blind. Local anesthetics should be avoided, however, if necessary for examination, 1 drop of a 5 per cent isotonic solution of pontocaine may be instilled. The eye should be irrigated for two minutes with a 1.5 per cent solution of sodium bicarbonate, isotonic solution of sodium chloride, a 2 per cent solution of boric acid or a 0.5 per cent solution of dichloramine-T in chlorinated petrolatum. For patients with corneal involvement or extreme photophobia a 1 per cent atropine solution or ointment should be instilled every day until the symptoms subside. When the involvement is severe, drops or an ointment of liquid petrolatum, cod liver oil with added sodium bicarbonate and dextrose or acriflavine in castor oil 1:15,000 should be instilled three times a day. Dark glasses or a brown eye shade should be used, but only for a short time. Bandages or eye pads should be avoided. Finally a 10 per cent mild protein silver solution, followed by irrigation with boric acid solution, should be instilled three times a day. A 0.25 per cent solution of zinc sulfate with epinephrine should be used during convalescence. As yet no satisfactory neutralizing agent for mustard gas that is tolerated by the eye is available, therefore as soon as the faint, transitory mustard or garlic odor is detected or the presence of mustard gas is suspected the gas mask should be put on. In addition to wearing gas masks, workers in England's mustard factories should irrigate their eyes several times a day with sodium bicarbonate or boric acid solution. The oily secretion of the meibomian glands and the moist surfaces of the conjunctiva and cornea make the eye all the more sensitive to the vapor of mustard gas. In field dressing stations, attendants should don gas respirators before decontaminating patients and their clothes.

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### Canadian Medical Association Journal, Montreal

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**Sulfathiazole Emulsion**—A liquid emulsion made up of 5 per cent of finely powdered sulfathiazole, 2 per cent of triethanolamine, 24 per cent of water, 5 per cent of beeswax and 64 per cent of liquid petrolatum was used by Ackman and Wilson in 25 cases in which curtain drainage was required (for wounds, abscesses, carbuncles, open amputations and ulcers), in 19 cases of burns and for vaginal packing as an adjunct to surgery. The results in all instances were most gratifying. To get the best results from curtain drainage packing gauze impregnated with the emulsion should be packed tightly into the interstices of the depths of the cavity of the abscess or wound and from this point less tightly toward the surface so that the packing does not act as a cork. Slow continuous drainage with bacteriostatic action is thus provided. The removal of a pack may be delayed for a number of days, during which time there is little or no odor. There is no undesirable caking or crusting. The use of sulfathiazole emulsion for burns is advocated because it meets with the requirements of flexibility and bacteriostatic action. The dressings absorb secretions, do not require frequent changes, are soothing and, because they are soft and nonadherent, they cause little pain on removal. They are relatively odorless and cause minimal bleeding when changed. The progress of healing may be viewed easily, as the burned area is clean and not macerated. In using the sulfathiazole emulsion pack in gynecologic surgery the vagina is packed in much the same way as with acriflavine gauze. The vagina should be free of alcohol before it is packed with sulfathiazole. The effect of the drug probably lies in its early application, postoperative fever due to infection at the operative site has been reduced, and healing has not been retarded. The pack does not cake or dehydrate the vagina, and there is no odor from the vagina or the removed pack.

**Parathyroid Insufficiency in Wilson's Disease**—Altschul and Brown report the occurrence of hepatolenticular degeneration in 4 brothers. In 2 there was evidence of parathyroid insufficiency. The order in which the patients were affected was the oldest first, the second after him and then the fourth in whom the progress of the disease was so rapid that his death preceded that of the second brother, and finally the third brother, who shows typical signs of parathyroid insufficiency. The first brother had signs of lenticular disease but no symptoms of a diminished function of the parathyroids. While in the 3 older brothers the renal symptoms were predominant, the symptoms in the youngest were only those of a hepatic cirrhosis, although at present alterations of the lenticular nuclei and their surrounding structures are present. This case differed from the others and from the clinical picture in that clinical symptoms due to hepatic disease are unknown in Wilson's disease. Nevertheless the family



tory and the observations at necropsy justify such a diagnosis. The symptoms in the 3 older brothers indicated a pathologic condition of the pyramidal tract and in the second oldest brother microscopic investigation revealed a status spongiosus affecting the internal capsule; thus the pyramidal symptoms were explained. The anatomic changes in the central nervous system differed greatly and were not completely in accord with the clinical changes. The symptoms in the third brother developed in a fairly regular course first the head then the upper and finally the lower limbs. This might point to a body localization in the lenticular nucleus and its regular, gradual involvement.

### Florida Medical Association Journal, Jacksonville

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\*Asthma and Primary Carcinoma of Bronchus L E Prickman C K Mavum and H J Moersch Rochester Minn—p 261  
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Value of Continuing Preseasonal Therapy During Pollen Season H G Golan Richmond Hill N Y and S S Sack Brooklyn—p 300  
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**Mold Fungi**—The results of a two year survey of the air borne molds in central and southwestern United States reported by Morrow and her associates emphasize the universal distribution of air disseminated molds, regardless of geographic location, season or climate. Molds were actually recovered at one of the northern stations immediately after a heavy snow and following several days of near zero weather. High mold counts were found not only at Houston, Galveston and Toledo where coastal and lake conditions might be conducive to mold growth, but also at San Antonio, Abilene and Kansas City, Mo. Certain species, *Aspergillus* and *Penicillium*, although relatively low, occur so commonly and consistently as to be designated cosmopolites. Others, *Alternaria* and *Hormodendrum*, although recovered more frequently on the basis of yearly occurrence than any other genera exhibit such a variation in incidence as to be reflected in the regional and seasonal trends of the totals. Still others, *Pullularia*, exhibit neither regional or seasonal trends nor consistency in occurrence but appear so suddenly that they definitely affect the totals for a single count. This is in contrast to the concept that *Alternaria*, *Helminthosporium*, *Spondylocladium* and *Hormodendrum* are encountered most commonly and consistently.

**Air Borne Fungus Spores**—Bernstein and Feinberg state that a daily study of the mold content of the air in the Chicago area for a continuous period of five years revealed that *Alternaria* and *Hormodendrum* constituted 72 per cent of all the spores grown on artificial mediums. Some fungi show no particular seasonal tendency but fungi that have a high incidence display decided seasonal fluctuations. The seasons for the various fungi vary, as does the length, time of onset and termination from year to year. Such definite variations usually are not observed for pollen seasons.

**Asthma and Carcinoma of Bronchus**—The data on 3 patients who complained primarily of asthma but who also had an associated primary bronchial malignant growth are reported by Prickman and his co-workers, as they illustrate some of the features of concurrent asthma and primary bronchial carcinoma. The study emphasizes the importance of a careful and complete examination of all patients with asthma and the necessity for bronchoscopy. Recurring hemoptysis among asthmatic patients, although it may be associated with severe cough, should always suggest the possibility of a neoplasm or some other organic pulmonary disease. Recurring chills and fever or fever alone in asthma should suggest the possibility of bronchostenosis with retained secretions, and this condition may be caused by inflammation or by a neoplasm. Persistent impairment of breath sounds, with or without impairment of the percussion note, justifies bronchoscopy of any patient with asthma. Bronchoscopy is indicated when infiltrating lesions at the pulmonary hilus are demonstrated roentgenographically. The symptoms caused by carcinoma of the bronchus in some persons can be and are mistaken for those of asthma.

### Journal of Clinical Investigation, New York

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Effect of Foreign Surfaces on Blood Coagulation E L Lozner and F H L Taylor with technical assistance of Harriet MacDonald Boston—p 241  
Urinary Excretion of Thiamine as Index of Nutritional Level Assessment of Value of Test Dose H L Mason and R D Williams Rochester Minn—p 247

**Thiamine Metabolism**—In the belief that measurement of the circulating level of thiamine is preferable to that excreted in the urine, Gorham and her associates used the ultramicro technic of Atkin Schultz and Frey to determine the thiamine in the leukocytes or erythrocytes. The method also makes it possible to measure the thiamine and the pyrimidine capable of accelerating yeast fermentation. The average thiamine level of the normal leukocytes (998 micrograms per hundred cubic centimeters) was about ten times that of the normal erythrocytes (103 micrograms per hundred cubic centimeters). The study would indicate that in the course of its metabolism thiamine is broken down to the pyrimidine accelerating yeast fermentation compound. The intravenous administration of thiamine to normal individuals is followed by a significant increase in the concentration of the pyrimidine accelerating yeast fermentation compound in the blood cells and urine. The mere presence of thiamine is not enough to account for the simultaneous production of pyrimidine accelerating yeast fermentation. Until the pyrimidine accelerating yeast fermentation normally found in blood and urine can be isolated and administered, no conclusion can be drawn as to its ability to produce thiamine in man.

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to replace normal menstrual losses. As the intake level rose from below 8 to 16 mg, negative balances decreased and the amount of iron stored increased. Seven subjects whose diets were generous in other nutrients had an average daily iron intake of 7.21 mg and stored 155 mg daily. Five other subjects with similar iron intakes but otherwise suboptimal diets had an average daily negative balance of 1.3 mg. It appears that emphasis should be placed on obtaining diets optimal in other essential nutrients rather than iron alone, known to function in efficient iron absorption and utilization.

### Journal of Pediatrics, St. Louis

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- Outbreak of Tuberculosis in Infant Due to Hospital Infection. A. S. Pope. Boston.—p. 297.
- \*Pertussis Treated with Pertussis Antigen. J. C. Kramer. Akron, Ohio.—p. 301.
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- Use of Sulfaguanidine in Enteric Infections. L. C. Hall. Paintsville, Ky.—p. 328.
- Intrapulmonary Pre-urtes in Newborn Infant. C. A. Smith. Boston, with technical assistance of T. C. Chisholm.—p. 338.
- Sudden Death in Infants with Scurvy. R. H. Follis, Jr. Baltimore.—p. 347.
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- Tularemia with Local Lesions Confined to Tonsils. Case Report. W. W. Waddell, Jr. and M. Birdsong. University, Va.—p. 368.
- \*Mediterranean (Cooley's) Anemia in Youth of Nineteen Years Observed Since Early Childhood. Familial Aspects and Hematologic Features of Carrier or Asymptomatic Case. C. H. Smith. New York.—p. 370.
- Blood Pressure Observation on Children in Private Practice. C. G. Kerley and E. J. Lorenze. New York.—p. 383.

**Staphylococcal Pneumonia in Infants.**—Pneumopyothorax occurred in 4 of 6 infants with staphylococcal pneumonia that Clemens and Weens encountered in sixteen months. The pneumonia was bronchiogenic in type and usually followed an infection of the upper respiratory system including the nasal accessory sinuses and the middle ear. The pneumopyothorax occurred before any diagnostic or therapeutic thoracentesis was performed. Early empyema occurred in all the infants. Frequent roentgen examination, especially in the erect position, is the most valuable aid in the early diagnosis of the complications. The clinical course is characterized by sudden onset with high fever, rapid respiration and cough. From the onset and through the entire course of the illness (to death) the patients appeared toxic. Stupor and unconsciousness were observed in the terminal stages. A drop in temperature was not always followed by an improved clinical condition. A sudden turn for the worse, indicated by cyanosis, hyperpyrexia, an increase in cardiac and respiratory rates and the vomiting of dark brown material, should suggest pneumopyothorax. Staphylococci in large numbers were found in the empyema fluid from the 6 infants. Pulmonary abscess was found in the 3 patients on whom necropsy was permitted. The centers of the abscesses contained necrotic material and frequently dense masses of staphylococci. The remainder of the pulmonary parenchyma showed a tendency to localized suppuration. Complete pneumothorax was prevented by the formation of adhesions between the parietal and visceral pleura. Therapy (chemotherapy, staphylococcus antitoxin, surgical procedures, blood transfusion and fluid balance by intravenous and subcutaneous administration of dextrose) might have been more favorable had it been instituted earlier, that is before adhesions which facilitated the retention of pus had formed. The cause of death seemed to be the overwhelming toxemia and the change of the intrathoracic pressure in the patients in whom pneumothorax developed.

**Outbreak of Tuberculosis Due to Hospital Infection.**—A recent hospital outbreak of miliary tuberculosis among infants resulted from their being exposed to a nurse with open tuberculosis. The nurse had been employed at the hospital from March 15, 1939 to Jan. 30, 1940; her duties included all care of infants in the nursery from 11 p. m. to 7 a. m. A total of 506 infants were born at the hospital during her employment

there, and of the 426 that were tested later 26 reacted to the Mantoux test. This gives a reaction rate of 6.1 per cent, which is three times the rate found among children (with a mean age of  $2\frac{1}{2}$  years) tested in Massachusetts Well Baby Clinics. Of the 26 infants who reacted to the tuberculin test, 7 presented roentgen evidence of tuberculosis. Two died of miliary tuberculosis and the diagnosis was confirmed at necropsy, and 2 other reactors were subsequently admitted to the Children's Hospital, Boston, 1 with a diagnosis of pulmonary tuberculosis and 1 with a diagnosis of tuberculous tracheobronchial nodes with atelectasis. Both recovered. The remaining 3 infants showed enlargement of the tracheobronchial lymph nodes, which is characteristic of tuberculosis, but symptoms of the disease have not developed. Active tuberculosis was not found in any member of the families of the 7 infants. Lack of interest on the part of parents has made it impossible to secure many retests, and only 10 of the reacting children were brought in for roentgen study a year later, March 1941. At that time none showed any evidence of pulmonary disease. Two facts are emphasized by Pope: babies can be infected with tuberculosis during the earliest days of life, and such infection in certain cases tends to progress rapidly and often ends fatally. The diagnosis of tuberculous meningitis or of generalized tuberculosis in an infant or child should initiate an immediate and intensive search for the source of infection.

**Pertussis Treated with Pertussis Antigen.**—Pertussis broke out among 36 children from 3 to 9 years of age occupying one department of a home. The 36 children were divided into three groups: 14 received detoxified pertussis antigen, 11 were not treated and 11 had had the disease before. The study reported by Kramer lasted seven weeks. There was no reduction in the number of paroxysms of coughing immediately after the injection of the antigen, nor was the severity or the length of the disease influenced. The course of the disease in the control group was approximately the same as in the treated group. Some benefit might be claimed for 7 patients who received five injections of pertussis antigen at the beginning of the disease, the course of the disease in them was five and a half weeks as compared to seven weeks in the 7 patients who did not receive treatment until the twelfth day of the disease. However, 4 control children had a similar abbreviated course. The children who previously had pertussis did not contract the disease even in a mild form. Tabulation of the time at which the paroxysms occurred shows that two thirds of the coughing spells occurred between 7 p. m. and 7 a. m. and that the maximal intensity of coughing in pertussis occurred during the early hours of the night.

**Sulfaguanidine for Enteric Infections.**—Of 30 patients moderately to severely ill with acute bacillary dysentery, Hall treated 15 with sulfaguanidine and used 15 as controls. The results in 13 of the treated patients were excellent, fair in 1 and failure (death on the ninth day) in 1. The response was just as dramatic and spectacular as that obtained with sulfathiazole and sulfapyridine in pneumococcal pneumonia. The temperature usually dropped to normal in twenty-four hours, and the general appearance of the patient changed from that of an acutely ill child to one who hardly looked ill in forty-eight hours. When treatment was instituted early a definite decrease in toxicity and a slowing down of the stools usually occurred in as short a time as twelve hours. In all but 3 patients the temperature returned to normal in twenty-four hours. Generally the course of the disease in the control patients was that observed in the past with two exceptions: 1 patient died from an overwhelming toxemia sixty hours after the onset of illness and 1 patient made a rapid recovery after an onset which would ordinarily indicate a virulent infection. The course of the illness of 5 patients with typhoid treated with sulfaguanidine was essentially unchanged by the drug as was a *Salmonella* gastroenteritis in 1 patient. Few toxic effects were observed among the 21 treated patients. Nausea was observed twice, headache once and conjunctivitis once. Sulfaguanidine was not given for longer than twelve days to any patient.

**Mediterranean Anemia.**—Smith reports a case of Mediterranean or Cooley's anemia in a youth of 19 who has been observed since he was 4. The case illustrates the form of the

disease in which adult life is reached. The familial potentiality of the disease is emphasized by the fact that every member of the family had some abnormality of the erythrocytes.

## Journal of Pharmacology & Exper Therap, Baltimore

74 239-334 (March) 1942 Partial Index

- Solubility Studies and Oral Administration of Sodium Sulfapyridine S S Sobin, Chicago—p 247
- Assay of Anti Pernicious Anemia Liver Concentrates by Use of Isolated Bone Marrow Preparation N Pace and R S Fisher, Richmond, Va—p 256
- Pharmacologic Behavior of Intraocular Muscles IV Action of Strychnine on Dilator and Sphincter Iridis E Sachs, Detroit—p 262
- Observations on Chronic Toxicities of Propylene Glycol, Ethylene Glycol, Diethylene Glycol, Ethylene Glycol Mono Ethyl Ether and Diethylene Glycol Mono Ethyl Ether H J Morris, A A Nelson and H O Calvery, Washington, D C—p 266
- \*Influence of Diet on Sulfanilamide Toxicity I Kapnick, C Lyons and J D Stewart, Boston—p 284
- Effect of Sympathomimetic Amines on Pancreatic Secretion II Greenard, R A Robick and A C Ivy, Chicago—p 309
- Quantitative Nature of Correlation of Bismuth and Arsenical Compounds in Therapy of Experimental Syphilis N M Clausen, B J Longley and A L Titum, Madison, Wis—p 324

**Diet and Sulfanilamide Toxicity**—A high protein (casein) diet given to rats was observed by Kapnick and his co-workers to protect the animals against large amounts of sulfanilamide administered daily in acacia suspension. The survival, weight gain, condition of coat, physical activity and clinical appearance were better. Drug intolerance was increasingly apparent on the general high fat and high carbohydrate diet. On a high protein diet the volume of urine increased, more of the drug was eliminated and the concentration of the drug in the blood was lower. The greater tolerance afforded by the high protein diet was probably due to some extent to its more rapid excretion.

## Kentucky Medical Journal, Bowling Green

40 75-116 (March) 1942

- Jefferson County Medical Society M J Henry, Louisville—p 78
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- Our Dental Problems A P Williams, Louisville—p 85
- Treatment of Traumatic Injuries of Face E C Hume, Louisville—p 89
- Clinical Use of Stilbestrol J B Marshall, Louisville—p 93
- Pneumonia and Sulfonamide Therapy L T Minish Jr, Louisville—p 97
- Everyday Surgery M Casper, Louisville—p 100
- Use of Various Members of Vitamin B Complex J E Edwards, Lancaster—p 104
- Heart Disease General Practitioner's Viewpoint T A Griffith, Mount Vernon—p 107

## Ohio State Medical Journal, Columbus

38 201-304 (March) 1942

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- Poisoning Due to Methyl Salicylate (Oil of Wintergreen) Report of Case with Autopsy I S Epstein and J L Work, Cleveland—p 225
- Stilbestrol Use in Female Surgical Castrates K C Sharretts, Fort Benning, Ga—p 227
- Afebrile Rheumatic Fever Report of Case L N Jentgen, Columbus—p 230
- Sulfathiazole and Sulfapyridine in Treatment of Pneumococcal Pneumonia C F Garvin, Cleveland—p 231
- \*Diagnosis of Monocytic Leukemia from Examination of Peripheral Blood Stained with Wright's Report of Five Cases E H Sterne Jr, Cincinnati—p 234
- Cyclopropane Anesthesia R M Crane and R J Whitacre, East Cleveland—p 239
- Primary Carcinoma of Lacrimal Punctum C J Streicher, Canton—p 240
- Survey of Maternal Mortality at Mercy Hospital, Hamilton, Ohio, 1924 to 1939 A Lichtyger, Hamilton—p 241
- Peritonitis Nodosa Case Record Presenting Clinical Problems H Z Lund, Cleveland—p 244

**Monocytic Leukemia**—Sterne stresses the fact that monocytic leukemia can be definitely diagnosed only by demonstrating the pathologic monocytes in the peripheral blood stained with Wright's solution. The stain will also differentiate this leukemia from the myeloid and lymphatic leukemias. In his 5 patients the young myeloid cells varied between 2 to 15 per cent. Ordinarily the percentage of monocytes, both mature and immature, is high enough (more than 60 per cent in twelve of seventeen determinations) to avoid confusion as to whether the monocyte or the myelocyte is the leukemic strain of cell. In

the five determinations showing a lower percentage more than half of the monocytes were young forms, and the myeloid elements never exceeded 10 per cent, leaving little doubt as to which was the leukemic strain. In those few cases in which immature myeloid and monocytic elements are present in equal numbers the leukemic series is the one which will show amitotic nuclear division, unequal divisions of nucleoli and incomplete mitotic spindles with resulting nuclei of unequal size. Certain cases of monocytic leukemia show a high percentage of clasmocytes. Dameshek believes this cell to be the forerunner of the monocyte. If a trained hematologist and pathologist are available additional valuable diagnostic evidence may be obtained from supravital staining, lymph node biopsy and bone marrow aspiration. Supravital staining differentiates monocytes and their precursors from other cell types, biopsy of the lymph nodes and bone marrow aspiration distinguish monocytic leukemia from other diseases producing reticuloendothelial hyperplasia. A simple classification of the relative age of monocytes that will suffice in most instances is similar to that used for the myeloid series: the youngest recognizable cell is called a monoblast (corresponding to the myeloblast), a slightly older form a promonocyte (promyelocyte), a still older cell a young monocyte (myelocyte) and finally the adult monocyte (mature neutrophil). The last three, and frequently the first type, may be satisfactorily identified by means of a Wright's stain of the peripheral blood.

## Oklahoma State Medical Assn. Jour., Oklahoma City

35 93-138 (March) 1942

- Practical Refraction J P Luton, Oklahoma City—p 93
- Pernicious Anemia W Langston, Oklahoma City—p 96
- Present Status of Vitamins in Neurology and Psychiatry J A Wilke, Oklahoma City—p 100
- \*Tularemia Report of Ten Cases E H Werling, Pryor—p 103
- \*Diagnosis and Control of Brucellosis I F Huddleson, Lansing, Mich—p 106

**Tularemia**—Werling discusses 10 cases of tularemia (9 of the ulceroglandular and 1 of the typhoid type) observed between June 1937 and November 1940. All the patients recovered. The infection of 1 followed tick bite, 8 handled wild rabbits, and no definite source could be determined for 1. Six of the patients received 0.6 Gm of neoarsphenamine at weekly intervals with good results in 5 after an average of five doses, 2 received sulfanilamide without any apparent benefit and 2 received serum, which still seems to be the best method of treatment. For the greatest benefit, serum and neoarsphenamine must be administered early.

**Diagnosis and Control of Brucellosis**—During an epidemic of melitensis brucellosis Huddleson had an opportunity for making a comparative study of four diagnostic tests in 41 clinical and 49 subclinical cases of the disease: the blood cultures, the skin, the agglutination and the phagocytosis tests. Of the 4 clinical cases with blood serums negative to the agglutination test 3 showed a positive blood culture on the same date. The blood culture was positive in 12 other clinical cases which at the time showed a maximal agglutination titer of 1:25. The interval between the date of onset and the date the agglutination test was made and titer obtained varied from one to eighty days. There does not appear to be any relationship between the strength of the titer and the time the test was made after onset. The brucellergen skin test was positive in all clinical cases. The phagocytosis test was confusing in 8 of the 41 clinical cases in that the phagocytic picture was similar to that observed in immune individuals. On the basis of the results of each of the laboratory tests, too much reliance should not be placed on any one test to confirm the early diagnosis of clinical brucellosis. The results of all the available tests must be carefully analyzed before a positive diagnosis is arrived at. In considering the results on the group classified as subclinical cases it is shown conclusively that it is possible to demonstrate active infection long after exposure to infective material in individuals in whom clinical manifestations of brucellosis never developed. Since brucellosis is primarily an animal borne disease, its prevalence in man can be reduced only either by suppressing the disease in animals or by effectively breaking the infection chains between animals and man. The three effective measures in animal brucellosis are slaughter of infected animals.



segregation of infected animals from the noninfected on separate farms and immunization of calves under 8 months of age. Control of the disease in cattle by vaccinating the calf is worthy of trial. Another simple and inexpensive control measure in animals would be the requirement of a negative blood test on animals sold for breeding or for dairy purposes. The incidence of the disease in man could be reduced quickly if the owners of livestock used more caution in the handling of infected animals, their excreta and secretions and by the proper pasteurization of all milk from infected animals used for human consumption.

### Pennsylvania Medical Journal, Harrisburg

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- Surgical Problems in the Diabetic L S McKittrick Boston—p 559  
Acute and Chronic Perforations of Gallbladder R L Schaeffer Allen  
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lari M T Pettler Beaver Falls—p 604

#### Acute and Chronic Perforations of Gallbladder—

Schaeffer does not believe that there are silent and harmless gallstones. When gallstones are discovered they should be removed, preferably by cholecystectomy. He operated on 601 patients with disease of the gallbladder from 1934 to 1941, among them 20 whose gallbladders were perforated. These 20 were found among the 122 acute cases. Eight of the 20 patients died, there were 6 with chronic perforations, 2 of whom died. Eighteen of the 20 patients were women, the youngest was 30 and the oldest was 77. The average age of those who died was 68 and of those who recovered 54.4 years. The patients complained of symptoms before admission to the hospital from two weeks to thirty-five years. When gallstones are revealed roentgenographically or there is a definite history of disease of the gallbladder the patient should not only be advised to have them removed surgically but should be urged and persuaded to be operated on before the condition of the gallbladder becomes acute and is followed by perforation and peritonitis. Only 3 of the 20 patients with perforations complained of symptoms for less than one year. All but 3 of the patients with acute perforations were operated on within twenty-four hours after admission to the hospital, those with a chronic condition within one to eighteen days. The acute perforation is an abdominal emergency requiring immediate operation. The author's attitude in acute cholecystitis is that the operation should be done in the acute stage rather than to wait until gangrene and perforation occur. Perforation produces an immediate severe chemical and toxic peritonitis. The operative procedure must be determined by the patient's clinical condition.

**Painless Myocardial Infarction**—Stroud and Wagner report 2 cases of painless myocardial infarction. They have observed a small group of persons who have been subjected to paravertebral injection of 1 per cent ammonium chloride for the relief of the pain of angina pectoris. Clark has shown that afferent impulses which are interpreted as pain and warmth are conducted at least in part, by C fibers. These fibers may be eliminated if the nerve is injected with 1 per cent ammonium chloride. Subsequent to the injection these patients apparently no longer suffered pain on effort. The sensation of substernal fullness, tightness or oppression together with dyspnea still continued to limit their activity, although to a less extent than prior to the injections. The effect did not persist for more than four days. Ultimately alcohol was used. It gave more permanent relief but was occasionally complicated by neuritis. These symptoms have been termed "the pain equivalent of angina pectoris." It seems possible that some patients may

have an abnormality of the C fibers in the sympathetic chain which prevents the usual stimulation by the changes brought about by acute myocardial anoxia, or possibly the fibers have been destroyed by a chronic process so that they no longer respond to even severe changes. In myocardial infarction without pain all the objective signs of infarction are present, i.e. a fall in blood pressure, fever, leukocytosis and electrocardiographic changes. The sudden onset of dyspnea, congestive heart failure or an unusual attack of syncope in a known hypertensive patient deserves the same careful study and treatment as if the patient had experienced substernal pain radiating to the neck, the arms and the wrists.

### Quarterly J Studies on Alcohol, New Haven, Conn

2 641-868 (March) 1942

- Alterations in Respiration Caused by Alcohol F A Hitchcock Colum-  
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Stevenson Chicago—p 661  
Occurrence of Polyneuritis and Abnormal Pupillary Reactions in Chronic  
Alcoholism L Secunda and E H Trowbridge Jr Boston—p 669  
Alcohol Problem: Possible Lines of Useful Research A J Carlson  
Chicago—p 672  
Inebriety Classification I A Darling Torrance, Pa—p 677  
Alcoholism and Crime R S Banay, Ossining N Y—p 686  
Treatment of Alcohol Addiction: Review of Literature W L Voegtlin  
and F Lemere Seattle—p 717

**Polyneuritis and Abnormal Pupillary Reactions**—Polyneuritis and pupillary anomalies (sluggish or absent reaction to light, inequality in size and shape) were observed by Secunda and Trowbridge to occur more frequently in patients with alcoholic psychosis with definite mental confusion or impairment of the sensorium than in patients with alcoholic psychosis with little intellectual involvement.

### Radiology, Syracuse, N Y

38 261-382 (March) 1942

- Some Practical Considerations Regarding Employment of Various  
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Action of Roentgen Rays on Inflammatory Conditions A U Desjardins,  
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Roentgen Therapy for Acute Sinusitis W C Popp and H L Williams  
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Further Observations on Radium Treatment of Postoperative Parotitis  
R E Fricke and G F Madding Rochester Minn—p 294  
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Electric Model of X-Ray Machine M M D Williams, Rochester,  
Minn—p 338  
Portable Geiger-Müller Counter R B Taft, Charleston S C—p 350  
Rapid Dark Adaptation Test R A Harvey Rochester N Y—p 353

**Various Qualities of Roentgen Rays in Therapy**—Six sets of voltage-filter-distance factors for x-ray beams are presented by Quimby. They cover the range between 100 kilovolts of unfiltered to 200 kilovolts of highly filtered radiation. Depth dose data for these beams, 100, 100, 120, 140, 200 and 200 kilovolts with respectively no filter, 1 mm of aluminum, 3 mm of aluminum, 0.25 mm of copper, 0.5 mm of copper and 2 mm of copper, half value layer of 0.9 mm of aluminum, 1.9 mm of aluminum, 4.3 mm of aluminum, 8.6 mm of aluminum, 0.9 mm of copper and 1.8 mm of copper and a focal skin distance of 15, 20, 30, 40, 50 and 80 cm are presented in such a manner as to facilitate determinations as to their relative values in any specific condition. The approximate number of roentgens delivered per minute for the six sets of roentgen qualities are 400, 150, 40, 15, 45 and 8. The values are based on averages of calibrations made on low voltage machines operating at 4 to 5 milliamperes and on high voltage machines



operating at 20 to 25 milliamperes. In selecting the quality of radiation to be employed for any particular lesion the roentgenologist must take into account not only the dose at that definite depth but also the doses to overlying and underlying structures.

**Roentgen Rays for Inflammatory Conditions**—In describing the action of roentgen rays on inflammatory conditions, Desjardins points out that each variety of cell in the body has a specific sensitiveness to roentgen rays, the leukocytes are the most sensitive. Not only do roentgen rays have a decidedly deleterious action on the important varieties of leukocytes but the action is surprisingly rapid. When the effect of irradiation on an inflammatory lesion is closely observed, the rate and manner of the response of the cells is often so similar to that under experimental conditions that a relationship between the two is almost inescapable. When exposed to roentgen rays it is probable that a proportion of the leukocytes are destroyed, the cells disintegrate effectively and their contents, including the bacteriolytic substances which they contain, are destroyed and scattered between the remaining intact cells and tissue fluid of the inflamed area. As the disintegration proceeds it is accompanied or followed by an increase in phagocytosis. Some of the reticular cells most probably assume a phagocytic property. Chronic inflammations respond best to repeated doses somewhat larger than the single ones required for acute inflammations. The greater the degree of leukocytic infiltration (as in acute infection) the more definite and the more rapid is the effect of treatment. Leukocytic infiltration and connective tissue proliferation (as in chronic inflammation) act in opposite directions, the former increases the effect of irradiation and the latter diminishes this effect.

**Roentgen Therapy for Pneumonia**—Rousseau and his associates limit their discussion to the analysis of 104 cases of acute lobar pneumonia since 1937 with roentgen therapy and the usual supportive and symptomatic measures and of 29 in which irradiation was used only after sulfonamide therapy for not less than three or more than seven days and the usual routine medical care proved valueless, and death seemed inevitable. Of the 104 patients 98 recovered and 6 died. The average duration of illness before irradiation was instituted was two days. Of the 29 patients 22 recovered and 7 died. The average duration of these patients' illness before roentgen therapy was begun was five and eight-tenths days. The authors conclude that although the effectiveness and simplicity of sulfonamide therapy for pneumonia entitle it to first place, roentgen treatment appears in some cases to have distinct advantages, especially for persons who are known to tolerate the sulfonamides badly, the very old, the debilitated and those with serious cardiac, renal or hepatic disease, whose recovery may be curtailed by the toxic effects of the drug. No ill effects from irradiation could be detected in persons already saturated with the sulfonamide drugs. The interval between the roentgen treatment and death of all the patients who died was less than fifteen hours. All the patients who survived for as long as fifteen hours after roentgen treatment was begun recovered completely. This suggests that the treatment may not exert its maximal effect on the course of the disease for fifteen to twenty-four hours. Usually changes in the temperature, pulse, respiration and leukocyte count were not demonstrable until fifteen to thirty-six hours after roentgen treatment.

**Radium for Postoperative Parotitis**—Fricke and Madging believe that the reports in the literature on the serious potentialities of acute postoperative parotitis have been unduly pessimistic. When death does occur the primary disease for which the operation was performed is usually responsible and the parotitis is only a contributing factor. This was true of their 190 patients treated with radium and of 79 treated by other methods. Approximately 11 per cent of the patients treated with radium later died, as did 7 per cent of those not irradiated. Seven experienced spontaneous rupture and drainage, but all these recovered. In 8 per cent of those in whom radium was employed and in 19 per cent of those treated by other methods the extent of the infection increased, fluctuation appeared and surgical drainage became necessary. According to most investigators, when incision and drainage are required the prognosis is much more serious. A detailed study of the 19 patients who died revealed that parotitis was the chief cause

of death of only 1. The average age of the patients who died was ten years more than the average age of the entire group. The preceding operation in 9 of the 19 patients who died had been performed for a malignant tumor, usually of the colon. The principal cause of death was peritonitis, with bronchopneumonia second, followed by uremia and pulmonary embolism. The parotitis of 5 patients had either cleared up entirely or was subsiding at the time of death.

**Roentgen Treatment of Acute Peritonitis**—The opinion of Kelly and Dowell is that if gas gangrene and acute spreading peritonitis of intestinal origin are caused by the same organism their excellent results with roentgen therapy in the few cases that they so treated are explained. Regardless of the question of bacterial etiology, they are convinced that the results of irradiation in acute peritonitis will parallel those secured in gas gangrene and that the mortality rate following appendicitis will be decidedly reduced. Of all the cases of acute peritonitis treated in the various stages by different methods that are listed in the record room of St. Joseph's Creighton Memorial Hospital the best results were obtained with irradiation. Of 109 treated by general measures 71 died, of 42 treated with sulfanilamide and general measures 16 died, of 21 given sulfanilamide, irradiation and general measures 7 died and of 30 treated by roentgen radiation and general measures 6 died. Conditions which preclude success from the roentgen treatment of peritonitis are its delayed use, organic intestinal obstruction, open and leaking intestinal perforation, the early internal use of the sulfonamides simultaneously with roentgen therapy and underlying organic pathologic changes which are fatal in themselves.

**Acute Postoperative Parotitis**—A method for treating acute postoperative parotitis by irradiation is outlined by Pendergrass and Hodes. Treatment is instituted as soon as the diagnosis is made. Relief of obstruction of Stenson's duct should be attempted by aspirating, probing, gentle irrigation or/and strong suction, but free drainage from the parotid should be established. Only then is the parotid irradiated with roentgen rays generated at 130 kilovolts, filtered through 0.25 mm of copper and 1 mm of aluminum. The skin target distance is 25 to 30 cm and the port is large enough to extend beyond the inflamed area. If the patient is too sick to be brought to the x-ray department for treatment, the portable x-ray machine is used at his bedside. On the first and on the second day a dose of 150 roentgens is delivered to the skin overlying the infected gland, 100 roentgens the third day, none on the fourth day and occasionally 75 to 100 roentgens on the fifth day. From the time the patient is first seen, every effort is made to promote emptying of the parotid, his fluid balance is watched carefully, he chews gum constantly and sucks on hard sour candy, and hot mouth washes are employed every hour. Mincing the gland is an extremely important though somewhat hazardous procedure, as the pressure exerted must be gentle. The gland should always be "milked" in the direction of the normal flow of its secretions. Of 47 patients with acute postoperative parotitis given roentgen therapy, 19 responded within four days, the improvement of 13 was somewhat less dramatic and 15 obtained little or no effect from the treatment, in 7 incision and drainage of the gland were resorted to. Death from parotitis alone is rare, usually it should be attributed to the primary disease.

### South Carolina Medical Journal, Florence

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### Tennessee State Medical Assn Journal, Nashville

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## FOREIGN

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## British Journal of Surgery, Bristol

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- Arteriovenous (Cirsoid) Aneurysm of Sculp Successfully Treated by Combined Arterial Ligation and Venous Injection Case D H Patey —p 290
- Ureterocoele with Prolapse Through External Urinary Meatus I Macpherson —p 294
- Traumatic Cerebrospinal Rhinorrhea Repair of Fistula by Transfrontal Intradural Operation K Eden —p 299
- Skeletal and Other Changes Found in Case of Suprasellar Cyst of Rathke's Pouch R A Rowlands and S I Simpson with pathologic report by Dorothy S Russell and H M Turnbull —p 304
- Lymphadenoid Cyst Associated with Full Clinical Picture of Graves Disease Case K C Eden and W R Trotter —p 320
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- Varix of Spinal Cord Case Report with Diagnostic Radiologic Appearance and Description of Tumor G A Ransome and E C McKie —p 330
- Spontaneous Disappearance of Phosphate Deposits from Urinary Tract R M Walker and J W Thompson —p 336
- \*Examination of Night Visual Capacity in Relation to Flying P C Livingston —p 339
- Treatment of Acute Appendicitis H H Rayner —p 346

**Suprasellar Cyst of Rathke's Pouch**—Rowlands and his collaborators report a case of tumor of the hypophyseal duct in a man of 43 with a symptomatology comparable to or in large measure identical with that occurring in Simmonds' cachexia and in complete experimental hypophysectomy. Infantilism inhibited growth retardation of age changes in chondral cartilage arrest of sexual development diabetes insipidus, disturbance of carbohydrate and fat metabolism and of heat regulation a subnormal basal metabolism symptomatic narcolepsy and mental changes were present. At necropsy the pituitary stalk was found destroyed the posterior pituitary lobe almost completely destroyed two thirds of the anterior lobe was replaced by clefts of cholesterol crystals surrounded by collagen and numerous foreign body giant cells and the degeneration of the remnant of the anterior lobe was advanced. It is probable that the whole of the pituitary gland was functionless and if this was so it would explain the greater part of the symptomatology. Study of the skull disclosed a large epidermoid cyst in the region of the septum pellucidum and left frontal lobe.

**Night Visual Capacity and Flying**—Livingston does not believe that vision in the night sky corresponds to the state of dark adaptation used in laboratory studies and therefore suggests that the term night visual capacity and not dark adaptation be used. The range at which aircraft become detectable is influenced by the position of the observer in relation to the highest background brightness. The use of oxygen for night flying is of greatest importance withholding it impairs night vision at relatively low altitudes. The two methods for preparing the eyes of pilots before taking off are retention in a dark room or the wearing of dark goggles of low light transmission. The goggles overcome the risk of the transfer of upper respiratory ailments and the disinclination of active men to be inactive for a period before flying. From a study of recent work it became clear that the real problem was to suit the ophthalmic technique to the visual reactions under flying conditions. The requirements of the Royal Air Force were met by creating an apparatus which required a preliminary introductory preparation that caused no abnormal sensations. The instrument is a rotating hexagon of six metal sides 24 inches high with four rectangular apertures in each face. Behind each panel is a white flashed opal screen visible only in the apertures. The screens can be moved up or down so that the objects etched in black on them can be readily altered. The distance of each of the subjects 6 of whom are examined at a time from his pupil is 1 yard. The objects regarded separately by direct fixation are indecipherable but when the eyes move from one object to another the angle covered reaches well into the rod area of the retina and scotopic vision is stimulated and it is possible to record what is seen. This principle has been created

to encourage observers to employ eccentric fixation in identifying aircraft at night. To be certain that the subjects to be examined are in a comparable state of adaptation they wear dark goggles of equal transmission for half an hour before entering the test room from which all light can be excluded. Each subject is handed a card illustrating some of the characters which he will be expected to analyze, the light transmission of the goggles is sufficient for their scrutiny. Each subject is handed a board on which is clamped a braille type card. The light in the dark room is extinguished the goggles are removed and during the fifteen minutes in complete darkness it is carefully explained that there are four similar tests, each corresponding to a metal button on the board, which is placed in such a way that each button corresponds to a transverse grooved line on the braille card. The buttons run down the middle of the board, making a left and a right braille line. Each test exposes first objects and then letters. The subject writes the name or draws the object recognized on the left side, and the letters seen are written on the right side. The letters may be set in abnormal positions and should be copied as set. Each test lasts one minute, and test succeeds test without pause. The illumination on each occasion is slightly increased until the third test is reached, when one minute of glare from an electric lamp is introduced. The subject looks slightly beneath the lamp. When scoring, a differentiation is made between a night pilot of bomber aircraft and an air observer or air gunner. A high degree of night vision is less important in the case of the pilot because he is flying on lighted instruments.

## British Medical Journal, London

1 173-208 (Feb 7) 1942

- Industrial Eye Injuries A MacNalty —p 173
- Hemoglobinometry C Rimington —p 177
- \*Mental Symptoms in Cerebrospinal Meningitis T W H Weir and C K Vautier —p 179
- Experience with the Wilson and Blair Medium for Bacillus Dysentery (Flexner) D B Bradshaw —p 181
- Carotid Cavernous Aneurysm with Fistula W J Roche —p 182

**Mental Symptoms of Cerebrospinal Meningitis**—Weir and Vautier found that 3 men with abnormal mental symptoms who were certified had cerebrospinal meningitis associated with wartime effort and overcrowding. Each presented a picture of confusional psychosis confusion, disorientation irritability restlessness and general resistiveness with violent outbursts. Each had a history of alcoholism. The alcoholism might have lowered the resistance to the meningococcus which was most likely harboring in the nasopharynx of carriers in the vicinity. Meningitis was suspected on finding some degree of nuchal rigidity and commencing retraction of the head. Mild headache appeared only as the patient's mental state improved. A lumbar puncture should be done to determine the nature of the illness. No other case has occurred previously or has arisen since in the area from which each of the 3 patients came. Medical officers in charge of the health of the workers in large industrial concerns and war industries have a special responsibility, for it is among such people that the disease is apt to occur without any warning. Cerebrospinal meningitis should be considered when mental symptoms suddenly develop in any person. All persons with acute confusional psychosis should at first be sent to mental hospitals as temporary patients.

1 209-246 (Feb 14) 1942

- \*Treatment of Fresh Compound Fractures and Wounds J C Scott —p 209
- \*Gastric Lavage in Diagnosis of Tuberculosis in Children Survey of Seventy Five Cases T W Davies and C J Doherty —p 212
- Group Psychotherapy J Bierer —p 214
- Lung Tumors in Mice Incidence as Affected by Inhalation of Certain Carcinogenic Agents and Some Dusts J A Campbell —p 217
- Isolated Fracture of Carpal Cuneiform W P Greening —p 221

**Treatment of Fresh Compound Fractures and Wounds**—Scott points out that those who first see fresh compound fractures and wounds are not sufficiently aware of the urgency of adequate treatment within six hours. The only justifiable cause for delay is the patient's general condition. Early splintage if a compound fracture is not contaminated is essential.

otherwise it should not be reduced until the wound is excised. When sedation and splintage are in order, a plasma drip should be started before the operation. Any patient requiring more than 2 pints of fluid should be given blood instead of plasma after the second pint. During incision and excision of all necrotic tissue of a wound a tourniquet should never be maintained in place. Failure to excise a wound because it is more than six hours old is to deny the principle of excision. After approximately forty-eight hours the Winnett Orr principle of incision and drainage is usually sufficient for if gas gangrene has not developed in that time it is not likely to do so. The wound should be sutured if seen within six hours and, if approximation without cutaneous tension is not possible, sutures should not be used. Conditions in which it is safe to do a primary suture seldom arise in war surgery. If the wound is not sutured and infection is not present the wound should be packed with dry gauze and plaster applied over the gauze. If infection is present petrolatum gauze to provide the required drainage is used. The limb should be immobilized one joint above and one joint below the wound or fracture. If padding is used under the plaster it must be highly absorbent. When a wound is left open, no window should be cut. In an uninfected wound is sutured there is no need to cut a window. The cutting of a window in the plaster of such a wound suggests doubt as to the surgeon's wisdom in suturing it. Tetanus toxoid may sometimes make antitetanus serum unnecessary, but at present it should always be employed. To start the patient on a course of sulfonamide therapy after his fresh wound has been treated is an admission of failure. When such a patient's temperature rises above 100 F and infection is present surgery has been faulty, the infecting organism should be determined and the appropriate sulfonamide derivative prescribed. A point cited against the use of the excision-incision closed plaster technic is that gas gangrene starts in the calf, the thigh and the shoulder. If the surgeon is in doubt as to the efficiency of the excision and incision of such a wound, plaster should not be applied for forty-eight to seventy-two hours. If infection does not develop in this time, plaster may be applied. In the earliest stage of gas gangrene usually a clear change in the general condition of the patient occurs, and if this change is noted and acted on directly the diagnosis will be made just as soon as it would have been by repeated inspection of the wound. Serum is of prophylactic value in the treatment of gas gangrene only if adequate doses (100,000 units in twenty-four hours) are given. Of 31 patients with compound fractures and wounds involving joints treated by the author, only 1 died. This patient had a compound fracture of both tibias and died of head injuries within twenty-four hours. A sulfonamide drug was administered to only 3 patients. The average stay in the hospital for all the patients was seventeen days. All were put in plaster.

**Gastric Lavage in Diagnosis of Tuberculosis**—Davies and Doherty examined the gastric contents of 75 boys and girls 2 to 11 years of age for tubercle bacilli. Sixty-four of the children had pulmonary and 11 had nonpulmonary tuberculosis. Faucial, nasopharyngeal and middle ear tuberculosis were excluded. Tubercle bacilli of the human type were found in the gastric contents of 24 patients. A positive result was not obtained in any of the nonpulmonary cases. Tubercle bacilli were found in 3 specimens on direct examination after concentration. Ten specimens were positive on culture and guinea pig inoculation, 7 on culture only and in 7 after guinea pig inoculation only. A positive result on direct examination should not be accepted unless confirmed by culture or by guinea pig inoculation. The three positive results on direct examination were also positive on culture or guinea pig inoculation. A parenchymal lesion was present in 22 of the positive cases, and pleural effusions in the remaining 2. In 14 the lesion was in the right pulmonary field and in 4 in the left lung, in 4 others there were bilateral lesions. The gastric contents of all patients with parenchymal lesions should be examined on successive days and frequently during treatment. A child with tubercle bacilli in its stomach contents should be considered infectious until repeated negative results have been obtained. The clinical course of the disease in such children is favorable, the lesion gradually resolves, leaving evidence of calcification or fibrosis.

## Lancet, London

1 189-218 (Feb 14) 1942

- Vital Statistics of Second Year of the War P. Stocks—p. 189  
 \*Use of Plasma in Hospital Ship H. R. I. Wolfe and H. W. Clegg—p. 191  
 Pouch of Hartmann F. Davies and H. E. Harding—p. 193  
 \*Intraperitoneal Sulfapyridine in Acute Abdominal Conditions R. H. Gardiner—p. 195  
 \*Persistent Myalgia Following Sore Throat L. E. Houghton and E. I. Jones—p. 196  
 Pyruvic Acid Test for Vitamin B<sub>1</sub> Deficiency in Children H. E. C. Wilson—p. 199  
 Barbiturate Poisoning Treated with Picrotoxin M. Fishman—p. 199

**Use of Plasma in a Hospital Ship**—Their experience with the administration of plasma to 16 severely burned patients in a hospital ship prompts Wolfe and Clegg to suggest that its use be more widespread at sea. The treatment of shock in such casualties during transport to base hospitals can save many lives. The authors prefer dilute citrated plasma as it can be easily prepared and supplied in one container ready for use after simple filtration. Experience may prove that it can be stored at room temperature, meanwhile refrigeration, especially in tropical and subtropical climates, is desirable. Such facilities are available on ships. Freezing solid, if possible, is recommended. The burns of the 16 patients were second degree and extensive or complicated by associated injuries. All but one were treated by the tannic acid silver nitrate technic (Bettman 1935). The burns of only 2 patients failed to heal within a fortnight. There were 7 deaths, 4 were of severely burned patients who showed no response and died within fourteen hours of admission, 1 responded well to plasma but died twenty-nine hours after admission, 1 responded well to plasma but symptoms of burn toxemia developed on the fourth postoperative day and he died two days later of capillary bronchitis, and 1 acquired streptococcal tonsillitis and pharyngitis and he died eight days after admission of massive obstructive atelectasis due to capillary bronchitis. The degree of hemoconcentration after plasma has been given must be estimated repeatedly. Plasma transfusion in burns is usually necessary for thirty-six to forty-eight hours, because during this period plasma is still being lost into the burned area. In burns if plasma infusion was delayed or treatment of the burn postponed local edema progressed, whereas after plasma was given most of the edema disappeared within twelve hours. When the burned surface is sealed by coagulation, plasma infusion will restore to the circulation the fluid lost in the tissue spaces, provided capillary damage is not irreparable. The cutaneous loss can be balanced by the oral administration of fluid supplemented if necessary by rectal and intravenous saline solution. Saline baths are of value when the patient's life is not threatened, but they have no place in the treatment of extensive superficial burns.

**Intraperitoneal Sulfapyridine in Acute Abdominal Conditions**—Gardiner used sulfapyridine intraperitoneally in 15 cases of perforated appendix, in 2 of perforation of the sigmoid colon and in 2 of resection of a gangrenous small intestine. All but 1 patient recovered and none had the usual prolonged outpouring of thick pus from the abdominal cavity and wound. Thus hospitalization was shortened. One patient died of peritonitis. In further similar trials of the drug the bacteriology of the abdominal fluid should be determined and the level of the sulfonamide derivative in the blood should be recorded.

**Persistent Myalgia Following Sore Throat**—An epidemic of 7 cases of myalgia is reported by Houghton and Jones and its clinical features are discussed. The 7 patients were members of the nursing staff in whom sore throat developed in 6 it was followed in eight to twenty-one days by paroxysmal muscle and severe headache. Subungual hemorrhages and the toes were observed in 2. Pyrexia and pains persisted up to five months, menstrual disturbances and spontaneous epistaxis were also present. All laboratory studies including cutaneous tests and precipitin reactions for trichinosis were negative. Biopsy of a painful indurated area in a muscle showed no abnormal changes, and no treatment was of any value. The patients recovered without any sequelae. It is suggested that the condition was due to an unidentified microorganism or virus.

## Boletín Clínico, Medellín

7 483-534 (Oct) 1941 Partial Index

\*Edema and Cachexia from Ascariasis N Villegas—p 483

**Edema and Cachexia from Ascariasis**—Villegas describes a type of cachexia in nonsyphilitic children with ascariasis which is characterized by excessive coldness of the extremities, bleeding gums, pellagroid mucosal and buccal lesions dermatitis, anorexia, vomiting, diarrhea or constipation, micturism, loss of appetite, hypotension muscular and psychic asthenia somnolence and rapid progressive decline in the weight and in the general condition of the patient. It is observed in poorly nourished children of tropical and semitropical countries. Treatment with diuretics, anthelmintics epinephrine, vitamins, tonics and hormone preparations usually fails. Mortality is 80 per cent. Good results were obtained from administration of 8 drops daily of nuxvomica for ten to fifteen days. The general condition improved from the first two or three days of the treatment, during which the patients eliminated a large number of ascarids and regained their appetite. After three to five days of the treatment, 13 Gm of castor oil with 4 drops of volatile oil of chenopodium is given. The diet consists of milk, fruits, meat, vegetables and carbohydrates given as soon as the treatment starts. Permanent cure was obtained in all cases. Edema of the feet disappeared in the course of the treatment.

## Revista Médica Brasileira, Rio de Janeiro

11 283-404 (Oct) 1941 Partial Index

\*Vulvovaginitis in Young Girls J Alves de Medeiros—p 314  
Cancer of the Thyroid L Galvão—p 333

**Vulvovaginitis in Young Girls**—De Medeiros reports 23 cases of vulvovaginitis in girls between the ages of 6 and 10 years. Treatment consisted in a daily sitz bath with a 1:8,000 potassium permanganate solution and tonics. Patients with oxyuriasis but without gonococcal infection were also given specific vermifuges. A cure resulted in three to four months. Patients with gonococcal infection were given protein therapy and antigonococcus vaccines. The treatment was supplemented by administration of sulfanilamide. Estrogen was administered to patients who exhibited disorders of the genitalia. Cure was verified in all cases by a follow-up of the patients for several months.

## Revista de la Sociedad de Pediatría de Rosario

6 197-290 (Sept-Dec) 1941 Partial Index

\*Biermer's Pernicious Anemia in Infant A R Dutruel and S L Rabasa—p 197

\*Bronchoaspiration in Asphyxia of Newborn Infants M Gonzalez Loza and J C Santa Maria—p 228

**Pernicious Anemia in Infant**—Dutruel and Rabasa review the literature and report a case of pernicious anemia in an infant 10 months old. The appearance of the patient and the alterations of the peripheral blood and of the sternal bone marrow were typical of Biermer's anemia. There were hypochlorhydria and diminished reflexes in the legs. Liver therapy resulted in clinical improvement, which was maintained by feeding raw liver in the diet. Discontinuance of the latter was followed by a recurrence. The disease should be called megaloblastic rather than pernicious anemia. A diagnosis of pernicious anemia in an infant is permissible only when the changes in the blood and in the sternal bone marrow are typical. A favorable response to liver therapy confirms the diagnosis.

**Bronchoaspiration in Asphyxia of Newborn Infants**—Asphyxia produced by aspiration of amniotic fluid and mucus from the mother's genitalia is frequent in normal children, and even more so in the premature and weak newborn infants. It may recur several times during the first two days of life and may be the cause of pulmonary edema or bronchopneumonia at a later date. Gonzalez Loza and Santa Maria report successful results from bronchoaspiration by means of a cannula carefully introduced through the glottis into the bronchi under laryngoscopic control. After aspiration oxygen is insufflated under pressure through the cannula. A mixture of oxygen and

carbon dioxide is insufflated when stimulation of respiration is indicated. The procedure can be repeated, if necessary, after twelve or twenty-four hours. For two or three days after performance of laryngoscopic bronchoaspiration the secretions may be removed from the mouth and pharynx by simple aspiration. The authors advise having the necessary equipment for laryngoscopic bronchoaspiration in maternity hospitals.

## Archiv für Dermatologie und Syphilis, Berlin

181 471-592 (Dec 31) 1940 Partial Index

Sugar Content of Skin Surface Skin Dialysate and Sweat W Schulze—p 471

Atrophoderma Vermiculata H Groneberg—p 495

Cutis Lixa with Increased Vulnerability of Skin Schiemann—p 507

\*Histopathology of Liver in So Called Arsephenamine Jaundice Studied by Means of Aspiration Biopsy K Roholm and N B Krarup—p 521

Mibelli's Porokeratosis G Miescher—p 532

\*Articular Changes in Late Congenital Syphilis H O Loos—p 549

\*Familial Acrogeria H Gottron—p 571

**Aspiration Biopsy of Liver**—Roholm and Krarup state that arsphenamine jaundice developing in syphilitic patients is not a syphilitic lesion since it is also observed after arsphenamine treatment in the absence of syphilis. Attention has been called to the similarity between arsphenamine jaundice and epidemic hepatitis. It is believed that arsphenamine damages the liver and prepares the way for the unknown virus of epidemic hepatitis. The microscopic changes in the liver are identical in epidemic hepatitis and in the arsphenamine jaundice. The authors report pathologic studies on patients with acute diffuse hepatitis subjected to aspiration biopsy according to the method of Iversen and Roholm. Some of these had been treated with arsphenamine and the liver changes observed in them did not differ from the typical picture of acute epidemic hepatitis. The authors present histories of 10 patients with arsphenamine jaundice on whom eleven aspiration biopsies were done. The microscopic changes in the liver were identical in the so-called arsphenamine icterus and in the acute epidemic hepatitis. The two disorders are identical. Arsphenamine reduces the resistance of the liver to the unknown virus of acute epidemic hepatitis.

**Articular Changes in Late Congenital Syphilis**—Loos states that articular changes of late congenital syphilis, which were quite frequent before 1900, have decreased noticeably in recent decades. The manifestation is evident about the fifth year of life and is most frequent during the tenth year. The thirtieth year can be taken as the upper age limit of manifestation. The knee is the most frequent localization. From the clinical point of view the author differentiates between articular changes without and with involvement of bones and cartilages. Those without osseocartilaginous involvement include (1) serous synovitis (simple hydrarthrosis), in which usually the knee joint shows a profuse but not very painful hydrops, and roentgenologic changes are absent, (2) hyperplastic synovitis, in which the articular capsule exhibits inflammatory hyperplastic changes that appear in the roentgenogram as thickening. The articular changes with involvement of bones and cartilages include (1) hydrops with epiphysitis and (2) pseudotumor albus syphiliticus. Hydrops with epiphysitis is the most frequent form of congenital late articular syphilis. Four of the author's six observations belonged to this group. Aside from the customary clinical picture of hydrops with thickening of the wall and epiphyseal swelling of the bone there may be severe deformities with bony ankylosis. The pathologic anatomic basis of this process consists in gummatous inflammations of the bone ends of the articular cartilage and of the soft parts. Pseudotumor albus syphiliticus, the rarest form of late congenital arthrosyphilis was designated thus because of its similarity to the tuberculous fungus. The rarity of ulcerous destruction of the skin above the diseased joint prevents its being mistaken for tuberculosis. In addition to bone changes such as multiple gummas and osteomyelitis gummosa tibiae, ocular lesions are frequently associated with the articular lesions of late congenital syphilis. Parenchymatous keratitis and disseminated choroiditis are particularly frequent. The combined administration of neoarsphenamine and bismuth compounds and



the oral administration of iodine together with local electro-physical measures produced favorable results in late congenital arthrosyphilis

**Familial Acrogeria**—Gotttron applies the term acrogeria to a disorder which he observed in siblings, a girl aged 19 and a youth aged 16. Both had unusually small hands and feet and severe atrophy of the skin on these parts. The author thinks that this disorder is a localized and abortive form of progeria. The familial occurrence of this rare condition suggests a genotypic origin. From this point of view, acrogeria can be considered one of the as yet little known hereditary disorders of the connective and fat tissues.

## Zeitschrift für klinische Medizin, Berlin

138 687-806 (Dec 28) 1940 Partial Index

- Changes in Serum Proteins in Hepatic Diseases and Their Diagnostic Significance T. Sjölin and B. Berh —p 687  
Experimental and Clinical Studies on New Sulfonamide Derivatives J. Vonkennel, J. Kimmig and B. Korth —p 695  
\*Hepatic Puncture as Practical and Valuable Clinical Method W. Kofler —p 744  
\*Specific Prophylaxis of Epidemic Influenza by Inhalation of Antiserum A. A. Smorodinzew, A. G. Gulmow and O. M. Tschalkina —p 756  
\*Rheumatoid Sepsis H. Oettel —p 773  
Diagnosis of Auriculoventricular Rhythm and Block O. Reimer —p 783

**Hepatic Puncture**—Kofler directs attention to the recent method of Iversen and Roholm (*Acta med Scandinav* 102:1 [Sept 23] 1939, abstr. THE JOURNAL, Dec 9, 1939, p 2194). At his clinic in Vienna this technic has been used in about one hundred punctures on patients ranging in age between 16 and 77 years. Stasis liver, fatty liver, various forms of icterus, cirrhosis and carcinoma were some of the conditions in which hepatic puncture was done. In some of the cases the puncture was repeated at weekly or monthly intervals. The technic of the intravital aspiration biopsy is described in detail and the possible dangers are discussed. Complications may be of four different types: hemorrhage, infection, injury to other organs and penetration of air into the hepatic tissue. The last named complication is obviated by the fact that no aspirators are used. Injuries of other organs can generally be avoided. When they do occur they usually heal without surgical intervention and without complications. The danger of the development of a hepatic abscess as the result of defective sterility or of a peritonitis or pleuritis from the puncture of an existing abscess is slight. The chief danger and practically the only one is that of hemorrhage. It can be avoided by careful preliminary examination and preparation of the patient. Aspiration biopsy should never be done in the presence of a hemorrhagic diathesis. Hepatic puncture has demonstrated that a hepatitis in Eppinger's meaning of that term is the basis of catarrhal icterus.

**Prophylaxis of Epidemic Influenza by Inhalation of Antiserum**—Smorodinzew and his collaborators emphasize that the prophylactic use of specific influenza serum will be successful only if the disorder in question is actually epidemic influenza and not some other disease. English as well as Russian investigators have demonstrated the different etiology of disorders all of which were designated as influenza. The virus of epidemic influenza is rarely encountered in sporadic cases of influenza, and there are various serologic types of influenza virus. The anti-influenza serum, which effectively neutralizes the typical strain used for its production, may have little effect on other strains. For this reason it is essential to produce serums with a large "spectrum" of antibodies. The authors resorted to the prophylactic inhalation of antiserum for the first time in the influenza epidemic of February and March 1939. The finely dispersed serum was inhaled for five minutes through a respirator, the tube of which was connected with a chamber containing a spray that was activated by an electric ventilator. From 2 to 3 Gm of serum was inhaled in the course of five minutes. The inhalator apparatus used by the authors had fifteen outlets or respirator attachments, so that 15 persons could be treated simultaneously. The inhalation, whether done once or repeated after an interval of from ten to fifteen days, causes neither local nor general reactions and is therefore applicable in large groups. It produces a noticeable reduction in influenza mor-

bidity. Of 501 employees of a large department store who were subjected to prophylactic serum inhalation at the onset of an epidemic of influenza and again after from ten to fifteen days, only 4 developed a mild form of influenza (0.8 per cent), whereas of an untreated control group of 1,825 employees 150 (8.2 per cent) developed influenza. The authors conclude that inhalation of anti-influenza serum is not only of therapeutic but also of prophylactic value.

**Rheumatoid Sepsis**—According to Oettel, rheumatism may be only a link in a long chain of reactions in infectious processes. All transitional forms have been observed from sepsis by way of pyemia to sepsis lenta and to rheumatoid. The author reports 8 cases of rheumatoid sepsis. There appeared to be transitions between septic and rheumatoid tissue reactions. The simultaneous existence of hyperergic and septic reactions becomes manifest in the clinical syndrome "rheumatoid sepsis" and can be distinguished from septic processes in the restricted meaning of that term. Septic processes of the skin and paronychia are symptoms of rheumatoid sepsis, rheumatism develops only when the septic component predominates. The first mentioned symptoms may be the signal of septic rheumatism, but rheumatism may also exist in their absence. In addition to splenic tumor and parenchymal degeneration, a threatening circulatory weakness may develop. Bacteriologic examination often demonstrates pleomorphic streptococci. The septic focus of rheumatoid sepsis seems to be chiefly in the periphery. Septic rheumatism may run its course without endocarditis, in the severe form it may be fatal. Favorable therapeutic effects were produced with sulfonamide preparations and with the transfusion of febrile blood (from donors treated with colon bacillus vaccine).

## Zentralblatt für Psychotherapie, Leipzig

12 193-320 (Nos 4/5) 1940 Partial Index

- Psychotherapy and Heredity H. Luxenburger —p 195  
Phenomena of Sound Eideticism in Neurotic Child and Their Modification by Autogenous Training Martha Schultze-Niemann —p 241  
Problem of Frigidity F. Besold —p 249  
Causes of Occupational Instability in Dissocial Delinquents O. Schurer von Waldheim —p 256  
\*Electric Shock Therapy by Cerletti Method Preliminary Report O. L. Forel —p 267  
\*Electric Shock Therapy in "Maison de Sante de Malevoz," Monthey, Valais, Switzerland A. Repond —p 270

**Electric Shock Therapy by Cerletti's Method**—Electric shock therapy has been used at Forel's clinic since the beginning of 1940, and its results were found to be superior to other methods of shock therapy. The application is rapid and simple, there has not been a single fatality, there is a complete and permanent amnesia regarding the shock. It is possible to repeat the shock on the same or the next day, although repetition after two days is preferred. The patient generally does not object to repetition of the treatment. It is useless to continue the method if the result is negative after from five to fifteen shocks. The indications for electric shock therapy are the same as for other forms of shock therapy. Psychotherapy is an indispensable accompaniment of the electric shock therapy. Patients should not be told about the epileptic convulsions. The patient knows that it will induce sleep and that he will wake up without recollecting what has happened. The apparatus should be kept out of sight. The patient's awakening, which is frequently accompanied by "primordial anxiety," deserves particular attention, because in the hours following it he is particularly amenable to psychotherapy. The changes in behavior and emotions give the impression of a catharsis; there is a relative release which makes possible an approach to the subconscious.

**Electric Shock Therapy**—Repond describes observations in 38 cases in which electric shock therapy was employed. Results are particularly favorable in melancholia and in schizophrenia, especially in cases in which stupor is present. Cure was obtained in 18 cases and great improvement in 11, the remaining 9 the treatment was ineffective. It is still unknown why patients with the same symptomatology fail to react, while others react quite readily to this therapy. Constitutional factors might be responsible.



## Book Notices

**Acute Alcoholic Intoxication. A Critical Review.** By Henry W. Newman M.D. Cloth Price \$2.50 1p 207 with 7 illustrations. Stanford University Press London Oxford University Press 1941

This is a timely review of the problem of acute alcoholic intoxication. The volume is divided into two parts. The first part describes the general actions of ethyl alcohol with a careful consideration of the absorption, distribution, excretion and combustion. The author believes that the distribution of alcohol in the body is sufficiently constant to permit a fairly accurate prediction of the blood alcohol concentration after any given dosage of alcohol. Since the rate of fall of this concentration is fairly constant, the blood concentration at any time after ingestion may be predicted with accuracy. As regards the excretion of alcohol approximately 10 per cent of ingested alcohol can be accounted for in the breath and the urine. The remaining 90 per cent or more is metabolized in the body. The metabolism of alcohol is of interest. The first changes in the combustion of alcohol take place in the liver, leading to the production of acetic acid. Then, probably rapidly the intermediate products are burned to carbon dioxide and water or converted to other substances which can be burned or stored in the body. When dextrose is not being burned the rate of alcohol metabolism is decreased. Acceleration of alcohol metabolism occurs after the administration of protein or amino acids, after the administration of relatively large amounts of insulin or after increase of the body temperature with general increase in body metabolism. The second part of the volume is concerned with the toxicology of ethyl alcohol. This has chapters on acute toxicity, the chemical diagnoses of drunkenness and the treatment of acute alcoholic intoxication. The author believes that blood is the most satisfactory material for alcohol analysis. Breath analysis has the advantage of being simpler but is considered less reliable. There is an excellent discussion of the legal definition of intoxication prevailing in some states. The author reviews the various methods of treatment of acute alcoholic intoxication and accurately indicates that there are few therapeutic procedures of proved clinical value. When alcoholic intoxication is so severe as to cause respiratory failure, 10 per cent carbon dioxide inhalation, without rebreathing is indicated. There is limited use for subconvulsive doses of metrazol to stimulate respiration. Also intravenous dextrose, with or without small doses of insulin appears to be helpful. There is no consideration of the psychobiologic factors underlying alcoholism. The volume is clearly written and recommended as a careful review of the problem of acute alcoholic intoxication.

**Fondo de ojo a la luz de sodio (luz amarilla).** Por Justo Lijo Pavía. Paper Price 18 pesos Pp 199 with 101 illustrations. Buenos Aires. Editor El Ateneo 1941

The lamp employed is an Osram lamp, in which the volatilization of sodium ions on the walls of the tube produces an intense yellow light. Kleeefeld employed it for the purpose of better visualizing the fundus of eyes with cloudy media and of observing lesions deep in the retina, the nearly monochromatic light achieving better penetration of the tissues than ordinary light. The author reports his findings with this light in various conditions in comparison with those by ordinary and red free light. The conditions covered in the report are retinal detachment, persistent medullated nerve fibers, macular degeneration, various stages of macular lesion, macular hole, hypertensive retinopathy, trauma to the retina and optic atrophy. The observations in these conditions are visualized by the illustrations, chiefly reproductions of fundus photographs. Many are examples of the author's 'panoramic fundus representation, in which a number of photographs are joined together so as to show a large area of the fundus. In retinal detachment the sodium light allows observation of fine changes in the course of the nerve fibers, of traction folds and of changes in the paramacular reflex. In persistent medullated nerve fibers the outline of the disk can be seen best by this light. In macular degeneration very delicate defects in the internal retinal layers visible can be clearly outlined. In edema of the macula (early lesions) swelling of the

nerve fibers may be seen and fine changes in the caliber of the vessels. The choroidal vessels are seen more clearly than with other methods. Very early cystic changes are also visible. In hypertensive retinopathy the connection between hemorrhages in the smallest arterioles can be traced and objects in the small veins giving rise to hemorrhages can be seen. In a number of conditions the findings in the inner retinal layers were similar to those of red free light, while in deeper lesions red free light was inferior to sodium light. Of the forty-three references listed, fourteen are to previous articles by the author whose special interest has been fundus photography and the refined study of fundus lesions.

**Accepted Dental Remedies Containing a List of Official Drugs Selected to Promote a Rational Dental Materia Medica and Descriptions of Acceptable Nonofficial Articles.** Council on Dental Therapeutics. Seventh edition. Cloth Price \$1 Pp 309 Chicago American Dental Association 1941

No one who has watched the successive editions of this valuable and compendious volume can refrain from remarking on the success with which the Council on Dental Therapeutics has implemented the last words of its motto 'for Dentistry'. The present volume contains in admirably accessible form a concise and up to date statement of the materia medica and therapeutics needed by the practicing dentist. For example, while the chapter on vitamins offers a brief and well informed discussion on all the known vitamins with emphasis on their utilization by means of a well chosen diet the only preparations accepted and described are those containing A and/or D, which are most useful from the dental point of view. The necessity of cooperation between physician and dentist in this field is emphasized.

Of special dental interest are such chapters as those on adherent powders for dentures, denture cleaners and dentifrices, all concise, enlightened and effectively informative. The sanity and clarity of the dentifrice chapter is particularly commendable. In less than three short pages it gives a comprehensive and obviously well documented statement of the usefulness and limitations of dentifrices, clearing up many of the misconceptions that have resulted from dangerous and misleading commercial propaganda. Among the seventy or more accepted preparations the most widely advertised ones are conspicuous by their absence. The names of some of them may be found in the "Bibliographical Index to Proprietary and Unofficial Articles Not Included in A D R," which appears in the back of the book and refers mainly to unfavorable reports published in the *Journal of the American Dental Association*.

In the appendix material there also appear a valuable outline on symptoms and treatment of acute poisoning, a concise therapeutic index in connection with an excellent classification of drugs for specific dental use, and several pages of formulas and prescribing suggestions, which should be of great usefulness to the practicing dentist. The terminal index is adequate and not profuse.

Although *Accepted Dental Remedies* is intended primarily for the dentist, it has much information that is of value for the physician and the pharmacist.

**Criminal Youth and the Borstal System.** By William Healy M.D. and Benedict S. Alper. Cloth Price \$1.50 Pp 251 New York Commonwealth Fund London Oxford University Press 1941

This small volume is a valuable addition to the series of studies which Dr. William Healy and his collaborators have contributed to American criminology. The authors once more call attention to the unsatisfactory present management of penal institutions in this country. (Statistical studies report 80 per cent recidivism in certain institutions.) The authors' concise and vivid review of the English Borstal system is both instructive and enjoyable reading.

"Borstal village stands on a hill above Rochester, looking on the River Medway, and gives its name to the prison for boys and to the system of training which is in use there. The Borstal system is perhaps the most consistent attempt at substituting for punishment reform in the case of the youthful criminal who is still approachable and changeable. No one even if convicted of an offense can be committed for Borstal training until the prison commissioners have approved his suitability for such training. Originally youths between 16 and 21 were

eligible, later the age limit was extended to 23. Borstal training consists of a four year period consisting of two indeterminate stages from six to thirty-six months in an institution and the unexpired remainder of the four year term on parole to the Borstal Association.

The humanitarianism of the Borstal system is not the expression of any sentimentality but is fully consistent with its aim to create a human and occupational environment for the youthful criminal during his imprisonment which may have both a reforming influence on his personality and also prepare him for a trade. The main emphasis is on a careful selection of a suitable personnel. Experience, some training, a broad point of view, maturity and ability to get along with people are prerequisites. Members of the Borstal system receive civil service status, which gives them economic security.

"That the leaders have been able to draw such a fine body of people to work with them in many capacities is one of the most remarkable things about the Borstal system. Its success has been entirely dependent upon this." The core of the whole system is the utilization of personal influence. The authors, after carefully evaluating the existing evidence, come to the conclusion that "unquestionably the results of the Borstal system are relatively much better than those obtained by the reformatories of this country."

Healy and Alper also pay attention to certain weaknesses of the Borstal system. They think that it does not take full advantage of the great possibilities offered by this system for the scientific study of the personality and social factors of criminal careers by experts—psychiatrists and trained social workers. Only such studies would warrant a real progress in the field of the treatment of the criminal. The reader is left with the impression that the Borstal system without such methodical studies may remain an isolated experiment in the field of criminology and not have the great revolutionary effect which it could have if its principles could be scientifically tested and improved. The aim of the authors is to make the American public acquainted with it and hope that its best features could be used under the model youth corrective authority act of the American Law Institute. In this country there are all the preconditions for further developing this system with the help of the great number of well trained social workers and psychiatrists who for many years have been interested in the study of criminal careers.

**Diagnostic anatomo topographique de l'obstruction artérielle coronaire. Sixième partie. La thrombose artérielle souspéricardique gauche cause de l'ischémie aiguë du myocarde.** Par le Docteur Guillaume A. Bosco professeur titulaire de sémiologie et de propédeutique clinique à la Faculté des sciences médicales de Buenos Aires. Paper. Pp 276, with 31 illustrations. Buenos Aires 1941.

Myocardial ischemia is the sequel of a coronary arterial thrombotic process which appears in the left ventricle because this ventricle, in contrast with the right, offers favorable conditions for its appearance. This predisposition is explained by the pathogenic factors of the thrombosis: arterial or anatomic-pathologic, hemodynamic or circulatory, mechanical or myocardial. These factors combine to provoke the arterial obstruction in a determined site, prepared in advance by the circulatory status of the heart—the subpericardial zone. That this ischemia has been erroneously considered as right ventricular has been due to lack of knowledge of the anomalous coronary arterial distribution, that is to say the termination of the left circumflex artery in the posterior wall of the right ventricle, and, on the other hand, the lack of basic conceptions, such as those which the author describes. Thus is explained why the lesion produced by left coronary arterial obstruction has been generally accepted as right ventricular infarction. The illustrations are beautifully reproduced and fortify the author's thesis. His investigation led him to adopt the following nomenclature:

1 Anterior coronary syndrome, produced by thrombosis of the anterior descending branch, and its sequel, anterior apico-septal infarction.

2 Lateral coronary syndrome, produced by thrombosis of the left circumflex when of normal distribution, and its sequel, left parietolateral infarction.

3 Posterior coronary syndrome, produced by thrombosis of the left circumflex when of anomalous distribution, and its sequel, posterior parietoseptal infarction.

**A Manual of Pharmacology and its Applications to Therapeutics and Toxicology.** By Torald Sollmann, M.D., Professor of Pharmacology and Materia Medica in the School of Medicine of Western Reserve University, Cleveland. Sixth edition. Cloth. Price, \$8.75. Pp 1298. Philadelphia & London W B Saunders Company, 1942.

As the author states in the preface, the developments have become so extensive that almost every paragraph had to be rewritten. Changes are evident from the table of contents, which has been radically rearranged, to the individual chapters, the bibliography and the index. Probably of most current interest are the changes in the sections on the sulfonamides, vitamins, hormones, anesthetics and hypnotics and synthetic autonomic agents. To imply that the changes are confined largely to these sections would create an entirely erroneous impression, since revisions are evident throughout the book. Although the volume has increased in size by only one hundred and eight pages, the present edition records an abundance of valuable information not available in the fifth edition. This increase of material, added without greatly affecting the size of the book, is made possible by the omission or condensation of matter that has become of minor importance. Also the author has abandoned the policy of listing and describing all preparations of the United States Pharmacopeia and of the British Pharmacopeia, and has restricted bibliographic references to the last twenty years (a bibliography to 1920 inclusive is listed in the fifth edition). A further change in Sollmann's book is the preference given to English titles. The sixth edition of Sollmann's Manual of Pharmacology will remain one of the most useful and valued reference works on pharmacology.

**Internal Medicine in Old Age.** By Albert Mueller Deham, M.D., Associate Visiting Physician, Welfare Hospital for Chronic Diseases (Second Division), Department of Hospitals, New York City, and S. Milton Rabson, M.D., Assistant Professor of Pathology, New York Post Graduate Medical School, Columbia University, New York (on leave). Cloth. Price \$5. Pp 396. Baltimore: William Wood & Company, 1940.

Here is a truly clinical volume based on an extensive experience, on clinical reports, and on some two thousand necropsies and special studies of the pathology of senility. The authors have had much experience in the field discussed, and they provide a bibliography to the major references in the field. The general considerations of old age are followed by special reference to the system of the body and the changes brought about by old age in these systems. A brief section is concerned with infectious diseases. The advice is thoroughly scientific, there is little reference to the strange pharmacopeia often found in works of foreign origin. The authors have had personal experience with cases in which rejuvenation was attempted by the Steinach and Voronoff techniques. They make this positive statement: "In not one case, however, was there any ultimate evidence of restored efficiency or of continued sexual potency." Indeed, they are not even inclined to accept the claims that have been made for these operative procedures as a means of halting the advances of senility. They say "It is expedient neither to suggest their use nor to advise against them should the patient desire such operation, rather let the physician emphasize the possible hazards in overtaxing various organs. Exceptional forms of intervention may be justified in exceptional men." As far as the use of glandular therapy is concerned, they believe the results inconclusive but worthy of continued investigation.

**Conceptual Thinking in Schizophrenia.** By Eugenia Hanfmann, Ph.D., Instructor of Psychology, Mount Holyoke College, South Hadley, Massachusetts, and Jacob Kasanin, M.D., Chief, Psychiatric Service, Mount Zion Hospital, San Francisco. Nervous and Mental Disease Monographs, No. 67. Boards. Price, \$2.50. Pp 115 with 2 illustrations. New York 1942.

Vigotsky, an astute Russian psychologist, developed a test for studying conceptual thinking in schizophrenia. Like Goldstein his fundamental thesis was that in the schizophrenic ability to think in abstract concepts was lost and that regression to primitive levels of concrete individual terms occurs. Grouping of individuals is made according to complexes and not to classes. The authors have taken over Vigotsky's apparatus and tested many patients with his method. They give details of the technique, methods of scoring and analysis. The authors confirm Vigotsky in his conclusion that in the schizophrenic there is a reduction of conceptual thinking. Certain minor corrections of the Russian theory are made. For any one wishing to learn the fundamentals of the test the book is highly recommended.

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS BUT THESE WILL BE OMITTED ON REQUEST.

### SUPERTROPICAL BLEACH FOR GAS BURNS

To the Editor—It is requested that information regarding the preparation of supertropical bleach be forwarded to this facility. An evaluation of this substance in the treatment of gas burns (mustard lewisite) and suggestions for alternate treatment would be appreciated.

Camdr C G DeFoncy MC  
U S Naval Air Station Alameda Calif

ANSWER—Supertropical bleach is a stabilized chlorine containing compound similar to HTH prepared by the Matheson Alkali Works, Incorporated, 327 Guilford Avenue, Baltimore. It is not however, exactly the same as HTH but is stabilized by a secret process which is known to the company mentioned. It is understood that any high test bleach such as HTH itself is satisfactory for the first aid treatment of mustard or lewisite burns. The preparation is made up for use by adding one to two parts of water to the bleach powder. The early application of such bleach paste to mustard or lewisite burns is undoubtedly of value, depending on how soon after the burns occur the treatment can be carried out. There is probably no better prophylactic treatment for mustard burns than the proper and early application of bleach. However the Army Medical Corps recommends two superior forms of early treatment for lewisite burns. The first of these is the alternate and repeated swabbing of lewisite contaminated areas with sodium hydroxide solution and with alcohol. This should be instituted at the earliest possible moment. The sodium hydroxide solution is a 10 per cent solution in 30 per cent glycerin. The second method recommended by the Army is the repeated swabbing of the lewisite contaminated area as early as possible with fresh solutions of 3 per cent hydrogen peroxide. The peroxide method is even superior to the sodium hydroxide-glycerin mixture. In summary, it would be wise to have on hand sufficient quantities of high test bleach for both mustard and lewisite burns, if nothing else is available, and if possible to have sodium hydroxide and peroxide available for lewisite. Peroxide is very unstable and therefore should not be depended on entirely as protection against lewisite.

### HAY FEVER DUE TO RAGWEED

To the Editor—A woman who in the past has had hay fever from June 1 to the first fall frost was given last year cutaneous tests for oak, plantain, timothy, ragweed, cocklebur, lamb's quarters and house dust. She had a strongly positive reaction to house dust and a moderately positive reaction to timothy and the remainder were negative. She was given ten injections of mixed grosses, a dose of 1,000 units being reached and was symptom free until August 1 when hay fever started and continued until the first frost. The same cutaneous tests were repeated this year with the same results. Could you make suggestions as to the possible cause of attacks from August 1 to frost other than ragweed? Do you think it likely that ragweed is the cause with two negative cutaneous tests? Where would you fit the strongly positive reaction to house dust into the picture and how include in the treatment if necessary to include it?

Basil C Gray MD Oneonta NY

ANSWER—It is rather obvious that this patient, living in the state of New York, is ragweed sensitive. Symptoms that come on August 1 and last till the frost in that district are almost always due to the pollen of ragweed. The scratch tests for short and giant ragweed should be repeated. If these are again negative an intradermal injection with each one separately or mixed, in a dilution of 1:1,000 should be made, and will in all likelihood be positive as compared to a control test using any diluent. If the intracutaneous test is negative a small amount of raw ragweed pollen should be laid against the inner surface of the lower eyelid and left there for five to ten minutes. If the patient is allergic to ragweed the eye will become inflamed and will itch and tear. If negative nothing will happen. If this conjunctival test is negative it is almost certain that the patient is not ragweed sensitive because insertion of pollen in the conjunctival sac merely imitates what actually happens during the hay fever season.

It is possible, of course, that foods eaten in the summer only or molds may be the cause of some of the symptoms at least, but molds occur all summer long and are especially prevalent the latter part of July. They do not, however, lead to any such clearcut seasonal symptoms as does ragweed pollen. Mold tests should certainly be made. If any one of the three methods of testing for ragweed (scratch, intradermal or conjunctival) is positive, injections of ragweed extract should be started at once beginning with 0.10 cc of a 1:10,000 extract and increasing the dosages approximately 50 per cent at intervals of twice a week, with the usual precautions. As the symptoms occur from June to the first frost, it would seem unlikely that the reaction to house dust is of any significance. It need not be included in the treatment. House dust is much more of a factor in rhinitis and asthma which occur from the fall to the summer. The injections of grass extract should be started at once. Perennial treatment with extracts of grass and probably of ragweed are advised.

### EFFECT OF MERCURY VAPOR ON MAN

To the Editor—A patient reports the following analysis of mercury vapor in the air of his laboratory: 300 to 500 micrograms per cubic meter under normal conditions, an amount which can be reduced to 100 micrograms per cubic meter by proper ventilation. Can you give information concerning the toxic content of mercury vapor in air and what to do to eliminate it? I should appreciate information also on the treatment for metallic mercury poisoning.

Robert P McReynolds MD Los Angeles

ANSWER—A microgram represents one millionth of a gram. By extension it appears that a person exposed to 500 micrograms per liter of air would take into the body approximately 5 mg of mercury in a work day, assuming that 10 cubic meters of air would be inhaled during the exposure period, which quantity is probably high. Such an intake represents about five times the maximum tolerable mercury limit, since a recently proposed standard fixes tolerance at 100 micrograms per cubic meter of air. This standard in truth may be high, since by some investigators it is believed that as little mercury as 60 micrograms per cubic meter of air may lead to poisoning. An additional exposure factor possibly may be found in mercury dust that settles on the skin. By way of prevention, a number of suggestions now are made. The quantity of mercury in the air should be reduced to 100 micrograms at most per cubic meter, the spilling of mercury and other opportunities for evaporation of the metal should be avoided, mechanical ventilation should be introduced if necessary to reduce the mercury content of air to the level specified, scrupulous oral and cutaneous hygiene should be exercised, the personal use of alcoholic beverages is undesirable, and constipation should be avoided, at the first sign of poisoning all additional exposure should cease. In mining operations the spraying of certain chemicals into the atmosphere (a procedure not necessarily applicable to laboratories) is said to render the mercury content of the air harmless. In connection with treatment, no mention is made of the therapy of acute poisoning, since this is unlikely to occur under the circumstances mentioned. For chronic poisoning no drug therapy is of known value, although the use of sodium thiosulfate in doses of 1 Gm administered intravenously every second day has been advocated. In cases of chronic poisoning the manifestations resemble the symptoms of parkinsonism, and the drugs used for that disease might be of some value. The use of amphetamine sulfate in a dose of ½ grain (0.03 Gm) twice daily has been suggested. Mouth washes are usually desirable, and among others may be mentioned potassium permanganate 1:8,000, tincture of myrrh 2 per cent, thymol and potassium chlorate. Physiologically the patient with chronic mercury poisoning may profit from some of the following measures: removal from all exciting environmental influences, living in open air, with exposure to sunshine if possible, frequent periods of exercise or work, the promotion of perspiration, a high intake of water and milk, the promotion of a high urinary output and frequent stools, frequent hot baths, massage of parts showing tremors, and abundant use of foods with a known content of vitamins, particularly milk and egg. Additional information may be found in the following references:

Davenport S J and Harrington Daniel: Mercury Poisoning as a Mining Hazard. Information Circular 7189 Bureau of Mines U S Department of Interior November 1941.  
Johnstone R T: Occupational Diseases Philadelphia W B Saunders Company 1941.

## TRANSMISSION OF ENDEMIC TYPHUS

*To the Editor*—There have been about 20 cases of very severe murine typhus in my county in the past month and it seems that the rat and the rat flea are the agents of its spread. I understand that it is important to hold down the rat population through various measures, among which the cat is particularly useful. In my own house we find a mother cat more efficient than traps or poison not only because of those she has killed off but also because her presence in the house acts as a rat repellent. Usually before devouring the rat which she has caught elsewhere she brings it to the back door and requests praise. Later she enters the house to nestle up to us and our children or her own kittens. I am not clear as to how particular or specific various types of fleas are to their animal hosts such as the rat flea to the rat, the dog flea to the dog and the cat flea to the cat, and I should like to ask this question: If a cat was to catch a rat which was harboring rat fleas infected with typhus would these fleas tend to transfer to the cat during the intimate contact which exists during the almost always prolonged play that goes on before the rat is slowly devoured? Thus, could it be possible that the cat might on again returning to the household distribute a portion of the rat fleas to human subjects? There is thus the question of specificity of fleas and also the possibility in spite of specificity of haphazard occasional transference such as suggested. Most of my typhus patients give a positive reaction up to 1:640 on the Weil-Felix reaction by the twelfth day of the disease. Last February, twelve days after my third dose of typhus vaccine (total 2.5 cc), my serum was negative to this reaction. Is this the rule or might this indicate that I have not responded well as to degree of immunity? Of the 40 persons immunized, few have given the slightest local or systemic reaction. This is quite a contrast to typhoid shots.

M D, Florida

*ANSWER*—The flea usually incriminated in the transmission of endemic typhus fever from infected rats to man is *Xenopsylla cheopis*. This flea has been reported found on domestic cats. Cats have been reported as susceptible to laboratory infections with typhus fever and further to transmit typhus infection to the fleas (*Ctenocephalus felis*) which they harbor. From these reports it would appear as a possibility that the cat could be bitten by an infected *X. cheopis* flea from the rat and become infected and thus infect its own fleas. These fleas could then transmit the disease to human beings in association with the cat. The cat might also act as a mechanical transmitter of the *X. cheopis* fleas from the rat to the human being.

It must be realized that the foregoing is a theoretical consideration of the question. Actually typhus virus has been reported to have been isolated from cats, naturally infected, only by European investigators and then only on about two occasions. These observations have not as yet been confirmed in this country.

In answer to the question concerning the Weil-Felix reaction following endemic typhus vaccination, it must be stated that studies along these lines have not as yet progressed to the point where generalizations can be made. Why not make the Weil-Felix test on the 40 persons already immunized, as well as on those who are vaccinated in the future?

## ASYMPTOMATIC NERVOUS SYSTEM SYPHILIS

*To the Editor*—A white woman aged 32 was discovered to have a 4 plus Wassermann reaction at the time of delivery of her second child. The blood from the umbilical cord gave a negative Wassermann reaction but seven days later was 1 plus. Blood tests at the time of delivery of her first child, two years before, were said to be negative. Physical examination was negative except for moderate deafness in both ears, which was first noted at the age of 14 and which has progressed ever since. Her husband and first child had negative Wassermann reactions. She did not have any knowledge of contact during the two years in which the disease was apparently contracted. Treatment with neoarsphenamine and bismuth compounds was begun, but after four months the Wassermann reaction was still 4 plus. No Wassermann test was done at the time of delivery of the first child. After the second child, two years later, the test was 4 plus. A spinal puncture was done at the same time and was found to give a 4 plus reaction. Central nervous system symptoms were absent, but the history of deafness starting at 14 suggests the possibility of congenital syphilis. Tryparsamide was given but was not tolerated and was stopped after four weekly injections of 2 Gm each. The spinal fluid at this time was plus and showed a normal colloidal gold curve. Why is the reaction on the blood of the father and the first child consistently negative? Is this congenital syphilis? How may I proceed with the treatment? What amount of fever therapy is indicated?

M D, Milwaukee

*ANSWER*—This patient apparently has asymptomatic central nervous system syphilis. It is difficult to see how she would have been delivered of a child that has congenital syphilis if she herself had congenital syphilis. Third generation syphilis is exceedingly rare, so much so that the patient would have to satisfy some pretty severe criteria before that would be allowed.

It is quite possible for a person with late syphilis to be delivered of a child that is normal and then to have a second child that is suffering from congenital syphilis. It means that their disease is more or less of a latent character and that only now and then are there spirochetes in the blood stream. This

may well happen in connection with pregnancy, and the fetus the second time was infected thereby.

Moreover, such a person may well be married and be able to transfer the disease to the next generation and yet the husband may not be infected. It would be rather unusual for such a person to have acute relapse manifestations of a contagious character through which the husband could be infected. If this individual should be used as a donor in transfusions there would be grave danger of transferring the disease.

As to her treatment, it is unfortunate that more exact data are not furnished. Nothing is said about the cell count on the spinal fluid or of the globulin reaction, and little is furnished as to how careful a neurologic examination was made.

The patient should be given a course of fever therapy either with the fever machine or with malaria and, of course, this should be done by an expert who is perfectly familiar with the procedure and with the dangers connected with it. Following this her eyes should be examined very carefully from the standpoint of visual and color fields and if there are no contraindications she might be started on a course of tryparsamide, beginning with a dose intravenously of 1 Gm, the injection being given slowly and increased 0.5 Gm at a dose up to a maximum of 2.5 Gm, the injections being given once a week for a series of twenty-five injections.

With the first injections of tryparsamide the patient should be watched very closely and questioned as to any untoward manifestations in connection with the eyes. Naturally, if she does not stand this therapy well it may be necessary to use alternating courses of arsenicals and bismuth compounds in place of the tryparsamide and in such a case one might employ neoarsphenamine in doses of 0.6 Gm once a week for a series of ten injections, to be followed with an alternating course of intramuscular injections of bismuth subsalicylate once a week for a series of ten treatments.

In view of the importance of the situation in this case, it would seem advisable to have a consultation with some one in the inquirer's part of the country at the end of this time. It is difficult, in fact almost impossible, to outline the course of therapy that should be followed for such a patient for a longer period than six months.

## ELECTRIC SHOCK THERAPY

*To the Editor*—What is your opinion as to the present status of electric shock treatment for mental disorders? I have been consulted as to its value in a man of 50 who has been diagnosed as having general arterio sclerosis and in the last months has shown definite mental deterioration. He exhibits sexual perversions and definite changes in his normal behavior pattern which have necessitated his institutionalization. The institution in which he is confined has advised electric shock therapy. Before rendering judgment on this case I would appreciate your advice in the matter.

Nelson Clark Walker, M D, Hockensock, N J

*ANSWER*—The electric shock treatment for mental disorders has largely replaced, in the last year or two, the use of insulin or metrazol to invoke a "shock." This is partly because, by the electrical method, the dosage is easily controlled, a factor long a deterrent in the use of other forms of stimulation. The dose can be graded until the best results are obtained without injury to the patient. Reports from various sources indicate that the effects produced on mental disease by electric shock are just as good as those from insulin or metrazol. The method, therefore, can be used with a considerable degree of safety if employed by expert hands.

It is more difficult to decide whether a man of 50 with general arteriosclerosis and mental disease characterized by sexual perversions should be subjected to this treatment. In general, arteriosclerosis is considered to be a contraindication for any sort of shock treatment, exceptions must always be made, depending on the amount of arteriosclerosis, the condition of the blood pressure, the general health of the patient and the persistence of his mental abnormalities. If arteriosclerosis is causing a permanent and progressive mental degeneration, no form of shock treatment is likely to be efficient. Such an estimation of the patient's condition should be made only after six months of observation in an institution, in the meantime the ordinary employed forms of psychotherapy being used. If such treatment fails, electric shock should be taken into consideration as a second step.

All these factors must be carefully evaluated. More than one consultant may be needed. In general, one would feel that if the patient is under good institutional care the advice given by the psychiatrist in charge should have the most serious consideration in the final decision.

A review of the various types of shock and an estimation of their efficiency up to 1941 will be found in *Shock Treatment in Psychiatry*, by Lucie Jessner and V. Gerard Riva, New York, 1941.



### TREATMENT OF SYPHILIS IN SEAMEN

*To the Editor*—In the management of active syphilis in seamen what is the shortest possible time to keep them from returning to sea and what type of treatment schedule should one employ? What is the answer to the same questions in the case of latent syphilis? Because of the war early return to sea is very important and stops between ports are at intervals of about three weeks or more.

A. J. Reich, M.D., New York

**ANSWER**—The ideal treatment for active syphilis in seamen would be the use of the intravenous drip, but as this is still in the experimental stage it does not seem wise to recommend it.

In acute syphilis intravenous injections of mapharsen are recommended three times a week for three weeks, and in this period give the patient a weekly injection of bismuth subsalicylate 2 cc intramuscularly.

For the three weeks that the men are going to be on the ocean it is recommended that they be given sobisminol mass 2 capsules three times a day. On their return it probably would be possible to get them to stay for one week and give them three more intravenous injections and one injection of bismuth subsalicylate intramuscularly. As they go out to sea again, the same procedure should be employed with sobisminol mass.

By alternating these treatments it would be possible to give the patient twenty-four injections of bismarsen within a period of six months, after which there seems to be no reason why it would not be practicable to have them use the sobisminol mass while they are on the sea and get an injection of mapharsen and bismuth subsalicylate once on their return, rather than giving them three times during a week.

This therapy might then be kept up for a year after the serologic tests have become negative and provided the lumbar puncture examination is also negative.

With latent syphilis, the patient may be given an injection of mapharsen 60 mg intravenously and an intramuscular injection of bismuth subsalicylate 2 cc of the 10 per cent suspension in oil and be asked to use 2 capsules of sobisminol mass three times a day for the three weeks that he is at sea. Each time that he returns he might receive an injection of mapharsen intravenously and of the bismuth subsalicylate intramuscularly.

This therapy could be kept up for a period of eighteen months, following which he could be given two courses of four months each twice a year for the succeeding two years.

Sobisminol mass is an expensive preparation, and a certain number of persons have some gastric discomfort from it. However, if it is taken in the middle of the forenoon, middle of the afternoon and about 8 o'clock at night with plenty of water, the average person will have no difficulty. The urine of these patients should be checked from time to time to indicate whether there is any evidence of irritation of the kidneys.

### POSTANESTHETIC ALOPECIA

*To the Editor*—Some women who have had anesthesia for an operation or at the time of delivery frequently remark "I can't do a thing with my hair since I took ether." Others state that their hairdressers refuse to give them permanent waves because they had recently had anesthesia. Still others state that their hair has fallen out excessively after anesthesia. What is the explanation for the unruliness and falling of the hair? Is the anesthetic directly responsible or is there a metabolic disturbance associated with pregnancy or illness which is responsible? If the anesthetic is responsible is there any difference in the effects of ether, ethylene and cyclopropane on the hair?

M.D. Florida

**ANSWER**—Perhaps ether anesthesia can cause a change in the hair of some persons, especially women, for they are much more susceptible than men to such influences on hair growth. Aside from pregnancy, which is one of the commonest causes of temporary symptomatic alopecia, other well known etiologic factors, such as influenza, typhoid and other febrile diseases and surgical operations cause it in more women than men. However, in ascribing blame for the alopecia one should not dwell on the anesthetic when anesthesia has been occasioned by pregnancy or by an operation for the relation of these factors to loss of hair is well established and at present there is no proof that changes in the hair have been caused by ether anesthesia or by any other form of anesthesia.

The loss of hair comes on from one to six months, most often two to three months, after the causal event, so the alopecia should not be ascribed to a recent event. Beau's lines, furrows across the finger or toe nails, may appear at the same time. Additional evidence of the disturbance of circulation or of metabolism causing the alopecia.

### SCARLET FEVER IMMUNIZATION

*To the Editor*—What is the present status of scarlet fever immunization for exposed persons and for routine immunization for the preschool child? If the prophylactic dose of serum is used on exposed persons, how long does the immunization persist?

J. Leland Fox, M.D., Seaford, Del.

**ANSWER**—Passive immunization against scarlet fever has not yielded consistently satisfactory results. Though antitoxin appears to be effective as far as protection against toxic effects are concerned, its use has not been very general, since it may produce serum reactions as uncomfortable as a mild form of the disease and frequently leaves the child sensitive to horse serum. Convalescent serum is free of these objections, but the data as to its effectiveness against anything other than the toxemia of the disease are not conclusive.

It would appear that active immunization against the toxic elements of scarlet fever is effective. The injections are attended with somewhat more uncomfortable reactions than following diphtheria immunization. While toxin immunization gives a high level of protection against clinically recognizable scarlet fever, there is no good evidence that the immunization gives equal protection against the infectious component.

No program of immunization thus far has been carried on long enough and on a sufficiently extensive scale to yield satisfactory evidence as to the value of the procedure for routine use in the preschool child.

It is presumed that the prophylactic dose of serum may produce immunity for as long as two to four weeks.

### THERAPY OF GLIOMA OF THE BRAIN

*To the Editor*—A woman with an infiltrative gliomatous brain tumor of the parietotemporal region was operated on approximately two months ago. The tumor was only subtotally removed and immediately after the operation residual tissue was treated by intensive radiotherapy but to no avail as the tumor has recurred. Is any experience with Coley's fluid in a similar situation familiar to you? What is the status of injectable radioactive liquids and where can they be obtained?

M.D. New Jersey

**ANSWER**—Up to the present nothing has been found to replace surgical intervention in the treatment of brain tumors. High voltage roentgen therapy may give temporary relief to the patient whose infiltrative gliomatous tumor cannot be completely removed surgically. Intensive and repeated doses are, however, necessary. Results depend on the histologic nature of the glioma. Glioblastoma, which is the most frequently encountered glioma, is only moderately sensitive to irradiation, other types of glioma do not respond at all. Direct irradiation or the insertion of filtered radium applicators into the tumor has not as yet demonstrated any superiority over therapy administered through the normal surface tissues.

Radioactive liquids, such as thorotrast (thorium dioxide), are useful as a diagnostic procedure, they have, however, no therapeutic value as they do not leave the blood stream. Intravenous injections of radon produce extensive destruction of leukocytes, even complete aleukia, and have no effect on malignant tumors. Experience with Coley's fluid and reports as to its usefulness in the treatment of intracranial neoplasms are not available.

### TETRYL AND LEAD AZIDE POISONING

*To the Editor*—Several patients employed in a local munitions plant most of them women have duties involving the handling of tetryl and lead. Soon after handling these substances which are used in the making of bomb fuses they have a yellowish discoloration of the skin and a few days later a small lenticular vesicular eruption surmounting an erythematous base. Some of the workers complain of bronchial irritation. Some complain of a metallic taste of their food. Can you give me any suggestions regarding these conditions?

William J. Sigmund, M.D., Bradford, Pa.

**ANSWER**—"Tetryl" is another name for 'furan' or 'furfuran' a relatively innocuous substance. It is not known that this material is used in fuse priming. It is assumed that the actual substances used were 'tetryl' and either lead azide or lead styphnate. However, if these assumptions are in error, none of the statements which follow may be applicable. Tetryl is picrylmethylamine or for short "nitramine." In its manufacture (not here described) several opportunities arise for poisoning, burns and dermatitis from various intermediate products. When in the dry, powder form, as well as when mixed with diluting materials, such as acacia it is a well known cutaneous irritant and discolors the skin. Tetryl produces the yellow characteristic of picric acid as well as an orange staining. As described by Schwartz the lesions are



erythematous and papular with vesication. Lesions are commoner at points of contact, including the elbow fold and neck area. Patch tests with 0.5 tetryl in alcohol may yield positive results in twelve to twenty-four hours. Exposure to tetryl is fully capable of inducing systemic disease, as best described by Noro (Untersuchungen über die Triotyl-, Tetryl- und Knallquecksilber-vergiftungen bei den Arbeitern der Munitionsfabriken Finlands, reviewed in *THE JOURNAL*, Dec 13, 1941, page 2109). Exposure both to lead azide and to lead styphnate may lead to systemic disease as well as to dermatitis. The dermatitis from the azide is rare but possibly more severe than that from the styphnate. The styphnate has the property of turning the skin and hair yellow. Among the three substances mentioned probably may be found the cause of the dermatitis mentioned in the query and of the other manifestations, such as the metallic taste. The exposure should be brought promptly to the attention of whatever military agency is concerned with this enterprise and in addition to the attention of the state department of health.

### FRIEDREICH'S ATAXIA

To the Editor—Your explanation of the inheritance of Friedreich's ataxia in *The Journal*, February 28, page 770, seems to me to be a bit queer, because you say if "the disease is dominant or recessive on a simple mendelian basis, it would be transmitted to the next generation in at least a proportion of three to one." This would be true only if the trait was dominant and the afflicted brother and sister married each other or married partners with the disease. In the case of rare dominant traits, those afflicted are heterozygous and the expectation is that half their children will inherit and show the trait. If the disease is recessive in this brother and sister they are both homozygous, and if they married normal partners all their children would inherit the trait, but none would show it.

William Allan, M.D.,  
Bowman Gray School of Medicine, Winston-Salem, N.C.

COMMENT—Russell Brain too found it difficult to explain the inheritance of hereditary ataxia in all cases on a simple dominant or recessive. He suggested that the disease "depends on the coexistence in the germinal material of two factors, one of which behaves as a dominant and the other as a recessive. In order to manifest the disease an individual may be either homozygous or heterozygous for the dominant factor but must be homozygous for the recessive. It is further assumed that the dominant factor is a mutant arising in the affected family, while the recessive factor, which by itself even in homozygous individuals does not cause the disease, is relatively common in the general population. This hypothesis explains the transmission of the disorder through normal individuals, who carry the dominant but are heterozygous for the recessive factor, and also its occurrence in the offspring of marriages of members of an affected family with members of a population in which the disease is rare. It is further supported by the proportion of affected offspring derived from the marriages of affected and from those of normal members of families in which the disease has appeared. No other hypothesis appears capable of affording a satisfactory explanation of the peculiarities of the inheritance of this disorder on mendelian lines. The only alternative is to assume that the disease is transmitted as a mendelian dominant but that its manifestation may be suppressed in certain cases by some unknown environmental factor (Brain, W.R. *Hereditary Nervous Disorders, The Chances of Morbid Inheritance*, edited by C.P. Blacker, Baltimore, William Wood & Co., 1934, p. 48).

Finally, even as Dr. Allan has pointed out, the trait may be inherited without clinical signs, is it therefore wise for the brother or sister to marry? The answer in all instances should be no.

### VIRUSES IN DRINKING WATER

To the Editor—Is there any way to test drinking water for viruses?

J. A. Schurgot, M.D., Grafton, Ohio

ANSWER—As far as is known, but few virus diseases are spread by means of water. There are two possible exceptions, namely poliomyelitis and swimming pool conjunctivitis. The virus of poliomyelitis has been found in human feces and sewage. At least one worker, Kling, has reported finding the virus in drinking water (*In Search of Poliomyelitis Virus in Drinking Water, Internat. Bull. Econ. M. Research & Pub. Hyg.* A 40 161, 1939), but this observation needs confirmation. There are definite ways of detecting viruses in water, for instance the injection of the unaltered water or concentrated water into animals susceptible to the virus suspected of being present. If the water is highly contaminated with bacteria they can be removed by filtration without appreciably interfering with tests for viruses. Workers making such tests must be thoroughly familiar with viruses and the methods of detecting and handling them.

### REFRACTORY GONOCOCCIC INFECTION

To the Editor—On Feb. 2, 1942 a woman aged 26, presented herself at the office because of profuse purulent vaginal discharge. Bacteriologic examination of urethral and vaginal smears disclosed innumerable pus cells loaded with streptococci, staphylococci and a moderate number of intracellular gram-negative diplococci. Cervical smears contained only mucus. Sulfathiazole 30 grains (2 Gm.) daily for ten days and 45 grains (3 Gm.) daily for another two days was given. Local treatment consisted of estrone suppositories 2,000 units daily. The latter were administered with a view to the vulvovaginal type of the disease and the infantile appearance of the genitalia. Sulfathiazole was apparently well tolerated at first under steady control of the blood status, but on the thirteenth day a severe drug rash with fever occurred. On the twentieth day the discharge was mucus only, and neither pus cells nor organisms of any kind could be found in the smears. Now mixed vaccine for gonococci, streptococci and staphylococci was administered in two doses of 0.1 and 0.2 cc subcutaneously on the twenty-eighth and thirty-third day respectively. There was no reaction on the first injection, but two days after the second injection the discharge suddenly reappeared and the smears are now loaded with gram-negative diplococci. Streptococci and staphylococci are no longer visible. I initiated a course of sulfadiazine but am skeptical of the outcome. What more can be done if the effect of sulfadiazine is insufficient or if there is another relapse? Would artificial fever give better chances, and if so in what form? The boy friend is being treated elsewhere for chronic gonorrhea. I am fairly sure that there has been no intercourse since February 2. I would appreciate whatever advice you might be able to give and also your opinion as to whether it was unwise to administer the vaccine at that stage.

M.D., Massachusetts

ANSWER—In event of the sulfadiazine therapy failing to effect a clinical and bacteriologic cure, it is suggested that, after a rest period of approximately two weeks, the patient be treated by the combined sulfathiazole and artificial fever method as outlined by Simpson (*Brit. J. Ven. Dis.* 17 185 [July-Oct] 1941). A similar article by the same authors appeared in *War Medicine* 1 470 [July] 1941).

### LUMPY BREAST

To the Editor—Kindly advise as to the diagnosis and therapy of the breast of a 25 year old multipara who eighteen months post partum began to have an aching and lumps in both breasts with the secretion of a watery milky solution. The breasts contain a few small hard lumps which on pressure are slightly tender, and there is retraction of the left nipple as a consequence of its attachment to the area of mastitis.

M.D., Manitowoc, Wis.

ANSWER—The age is against cancer, but this diagnosis can not be excluded on the basis of age. The presence of multiple tumors is evidence against cancer, but the retraction of the nipple favors the diagnosis of cancer. Congenital retraction of the nipple has to be excluded in this case. If the retraction of the nipple is not congenital and is a consequence of attachment of the tumor to the skin, cancer has to be excluded by biopsy and frozen section. The interpretation of conditions of this type is exceedingly difficult even after careful examination of the patient. Consultation with some one experienced in this clinical condition is required in this case.

### CHLORINATING WATER

To the Editor—What is a practical method of chlorinating water for a camp on a lake to make it potable?

Robert E. Cloud, M.D., Ensley, Birmingham, Ala.

ANSWER—There are several reliable manufacturers of chlorinating equipment for small camp water supplies using calcium or sodium hypochlorite solutions as the disinfecting agent. The type of installation will depend on the type and size of the water system involved. The equipment applies the hypochlorite solution in prescribed quantities in proportion to the pumpage or flow of the water in the local system. The appliances may be operated either manually or automatically, the latter being somewhat more expensive. In the water works trade, appliances of this kind are known as hypochlorinators.

### HEREDITARY TRANSMISSION OF ALLERGY

To the Editor—A woman who suffers from hay fever and whose husband has the same type of hay fever is very desirous of having children. She would like to know what the probabilities are for her children to have hay fever, eczema or other forms of allergy.

M.D., Ohio

ANSWER—When both parents have major allergy as described here, statistics indicate that from 65 to 70 per cent of the offspring will have some form of allergy. In the majority cited in the query, children may, of course have other allergic manifestations such as asthma or eczema in addition to the probability of hay fever.

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## THE URGENT NEED FOR DOCTORS

PAUL V McNUTT  
Federal Security Administrator  
WASHINGTON D C

Long before Pearl Harbor the American Medical Association established a Committee on Medical Preparedness. Long before America as a whole was ready for the total mobilization of its manpower, your committee undertook a census of physicians and visualized a plan for matching physicians to the needs of a nation at war.

The Procurement and Assignment Service was established at the suggestion of the American Medical Association. Your association it was that worked out with the Selective Service authorities the plan for deferment of medical students and interns. Largely through your help medical education has been adjusting itself to war needs.

I need not call the roll further. I need not cite your collaboration with the Office of Scientific Research and Development and the National Research Council and many other professional groups. Through THE JOURNAL you know the work that your association has done. But it is my privilege to have worked with you and my pleasure to congratulate you on your vigorous action. No other part of the total manpower job is so well blueprinted today as is the mobilization of medical service.

It is fundamental that I acknowledge the work you have done, for I am about to deliver a very serious speech. Whatever the physical circumstances may be, it is not the kind of speech usually thought of as an "after dinner speech."

This is war. And war has brought to every American obligations so heavy that we have not yet realized the fundamental sacrifices that we must make.

In every walk of life manpower needs are being studied. Every American will be called on to do whatever is necessary to achieve victory.

America has selected your sons and your neighbors' sons for service with a citizen army. That army is fighting beyond the seven seas in order that America may be quite certain that we shall never have to fight on our own beaches. To establish the security of the American Way, we are risking the lives of our young men for victory.

And I need hardly tell you that no limitations of convenience or economic interest shall stand in the way of giving them full and complete support at home.

That is a commitment from us to every man in the military forces—a commitment which was implicit in his enlistment or selection.

In determining what is necessary we are now engaged in the total "diagnosis" of America's manpower needs.

And when the "diagnosis" is complete, the "treatment" of each worker and the disposition of each case will be based on our best and most objective analysis of the facts.

No labels will stand in the way. No a priori theories of political or economic organization can stand in the way of effective action. Those principles which support effective action will stand. Any others will have to suffer a moratorium.

In doing that we are taking a leaf from modern medicine. You probably still know among your colleagues—as I do not—certain cloisters of the mind which limit their objectivity but in general the old barriers of doctrine—the homeopaths versus the allopaths—have passed away. As T V Smith has put it, these "paths, like the paths of glory, lead only to the grave." No obstructive hedge of theory must stand between the patient and the doctor's best professional skill.

This is war. We are out of the cloisters of words. We must look squarely at the facts. Let me describe some of the symptoms of our case on June 8, 1942.

Let me present them simply in terms of a series of hard unpalatable facts. Whatever the state of other skills, professional and otherwise, in the reservoir of America's manpower yours is a profession which can face the facts.

1. We are not getting enough volunteers. We are not getting as many volunteers as the Procurement and Assignment Service expected we would have by this time. It is absolutely necessary that there is an immediate and significant increase in the number of volunteers, or else some other method of procurement will be required soon.

Slightly more than 3,000 physicians, who were not obligated by reserve commissions, volunteered in the first six months of this war. By contrast, 12,000 volunteered in the first six months of the last war.

An army of 9 million will take 12 per cent of our male population. Present medical corps ratios indicate that the armed forces will require 33 per cent of all our physicians (including retired men)—two-thirds of all those under the age of 45.

Several thousand physicians are needed by July 1 and more physicians must be drawn into the service in the next six or seven months than the 22,000 taken during the past eighteen months. Another 10,000 will be needed in 1943.

Some states are ahead of their reasonable and expected quotas. Others are from hundreds to thou-

sands behind their quotas. There is evidence that there are still some areas in America which have not yet fully discovered the war.

This is no statement of opinion. This is a statement of some very hard facts. I deliver them without the slightest hint of bedside manner for your earnest consideration.

2 And remember this. The Army and Navy are not the whole story. There is yet far too little consciousness of any problem beyond that of obtaining physicians for the Army and Navy. The acute need for civilian service is not yet appreciated. There will be no "business as usual" for physicians at home—any more than there can be for the physicians in the military service.

The American Medical Association's Council on Industrial Health and Dr. Selby's Committee on Industrial Hygiene, Health and Medicine have aided in the establishment of many industrial medical services. They have helped to create educational programs to train physicians for such services.

But for the most part that development has been directed to large plants. There is no well recognized plan as yet for the small plant. The more general recommendation of "cooperation with local practitioners" is not enough. It has not produced results.

And as industrial physicians have so often reminded the people, industrial health does not begin and end at the factory gates. Home and community sickness cost America more man-days in time lost than do occupational accidents and occupational illnesses. The home and the community, therefore, cannot go unserved in wartime.

Dr. Lahey and Dr. Abell, and those who appreciate the great responsibility of American medicine, know and understand these needs. It is time, I think, for a concerted drive to bring home to every doctor the importance of the local civilian problems of medical care in boom areas—a drive that will bring the necessary action.

Let me underscore the need for doctors in industrial areas and in defense boom towns. The community that is growing, as some communities have, from a rambling rural village of a thousand people to a town of 30,000 and 40,000 or 50,000, must be taken care of. Doctors will have to be assigned to those towns on a voluntary basis or on some other basis.

3 There is and there will be a growing problem of rehabilitation. Mechanized warfare means more casualties, despite all physicians and engineers can do. Perhaps there will be fewer deaths but more mangled fingers, injured arms, crippled legs.

With mechanized equipment the industrial process is multiplied manifold. With high pressure production accident rates go up. Thus, added to our training and our battle front casualties, there will be a vast increase in industrial casualties.

The casualty prospect adds to the acuteness of our need for doctors in the military forces. It adds greatly to our need for doctors on the industrial front. And there is the added responsibility for rehabilitation which arises out of the nature of total war. We need every man-hour on the production line—and therefore we need every man-hour of medical service.

We face a sad prospect. Total war has made a fundamental change in our attitude toward the disabled. We

can no longer regard rehabilitation as a humanitarian or "welfare" measure designed to salvage self respect or provide incidental income for the disabled individual. He is a person—a valuable person. He must be rehabilitated and vocationally trained not merely for his own good but because the nation needs him. He must be vocationally trained not in some obscure handicraft the products of which are intended for Fifth Avenue shops or roadside tourist stands but in skills that will fit him for a place in the main stream of American production. Industry must not disqualify him for his disabilities, it must qualify him for his abilities.

Thus the rehabilitation problem includes not only the rehabilitation of rejectees but the rehabilitation of men who suffer their disability because they served their country in the military service or on the production line.

4 A total systematic plan is necessary to meet these needs. Manpower must be conserved now.

But I think the situation presents to the American medical profession an opportunity. You are familiar with the advances in clinical medicine which came out of the last war. You know the advances in bone surgery and plastic surgery and in the care of wounds. You know full well the height to which your profession rose under the terrible pressure of war. You are faced with even greater and more challenging problems now. You will rise to new heights, which will be all the higher because in this last quarter of a century you have developed so beautifully in medical education and scientific research.

In addition, however, to your problem of the last war you face the acute social problem presented by total war. There must be no break anywhere in the fabric of our national effort. Those breaks come only when America's fundamental resources, the health and vitality of its people, break down.

Just as clinical medicine progressed in 1917-1918, this time America can look forward to your firmer mastery of the management of its medical services. I hold no brief for any a priori plan. I hold a brief only for the application of the same scientific objectivity to problems of the organization and distribution of medical services as they are applied to clinical questions.

That will serve to outline America's main problem. Here are some of the prescriptions which are indicated.

1 For the military services younger men must go. They must realize their duty now. The armed forces need thousands of young doctors immediately—to be exact, 5,000 by July 1, 20,000 during the next seven months.

They must make whatever arrangements are necessary for their older associates to handle their practices. The older men in turn must remember that they had their chance last time. They not only must stay but must extend the scope of their activities to meet the medical needs of the civilian communities.

2 The medical profession must cooperate in every local community as vigorously as your national organization is now cooperating. It must obtain physicians in sufficient numbers for the Army and Navy. It can and must take action to allocate men to important positions in industry and in civilian life. Having accomplished these two important military duties, the profession should certainly have no fear of any drastic change in medical practice after the war.

3 Let me make this clear. The Procurement and Assignment Service for the War Emergency was set up in collaboration with the medical profession to facilitate the channelling of physicians to military and civilian service. It will not continue after the war. "All out" collaboration does not involve any theoretical assaults on, or support of, any theory of medical practice.

The Procurement and Assignment Service, with which every physician should and must collaborate to the full, is staffed by physicians guided by physicians and represents every one of you in the worldwide application of the simple but profound obligations of the Hippocratic oath.

There was nothing of theory in the establishment of the Procurement and Assignment Service. It was a proposal to solve in a practical manner a problem of great urgency. It was not imposed by the government. It was set up, I repeat, at the suggestion of your profession. It investigated all aspects of the problem of providing doctors in an equitable way for military and civilian service. It made the arrangements with Selective Service for the deferment of medical students. It has safeguarded your professional interest in every way.

At the same time it has accepted the obligation to deliver the doctors that the nation needs to the points at which they are needed.

Now let us look at the record.

The plain fact and conclusion is simply this. The Army and Navy and the war industry areas have not gotten the doctors they need. The careful safeguards that were set up by the Procurement and Assignment Service have apparently slowed down the rate of recruitment. The voluntary plan must work and work promptly—or some other more vigorous plan will have to be produced.

Yours has been an outstanding effort in canvassing and classifying every member of your profession. You have still in your hands the machinery by which a self-governing profession can demonstrate its ability to meet the tremendous demands of total war. And I appeal to you to make that machinery work.

Yours is an important profession. It is the first to require rationing—rationing which will make sure that there are enough doctors to meet the needs of every unit of the home front and of the battle front. The issue is who shall do the rationing, for America must have the doctors it needs.

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**General Practice Requires Brilliant Men**—There is an idea abroad that medical men drift into general practice because there is no place for them anywhere else. This idea should be disabused. Only brilliant men should go into general practice. In no other field of medicine is competition so keen and in no other field of medicine are the keenest mental qualities required for success. The sphere of general practice is not the place for mental or physical weaklings. In it you work amongst the people. They know you personally. Your mistakes are made public and are discussed by all. The general practitioner's mistakes are not hidden under a bundle of pathological and x-ray reports but are discussed in the local public house and at the church on Sunday. It will not bring big financial success but it brings better things. It brings friendships which are life-long. No other branch of the profession gives such a full life—a life full of real living and of service. Therefore if you decide to take up general practice do so with the knowledge that there the greatest field for service as a doctor is open to you.—McCann J. J. *The General Practitioner Looks at Medicine* *Irish J. M. Sc.* June 1941.

## HIGH FAT DIET PRECEDING CHOLECYSTOGRAPHY

A REVIEW OF THE LITERATURE AND EXPERIMENTAL STUDIES ON FILLING THE NORMAL GALLBLADDER

HOWARD CURL, M.D.

MEMPHIS, TENN.

Eighteen years have elapsed since Graham and Cole<sup>1</sup> first reported the use of tetrabromophenolphthalein sodium, by intravenous injection, in the examination of the gallbladder. This added impetus to the study of the liver and biliary apparatus which not only increased the accuracy of diagnosis of pathologic conditions but greatly increased our knowledge of the physiology of these organs.

The interpretation of roentgenograms in which the gallbladder shows only a faint or no shadow has, from the beginning, been unsatisfactory. As early as 1925 Stewart and Ryan<sup>2</sup> concluded, after a series of experimental observations, that the question of "no shadow" needed further study. They gave five reasons why the gallbladder might give no shadow on roentgen examination. Others have since added to this list. Considering only those conditions which might interfere with the proper filling of the normal gallbladder I suggest the following:

- 1 Failure of absorption from the gastrointestinal tract of an adequate amount of the opaque medium
- 2 Failure of the liver to excrete the dye into the biliary passages
- 3 Pressure on the cystic duct.
- 4 Gallbladder already filled with bile to the exclusion of an adequate amount of fresh dye laden bile
- 5 Reflexes from the cecum, colon or other part of the gastrointestinal tract
- 6 Premature emptying of the gallbladder

### LITERATURE

A sizable literature has accumulated pertaining to the influence of the aforementioned factors in filling of the gallbladder. Brief reference will be made to only a few of the most pertinent studies which have appeared since the introduction of opaque mediums in cholecystographic examinations.

**Absorption**—The gallbladder shadow will depend not only on the size of the dose but on the amount retained for a period long enough to permit maximum absorption. Graham, Cole and Copher,<sup>3</sup> using the intravenous method gave 3.5 Gm. of tetrabromophenolphthalein. This has come to be the average dose of soluble iodophthalein when given by mouth. Sosman, Whitaker and Edson,<sup>4</sup> by intravenous injection of soluble iodophthalein, gave 0.04 Gm. per kilogram of body weight. Stewart and Ryan,<sup>2</sup> using an Einhorn tube, instilled 40 grains (2.6 Gm.) directly

From the Division of Anatomy, University of Tennessee College of Medicine.

This study was made possible by a grant in aid by the Committee on Scientific Research of the American Medical Association.

1 Graham, E. A. and Cole, W. H. A Preliminary Report on the Roentgenographic Examination of the Gallbladder. *J. A. M. A.* 82: 613 (Feb. 23) 1924.

2 Stewart, William H. and Ryan, Eric J. Further Development in the Jejunal and Oral Administration of Tetraiodophenolphthalein. *Am. J. Roentgenol.* 14: 504 1925.

3 Graham, E. A., Cole, W. H. and Copher, G. H. Cholecystography: Its Development and Application. *Am. J. Roentgenol.* 14: 487 1925.

4 Sosman, M. C., Whitaker, L. R. and Edson, P. J. Clinical and Experimental Cholecystography. *Am. J. Roentgenol.* 14: 495 1925.



into the duodenum. Menees and Robinson,<sup>5</sup> the first to use tetrabromophenolphthalein by mouth, gave 0.05 Gm per kilogram of body weight. They stated that satisfactory shadows could be obtained with only 0.03 Gm but that it was better to have an excess to compensate for poor absorption. The following doses are all for soluble iodophthalein given orally. Stewart and Ryan<sup>7</sup> gave 40 grains for 150 pounds (68 Kg) of body weight. One patient showed an excellent shadow after only 15 grains (1 Gm). They thought that in general the doses used were too large. Sosman, Whitaker and Edson<sup>1</sup> gave 5 grains (0.32 Gm) for each 10 to 12 pounds (4.5 to 5.4 Kg) of body weight. Kirklin<sup>6</sup> gave 4 Gm regardless of weight. The Friedmans<sup>7</sup> administered, in multiple doses, from 6 Gm for patients under 100 pounds (45 Kg) up to 12 Gm for patients over 150 pounds. Whitaker<sup>8</sup> divided 8 to 10 Gm into two doses. Phillips<sup>9</sup> divided 90 grains (5.85 Gm) into three doses. Collins and Root<sup>10</sup> gave 7 Gm in divided doses and Robinson<sup>11</sup> 4 Gm in a single dose.

**Retention**—Vomiting within from one-half to one hour or a copious watery diarrhea within one or more hours frequently follows the oral administration of soluble iodophthalein. Sometimes both occur. In many of the cases in which one or both of these conditions occur, nevertheless, satisfactory gallbladder shadows are obtained. This might mean that the dose is too large or that absorption takes place very rapidly. Fantus<sup>12</sup> preceded the dye with a hypnotic to prevent emesis and followed with powdered opium to prevent diarrhea. Robinson<sup>11</sup> gave 1 drachm (3.7 cc) of paregoric one-half hour before the dye to allay the nausea and to retard the passage through the gastrointestinal tract, thereby promoting absorption. This technic is now followed by many roentgenologists.

**Reflexes Influencing Liver Eviction**—That the liver, although normal, may fail to excrete the opaque dye has been demonstrated by Goldman and Ivy.<sup>13</sup> In experimental animals they proved that stretching the colon inhibited the flow of bile from the liver. A similar response was obtained after stimulating the central end of the colonic, pelvic, inferior and superior mesenteric nerves, but the inhibition was not present when the hepatic nerves had previously been severed, thereby demonstrating a reflex inhibition of hepatic secretion. Fantus<sup>12</sup> thought absorption took place mainly in the region of the cecum and proximal colon and that stasis in this region prevented absorption. Inability to obtain satisfactory shadows under these conditions may well have been due to reflex inhibition

of hepatic function. Lahey and Jordan<sup>14</sup> found that functional disease of the colon interfered with gallbladder filling, but Ferguson and Palmer,<sup>15</sup> Kirklin and Blake<sup>16</sup> and Good and Kirklin<sup>17</sup> concluded that extra-biliary disease did not interfere with normal gallbladder function.

**Gallbladder Emptying**—Early in his work, Stewart gave his patients a meal containing large amounts of fat before giving the soluble iodophthalein, believing that this would partially or completely empty the gallbladder and render it "receptive" to the opaque bile. Sosman and his co-workers<sup>1</sup> found that fats would empty the gallbladder in from three to six hours, that lean beefsteak had a moderate effect and that carbohydrates and the sight, taste and smell of food had no effect. Boyden,<sup>18</sup> in extensive studies on the response of the human gallbladder to food, found that egg yolk was most effective, causing complete emptying within two and one-half hours. Meat gave the same pattern but was so slow that the organ began to refill before it had been completely emptied. Krause and Whitaker<sup>19</sup> found that fats and fatty acids were by far the most effective and that carbohydrates had no effect at all.

In 1928 Ivy and Oldberg<sup>20</sup> demonstrated that cholecystokinin, a hormone liberated in the upper part of the intestinal tract, was responsible for the contraction and evacuation of the gallbladder. Crandall<sup>21</sup> found little tendency toward spontaneous emptying of the gallbladder in fasting human beings and observed that a patient on a carbohydrate diet showed very slow emptying over a period of twenty-four hours. He concluded that liberation of cholecystokinin by the action of fats or acids was responsible for gallbladder activity. In a later study Ivy<sup>22</sup> demonstrated that cream and egg yolk when introduced directly into the duodenum had no effect on gallbladder contraction but that pancreatic digests of these same substances did cause evacuation. Sussman,<sup>23</sup> in a study of human subjects who were free from any evidence of cholecystic disease, determined that in fasting persons or those on a carbohydrate diet the gallbladder did not empty for at least five days and might remain filled for a much longer time. He attributed the gradual decrease in shadow density to the absorption of the dye by the gallbladder wall. He concluded that gallbladder evacuation depends on cholecystokinin, which in turn depends on the introduction of fats or acids into the duodenum in fairly high concentrations. Three egg yolks emptied the normal gallbladder within thirty minutes. Robinson<sup>11</sup> reported improvement in his cholecystographic studies when the dye was preceded by a meal containing a glass of whole

5 Menees, T. O. and Robinson, H. C. Oral Administration of Tetrabromophenolphthalein. *Am J Roentgenol* **13**: 368, 1925.

6 Kirklin, B. R. Persisting Errors in the Technique of Oral Cholecystography. *J A M A* **101**: 2103 (Dec 30) 1933. Cholecystography, chapter II in Diseases of the Gallbladder and Bile Ducts, by Walters, Waltman, and Snell, Albert M. Philadelphia, W. B. Saunders Company, 1940.

7 Friedman, Lewis J., and Friedman, Paul S. A Historical Review of the Roentgen Studies of the Gallbladder. *Am J Roentgenol* **39**: 548, 1938.

8 Whitaker, L. R. The "Double Oral" Method of Cholecystography. *Am J Roentgenol* **35**: 200, 1936.

9 Phillips, Herman B. Recent Advances in Diagnosis from and Technique of Cholecystography. *Radiology* **29**: 602, 1937.

10 Collins, E. N., and Root, J. C. Cholecystography. Further Observations on the Use of Pitressin and Evaluation of Other Procedures. *Radiology* **29**: 216, 1937.

11 Robinson, Walter W. Oral Cholecystography. *Radiology* **36**: 131, 1941.

12 Fantus, Bernard. Peroral Administration of Colloidal Contrast Media in Cholecystography. *J A M A* **89**: 182 (July 16) 1927.

13 Goldman, Leon, and Ivy, A. C. The Effect of Distention of the Colon and Stimulation of Its Nerve Supply on the Flow of Bile from the Liver. *Ann Surg* **110**: 755, 1939.

14 Lahey, Frank H., and Jordan, Sara M. Management of Biliary Tract Disease. *Am J Surg* **11**: 1, 1931.

15 Ferguson, A. N., and Palmer, W. L. Cholecystography. Its Clinical Evaluation. *J A M A* **100**: 809 (March 18) 1933.

16 Kirklin, B. R., and Blake, T. W. Cholecystic Disease. A Comparison of the Clinical with the Cholecystographic Data. *J A M A* **105**: 1416 (Nov 2) 1935.

17 Good, C. A., and Kirklin, B. R. The Influence of Extrabiliary Disease on the Function of the Gallbladder. *Am J Roentgenol* **37**: 34, 1937.

18 Boyden, Edward A. A Study of the Behavior of the Human Gallbladder in Response to the Ingestion of Food. *Anat Rec* **33**: 211, 1926.

19 Krause, W. F., and Whitaker, L. R. Effect of Different Food Substances on Emptying of the Gallbladder. *Am J Physiol* **57**: 1, 1928.

20 Ivy, A. C., and Oldberg, Eric. A Hormone Mechanism of Gallbladder Contraction and Evacuation. *Am J Physiol* **86**: 592, 1927.

21 Crandall, L. A. Mechanism of the Contraction and Emptying of the Gallbladder. *Arch Int Med* **48**: 1217 (Dec) 1931.

22 Ivy, A. C. The Physiology of the Gallbladder. *Physiol Rev* **11**: 1, 1934.

23 Sussman, M. L. Emptying of the Normal Gallbladder. *Am J Roentgenol* **38**: 867, 1937.



milk or a cup of cocoa well buttered toast and two soft boiled eggs. Kirklin<sup>24</sup> however, after extensive experience was firm in the belief that eggs, cream or other fats given before the ingestion of the dye interfere with the examination. He has repeatedly insisted that, if the technic is proper, every gallbladder which does not fill can be said with assurance to indicate pathologic changes in the biliary tract.

**Nonvisualization**—Most of the reports that have appeared in the literature have indicated that 8 per cent or more of the nonvisualized gallbladders have later proved to be free from pathologic changes. Ferguson and Palmer<sup>12</sup> concluded after a large series of routine examinations, that the diagnosis of cholelithic disease on the basis of a normal cholecystogram alone was entirely unwarranted. In a case of nonvisualization after intravenous administration of the dye Whitaker<sup>8</sup> found after cholecystectomy, the gallbladder filled with a thick concentrated bile. Microscopic examination showed no pathologic changes in the gallbladder wall. Stewart and Illick<sup>25</sup> thought that some of the failures to fill might be due to a temporary edema of the cystic duct. Jenkinson<sup>26</sup> recommended that all patients with nonvisualization be reexamined after a month during which time a diet rich in fats should be given.

#### PRESENT STUDY

No one has yet made a correlation of the reported observations with the roentgen examination of a large number of patients, which I now propose to do.

These studies were undertaken under conditions found in many x-ray laboratories and following accepted roentgenographic procedures.

**Object**—The object of this study is as follows:

- 1 To determine the percentage of presumably normal gallbladders that do not fill on first examination.
- 2 To repeat some of the studies previously made on the effect of food on the already filled gallbladder.
- 3 By attention to the preexamination diet, to determine the effect of a high fat diet on filling the presumably normal gallbladder.
- 4 If it is possible to suggest a routine that will offer better results in the examination of the gallbladder that is normal.

**Procedure**—That the results might be comparable with those of other workers, the general laboratory routine was followed that obtains in many x-ray laboratories. Three preparations of soluble iodophthalein purchased on the open market, were used. Doses of the three products were 3.5 Gm, 3.6 Gm and 4 Gm respectively.

The following written instructions were given each student, who was urged to follow these to the minutest detail or forego the examination entirely:

- 1 At 6 p. m. eat supper (specific instructions for supper were given to each group, as will be noted).
- 2 Immediately after supper empty entire contents of bottle in a glass and add water (about 1 ounce [30 cc]) slowly, stirring until a thick smooth paste is formed. Then add 4 ounces of water (120 cc), stir well and drink the entire amount.
- 3 Lie down and keep quiet for at least one hour after taking the dye.

4 Eat nothing after taking the dye, eat no breakfast, although water, black coffee or clear tea may be drunk.

5 Report at the laboratory fourteen hours after taking the dye.

Cathartics are not usually given, but many roentgenologists direct that an enema be taken on the morning that the roentgen examination is to be made. I gave neither cathartics nor enemas. While the technical results of the roentgenograms would undoubtedly have been better had the colon been flushed out, it was deemed best to do nothing that might interfere with the gallbladder being full at the time of examination.

**Observations**—The following 512 observations were made on 182 medical students. The ages ranged from 18 to 30 years and the weight from 90 to 190 pounds (41 to 86 Kg). Every student, as far as it was possible to determine, was free from any illness and especially from any sign or symptom of gastrointestinal, hepatic or biliary tract disease. The results are shown in the accompanying table.

Group 1 One hundred and three students who had not been previously examined were given the preexam-

Tabulation of Results of Study of Gallbladders

| Group | Diet                      | Number Examined | Number Filled | Number Not Filled |            | Percentage |
|-------|---------------------------|-----------------|---------------|-------------------|------------|------------|
|       |                           |                 |               | Filled            | Not Filled |            |
| 1     | Regular                   | 103             | 74            | 29                |            | 28         |
| 2     | Regular *                 | 52              | 52            | Motor meal        |            | 100        |
| 3     | High fat                  | 50              | 43            | 7                 |            | 14         |
| 4     | Low fat                   | 50              | 28            | 22                |            | 44         |
| 5     | Fruit †                   | 20              | 14            | 11                |            | 44         |
| 6     | Fruit ‡                   | 20              | 12            | 13                |            | 52         |
| 7     | Low fat breakfast         | 50              | 37            | 13                |            | 26         |
| 8     | High fat breakfast        | 50              | 41            | 9                 |            | 18         |
| 9     | Breakfast and lunch       | 37              | 37            | 10                |            | 27.7       |
| 10    | Grape juice and paregoric | 70              | 58            | 12                |            | 17.14      |

\* Effect of motor meal on filled gallbladders from group 1.

† For three days before examination.

‡ For three days after gallbladder already filled.

ination diet with no alteration except for the evening meal preceding the ingestion of the dye. For this they were instructed to eat the usual amount of supper but no eggs, cream butter or other fats.

Group 2 Fifty-two students from group 1 who had a positive gallbladder shadow were given a fat meal of cream and eggs and reexamined for effect on evacuation.

Group 3 Fifty students were instructed to eat for a period of three days preceding the examination a large amount of fats fat meats cheese cream, butter and eggs. A similar supper was to be eaten before the ingestion of the dye.

Group 4 Fifty students were given the following instruction. For three days and for the evening meal before taking the dye exclude from the diet all fats already listed and all fried foods.

Group 5 Twenty-five students were given an exclusive fruit diet for three days, including the evening meal before taking the dye.

Group 6 Twenty-five students from groups 3 and 4 who had normal cholecystographic shadows, were given an exclusive fruit diet for three days and then, without receiving additional dye were reexamined.

Group 7 Fifty students, most of whom had been previously examined but who had been on their regular diet for at least one month, were directed to take a fat free evening meal, as in group 1. The following

24 Kirklin B. R. Necessity for Accurate Technic in Oral Cholecystography. *Am. J. Roentgenol.* 25: 595, 1931. *Cholecystography*.

25 Stewart W. H. and Illick H. Earl. Five Years Experience with Cholecystography. *Am. J. Roentgenol.* 25: 602, 1931.

26 Jenkinson E. L. *Cholecystography*. *J. A. M. A.* 107: 753 (Sept. 5) 1936.

morning they were allowed a breakfast which consisted of toast or sweet rolls without butter but with jam or jelly, cereal with skimmed milk and sugar but without butter or cream and tea or coffee with sugar but with no cream. They then reported for roentgen examination.

Group 8 Fifty students under the same conditions as those in the preceding group were instructed to eat a meal rich in fats, as in group 3, and on the following morning a breakfast as in group 7, before reporting for examination.

Group 9 Thirty-seven students from groups 7 and 8, who showed a normal gallbladder filling after the breakfast given were allowed to eat a lunch of their own choosing. They were then reexamined five hours after lunch or shortly before the next evening meal.

Group 10 Seventy students, of whom 20 were on a minimal fat and 50 were on a high fat diet, were given the dye paste, to which was added 4 ounces of grape juice instead of water. The ingestion of this mixture was preceded by the administration of 1 drachm of paregoric.

#### COMMENT

When Graham and Cole first announced the use of a dye that would, when injected into the blood stream, be eliminated into the biliary passages and would render the bile in the gallbladder opaque to roentgen rays virtually nothing, based on present day knowledge, was known about the gallbladder. That the gallbladder was a reservoir for bile was believed, and the importance of bile in fat digestion was generally accepted. By what mechanism the gallbladder was emptied was not known. Roentgenologists were debating the probable influence of a filled stomach, pressure of the duodenal cap, contraction of abdominal musculature or the general increase in intraabdominal pressure as the factors which brought this about. Some leading physiologists<sup>27</sup> doubted that the gallbladder could, by contraction of its musculature, evacuate itself. It remained for Ivy to demonstrate the exact mechanism of gallbladder emptying and for Boyden and others to point out the influence of foods other than fats on the activity of this organ.

Knowledge of the physiologic nature of the gallbladder has changed greatly since that early work, but the technic first used in cholecystography is still followed by many roentgenologists. The role played by fat has been accepted, but that a definite relationship may exist between the preexamination dietary habits of the patient and a normal cholecystogram seems to have not occurred to many. That the gallbladder filled with concentrated not easily evacuated bile because of prolonged carbohydrate or low fat diet rather than actual pathologic changes could be responsible for the nonvisualization seems to have not been considered a possibility. That there is a very definite relationship between the preexamination dietary habits of the patient and the results of the cholecystographic study has been demonstrated, I believe, by the present study.

The observations in group 2 reconfirm the role played by fats in producing evacuation of the already filled gallbladder. Groups 6, 7, 8 and 9 demonstrate that a carbohydrate or low fat diet, under the same conditions met with in a medical practice, will not empty the already filled gallbladder.

Groups 4 and 5 demonstrate the fact that in many patients on a low fat or carbohydrate diet the gallbladder will not admit opaque bile in quantities sufficient to cast a shadow. While occasionally calculi are demonstrated in patients free from any evidence of cholecystic disease, it is not common in this age group. It is fair to assume, therefore, that the nonvisualization in these cases was due not to pathologic changes in the gallbladder but to the fact that the gallbladder was already filled with bile.

By the same reasoning it may be assumed that this factor was responsible for nonvisualization in 28 per cent of the cases in group 1. From this group one may also conclude that many patients in the economic class from which medical students are drawn get an inadequate amount of fat in their regular diet.

An analysis of the studies of group 3 clearly indicates that fat feeding before the introduction of the dye not only does not interfere with but actually aids filling of the gallbladder. That 100 per cent filling after the fat feeding was not obtained is not an indictment of the procedure. It rather indicates that the amount of fat was inadequate or that the feeding was not carried out over a sufficient length of time. It may also indicate that factors other than diet also interfere with the filling of the normal gallbladder. This has been suggested by other workers. It is a point which needs further study.

I feel, however, that sufficient evidence has accumulated to warrant the suggestion that a high fat diet is indicated for a period of several days before cholecystic examination. It is obvious that this dietary regimen should be under the control of the referring or family physician. It has been suggested that when calculi are present such a procedure might precipitate a "gallbladder colic." I have been able to find no proof of this assertion. Fat feeding, however, might be withheld in those cases in which calculi are known to be present or in which the history, clinical and laboratory findings definitely point to cholecystic disease and roentgenograms are desired only for confirmation.

That nausea, emesis and diarrhea do not interfere with gallbladder filling is indicated by the findings in group 10. The percentage of filling in this group was not appreciably different than that in the other groups which were on the same diet. This would indicate that the amount of dye was sufficient and the retention long enough to permit adequate absorption. The addition of grape juice and the use of paregoric, however, rendered the entire procedure very much less disagreeable for the patient.

#### CONCLUSIONS

From the work of others here reported and from the observations made in the present study I feel justified in making the following conclusions:

1. Fat is an essential factor in the gallbladder emptying mechanism.

2. Patients on a fat free or low fat diet may have a gallbladder which, not emptied for days, may be distended with thick concentrated bile, and such a gallbladder, unable to admit more bile, will not be visualized on roentgen examination.

3. All patients whose gallbladder is examined routinely or who have a questionable or doubtful cholecystic history should be put on a high fat diet for several days or even weeks before the roentgen examination.

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<sup>27</sup> Carlson, A. J. *Physiology of the Liver*, J. A. M. A. 85: 1468 (Nov. 7) 1925.

PNEUMONOCONIOSIS ENCOUNTERED  
IN BITUMINOUS COAL MINERS

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For many years silicosis has been accepted as a definite clinical entity occurring in workers exposed to siliceous dust in various mining occupations. Anthracosis in employees of anthracite mines has long been recognized, but one is surprised at the paucity of mention in medical literature of nodular or fibrotic pulmonary changes in bituminous coal miners.

It is a well known fact that dusts, both organic and inorganic, are present in variable concentrations in the mining and preparation of bituminous coal. Gardner<sup>1</sup> in 1938, in the evaluation of irritating effects of various minerals on the tissue of experimental animals, demonstrated that bituminous coal dust was irritating as well as anthracite dust. Cummins and Shadden<sup>2</sup> in 1930 concluded that anthracosis was not a simple condition, as thought by many, but was a form of pulmonary fibrosis, usually due to an associated silicosis. Clark and Moffett<sup>3</sup> in a recent study of 774 miners employed by a bituminous coal company in the southern Appalachian region, found that 2 per cent of the workers had presilicotic changes and 1 per cent showed silicotic nodulation. The Division of Industrial Hygiene of the United States Public Health Service, collaborating with the Utah State Board of Health,<sup>4</sup> published in 1940 a report based on the study of three bituminous coal mines in Utah. In this study there were adequate engineering as well as medical criteria. The authors pointed out that practically all of the suspended dust particles in the atmosphere of these mines were capable of entry into the lungs and that the dust concentrations in most of the underground occupations were great enough to constitute a dust hazard. In this series 507 workers were examined, and 32 per cent were found to have anthracosis after all persons having had other exposure were excluded.

Several years ago my colleagues and I became impressed with the number of soft coal miners presenting themselves at our institution, located in the bituminous coal field of southern West Virginia, with either a major or a minor symptom of chronic cough or dyspnea, usually referred to by the patient as "miners' asthma." This stimulated our interest and led to our obtaining a more careful history, especially with regard to the industrial aspect. A careful fluoroscopic and roentgenographic study of the chest and routine sputum and blood analyses were made on the patients with the aforementioned symptoms and those having long employment in the bituminous coal mines. During the four year period 86 cases of silicosis were discovered in which silicotic changes were present in varying degrees. In this series were included only those cases in which exposure to dust had been in bituminous coal mines alone. Several cases showing silicotic changes were excluded since the

men had previously worked in dissimilar types of industry having a dust hazard. Other cases in which the condition was predominantly infectious, with only a minimal evidence of silicosis, were not included in this series. In correlating the industrial histories one is impressed by the fact that coal miners have a tendency to migrate from mine to mine. In a period of several years they will have worked for various companies and in several capacities, each job probably having quite a different degree of dust concentration. This variation in employment makes it difficult to classify each miner so as to make an accurate statistical study. For the sake of simplicity, I have made an effort to place each miner in some group depending on his history with regard to dust exposure together with the length of employment in each occupation.

Each respective case in this series has been classified under stage 1, 2 or 3 silicosis. Those cases showing only a fine nodular or grainy appearance diffuse hazy-

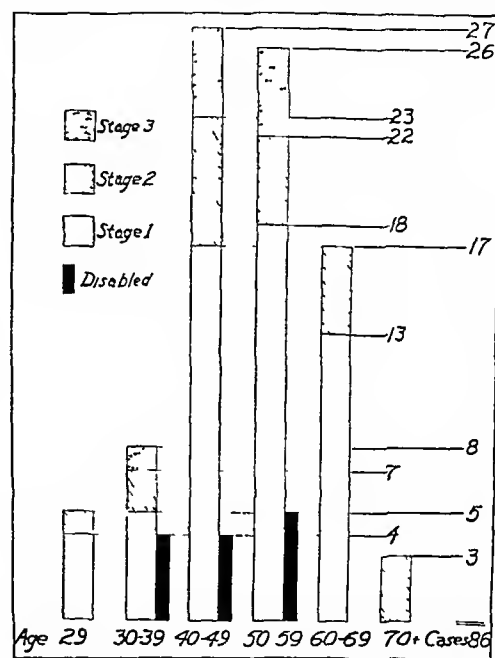


Fig 1—Age groups with number of cases in each group stage of involvement and disability incidence

ness or a ground glass appearance, with no, or only partial, obliteration of the linear markings, were classified under stage 1. The nodules in this group usually measured less than 1 mm in diameter, and there was a varying degree of hilar proliferation and broadening.

Those cases in which more nodulation was demonstrated the nodules exceeding 1 mm in diameter, with associated emphysema (the latter usually being present at the apexes and bases), were placed under stage 2. A large number of the patients in this group presented themselves with varying degrees of pulmonary symptoms.

In stage 3 the symptoms were pronounced. Emphysema was demonstrated at the bases of the lungs, and often in the apexes. These changes were observed on physical examination as well as on roentgenographic study. A large portion of the nodules had become coalescent, giving a conglomerate appearance, and the hilar were indistinct. The persons in this group were disabled for the performance of manual labor. There was associated superimposed infection, in some tuberculous. A few cases showed cavitation obviously associated with

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Dr Lewis E. Nolan performed the necropsies and studied the histologic sections and Dr Ernst Wolff assisted in the preparation of the roentgenograms.

1 Gardner LeRoy U. Etiology of Pneumoconiosis. J A M A 111:1925 (Nov 19) 1938.

2 Cummins S L and Shadden A F. Coal Miners' Lungs. An Investigation into the Anthracotic Lungs of Coal Miners in South Wales. J Path & Bact 33:1095 (Feb 14) 1930.

3 Clark B G and Moffett C E. Silicosis in Soft Coal Miners. J Indust Hyg & Toxicol 23:176 (May) 1941.

4 The Working Environment and the Health of the Workers in Bituminous Coal Mines in Utah. Bull U S P H S and Utah State Board of Health November 1940.

acid fast organisms and in others probably the result of silicotic necrosis

In arriving at a conclusion in each individual case other pulmonary lesions were ruled out. The conditions considered in differentiation were military, chronic, nodular and fibroid tuberculosis, primary or metastatic carcinoma, sarcoidosis and residual changes as the result of arteriosclerosis.



Fig. 2 (case 1)—Anthracosilicosis stage 1. Note uniform haziness with fine filament of fibrosis and small delicate generalized nodules.

A large number of patients were hospitalized for diagnostic observation.

In the accompanying chart and table some of the important features of this group of cases are analyzed. Figure 1 graphically presents 86 cases of anthracosilicosis divided according to the age decade, with the number of cases of each stage of the lesion in each decade. The total number of persons disabled in each group is included. The first group numbered 5 patients, and the youngest patient was 26 years old.

The oldest patient in whom anthracosilicosis was found was 79. The average age of the 86 patients was 50.75 years. It is interesting to note that the extreme age groups (the 5 included in the decade ending at 29 years and the 70+ year group) showed fewer patients than the others and that none of the patients were disabled. There was a larger number in the 60 to 69 year group, which totaled 17 patients. None of these patients were classified under grade 3, although 1 was considered disabled. All the patients with stage 3 involvement, it is

Analysis as to Period of Working in Bituminous Coal Mines, Occupation, Stage of Involvement and Disability

| Years of Exposure | Machine | Loader | Driller | Shooter | Foreman | Motor | Total No of Cases | Stage |    |     | Dis-abled |
|-------------------|---------|--------|---------|---------|---------|-------|-------------------|-------|----|-----|-----------|
|                   |         |        |         |         |         |       |                   | I     | II | III |           |
| 5-9               | 4       |        | 3       |         |         |       | 7                 | 4     | 1  | 2*  | 1         |
| 10-14             | 4       | 2      | 2       | 1       |         | 2     | 11                | 7     | 2  | 2   | 2         |
| 15-19             | 4       | 2      |         |         |         | 3     | 9                 | 7     | 2  |     |           |
| 20-24             | 3       | 9      |         | 2       |         |       | 14                | 9     | 3  | 2   | 4         |
| 25-29             | 4       | 7      |         |         | 1       | 2     | 14                | 6     | 5  | 3   | 4         |
| 30-34             | 2       | 9      |         |         |         | 1     | 12                | 9     | 3  |     | 2         |
| 35-39             | 1       | 8      |         | 1       |         |       | 10                | 9     | 1  |     |           |
| 40-49             |         | 4      |         |         |         |       | 4                 | 4     |    |     |           |
| 50-59             |         | 3      |         |         |         |       | 3                 | 2     | 1  |     |           |
| 60                |         | 2      |         |         |         |       | 2                 |       | 2  |     |           |
| Total             | 22      | 46     | 5       | 4       | 1       | 8     | 86                | 57    | 20 | 9   | 13        |

\* Case 6 was included in this group the patient having been employed nine years as a driller.

shown, were found in the middle aged group (30 to 59 years) and the largest total number was represented here. Thirteen patients, or 15 per cent of the total series of 86, were classified as being disabled. This group represents the more active span of the individual worker's productive life. In this graphic representation no attempt has been made to subject the series of cases to a further statistical analysis, as this is not an industrial group study and any further analysis might lead to erroneous deductions.

In the table the series is analyzed as to years of exposure, chief mining occupation and stage of involvement. This study demonstrates that in terms of disability the total period of employment in the mining industry is not of paramount significance. All of the stage 3 group is composed of those persons who had less than thirty years' employment. The average period of employment in bituminous coal mining for all patients studied was twenty-eight years.

It is worthy of note that in the group of 7 miners with not more than nine years of exposure 3 were classified as having stage 2 or stage 3 involvement. These 3 men were all employed as machine men, motormen or drillers, which leaves the impression that persons working in these three occupations are subjected to higher dust concentrations than men in other types of employment. The same impression is noted in studying the group who had had ten to fourteen years' exposure. Those patients with longer periods of employment were mainly loaders and, as a group, showed a lesser degree of involvement in spite of many more years of working in bituminous coal mining.

The following cases taken from this series will illustrate the various histories, clinical and laboratory findings, roentgenographic changes and, in some cases pathologic features. Two cases with autopsy are presented.

REPORT OF CASES

CASE 1—I W P, a white man aged 71, complained of slight chronic cough with exertional dyspnea. The presenting symptoms were not featured. He had been a coal loader in West Virginia coal mines for sixty-one years and showed no unusual chest signs on physical examination. There was mild generalized arteriosclerosis. Studies of the blood gave normal results including the sedimentation rate. The sputum was negative for acid fast organisms. The lungs showed uniform haziness with a fine filament of fibrosis, and small, delicate nodules were scattered throughout. The apexes appeared clear. The diagnosis was anthracosilicosis stage 1 (fig. 2).



CASE 2—I S, a Negro aged 29, complained of moderate dyspnea. He had been a driller in the mines for one year, a motor brakeman for two years and a coal loader for eight years. His serologic reactions were positive, the sputum was negative for acid fast organisms. There was slight increase in the sedimentation rate, otherwise the hematologic survey revealed nothing abnormal. He was afebrile during the several days of observation.

A roentgenogram showed small foci of nodular areas of increased density, with hazy margins scattered throughout all lobes. The hila were broadened, and strands of increased density were seen extending into both apexes, more prominent on the left. The condition in this case was differentiated from military tuberculosis by the clinical course. Repeated over a period of several months, during which time the patient was under antisyphilitic therapy, showed no changes.

Fig. 3 (case 2)—Anthracosilicosis stage 2, with probable infection. Note small nodular areas of increased density with hazy margins scattered throughout all lobes with hilar broadening. Serial studies showed no change.

roentgenographic or on clinical study. The diagnosis was anthracosilicosis stage 2 probably with infection (fig 3).

CASE 3—I R, a white man aged 52 complained of bilateral pleuritic pain the pain being of two days' duration on first examination. He gave a history of moderate dyspnea, with a hacking, nonproductive cough of several years' duration, without hemoptysis or constitutional symptoms. His employment record showed twenty-eight years in soft coal mines as

motor brakeman, driller and foreman for the last eleven years he had been employed as a safety inspector. Throughout the period of hospitalization the temperature was not elevated, although there was a moderate amount of tachycardia on exertion. The chest was poorly developed and of the rachitic type. A pleuritic dry friction rub was heard at the bases of both lungs, with coarse musical rales throughout, and very distant breath sounds in the midportion of the lung fields; the chest expansion was 2 inches



Fig 4 (case 3)—Anthracosilicosis stage 3. Note multiple small nodular areas of increased density throughout all lobes with confluent areas in the right upper and the base of the left upper lobe. No change was evident on serial examination.

(5 cm). The hematologic survey revealed nothing abnormal except slight increase in the sedimentation rate. A series of sputum examinations showed no acid fast organisms. A roentgenogram revealed multiple small nodular areas of increased density throughout both lungs extending into the apices, with confluent increased density in the right upper lobe and a smaller area at the base of the left upper lobe. Repeated studies over a three year period showed no change in the roentgenographic picture. The diagnosis was anthracosilicosis stage 3 (fig 4).

CASE 4—L S P, a white man aged 53, complained of dyspnea, persistent cough and progressive weakness of five years duration. The patient had become symptom free when at rest. The cough had been productive for one year without hemoptysis, and there had been a 40 pound (18 Kg) loss of weight during the five years. He had been employed in bituminous coal mines for twenty-two years—thirteen as shot boss, the remainder as loader and shooter. The patient was afebrile during hospitalization although there was slight tachycardia at all times and the respiratory rate was moderately elevated even at rest. Coarse rales were heard in the midportion of the lung fields posteriorly. There was rather decided tachycardia on holding the breath. Moderate increase was shown in the sedimentation rate. Otherwise the results of the hematologic survey were not abnormal. Examination of the sputum was negative for acid fast rods. Roentgenographic study showed hazy dense mottling between the first and sixth ribs anteriorly with diffuse nodulation and conglomeration in this area. Hilar shadows were diminished and nodulations hazy. Pleurodiaphragmatic adhesions were present. The apexes and bases were relatively clear. The diagnosis was anthracosilicosis stage 3 (fig 5).

In the following 2 cases pulmonary changes were demonstrated post mortem in persons from two separate occupational groups. The first was a coal loader over a period of fifty years, the second, a driller for nine years.

CASE 5—The body was that of a 66 year old white man who had been employed in bituminous coal mines for fifty years as a coal loader. The cause of death was acute perito-

nitis, secondary to acute suppurative gangrenous appendicitis with perforation. When the thorax was opened the hilar lymph nodes were seen to be slightly enlarged and were black on sectioning. The pleural cavities were free of fluid and adhesions. The left lung weighed 665 Gm, the right, 680 Gm. Externally and internally the pulmonary surfaces were coal black. All the lobes contained small firm, nodular areas, 4 to 8 cm in diameter, extending from the hilus to the periphery. There were an increase of fibrous connective tissue and emphysematous bullae along the lateral margins of the lower lobes and in the apical areas of the upper lobes. The pericardium and the heart were grossly normal. Microscopic study (with hematoxylin and eosin and Masson's technique) demonstrated numerous fibrous nodular areas about the blood vessels and lymphatics, made up of fibrous connective tissue and collagen with an extensive deposit of blackish pigment in the areas. The capillaries were compressed at the margin of the nodules. Infiltration of occasional polymorphonuclear and mononuclear cells was observed. Large numbers of emphysematous alveolar spaces were present. Some of the alveoli contained macrophages, and the walls of the bronchi were thickened, with increase of fibrous connective tissue. The lumen contained polymorphonuclear and red blood cells. Chemical analysis revealed a total silicon dioxide content of 0.36 per cent of dried lung.

CASE 6—O T, a 48 year old white man, had been a farmer until nine years before his death. During the last nine years he had been employed in bituminous coal mines as a driller.

When the thorax was opened it was observed that the lungs were rigid and filled the chest cavity. The walls of the bronchi were thickened, and the hilar lymph nodes were enlarged, measuring from 2 to 3 cm in length and were firm and gray. The left lung weighed 1,440 Gm and the right 1,480 Gm. Crepitation was noticeably diminished in both lungs. They contained firm, nodular areas and were fairly rigid. The left upper lobe was bound to the chest wall by dense fibrous adhesions. The lungs cut with greatly increased resistance, disclosing numerous whitish gray and a few yellow gray, rounded nodular areas of fibrosis, 3 mm to 2.4 cm in diameter. The larger nodules were situated in the peripheral portion of the lobes. There were macroscopic areas of emphysema between nodular areas of fibrosis throughout all lobes. Many of the fibrous areas were confluent. The pericardium was normal. The heart weighed 430 Gm and was grossly normal.

Microscopic examination of the numerous sections from various representative areas of lung tissue disclosed massive rounded areas of dense fibrous connective tissue and collagen which had extensively destroyed the lungs. The nodules were made up of irregular whorls of dense fibrous connective tissue interspersed with collagen, and many of them had hyaline areas. Some nodules were small

measuring approximately 500 microns in diameter, while others were coalescent and made up of masses of fibrous tissue measuring from 1 to 2.5 cm in diameter. The pulmonary alveoli at the margins of the fibrous nodules presented large saccular spaces. The emphysematous areas formed an extensive part of the histologic picture between nodular areas of fibrosis. The nodules were



Fig 5 (case 4)—Anthracosilicosis stage 3. Note hazy dense mottling between the first and sixth ribs with diffuse nodulation and conglomeration in this area. Hilar shadows were diminished and nodulations hazy. Diaphragmatic adhesions were present.



relatively acellular, and in many the nuclei had entirely disappeared. There were scattered lymphocytes and polymorphonuclear neutrophilic leukocytes at the margin of the nodules. In the dense fibrous areas the capillaries were compressed and for the most part obliterated. In the emphysematous areas the capillaries were dilated and filled with erythrocytes. Some of the alveoli were filled with small polyblasts, plasma cells, lymphocytes and polymorphonuclear neutrophilic leuko-



Fig. 6 (case 5)—Anthracosilicosis. Note fibrous nodular areas about the blood vessels and lymphatics, containing collagen and an extensive deposit of blackish pigment. There are areas of emphysema adjacent to the nodules. Reduced from a photomicrograph with a magnification of 100 diameters.

cytes. The interalveolar septums contained lymphocytes, polymorphonuclear neutrophilic leukocytes and a few macrophages. In some alveolar areas were seen large mononuclear cells with brownish coarse pigment in the cytoplasm. In the emphysematous areas many of the small blood vessels were surrounded by circular areas of fibrosis. These areas contained many fibroblasts, a few lymphocytes and polymorphonuclear neutrophilic leukocytes, large mononuclear neutrophilic leukocytes, a small amount of serum and desquamated epithelial cells. In the fibrotic areas occasional small irregular particles of blackish pigment were observed. In some of the lymph nodes were irregular areas of fibrosis with extensive hyaline formation. Other nodes contained caseous tubercles, made up largely of epithelial cells with marginal lymphocytes. The mesenteric lymph nodes embodied extensive areas of caseation surrounded by fibrous capsules infiltrated with lymphocytes. In the spleen were numerous miliary tubercles made up largely of epithelial cells. The liver contained numerous miliary tubercles made up of epithelioid cells, Langhans giant cells and peripheral lymphocytes. There was beginning necrosis at the center of many of the tubercles. Study of the adrenal glands revealed numerous small tubercles with central necrotic areas surrounded by epithelioid cells, giant cells with peripheral nuclei and a marginal zone of lymphocytes.

The cause of death was pulmonary silicosis, the associated cause, chronic pulmonary tuberculosis, with miliary dissemination. Chemical analysis disclosed a silicon dioxide content of 3.05 per cent of dried lung.

## COMMENT

I do not feel that an accurate statistical study of this group of cases can be made, as many were referred for compensation or medicolegal opinion. In this study of 86 cases I have attempted to show that silicosis in soft coal miners is not a rare disease and that "miners' asthma" and anthracosilicosis are one and the same. The entity can be detected by means of a searching clinical study of persons employed as underground workers in the mining and preparation of bituminous coal. It has been demonstrated that the greater number of cases occur in the decades from 40 to 60 years of age and that the majority of the persons disabled by anthracosilicosis are in this span. However, 4 men in the next younger decade (30 to 39 years) were disabled. All of those in the disabled group had spent a large part of their mining life as drillers, motor runners, coal shooters or machine men. These occupations appear to be the most hazardous in the way of exposure to siliceous dust, to the extent of causing disability.

One concludes that disability is not necessarily in proportion to the total number of years employed in the mining industry but depends more on the occupation. However, a lesser but definite degree of anthracosilicosis does occur, although not to a disabling extent, in



Fig. 7 (case 6)—Extensive severe pulmonary silicosis. Observe an irregular area of dense fibrous connective tissue and collagen arranged in irregular whorls interspersed with collagen. There are empty, irregular alveolar spaces at the margin. Some of these contain serum and neutrophils. Note dilated capillaries filled with erythrocytes at the margin and compressed capillaries with the fibrous nodule. Reduced from a photomicrograph with a magnification of 100 diameters.

loaders and other underground workers after long years of employment.

Postmortem studies show that pneumoconiosis in soft coal miners may be of two types. 1. The well known deeply pigmented lung may show rather definite changes of associated silicosis as the result of long year

of exposure to bituminous coal dust containing silica.<sup>2</sup> There may be advanced conglomerate pulmonary silicosis with a minimum of anthracotic pigment.

Unfortunately little work has been done on group surveys of underground workers in the bituminous coal industry. Before a definite impression can be had as to the real incidence of silicosis and anthracosilicosis in these workers systematic studies of large groups in the soft coal fields will have to be carried out. At the same time, information regarding dust hazards as determined by thorough engineering surveys is almost completely lacking. Before worthwhile statistics become available showing the actual incidence and degree of silicosis and the hazards due to bituminous coal dust containing silica in the bituminous coal industry, thorough industrial engineering and medical surveys in the various fields must be made and the results of the two correlated.

#### CONCLUSIONS

Anthracosilicosis should be suspected in all soft coal miners with cough and dyspnea, usually referred to as 'miners' asthma.'

The cases in the series have been classified as those of stage 1, 2 or 3 involvement, in 13 cases the men were disabled.

Disability is not necessarily in proportion to the number of years of employment in the mines but depends more on the occupation.

Further group medical studies and engineering surveys should be made in the bituminous coal industry, with correlation of the findings.

### THE TREATMENT OF TYPHOID AND DYSENTERY CARRIERS WITH SUCCINYLSULFATHIAZOLE

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AND

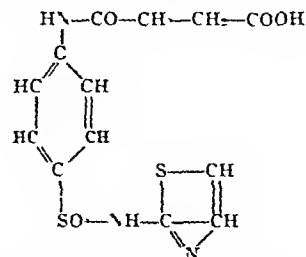
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The discovery that certain derivatives of sulfanilamide are relatively poorly absorbed from the gastrointestinal tract marked the beginning of a new era in intestinal antiseptics. One of these compounds, sulfaguanidine, has been given extensive clinical trial and has been found to be of value in the treatment of patients with acute bacillary dysentery<sup>1</sup> and of dysentery carriers.<sup>2</sup> In cases of typhoid<sup>3</sup> the typhoid carrier state<sup>4</sup> and ulcerative colitis<sup>5</sup> the results have been discouraging. Patients undergoing extensive operations on the bowel were also given this drug with the hope that reduction of the number of gram-negative bacilli in the intestinal contents might cause a decrease in the incidence of infections of the peritoneal cavity due to fecal contamination. It was not entirely satisfactory for this purpose partly because it was absorbed into the blood stream to such an extent that it gave rise to frequent and occasionally

severe reactions and partly because it was ineffectual in the presence of ulcerating lesions of the bowel.<sup>5</sup>

In an attempt to overcome these objections, Poth and his associates<sup>6</sup> investigated a number of sulfonamide compounds and found some that were poorly absorbed from the gastrointestinal tract and that possessed bacteriostatic activity even when the primary amino group on the benzene ring of sulfanilamide or one of its derivatives had been conjugated with dibasic organic acids to form substituted acid amides. The most promising of these substances was succinylsulfathiazole, the formula for which is



Since the bacteriostatic action of the sulfonamides is known to be dependent on the presence of the free amino group on the benzene ring the mode of action of this compound needs to be explained. It has practically no *in vitro* activity. Although it was postulated that the presence of the free carboxyl group might somehow 'give a high local concentration of a reactive excited form of nascent sulfathiazole in intimate contact with the organism,' Poth showed that the drug is hydrolyzed in the intestinal tract giving a concentration of free sulfathiazole of from 50 to 200 mg per hundred cubic centimeters. Such concentrations are known to have strong bacteriostatic and bactericidal activity,<sup>7</sup> and until concrete evidence of the production of 'nascent sulfathiazole' is forthcoming it can be concluded that the action of succinylsulfathiazole is entirely dependent on the liberation of free sulfathiazole and that the addition of the succinyl radical to the sulfathiazole molecule merely inhibits absorption from the gastrointestinal tract.

When administered to patients the drug produced 'a profound change in the physical characteristics and the bacterial flora of the feces.'<sup>8</sup> The stools became small in bulk, semisolid and relatively odorless, and the number of coliform bacilli was drastically reduced. Absorption from the gastrointestinal tract was slight, with only 5 per cent being excreted by the kidneys. Severe toxic reactions were not noted, and there was a general impression that administration of the drug to surgical patients was associated with a 'smooth, uncomplicated postoperative convalescence.'

Reports of treatment of nonsurgical conditions with succinylsulfathiazole have not yet appeared. Our purpose in this communication is to present the results of administration of this drug to normal persons and to typhoid and dysentery carriers and to compare these results with those following administration of sulfaguanidine which were previously reported from this clinic.<sup>9</sup>

From the Department of Medicine Stanford University School of Medicine.

<sup>1</sup> Lyon G. M. Chemotherapy in Acute Bacillary Dysentery. Clinical Use of Sulfanilguanidine. *West Virginia M. J.* 37: 54 (Feb.) 1941. Marshall Bratton Edwards and Walker.<sup>2</sup>

<sup>2</sup> Rantz L. A. and Kirby W. M. M. The Use of Sulfaguanidine in the Treatment of Dysentery Carriers. *J. A. M. A.* 115: 1268 (April 11) 1942.

<sup>3</sup> Marshall E. K. Jr. Bratton A. C. Edward Levin B. and Walker Ethel. Sulfanilguanidine in Treatment of Acute Bacillary Dysentery in Children. *Bull. Johns Hopkins Hosp.* 68: 94 (Jan.) 1941.

<sup>4</sup> Cutting W. C. and Rohon C. B. The Alleged Efficiency of Medicinal Treatment of Typhoid Carriers. *J. A. M. A.* 115: 1447 (April 25) 1942.

<sup>5</sup> Firor W. M. and Poth E. J. Intestinal Ansepsis with Special Reference to Sulfanilguanidine. *Ann. Surg.* 114: 663 (Oct.) 1941.

<sup>6</sup> Poth E. J., Knotts F. L., Lee J. T. and Innis F. Bacteriostatic Properties of Sulfanilamide and Some of Its Derivatives. I. Succinylsulfathiazole, a New Chemotherapeutic Agent Locally Active in the Gastrointestinal Tract. *Arch. Surg.* 44: 187 (Feb.) 1942.

<sup>7</sup> Straus E. Elias and Finland Maxwell. Bacteriostatic and Bactericidal Action of Sulfadiazine *in Vitro* on Gram-Negative Bacteria. *Proc. Soc. Exper. Biol. & Med.* 47: 702 (June) 1941.

<sup>8</sup> Poth E. J. and Knott F. L. Clinical Use of Succinylsulfathiazole. *Arch. Surg.* 44: 208 (Feb.) 1942.

<sup>9</sup> Rantz and Kirby. Cutting and Rohon.<sup>4</sup>

## TYPHOID

Succinylsulfathiazole,<sup>10</sup> 0.25 Gm per kilogram, was administered to 11 persons, 3 without evidence of disease, 3 typhoid carriers and 5 dysentery carriers, all of whom remained ambulatory throughout the course of treatment. The daily dose was divided into four por-

tionary output of total sulfathiazole was determined on one or more occasions. All sulfonamide determinations were made according to the method of Bratton and Marshall.<sup>11</sup>

## RESULTS

**Effect on Stools**—The effect of the drug on the stools varied considerably in different persons. In 6 instances they became slightly loose, lighter in color and smaller in bulk and had practically no odor. In the others the changes were much less noticeable, in 1 or 2 remaining entirely normal and in the others showing slight to moderate alterations of the same character as those just described.

The effect on the colon bacilli also showed individual variations. The results in the 9 cases in which daily quantitative counts were made are shown graphically in chart 1. In 6 the coliform organisms disappeared from the stools completely, and while they were definitely reduced in the other 3 considerable numbers were still present. In every case the number of colon bacilli returned to normal within three to five days after administration of the drug had been discontinued.

Although the gram-negative organisms were absent in some instances, the stools were not sterile. Gram positive organisms, especially enterococci, were present in large numbers, as demonstrated by cultures on blood agar plates.

**Absorption and Excretion**—The blood levels for free sulfathiazole were consistently low, varying from 0.6 to

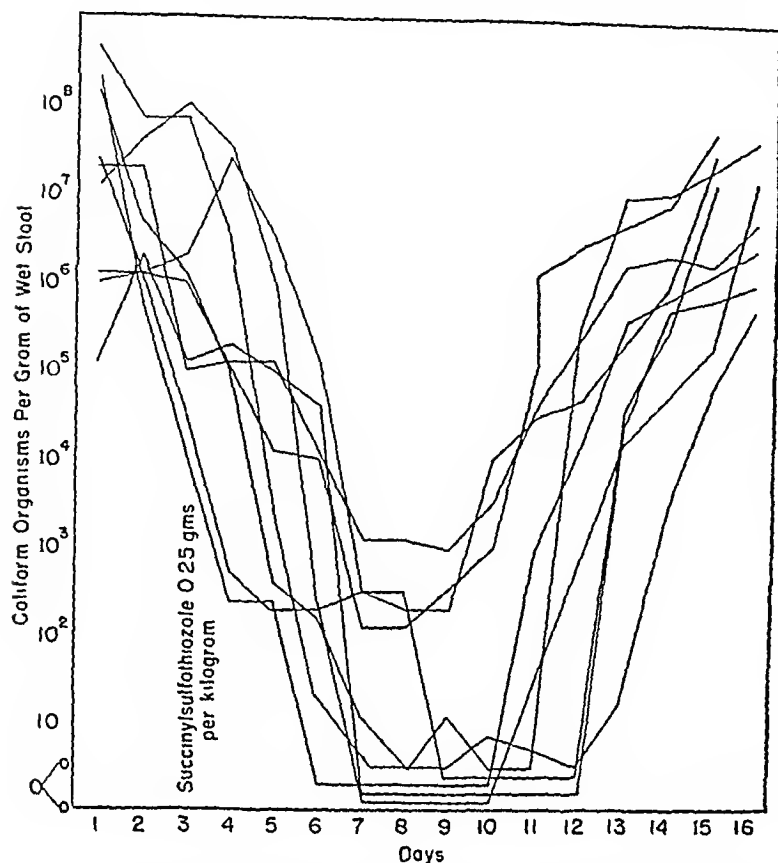


Chart 1—The effect of succinylsulfathiazole on the colon bacilli in the stools of 9 persons. There was a sharp reduction in all instances, and in 6 the coliform organisms disappeared altogether. When the drug was discontinued the number of colonies of *Escherichia coli* returned to normal in from three to five days.

tions, which were taken at 8 a. m. and 1, 6 and 11 p. m., and the duration of administration of the drug varied from five to fourteen days.

The alteration of the bacterial flora of the intestinal contents was studied by daily quantitative counts of the number of colon bacilli in freshly voided stools. All counts were made on pour plates with MacConkey's medium to which 5 mg per hundred cubic centimeters of para-aminobenzoic acid had been added to inhibit the action of the sulfonamide drug. A small quantity of feces was suspended in a few cubic centimeters of isotonic solution of sodium chloride, centrifuged at 1,700 revolutions per minute for fifteen minutes, and dilutions were made on the basis of the quantity of sediment, 0.1 cc of sediment being considered equivalent to 0.1 Gm of wet feces. Counts were made for at least two days before the drug was administered, and in 9 of the 11 cases were continued until the number of coliform organisms had returned to normal. Quantitative counts were also made of the typhoid and dysentery colonies, which could be easily distinguished from the coliform colonies on the MacConkey pour plates.

The odor and character of the feces were noted, and to establish the time of appearance and disappearance of the drug in the stools qualitative tests were made daily for the presence of the sulfonamide drug. The amount of free sulfathiazole in the blood was determined on the third or fourth day, and in 5 cases the twenty-four hour

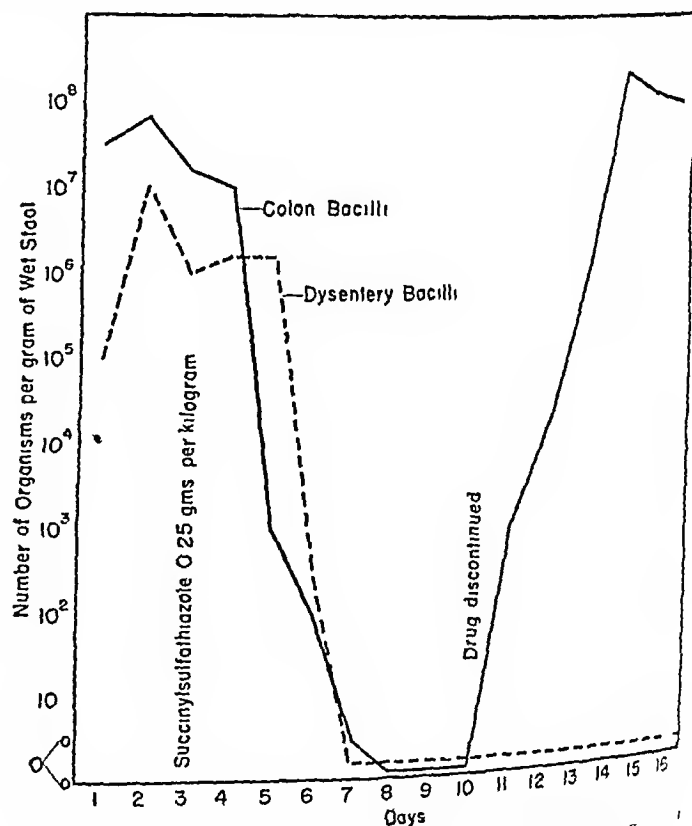


Chart 2—Effect of succinylsulfathiazole on coliform and dysentery bacilli in the stools of a dysentery carrier. The number of colonies of *Escherichia coli* returned to normal four days after the drug had been discontinued, while dysentery bacilli have remained at an elevated level for a follow-up period of sixty days. Similar results were obtained in 4 other dysentery carriers.

1 mg per hundred cubic centimeters, indicating that the drug is only slightly absorbed from the gastrointestinal tract. Total sulfathiazole levels for twenty-four hour urine specimens varied from 20 to 62 mg per liter.

11 Bratton, A. C., and Marshall E. K., Jr. *J. Biol. Chem.* 125, 1939.

10 Sharp & Dohme, Inc., supplied the succinylsulfathiazole used in this study.

cubic centimeters, which was from 22 to 41 per cent of the total drug (as succinylsulfathiazole) ingested in twenty-four hours.

The time of appearance of the drug in the stools, as measured by the qualitative presence of free sulfathiazole, varied from one to three days, and three to five days was required for all traces to disappear after treatment was discontinued.

**Dysentery Carriers**—Dysentery bacilli disappeared from the stools of all 5 patients within one week after treatment was begun and have remained absent during the follow-up period of thirty to sixty days (chart 2). In 3 of these the colon bacilli also disappeared completely, so that for three or four days there was no growth on the plates at all. The possibility that insufficient para-aminobenzoic acid was present in the medium to inhibit the action of the drug was excluded by streaking the plates with a suspension of normal stool, and good growth invariably occurred. In the other 2 patients the number of colon bacilli was sharply reduced but they did not disappear altogether.

**Typhoid Carriers**—The 3 typhoid carriers, all middle aged women who refused to have their gallbladders removed, had been previously treated unsuccessfully with sulfaguanidine.<sup>4</sup> With succinylsulfathiazole the results were equally unsatisfactory. Although somewhat decreased, large numbers of typhoid bacilli were constantly present in the stools throughout the two weeks of drug administration.

**Toxic Reactions**—Almost all the patients reported that the drug acted as a mild laxative. Their stools were loose, and they had three or four movements a day, but none had actual diarrhea. Four complained of mild perianal irritation that lasted three or four days and then disappeared in most instances before they stopped taking the drug. Otherwise toxic reactions were not noted. There was no nausea, vomiting, dizziness, headache, fever, cutaneous rashes, hematuria or anemia. The patients remained ambulatory, and all were able to continue their daily routine. Two of the typhoid carriers who suffered from severe nausea, vomiting and headache while taking sulfaguanidine did not experience any discomfort whatever during succinylsulfathiazole administration.

#### COMMENT

The original observations of Poth and his associates concerning the effects of succinylsulfathiazole administration on the intestinal contents have been confirmed in the present study. The stools become lighter in color and are relatively small in bulk, the odor is diminished and the number of colon bacilli is sharply reduced. The drug is only slightly absorbed from the gastrointestinal tract, producing blood levels of free sulfathiazole of less than 1 mg per hundred cubic centimeters, and less than 5 per cent is excreted in the urine.

Since the succinyl radical is attached to the amino group on the benzene ring, the drug has no *in vitro* activity, and its effectiveness *in vivo* is presumably due entirely to hydrolysis in the gastrointestinal tract with the liberation of free sulfathiazole. Poth has shown that concentrations of free sulfathiazole ranging from 50 to 200 mg per hundred cubic centimeters are found in freshly voided stools, indicating that variability exists. The extent to which hydrolysis occurs in different persons probably accounts for the fact that there is

more noticeable alteration in the physical characteristics and bacterial flora in some than in others. In conditions which tend to inhibit hydrolysis, therefore, the therapeutic efficacy of the drug can be expected to be diminished.

Daily quantitative stool counts revealed that typhoid bacilli were somewhat decreased in numbers but were still present and viable when large amounts of the drug were present in the bowel, whereas dysentery organisms disappeared completely and have not returned during a follow-up period of from thirty to sixty days. This suggests that mere seeding from the gallbladder was not responsible for failure to cure the typhoid carriers, and one can have no assurance that more favorable results would occur with intensive drug therapy following cholecystectomy.

Judging from these results, succinylsulfathiazole and sulfaguanidine appear to be equally effective in the treatment of dysentery carriers and equally ineffective in the treatment of typhoid carriers. However, the number of patients is small, and differences may become evident when more patients are studied. In cases of acute bacillary dysentery, hydrolysis of succinylsulfathiazole may be sufficiently impaired by diarrhea to render this drug less effective than sulfaguanidine. Favorable results have been reported in the treatment of acute bacillary dysentery, however, with ordinary sulfathiazole, in spite of the fact that this drug is largely absorbed from the gastrointestinal tract.<sup>12</sup> Whether the addition of the succinyl group, which inhibits absorption and permits smaller amounts of free sulfathiazole to be present throughout the entire bowel, will provide a more effective drug can be determined only by clinical trial. *In vitro* experiments indicate that sulfathiazole is a more powerful bacteriostatic and bactericidal agent than sulfaguanidine,<sup>13</sup> but so many variables exist that therapeutic efficacy cannot be accurately predicted on the basis of these results.

Succinylsulfathiazole has one outstanding advantage, namely that it is absorbed into the blood stream to a much smaller extent than sulfaguanidine and therefore is much less likely to cause reactions. No severe reactions have occurred with succinylsulfathiazole, either in the cases studied by Poth and his associates or in those reported here. This is further illustrated by the fact that 2 of the typhoid carriers who suffered from severe nausea, vomiting and headache while taking sulfaguanidine, experienced no discomfort whatever during succinylsulfathiazole administration. The only symptoms associated with the ingestion of succinylsulfathiazole were a tendency to pass frequent, loose stools and to have slight perianal irritation, complaints too minor to inconvenience significantly any of the patients.

#### SUMMARY AND CONCLUSIONS

1. Succinylsulfathiazole has been found to produce a decided alteration of the physical characteristics and bacterial flora of the stools. It is only slightly absorbed from the gastrointestinal tract, producing blood levels of free sulfathiazole of less than 1 mg per hundred cubic centimeters and an average of less than 5 per cent is excreted in the urine.

12. Cooper, M. L., Zucker, R. I., and Wagner, Stewart. Sulfathiazole for Acute Diarrhea and Dysentery of Infants and Children. *J. A. M. A.* 117: 1-20 (Nov. 1) 1941.

13. Straus, Elia, Dingle, J. H., and Fendley, Maxwell. Studies on the Mechanism of Sulfonamide Action: Inhibition and Penetration. *J. Immunol.* 42: 513 (Nov.) 1941.



2 The effectiveness of the drug is probably due entirely to hydrolysis in the gastrointestinal tract with the liberation of free sulfathiazole

3 Dysentery bacilli disappeared from the stools of 5 carriers during succinylsulfathiazole administration and have remained absent for periods varying from thirty to sixty days

4 Typhoid bacilli remained viable in the stools of 3 carriers during two weeks of drug therapy

5 The only reactions noted were a tendency to pass frequent, loose stools and to have slight perianal irritation

6 Since it is only slightly absorbed into the blood stream, succinylsulfathiazole is much less likely to produce severe toxic reactions than sulfaguanidine

Clay and Webster streets

## SIGNIFICANCE OF NEUTRALIZING ANTIBODY IN EXPERIMENTAL EQUINE ENCEPHALOMYELITIS

A CONSIDERATION OF ITS RELATION TO THE DISEASE IN MAN PRELIMINARY REPORT

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Our purpose in this report is to direct attention to recent experimental studies which may be applicable to plans for vaccination of man against infection with equine encephalomyelitis virus. That there may be need for such vaccination in the face of an epidemic is indicated by recent events. 1 An apparent increase in the incidence of the human disease has occurred, in 1941 more than 3,000 clinically recognized cases due to the western virus were reported in the Northwestern states and in adjacent provinces of Canada.<sup>1</sup> 2 Western virus was isolated from mosquitoes,<sup>2</sup> from horses and from 1 prairie chicken<sup>3</sup> in endemic areas. 3 Since antibody to the same virus was found in a large variety of birds and mammals, they are suspected of being natural reservoirs of virus.<sup>4</sup> Thus the difficulty of eliminating all actual and potential sources of infection is indeed great.

The apparently good results obtained from vaccination of horses with formaldehyde inactivated chick embryo virus<sup>5</sup> have led to the suggestion of using

similar immunization in man. Beard and his associates<sup>6</sup> have reported that vaccination of several persons resulted in the presence of demonstrable neutralizing antibody in their serums. We were able to confirm these results by the use of formaldehyde inactivated allantoic fluid from infected chick embryos.<sup>7</sup> Direct evidence is still lacking, however, as to whether the presence of such antibody will protect a vaccinated person against natural infection.

### ANTIBODY TITER AS AN INDICATOR OF THE EFFICACY OF VACCINATION IN THE EXPERIMENTAL ANIMAL

The effect of specific immunization may be determined in two ways: the test dose for resistance is given either by a peripheral route, simulating the assumed natural mode of infection (mosquito bite), or by injection of virus directly into the central nervous system—the most stringent method. It has been found<sup>8</sup> that vaccination of susceptible young mice, when it induces neutralizing antibody, invariably renders them resistant to peripheral injection of active virus. The mere presence of such antibody, however, while ensuring peripheral resistance, does not necessarily signify resistance to intracerebral inoculation. Such resistance is not encountered unless the antibody has reached a certain level—a level determined by titration of antibody by means of serum dilution.<sup>9</sup> This critical level has recently been defined on the basis of experiments in rabbits,<sup>10</sup> as follows:

We found that a vaccinated rabbit which had demonstrable antibody in its cerebrospinal fluid resisted intracerebral inoculation of a lethal dose of virus. The spinal fluid had the same neutralizing capacity as a three hundred fold dilution of serum. Conversely, if this antibody titer of the serum was not reached, antibody could not be detected in the spinal fluid, and the animal, as a rule, failed to resist the intracerebral test dose. The ratio agreed with what Freund<sup>11</sup> had previously established in rabbits immunized with typhoid vaccine: a constant ratio exists between the agglutinin titer of the spinal fluid and that of the serum. The ratio averages 1:300 and is of the same order of magnitude as that of blood free brain tissue to serum. Freund stressed the point that this ratio parallels that of normal globulins in the spinal fluid to those in the serum.

These results led to the suggestion that at the defined level antibody becomes available in sufficient concentration to arrest the spread of virus in the central nervous system. Thus the requirement for an effective vaccination is determined largely by the route by which the test dose or the natural infecting dose will enter the host.

An attempt was made to appraise the significance of neutralizing antibody in experimental infection of a type that, we assume, follows more closely than any other the natural infection.

From the Laboratories of the Rockefeller Institute for Medical Research

1 Lerke, J. P. Epidemic of Infectious Encephalitis, *Pub. Health Rep.* 56: 1902 (Sept. 26) 1941.

2 Hammon, W. M., Reeves, W. C., Brookman, Bernard, Izumi, E. M., and Gullin, C. M. Isolation of the Viruses of Western Equine and St. Louis Encephalitis from Culex Tarsalis Mosquitoes, *Science* 94: 328 (Oct. 3) 1941.

3 Cox, H. R., Jellison, W. L., and Hughes, L. E. Isolation of Western Equine Encephalomyelitis Virus from a Naturally Infected Prairie Chicken, *Pub. Health Rep.* 56: 1905 (Sept. 26) 1941.

4 Howitt, Beatrice F., and van Herick, William. Neutralizing Antibodies Against St. Louis and Western Equine Encephalitic Viruses in Horses and Fowl, *Proc. Soc. Exper. Biol. & Med.* 48: 247 (Oct.) 1941.

5 Hammon, W. M., Gray, J. A., Evans, F. C., Izumi, E. M., and Lundy, H. W. Western Equine and St. Louis Encephalitis Antibodies in the Sera of Mammals and Birds from an Endemic Area, *Science* 94: 305 (Sept. 26) 1941.

6 Mohler, J. R. Report of the Chief of the Bureau of Animal Industry, 1941, U. S. Dept. Agric., Bureau of Animal Industry, Washington, D. C., Sept. 15, 1941, pp. 56-57. Report on Infectious Equine Encephalomyelitis in the United States in 1939, *ibid.* Jan. 20, 1940, pp. 15.

7 Lyon, B. M. Present Status of Equine Encephalomyelitis and Its Control, *Cornell Vet.* 29: 198 (April) 1939.

8 Beard, J. W., Beard, Dorothy, and Finkelstein, Harold. Vaccination of Man Against the Virus of Equine Encephalomyelitis (Eastern and Western Strains), *J. Immunol.* 38: 117 (Feb.) 1940.

9 Beard, J. W., Finkelstein, Harold, and Beard, J. W. Report on the Virus of Man Against the Virus of Equine Encephalomyelitis, *ibid.* 10: 11 (April) 1941.

10 Morgan, Isabel M., and Olitsky, P. K. Immune Response of Mice to Eastern Equine Encephalomyelitis Virus, *J. Exper. Med.* 74: 115 (Aug.) 1941.

11 Freund, J. Accumulation of Antibodies in the Central Nervous System, *J. Exper. Med.* 51: 889 (June) 1930.



# CORRELATION BETWEEN DEGREE OF IMMUNE RESPONSE AND OUTCOME OF INFECTION AFTER PERIPHERAL INOCULATION IN NONVACCINATED EXPERI- MENTAL ANIMALS

The susceptibility of mice to equine encephalomyelitis virus injected peripherally decreases with increasing age.<sup>12</sup> Morgan<sup>13</sup> was able to show that this change in susceptibility parallels an increase in capacity for a rapid immune response. The difference between young and old exists despite the fact that the two are found to be almost equally susceptible to the virus given intracerebrally. More recently the course of the infection following subcutaneous injection of western virus has been studied in rabbits. Adult rabbits showed no clinical signs of infection. Certain ones, however, had a characteristic febrile reaction which resembled that seen in monkeys,<sup>13</sup> horses<sup>14</sup> and guinea pigs<sup>15</sup> after similar inoculation, in such rabbits virus could be demonstrated in the circulating blood for one to three days after injection. In some instances the blood stream infection concurred with an early, moderate rise in temperature. High fever occurred only after virus had disappeared from the circulation and had been replaced by demonstrable neutralizing antibody. In spite of the presence of such antibody in the serum, virus could be demonstrated in the brains of rabbits killed at the time when the fever reached its highest peak. On the other hand, defervescence occurred characteristically in those animals which were not killed, in most cases it set in five to six days after injection and coincided with a rise in serum antibody titer to 1:300. Several young, i.e. 4 weeks old, rabbits died of typical encephalitis following subcutaneous inoculation of western virus. Typical signs or death occurred before antibody could be detected in their serums at a 1:300 dilution, as shown in the chart.

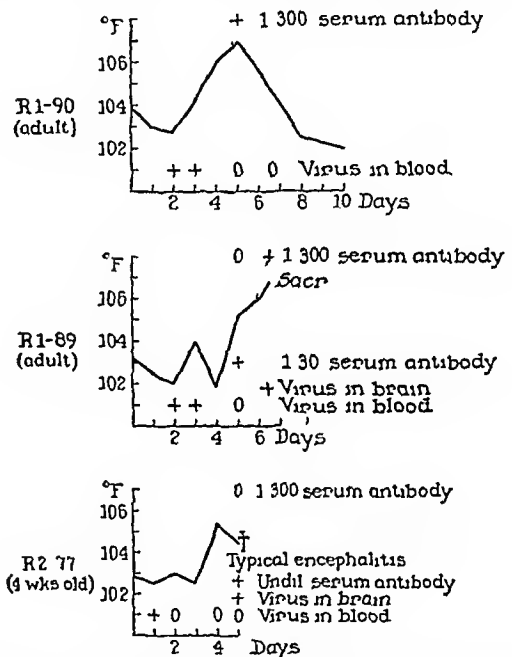
These observations were interpreted as indicating that the inapparent infection of the central nervous system in the adult rabbit had been arrested when neutralizing antibody had reached, at the critical time, the level at which it became available to the central nervous system.

## THE HUMAN INFECTION IN THE LIGHT OF EXPERIMENTAL DATA

In man as in horses,<sup>14</sup> monkeys, guinea pigs<sup>13</sup> and rabbits after peripheral injection, the course of an infection with equine encephalomyelitis virus ranges from that of mild abortive infection to severe encephalitis, leading to death or recovery, sometimes with sequelae. Inapparent infections occur which are recognized only because they lead to the presence of neutralizing antibody.<sup>16</sup> With the exception of the epidemic reported

by Hammon,<sup>17</sup> all outbreaks have been characterized by a relatively high incidence of frank cases among infants and children.<sup>18</sup>

If the human infection follows the pattern of infection in the experimental animal after peripheral inoculation, the presence of antibody is preceded by the transitory circulation of virus in the blood. Such circulation may or may not lead to an invasion of the central nervous system. If it does, the outcome of the disease may depend, as it does in the rabbit, at least in part on the degree of immune response of which the individual is capable. Howitt<sup>19</sup> recently found antibody to western virus in the spinal fluid not only of monkeys surviving experimental infection but also of 17 out of 20 human convalescents whose serums neutralized the virus. Her results fortify us in the view that recovery from an infection of the central nervous system with the equine virus is correlated with the availability of neutralizing antibody to the central nervous system and



Subcutaneous injection of western equine encephalomyelitis virus in rabbits R 190 effect on adult rabbit. To be noted are the febrile reaction, the time of circulating virus and the relation of antibody titer to defervescence. R 189 is similar to R 190 except that this adult rabbit was killed and the presence of virus in the brain in relation to the other factors is represented. R 277 effect on a young rabbit. Fatal encephalitis. Failure to reach antibody titer of 1:300 at time of death.

that its demonstration in the spinal fluid is an indication of this availability.

The evidence at present indicates that the mode of infection of man is by the mosquito bite and thus may be analogous to "peripheral" inoculation in the experimental animal. We would therefore postulate that circulating antibody such as has been induced in man by vaccination<sup>20</sup> would neutralize the virus in the general circulation before it could reach the central nervous system as it does in the vaccinated animal.<sup>6</sup> These considerations and the fact that the results of

12. Sabin A. B. and Olitsky P. K. Variations in Pathways by Which Equine Encephalomyelitis Viruses Invas the Central Nervous System of Mice and Guinea Pigs. *Proc. Soc. Exper. Biol. & Med.* 35: 595 (May) 1938. Age of Host and Capacity of Equine Encephalomyelitis Virus to Invas the Central Nervous System. *ibid.* 35: 597 (May) 1938.

13. Hurst F. W. Infection of the Rhesus Monkey (*Macaca Mulatta*) and the Guinea Pig with the Virus of Equine Encephalomyelitis. *J. Path. & Bact.* 42: 271 (Jan.) 1936.

14. TenBroeck Carl, Hurst E. W. and Traub Erich. Epidemiology of Equine Encephalomyelitis in the Eastern United States. *J. Exper. Med.* 62: 677 (Nov.) 1935.

15. Hurst F. W. TenBroeck Hurst and Traub.

16. Olitsky P. K. and Morgan Isabel M. Protective Antibodies Against Equine Encephalomyelitis Virus in the Serum of Laboratory Workers. *Proc. Soc. Exper. Biol. & Med.* 41: 212 (May) 1939. Bu. W. C. and Howitt Beatrice I. Human Equine Encephalomyelitis in Kern County California 1938 1939 and 1940. *Am. J. Pub. Health* 31: 915 (Sept.) 1941.

17. Hammon W. M. Encephalitis in the Valima Valley. *J. A. M. A.* 117: 161 (July 19) 1941.

18. Feemster R. F. Outbreak of Encephalitis in Man Due to the Eastern Virus of Equine Encephalomyelitis. *Am. J. Pub. Health* 28: 1403 (Dec.) 1938. Leake J. Bu. S. and Howitt.

19. Howitt Beatrice F. Development of Neutralizing Antibodies to the Viruses of Equine Encephalomyelitis (Western Strain) and St. Louis Encephalitis in the Blood and Cerebrospinal Fluid of Man and Animals. *Together with Recovery of the St. Louis Virus from the Blood of Monkeys. J. Immunol.* 42: 117 (Oct.) 1941.

20. Beard and Finkelstein. Beard Finkelstein and Beard. Unpublished observation.

vaccination of horses are good, lead us to believe that vaccination of human beings is justified in the face of an epidemic

SUMMARY

1 Specific immunization of rabbits protects against an intracerebral test inoculation of equine encephalomyelitis virus only when the antibody in the serum reaches a titer of 1:300 or higher. At this level antibody becomes demonstrable in the cerebrospinal fluid, and this is believed to be an indicator of its availability to the central nervous system. It had already been shown that a low titer of serum antibody in vaccinated young mice was sufficient to indicate resistance to peripheral inoculation of this virus.

2 Subcutaneous injection of active western virus in adult rabbits may lead to clinically inapparent virus invasion of the central nervous system, characterized by high fever and preceded by the presence of virus in the blood. Such infection of the nervous system takes place at a time when antibody is being produced. Defervescence and recovery set in as the antibody titer of serum reaches 1:300 (at about five to six days after injection).

3 Young (4 weeks old) rabbits, similarly injected, die of encephalitis before this antibody level has been reached.

4 Infection of man with equine encephalomyelitis virus and its possible prevention by vaccination are discussed in the light of experimental findings.

Sixty-Sixth Street and York Avenue

PNEUMONIA IN A RURAL PRACTICE

ITS INCIDENCE AND MORTALITY

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This paper has as its object the portrayal of the care of pneumonia patients and the results of such care by the general practitioner or family doctor in an average rural American community. The community involved is a town of 435 population in a strictly agricultural district. It is felt that such practices typify customary rural treatment of pneumonia and its results under the American system of medicine. Contrast of this work with similar studies conducted in urban and teaching centers provides a yardstick by which to measure the average medical care in rural United States.

On Jan. 1, 1937 the Minnesota Department of Health started typing sputum for pneumococci without cost to the patient or attending physician. When requested, type specific serum was provided at cost, or without cost if the patient was unable to pay.

As will be recalled, this was before the use of the sulfonamides. Type specific serum had been used extensively in many of the large urban centers. An increasing number of reports from these cities showed reduction in the mortality rate of pneumonia by the use of type specific serum.

These developments suggested several interesting problems regarding pneumonia in a rural practice. One question involved incidence. Influenza, or "flu," often was diagnosed when influenza had not occurred in other districts. Further than that, one reputable physician had so few influenza cases and so many pneu-

monia cases that he engendered the ridicule of his confrères. The question then was "Might not many of the so-called influenza cases be pneumonia, or might not the incidence of pneumonia in rural areas be higher than is commonly believed?"

And the second question involved the mortality of pneumonia in rural practice. While many of the reports

TABLE 1—Incidence of Types of Pneumococci

| Type                             | No. of Cases |
|----------------------------------|--------------|
| I                                | 21           |
| II                               | 2            |
| III                              | 6            |
| IV                               | 1            |
| V                                | 4            |
| VI                               | 12           |
| VII                              | 6            |
| VIII                             | 9            |
| XIV                              | 2            |
| XIX                              | 10           |
| IX, X, XI, XVI, XVII, XVIII, XIX | 4 each       |
| X                                | 3            |
| XV, XXII, XXXII, XII, XXI, XXII  | 2 each       |
| XXIX, XXXIII                     | 1 each       |
| Total of types                   | 115          |

of the mortality of pneumonia in teaching and urban centers were available, no work had been done by which a comparison could be made of the rural and urban pneumonia mortality.

With these ideas in mind, on Oct. 1, 1937 a routine procedure of handling all suspected cases of pneumonia seen in rural practice was planned. Cases were considered as suggestive of pneumonia when the symptoms included chills, fever, cough, purulent or blood stained sputum, pain in the chest, vomiting or prostration. The finding of rales, bronchial or bronchovesicular breathing and evidence of consolidation on percussion or palpation were sufficient to classify the case as one suggestive of pneumonia. When either the symptoms or the physical signs aroused suspicion, a specimen of sputum was sent by bus or train to the Minnesota Department of Health. If the sputum examination revealed a definite type of pneumococci, serum was administered within twenty-four hours of the time the patient was first seen. Later, when the sulfonamides could be had, chemotherapy was started immediately after the sputum specimen had been secured. This delay was solely to avoid interference with typing.

TABLE 2—Age Incidence of Pneumonia in Present Series

| Age      | Cases | Per Cent |
|----------|-------|----------|
| 0 to 4   | 33    | 28.7     |
| 5 to 9   | 16    | 13.9     |
| 10 to 14 | 7     | 5.9      |
| 15 to 24 | 11    | 9.4      |
| 25 to 44 | 13    | 11.2     |
| 45 to 64 | 20    | 17.1     |
| 65+      | 17    | 14.5     |
| Total    | 117   | 100.0    |

INCIDENCE

Following these criteria for sputum typing, during four and one-half years, from Oct. 1, 1937 to April 1, 1942, 117 proved cases of pneumococcal pneumonia were encountered. The frequency of types as determined by the Minnesota Department of Health is given in table 1.

This tabulation shows that only 115 of the 117 cases were actually typed. One of the remaining 2 cases

Clinical collaboration was given by Dr. P. A. Swedenburg and Dr. W. M. Schulze, and statistical assistance by Dr. W. R. Murlin.

was proved by x-ray examination and the other by consultation. The last mentioned case was one of the earliest of the series in which death was an important factor in initiating this study.

Age analysis showed ages ranging from 4 weeks to 83 years. There were 70 males and 47 females, a ratio of 60 to 40, or 3 males to every 2 females. Table 2, on age incidence, reveals a higher incidence of pneumonia in the age group 0 to 4 years than is customarily seen.

As can be seen in chart 1, the age incidence in pneumonia cases conforms in a general way with the incidence of pneumonia deaths in Minnesota as plotted by the Minnesota Department of Health for one year 1940.

Seasonal incidence as shown in table 3 and chart 2, conforms in general with statistics of deaths from pneumonia for the state of Minnesota during the year 1940 and also with other series.

Of even greater interest, however, are some of the clinical facts revealed. Only 19 of the 117 patients were hospitalized. X-ray films confirmed the diagnosis in 18 cases, the other hospitalized case presenting a postpneumonic empyema. White blood cell counts were performed for as many cases as possible, but records of these were not kept. Complications occurred in

TABLE 3—Seasonal Incidence of Pneumonia in Present Series

| Month     | No. of Cases |
|-----------|--------------|
| January   | 7            |
| February  | 16           |
| March     | 21           |
| April     | 11           |
| May       | 12           |
| June      | 6            |
| July      | 3            |
| August    | 2            |
| September | 4            |
| October   | 5            |
| November  | 10           |
| December  | 20           |
| Total     | 117          |

39 cases. Of these, cardiac disturbances varying from auricular fibrillation to coronary occlusion and decompensation were the most frequent. Empyema, asthma, bronchiectasis and effusion occurred in 1 or more instances. Otitis media was not infrequent in the younger patients. Nephritis, kidney hemorrhage and prostatic obstruction occurred. In 1 case, chronic alcoholism was present.

The history or symptomatology was suggestive of pneumonia and consequently was considered positive in 100 per cent of the cases. Contrasted with this, physical findings were typical or positive in only 96, or 83 per cent of the cases. This fact is unquestionably related to the high incidence of childhood cases. Of the 117 patients 28 per cent were under 5 years of age and 14 per cent additional occurred up to 10 years of age, or a total of 42 per cent of the patients were children under 10 years old. But also it is confirmatory of Reimann's concept as expressed in his book, 'The Pneumoniae,' which states "I believe that a person with or without a mild upper respiratory tract infection who has a chill, fever of over 102 F, cough, pleuritic pain, tachypnea and blood tinged sputum has a pneumonia."

The present study then involved 117 cases of pneumonia proved by bacterial typing during a four and

one-half year period after Oct 1, 1937. To compare this incidence with an analogous period in the same practice, records were reviewed for four and one-half years prior to that time. During the first four and one-half year period, only 80 cases of pneumonia were encountered. Approximately 50 per cent more cases of

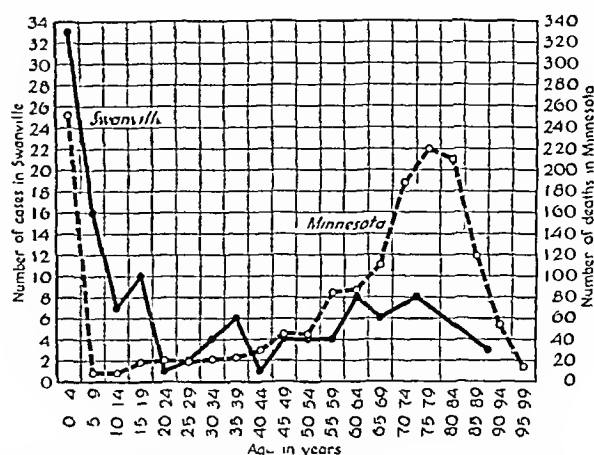


Chart 1—Age distribution of pneumonia cases in Swanville and pneumonia deaths in Minnesota

pneumonia were seen in the same practice in a like period of time when it was possible to prove the bacterial etiology of the pathologic process. Of significance also seems the frequency of such diagnoses as "flu" bronchitis and upper respiratory infection in the earlier period as compared with their infrequency in the present study period.

Consequently, from the foregoing analysis the statement seems justified that the incidence of pneumonia in rural practice is higher than its diagnosis in the past has indicated. In spite of the frequent absence of typical or pathognomonic physical findings of pneumonia, many cases diagnosed as influenza or bronchitis with proper bacterial study and typing should be classified as pneumococcal pneumonia.

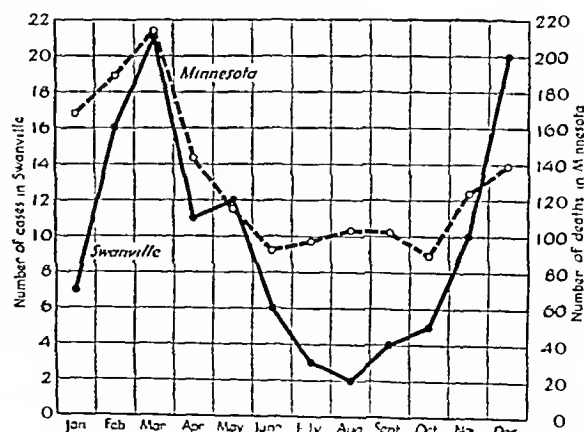


Chart 2—Seasonal distribution of pneumonia cases in Swanville and pneumonia deaths in Minnesota

#### MORTALITY RATE

During the early part of the study, serum was given as quickly as it was received, the dosage varying with age, length of illness, type, complications and severity. Only 19 patients received serum alone and of these 1 died, a mortality of 5.3 per cent.

When the sulfonamides became available, 26 patients had both serum and chemotherapy. Twenty-five were given serum and sulfapyridine, and 1 patient had serum and sulfathiazole. Both drugs were administered in the doses customarily recommended in the literature except that the first dose was 1 Gm. rather than the 2 to 4 Gm. often advised. In rural practice it is not possible to determine blood levels, the determination of adequacy, inadequacy or overdosage depending on clinical manifestations. Blood levels of the drugs were determined in some of the hospitalized cases. In this group of 26 cases, no deaths occurred.

Reports in the literature during the course of the study indicated that the lowest mortality rate was often obtained by chemotherapy alone. Consequently, subsequent to this time 46 cases were treated with either sulfapyridine or sulfathiazole alone. In 36 cases sulfapyridine was administered and in 10 sulfathiazole. Both were administered as described in the preceding paragraph. In all instances chemotherapy was started as soon as sputum was obtained for typing. No deaths occurred in this group of 46 cases.

TABLE 4—Pneumonia Cases During Nine Year Period

|                                | Time                    |                        | Total and Average |
|--------------------------------|-------------------------|------------------------|-------------------|
|                                | 4½ Years Before 10/1/37 | 4½ Years After 10/1/37 |                   |
| Total cases                    | 80                      | 117                    | 197               |
| Serum                          |                         |                        |                   |
| Cases                          |                         | 19                     |                   |
| Percentage of mortality        |                         | 5.3                    |                   |
| Chemotherapy                   |                         |                        |                   |
| Cases                          |                         | 46                     |                   |
| Percentage of mortality        |                         | 0.0                    |                   |
| Serum and chemotherapy         |                         |                        |                   |
| Cases                          |                         | 26                     |                   |
| Percentage of mortality        |                         | 0.0                    |                   |
| Neither serum nor chemotherapy |                         |                        |                   |
| Cases                          | 80                      | 26                     | 106               |
| Percentage of mortality        | 16.25                   | 15.4                   | 15.82             |
| Total percentage of mortality  | 16.25                   | 4.27                   | 9.15              |

Throughout the study period, 26 patients were encountered who could be or were given, for various reasons, neither serum nor sulfonamides. Of the 26 4 died, a mortality of 15.4 per cent.

Thus, then, with five deaths in a group of 117 cases the mortality for the series is 4.27 per cent. For comparison with the mortality rate prior to the advent of serum and chemotherapy, all the records of four and one-half years before Oct. 1, 1937 were reviewed. Table 4 presents these data.

It is seen from these figures that the total nine year mortality in 197 cases is 9.15 per cent. However, during the first half of this time when no specific therapy was available the mortality was 16.25 per cent, whereas in the last half, when serum and chemotherapy were used, it was only 4.27 per cent. Furthermore, it is significant that all 13 of the deaths in the first group of 80 cases and 4 of the 5 deaths in the last series of 117 cases occurred among patients who had neither serum nor chemotherapy. In this total group of 106 cases the mortality rate was 16.04 per cent. This fact accentuates the efficacy of serum and chemotherapy, especially when it is noted that 5.3 per cent mortality occurred in the serum treated cases and no deaths occurred in the chemotherapy group or in the combined serum and

chemotherapy group. It is recognized that the series is far too small to permit irrefutable deductions to be made.

Some consideration should be given to the 5 fatal cases.

CASE 1—C. F., a man aged 60, had had a mild coronary occlusion two years prior to his death. Throughout his illness he was attended by a chiropractor. Medical attendance was confined to two country house calls on the fourth day of illness and the day before his death. It was not possible to obtain sputum for typing. Chemotherapy was not available at this time.

This case was one of the principal factors in the inauguration of this study.

CASE 2—Mrs. E. N., aged 83, died of type III pneumococcus pneumonia in spite of serum administration. She had a severe serum reaction, 40,000 units was used, her heart began to fibrillate, she died on the fourth day of illness.

CASE 3—Mrs. J. B. S., aged 68, was sick four days before being seen by a physician. Impassable snow drifts made calling or attendance earlier impossible. She had a type I pneumococcus pneumonia. Chemotherapy was not available. She died within twenty-four hours of the time she was first seen and before serum could be administered.

All these patients had lobar consolidations, as determined by physical examination.

CASE 4—C. H., a man aged 81, had been confined to bed for a month as a result of decompensation due to an arterio-sclerosis-hypertension syndrome. He developed a severe respiratory infection, was found to have bronchopneumonic, patchy consolidation, and sputum typing revealed type XI pneumococci. He lived 14 miles in the country and died before either serotherapy or chemotherapy could be started.

CASE 5—O. G., a man aged 58, had been confined to bed for four months before the onset of pneumonia, suffering from repeated and severe episodes of coronary occlusion. His heart was decompensated at the time of his death, and a week prior to death pulsus alternans was observed on several occasions. Physical examination failed to disclose lobar consolidation, yet evidences of patchy, diffuse consolidations were found. Typing of sputum revealed type XVII pneumococci. Neither chemotherapy nor serotherapy was used.

Both of the last 2 cases, it is felt, should best be attributed to a terminal sequence of bronchopneumonia induced by the cardiac condition. Nevertheless they were both known to be pneumococcal pneumonia and for that reason are included in the present study.

COMPARISON WITH OTHER STUDIES

For comparison, nineteen series involving 32,352 cases in urban and teaching centers have been collected from the literature. They are shown in table 5.

It is notable that in this compilation the mortality of 9.86 per cent in 17,186 cases for which chemotherapy alone was used is lower than that of any other group. This fact is borne out also in the Swanville series. In this tabulation, mortality in the serotherapy group, 15.48 per cent, is lower than that of the groups in which both serotherapy and chemotherapy were used. The truth of this fact is supported by many individual series and compilations of many series. Another characteristic finding is a mortality of 31 per cent among 1,311 cases in which no specific therapy was administered. In this regard, Flippin, Reinhold and Schwartz<sup>1</sup> in

<sup>1</sup> Flippin, H. F., Reinhold, J. G., and Schwartz, L. S. "Sulfathiazole Therapy in Pneumococcal Pneumonia." J. A. M. A. 116: 683-689 (Feb. 22) 1941.

stated that the mortality of 12 per cent (corrected to 7.4 per cent) in the group of 100 sulfathiazole patients and of 15 per cent (corrected to 11.4 per cent) in the comparable sulfapyridine series compares favorably with the previous mortality rate of approximately 35 per cent at the Philadelphia General Hospital in the years preceding use of these chemotherapeutic agents.

Comparison of the total mortality in the urban and rural series shows a mortality in the former of 11.85 per cent and in the latter of 9.15 per cent. In the urban series are included cases of Stahle,<sup>2</sup> Price and Myers,<sup>3</sup> Finland, Lowell and Strauss,<sup>4</sup> Evans and Gaisford,<sup>5</sup> Schwartz, Flippin and Turnbull,<sup>6</sup> and Finland, Spring and Lowell,<sup>7</sup> in which specific therapy was not administered. In all there were 1,310 such cases, with a mortality of 31 per cent. When these cases are deducted from the total and the mortality is corrected accordingly,

tion of 26 cases with four deaths in which no specific therapy was used would reduce the total mortality in the rural series to 11 per cent, it is felt that conditions peculiar to rural practice make inclusion of this group necessary for proper comparison of urban and rural practices.

#### SUMMARY

Only 80 cases of pneumonia were found in rural practice in four and one-half years prior to pneumococcus typing of all suspected cases of pneumonia. Following establishment of a routine for the diagnosis of pneumonia which included typing, 117 cases of pneumonia were seen in the same rural practice during a similar period of four and one-half years. This represents an increase of incidence of 46 per cent.

Results of the use of serum and chemotherapy are reflected in a reduction of mortality from 16.25 per cent

TABLE 5—Urban Pneumonia Cases Collected from Literature

| Authors   | Location           | Number of Cases | Serum |                | Chemotherapy |                | Serum and Chemotherapy |                | No Serum or Chemotherapy |                | Total % of Mortality |
|---|--------------------|-----------------|-------|----------------|--------------|----------------|------------------------|----------------|--------------------------|----------------|----------------------|
|   |                    |                 | Cases | % of Mortality | Cases        | % of Mortality | Cases                  | % of Mortality | Cases                    | % of Mortality |                      |
| Stahle <sup>2</sup>   | Pennsylvania State | 1021            | 151   | 14.92          | 17918        | 9.31           | 1787                   | 16.05          | 370                      | 18.60          | 9.19                 |
| Long, P. H. and Wood, W. B. Jr. Ann Int Med 13 487 (Sept.) 1939                         | Baltimore          | 139             | 31    |                | 100          |                | 8                      |                |                          |                | 7.2                  |
| Flippin, Reinhold and Schwartz <sup>1</sup>   | Philadelphia       | 400             |       |                |              |                | 37                     | 30.1           |                          |                | 9.5                  |
| Phummer et al. J. A. M. A 116 2366 (May 24) 1941  | New York           | 607             |       |                | 306          | 9.3            | 301                    | 9.8            |                          |                | 9.5                  |
| Finland, M., Strauss, E. and Peterson, O. L. J. A. M. A 116 2641 (June 14) 1941         | Boston             | 178             |       |                | 178          | 10.7           |                        |                |                          |                | 10.7                 |
| Price and Myers <sup>3</sup>  | Detroit            | 249             | 40    | 27.0           | 110          | 15.7           |                        |                | 94                       | 30.8           | 23.3                 |
| Calloman, V. B. and Goodpastor, W. F. Ann Int Med 14 1024 (Dec.) 1940                   | Pittsburgh         | 50              |       |                | 50           | 8.0            |                        |                |                          |                | 8.0                  |
| Smith, F. E., Riley, R. and Jones, O. R. Ann Int Med 14 1033 (Dec.) 1940                | New York           | 122             |       |                | 122          | 6.5            |                        |                |                          |                | 6.5                  |
| Winters, W. L., Rhoads, F. S., Fox, W. W. and Ross, R. Ann Int Med 14 1627 (April) 1941 | Chicago            | 123             |       |                | 123          | 11.4           |                        |                |                          |                | 11.4                 |
| Pepper, D. S., Flippin, H. S., Schwartz, L. and Lockwood, J. S. Am J M Se 198 22 1939   | Philadelphia       | 400             |       |                | 400          | 7.0            |                        |                |                          |                | 7.0                  |
| Gaisford, W. F. Proc Roy Soc Med 33 1070 1939   | England            | 400             |       |                | 400          | 6.0            |                        |                |                          |                | 6.5                  |
| Kohletadt, K. G. and Page, I. H. Ann Int Med 14 127 (July) 1940                         | Indianapolis       | 50              |       |                | 50           | 6.0            |                        |                |                          |                | 6.0                  |
| Flippin, H. F., Schwartz, L. and Clark, J. H. Ann Int Med 14 1909 (May) 1941            | Philadelphia       | 800             |       |                | 800          | 10.0           |                        |                |                          |                | 10.0                 |
| Finland, Lowell and Strauss <sup>4</sup>  | Boston             | 911             |       |                | 399          | 10.8           | 88                     | 19.3           | 220                      | 49.5           | 24.4                 |
| Long, P. H. and Haviland, J. W. Ann Int Med 14 1042 (Dec.) 1940                         | Baltimore          | 815             | 486   | 19.3           | 329          | 7.6            |                        |                |                          |                | 14.6                 |
| Evans and Gaisford <sup>5</sup>   | England            | 200             |       |                | 100          | 8.0            |                        |                | 100                      | 27.0           | 17.5                 |
| Schwartz, Flippin and Turnbull <sup>6</sup>   | Philadelphia       | 301             | 50    | 10.0           | 233          | 9.0            | 11                     | 7.1            | 54                       | 31.5           | 12.5                 |
| Finland, Spring and Lowell <sup>7</sup>   | Boston             | 1037            | 211   | 13.3           | 220          | 17.8           | 129                    | 24.0           | 472                      | 28.6           | 22.6                 |
| Thompson, L. D., Edwards, J. C. and Hoaglund, C. L. Ann Int Med 13 1138 (Jan.) 1940     | St. Louis          | 269             | 126   | 7.9            | 143          | 9.09           |                        |                |                          |                | 8.5                  |
| Totals and averages   |                    | 32302           | 1120  | 10.48          | 17186        | 9.86           | 2364                   | 18.64          | 1310                     | 31.0           | 11.85                |

the total mortality rate is found to be 8.9 per cent. Similarly in the rural series, when the 80 cases seen in the first four and one-half years, when no specific therapy was available, are deducted from the total, a mortality of 4.27 per cent is found. While it is true that a similar treatment of the two series suggests that deduc-

tion of 26 cases with four deaths in which no specific therapy was used would reduce the total mortality in the rural series to 11 per cent, it is felt that conditions peculiar to rural practice make inclusion of this group necessary for proper comparison of urban and rural practices.

Comparison of urban and rural mortality in pneumonia shows a mortality of 11.85 per cent in 32,352 urban cases and a mortality of 9.15 per cent in 197 rural cases. These rates, corrected by the deduction of 1,310 cases with 31 per cent mortality from the urban series and 80 cases with 13 deaths from the rural series are found to be 8.9 per cent and 4.27 per cent respectively.

#### CONCLUSIONS

1 Based on the present study the statement seems justified that the incidence of pneumonia in the average rural American practice when all suspected pneumonia cases are subjected to a diagnostic routine which includes bacterial study and typing of sputum specimens, is higher than is commonly supposed.

2 From the present study it appears that the mortality of pneumonia in the average rural American community compares favorably with that of urban and teaching centers.

<sup>2</sup> Stahle, D. C. A Clinical Analysis of Fifteen Thousand Cases of Pneumonia: An Evaluation of the Effectiveness of Various Therapeutic Agents. J. A. M. A 118 440-447 (Feb. 7) 1942.

<sup>3</sup> Price, A. E. and Myers, G. B. Treatment of Pneumococcal Pneumonia with Sulfanilamide. J. A. M. A 112 1021-1027 (March 18) 1939.

<sup>4</sup> Finland, Maxwell, Lowell, F. C. and Strauss, E. H. Treatment of Pneumococcal Pneumonias with Sulfapyridine, Sulfathiazole and Serum: Analysis of the Results of Specific Therapy at the Boston City Hospital from July 1939 Through June 1940. Ann Int Med 14 1184-1199 (Jan.) 1941.

<sup>5</sup> Evans, G. M. and Gaisford, W. F. Treatment of Pneumonia with 2p (Aminobenzenesulfonamide). Pyridine. Lancet 2 14 (July 2) 1938.

<sup>6</sup> Schwartz, Leon, Flippin, H. F. and Turnbull, W. G. Treatment of Pneumococcal Pneumonia: A Comparative Study of 351 Patients Treated at the Philadelphia General Hospital. Ann Int Med 13 1005-1012 (Dec.) 1939.

<sup>7</sup> Finland, Maxwell, Spring, W. C. Jr. and Lowell, F. C. Specific Treatment of the Pneumococcal Pneumonias: An Analysis of the Results of Serum Therapy and Chemotherapy at the Boston City Hospital from July 1939 Through June 1940. Ann Int Med 13 1567-1591 (March) 1940.



THE WAR AND THE PROBLEM  
OF AGING

V KORENCHEVSKY

LONDON

Professor Sherman<sup>1</sup> has pointed out that by the time a professional man has finished his schooling about one third of his life has passed; another third will be spent in proving to himself and others what he is able to do, and in most cases not until about the age of 50 does he attain or is he promoted to a post of high responsibility and given the fullest opportunities to do his work.

This statement is in general true also for civil servants and men in the armed forces and in industry.

Therefore the physiology and pathology of aging comes a war problem, and for medicine it is especially important to decide whether there are available or there

1. be found any practical means of helping the older man to keep fit both physically and mentally and so to perform his work in the best possible way. As will be discussed in more detail in a later paragraph, the problem cannot be solved by transferring responsible posts to young men who are neither experienced nor sufficiently tested, nor from the point of view of modern science and medicine is there any necessity to do this.

Aging of functions starts in human beings at the latest at the age of 30, of some functions even earlier. This statement is particularly well supported by the numerous and convincing observations of Koga and Morant<sup>2</sup>, Ruger and Stoessiger<sup>3</sup> and Elderton, Moul and Page<sup>4</sup> in the Galton Laboratory for National Eugenics and by Professor Miles and his co-workers<sup>5</sup> in the departments of psychology of Stanford and Yale universities. In the Galton Laboratory about 7,000 men and 1,850 women and in Miles' Laboratories about 820 persons were tested at different ages. Ergographic examination of muscular activity and psychologic tests of sensory and mental faculties were performed on these persons, and the results obtained at different ages were statistically examined and tabulated.

There is no room here for a discussion of the differences and variations observed among the effects of aging on the different functions. As a general conclusion on the basis of the results obtained it is possible to state that for most of the functions examined a decrement set in at least at the age of 30 and in the case of some of the faculties examined at the age of 20 or even earlier. For example, careful investigation of bone sensibility to vibration by Pearson<sup>6</sup> and also by Egger<sup>7</sup>

and Piercey<sup>8</sup> has established that this sensibility is greatest in children and in adolescents. The maximum acuity of audible pitch probably occurs at the age of 5 to 13 (Koga and Morant,<sup>2</sup> Ruger and Stoessiger,<sup>3</sup> Elderton, Moul and Page,<sup>4</sup> Ciocco<sup>9</sup>). The range of accommodation in the eye is greatest at birth, after which it proceeds to decrease with remarkable uniformity as age progresses (Friedenwald<sup>10</sup>). According to Bernstein,<sup>11</sup> the measure of accommodative power of the eyes might serve well as an index of the degree of senescence of the individual from his earliest years.

Minot<sup>12</sup> on the basis of cytomorphosis, Robertson and his co-workers<sup>13</sup> drawing their conclusions from the decline in the nucleocytoplasmic ratio (estimated chemically) in organs and tissues during aging and I<sup>14</sup> in an analysis of the data establishing the decrease from infancy of relative weights of vital organs with aging all considered that the aging process of "wear and tear" of organs and tissues starts in all probability in early infancy (I have previously published details of this theory<sup>14</sup>). However, the conclusion that the prime of life is early infancy needs further investigation from different angles. Especially it needs to be adjusted to the results obtained with psychologic and ergographic technique (the prime of life occurs in adolescent or early adult life) and to the observations (submitted later) of Lehman,<sup>15</sup> who came to the conclusion that the greatest mental productivity was on the average recorded at the age of 30.

Thus if a logical conclusion is based only on the average age at which the definite beginning of aging of most functions is observed, all responsible key posts should be given to persons at the age of 25 to 30.

CONSIDERABLE DECLINE OF MOST FUNCTIONS  
(ON THE AVERAGE) AT THE AGE OF  
SIXTY OR EVEN EARLIER

Although some excellent work has been done on aging, there is no doubt that further investigations are badly needed for confirmation and development of the results already obtained and for elucidation of several new points. From the data available, however, it is possible to suggest, as a general statement, that when human beings reach the age of 60 a considerable degree of decline occurs, as a rule, in most of their functions. For many functions (e.g. visual acuity, vibratory sensibility, even apparently some of the higher mental processes as measured by special tests) considerable decrement can be found earlier, more often at the age of 50.

One special change of mentality which may occur in older persons deserves great attention in connection with

Prof. R. A. Fisher gave the author helpful criticism and encouragement, and Mrs. B. Clapham did the statistical calculations and prepared the tables. For economy of space, the tables are not included in the paper.

1. Sherman, H. C. Nutritional Improvement in Health and Longevity, *Scient. Monthly* 43: 97-107, 1936.

2. Koga, Y., and Morant, G. M. On the Degree of Association Between Reaction Times in the Case of Different Senses, *Biometrika* 15: 346-372, 1923.

3. Ruger, H. A., and Stoessiger, B. On the Growth Curves of Certain Characters in Man (Males), *Ann. Eugenics* 2: 76-110, 1927.

4. Elderton, E. M., Moul, M., and Page, E. M. On the Growth Curves of Certain Characters in Women and the Interrelationship of These Characters, *Ann. Eugenics* 3: 277-336, 1928.

5. Miles, W. R. Measures of Certain Abilities Throughout the Life Span, *Proc. Nat. Acad. Sci.* 17: 627-633, 1931. Psychological Aspects of Aging, in Cowdry's *Problems of Aging*, pp. 535-571. Miles, C. C., and Miles, W. R. The Correlation of Intelligence Scores and Chronologic Age from Early to Late Maturity, *J. Psychol.* 44: 44-78, 1932.

6. Pearson, G. H. J. Effect of Age on Vibratory Sensibility, *Arch. Neurol. & Psychiat.* 20: 482-496 (Sept.) 1928.

7. Egger, M. De la sensibilité osseuse, *J. de physiol. et pathol. gen.* 1: 511-520, 1899.

8. Piercey, H. D. The Quantitative Measurement of Vibratory Sensation, *Ohio State M. J.* 19: 572, 1923, quoted by Pearson,<sup>6</sup> p. 483.

9. Ciocco, A. Observations on the Hearing of 1,980 Individuals. A Biometric Study, *Laryngoscope* 42: 837-856, 1932.

10. Friedenwald, J. S. The Eye, in Cowdry, E. V. *The Problems of Aging*, London, 1939, pp. 513-514.

11. Bernstein, F. Alterssichtigkeit und Lebenserwartung, *Forschungen und Fortschritte* 8: 272-273, 1932.

12. Minot, C. S. The Problem of Age, Growth and Death. London, J. P. Putnam's Sons, 1908. *Modern Problems of Biology*, Philadelphia, P. Blakiston's Son & Co., 1913.

13. Robertson, T. B. On the Influence of Nucleic Acids of Various Origin on the Growth and Longevity of the White Mouse, *Australian J. Exper. Biol. & M. Sc.* 5: 47-67, 1928. Robertson, T. B. and Dainton, M. C. Preliminary Communication on the Influence of Age of the Animal on the Nucleic Acid and Coagulable Nitrogen Content of the Tissues of Sheep, *ibid.* 6: 261-275, 1929. Dainton, M. C. The Nucleic cytoplasmic Ratio of the White Mouse and Its Variations with Age, *ibid.* 9: 213-221, 1932.

14. Korenchevsky, V. Natural Relative Hypoplasia of Organs and the Process of Aging, *J. Path. & Bact.* 54: 13-24, 1942.

15. Lehman, H. C. The Creative Years in Science and Art, *Scient. Monthly* 43: 151-162, 1936. *The Creative Years*, New York, 1937.

any responsible activity in particular defense and war work. This change is best described and its important peculiarities best characterized by Professor Henderson and Dr Gillespie.<sup>16</sup>

Simple senile deterioration is the name given to the simpler form of senile change, and is within the limits of the normal. There is progressive narrowing of interest. The power of comprehension becomes less elastic and thought becomes sluggish. The individual sticks to an idea obstinately, and dislikes departure from the beaten track of his daily routine (the "misonicism" characteristic of the aged). When anything new is suggested he resents it with the protest that the old ways are best. Failure of memory is a very prominent feature. The situation varies with the individual case. There are those who despite the passage of years retain their physical vigor and mental faculties to a surprising degree, while others, at a much younger age become old both in body and mind.

Professor Saundby<sup>17</sup> has written on this point (pp 63-64)

While the intelligence of the aged is often conserved the senses suffer. New ideas are accepted with difficulty and often with dislike, intellectual effort if long continued, becomes painful and the power of sustained attention becomes weakened. It becomes increasingly difficult for them to make up their minds to any new course of conduct [pp 37]. Imagination also is weakened invention fails, the emotions are subdued the brain reacts less promptly to the external stimuli and assimilates new ideas less readily.

Sir Farquhar Buzzard<sup>18</sup> comes to a similar conclusion.

If a man's neural sensitivity is the index of his age its decline [in old age] is expressed by his difficulty in retaining fresh impressions his reluctance to forming new associations, and his inadequacy to unaccustomed impulses.

Cannon and Tranchell-Hayes<sup>19</sup> emphasize (p 269)

The earliest symptoms of senility is an inability to find any good in the present state of affairs and a tendency to glorify the past. Increasing conservatism and obstinacy are noted.

The same point is emphasized by Professor Hollingsworth<sup>20</sup> (p 315)

Old age is thus conservative, reactionary, and resistant to the newer ways of the younger generation. In so far as he [old man] is still in power, he tends to foist upon the changing generation the older standards of conduct, the old ideas and institutions.

Lhermitte and Nicolas<sup>21</sup> come to similar conclusions and stress especially the weakening of creative imagination in senescence.

#### EARLY OR VERY LATE AGE AT WHICH THE SYMPTOMS OF SENILITY MAY DEVELOP

With a summary of the data presented, it is possible to conclude that in terms of statistical averages there is no function so far investigated in which decrement does not appear with aging.

Allbutt<sup>22</sup> rightly said, however (p 117)

In medicine we do not count the ages of people by the revolutions of the earth round the sun, but we measure them by the revolution of their own morbid processes.

Sadler<sup>23</sup> emphasizes the same point (p 909)

It must be remembered however that age in the mental realms as in the physical organism, is not merely a matter of years. Some individuals are as old or older at 40 than others are at 60 or even 65.

Professor Tilney<sup>24</sup> is especially emphatic in his practical comments on the subject (pp 1142-1143)

In the matter of our mental attitude towards old age progress is also needed.

The later years of life should no longer be regarded as the time for retirement, as the days of patient waiting. Ripe in experience, rich in the gifts of wisdom, is it right for a man to retire simply because his years are many? Not if he has a brain which is healthy and firm and capable of serving his fellow-men.

Professor Lehman (1936)<sup>25</sup> has found that the majority of outstanding contributions by physicists, chemists and inventors were made at 30 to 34 years. On the other hand, he emphasizes that this average figure should under no condition imply that a man's best work could not be performed at an older age. Thus in a group of chemists 34 per cent made their first and only important contribution after the age of 40, 19 per cent after the age of 50, 5 per cent after the age of 55 and one chemist made his at the age of 69. Besides age, other factors may help to explain the decrease in the number of important contributions with aging, e.g. older scientists often perform their research work through their students and co-workers (p 158). The fruits of genius are a function of numerous integers, including the personal traits of the worker, external conditions and their fortunate combination.

In another investigation (1937) Lehman<sup>26</sup> arrives at a similar conclusion with regard to the age at which authors have most frequently published their best books (p 73). "Literary masterpieces of the first rank have been published most frequently by men who were not over 45 years of age."

Maximum productivity occurs at the age of 37 to 42, but it seems "highly probable that best books have been written most frequently by authors who were still in their thirties." As in the case of scientists "there are, of course, many exceptions to this latter statement, and there seems to be no fixed age limit beyond which outstanding literary work cannot be done" (e.g. the second part of "Faust" was published when Goethe was more than 80 years of age).

Rhein, Winkelman and Patten<sup>25</sup> put an anatomic foundation in this statement. They compared the clinical history of 100 senile patients with the pathologic-anatomic changes found in the brain after the death of these patients. They found in 11 of 100 patients only fibrotic degeneration of the brain vessels, without any pronounced changes in the brain. These patients lived to be very old, had no hemiplegias and conserved

16 Henderson D K and Gillespie R D. Textbook of Psychiatry ed 5 London Oxford University Press 1940 pp 384-385.

17 Saundby Robert. Old Age London E Arnold 1914 pp 63-64.

18 Buzzard Farquhar. The Pains Penalties and Prohibitions of Old Age—Can They Be Prevented? Bull New York Acad Med 4 1068 1077 1928.

19 Cannon Alexander and Tranchell-Hayes E D. The Principles and Practice of Psychiatry London William Heinemann Ltd 1932.

20 Hollingsworth H L. Mental Growth and Decline New York and London D Appleton & Company 1927.

21 Lhermitte J and Nicolas M. La demence senile et ses formes anatomocliniques. Encephale 19 583-594 654-655 1924.

22 Allbutt T C. A Postgraduate Clinical Demonstration 5 117-123 1894.

23 Sadler W S. Theory and Practice of Psychiatry London 1936.

24 Tilney F. The Aging of Human Brain Bull New York Acad Med 4 1125-1143 1928.

25 Rhein J H W, Winkelman A W and Patten C A. Mental Conditions in the Aged Arch Neurol & Psychiat 20 329-344 (Aug) 1928.

and Hoff and Shaby<sup>44</sup> Neurosis, experimentally produced in sheep, was also considerably improved by administration of the adenal cortex extract (Liddell, Anderson, Kotyuka and Hartman<sup>45</sup>)

#### MALE GONADS

Here again there is a similarity between the effects of castration or hypogonadism and some features of senility. For instance, castration in man produces in most instances the following changes (a survey of the earlier literature is given by Romeis<sup>37</sup> and Falta<sup>46</sup>)

1 Obesity in some cases only (Tandler and Grosz,<sup>47</sup> Korenchevsky<sup>48</sup>)

2 Phlegmatic state of mind, apathy, depression (Miller, Hubert and Hamilton,<sup>49</sup> Reiss<sup>50</sup>)

3 Emotional instability (Miller, Hubert and Hamilton)

4 Unwillingness to do mental or physical work (Reiss)

Decrease in muscular activity (Simonson, Kearns and Zer,<sup>51</sup> Reiss)

6 Fatigability (Miller, Hubert and Hamilton, Reiss)

7 Sleeplessness (Reiss)

8 Hot flushes (Hamilton,<sup>52</sup> Miller, Hubert and Hamilton)

9 Increased tendency to giddiness and sea sickness (Reiss)

10 Atrophic sex organs

To these symptoms observed in man must be added certain changes which have been found in animals (probably also occurring in man) which are important from the point of view of functional activity of the organism, namely

11 Smaller liver, kidneys and heart (Korenchevsky,<sup>53</sup> Noble and Greenberg,<sup>54</sup> Mark and Biskind,<sup>55</sup> Crabtree<sup>56</sup>)

In the male climacteric (Mendel,<sup>57</sup> Hollander,<sup>58</sup> Marcuse,<sup>59</sup> Vaertig,<sup>60</sup> Venzmer,<sup>61</sup> Werner<sup>62</sup>) symptoms similar to those of castration appear at the average

44 Hoff, H., and Shaby, J. A. Suprarenal Cortical Extract in Acute Confusional States, *Lancet* **1** 27 28, 1940

45 Liddell, H. S., Anderson, O. D., Kotyuka, E., and Hartman, T. A. Effect of Extract of Adrenal Cortex on Experimental Neurosis in Sheep, *Arch. Neurol. & Psychiat.* **34** 973 993 (Nov.) 1935

46 Falta, Wilhelm. *Die Erkrankungen der Blutdrusen*, Berlin, Julius Springer, 1928

47 Tandler, Julius, and Grosz, Siegfried. *Die biologischen Grundlagen der sekundären Geschlechtscharaktere*, Berlin, Julius Springer, 1913

48 Korenchevsky, V. The Sexual Glands and Metabolism, *Brit. J. Exper. Path.* **6** 21 35, 1925

49 Miller, N. E., Hubert, G., and Hamilton, J. B. Mental and Behavior Changes Following Male Hormone Treatment of Adult Castration, Hypogonadism and Psychic Impotence, *Proc. Soc. Exper. Biol. & Med.* **38** 538 540, 1938

50 Reiss, M. The Role of the Sex Hormones in Psychiatry, *J. Ment. Sc.* **86** 767 789, 1940. Reiss, M., and Goll, Y. M. L. The Influence of the Endocrines on Cerebral Circulation, *ibid.* **86** 281 286, 1940

51 Simonson E., Kearns, W. M., and Enzer N. Effect of Oral Administration of Methyltestosterone on Fatigue in Eunuchoids and Castrates, *Endocrinology* **28** 506 512, 1941

52 Hamilton, J. B. Treatment of Sexual Underdevelopment with Synthetic Male Hormone Substance, *Endocrinology* **21** 649 654, 1937

53 Korenchevsky, V., Hall, K., Burbank, R. C., and Cohen, J. Hepatrophic and Cardiostrophic Properties of Sex Hormones, *Brit. M. J.* **1** 396 399, 1941

54 Noble, G. K., and Greenberg, B. Testosterone Propionate A Biscyclic Hormone in the American Chameleon, *Proc. Soc. Exper. Biol. & Med.* **44** 460 462, 1940

55 Mark, J., and Biskind, G. R. The Effect of Long Term Stimulation of Male and Female Rats with Estrone, Estradiol Benzote and Testosterone Propionate Administered in Pellet Form, *Endocrinology* **28** 465 477, 1941

56 Crabtree, C. E. The Structure of Bowman's Capsule in Castrate and Testosterone Treated Male Mice as an Index of Hormonal Effects on the Renal Cortex, *Endocrinology* **29** 197 203, 1941

57 Mendel, K. D. Die Wechseljahre des Mannes (Climacterium virile), *Neurol. Centralbl.* **29** 1124 1136, 1910

58 Hollander, B. Die Wechseljahre des Mannes (Climacterium virile), *Neurol. Centralbl.* **29** 1282 1286, 1910

59 Marcuse, M. Zur Kenntnis der climacterium virile insbesondere über urosexuelle Störungen und Veränderungen der Prostata bei ihm, *Neurol. Centralbl.* **35** 577 591, 1916

60 Vaertig, M. Wechseljahre und Altern bei Mann und Weib, *Neurol. Centralbl.* **37** 306 315, 1918

61 Venzmer, G. Neue Ergebnisse der Behandlung mit synthetischen männlichen Sexuallhormonen *Med. Welt* **12** 1278 1281, 1938

62 Werner, A. A. The Male Climacteric, *J. A. M. A.* **112** 1441 1443 (April 15) 1939

age of 48 to 52 years, the earliest age at which they have been observed being 40 (Marcuse, Vaertig). As in the woman, the symptoms in the man may be classified as

1 Nervous and psychic, to which belong intense subjective nervousness, headaches, giddiness, scotomas, emotional instability with an inclination to tears, irritability, sudden changes of mood, decreased interest in the usual activities (even pleasures), a desire to be left alone, decrease or loss of memory and ability for mental concentration, mental fatigability, loss of or disturbed sleep, day sleeping. A typical "climacteric neurasthenia or involutional psychosis, chiefly in the form of melancholia, with a tendency to suicide might develop

2 Cardiovascular changes hot flushes, fits of perspiration, chilly sensations (e. g. cold feet), tachycardia, palpitation, numbness, tingling

3 General and other changes, including increase of body fat, physical fatigability, rougher and darker skin with wrinkles or folds appearing on the exposed parts, constipation, decreased sex potency and libido

The changes which follow gonadectomy and some, in many cases several, changes present in men suffering from the virile climacteric or senility (already described) can be improved or some even returned to normal with testosterone esters (Henssge,<sup>63</sup> Laroche, Marsan, Bompard and Corcos,<sup>64</sup> Venzmer,<sup>61</sup> Villaret, Justin-Besançon and Rubens-Duval,<sup>65</sup> Veil and Lippross,<sup>66</sup> Vest and Howard,<sup>67</sup> Laroche and Bompard,<sup>68</sup> Miller, Hubert and Hamilton,<sup>49</sup> Foss,<sup>69</sup> Werner,<sup>62</sup> Arndt<sup>70</sup>)

Of particular interest are the following observations

The psychotic conditions of some mental diseases which develop in the male climacteric or in old age can also be successfully treated, in some instances even with resultant complete and lasting cure, by testosterone esters (Schmitz,<sup>71</sup> Weiss,<sup>72</sup> Guirham,<sup>73</sup> Thomas and Hill<sup>74</sup>)

Simonson, Kearns and Enzer<sup>51</sup> found that testosterone esters injected or given by mouth increased the performance of muscular work by 41 to 69 per cent in eunuchoids or castrated men, while Villaret, Justin-Besançon and Rubens-Duval noticed in eunuchoids so treated a better development of muscles and larynx, a decrease of obesity and an increase of growth and body weight. Vest and Howard even observed disappearance of the wrinkled progeric condition of the skin

63 Henssge, E. Die Wirkung von Proviron und Perandren Injektionen, *Therap. d. Gegenw.* **78** 378 379, 1937

64 Laroche, G., Marsan, F., and Bompard, E. L'usage de traitement de l'hypertrophie de la prostate par l'acétate de testostérone. *Pr. Urol.* **45** 497, 1937. Laroche, G., Marsan, F., Bompard, E., and Corcos, A. L'hypertrophie de la prostate, *ibid.* **45** 932 936, 1937

65 Villaret, M., Justin-Besançon, L., and Rubens-Duval, A. Remarques sur les effets du propionate de testostérone dans un cas d'eunuchisme post-pubère, *Compt. rend. Soc. de Biol.* **127** 599 601, 1938

66 Veil, W. H., and Lippross, O. Unspezifische Wirkungen der männlichen Keimdrüsenhormone. *Klin. Wchnschr.* **17** 655 658, 1938. Bekämpfung vorzeitigen Alterserscheinungen mit synthetischen männlichen Hormonen, *Deutsche med. Wchnschr.* **63** 1402 1404, 1937

67 Vest, S. A., and Howard, J. E. Clinical Experiments with Use of Male Sex Hormones, *J. Urol.* **40** 155 163, 1938

68 Laroche, G., and Bompard, E. Essais de traitement de l'insuffisance sexuelle masculine par l'hormone mâle, *Bull. Soc. de Biol.* **31** 111, 1938

69 Foss, G. L. Percutaneous Adsorption of Male Hormone, *J. Urol.* **2** 1284 1287, 1938

70 Arndt, H. Zur Therapie extragenitaler Störungen mit Testosteron, *hormonen, Wien med. Wchnschr.* **89** 222 227, 1939

71 Schmitz, G. Erfahrungen mit dem neuen synthetischen Testosteronpräparat "Perandren," *Deutsche med. Wchnschr.* **64** 21, 1937

72 Weiss, O. L. Behandlung psychischer Alterer Männer und Frauen mit synthetischen Testosteron. *Deutsche med. Wchnschr.* **65** 261 262, 1939

73 Guirham, A. Treatment of Mental Disorders with Testosterone, *Brit. M. J.* **1** 10 12, 1940

74 Thomas, H. B., and Hill, R. T. Testosterone Propionate in the Male Climacteric, *Endocrinology* **26** 933 937, 1940

In old or prematurely senile men treated with androgens, ergographic tests carried out by Veil and Lippross<sup>76</sup> and by Hamilton and Gilbert<sup>75</sup> showed an increase of muscular strength (up to 44 per cent, Veil and Lippross) of expiration pressure of air and of pressure under which urine was excreted (Veil and Lippross). Laroche and Bonnard<sup>68</sup> also noticed better development of somatic muscles and increase of muscular strength and endurance.

It has been found by several workers (e.g. McGrath,<sup>76</sup> Ratschow and Klostermann,<sup>77</sup> Suzmann, Freed and Prag<sup>78</sup>) that ergotamine tartrate produces gangrene of the tip of the tail in rats, similar macroscopically and microscopically to angitis obliterans which develops in old people. This experimental gangrene in rats could be prevented by injections into females of estrogenic hormones and into males of testosterone esters. Suzmann and his associates found that even in castrated males estrogenic esters had a protective action.

In old people suffering from angitis obliterans, intermittent claudication gangrene of the foot, ulcus cruris, angina or pseudoringina pectoris and other angiospastic disturbances of a lighter nature (e.g. cold feet and hands, numbness of the extremities), treatment of men with androgens and women with estrogens brings about alleviation or even cure of the pathologic conditions (in cases of gangrene when the disease threatens or it is just beginning to develop, but of course not when it is well advanced). These observations have been made by Baeeke,<sup>79</sup> Sieard,<sup>80</sup> Champy<sup>81</sup> Schittenhelm,<sup>82</sup> Teitge<sup>83</sup> and Arndt.<sup>80</sup> Champy and Arndt found that this angiospastic effect of sex hormones is not sex specific, e.g. both male and female sex hormones were active in males.

In castrated animals, the liver, kidneys and heart, which have decreased in size, become hypertrophied after injections of androgens, as shown by investigation of weights of the organs, their histologic structure and experiments on the isolated hearts (my co-workers and I<sup>83</sup>). Hypertrophy of the kidneys and (by some authors) of the liver and the heart after treatment with androgens has also been investigated and confirmed by Selye,<sup>84</sup> Pfeiffer, Emmel and Gardner,<sup>85</sup> Ludden, Krueger and Wright,<sup>86</sup> Noble and Greenberg,<sup>84</sup> Kochakian<sup>87</sup>

and Crabtree.<sup>88</sup> In agreement with our experimental observations on the hypertrophying properties of male sex hormones on the heart are also the observations of Hamilton and Gilbert,<sup>75</sup> who found hypertrophy of the heart in human cryptorchids treated with testosterone esters. Probably a beneficial effect of the male sex hormones in senile cardiovascular cases, previously mentioned, may be explained partly in the same way. Venzmer (1938)<sup>61</sup> explains the effect of sex hormones by the suggestion that they probably have a dilatation effect on the arteries. Friedlander, Laskey and Gilbert<sup>88</sup> observed after ovariectomy a consistent reduction of blood volume of about 25 per cent, which could be returned to normal by treatment with estrogens. Reiss<sup>89</sup> found in rats that after administration of sex hormones the blood content of the brain was always increased. According to Henssge,<sup>63</sup> high blood pressure in old people was lowered after treatment with sex hormones, but Aynan<sup>89</sup> did not observe this in the case of estrogens.

With regard to the duration of the beneficial effects of sex hormones on any of the senile features described in this chapter, according to all the authors it varies (e.g. Venzmer,<sup>61</sup> 1937) in some cases it disappears a few days after the end of the treatment, while in many other cases the improvement or disappearance of the disturbances lasts some months, a year or even two or three years. The authors also state that there are cases in which hormone treatment causes no improvement.

In general, however, the favorable effect of the hormone has been claimed in most cases as striking. Therefore these claims by numerous investigators of the problem can under no circumstances be disregarded.

#### COMMENT

The similarity of certain features of deficiency of the thyroid, adrenal and sex glands with those of senility and the favorable effect of the hormones on these glands on several features of senility, which many investigators have claimed, strongly suggests the desirability of testing these compounds on elderly patients in hospitals, the best possible technic being used, with the aim of ascertaining definitely their properties as harmless and desirable physiologic stimulants in old age. In the case of the sex hormones special attention must be paid to finding compounds or doses which do not stimulate the sex libido or function an undesirable effect in old age.

The greatest defect of all the clinical trials so far performed appears to have been either the too small number of patients observed or the deficient technic, especially the inadequacy of the control experiment. In most of these trials, there was no control group of patients injected with oil only.

There is another group of natural stimulants—the vitamins—which also needs to be extensively investigated with the best and most comprehensive clinical technic.

If the trials could be organized simultaneously on a large number of patients in several hospitals (say seven to ten), at least some conclusions sufficient for the practical application of these stimulants might be expected in one or two years.

75 Hamilton J B and Gilbert J. New Conception of Etiologic Factors in the Production of Symptoms Observed in Benign Prostatic Hypertrophy. *Tr West Branch Soc Am Urol* 7: 144-145 1938.

76 McGrath E J G. Mental Peripheral Gangrene. *Arch Int Med* 55: 942-957 (June) 1935.

77 Ratschow M, and Klostermann H C. Experimentelle Befunde zur Gefässwirkung der sexual Hormone und ihre Beziehungen zur Klinik der peripheren Durchblutungsstörungen. *Ztschr f klin Med* 135: 198-211 1938.

78 Suzmann M M, Freed C C and Prag J J. Studies on Experimental Peripheral Vascular Disease with Special Reference to Thromboangitis Obliterans. *South African J M Sc* 3: 29-39 1938.

79 Baeeke L. Un cas de maladie de Leo Buerger (thrombo-angeite oblitérante) traité par l'opothérapie ovarienne. *Bruxelles med* 7: 1086-1927 quoted by McGrath p 956.

80 Sieard M. Sur la maladie de Buerger. *Bull et mem Soc med de hop de Paris* 51: 443 1927 quoted by McGrath p 596.

81 Champy C. Le caractère ambio sexual des hormones genitales et ses consequences. *Bull Acad med Paris* 113: 915-917 1937.

82 Schittenhelm A. Sexualhormonen in der inneren Medizin. *Munchen med Wchnschr* 84: 315 1937.

83 Teitge H. Die Behandlung der Endangitis obliterans und des Ulcus cruris mit Sexualhormone. *Med Klin* 33: 1153-1155 1937.

84 Selye Hans. The Effect of Testosterone on the Kidney. *J Urol* 12: 637-641 1939. Interactions Between Various Steroid Hormone. *Canad M A J* 42: 113-116 1940.

85 Pfeiffer C A, Emmel V M and Gardner W U. Renal Hypertrophy in Mice Receiving Estrogens and Androgens. *Yale J Biol & Med* 12: 493-501 1940.

86 Ludden J B, Krueger E and Wright I S. Effect of Testosterone Propionate, Estradiol Benzoate and Desoxycorticosterone Acetate on the Kidneys of Adult Rats. *Endocrinology* 28: 619-623 1941.

87 Kochakian C D. The Rate of Absorption and Effects of Testosterone Propionate Pellets on Mice. *Endocrinology* 28: 478-484 1941.

88 Friedlander M, Laskey N and Gilbert S. Studies in Thromboangitis Obliterans (Buerger). *Endocrinology* 19: 461-466 1935. Effect of Estrogenic Substance on Blood Volume. *Endocrinology* 20: 229-33 1936.

89 Aynan David. The Treatment of Arterio-vascular Hypertension with Crystalline Ovarian Hormone (Theelin). *Am J M Sc* 157: 306-310 1954.



In the case of vitamins, especially, a decision to apply them practically might be reached without much reserve, if the doses that produce hypervitaminosis are clearly stated. If this precaution is taken only favorable results can be expected from their administration, especially when one takes into consideration the fact that war diets are not very rich in vitamins.

After two or three years of clinical trial it should also be possible to decide whether administration of androgens (preferably oral in the form of compounds or in doses which do not produce sex stimulation) could, always under medical supervision, be advised.

With regard to the practical application of thyroid and adrenal cortex preparations, because of their toxicity in certain doses, much more caution will be needed in coming to a decision, and it appears less certain whether a conclusive answer can be given after only one or two years of clinical trial.

#### SUMMARY

1 The process of aging of several functions and capacities, so far examined with the methods used, starts in the human organism at the age of 25 to 30, of some of them even much earlier (as also suggested by certain changes in the organs and tissues recorded by Minot, Robertson and myself).

2 From the practical point of view, this decrement with aging of some functions and capacities becomes considerable from the age of 50 and especially 60.

3 It must be emphasized, however, that the conditions of the functions and capacities in some young people can be as "old" as or "older" than their average condition at the age of 60 to 70, and, conversely, in some old people of 50 to 70 their condition can be equal to or better than the average of these features at the age of 20 to 25.

4 There are also important and irreplaceable advantages of old age wisdom<sup>90</sup> has been acquired and ability has been tested and proved.

5 There is sufficient evidence to indicate that (a) pathologic changes occur with aging in the sex, thyroid and adrenal glands, (b) a similarity exists between certain senile changes and some features of deficiency of these glands and also of vitamin deficiency. At the same time (c) successful treatment of some senile features with hormones and vitamins has been claimed, although it must be emphasized that apparently a deficient technic was used in many investigations.

6 All these data point to the urgent necessity for clinical research in order to elucidate the favorable effect of these compounds on old people.

7 If proved, the physiologic, natural, stimulating properties of these compounds might be especially helpful to old people in lessening the effect of great strain and in increasing the working capacity in periods of such great crises as war.

8 If clinical trials of the hormones and vitamins will be simultaneously organized and performed in several hospitals on a large number of senile patients there might be a reasonable hope of obtaining some practical results, especially with vitamins, even during the period of the present war.

9 This limited and practical aspect of the problem of aging is one of the war problems, and research on this subject is one of the urgent tasks connected with the war.

<sup>90</sup> Wisdom can be defined as natural intelligence of a high order, together with required manifold experience and knowledge and sagacious insight in deliberation and judgment.

## Clinical Notes, Suggestions and New Instruments

### TUBE FEEDING FATALITIES

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The all too frequent occurrence of death from faulty nasal tube feeding in hospitals for the mentally ill presents a serious problem. These accidents are usually caused by the pouring of food or water into the trachea, resulting either in sudden death or in a gangrenous pneumonia which is usually fatal. Occasionally death may be caused by trauma to the larynx.

Obviously such fatalities are reprehensible, nor can they be satisfactorily explained to the relatives of the victim, since they are usually the result of carelessness or of faulty technic. The ease of performing nasal gavage serves as a cloak to the real hazards of this procedure, which is potentially far more dangerous than the dramatic convulsion of shock therapy. Hence it is disturbing to find that in many institutions tube feeding is performed by nurses and attendants whose knowledge of the anatomy of the pharynx and larynx is often limited. Even when the tube is inserted by the physician, the remainder of the procedure, including the removal of the tube, is frequently relegated to some one else. The removal of the tube is likewise potentially dangerous, because there is always in the tube some residual food or water which can escape into the trachea as the tube is withdrawn, unless it has been pinched off properly. Occasionally the patient partially regurgitates the feeding or the tube and risky efforts are made to reinsert a tube partially filled with food.

Difficulties of any nature are more apt to arise in the feeding of an uncooperative, struggling or assaultive patient who twists the head from side to side, coughs voluntarily and may learn to regurgitate the food and tube at will. It is unwise to attempt to feed such a patient until he has received adequate sedation. It is much easier and safer to administer an intravenous barbiturate to such a patient than to attempt forceful tube feeding. A resistive patient may manage to prevent the descent of the tube, which curls up in the mouth, enabling the patient to seize it between his teeth. An efficacious method of dealing with this situation is to insert a second tube through the other nostril, which usually succeeds in causing the patient to release the grip on the first tube, while the second one has been passed into the stomach.

Nasal tubes are often kept cold in a container of ice. When the latter melts, water can enter the tube, and unless it is emptied the water may escape into the trachea in the course of passing the tube. In some hospitals, lubrication is effected with a light liquid petrolatum, a procedure which when constantly repeated may introduce significant quantities of oil into the pulmonary tree.

The following rules are suggested:

1 No one but a physician should be allowed to insert and remove the tube.

2 All water should be drained from the tube before insertion.

3 A jelly lubricant should be used in preference to liquid substances.

4 Before any material is introduced into the tube tube one or more of the following tests should be performed to determine whether or not the tube is in the trachea: (a) Place the inverted funnel in a bowl of water and look for bubbles. (b) Listen for air coming through the funnel. (c) Listen to the patient's normal speaking voice.

5 In case of coughing or regurgitation, the tube should be removed at once and the patient rolled on his side.

6 If the patient succeeds in regurgitating the tube, no attempt should be made to reinsert it. It should be removed and the procedure started over again.

7 In removing the tube one should do so after water has been poured through and after the residual water has been trapped in the tube by firmly pinching off the latter. The tube should be removed quickly.

8 In feeding a violent patient the use of force should be avoided and, if necessary, an intravenous sedative should be used.



## A SIMPLE SKELTONIZED PLASTER SPLINT FOR THE CERVICAL SPINE

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AND CHARLES WATSON, CHICAGO

Physiologic rest for the cervical spine is the treatment of choice for fracture, fracture dislocation, arthritis, radiculitis and other orthopedic or neurologic lesions involving the anatomic structures that lie between the base of the skull and the thorax. Continuous immobilization for a prolonged period of time, as following fracture or dislocation of a cervical vertebra, is accomplished with greatest efficiency by a neatly applied plaster cast. A more difficult problem in splinting is presented by those patients who require for use during the day a light and effective support which may be removed at night or for physical therapy procedures. If a particular type of cervical collar is to serve the greatest field of usefulness, it must be quickly available and the cost must be within the means of the average patient. Commercially prepared braces for the cervical spine are, for the most part, unsatisfactory in that they are bulky and expensive and rarely offer effective support.

Until recently we utilized a cervical collar made by the impregnation of crinoline bandage with plain celluloid dissolved

placed in front of the chin. All other strips are made by folding the splint lengthwise twice, so that each is three layers in thickness and one third the original width. A sufficient number of strips are folded so that the final thickness of each part of the collar will be made up of six such folded strips.

The patient is seated on a stool with an assistant holding the head in the desired position. A thin layer of petrolatum is smeared over the chin, neck and thorax to prevent the plaster from adhering to the skin and hairs. Two thicknesses of plaster for the chin support are first applied, one making sure that there are no wrinkles and that an adequate platform has been provided beneath the chin for support of the head. Two thicknesses of shoulder strips are then applied on each side and their front and back extremities are connected by cross pieces. The shoulder pieces must be placed sufficiently wide apart over the scapulae so that the collar can be readily removed over the head. Now the two oblique struts are placed on each side. The front struts extend from the top margin of the chin piece at the angles of the jaw to the anterior extremities of the shoulder strips. The posterior strips join the shoulder pieces just in front of the points at which they cross the clavicles. This pattern, while affording strength where there is stress and strain, permits ventilation on all sides, a fact



Fig. 1—Front view of cervical collar

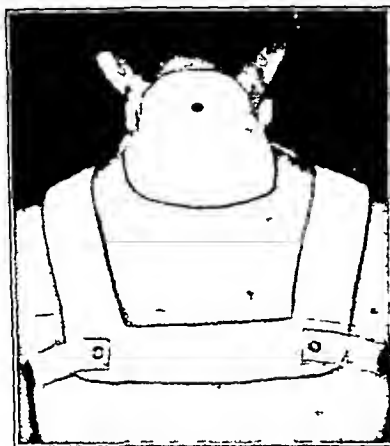


Fig. 2—Back view. Note wide opening which permits removal of collar over the head



Fig. 3—Side view of collar showing chin support

in acetone. This necessitated the making of a plaster model of the patient on which the crinoline was gradually built up layer by layer until the desired thickness was obtained. Since ten to fourteen days were required to prepare the collar and the cost to the patient was \$35, its use was greatly restricted, particularly when immediate immobilization was desired.

Within the past eighteen months we have developed and used with complete satisfaction a light weight plaster splint made of Johnson & Johnson's ready prepared 5 inch wide specialists splints. The dried plaster is coated with a cellulose acetate mixture, which makes the collar a rigid support of minimum weight and waterproof. As the plaster is applied directly to the skin of the patient and is molded to the contour of the neck and shoulders, an accurate fitting is assured, and this means a comfortable splint. The total cost of materials does not exceed \$4, and the delay between ordering and delivering the collar to the patient need never be more than thirty hours.

## BUILDING THE COLLAR

Measurements are taken of the approximate lengths of the chin support, the shoulder strips, the front and back cross pieces which connect the extremities of the shoulder strips and the two struts on each side which anchor the chin piece to the chest portion. The pieces for the chin support are made by folding over one third of the width of the 'specialist splint' lengthwise so that it measures approximately  $3\frac{1}{2}$  inches instead of 5 inches wide. This also reinforces one margin which is

much appreciated during warm weather, and at the same time reduces the weight of the collar.

After the initial outline of the dressing has been completed, each strip is reinforced until the desired thickness is obtained.

While the plaster is setting on the patient, the restraining pad for the back of the neck can be made. Ten to twelve thicknesses of 5 inch splints cut to the desired length are molded to the contour of the posterior surface of the head, neck and shoulders. In some cases a strap of 1 inch webbing over a felt pad across the back of the neck is sufficient to prevent the patient from lifting his chin out of the collar.

When the plaster has become sufficiently hardened, the collar is carefully removed and placed under a lamp or on a radiator for rapid drying. The margins are trimmed and sandpapered so that no rough or pointed edges are present to irritate the skin. In order to give additional strength to the collar and at the same time make it waterproof and prevent undue soiling, five coats of the following mixture are applied to the plaster.

Sufficient acetone is added to  $\frac{1}{4}$  gallon of cellulose acetate to make 1 gallon of mixture. To this 6 ounces of dimethyl phthalate is added and sufficient titanium dioxide to impart a white color.

Finally, 1 inch straps and buckles are applied, as shown in the illustrations. Ordinarily, soft padding is not required for the chin or shoulders if the collar conforms smoothly to the contours of the part and the head was held in a comfortable position during its building.

116 South Michigan Avenue.

## CHRONIC LYMPHATIC LEUKEMIA

REPORT OF A CASE, WITH SURVIVAL FOR SIXTEEN YEARS

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Few diseases are more puzzling than the leukemias. Practically nothing is known of their etiology, no specific curative treatment is known, the prognosis is uniformly poor, even the length of survival varies within wide limits.

In chronic lymphatic leukemias the survival period averages around three years. Dowdy and Lawrence<sup>1</sup> found an average of 2.7 years in a series of 20 cases, with the longest five years. In a series of 87 cases, Minot and Isaacs<sup>2</sup> found an average survival period of two years, with the longest twenty-two years. Murphy's<sup>3</sup> cases averaged 3.45 years, but in 1 case there had been symptoms for twelve years, and in 3 cases chronic lymphatic leukemia had been diagnosed for more than nine years. McGavran<sup>4</sup> reported a case of twenty-five years' duration. Hunter<sup>5</sup> observed that the disease seems more benign in patients over 65 and noted an occasional nine or ten year survival.

Our patient is still alive sixteen years after his original diagnosis of chronic lymphatic leukemia.

E. R. B., a white man, was first seen Jan. 4, 1926 at the age of 68, with complaints of irregularity of the heart, moderate dyspnea on exertion and "gas on the stomach." His family and past history were not remarkable. Examination showed that he was well nourished and fairly well preserved. His heart measured 4 cm. to the right and 8 cm. to the left of the midsternal line at the apex, with normal rate, rhythm, shape and sounds. The liver and spleen were not palpable. An inguinal hernia was found, and both legs showed moderately extensive varicose veins. The teeth were extensively involved with pyorrhea alveolaris, and roentgenograms showed apical molar abscesses. Gastric analysis showed an absence of free hydrochloric acid. Roentgenograms of the stomach were negative. The blood Wassermann reaction was negative. Urinalysis was within normal limits. The blood count revealed 95 per cent hemoglobin (Sahli), 5,440,000 red cells and 73,700 white cells, with a differential count of 6 per cent polymorphonuclear leukocytes, 93 per cent lymphocytes, 1 per cent eosinophils, many degenerate lymphocytes not counted, anisocytosis, macrocytosis and microcytosis. Three days later the white blood count was 66,300 with 92 per cent lymphocytes.

While still under observation, the patient contracted an influenzal type of infection of the upper respiratory tract, and ten days later the white blood count had dropped to 30,300 with 78 per cent lymphocytes, but the count had increased to 58,100 one week later. He was instructed to use dilute hydrochloric acid with his meals and advised to have his teeth repaired. No other treatment was thought advisable.

Twelve years later (July 14, 1938) the patient was seen again, at the age of 80, with complaints of diarrhea, sore mouth and exertional dyspnea. He had been able to work around his ranch until two years previously and was still able to get around on horseback. His physical examination was identical with the last except for a salmon-red color of the oral mucosa, rales at the bases of both lungs and severe prostatic hypertrophy without nodulation. The tongue was not smooth. Lymph nodes were not palpable. Gastric fluoroscopy and roentgen examination were negative. Blood counts showed 70 per cent hemoglobin, 2,100,000 red cells, 30,600 white cells (59 per cent small lymphocytes, 23 per cent large lymphocytes, 9 per cent polymorphonuclear leukocytes, 9 per cent lymphoblasts, 2 per cent reticulocytes). The smear also showed macrocytosis, microcytosis, poikilocytosis and polychromasia. He was instructed

to start taking a proprietary antianemic preparation comprising concentrated stomach tissue extract, iron and vitamin B<sub>1</sub> and B<sub>2</sub>,<sup>6</sup> and his dilute hydrochloric acid was increased.

The patient was next seen Sept. 24, 1941 at the age of 83, with complaints of numbness of the legs, dyspnea and "gas on the stomach." He had been taking the concentrated antianemic stomach tissue product and dilute hydrochloric acid. His examination was not remarkably changed except for increased weight, increased emphysema, extensive varicosities of the legs and poor pulsation of the dorsalis pedis arteries. The liver and spleen were not palpable. There were no palpable lymph nodes. The blood count showed 90 per cent hemoglobin, 3,750,000 red cells and 28,000 white cells. The smear showed 80 per cent lymphocytes and 20 per cent leukocytes, with slight anisocytosis, macrocytosis and hyperchromasia. The hematocrit reading was 42.5. He was instructed to reduce his weight, institute Buerger's leg exercises, and continue with the dilute acid and the antianemic stomach tissue product.

## COMMENT

There is a tendency to be gloomy about the prognosis in the leukemias, yet they may run a comparatively benign course. Recourse to irradiation and protoplasmic poisons is almost universal, yet in the case here described no such treatment has been given and the disease is still relatively innocuous after sixteen years.

115 East on South Temple

## Council on Pharmacy and Chemistry

## REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT  
AUSTIN E. SMITH, M.D., Acting Secretary

## DIETHYLSTILBESTROL

Diethylstilbestrol was first developed in 1937 by Dodds and his co-workers<sup>1</sup> and has been commercially available in Europe and Canada since 1939. It has been recently released for sale in this country by the Food and Drug Administration. This substance is a potent estrogen bearing only slight chemical relationship to the hormonal steroids. It is synthesized in the laboratory from nonbiologic chemicals. The relative inexpensiveness and certain properties of this substance offer several advantages over the natural estrogens and for this reason it has aroused considerable interest among physicians.

Diethylstilbestrol, or, as it is known chemically, 4,4'-dihydroxy- $\alpha$ ,  $\beta$ , diethylstilbene, or  $\alpha$ ,  $\alpha'$ -diethyl 4,4'-stilbenediol, is a white, crystalline powder occurring in two forms which are usually separable. The trans-form has a greater estrogen potency than the cis-form. Stilbestrol is the term designating the mother substance 4,4'-hydroxy stilbene, it is much less active than the diethyl derivative.

## PHYSIOLOGY

It has been adequately demonstrated that diethylstilbestrol is capable of producing practically all the physiologic effects of natural estrogens,<sup>2</sup> thus it will induce vaginal estrus, stimulate growth of the endometrium and myometrium, sensitize the uterus to the action of progesterone, cause rhythmic contraction of the uterus, develop the ductile tissues of the breast, change the alkaline vaginal secretion to acid and cause the appearance of glycogen in the vaginal mucosa. It is also capable of inhibiting

6 Kapser's Ventrax with Iron and Vitamin B (Parke Davis & Co.) were prescribed.

1 Dodds E. C., Lawson, W., and Noble R. L. Biological Effects of Synthetic Estrogenic Substance 4,4'-Dihydroxy  $\alpha$ ,  $\beta$  Diethylstilbene. *Lancet* 1: 1389 (June 18) 1938.

2 Bishop P. M. F., Boycott M., and Zuckerman S. Estrogenic Properties of "Stilbestrol" (Diethylstilbestrol). *Clinical and Experimental Investigation*, *Lancet* 1: 5 (Jan. 7) 1939. Noble R. L. Functional Impairment of the Anterior Pituitary Gland Produced by the Synthetic Estrogenic Substance 4,4'-Dihydroxy  $\alpha$ ,  $\beta$  Diethylstilbene. *J. Biol. Chem.* 94: 177, 1938. Palmer H. and Zuckerman S. Fertilizing Effects of Stilbestrol on the Similarity of Stilbestrol and Natural Estrogen. *Lancet* 1: 923 1939. Dodds Lawson and Noble.

From the Department of Medicine, Salt Lake Clinic.

1 Dowdy, A. H., and Lawrence, J. S. The Treatment of Chronic Leukemia by Small Dose Roentgen Ray Technique, *J. A. M. A.* 116: 2827 (June 28) 1941.

2 Minot, G. R., and Isaacs, Raphael. Lymphatic Leukemia: Age Incidence, Duration and Benefit Derived from Irradiation, *Boston M. & S. J.* 191: 1 (July 3) 1924.

3 Murphy, W. P. Results of Conservative Application of X-Ray Treatment in Chronic Leukemia, *J. A. M. A.* 115: 1156 (Oct. 5) 1940.

4 McGavran, C. W. Lymphatic Leukemia of Twenty Five Years' Duration, *Ann. Int. Med.* 12: 396 (Sept.) 1938.

5 Hunter, F. T. Leukemias: Their Diagnosis, Prognosis and Treatment, *M. Clin. North America* 21: 349 (March) 1937.

ing some of the secretions of the anterior pituitary, resulting in ovarian or testicular atrophy, cessation of growth and suppression of lactation. There are several differences between the action of diethylstilbestrol and the natural estrogens. Thus it has been demonstrated that the synthetic estrogen is unable to increase the acetylcholine content of the uterus which is obtained with the natural estrogen,<sup>3</sup> nor is it able to produce the ovipositor reaction in the female bitterling. In addition, it has been demonstrated that, unlike natural estrogens, diethyl-

TABLE 1—Amount of Diethylstilbestrol Equivalent to One Estrus Unit

|                       | Micrograms |       |
|-----------------------|------------|-------|
| Kreitmar and Seickman | 0.08       | Mouse |
| Emmens                | 0.1        | Mouse |
| Sondern and Sealey    | 0.07       | Mouse |
| Sondern and Sealey    | 1.70       | Rat   |
| Freud                 | 0.37       | Rat   |
| Koenig and Gustavson  | 0.95       | Rat   |
| Dodds and others      | 0.35       | Rat   |
| Mazer and Israel      | 0.20       | Rat   |

stilbestrol does not inhibit the action of androgens in producing comb growth of fowl. The metabolism of diethylstilbestrol is somewhat different from that of the natural estrogens in that it is not destroyed to as great an extent by the liver and thus more is excreted in the urine, from 10 to 30 per cent of injected diethylstilbestrol being excreted within a few days.<sup>4</sup> This estrogen is not significantly more potent than the natural estrogens in promoting the growth of tumors or malignant growths in experimental animals.

While it is acknowledged that diethylstilbestrol is highly potent, there is some difference of opinion as to the degree of estrogenicity which it possesses. Table 1 indicates the activity in the mouse and the rat of diethylstilbestrol as obtained by various workers.

One of the most significant properties of diethylstilbestrol is its relatively high degree of activity when administered by mouth. Originally there were claims that it was as effective by mouth as by injection. Subsequently it appears that there is considerable loss of activity when administered by mouth but apparently not as much as that with the natural estrogens. A sufficiently high percentage remains undestroyed to allow for an effective response when given orally. Table 2 indicates the relative oral and parenteral activity of diethylstilbestrol as tested in different laboratories.

This substance, as with the natural estrogens, is active by percutaneous administration in ointments and tinctures.

In the human being the physiologic responses are similar to those obtained with natural estrogens. Thus, women with infantile reproductive organs respond to diethylstilbestrol with typical feminizing changes, such as growth of the uterus and of the breasts and pigmentation of the areolas. Uterine bleeding follows the cessation of administration of sufficient amounts.

#### THERAPY

Since the availability of diethylstilbestrol, large numbers of reports have appeared in the scientific literature indicating that this substance is capable of complete replacement therapy in the menopausal or castrate woman.<sup>5</sup> Most authors report their inability to detect a significant difference in subjective relief between diethylstilbestrol and the natural estrogens in alleviating the symptoms of the menopause. Some claim that the sense

of well-being following the use of natural estrogens is not obtained with diethylstilbestrol. The consensus, however, indicates that satisfactory and gratifying results can be obtained in most menopausal women with the oral dosage of 0.5 to 10 mg daily. Some physicians prefer to start with small dosages and increase this until therapeutic results are obtained. Implantation of pellets of the synthetic material has been used experimentally in treating this condition.<sup>6</sup> In addition to relieving symptoms of the menopause, it is also capable of benefiting other conditions complicating the menopause such as senile vaginitis and kraurosis vulvae.<sup>7</sup> Gonorrheal vaginitis is also satisfactorily treated with the synthetic estrogen either by oral or by parenteral administration.<sup>8</sup> The aforementioned conditions are the only ones in which the Council on Pharmacy and Chemistry has approved the usefulness of estrogen therapy up to the present time.

In addition to these, there is considerable evidence that this estrogen in the proper dosage is beneficial in the suppression or prevention of lactation.<sup>9</sup> While there is no reason to believe that natural estrogens are not equally capable of producing the appropriate changes in this condition, there is little evidence of this nature in the literature, probably owing to the fact that natural estrogens are not readily available in the proper high dosage forms for this purpose. On the other hand, diethylstilbestrol can easily be administered in almost unlimited doses and has been shown to be effective in preventing the onset of lactation when administered soon after parturition. The engorgement of the breast is prevented to a great extent, and lactation fails to proceed. When diethylstilbestrol is administered after the onset of lactation, the results are not as conclusive or as dramatic. Lactation will not cease under those conditions where nursing is continued.<sup>10</sup> Even without the stimulus of nursing, it appears that the longer lactation has ensued the more difficult it is to suppress. The average dose of diethylstilbestrol for the suppression of lactation is 15 mg by mouth daily for three to ten days. The Council has reviewed the available evidence and has concluded that the suppression of lactation and painful engorgement of the breast is a worthwhile therapeutic measure and has added it to the list of indications for inclusion in New and Nonofficial Remedies under Actions and Uses.

Estrogens have been used extensively in the treatment of various menstrual disorders such as amenorrhea, excessive or irregular bleeding and dysmenorrhea. The Council has to date recognized none of these conditions as indications for estrogen therapy because of the lack of satisfactory evidence as to the benefit obtained from such therapy. It is well known that in

TABLE 2—Ratio of Activity Between Oral and Subcutaneous Administration

|                    |     |       |
|--------------------|-----|-------|
| Leighty and others | 4:1 | Mouse |
| Emmens             | 5:1 | Mouse |
| Sondern and Sealey | 5:1 | Mouse |
| Mazer and Israel   | 5:1 | Human |
| Shorr and others   | 1:1 | Human |
| Dodds and others   | 3:1 | Rat   |
| Sondern and Sealey | 2:1 | Rat   |

patients with amenorrhea of any type uterine bleeding usually follows the cessation of administration of large doses of estrogens. Diethylstilbestrol can be utilized readily to induce uterine

3 Reynolds S R M and Foster F I. Relative Cholinergic Effects of Selected Estrogens. *Am J Physiol* 128:147, 1939.

4 Zondek B and Sulman F. Inactivation of Diethylstilbestrol in the Organism. *Nature* 144:596, 1939. Mazer Charles, Israel S L and Ravetz Elkin. The Synthetic Estrogen Stilbestrol. An Experimental and Clinical Evaluation. *J A M A* 116:675 (Feb 22) 1941.

5 Keller R J and Sutherland J B. Clinical Experiences with New Synthetic Estrogen—Stilbestrol (Diethylstilbestrol). Report to Therapeutic Trials Committee of Medical Research Council. *J Obst & Gynec Brit Emp* 46:1 (Feb) 1939. Loesser A A. Therapeutic Trials of Diethylstilbestrol. *Brit M J* 1:13 (Jan 7) 1939. Winterton W R and MacGregor T N. Clinical Observations with Stilbestrol (Diethylstilbestrol). *ibid* 1:10 (Jan 7) 1939. Lewis R M. Clinical Use of Stilbestrol Synthetic Estrogen. Preliminary Report. *Natl J Biol & Med* 12:235 (Dec) 1939. Report of the Council on Pharmacy and Chemistry. Stilbestrol. *J A M A* 113:2312 (Dec 23) 1939. Bishop Boycott and Zuckerman. Mazer, Israel and Ravetz.

6 MacBryde C M, Freedman H, Loeffel E and Allen D. Estrogenic Therapy by Implantation of Stilbestrol Pellets. *Proc Soc Exper Biol & Med* 43:212, 1940.

7 Finkler R S and Marks Z I. Hormonal Treatment of Senile Vulvovaginitis. *J N Soc New Jersey* 37:99, 1940.

8 Russ J D and Collins C G. The Treatment of Prepubertal Vulvovaginitis with a New Synthetic Estrogen. Preliminary Report. *J A M A* 114:2446 (June 22) 1940. Jeffcoate T N A. Estrogenic Hormone Therapy. *Brit M J* 2:671 (Sept. 30) 1939.

9 Connolly H F Jr, Dann D I, Reese J M and Douglass L H. A Clinical Study of the Effects of Diethylstilbestrol on Puerperal Women. *Am J Obst & Gynec* 40:445 (Sept.) 1940. Muckle C W. Suppression of Lactation by Stilbestrol. *Pennsylvania M J* 44:305 (Dec) 1940. Jeffcoate, Abarbanel and Goodfriend.

10 Abarbanel A R and Goodfriend M J. The Effects of Stilbestrol on Lactation. *Am J Obst & Gynec* 40:1037 (Dec) 1940.

bleeding<sup>11</sup> Following the daily administration of 5 to 10 mg for ten to fifteen days, uterine bleeding often ensues within about ten days following cessation of therapy. For a repetition of this response another course of therapy is required. At the present time it appears that such treatment results in a possible cure of the condition in only a small percentage of cases. The induction of bleeding in the majority of these cases is not as yet considered of sufficient therapeutic significance to warrant recognition as a worthwhile procedure except in the hands of specialists.

In the treatment of excessive bleeding, results are encouraging in indicating that this substance may be of considerable value. There is some evidence that large doses of natural estrogens will suppress profuse and irregular bleeding, but this field for therapy has not been adequately explored. With the advent of synthetic estrogens, the necessary large doses for such a practice can be easily administered. Thus it has been demonstrated that the daily oral administration of 5 to 10 mg of diethylstilbestrol will control many cases of functional bleeding for the duration of the treatment.<sup>12</sup> The permanence of these results is still open to question, but it is believed that the simple control of uterine hemorrhage is a worthwhile procedure, especially in those cases which in the past would require hysterectomy, ovariectomy or other medical methods. Additional evidence on this phase may be shortly forthcoming.

Other conditions which have been treated with varying success, but which may also be considered experimental, are prostatic neoplasms, hypersexuality in the male, uterine involution, abortion and Cushing's disease.

#### TOXICOLOGY

The question of the possible harmful effects of diethylstilbestrol has prevented the ready acceptance of the compound for therapeutic purposes in this country. The first reports on the toxicity of diethylstilbestrol in experimental animals and in man indicated the possibility that this substance produces damage to the various body organs and tissues.<sup>13</sup> Thus, it is recorded that administration of this material to certain experimental animals produced changes in the bone marrow, giving rise to an aplastic anemia with leukopenia and thrombocytopenia. Furthermore, signs of kidney and liver damage were obtained as well as occasional hemorrhage into the adrenals. Subsequent work has shown conclusively, however, that such changes in animals could be obtained only with relatively large doses of the estrogen and that similar changes also resulted from the use of equal amounts of natural estrogens such as estrone or estradiol.<sup>14</sup> Other experimental work is in agreement that amounts far in excess of the physiologic dose are harmless.<sup>15</sup> There is thus little evidence to indicate that the toxicity of diethylstilbestrol is significantly greater than that of the natural estrogens. One group of experimenters has claimed that the suppression of growth following diethylstilbestrol administration to rats is irreversible because of changes in the epiphyseal cartilage, while natural estrogens induced a reversible stunting of growth. There is evidence, however, to indicate that the

suppression of growth by diethylstilbestrol could be relieved by the administration of anterior pituitary growth hormone extracts, thus indicating the reversibility of the growth changes. The earlier work reported evidence that liver damage could result from diethylstilbestrol administration in therapeutic doses in the human being. In addition, it was claimed that this substance produced occasional psychosis, dermatologic changes and certain neurologic changes such as paresthesias and vertigo. Adequate confirmation of this work has not been reported. It has been demonstrated that therapeutic doses of diethylstilbestrol have little or no harmful effects on the liver as well as other tissues.<sup>16</sup> In this connection it is interesting that in experimental animals diethylstilbestrol will cause a deposition of liver glycogen, a significant reaction when it is considered that substances which damage liver produce a depletion of glycogen. In the human being, therefore, there are no data which indicate damage to blood forming elements, liver, kidney or other tissues.

Practically every investigator who has used this estrogen in man has encountered untoward symptoms. These symptoms consist chiefly of nausea, vomiting, dizziness, headache and nervousness, the most predominating complaints being those from the gastrointestinal tract. The incidence of these disagreeable symptoms varies considerably according to the different investigators. One group had reported an incidence of 80 per cent of toxic manifestations, the majority being epigastric distress. In large series of cases, however, it appears that the incidence of toxic symptoms on dosages of 0.5 to 20 mg daily is 10 to 20 per cent. Most investigators agree that the incidence of untoward reactions is greater with larger therapeutic doses. There have been proposed a number of theories as to the cause of the toxic reactions. Irritation of the gastric mucosa, locally, was considered at one time the possible mechanism for the epigastric distress. This hypothesis has been dismissed because of the fact that similar symptoms result from the injection of this material as well as from the use of ointments. For this reason, therefore, the use of enteric coated tablets does not appear justified. It has been suggested that the nausea and vomiting is the result of depression of gastric acidity, which occurs to a slight extent.<sup>17</sup> Several women with symptoms of nausea and vomiting demonstrated on gastroscopy an edema of the gastric mucosa.<sup>18</sup> Such a change, of course, would in all probability account for the symptoms and would also account for a depression of gastric acidity. The mechanism of the mucosal edema is unknown at the present time, but it has been suggested that this is the result of water retention of the intestine on the basis of sodium ion retention.<sup>18</sup> Natural estrogens and other steroids possess the ability of inducing similar electrolytic changes. It has also been postulated that the unpleasant symptoms from diethylstilbestrol administration are the result of its rapid absorption into the body, giving rise to a condition which may be similar to that of early pregnancy, when there is likewise an elevation of the estrogen titer of the body fluids.<sup>19</sup> Many patients on diethylstilbestrol thereby report that they feel much the same as during pregnancy. This concept is supported by evidence that women who have been recently pregnant, and thus saturated with estrogens, rarely if ever develop untoward symptoms following large doses of diethylstilbestrol. Furthermore, diethylstilbestrol dipropionate, which is more slowly absorbed than the free compound, gives rise to a considerably lesser incidence of toxicity.<sup>20</sup> Unpublished work with diethylstilbestrol dipalmitate,<sup>21</sup> a preparation which is absorbed even more slowly, demonstrates that gastro-

11 Shorr, Ephraim, Robinson, F. H., and Papanicolaou, G. N. A Clinical Study of the Synthetic Estrogen Stilbestrol, *J. A. M. A.* **113**: 2312 (Dec. 23) 1939. Palmer, Allan. Clinical Experiments with Diethylstilbestrol. I. Estrogen Withdrawal Bleeding in Primary and Postmenopausal Amenorrheic Women, *Am. J. Obst. & Gynec.* **41**: 861 (May) 1941. Bishop, Boycott and Zuckerman.<sup>2</sup> Mazer, Israel and Ravetz.<sup>4</sup> Winterton and MacGregor.<sup>5</sup> MacBryde, Freedman, Loeffel and Allen.<sup>6</sup> Jeffcoat.<sup>8</sup>

12 Karnaky, J. J. Endocrines in Gynecology and Obstetrics with Special Reference to Stilbestrol in Treatment of Uterine Bleeding—Original Research on Menstruation. *Texas State J. Med.* **36**: 379 (Sept.) 1940. Palmer, Allan. Clinical Experiments with Stilbestrol. II. The Treatment of Uterine Bleeding, *Am. J. Obst. & Gynec.* **41**: 1018 (June) 1941.

13 Selye, Hans. On the Toxicity of Estrogens with Special Reference to Diethylstilbestrol, *Canad. M. A. J.* **41**: 48 (1939). Tislowitz, R. Toxic Action of Large Doses of Diethylstilbestrol on the Blood in Dogs, *Acta brev. Neerland.* **9**: 15, 1939. Loeser.<sup>5</sup> Shorr, Robinson and Papanicolaou.<sup>11</sup>

14 Castrodale, Dante, Bierbaum, Olga, Helwig, E. B. and MacBryde, C. M. Comparative Studies of the Effects of Estradiol and Stilbestrol on the Blood, Liver and Bone Marrow. *Endocrinology* **29**: 363 (Sept.) 1941. Tislowitz, R., and Dingemans, E. Effect of Large Doses of Estrogens on the Blood Picture of Dogs. *ibid.* **29**: 817 (Nov.) 1941. Selye.<sup>13</sup>

15 Freed, S. C., Rosenbaum, E. E. and Soskin, Samuel. Alleged Hepatotoxic Action of Stilbestrol, *J. A. M. A.* **115**: 2264 (Dec. 28) 1940. Morrell, J. A., and Hart, G. W. Studies on Stilbestrol. III. Some Effects of Continuous Injection of Stilbestrol in Normal and Castrate Adult Rats, *Endocrinology* **29**: 495 (Dec.) 1941. Mazer, Israel and Ravetz.<sup>4</sup>

16 Davis, M. E. and Boynton, M. W. Indications, Clinical Use and Toxicity of 4,4'-Dihydroxy Diethylstilbene, *J. Clin. Endocrinol.* **1**: 337 (April) 1941. MacBryde, C. M., Freedman, Harold, Loeffel, Ellen and Castrodale, Dante. Synthetic Estrogen Stilbestrol, *J. A. M. A.* **115**: 410 (Aug. 10) 1940. Morrell, J. A. Stilbestrol. Summary of Some Clinical Reports on Stilbestrol, *J. Clin. Endocrinol.* **1**: 418 (May) 1941. Mazer, Israel and Ravetz.<sup>4</sup> Karnaky.<sup>1</sup> Freed, Rosenbaum and Soskin.<sup>15</sup> Van Haam, Hammel, Rardin and Schoene.<sup>17</sup>

17 Von Haam, Emmerich, Hammel, M. A., Rardin, T. E., and Schoene, R. H. Clinical Studies on Stilbestrol, *J. A. M. A.* **115**: 2277 (Dec. 28) 1940.

18 Serby, H. M., Freed, S. C., and Soskin, Samuel. Unpublished work.

19 Freed, S. C. Recent Progress in Estrogen Therapy. *ibid.* **1**: 137 (Aug.) 1941.

20 Greene, R. R., and Dorr, E. M. Relation of Dose and Type of Estrogen to Nausea and Vomiting, *J. Clin. Endocrinol.* **1**: 921 (Oct.) 1941.

21 Freed, S. C., Fisin, W. M., and Greenhill, J. I. The Efficiency of Diethylstilbestrol Dipalmitate to Relieve Epigastric Distress.



intestinal symptoms rarely developed in women who received injections of 5 mg of the substance, while similar quantities of diethylstilbestrol induced nausea in 40 per cent of the cases. Other symptoms such as dizziness, headache and nervousness were also absent which would lead one to suspect that these are on the same physiologic basis as the gastrointestinal symptoms.

#### CONCLUSION

Diethylstilbestrol, a synthetic compound, is a potent estrogen effective by mouth as well as by injection and intrunction. This substance is a reliable therapeutic agent for those conditions which have been recognized by the Council as suitable for estrogen therapy, namely the symptoms of the menopause including other conditions relating to deficiency of estrogens such as senile vaginitis, kraurosis vulvae and pruritus vulvae and gonorrheal vaginitis of children. In addition, the Council recognizes the use of diethylstilbestrol in the appropriate doses for the suppression or prevention of lactation under certain conditions. In the treatment of ovarian disturbances, diethylstilbestrol and natural estrogens have been demonstrated to be of some benefit in treating functional uterine bleeding, either menorrhagia or menometrorrhagia but further evidence is awaited before a proper evaluation of this therapy can be made. The question of the toxicity of diethylstilbestrol is still not completely settled but it appears most likely that this substance is not significantly more damaging to the tissues than the natural estrogens. Proof that diethylstilbestrol, in therapeutic doses is harmful has not been presented. The development of unpleasant symptoms following diethylstilbestrol administration is apparently not the result of pathologic changes in organs, and these symptoms may be obviated to a considerable extent by the use of smaller than average doses in initiating therapy.

In view of the evidence presented in this report that diethylstilbestrol is an effective estrogen the Council voted to accept this substance for inclusion in New and Nonofficial Remedies for a period of one year, at the end of which time a reevaluation of this substance with regard to toxicity will be made for further action.

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

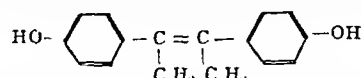
AUSTIN E. SMITH, M.D., Acting Secretary

#### DIETHYLSTILBESTROL

Dodds and his co-workers after extensive experimentation with synthetic substances, recognized the estrogenic activity of the stilbene compounds. Diethylstilbestrol is the most potent of these compounds described up to the present time. It may be prepared in a variety of ways from nonbiologic organic chemicals. Its physiologic activity duplicates practically all the known actions of natural estrogens. Thus it induces estrus in rodents, stimulates the growth of the endometrium and myometrium, primes the endometrium for progestational changes, causes reddening of the sex skin of monkeys and feminization of the plumage of birds, induces growth of mammary ducts in female and male animals as well as in human beings, raises the blood fat and calcium in fowl, induces uterine bleeding in castrate animals and human beings and suppresses ovulation as well as inhibits the secretion of various factors of the anterior pituitary gland resulting in stunting of growth, inhibition of lactation and atrophy of the gonads. It differs in its action from natural estrogens in its inability to cause the ovipositor reaction of the female bittern and to antagonize the action of androgens on comb growth of capons. The therapeutic use has been demonstrated to be effective for all those conditions recognized to respond to the natural estrogens. Various modifications of diethylstilbestrol have been devised such as fatty acid esters and a number of ethers for increasing the estrogenic efficiency of this substance. These are at present the subject of clinical and physiologic investigations. Diethylstilbestrol possesses the advantage of being relatively active by mouth as well as parenterally. The ratio of potency between oral and parenteral administration varies in the hands of different investigators

from 1/2 to 1/5 in the human being as well as in rodents. In the therapeutic use of diethylstilbestrol there may be a significant incidence of side reactions, the most common of these being nausea, vomiting and headache. It has been considered that these were the result of tissue damage, but no evidence has been presented that therapeutic amounts are actually harmful to human beings and there appears to be conclusive evidence that experimentally diethylstilbestrol is not significantly more toxic than the natural estrogens. It is now considered that the unpleasant symptoms arising from diethylstilbestrol administration are systemic in origin rather than local, probably because of its rapid absorption into the blood stream since few untoward symptoms are observed with the use of diethylstilbestrol compounds which are slowly absorbed from the site of administration.

**DIETHYLSTILBESTROL**— $\alpha$ - $\alpha'$ -diethyl-4,4'-stilbenediol—3,4-bis-(*p*-hydroxyphenyl)-3-hexene— $C_{26}H_{28}O$  (M. W. 268.34). Diethylstilbestrol has the following structural formula:



It may be prepared from anisaldehyde by (a) refluxing with an aqueous alcoholic solution of potassium cyanide to form anisoin, (b) reduction of the anisoin to desoxyanisoin, (c) ethylation by means of ethyl iodide and sodium ethylate to form ethyldesoxyanisoin, (d) treatment with ethyl magnesium bromide to form 3,4-dianisyl-3-hexanol, (e) dehydration to form diethylstilbestrol dimethyl ether and (f) demethylation by treatment with alcoholic potassium hydroxide to form diethylstilbestrol. The product thus obtained may be purified by recrystallization from dilute alcohol.

**Actions and Uses**—This compound is indicated for estrogen therapy in the following conditions: menopausal symptoms, senile vaginitis, kraurosis vulvae and gonorrheal vaginitis of children. It is also of value in suppressing painful engorgement of the breasts in the puerperium and the inhibition of lactation under certain conditions.

**Dosage**—The average therapeutic dose for the treatment of menopausal symptoms is 0.5 to 1.0 mg. daily by mouth, although it is advised to start with smaller doses for patients who tend to develop disagreeable symptoms. Courses of therapy with periods of a few weeks of no treatment are recommended by some authorities. Injection of similar quantities of diethylstilbestrol in oil solution are administered one or more times weekly. Ointment or suppositories containing this material may be used for topical applications in the treatment of vulvar and vaginal conditions. The contraindications to this substance are similar to those for natural estrogens, namely familial or personal history of malignancy of the reproductive organs.

#### Tests and Standards

Diethylstilbestrol occurs as a white odorless crystalline powder which melts at 169-171.5°C. When recrystallized from the various classes of solvents, diethylstilbestrol forms crystals containing one molecule of solvent of crystallization which is lost with relative ease on drying at 80°C. As a consequence the commercial product when viewed under the microscope appears as a fine powder or as pitted crystals showing evidence of loss of solvent of crystallization. When diethylstilbestrol is recrystallized from dilute ethanol and observed under the polarizing microscope before drying, the crystals appear as highly birefringent elongated rectangular plates exhibiting oblique extinction and positive biaxial character with many views showing an optic axis and occasionally the acute bisectrix. The optic angle is relatively large.

Diethylstilbestrol is readily soluble in ether, chloroform, benzene, ethanol, methanol and dilute sodium hydroxide; soluble in vegetable oils, slightly soluble in acetone and dilute ethanol; very slightly soluble in water and insoluble in dilute mineral acids.

Dissolve approximately 10 mg. of diethylstilbestrol in 10 cc. of dilute alcohol and add three drops of 1 per cent ferric chloride solution; a yellowish green color develops which changes to yellow. Add a few drops of 50 per cent solution of antimony pentachloride in dry alcohol free of chloroform to a very dilute solution of diethylstilbestrol in the same solvent; a red colored solution is produced. More concentrated solutions give a heavy red precipitate. Dissolve 10 mg. of diethylstilbestrol in concentrated sulfuric acid; an orange color is produced which disappears on dilution with water.

Prepare the diacetate of diethylstilbestrol by refluxing 100 mg. of diethylstilbestrol with 2 cc. of pyridine and 1 cc. of acetic anhydride for five minutes. Dilute with 20 cc. of water, filter the precipitate, wash several times with water and dry. Recrystallize the product from dilute ethanol and dry; the melting point is from 122°C. to 123.5°C. When viewed under the polarizing microscope crystals of the diacetate derivative appear as long rods exhibiting partial parallel extinction and a positive biaxial character. The refractive indexes are  $n_D = 1.530$ ,  $n_F = 1.560$  and  $\gamma > 1.635$ .

Dry an accurately weighed specimen of diethylstilbestrol to constant weight at 100°C.; the loss does not exceed 0.5 per cent. Ignite an accurately weighed specimen of diethylstilbestrol after the addition of concentrated sulfuric acid; the sulfated ash residue is not more than 0.05 per cent. Dissolve 0.1 Gm. of diethylstilbestrol in 10 cc. of warm



normal sodium hydroxide solution, dilute to 20 cc with distilled water and add five drops of 10 per cent sodium sulfide solution the darkening produced does not exceed that of a control to which has been added 0.02 mg of lead.

Transfer 0.1 Gm of diethylstilbestrol to a 100 cc volumetric flask, add 6 cc of 10 per cent sodium hydroxide solution and 30 cc of distilled water, shake to dissolve the diethylstilbestrol, then dilute to the mark with distilled water. Transfer 10 cc of the solution to a 250 cc iodine flask, fitted with an accurately ground stopper, add 10 cc of tenth normal bromide bromate solution (prepared according to the U S P XI, p 565), wash the walls of the flask and wet the stopper by the addition of 20 cc of distilled water. Quickly add 5 cc of 10 per cent hydrochloric acid and insert the wet stopper. Shake the mixture thoroughly for several minutes, then set aside in the dark and shake intermittently for thirty minutes. At the end of this period place 5 cc of 10 per cent potassium iodide solution around the stopper. Remove the stopper just enough to allow the potassium iodide solution to enter the flask, shake thoroughly, rinse the stopper and sides of the flask with distilled water and titrate with fiftieth normal sodium thiosulfate, using starch solution as the indicator near the end of the titration. Each cubic centimeter of tenth normal bromide bromate solution is equivalent to 2.064 mg of diethylstilbestrol. The diethylstilbestrol content is not less than 100 per cent.<sup>1</sup>

#### COLORIMETRIC ASSAY FOR DIETHYLSTILBESTROL

The following method based on the Folin Denis method for the detection of phenols<sup>2</sup> has been found reliable for the assay of diethylstilbestrol in tablets, oil solution and suppositories.

#### Reagents

##### 1 Standard diethylstilbestrol solution

Prepare a solution containing 0.1 mg of diethylstilbestrol per cubic centimeter as follows. Dissolve 50 mg of diethylstilbestrol in 100 cc of 95 per cent ethanol. Transfer 10 cc of this solution to a 50 cc volumetric flask, dilute to the mark with 50 per cent ethanol and shake well.

##### 2 Sodium hydroxide 1 N (4 per cent)

##### 3 Hydrochloric acid 10 per cent

##### 4 Saturated aqueous solution of sodium carbonate

Dissolve 35 Gm of anhydrous sodium carbonate in 100 cc of warm distilled water, allow the solution to cool, seed the supersaturated solution with a crystal of sodium carbonate and allow to stand one hour before using.

##### 5 Folin Denis solution

Place 350 cc of distilled water, 50 Gm of sodium tungstate, 12 Gm of phosphomolybdic acid (containing 72 per cent MoO<sub>3</sub>) and 25 cc of 85 per cent phosphoric acid in a 500 cc glass stoppered, round bottom flask. Boil under reflux for two hours, cool and dilute to 500 cc.

#### Procedure

Transfer 2 cc of the standard diethylstilbestrol solution to a 50 cc volumetric flask. Into a similar flask transfer a volume of the unknown solution equivalent to 0.2 mg of diethylstilbestrol. If the unknown solution contains alkali, add sufficient dilute hydrochloric acid to render the solution very slightly acid. Add to both flasks 1 cc of 10 per cent hydrochloric acid, 1 cc of the Folin Denis reagent and sufficient distilled water to make 30 cc. Shake and allow to stand for ten minutes. At the end of this period add 5 cc of saturated sodium carbonate solution, dilute to the mark with distilled water, mix thoroughly and allow to stand for twenty minutes. At the end of this period the solutions are filtered if necessary, and compared in a colorimeter. The comparison is facilitated by the introduction of a red filter in the light path.

**NOTE**—Tannins and other phenols interfere with this reaction. The presence of most phenols and salicylic acid in the extracts can be detected by the ferric chloride test, since diethylstilbestrol gives only a pale green yellow solution with this reagent. Tablet excipients such as starch, sugars, talc or calcium carbonate and preservatives such as chlorobutanol produced no color with this reagent.

#### Preparation of Extracts

##### (a) Diethylstilbestrol in oil

An amount of oil equivalent to 2 mg of diethylstilbestrol is transferred to 20 cc of petroleum ether contained in a separatory funnel. This solution is extracted six times with small portions of 1 N sodium hydroxide, the extracts are diluted to 50 cc with distilled water and filtered through a filter paper previously moistened with water. The first 10 cc of the filtrate is discarded, 5 cc (0.2 mg diethylstilbestrol) of the remaining solution is transferred to a 50 cc flask and assayed in the manner already described. **NOTE**—Certain vegetable oils contain phenolic derivatives (e.g. sesamol in sesame oil), which lead to erroneous results. Therefore it is necessary, particularly for dosage forms containing less than 2 mg per cubic centimeter of oil to prepare the standard by addition of an equivalent amount of the same kind of oil, free from diethylstilbestrol, to a separator containing 20 cc of petroleum ether followed by the addition of the requisite amount of crystalline diethylstilbestrol and to follow the extraction procedure indicated for the dosage forms.

##### (b) Diethylstilbestrol in gelatin glycerin suppositories

A number of suppositories equivalent to 1 mg of diethylstilbestrol are dissolved in 20 cc of hot distilled water containing 4 cc of 1 N sodium hydroxide. This solution is transferred quantitatively to a small separatory funnel by means of distilled water containing a few drops of 1 N sodium hydroxide. The contents of the funnel are neutralized with 10 per cent hydrochloric acid, and 5 cc excess is added. The acid solution is extracted six times with ether. The combined ether extracts are dried with a small quantity of anhydrous sodium sulfate and decanted into a small distilling flask. The sodium sulfate is rinsed with several portions of ether, and this is added to the main portion of the ether extract. The ether is now distilled to dryness on the water bath, the residue is dissolved in exactly 10 cc of ethanol, and 2 cc of the resulting solution is transferred to a 50 cc flask and assayed as described.

<sup>1</sup> The nature of the reaction between bromine and diethylstilbestrol leads to complications unless the conditions of a given procedure are strictly observed. It has been found that the procedure given above tends to yield results which are somewhat higher than 100 per cent. This method of standardization must be considered tentative until more accurate analytic procedures are available.

<sup>2</sup> Folin, Otto, and Denis, W. J. Biol. Chem. 12: 239, 1912.

#### (c) Diethylstilbestrol in tablets

In certain instances when the tablet contains only sugar and small amounts of starch as excipients, it has been found possible to dissolve the tablet directly in 0.5 N sodium hydroxide and to use an aliquot of this extract for assay. However, in the presence of large quantities of starch and in the case of enteric coated tablets where the excipient formed gelatinous precipitates, the following procedure has been found satisfactory.

A number of uncoated tablets equivalent to approximately 2 mg are allowed to disintegrate in a separator containing approximately 30 cc of distilled water. (The number of tablets used will depend largely on the quantity of diethylstilbestrol in the tablet. In the case of 0.1 mg tablets the quantity of excipients introduced into the separator funnel produces disturbing emulsions if a number equivalent to 2 mg of diethylstilbestrol is used. Therefore, 5 or 10 tablets are generally used in this case.) In the case of enteric coated tablets the water soluble dye is removed by rotating gently in distilled water followed by several rinsings, the calcium carbonate layer is removed by treatment with dilute hydrochloric acid and the tablets are next crushed in a test tube with a blunt end rod and the powder is transferred quantitatively to a separator containing 30 cc of distilled water. Five cc of 10 per cent hydrochloric acid is added and the same extraction procedure followed as described in (b).

**DIODRAST COMPOUND SOLUTION**—An aqueous solution containing approximately 40.5 per cent (W/V) of the diethanolamine salt of 3,5-diiodo-4-pyridone-N-acetic acid and approximately 9.5 per cent (W/V) of the diethylamine salt of 3,5-diiodo-4-pyridone-N-acetic acid. Diodrast compound solution contains about 25 per cent (W/V) of iodine in organic combination.

**Actions and Uses**—Diodrast compound solution is employed for roentgenographic visualization of the urinary tract by intravenous injection or by direct injection into the renal pelvis through a ureteral catheter. It is designed to provide a relatively large amount of iodine in a small volume of solution particularly for injection of obese subjects or for patients who cannot or will not cooperate in the preliminary preparation for excretion urography with diodrast. It is usually unnecessary to expose more than one or two films. Delayed, incomplete or absent shadows are given the same interpretation as when diodrast is employed. The same contraindications and precautions should be observed as for diodrast.

**Dosage**—For excretion urography, diodrast compound solution is administered intravenously in sterile aqueous solution, the average dose for adults being 20 cc. Diodrast Compound Solution may be employed without dilution for retrograde pyelography. For economy, more dilute solutions are customarily used with satisfactory results. Eight cc of Diodrast Compound Solution (50 per cent concentration of radiopaque material) when diluted with 12 cc of sterile distilled water yields 20 cc of 20 per cent concentration. Five cc of Diodrast Compound Solution diluted with 15 cc of sterile distilled water (final concentration 12.5 per cent) gives wholly satisfactory pyelograms, this dilution is generally employed with excellent results in thin individuals. The volume of fluid generally required for retrograde examination in adults is 20 cc.

#### Tests and Standards

Diodrast compound solution is prepared by neutralizing 3,5-diiodo-4-pyridone N-acetic acid in water with appropriate quantities of diethanolamine and diethylamine. The mixture thus formed (not isolated in solid form) is soluble in water.

Diodrast compound solution occurs as a clear, pale yellow, odorless liquid, possessing a bitter taste. It is neutral to litmus and is incompatible with mineral acids and heavy metal salts. Its specific gravity is about 1.270 at 25°C.

Dilute about 0.5 cc of diodrast compound solution to 5 cc with water and acidify with hydrochloric acid, collect the precipitate on a filter, wash with cold water and dry at 100°C. The 3,5-diiodo-4-pyridone N-acetic acid obtained melts at 245-249°C with decomposition (the melting point both previously heated to 200°C).

Dilute about 1 cc of diodrast compound solution with 20 cc of water, add 5 cc of approximately 50 per cent sodium hydroxide solution and distill into about 25 cc of normal hydrochloric acid. Evaporate the solution containing the distillate to dryness on a water bath, recrystallize the residue from alcohol by the addition of diethyl ether, dry the product under partial vacuum. The melting point of the diethylamine hydrochloride obtained is from 224 to 227°C with solidification.

Acidify the alkaline residue remaining in the distilling flask with dilute hydrochloric acid, remove the solution from the flask and evaporate to about one third of its volume. Cool the concentrated solution in ice water for fifteen minutes with occasional shaking, filter and concentrate the filtrate to a syrup. Treat the syrupy residue with 5 cc of absolute alcohol, neutralize dropwise with normal sodium hydroxide, filter, wash and finally dilute the filtrate to about 8 cc with alcohol. Add about 0.5 Gm of picric acid (trinitrophenol) to the solution, cool and place in the ice chest. Collect the precipitate on a filter, recrystallize from absolute alcohol and dry under partial vacuum. The melting point of the diethanolamine trinitrophenolate obtained is between 109 and 110°C.

Dilute 20 cc of diodrast compound solution, accurately measured to 200 cc in a calibrated flask. Use portions of the diluted solution for the following determinations.

Evaporate 20 cc of the diluted solution accurately measured in a tared platinum dish on a water bath and dry to constant weight at 100°C. The weight of the residue is equivalent to not less than 40 per cent (W/V) nor more than 51 per cent (W/V) calculated from the original solution. Ash the residue in the presence of sulfuric acid. The weight of the ash obtained is equivalent to not more than 1 per cent.

Transfer 20 cc. of the diluted solution to an ammonia distillation apparatus add 50 cc of water 5 cc of 50 per cent sodium hydroxide and distill into 30 cc of fiftieth normal hydrochloric acid Titrate the excess acid with fiftieth normal sodium hydroxide using methyl red as the indicator the amount of fiftieth normal hydrochloric acid consumed by the distilled diethanolamine is equivalent to not less than 14 per cent (W/V) and not more than 17 per cent (W/V) calculated to the original solution

Acidify the residue remaining in the Kjeldahl flask used in the foregoing determination with sulfuric acid Concentrate the mixture and digest with 10 cc. of sulfuric acid and 0.5 Gm of selenium metal until clear Cool dilute with 100 cc of water transfer to the ammonia distillation apparatus and add in excess of 50 per cent sodium hydroxide Distill into 50 cc of tenth normal hydrochloric acid and titrate the excess acid with tenth normal sodium hydroxide using methyl red as the indicator the amount of tenth normal hydrochloric acid consumed by the distillate is equivalent to a diethanolamine content of not less than 8.0 per cent (W/V) nor more than 8.3 per cent (W/V)

Transfer a 10 cc portion of the diluted solution to a 50 cc beaker heat gently to boiling and add exactly 12 cc of silver nitrate solution Stir until the precipitate becomes granular cool in ice water for thirty minutes with occasional stirring filter through a tared gooch crucible using the cold filtrate to wash the beaker and wash the precipitate with 5 cc of ice cold water dry to constant weight at 110°C To the weight of the precipitate (silver salt of 3,5-diiodo-4-pyridone N-acetic acid) found add 0.00135 Gm as a solubility correction the weight of silver 3,5-diiodo-4-pyridone acetate found is equivalent to a content of 3,5-diiodo-4-pyridone-N-acetic acid of not less than 40.25 per cent (W/V) nor more than 40.6 (W/V) calculated to the original solution

WINTHROP CHEMICAL COMPANY, INC., NEW YORK

Ampul Diodrast Compound Solution 20 cc

U S Patent No 1993 039 (March 5 1935 expires 1952) U S trademark No 312 431

ASCORBIC ACID (See New and Nonofficial Remedies, 1941, p 557)

The following dosage forms have been accepted

THE W. S. MERRELL CO., CINCINNATI

Tablets Ascorbic Acid 50 mg and 100 mg

SMITH-DORSEY CO., LINCOLN, NEB

Tablets Ascorbic Acid 100 mg

NICOTINIC ACID-U S P (See New and Nonofficial Remedies, 1941, p 555)

The following dosage form has been accepted

THE LAKESIDE LABORATORIES, INC., MILWAUKEE

Tablets Nicotinic Acid 50 mg

SOLUTION OF EPINEPHRINE HYDROCHLORIDE 1 100 (See New and Nonofficial Remedies, 1941, p 257)

The following dosage form has been accepted

THE LAKESIDE LABORATORIES, INC., MILWAUKEE

Solution of Epinephrine Hydrochloride, 1 100 5 cc screw-capped vials Each cubic centimeter contains epinephrine hydrochloride, 0.5 per cent chlorobutanol and 1 per cent sodium bisulfite in isotonic sodium chloride solution saturated with carbon dioxide

EPHEDRINE SULFATE (See New and Nonofficial Remedies 1941, p 247)

The following dosage forms have been accepted

GEORGE A. BREON & CO., INC., KANSAS CITY, MO

Ephedrine Sulfate 1% Nasal Jelly with Sodium Chloride ½ oz collapsible tube Ephedrine sulfate 1 per cent with sodium chloride 0.8 per cent in a water soluble boroglycerin jelly base

ENDO PRODUCTS, INC., RICHMOND HILL, N Y

Solution Ephedrine Sulfate, 3% 1 oz bottle Each hundred cubic centimeters contains ephedrine sulfate U S P 3 Gm, chlorobutanol 0.5 Gm and distilled water to make 100 cc

MENADIONE (See THE JOURNAL, Jan 17, 1942, p 226)

The following dosage form has been accepted

SCHIEFFELIN & CO., NEW YORK

Tablets Menadione 1 mg

RIBOFLAVIN (See New and Nonofficial Remedies, 1941, p 553)

The following dosage forms have been accepted

INTERNATIONAL VITAMIN SALES CORPORATION, NEW YORK

Tablets Riboflavin 5 mg

THE UPJOHN COMPANY, KALAMAZOO, MICH

Tablets Riboflavin 1 mg

SULFANILAMIDE (See New and Nonofficial Remedies, 1941 p 503)

The following dosage form has been accepted

FREDERICK STEARNS & CO., DETROIT

Tablets Sulfanilamide 0.3 Gm (5 grains)

THIAMINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1941, p 551)

The following dosage form has been accepted

WHITE LABORATORIES, INC., NEWARK, N J

Tablets Thiamine Hydrochloride 5 mg

PHENOBARBITAL (See New and Nonofficial Remedies, 1941, p 141)

The following dosage forms have been accepted

FLINT, LATON & COMPANY, DECATUR, ILL

Tablets Phenobarbital (White and Green) 0.016 Gm (¼ grain), 0.032 Gm (½ grain) and 0.1 Gm (1½ grains)

IMMUNE GLOBULIN (HUMAN) (See New and Nonofficial Remedies, 1941, p 421)

The following dosage form has been accepted

SHARP & DOHME, INC., PHILADELPHIA

Vacule Ampoule-Vials Lyovac Immune Globulin (Human) Containing amounts sufficient to yield 2 cc and 10 cc. of restored globulin, packaged respectively with 2 cc and 10 cc ampuls of distilled water as a diluent, preserved with 0.35 per cent phenol A dried form of immune globulin (human)

NIKETHAMIDE (See THE JOURNAL, March 28, 1942, p 1052)

The following dosage form has been accepted

LEDERLE LABORATORIES, INC., NEW YORK

Ampul Solution Nikethamide 15 cc and 5 cc

CALCIUM GLUCONATE (See New and Nonofficial Remedies, 1941, p 176)

The following dosage form has been accepted

ENDO PRODUCTS, INC., RICHMOND HILL, N Y

Solution Calcium Gluconate 10% W/V Stabilized with Calcium d-Saccharate 0.8% W/V 10 cc ampuls Each ampul contains a sterile distilled water solution of calcium gluconate-U S P 10 Gm., stabilized with calcium d-saccharate 0.08 Gm

AMNIOTIN (See New and Nonofficial Remedies, 1941, p 375)

The following additional dosage form has been accepted

E. R. SQUIBB & SONS, NEW YORK

Amniotin in Corn Oil 10 cc vials, 20,000 International Units per cc

SOLUBLE IODOPHTHALEIN (See New and Nonofficial Remedies, 1941, p 233)

The following dosage forms have been accepted

MERCK & CO., INC., RAHWAY, N J

Iodophthalein Soluble (Powder) 3½ Gm, 25 Gm and 100 Gm bottles

PROCAINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1941, p 80)

The following dosage form has been accepted

LAKESIDE LABORATORIES, INC., MILWAUKEE

Procaine Hydrochloride 2% 30 cc and 100 cc vials Each cubic centimeter contains procaine hydrochloride 0.02 Gm, sodium bisulfite 0.001 Gm and chlorobutanol 0.005 Gm in isotonic sodium chloride solution

SULFANILAMIDE (See New and Nonofficial Remedies 1941, p 503)

The following dosage form has been accepted

SMITH-DORSEY COMPANY, LINCOLN, NEB

Tablets Sulfanilamide 2½ grains and 7 grains

TETANUS TOXOID, ALUM PRECIPITATED (See New and Nonofficial Remedies 1941, p 470)

PARKE, DAVIS & COMPANY, DETROIT

Tetanus Toxoid, Alum Precipitated (Refined) Marketed in packages of two 1 cc vials (one immunization treatment) and in packages of one 10 cc. vial (five immunization treatments)

THE JOURNAL OF THE  
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SATURDAY, JUNE 20, 1942

THE ATLANTIC CITY SESSION

With 8,238 physicians registered, the Atlantic City session exceeded all expectations. Gasoline rationing on the Eastern Seaboard, it seemed, might interfere seriously with the annual session, but fortunately the interest among the medical profession was so great that physicians poured in by every possible means of conveyance. Until 1935, registration in Atlantic City had never exceeded 5,000. In that year it was 8,409, and in 1937 it was 9,764. The registration, therefore, was particularly gratifying.

The outstanding feature of the 1942 session was the attendance of visitors from Latin America, also discussed editorially in this issue. There were 140 physicians who registered from other American nations. Many of them participated in the programs of the various sections and in the general scientific meetings. They added greatly to both the interest and the glamour of the occasion.

The great convention hall in Atlantic City is obviously an attraction for any assemblage, but particularly for one like that of the American Medical Association. All the various scientific sections, the Scientific Exhibit and the Technical Exposition were housed under a single roof.

The lower floor was occupied by the Scientific Exhibit. Hundreds of exhibitors were constantly in attendance. The booths were magnificent in a blue decorative scheme. At various times some six or eight motion picture theaters were in operation, as well as special assembly halls for lectures and demonstrations on diabetes, heart disease and infantile paralysis. All these features played, in the stage vernacular, to capacity attendance. Again and again one heard the comment that the Scientific Exhibit of the American Medical Association is the greatest postgraduate training course ever assembled anywhere in the world. Our visitors from Latin America expressed their continuous amazement and gratification at the display, and many of them participated in special exhibits on tropical disease, nutritional conditions in Latin American countries and

other research projects. The Technical Exposition occupied the entire first floor of the convention hall and played likewise to capacity attendance. One exhibitor said "I would have been more than gratified with an attendance of four thousand."

The House of Delegates in Atlantic City was concerned largely with problems of organization leading to improved functions of the Association, problems related to the war and medical service plans. Portions of the minutes of the House of Delegates appear in this issue of THE JOURNAL and the remainder will be published in the weeks that follow.

One of the general scientific meetings was devoted to addresses by the inter-American guests. Another was devoted to war problems and the third to problems of general clinical importance. All these were attended by thousands of visitors. The special section meetings devoted to general practice and to legal medicine also attracted great numbers, indeed, both of the general practice sections had more than a thousand participants.

The Woman's Auxiliary had innumerable fine meetings and had developed exceptional programs of interest to workers in that field. The Auxiliary now has more than twenty thousand members, with a large House of Delegates. Its activities spread into many fields. It is proving to be a factor of great importance in promoting public health and American medicine.

Throughout the week the special qualities of Atlantic City for a session of this type became more and more apparent. All the great hotels were filled to capacity, and the innumerable dining halls and banquet rooms were used to the utmost. Many medical fraternities, clubs, alumni organizations and special societies held their meetings simultaneously with the meeting of the American Medical Association. A special dinner was tendered to the Board of Trustees by the Local Committee on Arrangements, and the Atlantic County Medical Society provided a sumptuous repast for the House of Delegates, at which Mr. Paul V. McNutt was the chief speaker. The message of Mr. McNutt on that occasion appears as the leading article in this week's issue of THE JOURNAL.

In the midst of this scientific congress the note of war was an ever present overtone. Twice during the week great convoys of ships, accompanied by destroyers and blimps, passed off shore and gave visible assurance that our nation is carrying on. From time to time interceptor planes and bombers flew out over the ocean. At night the boardwalk was dimmed out, yet hundreds of visitors walked or rode in the man propelled chairs over its pleasant paths. So the ninety-third annual session of the American Medical Association passed into history, the eleventh to be held in Atlantic City, the first annual session of World War II, a triumph in its accomplishments, a tribute to the indomitable spirit of American medicine.

### THE PRESIDENT-ELECT, JAMES E PAULLIN

The election of Dr James E Paullin, Atlanta, Ga, to the presidency of the American Medical Association by the House of Delegates at the annual session in Atlantic City is recognition of another son of the South whose career in the field of internal medicine and in the field of medical citizenship merits this high distinction. Dr Paullin was born in Fort Gaines, Ga, Nov 3, 1881. After graduation from Mercer University with the degree of bachelor of arts in 1900 he continued as a graduate student throughout 1901 and then entered Johns Hopkins University School of Medicine, from which he received the degree of doctor of medicine in 1905. He turned then briefly to pathology, acting as resident pathologist of the Rhode Island Hospital in Providence from 1905 to 1906, as resident in the Piedmont Hospital in 1906 and 1907, as pathologist to the Georgia State Board of Health from 1907 to 1911 and at the same time as associate professor of pathology of the Atlanta College of Physicians and Surgeons. In 1909 he first turned his attention to internal medicine, becoming associate visiting physician to Grady Hospital from 1909 to 1913. Then he was made visiting physician and chief of the Emory University Division, Grady Hospital. Two years later he became professor of clinical medicine at Emory University School of Medicine.

With the outbreak of World War I, Dr Paullin became major in the Medical Corps of the United States Army and served as chief of the medical service in Camp Shelby, Miss. In the field of medical organization he has come through all the ranks of organized medicine, as president of his county medical society in 1913, later of the Medical Association of Georgia, also chairman of the Section on Practice of Medicine of the American Medical Association in 1928, member of the Council on Scientific Assembly since 1933 and chairman since 1937. In the House of Delegates where he has represented the Section on Practice of Medicine he has been a member of many important reference com-

mittees and more recently a member of the Committee on Medical Preparedness of the American Medical Association. He became a fellow of the American College of Physicians in 1928 and has served at various times as regent and chairman of various committees, coming to be president-elect for 1941-42 and president for 1942-43. With the beginning of preparations for World War II he was called early to the work of the Division of Medical Sciences of the National Research Council and gave largely of his time to the classification of specialists in the field of internal medicine throughout the nation and as a member of

the Committee on Medicine of the Division of Medical Sciences of the National Research Council.

His scientific contributions have included many papers published in leading periodicals. In other scientific organizations he served as president of the American Clinical and Climatological Society in 1937 and also as chairman of the Medical Section of the Southern Medical Association. His distinction has been recognized by election to Alpha Omega Alpha and he has been guest professor of medicine at Peter Bent Brigham Hospital and at the Pratt Diagnostic Clinic of Tufts College Medical School in Boston. Early in 1942 he went to Cuba to aid in the organization of the Finlay Institute of



JAMES E PAULLIN, M.D.  
PRESIDENT-ELECT OF THE AMERICAN MEDICAL ASSOCIATION

the Americas for the securing of interchange of scientific medicine with the Latin American countries. He was decorated by President Batista with the Order of Carlos Finlay.

Thus at the inception of his term as President-Elect of the American Medical Association Dr Paullin is especially well fitted to continue the inter-American scientific development that was well initiated at the annual session which has just ended. The intimate knowledge of the development of medical personnel for our army which he acquired in serving as a member of the Board of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians is an important attribute for the leadership of American medicine in these times.

### LUDVIG HEKTOEN RECEIVES DISTINGUISHED SERVICE MEDAL

The award of the Distinguished Service Medal of the American Medical Association for 1942 was made to Dr. Ludvig Hektoen, who on July 2, 1942 will celebrate his seventy-ninth birthday. His career as a medical scientist has won him the admiration and the love of every one who knows him. The young men whom he has encouraged and stimulated are many in number.

The medical career of Ludvig Hektoen began with a job as druggist in a hospital, which became for him an inspiration to the

study of medicine. He graduated in 1887 from the College of Physicians and Surgeons in Chicago, then served as apothecary in the Illinois Eastern Hospital for the Insane and subsequently made first place in the examination for internship at the Cook County Hospital. In this capacity he came under the direct instruction of Christian Fenger and turned naturally to pathology for a career. He was made curator of the museum of Rush Medical College in 1889 and in 1891 became professor of general pathology in his alma mater. In 1892 he became professor of pathologic anatomy and in 1894 professor of morbid anatomy and director of the laboratory of normal and pathologic histology,

bacteriology and hygiene in Rush Medical College. From that time onward his career has been a series of new appointments and new obligations in every field of medical science and public work.

Dr. Hektoen has been pathologist to the Presbyterian Hospital and head of the department in the University of Chicago and of pathology of St. Luke's Hospital. He established in 1902 the John McCormick Institute for Infectious Diseases and became its director. In 1932 he was made a member of the National Advisory Health Council of the U. S. Public Health Service and later became chairman of the Advisory Committee of the National Cancer Institute. In April 1915 he became chairman of the Committee on Scientific Research of the American Medical Association, in which position

he has been instrumental in determining grants of funds for research carried on throughout the country. In 1916 Dr. Hektoen gave the Cutter Lecture of the Harvard University Medical School and received the honorary degree of Doctor of Science from the University of Wisconsin. He was president of the American Society for Experimental Pathology. He received in 1920 the honorary degree of Doctor of Laws from the University of Cincinnati. In 1924 he was chairman of the Division of Medical Sciences of the National Research Council and in the same year he was appointed consultant pathologist in the U. S. Public Health

Service. In 1926 he served again as chairman of the Division of Medical Sciences of the National Research Council. The Norwegian government gave him its most distinguished recognition, the Order of St. Olaf, in 1929.

Throughout much of his life Dr. Hektoen has been engaged in special work in the field of cancer, serving for many years as a member of the board of directors of the American Society for the Control of Cancer and also as a member of the board of directors and of the advisory board of the Chicago Tumor Institute. In his career, however, he has been interested in every phase of medical science. Essays on pathology have been interspersed with scientific research on bacteri-

ology, parasitology, immunology and cancer. He has maintained a personal and intense interest in medical history and in all problems of social organization which involve medical knowledge. The bibliography of his writings includes many hundreds of references but fails to include innumerable reviews, official documents and miscellaneous writings that give a true picture of the contribution that he has made. He has been editor of the *Journal of Infectious Diseases* since it was first established in 1904 and also editor of the *Archives of Pathology* since its first number in 1925. He has also been at various times editor of the *Proceedings of the Institute of Medicine of Chicago*, chairman of its board of governors and editor of the *Transactions of the Chicago Pathological Society*. A special issue of



LUDVIG HEKTOEN, M.D.  
AWARDED DISTINGUISHED SERVICE MEDAL



the *Archives of Pathology*, dedicated to him at the time of his seventy-fifth birthday, carried the names of more than a hundred physicians who have at one time or another come directly under his preceptorship or inspirational leadership

Last year as a native of Wisconsin, Dr Hektoen was awarded the Distinguished Service Award of the State Medical Society of Wisconsin The Distinguished Service Medal of the American Medical Association, the greatest token of distinction in science offered by the American Medical Association, comes to him as a recognition by this great body of the tremendous contribution that he has made When he was notified of this honor, Dr and Mrs Hektoen came at once to the place of the annual session in Atlantic City, the medal was conferred on him at the opening general meeting by Dr Fred Rankin, President of the Association

## Current Comment

### INTER-AMERICAN GUESTS IN ATLANTIC CITY

A significant feature of the 1942 annual session of the American Medical Association was the attendance of our guests from other American nations Hawaii, the Philippines and Puerto Rico were represented as constituent parts of the American Medical Association Indeed, the representative from the Philippines, Dr Benvenuto R Dino, had escaped from Corregidor to Mindanao with President Manuel Quezon in a submarine and had flown from Mindanao to Australia and then reached the United States with President Quezon aboard the *President Coolidge* From other parts of the world came 140 representatives, including 56 from Canada, 13 from Brazil, 11 from Cuba, 10 from Colombia, 9 from Argentina, 7 from Mexico, 7 from Chile, 5 from Venezuela and smaller numbers from Costa Rica, Peru, San Salvador, Haiti, Uruguay, Bolivia and Paraguay Guests were also in attendance from South Africa, Persia China, Greece and British Guiana Following is a list of the inter-American representatives who appeared on the scientific programs

#### SOUTH AMERICA

R David de Sanson, Rio de Janeiro, Brazil, Section on Laryngology, Otology and Rhinology

Luthero Vargas, Rio de Janeiro, Section on Orthopedic Surgery

Moacyr E Alvaro, São Paulo, Brazil, Section on Ophthalmology

Alejandro Lipschutz, Santiago de Chile, Section on Obstetrics and Gynecology

Jorge E Caveller, Bogota, Colombia, Section on Urology

Alberto Hurtado Lima, Peru, General Scientific Meetings and Section on Pathology and Physiology

#### MEXICO

Ignacio Chavez Mexico D F, General Scientific Meetings and Section on Experimental Medicine and Therapeutics

Francisco de P Miranda, Mexico D F, Section on Practice of Medicine

#### CUBA

Raimundo de Castro, Havana, Section on Miscellaneous Topics, Session on Legal Medicine

V Pardo Castello, Havana, Section on Dermatology and Syphilology

Enrique Saladrigas Zayas, Havana, General Scientific Meetings

#### PUERTO RICO

Enrique Koppisch, San Juan, General Scientific Meetings

#### CANADA

Wesley Bourne, Westmount, Que, Section on Anesthesiology  
John F McIntosh, Montreal, Que, General Scientific Meetings

George E Hall, Ottawa, Ont, General Scientific Meetings

D Y Solandt, Toronto, Ont, joint meeting of Section on Nervous and Mental Diseases and Section on Orthopedic Surgery

D E Staunton Wishart, Toronto, Ont, Section on Laryngology, Otology and Rhinology

Joseph A MacFarlane, Toronto, Ont, Section on Orthopedic Surgery

In subsequent issues of THE JOURNAL will appear many of these contributions and also some portraits and group pictures On June 10 the Board of Trustees and officers of the Association tendered a reception to all our inter-American visitors, which was a most pleasant occasion, serving to cement more fully the bonds of friendship initiated by this annual session Speaking as a representative of the inter-American group, one of their leaders urged that all future sessions of the American Medical Association feature the attendance of guests from inter-American countries He felt that times of peace would raise the number from 140 physicians who registered on this occasion to thousands THE JOURNAL here tenders to our inter-American guests the sincere appreciation of the American Medical Association for their cooperation at this time, when transportation made their attendance especially difficult Their contribution to the scientific programs, to many of the special meetings and occasions, and their congeniality were inspiring

### FOURTH OF JULY FIREWORKS INJURIES

From 1937 to 1941 inclusive the American Medical Association conducted annual summaries of injuries resulting from the celebration of the Fourth of July with fireworks The information summarized was obtained from questionnaires addressed to hospitals throughout the country The total number of injuries recorded in 1937 was 7,205 and in 1941 2,039, a significant reduction The number of deaths decreased from 20 in 1937 to 11 in 1941 Throughout this period THE JOURNAL has stressed the fact that adequate control of this unnecessary source of death and injury is dependent not only on adequate state legislation but on enforcement of existing laws as well This year a survey by the American Medical Association is not planned, but in the light of past experience it must be emphasized that neither legislative effort nor the work of enforcement agencies can be relaxed if a new rise in injuries and deaths is to be prevented Again THE JOURNAL cautions against any misguided sense of patriotism which might result in the increased use of fireworks on Independence Day 1942

### APPEALS COURT CONFIRMS DECISION OF DISTRICT OF COLUMBIA COURT

Announcement was made on June 15 that the United States Court of Appeals for the District of Columbia had affirmed the judgment of the lower court convicting the American Medical Association and the District of Columbia Medical Society. In accordance with the instructions of the House of Delegates and the Board of Trustees, attorneys of the American Medical Association propose, in effect, to appeal to the Supreme Court of the United States from the judgment of conviction.

### NEW OTORHINOLARYNGOLOGIC ABSTRACT JOURNAL

Under the chief editorship of Chevalier L. Jackson, the first issue of the *Quarterly Review of Otorhinolaryngology*, dated March 1942, has appeared. This abstract journal reproduces some illustrations, and the abstracts are arranged in systematic fashion under the main headings of Otology, Rhinology and Laryngology. Sections on Bronchology and Esophagology are to be included later. These main heads are further subdivided, and, at the end, in a section called General, articles covering more than one of the subdivisions are abstracted. The *Review* aims to cover not only the important journals published in the United States and Canada but also a carefully selected list of the leading publications of the Latin American countries.

### ANOTHER DIRECTORY SCHEME

Ingenuity leads to many an extraordinary plan for the making of money. To the secretary of a state medical board came a communication from the Dixie Letter Shop at Roanoke, Va., stating that the "shop" is preparing a mailing list of all physicians in the entire United States for the use of the United States government in addressing each of them, and requesting the secretary to mail at once a copy of the state roster of registered physicians, giving their names and addresses. Haste is urged, they want to commence addressing the government envelopes promptly on receipt of material from them. A postscript stated that the "shop" is endeavoring to secure an up to date list for use by the government, because the American Medical Directory, which came off the press in July 1940, is inadequate to meet the present emergency. Apparently the promoters never heard of the Directory Service, which continually brings up to date the latest edition of the American Medical Directory. Furthermore, they do not seem to be aware of the fact that the Directory is issued regularly and that this year's edition is in press. Furthermore, the National Roster of Scientific and Specialized Personnel has at present the latest addresses of all physicians in the United States, as a result of questionnaires which were recently mailed to all physicians by the government. What government agency requested this particular "shop" to prepare such a list? Since conservation of effort and materials is essential to defense, why need any one set up machinery for developing a new directory? State boards of licensure are hardly likely—at their own expense—to sup-

ply the Dixie Letter Shop with the lists requested. They ought to inquire "How come?" But perhaps the Dixie Letter Shop is just working on the old aphorism "It never hurts to ask, somebody might say 'Yes'."

### A CONTINUOUS HEALTH PROGRAM

Two fundamental difficulties—insecurity of tenure for competent health officers and political interference in public health work—constantly threaten health programs in many American communities. Racine, Wis., an industrial lake shore city of approximately seventy thousand population, has had its industrial ups and downs during the past twenty years, but throughout that time it has maintained an increasingly effective public health service. Its 1941 annual report<sup>1</sup> is a mimeographed statement with a printed cover, as distinguished from expensively printed reports featured elsewhere. Racine has had only two health officers in twenty years, the first resigned voluntarily to enter a larger field, and the second is serving his third consecutive term. There has been virtually no turnover in the personnel of the department, except as the result of voluntary resignation and deaths in service. Such continuity without political interference under four mayors makes for consistency of policy and for steady uninterrupted progress. Since 1927 the facilities and records of the city and its health work have been presented by the health officer in an effort to learn about shortcomings and to plan a program to meet demonstrated needs. During this time the city has been listed first in its class once and received honorable mention three times in the Interchamber Health Conservation Contest of the United States Chamber of Commerce in cooperation with the American Public Health Association. The latest citation was for 1941. In the Racine health program a high degree of cooperation has been developed between the medical profession and the public health department. Physicians have participated actively in immunization programs, large health programs and antepartum service. The medical society has steadily and consistently supported the health officer in his aims and has on occasion served him with constructive criticism. Racine has been rated by the American Public Health Association as one of three cities in the United States with the highest percentage of possible cases of measles and whooping cough reported. Eighty-five per cent of the expectant mothers of the community have been shown by surveys year after year to be under medical care by their own physicians not later than the sixth month of pregnancy. There is no antepartum clinic. Only four births in 1941 were attended by midwives and only thirty-nine did not occur in hospitals. The total number of births for 1941 was one thousand two hundred and sixty-three. The infant death rate was 27.5 per thousand living births. This report offers an indication of what can be done in a community which is not exceptionally privileged but which has put into its public health work the three essential ingredients of medical cooperation: security of tenure for competent personnel and minimum of political interference.

<sup>1</sup> City of Racine Department of Health Annual Report 1941, Racine, Wis.

# MEDICINE AND THE WAR

*In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession*

## THE NAVY NEEDS PHYSICIANS

Qualified physicians may still apply for appointment in the United States Naval Reserve. Rear Admiral Ross T. McIntire states that the Navy needs many more physicians, especially the younger men. The physician has free choice at the present time of applying for service in either the Navy or the Army. If he desires to apply for service in the Navy, he should communicate with the director of Naval Officer Procurement in his naval district. The Bureau of Medicine and Surgery will be pleased to advise any physician of the address of his director of Naval Officer Procurement if the address cannot be obtained otherwise.

## STUDENTS MAY ENLIST AS ENSIGNS IN THE NAVAL RESERVE

The Navy has not completed its quota of ensigns, H-V (P), U S Naval Reserve (medical students and premedical students accepted for admission to the next convening class in medical colleges). The recruitment program for appointments in class H-V(P), U S N R, will be continued. Senior medical officers in various offices of Naval Officer Procurement will be pleased to cooperate with the deans of medical schools in aiding students to apply for appointment in this classification.

## TREATMENT OF LEWISITE BURNS OF THE EYE

Carefully controlled work conducted by the National Research Council indicates that the most effective treatment for lewisite burns of the eye is washing with large amounts of 2 per cent solution of sodium bicarbonate in water or with plain water, which should be carried out as soon as possible after exposure. This information from the Office of Civilian Defense, Washington, D C, is made available especially because a previous news release dated March 31 referred to the treatment of lewisite burns of the eye with hydrogen peroxide which has been found to be ineffective.

## SPECIAL TRAINING FOR MEDICAL OFFICERS

Fifty-two officers of the medical department of the U S Army graduated at the Medical Field Service School, Carlisle Barracks Pa. June 6 after a special one month of training for particular assignments in the medical battalions of new infantry divisions to which all of these officers have been assigned. In a short ceremony, Brig-Gen. Addison D. Davis, commanding general at Carlisle Barracks, awarded the diplomas. Three members of the class belong to the Medical Administrative Corps and forty-nine to the Medical Corps. The members of this class came from twenty-five states and the District of Columbia. A succeeding class of fifty-six members arrived at Carlisle Barracks June 13 to begin the special training.

## COURSES IN THE TREATMENT OF BURNS

The Committee on Postgraduate Education of the Medical Society of the District of Columbia during May sponsored a postgraduate course in the modern treatment of burns and the prevention and treatment of chemical casualties, to which all physicians in the District and nearby Maryland and Virginia were invited and for which there was no charge. The first lecture, on May 18, was by Comdr. E. Harvey Cushing, M C, U S N R, and formerly of the faculty of medicine at Western

Reserve University and special observer in England for the U S Navy. The second lecture, May 25, was by Dr. Leon Goldman, assistant professor of dermatology, University of Cincinnati College of Medicine, and consultant in chemical warfare in the Office of Civilian Defense.

## COURSES IN CHEMICAL WARFARE IN LOS ANGELES

The Office of Civilian Defense in Washington, D C, sent instructors and necessary equipment to Los Angeles to present a three day intensive course on medical aspects of chemical warfare, beginning June 5. The first day's instruction was given in the Auditorium of the Los Angeles County General Hospital and the following two days' instruction at the Los Angeles County Medical Building, 1925 Wilshire Boulevard. On account of limited space, the attendance on the first day was limited to seventy-five physicians and on the last two days to two hundred physicians. The instruction was under the direction of Dr. W. L. Mould of the Office of Civilian Defense in Washington, D C. The course was offered to physicians in the southern California area who were willing to teach the subject in their own communities.

## VOLUNTEERS ENROLLED FOR CIVILIAN DEFENSE

At the first conference on May 29 with assistant regional directors in Washington since the organization of the Citizens Service Corps, Jonathan Daniels, assistant director of the Office of Civilian Defense in charge of civilian mobilization, reported that more than nine million volunteers are now enrolled for civilian defense work, including both the protective services and community activity. About nine thousand five hundred local defense councils are now organized, which is an increase of more than five hundred since March 1, and the number of volunteer offices, some of which serve as many as five local defense councils, has risen since March 1 from 1,950 to 2,403. Mr. Daniels said that our people recognize the urgency of mustering all our forces for a maximum civilian effort in war and they are asking 'How can I help?' The machinery of organization necessary to transmit and apply this human energy where it is most needed, he said, is ready and moving.

## BLOOD PLASMA RESERVES

The Illinois State Department of Health, according to the Chicago Sun, is establishing statewide registry of blood types in connection with its collection of blood plasma for possible disaster victims. The plasma has been collected in downstate areas by a mobile unit and shipped to Chicago for processing.

The Racine County (Wis.) Medical Society is active in the formation of a blood bank in Racine for which \$2,000 for equipment was recently donated by various citizens. Two Racine hospitals will serve as collecting stations.

The State Board of Health of Florida sent a trailer to Palatka, May 13-14, to collect human blood for processing. According to the Jacksonville Times-Union, the state board sends the blood to a central laboratory for processing and then returns the plasma to the counties in which it was gathered. In this way hospitals will have plasma on hand while awaiting the completion of the central blood bank at Orlando.

Equipment has been obtained for a blood bank to be operated in St. Elizabeth's Hospital, Yakima, Wash., which will be able to provide sufficient plasma for use in the Yakima Valley.

## CIVILIAN DEFENSE EQUIPMENT

One thousand six hundred first aid belts with supplies to fill them provided from state funds have been received by the civilian defense organization at New Bedford, Mass. Ambulance equipment has been received, also \$2,000 worth of medical supplies paid for by the New Bedford Defense and Health Corps, Inc. One thousand persons have enrolled to serve at fifteen medical assembly points, two hundred stretchers are available and more are being manufactured and paid for by the city. The medical division has a complete list of all medical supplies in the local drug stores, and the defense committee has received promise of delivery of supplies for twenty-two medical teams and eleven casualty stations. These preparations are distinct from the Red Cross preparations, which have provided well for disaster relief.

The Indiana Funeral Directors' Association, according to the *Indianapolis News*, in case of emergency can supply eight hundred and seventy ambulances and two thousand, five hundred and fifty-seven men to the proper authorities. In addition, two hundred and fifty-five additional cars can be made available by the association, twenty-four inhalators, six hundred and twenty-five stretchers and three hundred and seventy-five flares and flags. This equipment has already been listed with the defense council and with the director of the Indiana Department of Public Safety. Three hundred and eighty of these ambulances are already equipped for first aid.

San Antonio, Texas, has set up emergency first aid hospitalization stations with eight hundred and seventy-four beds, and six hundred and fifty additional beds have been installed in the local regular hospitals.

Four hundred stretchers were made in WPA shops in San Diego, Calif., and delivered on May 10 to the Emergency Medical Service of the Office of Civilian Defense. Members of the National Youth Administration helped in cutting the lumber, women of the WPA shaped and stitched the canvas, while men in furniture repair shops finished the stretchers by assembling and painting the frames and attaching the covers.

## CORPS AREA SURGEONS CONFER WITH SURGEON GENERAL

U S army corps area surgeons and the surgeons of the four field armies have just concluded in Washington a four day conference with Major Gen James C Magee, Surgeon General of the Army, the War Department announced on May 28. The army surgeons discussed administrative problems and uniformity of procedure. The following Medical Corps officers attended the conference:

First Army Col Raymond W Bliss, Fort Jay, N Y  
Second Army Col Frank H Dixon, Memphis, Tenn  
Third Army Col John Dibble, San Antonio Texas  
Fourth Army Col Condon C McCornack, San Francisco  
First Corps Area, Boston Col J J Reddy  
Second Corps Area Governors Island N Y Col Charles M Watson  
Third Corps Area, Baltimore Col Robert C McDonald  
Fourth Corps Area, Atlanta, Ga Col Sanford W French  
Fifth Corps Area, Fort Hayes, Ohio Col Edgar C Jones  
Sixth Corps Area, Chicago Col Joseph E Bastion  
Seventh Corps Area, Omaha Col Herbert C Gibner  
Eighth Corps Area, Fort Sam Houston, Texas Col W Lee Hart  
Ninth Corps Area, Fort Douglas, Utah Col Harry R Beery

## VENEREAL DISEASE CONTROL OFFICERS

The U S Army has appointed the following venereal disease control officers in areas designated in its effort to forward a comprehensive program to reduce loss of army strength through venereal diseases:

Capt Lyman C Duryea, New York, to headquarters second corps area, Governors Island, New York  
Capt Albert F Doyle, Johnstown, Pa., to headquarters third corps area, Baltimore  
Major William A Brumfield Jr, Albany, N Y, to headquarters fourth corps area, Atlanta Ga  
Capt Ernest B Howard, Boston, to headquarters seventh corps area, Omaha  
Capt Wayne W C Sims Seattle, to headquarters ninth corps area Fort Douglas, Utah

HOSPITAL UNIT PRACTICES  
MOBILIZATION

Everett, Wash., has two mobile defense hospital units, each complete with a twenty-five bed hospital and a surgery which can be moved about and set up quickly. To each surgery is assigned two surgeons, six nurses and two anesthetists, while the hospital portion of the unit has two nurses, eight nurses' aides and several first aid workers. With each hospital unit are two emergency ambulance units, to each of which are assigned five women trained in first aid, and a driver. One of Everett's mobile defense hospital units held a practice mobilization May 10.

ORDNANCE INDUSTRIAL HYGIENE  
SURVEYS

A number of additional war plants have just been certified for industrial hygiene survey by the Office of the Chief of Ordnance, War Department, making a total of one hundred and forty-three establishments turned over to the Division of Industrial Hygiene, National Institute of Health, to date.

Three crews are continuing the ordnance survey work of the division.

Passed Assistant Sanitary Engineer (R) H E Seifert has been assigned to the Office of the Chief of Ordnance for the purpose of effecting a closer liaison between the Ordnance Department and the Division of Industrial Hygiene, National Institute of Health, in their cooperative program of inspection of government owned plants.

## AVIATION MEDICAL EXAMINERS

A routine course of instruction to qualify medical officers for duty as aviation medical examiners began at the School of Aviation Medicine, Randolph Field, Texas, on May 18 and will continue until August 15. Following is a list of the officers enrolled:

|                                      |                                    |
|--------------------------------------|------------------------------------|
| Atkinson, Robert H., 1st Lieut       | Koehne, Frederick D., 1st Lieut    |
| Axelrod, Bernard, 1st Lieut          | Lamb, Francis D., 1st Lieut        |
| Bigler, Ivan E., 1st Lieut           | Lamb, Richard R., 1st Lieut        |
| Boothby, Carl F., 1st Lieut          | Lame, Louis A., Captain            |
| Borkon, Maurice, 1st Lieut           | Large, John S., Captain            |
| Boyd, Eugene J., 1st Lieut           | Lim, Kwong, 1st Lieut              |
| Bruno, Nicholas J., Captain          | Lucido, Joseph L., Captain         |
| Burchell, Howard B., 1st Lieut       | McBrearty, J D., 1st Lieut         |
| Cadranel, Joseph L., 1st Lieut       | McRae, James H., 1st Lieut         |
| Capriotti, Octavius A., 1st Lieut    | Magholo, Andrew J., Jr., Captain   |
| Chechule, Dominic T., 1st Lieut      | Matsko Stephen E., 1st Lieut       |
| Chinn, Silas, 1st Lieut              | Matzner, Irving A., 1st Lieut      |
| Clark, Benjamin P., Captain          | Mead, James G., 1st Lieut          |
| Cleland, Charles E., Jr., Major      | Michael Clifford Major             |
| Cross, Merrill M., Captain           | Mills Clifford W., 1st Lieut       |
| Decker, Charles E., 1st Lieut        | Moore, Carl L., 1st Lieut          |
| De Fries, William A., 1st Lieut      | Mounce Chanceford A., Captain      |
| Dickerman, Frederick A., 1st Lieut   | Moyer, Forrest G., Captain         |
| Dickerman, Henry S., Jr., 1st Lieut  | Mulmed, Earl I., 1st Lieut         |
| Donich, George M., Captain           | Murphy, George E., 1st Lieut       |
| Doughtie, Jack L., Captain           | Neighbors, Joseph B., Jr., Captain |
| Downing, John S., 1st Lieut          | Nuttall, James B., Captain         |
| Dutlinger, Robert P., 1st Lieut      | O'Connor, Michael J., Captain      |
| Ellis, Fred A., 1st Lieut            | Park, Charles L., 1st Lieut        |
| Espinoza, David V., 1st Lieut        | Patterson, Fred L., Jr., 1st Lieut |
| Essrig, Irving M., Captain           | Pelton, Bernard I., Captain        |
| Ettman, Irving K., 1st Lieut         | Petrolas, John D., Captain         |
| Fogel, David H., 1st Lieut           | Poore, Alfred M., 1st Lieut        |
| Franzoni, Andrew E., Captain         | Reis, Paul B., Captain             |
| Friedman, Harold S., 1st Lieut       | Reisman, Samuel G., Captain        |
| Gallagher, Edward J., 1st Lieut      | Rest, David, 1st Lieut             |
| Gans, Paul J., Captain               | Rider, Thomas L., 1st Lieut        |
| Giardina, Jacob J., Captain          | Ruffin, Marshall De G., 1st Lieut  |
| Glasscock, James R., Captain         | Schow, Floyd W., Captain           |
| Green, Daniel M., Captain            | Schroeder, Herman J., 1st Lieut    |
| Green, George B., Captain            | Schultz, Samuel K., Major          |
| Greenwood, Robert C., 1st Lieut      | Schutz, Sigmund, 1st Lieut         |
| Groth, Norton R., Captain            | Schwartz, Simon D., Captain        |
| Halford, Richard F., 1st Lieut       | Scott, Wirt S., Jr., 1st Lieut     |
| Hammerel, John J., 1st Lieut         | Shields, Thomas S., Captain        |
| Hanson, Martin F., Captain           | Silver, Michael W., 1st Lieut      |
| Harms, Albert C., 1st Lieut          | Simons, Stanley J., Captain        |
| Hellweg, Charles E., Captain         | Smith, James J., 1st Lieut         |
| Hitchko, Michael J., 1st Lieut       | Spoeneman, Marlin C., Captain      |
| Jennings, Lawrence S., Captain       | Sposato, Emil, Captain             |
| Jensen, Marshall N., Major           | Stem, William A., 1st Lieut        |
| Johnson, Benjamin H., Jr., 1st Lieut | Tichenor, Clifford J., Captain     |
| Johnson, Lowell R., 1st Lieut        | Trockman, Richard J., 1st Lieut    |
| Jones, William F., 1st Lieut         | Wall, Edward C., Captain           |
| Kaplan, Louis G., 1st Lieut          | Wallace, Henry G., Captain         |
| Kaplan, Morris, 1st Lieut            | Winkler, Henry J., 1st Lieut       |
| Keller, George H., Captain           | Yavaro, Mully, 1st Lieut           |

# ORGANIZATION SECTION

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## PROCEEDINGS OF THE ATLANTIC CITY SESSION

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MINUTES OF THE NINETYTHIRD ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, HELD IN ATLANTIC CITY, JUNE 8-12, 1942

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### HOUSE OF DELEGATES

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#### *First Meeting—Monday Morning, June 8*

The House of Delegates convened in the American Room of the Hotel Traymore and was called to order at 10:15 a. m. by the Speaker, Dr. H. H. Shoulders.

#### *Preliminary Report of the Reference Committee on Credentials*

A preliminary report of the Reference Committee on Credentials was submitted by the chairman, Dr. J. Newton Hunsberger, Pennsylvania, who reported that about one hundred and thirty-five delegates with proper credentials had registered.

#### *Roll Call*

The Secretary called the roll and, after a supplementary report from the Reference Committee on Credentials regarding alternate delegates, announced that a quorum was present.

#### *Adoption of Minutes of Cleveland Session*

On motion of Dr. E. G. Wood, Tennessee, seconded by Dr. John Z. Brown, Utah, and carried, the House dispensed with the reading of the minutes and adopted the minutes as published and circulated.

#### *Distinguished Service Award*

Dr. Roger I. Lee, Acting Chairman of the Board of Trustees, stated that the Board regretted that Dr. Arthur W. Booth, Chairman of the Board of Trustees, was unable to attend the annual session because of illness and then presented the following report:

The Committee on Distinguished Service Awards of the American Medical Association submitted five names to the Board of Trustees.

In accordance with chapter VI, section 5 of the By-Laws, the Board has selected by ballot the following names for presentation to the House of Delegates in alphabetical order, and presents a brief statement concerning each of them:

Dr. George W. Crile is distinguished as a surgeon, a scientific investigator and a leader. He has been chairman of the board of regents of the American College of Surgeons, has introduced new procedures of importance in surgical science and is the author of several books.

Dr. Ludvig Hektoen has been for many years distinguished as a leader in the field of pathology. He is chairman of the advisory committee of the National Cancer Institute and is chairman of the Committee on Scientific Research of the American Medical Association. He has been chief editor of the *ARCHIVES OF PATHOLOGY* from its inception and is editor of the *Journal of Infectious Diseases*. He was director of the McCormick Institute for Infectious Diseases and has contributed much important research in the fields of infectious diseases and preventive medicine. He was for many years professor of pathology at the Rush Medical College and is now emeritus professor. Last year he was awarded the Distinguished Service Award of the State Medical Society of Wisconsin.

Dr. Elliott P. Joslin is known throughout the world for his contributions to our knowledge of diabetes and for his educa-

tional contributions in this field for both the medical profession and the public. He has participated in graduate education and is the author of several books of distinction.

The Speaker appointed as tellers Drs. J. Q. Graves, Louisiana, George W. Kosmak, New York, George P. Johnston, Wyoming, Lowell S. Goin, California, and H. G. Hamer, Indiana.

The tellers spread the ballot, and the Secretary announced that one hundred and forty-one votes had been cast, of which Dr. Hektoen received fifty-eight, Dr. Crile fifty-five and Dr. Joslin twenty-eight.

The Speaker announced that no nominee had received a majority of the ballot cast and that the Chair would rule that the name of Dr. Joslin be dropped and that the members of the House would prepare their ballots on Drs. Crile and Hektoen.

The tellers spread the ballot, and the Secretary announced that one hundred and forty votes had been cast, of which Dr. Hektoen received seventy-six and Dr. Crile sixty-four.

The Speaker declared Dr. Ludvig Hektoen, who had received a majority of the votes cast, to be elected by the House to receive the Distinguished Service Award of the American Medical Association.

#### *Address of the Speaker, Dr. H. H. Shoulders*

The Vice Speaker, Dr. R. W. Fouts, Omaha, presided while the Speaker, Dr. H. H. Shoulders, read his address, which was referred to the Reference Committee on Reports of Officers. *Mr. Speaker, Members of the House of Delegates and Guests:*

This is the fifth session of the House of Delegates over which it has been my privilege to preside as your Speaker—an honor for which I have an increasing sense of gratitude.

Many important events have taken place in the world since we met a year ago. The one event of transcendent importance to all of us is the entrance of the United States into the World War. We are told that the purpose of this war effort is to preserve our American way of life. Certainly no more laudable purpose could inspire a people or a nation to effort and to sacrifice. No one has defined precisely what is meant by the expression our American way of life, yet we all sense its meaning. Its principal attribute concerns freedom in all its forms. We know that this attribute distinguishes it from the way of life in most other countries and nations. We know that it was conceived, established and vouchsafed to us by the vision, the wisdom and the sacrifice of our forefathers. We recognize that its record of achievement in human welfare and happiness is without a parallel in human history. We now know also that, if it is to survive in the world, its preservation is the particular task of this generation. The thought that this way of life could and might be lost has been impressed on the people of this nation with tremendous force within the last year. This terrible thought seems to have had the effect of stimulating in all of us a much higher appreciation of its value as well as an appreciation of the tragic consequences which would follow its destruction. This way of life has been assailed in several different ways in recent years and the House of Delegates has made a record in its defense which it seems to me is worth brief review at this time.



Four years ago (1938) we met in extraordinary session to consider actions which should be taken with reference to an emergency situation. That situation arose from an attempt that was being made to develop in this country a new and alien form of medical practice. The proposal, as you know, had its real origin and development in an absolute monarchy which, by a process of transition, has been converted into a totalitarian state. You gave serious consideration to the proposal and reached the conclusion that it contained the elements of possible threat to our American way of life. You expressed a conviction then that the freedoms embraced in our methods of delivering medical care are an essential part of our American way of life and have an importance equal to that of other freedoms embraced in it. You therefore took action to oppose the adoption of the proposal.

Similar attempts have recurred in different forms and under different types of leadership in the years that have passed since 1938. In each instance your reactions to them have been the same. In 1940 it was suggested that our nation might be threatened by a military force and that it would be prudent and patriotic for the House to take action looking to the creation of a state of medical military preparedness. You took such action then with results which are known to all. Time proved that foresight to have been justified. War did come eighteen months later and in such a way as to subject our nation to the gravest threat it has ever faced.

At first glance a similarity between these several threats is not apparent. Careful observation, however, brings out a definite similarity among all of them. It is true that the approach of each was different, the persons involved were different and the methods employed were and are different. They are similar in the sense that each has constituted a threat of more or less magnitude to the fundamental freedoms in our American way of life. The actions of the House of Delegates on these several occasions have been entirely consistent. Each attack, regardless of its form, has met your active opposition. When the proposals were political in nature and appeared to be limited in scope to the field of medical care, you took action in opposition to their adoption. When the military threat appeared as nothing more than a glimmer on a distant horizon, you took action as patriotic American citizens to defend the whole of our way of life. I shall not attempt to review in any detail the several actions you have taken. This much must be said, however, the several actions you have taken are consistent with one another. They are consistent also with an attitude of loyal devotion to all these freedoms which constitute the basic elements in our way of life. You have used with prudence the powers you possessed in the most effective manner you could use them. When the expression of a profound conviction by resolution was the only weapon at your disposal, you expressed it by unanimous action.

In this tragic hour it seems to me that you can look back on the record you have made in this brief period and on this vital issue with a justifiable sense of pride and satisfaction. We are all called on to surrender for the period of this emergency some of the freedoms to which we are accustomed. We do this willingly and wholeheartedly, not because we have abandoned them, but for the purpose of making more effective the national effort in their defense and to the end that they will be made secure forever. It has been said that genuine religion and genuine patriotism find their highest forms of expression in sacrifice. As far as I am concerned, that philosophy is true. Certainly words and beautiful phrases can be and have often been used to deceive. The deceptive use of words by political leaders and agitators obviously is responsible for the tragic state of the world today. Willing sacrifice for the preservation of a principle is the most dependable test of devotion to it. By such a test your loyalty to our American way of life has been proved. It seems to me that that record is altogether sufficient to give to the American people—to soldiers and to the mothers and fathers of soldiers—the highest form and the fullest measure of assurance as to what you and the profession you represent can be depended on to do today, tomorrow and until victory has been won.

In Memoriam

In accordance with the established custom of the House of Delegates of taking official notice of the death of Fellows who have served the Association in official capacities, either as members of the House or as officers of the Association, the Speaker called the roll of those who had passed away since the House met in June of 1941, as follows:

- (The dates following the names indicate years of service in the House or as officers of the Association.)
- James N. Baker, Alabama 1930-33, 1935-41
  - William Hemphill Bell, U. S. Navy, 1907
  - Edmund R. Brush, Ohio, 1926-28, 1930-31, 1934-35, 1938-41
  - Robert C. Bryan, Virginia, 1919
  - Charles A. Dukes, California, 1933-38, 1940 Vice President 1941-42
  - William A. Ellingwood, Maine, 1934-41
  - William J. Frick, Missouri, 1916-17
  - Henry D. Furniss, New York, 1913
  - T. W. Gillespie, Illinois, 1925
  - Schuyler Colfax Graves, Michigan, 1909
  - George A. Hendon, Kentucky, 1928-31
  - S. W. Johnston, Mississippi, 1924-26
  - Eugene S. Kilgore, California, 1920
  - Bransford Lewis, Missouri, 1913
  - Dean Lewis, Baltimore, Maryland Section on Surgery, General and Abdominal, 1915-17 President Elect 1932-33, President 1933-34
  - William D. Martin, Pennsylvania, 1919
  - Charles H. McCully, Indiana, 1910
  - William Neil McDonnell, U. S. Navy, 1922, 1932
  - John J. McLoone, Arizona, 1916
  - S. K. Morrison, Nevada, 1924
  - Howard Morrow, San Francisco, California Vice President 1938-39
  - William H. Myers, Georgia, 1929-41
  - Juan C. Nanagas, Philippine Islands, 1921
  - Charles S. Skaggs, Illinois, 1928-38
  - Rock Sleyster, Wisconsin, 1913-14 1918-26, Vice Speaker House of Delegates 1922-26, Trustee 1926-37, President Elect 1938-39, President 1939-40
  - Charles H. Stoddard, Wisconsin, 1916
  - Terry M. Townsend, New York 1929, 1935-38, 1941
  - R. H. Walker, West Virginia, 1932
  - Cisey A. Wood, Pasadena, California Section on Ophthalmology 1904
  - Ross A. Woolsey, Missouri, 1923

On motion, duly seconded and carried, the delegates arose and stood in silent tribute to the memory of the deceased delegates and officers.

Reference Committees

The Speaker, before announcing the personnel of the Reference Committees, asked and received permission to name two additional reference committees, namely the Reference Committee on Executive Session and the Reference Committee on Military Preparedness. The personnel of the Reference Committees as appointed by the Speaker is as follows:

SECTIONS AND SECTION WORK

- Arthur T. McCormack, Chairman Kentucky
- L. G. Christian Michigan
- Oliver H. Weaver Georgia
- B. F. Cook Vermont
- Arthur J. Bedell Section on Ophthalmology

RULES AND ORDER OF BUSINESS

- Thomas T. Thornton, Chairman Iowa
- A. A. Walker Alabama
- E. N. Roberts Idaho
- T. J. Savage Minnesota
- John Z. Brown Utah

MEDICAL EDUCATION

- Walter G. Plippen, Chairman Massachusetts
- James R. Miller Connecticut
- Edward H. Skinner Section on Radiology Louisiana
- L. J. Menville Minnesota
- A. W. Adson

LEGISLATION AND PUBLIC RELATIONS

- E. S. Hamilton, Chairman Illinois
- Don F. Cameron Indiana
- Stephen E. Gavin Wisconsin
- Henry A. Luce Michigan
- Carl R. Steinke Ohio

HYGIENE AND PUBLIC HEALTH

- Felix J. Underwood, Chairman U. S. Public Health Service
- W. F. Draper Texas
- Holman Taylor Pennsylvania
- Robert L. Anderson Kentucky
- F. S. Crockett

## AMENDMENTS TO CONSTITUTION AND BY LAWS

|                         |                       |
|-------------------------|-----------------------|
| Walter E. Vest Chairman | West Virginia         |
| Edward M. Pillette Sr   | California            |
| Walter I. Donaldson     | Pennsylvania          |
| Karl S. I. Hohlen       | Nebraska              |
| William Weston          | Section on Pediatrics |

## REPORTS OF OFFICERS

|                           |                |
|---------------------------|----------------|
| Deering G. Smith Chairman | New Hampshire  |
| Edward C. Podvin          | New York       |
| Thomas A. Pitts           | South Carolina |
| J. H. Irwin               | Montana        |
| Mercedith Mallory         | Florida        |

## REPORTS OF BOARD OF TRUSTEES AND SECRETARY

|                         |            |
|-------------------------|------------|
| Louis H. Bauer Chairman | New York   |
| Parke G. Smith          | Ohio       |
| J. F. Hassig            | Kansas     |
| William R. Molony Sr    | California |
| A. R. McComas           | Missouri   |

## CREDENTIALS

|                              |              |
|------------------------------|--------------|
| J. Newton Hunberger Chairman | Pennsylvania |
| G. Henry Mundt               | Illinois     |
| H. B. Everett                | Tennessee    |
| Thomas M. Brennan            | New York     |

## MISCELLANEOUS BUSINESS

|                                |                      |
|--------------------------------|----------------------|
| Charles G. Strickland Chairman | Pennsylvania         |
| J. T. Donovan                  | New York             |
| H. C. Macatee                  | District of Columbia |
| Andrew F. McBride              | New Jersey           |
| John H. Fitzgibbon             | Oregon               |

## EXECUTIVE SESSION

|                               |  |
|-------------------------------|--|
| Thomas A. McGoldrick Chairman | New York                               |
| Lucius F. Donohoe             | New Jersey                             |
| Robert E. Schlueter           | Missouri                               |
| E. H. Cary                    | Texas                                  |
| Clyde L. Cummer               | Section on Dermatology and Syphilology |
| Walter W. King                | Colorado                               |
| Lloyd Noland                  | Alabama                                |

## MILITARY PREPAREDNESS

|                         |              |
|-------------------------|--------------|
| John H. O'Shea Chairman | Washington   |
| Francis I. Borzell      | Pennsylvania |
| William D. Johnson      | New York     |
| S. E. Thompson          | Texas        |
| George F. Lull          | U. S. Army   |
| Harold W. Smith         | U. S. Navy   |
| Charles H. Phifer       | Illinois     |

## SERGEANTS AT ARMS

|                 |              |
|-----------------|--------------|
| Frank E. Reeder | Michigan     |
| J. R. Westaby   | South Dakota |
| A. S. Risser    | Oklahoma     |

## TELLERS

|                    |            |
|--------------------|------------|
| J. Q. Graves       | Louisiana  |
| George W. Kosmak   | New York   |
| George P. Johnston | Wyoming    |
| Lowell S. Goin     | California |
| H. G. Hamer        | Indiana    |

## Address of President Frank H. Lahey

The Speaker resumed the chair and presented the President Dr. Frank H. Lahey, Boston who delivered the following address which was referred to the Reference Committee on Reports of Officers

*Mr. Speaker and Members of the House of Delegates*

It is my desire to express in my first statement my appreciation of the willingness of the Association and its officers to permit me to employ for war work a large part of the time which under less unusual conditions would have been employed in organization interests of the American Medical Association. Whenever I have sought advice concerning my responsibility to the Association and to the national government, the reply from your officers and your headquarters has been unhesitating unequivocal and unselfish. It has been that I was to be at complete liberty to neglect any presidential duties to whatever degree I deemed the immediate needs of the emergency demanded.

It would be impossible for me to tell you what an aid and comfort the Secretary and the Editor of the Association have been to me with their years of experience. The generous donation of this experience and their advice has been of such assistance as to aid me immeasurably in the conduct of my duties. I am sure also that they have protected me from mistakes which would have complicated my position not considerably.

While I have known the Trustees, the Council members, most of the members of the House of Delegates and other officers of the Association in the past, the closer contacts which I have had over the two years I have been in office as President-Elect and President have given me the opportunity to know them even better and to appreciate even more the time and effort they devote to the Association. Hours spent with the Board of Trustees have opened my eyes to the magnitude and seriousness of their assignments. Critical and intimate participation in the deliberations of your financial committee have impressed me with the care and caution exercised in the management and investment of your funds. I very much doubt that there exists a record in management of trust funds better than that made by your capable secretary, treasurer and financial committee. I do not believe that it will ever be possible for individuals in medicine to realize how seriously these men devote themselves to these positions or to appreciate fully where medicine, medical education and hospital practice would be today without this unselfish devotion to what literally amounts to a cause.

To visit the various state, county and special societies has, because of their generous hospitality and friendliness, been no hardship but a real pleasure. In view of the apprehension concerning the effects of the presidency of the American Medical Association on the health of those who occupy it, I would say that, having the personal experience which I have had with the duties of the office, I believe that it is possible, with intelligent planning and the cooperation which one receives from every one to complete these two years spent as President-Elect and President of the American Medical Association in better health than that with which one starts the service. These travels have, in addition, in these unusual times provided for me the opportunity to preach the gospel of realistic awareness and aggressive preparedness. Perhaps in some measure because of the unavoidable prominence which the position of President of the American Medical Association carries with it, it has resulted in my being nominated by the President of the United States together with Harvey Stone, C. Willard Camahner, James E. Paullin and Harold S. Diehl to the Committee on Procurement and Assignment as one of the representatives of American medicine to participate in national war activities. For this assignment I am deeply grateful as are I know the other members of the board. Without this assignment we all realize that at our age we might well be, as are so many other doctors of similar age at this time consumed with a patriotic desire to serve the country but at least as yet unavoidably without opportunity to do so. I know that I can speak for this board, while not appointed by but nevertheless representative of the American Medical Association, when I say that it appreciates gratefully its good fortune in being selected and the privilege of having the opportunity to represent American medicine in this undertaking and that it is conscious of the fact that the honor and good name of American medicine are at stake in how well and intelligently American medicine cares not only for the armed forces and associated federal agencies but also for the civilian population, industry, hospitals and medical schools in the present and coming emergency. It is my sincere conviction that when this difficult ordeal for our country and its citizens is successfully terminated as you and I know it eventually will be, and viewed in retrospect, the fact that medicine had so intelligently and forehandedly organized itself in the American Medical Association will be revealed to even doubting minds as a most important factor in contributing to this successful outcome.

May I say one more word since I wrote this and as I travel the country—and I would I believe not be in my character if I did not preach a little—it is my definite conviction that while industry and many other sections of the country are accurately and realistically aware of the situation the country is still in an undue state of optimism. If we could but preach to this country and to the doctors—and this comes to me not only in a general way but in my position as chairman of the Board of Procurement and Assignment and relates itself to the number of doctors who have responded—and if the country could but realize that the successful approach to

this emergency is not believing what is pleasant, because that is unlikely to be true, but believing what is unpleasant, because that is likely to be true, we would come nearer bringing this to a successful outcome sooner than we shall under the pleasant plan of believing pleasant things instead of unpleasant things. That is a little complicated, but nevertheless it really means that I believe that medicine in the country at large is still not facing the facts as frankly as it should, and I believe that we as leaders in this country can go out and still do a good deal to preach this gospel, that optimism is one of the things which can lead to our downfall. We do not suffer from the urgency of the situation that the Japs or the Germans do. They must win or die. There is no urge like that of necessity, and it is my definite opinion that this country is still not convinced that its situation is one of urgent necessity.

#### Address of President-Elect Fred W. Rankin

The Speaker presented the President-Elect, Dr. Fred W. Rankin, Lexington, Ky., who delivered the following address, which was referred to the Reference Committee on Reports of Officers.

#### *Mr. Speaker and Members of the House of Delegates*

Custom dictates that the President-Elect address the House of Delegates at the first meeting of the annual session. This is a good custom for it permits him to give an account of his stewardship and to record observations gleaned in his travels throughout the country during the past year. In addition, he may offer any suggestions which seem pertinent.

Today's world events, perhaps dimly visualized at the last session of the American Medical Association, have so engulfed our nation that we have but one business now—the business of war. All our efforts are focused on this one objective, and everything associated with our professional lives is directly or indirectly concerned with war problems.

When I began to travel around the country last summer and autumn, visiting various state medical societies and other medical units, an entirely different atmosphere prevailed than now exists and the sentiment of the country as a whole, and physicians as a class, was distinctly divided on the question of our active participation in the struggle. Every one accepted either graciously or grudgingly the necessity of a program of preparedness, but only a small percentage of the people subscribed with hearty enthusiasm to any idea of immediate participation in hostilities. This sentiment, it seemed to me, varied considerably in different parts of the country, depending largely on geographic location. Following the opening of an undeclared war by Japan, sentiment immediately changed, unity appeared and the entire citizenry aligned itself wholeheartedly in cooperation with the Allied Nations in war effort. It is unnecessary for me to recall to you in detail the steps which have been pursued by the American Medical Association in planning a distribution of doctors, with proper allocation to the armed forces and without dislocation of civil practice beyond a reasonable degree.

Circularization of the profession by questionnaire and subsequent evaluation of the professional capacities of each individual physician by state committees accumulated enormous amounts of data which have subsequently been made available to the Surgeon Generals of the Army and the Navy. These questionnaires were answered by each one of you. Immediate use of the data furnished by these questionnaires was extremely advantageous, for after war was declared the medical profession found itself more forward in its war efforts than other groups. Immediately there was established in Washington an agency called the Procurement and Assignment Service, whose duty it is to supervise the selection and allocation of the entire profession on a voluntary basis. This agency has functioned from its inception with enthusiasm but not without perplexities. The rapid expansion of the medical services of the Army has at times almost overwhelmed it because of lack of personnel and funds, difficulties which seemed almost insurmountable. Each one of you has taken part in the effort of your state, district or county to make the program of the Procurement and Assignment Service a success. That is as it should be, for the medical profession is charged with running its own program. I have no knowledge of any other group to which the

Administration has given this privilege, and it is essential that our constituted agencies be supported vigorously to the end that the war effort be properly and successfully prosecuted.

To admit that we have made some mistakes and that accomplishment has not been 100 per cent adequate up to the present time is not an unworthy confession. We have made mistakes, but they have been honest mistakes which have been the result of confusion and circumstances for which the profession has been only partly responsible. Nevertheless the fact remains that we do share a distinct responsibility for the fact that a sufficient number of physicians of proper age and capacity to care for the rapidly increasing needs of an expanding army has not been immediately forthcoming. The number of volunteers to the Procurement and Assignment Service, including physicians of all ages, as of May 1 was less than thirty-five thousand of the whole medical profession. An accelerated recruitment program which cuts all "red tape" and approaches physicians directly has stimulated the profession to more prompt action. This decentralization of the program and emphasis on state efforts has been productive of encouraging results, and I have no doubt that adequate numbers of medical men will thereby be made available. I believe that you will agree with me that it is our duty as members of the medical profession to stand back of the Procurement and Assignment Service in our capacities as individual physicians and representatives of state or corps area units. This agency must function, for, in a war such as we are engaged in, total effort is not too much.

We must understand that this is a war of survival. We must understand that we fight with unscrupulous brutal enemies in a conflict whose technique by reason of motorized and mechanized equipment of warfare is not only an entirely new technique but one of savagery employed against both armed forces and civilian populations. We must recognize that this new warfare has speeded up the tempo of action to the point where only those with the stamina of vigorous youth can practice it. This is a war of young men. Older physicians, many of whom served in the last war, have in large numbers signified their desire to offer their services again, but obviously they can be utilized in many other positions more advantageously than with the armed forces. Is it not, then, an admirable duty of the older men to encourage physicians of the proper age to enter military service? The places of these younger men, both in civil practice and in the teaching institutions, must be taken by members of the medical profession who are physically disqualified for service or who are beyond the age limit for active duty.

Army authorities, recognizing the need for young men, have ruled that men over 56 years of age may not serve with troops. Furthermore, the Army has recognized the great necessity for the utilization of professional specialists in their particular fields. Guided by the advice of committees of many medical organizations, the Surgeon General's Office is attempting to place round pegs in round holes, thus not only increasing the efficiency of our professional efforts but avoiding many of the pitfalls which the hurried expansion of World War I brought about. I can testify heartily to the enthusiastic reception which my efforts have received in the Surgeon General's Office and I feel confident that I am speaking for my colleagues from civil life who are on duty there with me.

As we proceed with our war duties, and each one of us whether in uniform or not is in this war and on duty, we must recognize that furnishing medical men to the armed forces and to the civilian population connotes a continuing supply of medical men, and I hope that that supply may be continued under present day standards of medical education, even including completion of an intern year. Whether such standards will have to be revised in the future is a problem to be answered only by the changing tactical situation. Certainly it should be recognized that the supply of physicians to the armed forces and for civil practice can be continued only by maintaining and increasing the production of physicians. That many of the medical schools have already contributed affiliated units or sent a percentage of their faculties to the Army or the Navy is well known. They have accelerated their teaching program and

same time and, in consequence, officials charged with securing medical men for war services should recognize that still further extensive changes in faculties are inadvisable for the immediate future. Most hospitals and medical schools, I believe, have been thoroughly honest in establishing their lists of essential men. Many of them now live in service, or preparing to go into the service, as much as from 40 to 50 per cent of their personnel. This is eminently fair in the present stage of hostilities, and, if it has seemed wise to place on the essential list a small percentage of young men within the limits of draft age, I believe we should be hesitant to seek abruptly to change this system.

Unquestionably the younger members of medical school faculties will join the colors in larger and larger numbers. Nevertheless, with the plan of maximum production in mind, under present standards we should seek to assist teaching centers and hospitals in maintaining efficient teaching staffs. That postgraduate education of specialists may of necessity soon be greatly altered seems inevitable under rapidly changing world conditions.

The trend toward training specialists by long term residencies will have to be altered greatly or perhaps abandoned temporarily if the war continues for a long time. The corollary to this is that military hospitals should make every effort to continue postgraduate teaching of the younger men who have been detailed to them so that these men in the postwar period may receive credit at the hands of their specialty boards for work done in service. Many of the boards have agreed to this step, and I have no doubt that others will be glad to accept the principle as time goes on. A large part of the burden of postgraduate education of specialists will in the future fall on many of the hospitals of two hundred and fifty bed capacity or thereabouts located in cities of 50,000 to 150,000 population. In many instances such hospitals are now doing an excellent job of training in specialties—in the surgical specialties particularly—and with experience and a more adequate realization of the necessity of maintaining present standards I am convinced that more and more postgraduate training will be accomplished in this hospital group.

The present day situation, even before the war, of having more hospital posts available than there were interns has had a salutary effect on many hospital staffs as far as professional organization and evolution of teaching opportunities are concerned. That this same movement to stimulate teaching progress in smaller hospitals located in smaller communities would have been a natural evolution is obvious, and, while such progress will unquestionably be handicapped and perhaps halted by long-time war activities, it is important to look to the future in such matters. I am confident that we may look hopefully for the successful development of a planned program for participation of these centers in the postwar economy.

The postgraduate education of the general practitioner is an entirely different problem from that of a specialist. He obtains postgraduate training either by attending refresher courses in institutions or by attending medical meetings. Actually the vast majority of his continuing education is through attendance on medical meetings which are planned to furnish intensive instruction in a wide variety of professional subjects presented by competent and well known leaders in medical fields. Over a period of years I have been privileged to attend many of these meetings under the auspices of various medical organizations. I have observed the three and four day meetings, and more recently I have been around the country to a series of one day meetings, all of which were essentially of the same character. My observation has been that the general practitioners and part time specialists, and many full time specialists, attend this type of medical program with great enthusiasm and earnestness. I have seen men come into the meeting hall at 8 o'clock in the morning and, except for short intervals for meals, stay until well into the evening. Always the audience was large, always it seemed intensely interested and I believe the meetings were without question uniformly profitable. The type of program, which featured intensive instruction by competent teachers with elimination of discussions which are usually characterized by their reference to personal experiences im-

ited to a small group of cases or a single case, probably accounted for the success of the meetings to which I refer. If these observations are worthy of the interpretation I put on them, it is not too bold a suggestion to offer to the proper authorities of the American Medical Association that a similar type of meeting might be conducted in various parts of the country under the auspices of the parent association. I believe that such programs would further enhance the interest of the medical profession in postgraduate instruction and that the type of programs I have discussed might be advantageously modified in many ways. For instance, these sponsored sectional meetings throughout various geographic areas of the United States are at least worth experimenting with and would, I feel, be a welcome change from the present day type of program to one which is lecture type in part or in whole. We live in a streamlined world in which unorthodox things are continually being accepted, and it is entirely possible that medical programs are not immune to modern changes.

I would be failing in appreciation if I did not acknowledge before you the debt I owe to the headquarters staff of the American Medical Association in Chicago and to the Board of Trustees for the many courtesies and helpful assistance I have received from them during the past year. The ramifications of our medical profession's various activities can be appreciated only by one privileged to view them from within, and the efficient manner in which they are conducted can be properly evaluated only under the scrutiny of close association. As I have gone about the country to address medical organizations I have been impressed with the broad functional scope of the American Medical Association, and I have come to realize more fully the demands which are made on the men who shoulder willingly and efficiently the details of managing this great organization. A corollary conclusion is that a buffer should be placed against overconscientious fulfillment of their responsibility, to the detriment of their health. Steps to provide assistance have already been made and no doubt will be increased in the future, in spite of reluctance on the part of these faithful officers to receive it. It is easy to advise one to slow down, to relinquish part of the burden and in consequence to prolong his usefulness, but my own observation and experience have been that it is difficult to arrest the will to serve, and I have little confidence that the foregoing sound advice will be accepted in full.

As is so often true of the experiences which mean most to us, their very complexity and greatness preclude analysis or reduction to description. In addition to the manifold emotional reactions, which are beyond expression, I have come to feel the gratification which results from association with an organization which is not only fundamental and of proved worth in meeting present human needs but at the same time so constructed and infused with imaginativeness that it possesses the perspective vision necessary to foresee the exigencies of the future.

Altogether, the pleasant tasks of my office, which in the main consist of visiting medical units in many places, or renewing old friendships among the profession, of making new acquaintances in widespread areas and of feeling and seeing the fine spirit of service which motivates our guild, have combined to make my journeyings a joyous Odyssey.

## REPORTS OF OFFICERS

### Report of the Secretary

Dr. Olin West, Secretary, presented his report as printed in the Handbook, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary, except the proposed amendment to the Constitution, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws.

### Report of Board of Trustees

Dr. Roger I. Lee, Acting Chairman presented the following supplementary report of the Board of Trustees, which was adopted by a rising vote.

### SUPPLEMENTARY REPORT OF BOARD OF TRUSTEES

The Board of Trustees regrettably calls the attention of the House of Delegates to the death during the past year of a



former president and chairman of the Board of Trustees, Dr Rock Sleyster of Wauwatosa, Wis. He was an experienced soldier in the ranks of organized medicine, rising from his first position as secretary of a county medical society to the presidency of the Association. His devotion to the ideals of American medicine may well be an inspiration to every American physician.

Dr Charles Alfred Dukes, vice president of the American Medical Association, died in Oakland, Calif., on March 13. Throughout his career Dr Dukes gave freely of himself to public service and to medical organization. He had been a member of the House of Delegates and a wise leader in the affairs of organized medicine in California. In his capacity as a member of our Committee on Medical Preparedness and as corps area chairman of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians he gave unstintedly of his time and of his health.

Dr William Dick Cutter, secretary of the Council on Medical Education and Hospitals since 1931, died on January 22 after a brief illness. In his position on the headquarters staff of the American Medical Association, which he occupied for eleven years, he carried great responsibility and manifested excellent judgment and leadership.

The Board of Trustees expresses here its appreciation of the services and devotion of these three leaders and suggests to the House of Delegates that it express its sense of loss in their absence from this session.

Dr James R. Bloss, Chairman of the Executive Committee of the Board of Trustees, presented the report of the Board of Trustees as presented in the Handbook as well as a second supplementary report of the Board of Trustees relative to meetings with hospital associations, as follows:

#### SECOND SUPPLEMENTARY REPORT OF BOARD OF TRUSTEES

The Board of Trustees has had meetings previously with hospital associations, and at least one of these hospital associations has announced plans at variance with principles set forth by the House of Delegates.

The Board has already considered this matter as a committee of the whole and, in view of the divergent views concerning hospital plans, felt that nothing would be gained by further conferences with hospital associations until more information is available through the Bureau of Medical Economics. Such studies and compilations are in active progress, but, owing to inevitable dislocation due to the war and to constant changes in plans for hospitalization, and the heavy responsibilities laid on the Bureau of Medical Economics by the war effort, these studies have not been completed in spite of the employment of additional help. The Board would suggest that opportunity be given for further study based on the studies by the Bureau of Medical Economics.

#### RESOLUTION EXPRESSING APPRECIATION OF AMERICAN MEDICAL ASSOCIATION FOR FRIENDLY COOPERATION OF THE BROADCASTING COMPANIES

Dr Bloss also presented the following resolution which had been adopted by the Board of Trustees the day before:

WHEREAS, the National Broadcasting Company, the Columbia Broadcasting System, the Blue Network and numerous individual radio stations have from time to time during the past year participated with the American Medical Association or, on request of the Association, with related medical and health agencies in health education broadcasting, now, be it therefore,

Resolved, by the Board of Trustees (House of Delegates) of the American Medical Association that the Bureau of Health Education be directed to transmit on behalf of the Association to the radio stations and networks concerned a copy of this resolution expressing the appreciation of the American Medical Association for their friendly cooperation.

The Speaker referred the report of the Board of Trustees to the Reference Committee on Reports of Board of Trustees and Secretary with the following exceptions. That portion of the report relating to the Bureau of Health Education was referred to the Reference Committee on Hygiene and Public Health, that portion relating to the Bureau of Legal Medicine and Legislation, to the Reference Committee on Legislation and Public Relations, that portion dealing with medicine and the war to the Reference Committee on Military Preparedness, the supplementary report to the Reference Committee on Hygiene and Public Health, the portion of the report referring

to a committee to study the relationship of medicine and law, to the Reference Committee on Legislation and Public Relations, and the supplementary report, first read, to the Reference Committee on Legislation and Public Relations.

#### Report of Treasurer

Dr Herman L. Kretschmer, Treasurer, presented his report as printed in the Handbook, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary.

#### Report of Judicial Council

Dr George Edward Follansbee, Chairman, presented the report of the Judicial Council as presented in the Handbook, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws except that portion which relates to a policy relationship between the scientific sections and the House, which was referred to the Reference Committee on Sections and Section Work.

#### Report of Council on Medical Education and Hospitals

Dr Charles Gordon Heyd, Acting Chairman of the Council, presented the Report of the Council on Medical Education and Hospitals as presented in the Handbook, together with the following revision of the Essentials of an Acceptable School for Clinical Laboratory Technicians, which was referred to the Reference Committee on Medical Education.

Section I Administration Subsection I To be amended by adding the words *approved medical schools*, the amended section to read:

1 Acceptable schools for training laboratory technicians may be conducted by *approved medical schools*, general hospitals, or state health laboratories affiliated with hospitals, where the majority of the student's practical training is received. This arrangement should not discourage affiliation between the hospital and universities, colleges, public health laboratories or other hospitals.

#### Report of Council on Scientific Assembly

Dr James E. Paullin, Chairman, presented the report of the Council on Scientific Assembly as printed in the Handbook, which was referred to the Reference Committee on Sections and Section Work.

#### Report of Committee on Medical Preparedness

Dr Irvin Abell, Chairman, presented the following report, which was referred to the Reference Committee on Military Preparedness:

The Committee on Medical Preparedness of the American Medical Association was appointed at the June 1940 meeting of the House of Delegates in New York. A report covering its activities during the ensuing year was made at the June 1941 meeting of the House of Delegates in Cleveland. The present and final report covers its operations during the past year. It may be well to recall that the Committee on Medical Preparedness came into being as the result of a request of the Surgeon General of the Army that the American Medical Association undertake a survey of the medical personnel of the United States and its possessions to determine the number of physicians available for service in various capacities and to develop facts that would be useful in aiding the profession to render the greatest possible service in any national emergency that might arise. Among the objectives which the committee hoped to ascertain as fully as possible through this nationwide survey were (1) the number of physicians licensed to practice medicine, (2) the number capacitated for active service and the number of those incapacitated, (3) the number and location of physicians who may be qualified and available for service with the military forces of the nation and for other essential governmental services in case of national emergency, (4) the number available for service to the civilian population under emergency conditions, (5) the availability and qualifications of those who can serve acceptably in special fields of medicine, (6) the number and identity of physicians qualified for teaching and research in national institutions and (7) the number and identity of physicians already engaged in governmental service. During the first year of this study the efforts of our country were directed to war preparedness, while during the second year the civilian call



## THE CENSUS OF PHYSICIANS

The following information, statistical and otherwise, will attest the fidelity displayed by your committee in carrying out the instructions given to it by the House of Delegates.

The census of physicians, which was conducted by the Bureau of Medical Economics for the Committee on Medical Preparedness, began on July 5, 1940 with the mailing of schedules to approximately 180,000 physicians whose names were listed in the 1940 American Medical Directory. Of the 180,000 physicians, slightly more or less, who received this schedule, about 158,000, or approximately 86 per cent, supplied the information requested and returned the schedule to the American Medical Association. Schedules for the remaining 22,000 more or less physicians were prepared in the Bureau of Medical Economics or at the headquarters of some of the state medical societies with the incomplete information that was available in the American Medical Directory or from other sources. These schedules were marked "Incomplete," since all the information requested could not be supplied except by the physicians themselves. Since it was the desire of the staff to have in the punch card file information pertaining to all physicians in the United States, this method of preparing schedules for those physicians who, for some reason, failed or neglected to prepare their own schedules was used in order that a minimum of information might readily be tabulated for all physicians.

The census was undertaken to secure current information pertaining to the number, age, location, professional qualifications and other characteristics of individuals who comprise the medical profession in order that such information might be readily available to the Surgeon Generals of the Army and Navy in securing medical officers for war service.

It has been impossible for the staff that conducted the census of physicians to pursue the number of statistical analyses that could have been prepared from the data furnished by the medical profession. Only those statistical compilations that were deemed essential to a better understanding of the nation's available and effective medical manpower have been made.

No census figures express the quantitative value of the population group studied with any degree of accuracy except at a stated day or hour. It became necessary, therefore, to record changes in the census information as soon as the schedules were received. These changes fall largely into three or four groups: deceased physicians, physicians recently licensed, physicians whose professional qualifications are changed and physicians who have changed their addresses. From the very beginning of the census, a part of the routine of the staff has been to correct the schedules and punch cards of physicians who fall in these four categories as quickly as reliable information of this nature has been received. It has not been possible to make changes in location on the listing sheets, but an effort has been made to keep up to date a system of follow-up in the published directory reports so that the latest known addresses of physicians might readily be found.

## TOTAL NUMBER OF PHYSICIANS—VARIOUS SERVICES

Even before the census of physicians had progressed for no more than a week, deductions because of deaths were necessary. As time passed the names of newly graduated and licensed physicians were added. The result of two years of census effort with many corrections has given the committee records and punch cards for more than 181,500 physicians in the United States and its outlying territories and possessions. Of this number, some 176,000 physicians are located in the continental United States. Within the continental United States there were, as of Jan 31, 1942 85,964 physicians in general practice and 90,227 physicians (including those classified as fully qualified specialists devoting their full time to a specialty and physicians who devote only special attention or a part of their time to some special branch of medicine). The ratio of full time specialists to special attention physicians is about 43 to 57.

To arrive at the number of physicians who are engaged in the private practice of medicine it is necessary to deduct the number of physicians who are engaged in some service exclusive of the private practice of medicine. The total number of physicians engaged in full time appointments is 7,216. Of these, 2,816 hold teaching appointments, 910 are engaged in full time

research work, 1,179 hold executive positions and 2,243 are engaged in full time work in industry. It is believed that most of those in the last named category are actually contributing much to the health of the industrial population although in many instances not actually caring for the sick or injured workmen.

The total number of physicians found to be employed in some form of government service, as of July 1940, was 9,819. This number has probably changed considerably in the past two years with the addition or reduction of the number of physicians in the several governmental services.

In public health there were U S Public Health Service, 1,789, state health departments, 1,410, local health departments, 2,341, Veterans Administration, 1,779, Indian Field Service, 910, other federal agencies, 2,293.

In hospital service there was a total of 16,457 physicians in hospital administration, 3,089, as residents, assistant residents and fellows, 6,149, as interns, 7,219.

## RACES AND AGE GROUPS

Classified in private practice there were in the continental United States at the beginning of 1942 about 142,700 physicians of all ages according to the most reliable figures that can be drawn from the census data. Of the 176,191 physicians in the continental United States, 164,488 were white male, 8,035 were white female, 3,362 were Negroes (both sexes) and 306 were of other races.

Distributed by age and including both general practice and specialists, in January 1942 there were in the continental United States 42,721 physicians under 36 years of age, 38,212 physicians between 36 and 44 years of age inclusive, 31,904 between 45 and 54 years and 63,354 who were 55 years of age and older. Among the 176,191 there were 3,942 physicians who were 80 years of age and older, 255 who were 90 years of age and older and 6 physicians who were 100 years of age or older.

It will be seen from these figures that the medical manpower resources of the continental United States, for military purposes, at the beginning of 1942 numbered approximately 112,800 physicians, since that was the number within the age limit for service in the Army. The requirements of the Navy would be drawn from this same number, although the upper age limit for original commission in the Navy is 50 years.

It must be remembered, however, that not this entire number of about 112,000 physicians can be made available to the Army and Navy, since to provide the armed forces with war material with which to accomplish their mission it is necessary to provide health and medical services for the civilian and industrial population. It is known also that many of these 112,000 physicians could not qualify physically for full military service.

The 63,354 physicians who are 55 years of age and older cannot be expected to supply all the medical services needed by the civilian and industrial population even when reduced by the removal from the ordinary population of several million men in the armed forces.

Tables which show the numbers of physicians by age, specialty and location are too large and complicated to show here. Such tables have been prepared, however, and are available for use in connection with the medical war effort.

## PROBABLE SHORTAGES IN CERTAIN SPECIALTIES

It is important also to make some mention of the relative numbers of physicians in certain specialties in relation to the military and civilian needs. There are certain specialties in which the number of qualified physicians is so small that when military and civilian needs are considered there appears at once a serious problem of equitable distribution of the available supply of specialists. The fields in which this problem is most serious are neurosurgery, plastic and maxillofacial surgery, orthopedic surgery, thoracic surgery, neurology, anesthesia, pathology, clinical pathology and bacteriology.

There is likewise a serious problem in relation to the supply of qualified physicians to supply certain services in industry.

An important work of the staff that has conducted the census has been the compilation of a file of physicians who are now on extended active duty with the armed forces arranged

according to the states that have contributed these physicians from their medical manpower resources. Within the last month there has been received at the American Medical Association a list of commissioned officers prepared from duplicates of the punch cards that are a part of the Adjutant General's records. Other lists have been received from the Surgeon Generals of the Army and Navy that enable the staff to keep the records at the American Medical Association as nearly correct and current as it is possible to do. Arrangements have been made to receive regular reports of the numbers and names of physicians who are being commissioned by the recruiting teams now working throughout the United States.

#### CLEARANCE OF PHYSICIANS

Since the primary object of the census was to accumulate information that could be made readily available to the Surgeon Generals of the armed forces in the performance of their duty to provide medical services for the military establishment, the data that have been collected have been arranged in a manner that could be utilized easily for reporting to the Surgeon Generals on the location, medical education, age, licensure and qualifications of physicians whose names might be submitted to this office. The basic parts of the census had been almost entirely completed when the Procurement and Assignment Service was authorized in October 1941. Immediately after the organization of the Procurement and Assignment Service, the census material which had been arranged in listings was put to practical use in the clearance of physicians who had applied for commissions in the Medical Corps. The medical preparedness section of the Bureau of Medical Economics was designated as the Consultant Office of the Procurement and Assignment Service, and the director of the Bureau of Medical Economics was made the supervisor of that consultant office.

Since November 1941, when the work of the medical preparedness staff of the Bureau of Medical Economics was coordinated with the Procurement and Assignment Service, the amount of work required for the processing of the names of physicians who had applied for commissions in the medical corps is represented by the following figures. The number of names cleared for commission, 13,468. Of these cleared names, 100 were those of Negro physicians, and 1,753 were marked for assignment to the air force. In addition to the names which have been processed for commissions in the Medical Corps, lists of about 7,000 physicians in general practice and the specialties have been prepared for the Selective Service System in connection with its program of rehabilitation.

#### RECRUITING TEAMS

During the third week of April of this year the Army adopted a new policy for the purpose of securing physicians for commission in the Medical Corps. At present there are recruiting teams each consisting of a medical officer representing the Surgeon General of the Army who is to make the physical examination, and a line officer representing the Adjutant General of the Army, who is to assist in preparing other papers and to administer the oath of office for physicians who are commissioned in the grade of first lieutenant and captain. Already requests for clearance of names have been received from several recruiting teams or state chairmen. It is anticipated that this office may receive such requests from a large number if not all of the state chairmen for the Procurement and Assignment Service or the recruiting teams in the several states. In addition to the information requested for physicians who are to be given the grade of first lieutenant and captain, the regular clearance forms are still being forwarded from the Procurement and Assignment Service in Washington for those physicians who presumably are to be given a grade above that of captain.

The length of time which is required for the clearance of any particular physician, if considered separately, is not great, but, when that amount of time is multiplied by several hundred forms that are received at one time, the amount of time required for clearance becomes considerable. If to this is added the requests for clearance for some three or four dozen from each of the states, the amount of time required for clearance then

becomes very considerable. Each state is, quite naturally, anxious to receive its clearance papers as soon as possible, but only one state can be cleared at a time, and work is conducted in as orderly a fashion as possible, giving each request the priority of the order in which it is received.

Every effort has been made to make available to the Army, Navy, Public Health Service, Selective Service System and other governmental agencies, either directly or through the Procurement and Assignment Service, information to assist in the procurement of physicians to fill either general or specific assignments. Some interesting data have come out of this circularization of the profession which shows the trends and types of practice now most popular and which therefore indirectly influence army service.

#### PROCUREMENT AND ASSIGNMENT SERVICE ESTABLISHED

As these compilations and studies were being made by the Committee on Medical Preparedness it became apparent that certain conditions limited their utilization by the medical departments of the armed forces. Chief among these was the lack of volunteer applications for commissions in the Medical Corps, the greater percentage of calls to duty going to the Medical Reserve Corps and to the National Guard, the personnel of which was utilized to the extent made possible by physical fitness and availability of commissions commensurate with rank. The question of securing additional enlistments was given consideration by all of those cognizant of its need. The Subcommittee on Medical Education of the Health and Medical Committee recommended the establishment of an agency for the procurement of physicians for the armed forces, industry and the civilian population. This recommendation was referred to the Committee on Medical Preparedness, which, during its several sessions at Cleveland, canvassed the situation and presented to the House of Delegates a resolution relative to the establishment of a procurement and assignment agency to be concerned with the provision of medical personnel for the Army, Navy, Public Health Service and other agencies. This recommendation was unanimously adopted by the House of Delegates and subsequently sent to the Surgeon Generals of the Army, Navy and Public Health Service, to the Health and Medical Committee, to the administrator of the Federal Security Agency and to the President. This resolution was presented to the Health and Medical Committee at its meeting on July 2, 1941. The committee voted to adopt it in principle and to forward it to the Coordinator, Mr. McNutt, with the suggestion that he consult with the Secretaries of War and Navy and that all matters concerning details of organization remain contingent on action taken by these officials.

The Committee on Medical Preparedness met in Washington on Aug. 19 and 20, 1941 to consider this resolution in conjunction with representatives of the various federal agencies interested in securing physicians for their services. On Sept. 3, 1941 an executive order promulgated by the President established the Office of Defense Health and Welfare Services with the Federal Security Administrator, Mr. Paul V. McNutt, as director. The Health and Medical Committee was transferred to this office and given the specific duty of advising the director regarding the health and medical aspects of national defense exclusive of medical research and to assist in the coordination of health and medical activities affecting national defense. The resolution of the Committee on Medical Preparedness relative to the establishment of a Procurement and Assignment Service was referred to the Health and Medical Committee, which on October 22 held a meeting to initiate the development of such a service. The meeting was attended by the director of the Office of Defense Health and Welfare Services and his staff, by representatives of the Army, Navy, Public Health Service, Civil Service Commission, National Institute of Health, American Medical Association, American Dental Association, by the full membership of the Health and Medical Committee and by the chairmen of its subcommittees on Medical Education, Dentistry and Hospitals. An agreement on policy was reached and a commission appointed to draft a program for the Procurement and Assignment Service. On the receipt of its report Director McNutt transmitted its recommendation to the President with the result that the Procurement and Assignment Service

Service was established as one of the subdivisions of the Office of Defense Health and Welfare Services. The Health and Medical Committee and the Procurement and Assignment Service are closely correlated in that the Subcommittees on Dentistry, Hospitals, Industrial Health and Medicine, Medical Education and Negro Health of the two agencies have practically the same personnel. On December 18 at a meeting of the Board of the Procurement and Assignment Service with the preparedness committees of the American Medical Association, the American Dental Association and the American Veterinary Medical Association a definite organization was completed for the functioning of this service in relationship to needs of professional personnel in the war which broke upon us on December 7.

Approval was given to the constitution of committees in each of the corps areas and associated naval districts to function in an advisory capacity to the corps area commander, the committees to consist of a chairman, who will be the corps area representative of the Committee on Medical Preparedness of the American Medical Association, one physician representing medical education, one representing the hospital organizations, two representing the profession at large, two members of the dental profession and one member of the veterinary profession. In most instances the state chairmen of the Procurement and Assignment Service are the state chairmen of the Committee on Medical Preparedness of the American Medical Association. This close integration permits of an intelligent use of the data compiled by the Committee on Medical Preparedness to the end that the service rendered by the medical profession during the war will be used to the greatest possible advantage. The Committee on Medical Preparedness of the American Medical Association met in Washington on Jan. 30, 1942 with the Board of the Procurement and Assignment Service and representatives of the various interested agencies for the purpose of adopting final plans of procedure and action in utilizing the available professional personnel of the country for the duration of the war. Your committee has striven at all times to attain the objectives outlined in your instructions, which may be epitomized as loyal and complete participation in what is now an all out war effort. A final meeting of the Committee on Medical Preparedness was held in Chicago on May 9, 1942, at which its work for the past two years was reviewed. The census so far prepared is a continuing process, new schedules being required for recent graduates, older ones being withdrawn because of death or retirement. A large amount of clerical work is involved in change of addresses and in names of physicians ordered to active duty. An important phase of the census pertains to the professional and ethical qualifications of those on the roster.

#### RECOMMENDATIONS

As one who has done but little of the detailed work, the chairman desires to record for the appreciation of the House of Delegates the devoted and faithful service of the other members of the committee who have given unstintedly of their time and effort in carrying out your instructions. The corps area chairmen and the headquarters personnel have not regarded any sacrifice too great in promoting the committee's work, such sacrifice demanding not only intense application and tedious effort but appreciable donation of time from home and practice. The committee has spent many thousands of dollars of the Association's funds, and its members have devoted many hours of their time in accomplishing the survey, the like of which has not been done before. Since the objectives sought in the request of the Surgeon General of the Army have been attained as far as lies within the power of the committee, the Committee on Medical Preparedness begs to express to you its appreciation for the opportunity of service which you have given it and requests that it be now discharged.

Since the national preparedness program has now been superseded by actual participation in war, the Committee on Medical Preparedness recommends to the House of Delegates the appointment of a committee for the duration of the war to be known as the "Committee on Participation of the Medical Profession in the War Effort" composed of five members appointed by the Speaker of the House with the President, President-Elect, Chairman of the Board of Trustees, Secretary of the Asso-

ciation and the Editor of THE JOURNAL as ex officio members. The Committee on Medical Preparedness was appointed to accomplish a specific requested purpose the proposed Committee on Participation of the Medical Profession in the War Effort in keeping close touch with all policies affecting the quality and efficiency of medical service both to the armed forces and to the civilian population would feel free to express comment and criticism of policies relating to the participation of medicine in the war effort. Without authority to act it could advise, expressing the view of the medical profession on such proposals as are made having a direct bearing on the principles which our Association regards as fundamental in providing good medical service.

Respectfully submitted

IRVIN ABELL, Chairman

Members of committee

ROY W. FOUTS

SAM E. THOMPSON  
and ex officio

JOHN H. O'SHEA

FRANK H. LAHEI

STANLEY H. OSBORN

ARTHUR W. BOOTH

JAMES E. PAULLIN

OLIN WEST

WALTER G. PHIPPEY

MORRIS FISHBELN

FRED W. RANKIN

HARVEY B. STONE

#### Report of Committee to Study Problems of Motor Vehicle Accidents

Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, presented the following report, which was referred to the Reference Committee on Hygiene and Public Health.

#### TRENDS IN MOTOR VEHICLE ACCIDENTS

In a previous report published in May 1939 the members of the committee noted the decrease throughout the country in motor vehicle accidents since the peak of 1937 and stated that the members of the committee "are convinced that the improvement is due chiefly to education and traffic law enforcement." Unfortunately, this decrease in accidents has not held. Motor vehicle accidents are again increasing, and in 1941 they reached a new and all time high with 40,000 persons losing their lives from this cause alone. Are our law enforcement officers becoming more lax, and has the educational program been allowed to lag? The members of the committee do not feel that this is the cause but believe that it is due to the increase in travel and to the increasing national defense activity since the invasion of France.

In 1942 and until the end of the present war, many cars will leave the road because of the shortage of tires and of gasoline. There will be fewer drivers, and speeds will be lower so as to conserve these essential materials. If these were the only factors, we might expect a large reduction in traffic accidents and deaths throughout the country.

Unfortunately, there are other factors which may lead to further increases in traffic deaths in areas of increasing defense activity. Defense workers must continue to go to and from their jobs, and in many instances this will require continued use of motor vehicles. Motorists will be driving on poorer tires, new cars will not be available, and every "jalopy" that can navigate may be put to use. More workers will ride in each car, thus increasing the average number of workers that will be injured in each accident. In addition, the general mental and nervous strain which is always present in a time of national emergency and is especially prevalent in war industry areas may be reflected in the driving habits of the workers. It is unfortunate that traffic accidents among defense workers are all too frequent, occurring particularly among the young, inexperienced drivers or the older "rusty" drivers and the drinking driver and pedestrian.

What responsibility for the driving habits of the general public falls on the medical man? Probably far more than is evident at first glance. As more of the younger and able bodied men enter the armed forces, more civilian duties will

be taken over by older, less alert men and women. Many of these duties require driving cars. The medical profession can aid by keeping the public cognizant of these facts and by reiterating the need for maintaining high physical standards in our civilian population.

#### TRANSITORY AND PERMANENT DEFICIENCIES

The public in general, and law enforcement officers in particular, should be impressed with the fact that minimal physical standards which may permit an individual to obtain a driver's license do not constitute ideal standards. As stated in our previous report, "in licensing the public, only the *certainly unfit* may be rejected and all questionable applicants must be given the benefit of the doubt and accepted." These individuals with minor physical defects should, however, be impressed with the fact that driving safely will be more difficult for them. This also can be done by the physician in his private practice, and in this respect the committee wishes to reemphasize the recommendation made in its previous report regarding transitory deficiencies.

Regarding permanent conditions which may interfere with driving ability, we wish to comment particularly on two points. First of all, deafness is less a traffic hazard than is ordinarily believed. Most persons with this debility are able to compensate for their deficient hearing, and there is no record of a greater accident rate among the deaf than among the normal population. However, it is recommended that people with defective hearing equip their cars with outside rear-view mirrors so as to increase their ability to detect the presence of cars behind them.

The presence of epilepsy should be sufficient reason for denying a driver's license. For practical purposes any person having a permanent condition which may cause temporary unconsciousness should be included in this category. When applying for a driver's license, it should be mandatory to report all deficiencies which might interfere with driving ability. It is also important that the individual applying for a driver's license be properly identified, since many people who feel they may be physically disqualified have furnished a substitute for the examination.

#### ALCOHOLIC INTOXICATION

The role of alcohol as a factor in traffic accidents has continued to receive widespread attention. An ominous trend has been observed, namely that fatal traffic accidents involving reported drinking by drivers increased 27 per cent in 1941, whereas the increase in other fatal traffic accidents was only 17 per cent. The fact that a large proportion of the alcohol accidents occur among workers in war industries makes this a serious problem in national defense.

Physicians can aid enforcement officers in the control of drinking drivers by making examinations of drivers suspected of being under the influence of alcohol and seeing that the cases are prosecuted in a scientific manner rather than by relying on hit or miss lay opinion. To this end, chemical tests of body fluids or breath should be used in addition to clinical examinations in determining the degree of intoxication. The use of chemical tests for confirming or disproving alcoholic influence should increase the prestige of expert medical testimony.

Clinical pathologists are particularly well suited to perform the chemical tests and to present competent testimony in court. Any physician, however, can supervise the taking of the specimens and can handle testimony in court if he will thoroughly acquaint himself with chemical, medical and legal phases of such tests. The committee recommends that any physician who is to testify in such cases fully acquaint himself with the work done by the National Safety Council in this regard, and that he secure from the Council copies of reports<sup>1</sup> describing standard procedures for making clinical examinations and for avoiding legal pitfalls in taking specimens, making the chemical analyses and presenting testimony in court. Further, physicians personally should acquaint themselves with the chemical principles of such tests before testifying in court.

<sup>1</sup> Reports of the Council's Committee on Tests for Intoxication can be obtained by writing the National Safety Council, Chicago.

Much progress has been made in the acceptance of chemical tests for intoxication by the legal profession. Four states, Indiana, Maine, New York and Oregon, now have legislation dealing with the use of evidence obtained through chemical tests for intoxication. In addition, evidence obtained through chemical tests has been used in drunken driving cases in more than twenty-eight other states during the past year.

The committee reiterates its previous recommendations that the percentage of alcohol in the blood is a reliable index of the degree of intoxication, especially when considered along with external symptoms of intoxication. For those who do not recall the previous recommendations of this committee, we wish to repeat briefly the chemical standards for the legal interpretation of "under the influence of alcohol" in terms of the percentage of alcohol in the blood or its equivalent in other body materials.

1 Below 0.5 per cent alcohol in the blood no influence by alcohol within the meaning of the law,

2 Between 0.05 and 0.15 per cent, a liberal, wide zone alcoholic influence usually is present, but courts of law are advised to consider the behavior of the individual and circumstances leading to the arrest in making their decision,

3 0.15 per cent definite evidence of "under the influence," since every individual with this concentration would have lost to a measurable extent some of that clearness of intellect and control of himself that he would normally possess. These standards have proved themselves to be fair and practical. The zone below 0.05 per cent vindicates the nondrinking or temperate driver, the wide middle zone considers tolerance and idiosyncrasy, and the highest zone indicates alcoholic influence regardless of unusual tolerance. The chemical tests can be performed with remarkable accuracy and are the best means of proving alcoholic influence. It is necessary, however, that care be used in making the tests and that those who run the analyses have sufficient experience and are able to show that they can perform the tests accurately.

Claims have been made that the results of chemical tests should be interpreted differently in those states where the courts interpret the phrase "under the influence" to mean that the person is not able to drive in the manner of the "ordinarily prudent or cautious person." Such claims state that some skilful drivers with a blood alcohol concentration of 0.15 per cent or more may still be better drivers than the poorest drivers who have managed to pass the tests for a driver's license, although admitting that even these "superior" drivers have been definitely affected by the alcohol.

This committee recognizes the differences in legal interpretations of the phrase "under the influence" but points out that the "safest" driver is not necessarily the most "skilful" in performing skill tests. Results of brake reaction time tests, for example, reveal that persons with the fastest reaction time in applying brakes do not necessarily have the best accident records. This may be due to their driving a little faster and otherwise adjusting their driving habits to their superior physical ability, so that they have no greater margins of safety than other drivers who adjust their driving habits to their physical limitations. Thus the committee believes that a superior driver who lowers his ability by the use of alcohol is a hazard on the road, even though he may still be able to perform skill tests as well as the less skilful sober driver. He has lost some of his good judgment and superior ability to react to danger yet usually will not adjust his driving habits in accordance. Driving a car is such a hazardous occupation, even under the best of circumstances, that no driver should have the legal or moral right to lower his driving ability deliberately to any extent. One might as well argue that persons with superior driving skill should be permitted to ignore speed limits, stop signs and traffic signals.

There is need for a more uniform interpretation of the phrase "under the influence of intoxicating liquor" so as to avoid controversy in the interpretation of chemical tests. The committee wishes to urge again that all states consider the definition of the phrase given by the Arizona Supreme Court<sup>2</sup> which is

<sup>2</sup> Steffert v. State (Ariz.), 42 Pac. (2d) 615



siders an individual under the influence of intoxicating liquor when, owing to imbibing such liquor, he has lost to any extent some of that clearness of intellect and control of himself that he would otherwise possess. This is preferable to comparing the manner of driving to that of "an ordinarily prudent and cautious person." In those states in which the definition is based on the driving ability of "an ordinarily prudent and cautious person," the committee urges that courts consider the difference between a "prudent" person and a "skilful" person. It is well known that alcohol affects judgment before affecting ability to perform skill tests, and thus some persons may still be able to perform certain skill tests satisfactorily and yet have their judgment affected so that they could not be considered "prudent" drivers.

#### FIRST AID

The committee recommends that every physician carry in his car at all times a first aid kit so equipped that he may handle efficiently the immediate treatment which may be needed in traffic accidents. This kit will also be of value in handling casualties which may arise from "total war." A physician is supposed to be ready and able to handle emergencies, and it is of little value to know what must be done and to be forced to state that the wherewithal is at the nearest hospital 20 miles away. The first aid kit should include sterile dressings, bandages, disinfectants, tourniquets and splints which are not normally carried in the medical kit. The American Red Cross furnishes, at cost, kits of various sizes containing replaceable units.

The doctor must not assume that his course in medicine alone has been sufficient to enable him properly to teach first aid, or even to administer it with maximum efficiency. First aid methods constantly are being improved and it is important that each physician become acquainted with the present "best seller," the Red Cross First Aid Textbook. Such information will minimize the criticism of Red Cross first aid methods by physicians who have not taken the time to discover that the procedures advised in the manual have been approved by many organizations including the American College of Surgeons.

In the present emergency, thousands of laymen are being trained in first aid. Such training is highly recommended, but the committee feels that such instruction should have the supervision and guidance of the medical profession. Many physicians are cooperating with lay instructors in teaching Red Cross first aid courses. The committee feels that such cooperation should be adopted more generally and that the various state and county societies should, through their members, act in an advisory or teaching capacity for all such courses whenever possible. A little knowledge may be a very dangerous thing unless properly guided and controlled.

The first aid program in Milwaukee County might be mentioned because it is the only community in which all first aid courses are taught under the supervision of physicians assigned by the county medical society. The physician who criticizes the lay first aider for the manner in which an accident victim is brought to him should realize that it is the physician's responsibility to instruct the first aider properly. As a matter of fact the physician and the victim often have reason to be grateful for properly administered first aid. There is no doubt that first aid is an increasingly important factor in preventing accidents saving lives and minimizing disability.

"The American Red Cross reports a very lively interest on the part of physicians everywhere in equipping themselves adequately to teach emergency first aid to lay groups and on the lay level. For instance, in the city of Washington alone within the past four months more than three hundred medical doctors have taken first aid refresher courses in order that they might be fully prepared to handle their own classes. This is only an example of the same understanding active cooperation by physicians throughout the entire country and is especially gratifying when one remembers that Red Cross first aid stems directly from the best experiences of the medical profession. All in all, it does indicate a professional support and a program soundness which combine in making an asset of tremendous importance in these times of total war."<sup>3</sup>

#### DRIVING BY PHYSICIANS

Finally, the committee feels the physician should consider himself as a part of the problem of controlling motor vehicle accidents. Many physicians will be needed in the Army and Navy. This will increase the load of those remaining in civilian life. It will mean longer hours, more house calls, greater pre-occupation and consequently increased fatigue. All these factors contribute as driving hazards. When you are at the wheel of your car, forget Mrs. Smith's impending coronary thrombosis and concentrate your faculties on the stop light ahead or the child on the sidewalk who may dart suddenly into the middle of the road. Consider also the fact that it may be necessary for the physician to drive during blackouts. In England during the early air raids more people were injured in traffic during blackouts than were hurt by enemy bombs. Don't drive at such times unless it is absolutely necessary. When it is imperative, exercise utmost care and follow the instructions of the local defense council.

The criticism has been made that physicians take advantage of the privileges granted them by law enforcement officers and make a habit of disregarding traffic regulations. This privilege should never be abused. As physicians it behooves us all to aid wherever possible in decreasing a mode of slaughter which, during the last nineteen months, killed more people than the number of soldiers lost during the nineteen months of combat on the battlefields of Europe.

Respectfully submitted

HERMAN A. HEISE, Chairman

BURT R. SHURLY

THOMAS A. MCGOLDRICK

#### NEW BUSINESS

##### Resolution on Preserving Progressive Technics in Medical Practice

Dr. E. H. Cary, Texas, presented the following resolution, which was first referred to the Reference Committee on Military Preparedness and later referred by the Speaker to the Reference Committee on Miscellaneous Business.

WHEREAS There is a unanimous acceptance by physicians of the United States that the seriousness and scope of the existing worldwide conflict demands the unreserved and unqualified devotion and sacrifice to the ultimate limit of individual ability and capacity; and

WHEREAS An all professional agency, the Procurement and Assignment Service has been established officially and entrusted with the all important task of providing professional personnel to meet civilian and military health and medical requirements for the period of the emergency; and

WHEREAS It is considered that the assigning of this vast and vital responsibility to this strictly professional agency represents an unequalled tribute to and an unparalleled achievement of the medical profession; and

WHEREAS The Procurement and Assignment Service functions as a department of government and embodies within its various corps area and state committees a predominant majority of the trustees and officers of national and state medical societies; and

WHEREAS There is the prospect of the need for forty thousand possibly fifty thousand qualified physicians to serve directly with military forces; and

WHEREAS The conditions under which physicians have been able to function in the United States provide the factor most nearly responsible for the relatively enviable position which medicine now occupies and which is enabling organized medicine to provide the personnel and professional competence that represents an essential even vital contribution to the war effort; and

WHEREAS It is a chief responsibility of the profession to do its utmost to continue progressive technics in medical service which will provide opportunity for those physicians who are called to military service to reenter private practice under conditions which will insure continued progress and maximum effectiveness in civilian service; therefore be it

Resolved That we the House of Delegates of the American Medical Association place ourselves officially on record as recognizing our responsibility for making the utmost effort to preserve the elements of independence and freedom of action that will make possible the easy reentry of physicians to civilian practice. To this end we recommend that a definite part of each program of every component member medical society be devoted to a reconsideration of the traditions, the standards, the freedoms, the effects of the absence of restraints and outside control which have contributed so materially to American medicine's unequalled progress and vast achievements.

<sup>3</sup> Personal communication from Richard W. Thrush, National Assistant Director, First Aid and Accident Prevention of American Red Cross.



### Resolution on Control of Venereal Disease

Dr George W Kosmak, New York, presented the following resolution, which was referred to the Reference Committee on Hygiene and Public Health

WHEREAS, Published reports indicate an increasing prevalence of venereal disease in the armed forces and defense workers of this nation, and

WHEREAS, Commercialized prostitution constitutes an outstanding factor in the dissemination of these diseases and requires an intensified campaign against their elimination, therefore be it

*Resolved*, That the House of Delegates of the American Medical Association takes the following stand (1) that the control of venereal disease requires elimination of commercialized prostitution, (2) that medical inspection of prostitutes is untrustworthy and inefficient, gives a false sense of security and fails to prevent the spread of infection, and (3) that prostitution is unlawful, and physicians who knowingly examine prostitutes for the purpose of providing them with medical certificates to be used in soliciting are participating in an illegal activity and are violating the principles of accepted professional ethics

### Resolutions Requesting Change in By-Laws Limiting Time for Introduction of New Business in House of Delegates

Dr J C Sargent, on instruction of the State Medical Society of Wisconsin, presented the following resolutions, which were referred to the Reference Committee on Miscellaneous Business, except that portion of the resolutions containing an actual amendment to the By-Laws, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws

WHEREAS, The business of the House of Delegates of the American Medical Association, except that placed before it by the Board of Trustees and the several sections, consists almost entirely of resolutions introduced by delegates on instruction of their constituent state societies, and

WHEREAS, These resolutions commonly are drawn up and adopted by the constituent state societies months in advance of the annual session of the House of Delegates, and

WHEREAS, It would be of great help to each delegate in determining his attitude on all proposed business if he was apprised in advance of the nature of that business and thus given the opportunity of sounding out the will of the membership that he is elected to represent, be it hereby

*Resolved*, That in the future all new business to be brought before the House of Delegates of the American Medical Association, except it be business introduced by the Board of Trustees or by sections of the Association then in session, shall be filed with the Secretary and by him in turn forwarded to all state secretaries and to all delegates well in advance of each session, and be it further

*Resolved*, That to implement this the By Laws of the American Medical Association shall be changed in chapter II, section 3, to read

Chapter II, Section 3 Limit of Time for Introduction of New Business Unanimous consent shall be required for the introduction of new business *not filed in proper form with the Secretary of the Association sixty days before the annual session of the House of Delegates*, except when presented by the Board of Trustees, the officers of the sections or the sections All new business so presented shall require a three fourths affirmative vote for adoption

\* The italicized words represent the proposed change and are intended to replace the words "at the last meeting of"

### Resolution on Tribute to Physicians and Surgeons of Honolulu County Medical Society

Dr D S Towne, New York, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business

WHEREAS, The civilian physicians and surgeons of the Honolulu County Medical Society rendered a great service during the Pearl Harbor attack on Dec 7, 1941, and

WHEREAS, At the outset of the emergency they promptly responded to a call for aid from the Tripler General Hospital of the Army and by their surgical skill and unremitting efforts rendered great aid to the wounded, and

WHEREAS, By this service a new chapter was added to the successful treatment of war casualties and certain surgical procedures were established which will result in the saving of many lives and limbs from war injuries, and

WHEREAS, Their service was the more outstanding because only a few of them had ever been under fire, and by their courage and stamina they did much to aid the morale of the wounded, of the hospital personnel and of the civilian population, and

WHEREAS, The services of the physicians and surgeons were recognized in the official Roberts Report of the Attack by the statement that 92 per cent of the medical profession were available on that eventful historic occasion, and

WHEREAS, The Medical Society of the State of New York has gone on record in commendation, therefore be it

*Resolved*, That the American Medical Association recognizes the response of the civilian physicians and surgeons of the Honolulu County Medical Society to emergency duty and renders a tribute to their demonstration of the traditional willingness of our profession to act promptly and skilfully in all national emergencies

### Resolutions on Hospital Corporations Engaging in Practice of Medicine

Dr E H Skinner, Section on Radiology, presented the following resolutions, which were referred to the Reference Committee on Miscellaneous Business

WHEREAS, The House of Delegates approved a resolution, introduced by Dr Harry H Wilson at the 1941 session, instructing "the Board of Trustees of the American Medical Association to confer with similar committees representing the American Hospital Association and the Catholic Hospital Association of the United States, the conjoint committees to study and submit reports to their respective national bodies, in which would be outlined platforms or principles designed to clarify the relation of medical services that may be offered in pre payment hospitalization and similar plans, the same to be in line with the basic principles laid down in the past by the House of Delegates and other authorities of the American Medical Association", and

WHEREAS, The Board of Trustees was requested in the same resolution to "proceed to these matters as expeditiously as may be possible", and

WHEREAS, Evidence of continued encroachment of hospitals into the practice of medicine are manifest in numerous group hospitalization plans which offer certain medical services on a service basis as a part of hospital care and in plans adopted by numerous hospitals which include certain medical services in an "all inclusive" per diem rate for hospital care, now therefore be it

*Resolved*, That the House of Delegates reaffirms the principles enunciated in official resolutions over a period of many years opposing the practice of medicine by corporations or the interjection of a third party into the personal relationship and financial transaction between doctor and patients, and be it further

*Resolved*, That hospital corporations should not be permitted to engage in the practice of medicine through the medium of employed physicians or to enter into contracts with any individual, group or agency whereby the hospital agrees to furnish any medical services, and be it further

*Resolved*, That, to the end that hospitals be discouraged from offering the services of licensed physicians to patients on a contract or service basis, all fees for medical services rendered in hospitals should be collected by or on the account of the physician rendering such service, and all physicians concerned in the care of a patient should give or send directly to the patient or other responsible party a statement showing charges for professional services rendered; provided, however, that an exception to the foregoing principle may be made in the case of a formally organized partnership of physicians which acts in the capacity of an individual, and be it further

*Resolved*, That the definitions of medical service and hospital service as applied to the principles stated herein shall be consistent with those applied in previous declarations of the House of Delegates in which medical services are construed as the services rendered by licensed practitioners of medicine, and hospital service as limited to hospital accommodations such as bed, operation room, medicines, surgical dressings and general nursing care, and be it further

*Resolved*, That the Board of Trustees be urged to proceed to the clarification of these problems as requested by the House of Delegates at its last annual session

### Resolution on Medical Service Plans

Dr Charles E Mongan, Massachusetts, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations

WHEREAS, The House of Delegates of the American Medical Association in special session in 1935 stated that "it reaffirms also its encouragement to local medical organizations to establish plans for the provision of adequate medical service for all of the people, adjusted to present economic conditions, by voluntary budgeting", and

WHEREAS, The Delegates amplified this statement in special session Sept 16 and 17, 1938 with the restrictive remark that "In addition to insurance for hospitalization your committee believes it is practicable to develop cash indemnity insurance plans to cover, in whole or in part, the costs of emergency or prolonged illness", and

WHEREAS, Pursuant to this obligation thus imposed on state and county medical societies they have so acted as to warrant the report that "By the summer of 1941 there were twenty state medical societies that had taken some steps toward the introduction of a medical service plan to operate over the entire state" (1941 edition Organized Payments for Medical Services), and since nearly the entirety of effective organized and planned service schemes have utilized the principle of medical service contracts (California, Michigan, Buffalo, New York, North Carolina, Washington, Oregon, Pennsylvania, New Jersey, Massachusetts and others), and

WHEREAS, These major experimenting groups have not found it valid or practical for effectively aiding the lower income groups by restricting and restrictive statements relative to contracts coming from the House of Delegates (1938) as "Your committee urges the House of Delegates to suggest and recommend that the American Medical Association adopt the principle that in any plan or arrangement for provision of medical services the benefits shall be paid in cash to the individual member," and such statements as that from the resolution

publication 1941 Organized Payments for Medical Services page 21 that The attitude of the American Medical Association toward methods of payment of medical bills has been clearly defined. The position that benefits should be paid to the patients in cash in the same manner as premiums are collected from them is plainly stated and

WHEREAS The empirical findings of the major experimenting groups that a medical service contract best serves the end of a more adequate distribution of needed medical care in a manner which effectually protects the lower income groups against the mounting costs of medical care and is directly in record with the realistic attitude of the Massachusetts commissioner of insurance that the capital sustaining such plans with payments on the unit basis is not cash but the physician's service and

WHEREAS The statement of the House of Delegates Sept. 16 and 17, 1938 that "Your committee recognizes the soundness of the principles of the workmen's compensation laws" implies acceptance of the important compensation principle of arranging the delivery of complete service to the patient without additional charge by the doctor and with payment of the physician from insurance funds all of which is the essence of a medical service contract, he it therefore

Resolved That the state and county units of the American Medical Association in undertaking medical service plans at the behest of the parent organization will have their hand supported if medical service contracts as well as cash indemnity contracts are given equally frank direct approval by the House of Delegates

#### Resolution on Aid to Our Government

Dr Wells P. Eagleton, on behalf of the Medical Society of New Jersey, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations

Resolved That the Medical Society of New Jersey through and with the American Medical Association pledges its utmost and wholehearted support to the President and government of the United States in the successful prosecution of the war and the establishment of a new and better order for all peoples

The Medical Society of New Jersey is pleased to congratulate the American Medical Association for the aid it has given our government in the enlistment of physicians in our armed forces and for Civilian Defense as expressed in a letter by Assistant Secretary of War Patterson as recently published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

#### Resolution on Adequate Medical Care

Dr Wells P. Eagleton, for the Medical Society of New Jersey, presented the following resolution, which was also referred to the Reference Committee on Legislation and Public Relations

WHEREAS The Medical Society of New Jersey recognizes it is essential that adequate medical care be available to all our people and

WHEREAS The Medical Society of New Jersey recognizes that the importance of this problem will loom larger during the privations of the days to come, although the emphasis may wane with the distraction necessitated by war efforts and

WHEREAS The Medical Society of New Jersey believes that the organized medical profession should take the initiative in all matters pertaining to the health of our people and

WHEREAS The successful operation of the Emergency Relief Administration during 1933, 1934 and 1935 and the organization of the Medical Service Administration by the Medical Society of New Jersey may be a basis for and contribute to the formulation of a practical means of meeting this very difficult problem so that adequate medical care may be available to those of our people who cannot provide it for themselves therefore he it

Resolved That we believe and request that an adequate medical care plan be formulated without delay for all states, by joint action and agreement between representatives of government and the American Medical Association so that adequate care shall be available to those who wish to take advantage of it

#### Resolution on Women Physicians Obtaining Commissions in Medical Reserve Corps of United States Army and Navy

Dr Emily D. Barringer, for the Medical Society of the State of New York, presented the following resolution, which was referred to the Reference Committee on Military Preparedness

WHEREAS During the past winter women physicians have been denied commissions in the Medical Reserve Corps of the United States Army because of their sex and in spite of outstanding personal and professional qualifications as for instance in the case of a skilled anesthetist attached to a base hospital which was ordered into active service and in this case the colonel in charge and the chief surgeon highly endorsed and desired that this woman be a member of the staff of this base hospital and

WHEREAS During this past winter two American women physicians have received commissions in the Royal Army Medical Corps of the British Army, one as a major and the other as a lieutenant and both have been assigned to military hospitals and

WHEREAS The women physicians of the American Medical Association are a minority group who however pay dues and take part in the activities of the Association and turn to the Association for help in their problems of medical opportunities and

WHEREAS There is no existing ruling that women are ineligible to the Medical Reserve Corps of the United States Army while there

is an existing ruling in the Navy, which could be removed by the proper authorities and

WHEREAS At the last meeting of the house of delegates of the Medical Society of the State of New York the house went unanimously on record as approving that women physicians be admitted to the Medical Reserve Corps of the United States Army and Navy, and formally requested the American Medical Association to endorse that action which was not accomplished therefore be it

Resolved That the House of Delegates of the American Medical Association aid one of its minority groups by endorsing and aiding women physicians in obtaining commissions in the Medical Reserve Corps of the United States Army and Navy

#### Resolutions on Standards for Percentage Determination of Hearing Loss

Dr Burt R. Shurly, Section on Laryngology, Otolaryngology and Rhinology, presented the following resolutions, which were referred to the Reference Committee on Miscellaneous Business

Resolved That the Section on Laryngology, Otolaryngology and Rhinology has carefully considered the recommendation of the Council on Physical Therapy respecting standards for the percentage determination of hearing loss therefore be it

Resolved That the Section on Laryngology, Otolaryngology and Rhinology requests that the House of Delegates approve the said recommendation

#### Request That American Medical Association Inspect and Approve or Disapprove Present and Future Schools for Training of Medical Record Librarians

Dr W. A. Coventry, Minnesota, presented the following request, which was referred to the Reference Committee on Medical Education

Owing to the demand for trained medical record librarians, the American Association of Medical Record Librarians realizes the need for specially organized courses in this field. Ten such schools approved by the Association have been established. These approved schools can by no means supply a sufficient number of graduate record librarians. The needs are so great that other schools must be approved.

It is of deepest concern to us, however, that this increase in schools shall not lower the educational standards which the American Association of Medical Record Librarians requires. Our Educational Board enjoys the privilege of having among its members a representative of the American College of Surgeons, the American Hospital Association and the American Medical Association. The contribution made by these experienced men has been of great value. We now wish to go a step further. We earnestly desire that the American Medical Association inspect all present schools and all future schools for training of medical record librarians and after inspection either approve or disapprove the schools.

Furthermore, we ask that schools for medical record librarians approved in this manner be listed in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

#### Resolution Requesting Approval of Principles of American College of Apothecaries

Dr Joseph F. Smith, Wisconsin, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business

WHEREAS The American College of Apothecaries a national non-profit organization founded for the promotion of public health by education, distribution of pharmaceutical information and encouraging interest in prescribing to lessen the danger of self-medication and

WHEREAS This organization through its policies and objectives promotes a better relationship between medicine and pharmacy and

WHEREAS It is an affiliate of the American Pharmaceutical Association and its members must hold membership therein and

WHEREAS Its membership is limited to professional pharmacists hospital pharmacists and faculty members of schools of pharmacy and

WHEREAS Each pharmacy owned and operated by a fellow of the American College of Apothecaries must comply with the following requirements

(a) Each pharmacy exterior or window shall not display any signs of cigarettes, cigars, tobacco, liquor, beverages, food or ice cream. The pharmacy must not display either inside, outside or in the windows of the pharmacy any advertising material which detracts from the professional appearance of the pharmacy or suggests self-medication.

(b) The general appearance both exterior and interior of the pharmacy shall be one of cleanliness and order. The pharmacy shall be such as to make it predominantly apparent to the public that it is a pharmacy. It shall be well lighted and ventilated and the prescription laboratory shall have a professional atmosphere. There shall be no lotteries or gambling devices on the premises.

(c) There shall be a registered pharmacist on duty at all times that the pharmacy is open for business, and

WHEREAS, Serving of meals and lunches, and the sale of any product that might reflect on pharmacy as a profession is prohibited, therefore be it

*Resolved*, That the House of Delegates of the American Medical Association go on record approving the principles of this organization, which is sincere in the endeavors (1) to advance the standards of pharmacy, (2) to secure better cooperation between physician and patient, (3) to stimulate greater interest in public health and welfare and (4) to offer a better pharmaceutical service to physician and patient

#### Presentation and Address of Dr T C Routley

Dr Olin West, Secretary, introduced to the House Dr T C Routley, fraternal delegate from the Canadian Medical Association, who addressed the House as follows

*Mr Speaker, Dr West, Members of the House of Delegates of the American Medical Association* Once again it is my very happy privilege to bring you the fraternal greetings of the Canadian Medical Association

Nineteen years have elapsed since this great honor was accorded me, as I have told you on other occasions. If I keep this up for two more years, I am going to apply to you for a right of way over this highway, which cannot be blocked after twenty-one years—at least that is so in my country

Unfortunately, as Dr West has told you, my own meeting begins two days hence, and I must be on my way. We are hoping that many of your members of the western states who have not found it convenient to come to your meeting may come over to us at Jasper, where I can assure you a very hearty and cordial welcome awaits them

On the last two occasions on which I have appeared before you I have been asked a number of times how long I thought England could hold out against the enemy. That reminds me of a story. It appears that at least once a year Sandy and Angus had a game of golf. On this occasion it was a cold day when they went out to play. It seemed to necessitate a little bit of warming up in the clubhouse, so they had a nip from the bottle. On the first tee, while they waited to drive off, they thought it was an occasion for another little nip from the bottle. On the first green they each had a five and of course that was an occasion for celebration, so they had another little nip from the bottle. Thus it went from tee to green and green to tee until they reached the sixteenth hole. Finally Angus, turning to Sandy, said "Sandy, how do we stand?"

"Well, I don't know," he said, "It's a miracle"

It may be, ladies and gentlemen, that when England was standing alone she was standing because of a miracle, perhaps because of a Divine Providence, who knows. But the fact remains that she stood, thank God!

I do recall on that memorable meeting between Mr Churchill and the prime minister of France, when France was just on the verge of falling, the prime minister of France said to Mr Churchill "Now what are you going to do?"

"Well," he said, "we will fight on, we will fight on in the streets, we will fight on in our homes, we will fight on until there is nobody left. But," he said, "there is one thing I can assure you. No matter what happens in England, England will go on forever and forever and forever and forever"

Mr Speaker, since I last had the honor of coming to you, great changes have taken place. We no longer think in terms of miracles. We can see a glimpse of the future, and, no matter how long the struggle may be, medicine in this great North American continent, you and we, are going to play our part to the end of the struggle, and I am confident, as I am sure that you are, that your way of life and our way of life will survive and go on forever and forever and forever

#### Resolutions on Elimination of Requirement of Certification of Checks for Purchase of Special Tax Stamps in Connection with Dispensing of Opium

Dr James R Reuling, New York, presented the following resolutions from the Medical Society of the State of New York, which were referred to the Reference Committee on Miscellaneous Business

WHEREAS, The physicians and surgeons who dispense or prescribe opium or coca leaves or any compound manufacture, salt, derivative or preparation thereof are required by federal law and regulations annually to purchase a special tax stamp for \$1, and

WHEREAS, When payment of such dollar is made by check it is required that such check be certified by the bank of payment, and

WHEREAS, The Treasury Department of the United States of America accepts checks for larger amounts without requiring certification, and

WHEREAS, The Medical Society of the State of New York has protested against the requirement that checks in payment of these special tax stamps be certified by the bank of payment, and

WHEREAS, Members of dentist, veterinary, pharmacist, manufacturing chemist and banker organizations are also affected by the unnecessary labor of certification of small checks, therefore be it

*Resolved*, That the American Medical Association take emphatic and persistent steps for the elimination of the requirement of the certification of checks for purchase of special tax stamps in connection with the dispensing of opium or coca leaves or any compound, manufacture salt, derivative or preparation thereof, and be it further

*Resolved*, That copies of this resolution be sent to important national dentist, veterinary, pharmacist, manufacturing chemist and banker organizations

#### Resolutions on Approval of Activities of National Physicians' Committee for the Extension of Medical Service

Dr Thomas A McGoldrick, New York, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations

WHEREAS, The physicians of the United States, through the American Medical Association, unselfishly have devoted time, energy and continuously greater ability to building an organizational structure truly nationwide in scope, serving every town, village and hamlet in this country and devoted to the vital task of providing a more effective and a more generally available medical service than is provided anywhere else in the world, and

WHEREAS, These efforts, over a period of nearly one hundred years have developed American medicine to the point of a general recognition of its worldwide leadership, and

WHEREAS, This unparalleled growth and this unusual effectiveness are the results of the high level of educational requirements, the high standard of ethics that has been maintained and the continuous safe guarding of the relationship between the physician and the patient, and

WHEREAS, We are now passing through a period of worldwide revolutionary change in social, economic and philosophic concepts, and the general public has been and is subjected to a vast educational propaganda some of which tends to discredit the American doctor and to destroy confidence in the effectiveness of American medicine and in our system of distributing medical care, and

WHEREAS, Preservation of the vital principles responsible for medicine's past progress, its present effectiveness and its ability to serve the public most advantageously make it essential that citizens understand the basic facts in connection with American medicine's methods, growth achievements, the factors responsible for its superiority and the extent to which the people have been the beneficiaries of the profession's intensive and constructive efforts, therefore be it

*Resolved*, That we register our approval of the activities of the National Physicians' Committee for the Extension of Medical Service commend the board of trustees and the management of that institution for the efforts they have made to enlighten the general public in connection with American medicine's methods, progress and achievements and in pointing out that the public has a vital interest in the final result, and be it further

*Resolved*, That it be declared the policy of this House of Delegates to encourage this effort and similar efforts with identical purposes

#### Resolution Requesting Change in Social Security Act

Dr Walter W Mott, New York, presented by title a resolution requesting change in the Social Security Act, which was referred to the Reference Committee on Executive Session

#### Presentation of Men in House Who Had Not Served Previously

Dr H H Shoulders, Speaker, called on associates of each delegate who had not previously served in the House to present such new members. The following new delegates and visitors were presented: Dr F H Douglass, Washington, Dr John M Emmet, Virginia, Dr Warren L Allee, Missouri, Dr John T Donovan, New York, Dr Marion C Pruitt, Georgia, Dr Harry V Paryzek, Ohio, Dr George A Woodhouse, Ohio, Dr A H Stewart, Pennsylvania, Dr Dwight L Wilbur, California, Dr William A Mulherin, Georgia, Dr B F Pratt, Texas, and Dr Henry N Tihen, the president of the American Medical Society

The House recessed at 1 35 p m to meet again at 9 30 a m, Tuesday, June 9.

(To be continued)

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS EDUCATION AND PUBLIC HEALTH)

### CALIFORNIA

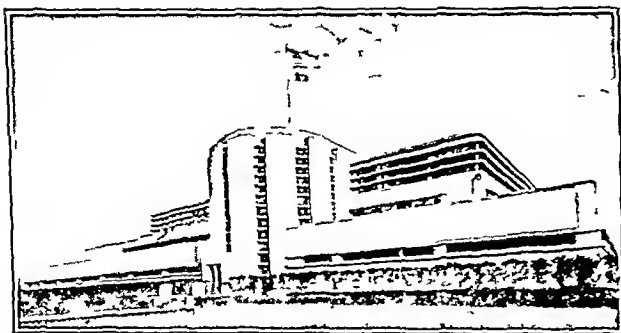
**Annual Meeting of Urologists**—The twentieth annual session of the Western Section of the American Urological Association will be held at Del Monte, June 22-24, under the presidency of Dr. Albert M. Meads, Oakland. Among the speakers will be

Dr. Laurence L. Howard, Great Falls, Mont., Double Kidneys and Double Ureters with Ectopic Ending of One Ureter  
Dr. Donald A. Charnock and William S. Riskaden, Los Angeles, Hypospadias  
Dr. Joseph F. McCarthy, New York, A Consideration of Essential and Accessory Equipment for Instrumental Operative and Diagnostic Urology  
Dr. Herbert M. Evans, Berkeley, Gonadotropic Hormones—Pituitary and Nonpituitary  
Dr. Miles Griffin, Oakland, The Case Against Transurethral Prostatic Resection  
Dr. Charles B. Huggins, Chicago, Endocrine Relationships of Prostatic Cancer

**Dr. Frank Lynch Retires**—Dr. Frank W. Lynch, since 1915 professor of obstetrics and gynecology at the University of California Medical School, San Francisco, will retire this year. A native of Cleveland, Dr. Lynch graduated at Johns Hopkins University School of Medicine, Baltimore, in 1899, serving there as assistant instructor and associate in obstetrics from 1900 to 1904. The following year he joined Rush Medical College, Chicago, as instructor in obstetrics and from 1909 to 1915 was assistant professor of obstetrics and gynecology. In 1924 he was chairman of the Section on Obstetrics and Gynecology of the American Medical Association. Dr. Lynch was president of the American Gynecological Society in 1933, of the San Francisco Obstetrical and Gynecological Society in 1930 and of the Pacific Coast Obstetrical and Gynecological Society in 1931. He is an honorary member of many groups concerned with his specialty and has written extensively on the subject. He is 71 years of age.

### ILLINOIS

**New Searle Pharmaceutical Laboratories**—G. D. Searle & Co., manufacturers of pharmaceuticals for more than fifty years, recently opened their new laboratories in a modern streamlined building in Skokie on the northwest limits of Chicago. The research laboratory, occupying almost the entire second floor, consists of three divisions, organic synthesis, bio-assay and analytical. The synthetic organic laboratories



New Laboratories of Searle & Co.

which occupy the largest area are separated by partitions of shatterproof glass to provide complete safety in case of fire or explosion. There are laboratories for bacteriology and pharmacology. The pharmacology department consists of three laboratories on the research floor directly connected with the animal rooms in the basement. The analytical division occupies the west wing of the research floor and includes an optical room and adjoining dark room. These have been joined because of the constant increase of new techniques and methods which employ optical and frequently photographic instruments for the perfection of the analysis, reduction of labor and precise measurement of smaller amounts of material. A large auditorium occupies the entire wing of the basement and will be

available to employees and to local medical societies. The general offices are located on the upper tier of the building. The building is air conditioned and humidity controlled throughout.

### Chicago

**Dr. Jacob Krafft Honored**—Dr. Jacob C. Krafft, clinical professor of pediatrics, Loyola University School of Medicine, was guest of honor at a dinner at the Hotel LaSalle, May 13, given by the Northwest Branch of the Chicago Medical Society and friends to honor his many years of service in the profession and in special recognition of his work in the care of the mentally handicapped child. Dr. Krafft was presented with a sphygmomanometer.

**Physician Denied Appeal in Draft Bribery**—The United States Supreme Court has denied the petition of Dr. Joseph P. Gardzielewski for review of his conviction on charges of aiding and abetting a local draft board chairman in taking a bribe from a draft registrant seeking deferment, newspapers recently reported. The physician and Joseph M. Nosek, the board chairman, were tried together and both were convicted. The physician received a two year prison sentence. His appeal was based on the contention that evidence was introduced at the trial that was applicable to Nosek's case but not to his own, thereby creating prejudice in the minds of the jury, it was stated. He was alleged to have suggested that the draft registrant might obtain a six month deferment by paying a certain sum to Nosek. The registrant was said to have reported the incident to authorities after conversations with Nosek and payment of \$35 to him. The newspapers further report that the case was the first to reach the Supreme Court in the administration of the Selective Service Act.

### IOWA

**Twin Lakes District Meeting**—The Twin Lakes District Medical Society will hold its annual dry diagnostic clinic and twentieth annual assembly at Rockwell City, June 25. Clinics will be conducted by the following: Drs. Thomas J. Dry, Rochester, Minn.; James William Martin, Omaha, LeRoy H. Sloan, Chicago; John H. Randall, Iowa City; and James Dewey Bisgard, Fort Crook, Neb. Col. John I. Marker, Cedar Rapids, will discuss "The Medical Man and the Armed Services" and Drs. Frank P. Winkler, Sibley, and Robert L. Parker, Des Moines, president and secretary respectively, of the state medical society, "The Iowa State Medical Society in War Time." The Twin Lakes district consists of the following counties: Buena Vista, Crawford, Calhoun, Carroll, Greene, Hamilton, Humboldt, Ida, Sac, Kossuth, Pocahontas, Webster and Wright.

### MINNESOTA

**State Medical Meeting in Duluth**—The Minnesota State Medical Association will hold its eighty-ninth annual meeting at the Duluth Armory, June 29-July 1, in Duluth, with headquarters at the Hotel Duluth, under the presidency of Dr. Herbert Z. Giffin, Rochester. The program will include the following speakers:

Dr. Armand J. Quick, Milwaukee, Present Status of the Hemorrhagic Diseases  
Dr. Archibald L. Hoyne, Chicago, Modern Methods of Control for Measles, Scarlet Fever and Diphtheria  
Dr. Willard E. Knapp, Dr. John F. M. Pohl and Lillian A. Hubner, R.N., Minneapolis, An Evaluation of the Kerner Technique of Treatment for Poliomyelitis  
Dr. Anton J. Carlson, Chicago, Some Unknowns in the Pathologic Physiology of Aging  
Dr. Paul H. Holinger, Chicago, Esophageal Diseases  
Dr. Ferdinand H. Haessler, Milwaukee, Ocular Tuberculosis  
Dr. John R. Lindsay, Chicago, Meniere's Disease

There will be clinical pathologic conferences and symposiums on obstetrics, virus diseases, newer therapeutic measures, anesthesia, the use of blood substitutes, emergency surgery, tuberculosis and diseases of the eye, ear, nose and throat. Among the speakers at the round table luncheons will be Col. Fred W. Rankin, Lexington, Ky., President of the American Medical Association on "Colon Surgery"; Dr. William C. Keettel, Jr., Madison, Wis., "Treatment of Prolonged Labor"; and Drs. Ernest L. Veland and Charles D. Creevy, Minneapolis. Obstruction of the Vesical Neck. On Wednesday afternoon there will be an industrial health and safety conference with the following speakers:

Dr. Carl M. Peter, Chicago, The Doctor in Industry's War Effort  
Dr. Leslie W. Foker, Minneapolis, Minnesota's Industrial Health Program  
Dr. Frank J. Elias, Duluth, Prevention and Treatment of Heat Collapse Among Industrial Workers  
Austin F. Henschel, Ph.D., Minneapolis, Diet and Fatigue  
Dr. Robert F. McGandy, Minneapolis, First Aid to Injured Workmen  
Mr. A. A. Wolf, St. Paul, What the Medical Profession Can Do to Increase Safety and Health in War Industries



Dr Arthur C Christie, Washington, D C, will deliver the Russell D Carman Memorial Lecture Tuesday afternoon on "Diagnosis and Treatment of Bronchiectasis." At the annual banquet Tuesday evening the speakers will be Dr Carlson on "Black Oxen and Toggenburg Goats" and Colonel Rankin, "The Challenge of the War to American Medicine." On this occasion the Southern Minnesota Medical Association Medal will be presented.

### MONTANA

**State Medical Meeting**—The sixty-fourth annual meeting of the Medical Association of Montana will be held in Missoula, July 8-10. The speakers will be

Dr Lawrence R Boies, Minneapolis, Headache

Dr George J McHaffey, Billings, Pathology of Silicosis and Silico tuberculosis

Dr Frank I Terrill, Deer Lodge, Clinical Aspects of Silicosis and Silicotuberculosis

Dr Henry K Ransom, Ann Arbor, Mich, Fundamental and Clinical Considerations in Intestinal Obstructions

Dr Norman F Miller, Ann Arbor, The Human Cervix in Health and Disease

Dr Cyrus C Sturgis, Ann Arbor, Coronary Thrombosis Discussion of Some of the Errors of Diagnosis

Howard B Lewis, Ph D, Ann Arbor, Fortification and Enrichment of Foods, and Nutritional Significance of the Vitamins

Dr Jerome P Nesselrod, Evanston, Ill, Is Rectal Cancer Preventable?

There will be panel discussions on diseases of the rectum, management of perforated appendix, pelvic disease in the female, diseases of the blood, and vitamins. Drs Nesselrod and Jay M Garner, Winnetka, Ill, will present a film on "Proctoscopic Color Photography."

### NEW HAMPSHIRE

**State Medical Election**—Dr Timothy F Rock, Nashua, was chosen president of the New Hampshire Medical Society during its annual meeting in Manchester, May 12-13. Dr James W Jameson, Concord, was named vice president and Dr Carleton R Metcalf, Concord, was reelected secretary-treasurer.

### NEW MEXICO

**State Medical Meeting in Santa Fe**—The annual meeting of the New Mexico Medical Society will be held at the La Fonda Hotel in Santa Fe, June 25-27, under the presidency of Dr Carl Mulky, Albuquerque. The speakers will be

Dr Thomas D Cunningham, Denver, Allergy and Acute Disturbances of the Gastrointestinal Tract

Dr William W Haggart, Denver, Surgical Treatment of Acute Conditions of the Abdomen

Dr George P Lingenfelter, Denver, Skin Diseases Under War Conditions

Dr Franklin G Ebaugh, Denver, Prevalent Personality Problems of Childhood and Adolescence

Dr James B Walton, Denver, Treatment of Pylorospasm

Dr Gerrit Heusinkveld, Denver, Modern Concepts of Ovarian Surgery

Dr Robert G Packard, Denver, General Considerations in the Treatment of Malunited and Nonunited Fractures

Dr Andres Ferret, Silver City, Osteomyelitis of the Skull

Dr Meldrum K Wylder, Albuquerque, Adequate Nutrition for Children During War Period

Dr Albert W Egenhofer, Santa Fe, Eye Conditions of Interest to the General Practitioner

Mr Harvey T Sethman, Denver, Procurement and Assignment Service

There will be a round table luncheon on Thursday and on Friday with the following speakers: Dr Cunningham, allergy; Dr Haggart, surgery; Dr Heusinkveld, obstetrics; Dr Ebaugh, psychiatry; and Dr Packard, orthopedics.

### NEW YORK

**Medical College Changes Entrance Date**—Albany Medical College announces that at a recent meeting of the faculty it was decided to admit a freshman class on July 13 and the next one March 29, 1943.

**Scarlet Fever Quarantine Abandoned**—The state sanitary code was amended, April 1, to provide for the discontinuance of placarding and quarantining of premises for scarlet fever, although isolation of the patient and personal quarantine of household contacts remain unchanged. German measles or rubella and Vincent's angina have been removed from the list of reportable diseases, also effective April 1. The *Bulletin* of the Onondaga County Medical Society and the Syracuse Academy of Medicine points out that in the case of the measles no effective control measures are available and the reporting does not serve a sufficiently useful purpose to justify the time and expense involved in the tabulation of numerous reports. Vincent's angina has been removed from the list because, with the practical eradication of diphtheria, there isn't the likelihood of confusing the diagnosis with that of diphtheria.

**Maternal and Child Welfare Teaching Day**—The state department of health and the Medical Society of the State of New York sponsored a regional maternal and child welfare

teaching day at the Westchester Country Club, Rye, May 20, in cooperation with the Dutchess, Orange, Putnam, Rockland and Westchester county medical societies. The afternoon program included the following speakers: Drs Vincent P Mazola, Brooklyn, "Complications of Pregnancy Heart Disease, Tuberculosis and Diabetes"; Charles A Weymuller, Brooklyn, "Newborn Apnea and Resuscitation Causes, Treatment, After Effects on Child," and Charles A Gordon, Brooklyn, "Procedure for Study of Maternal Deaths." The evening program was addressed by Drs Philip Levine, Newark, N J, "Importance of RH Factor in the Blood Its Effects on Transfusion Reactions, Erythroblastosis, Miscarriages and Stillbirths" and William E Studdiford Jr, "Chemotherapy."

### New York City

**Lectureship Named for Dr Niles**—Tau chapter of Nu Sigma Nu fraternity at Cornell University Medical College has voted to name its annual lectureship for Dr Walter L Niles, dean of the college for many years and acting dean at the time of his death in December. A fellowship in the department of medicine at Cornell also has been established in Dr Niles' memory.

**Training in Physical Therapy**—Columbia University announces a program of professional studies for the training of physical therapy technicians to begin in September and to extend over a two year period. The clinical and laboratory instruction will be given at the Vanderbilt Clinic, Neurological Institute, Presbyterian Hospital and the New York Orthopaedic Dispensary and Hospital. Two years and sixty semester hours of college, including courses in physics and biology, shall be required or graduation from an accredited school of nursing or an accredited school of physical education.

**Bust of Henry Fairfield Osborn**—The unveiling of a bust of the late Henry Fairfield Osborn, Sc D, for many years president of the American Museum of Natural History, was a feature of the official opening of the Hall of North American Mammals at the American Museum of Natural History, April 8. The acting president, A Perry Osborn, son of Professor Osborn, presided. The career of Professor Osborn was summarized by William K Gregory of the museum and James Rowland Angell, formerly president of Yale University. The bust was unveiled by Professor Osborn's daughter, Mrs Jay Coogan. Announcement was made during the ceremonies of the receipt of a \$500,000 fund from the estate of the late Henry Robinson Towne. This sum will be added to the general endowment and will be used to carry on research on animal behavior and similar fundamental problems. The Hall of North American Mammals is to contain twenty-nine groups, of which eleven have been completed. Dr Osborn died on Nov 6, 1935, aged 78. In 1890 he became professor of biology at Columbia University, where from 1910 until his death he was research professor of zoology. In 1891 he became curator of the department of vertebrate paleontology at the American Museum of Natural History.

### NORTH CAROLINA

**New Public Health Officers**—Dr Nathaniel Thomas Ennett, Greenville, was elected president of the North Carolina Public Health Association at its annual meeting in Charlotte, May 14. Dr William P Richardson, Chapel Hill, was named vice president and Dr Clem Ham, Monroe, secretary-treasurer to succeed Dr Ralph J Sykes, Raleigh.

**State Medical Election**—Dr James W Vernon, Morganton, was chosen president-elect of the Medical Society of the State of North Carolina and Dr Donnell B Cobb, Goldsboro, was installed as president. Other officers include Drs George S Coleman, Raleigh, and Julian A Moore, Asheville, vice presidents, and Roscoe D McMillan, Red Springs, secretary-treasurer.

**District Meeting**—The Eighth District Medical Society was addressed in North Wilkesboro, April 21, among others, by Drs Robert J Lovill, Mount Airy, on "Nutrition Deficiencies and Diseases of Infancy and Childhood"; Charles H Mauzy Jr, Winston-Salem, "Recent Advances in Prenatal Care"; Sidney F LeBauer, Greensboro, "Rheumatic Fever Diagnosis and Treatment"; George W Joyner, Asheville, "Parathyroid Tumors," and Tinsley R Harrison, Winston-Salem, "The Nervous Heart."

**Activities at Bowman Gray School of Medicine**—Dr Frederick R Taylor has been promoted to associate professor of clinical medicine at the Bowman Gray School of Medicine, Winston-Salem, and Dr Wilbur C Thomas to assistant professor of pathology. According to the dean, Dr C. C. Cr



penter gifts, grants and other financial assistance amounting to \$451,110 were received during the year. Three members of the Bowman Gray family, Mrs B F Bernard, Mr Bowman Gray Jr and Mr Gordon Gray, provided \$409,700 of the total. Beginning with the new academic year June 29 instruction will be offered to three classes—freshman sophomore and junior. A new class will be added March 22, at which time, through the promotion of the junior class, the work of the senior class will also be added.

## OHIO

**Brush Foundation Receives \$250,000**—An anonymous donor has given \$250,000 to the Brush Foundation, Western Reserve University School of Medicine, Cleveland for the research and educational work of the foundation under the supervision of William Walter Greulich, PhD, director of the foundation and professor of physical anthropology and anatomy in the medical school.

**Zoologist Honored**—Raymond C Osburn, PhD, Columbus, was guest of honor at a dinner, May 11, given by friends, students and associates to mark his impending retirement as chairman of the department of zoology and entomology at Ohio State University, Columbus, a position he has held for twenty-five years. He was presented with a bound volume of letters from present and former students and colleagues. Dr Osburn received his degree in philosophy at Columbia University, New York, in 1906. At one time he served as lecturer in biology and embryology at Starling Medical College, Columbus, professor of biology at Fargo (North Dakota) College, assistant professor at Barnard College, Columbia University, New York, professor of biology at Connecticut College for Women, New London, Conn. He has also served as scientific investigator at the U S Bureau of Fisheries, Woods Hole Station, Woods Hole, Mass.

## PENNSYLVANIA

**Meeting of Ophthalmologists**—The first annual meeting of the Eastern Pennsylvania Association of Eye, Ear, Nose and Throat Physicians was held at the Schuylkill Country Club near Pottsville, April 29. The following officers were elected: Drs James E Landis, Reading, president, Charles L Fackler, York, vice president, and Sterling F Mengel, Pottsville, secretary-treasurer. The speakers at the meeting were:

Dr Benjamin F Souders, Reading, Ocular Absorption of Certain Sulfonamides  
Dr Thomas R Gagon, Pittston, Ocular Signs of Myasthenia Gravis and the Prostagmin Test  
Dr Horace J Williams, Philadelphia, Infections of the Orbit  
Dr Douglas MacFarlan, Philadelphia, Deafness  
Dr Algermon B Reese, New York, Practical Ophthalmological Therapeutics  
Dr Samuel R Kaufman, Wilkes Barre, Allergy of the Eye, Ear, Nose and Throat

### Philadelphia

**Personal**—Dr Esmond R Long, professor of pathology, University of Pennsylvania School of Medicine, and director of the laboratories of the Henry Phipps Institute, has recently been elected an honorary member of the Society for the History of Medicine, Buenos Aires, Argentina.

**Society Starts Plan to Examine Members**—A special committee appointed by the Philadelphia County Medical Society is in operation to provide for periodic health examinations of its members, according to the society's weekly bulletin. Examinations will be complete and will include laboratory studies, roentgenology and electrocardiography. Members may select their various examiners from panels of cooperating physicians and all data will be secret. The only cost for the entire program will be a registration fee of \$2 to cover extra clerical help. Examinations will begin as soon as 200 members have enrolled.

## TEXAS

**Study on Diseases of the Chest**—The State Tuberculosis Sanatorium is sponsoring lectures and clinical demonstrations in diseases of the chest for physicians in the state during June and July. There are no fees and the physician may remain as a guest of the hospital for two weeks. Material will be available concerning all phases of diagnosis and treatment of adult and childhood tuberculosis. Various nontuberculous conditions will be presented for study and comparison. Any physician licensed to practice medicine in the state of Texas may attend. Additional information may be obtained from Dr Joseph B McKnight at Sanatorium, Texas.

## WISCONSIN

**Lectures by Dr Heidelberg**—The Wisconsin Alumni Research Foundation sponsored two lectures by Michael Heidelberg, PhD, associate professor of biochemistry, Columbia University College of Physicians and Surgeons, New York, on May 7 and 8. His subjects were "Modern Concepts in Immunity" and "The Part of Chemistry in Their Development."

**Changes in Health Officers**—Dr Glenn V Hough, Milwaukee, has been appointed medical director of the Marathon County Health Unit, succeeding Dr Ernest Newman, Wausau, who has a similar position at Las Vegas, Nev.—Dr Errol V Brumbaugh, Milwaukee, has been appointed health commissioner of West Allis, filling the vacancy that occurred when Dr Frank H Russell, West Allis, recently resigned.—Dr Frederick P Knauf, Kiel, has been appointed city health officer of Kiel to fill the unexpired term of the late Dr George Mathes, who resigned shortly before his death, February 19, after holding the position since 1900.

**Meeting of Tuberculosis Specialists**—A meeting of the Wisconsin and Michigan Trudeau societies in Pembine was addressed, June 12-13, by:

Drs Henry E Cope and Christopher J Stringer, Lansing, Mich, Sputum Examination Methods  
Drs Anthony V Cadden, Wausau, and David Salkin, Hopemont, Wis, Preliminary Report on a Large Series of Routine Admission Bronchoscopies  
Dr Charles R Smith, Houghton, Mich, Treatment with Minimum Hospitalization  
Dr William H Oatway Jr, Madison, Wis, Mechanical Aids in Collapse Therapy  
Drs John F Sanders, Hawaii, and John B Barnwell, Ann Arbor, Mich, Perirectal Abscess and Fistulas  
Dr William M Tuttle, Detroit, Mich, The Present Status of Extrapleural Pneumothorax  
Dr John D Steele Jr, Milwaukee, Wis, Experience with the Monaldi Method of Cavity Drainage.

One session was devoted to a symposium on the value and significance of positive gastric lavages in the diagnosis and treatment of pulmonary tuberculosis.

## GENERAL

**Medical Kits Stolen**—H J Anslinger, Washington, D C, commissioner of narcotics, is asking physicians to cooperate in curbing the theft of medical kits from unlocked automobiles and points out that the number of medical kits stolen by addicts to obtain narcotic drugs is rapidly increasing and that many of these thefts have occurred in unlocked automobiles. In April eleven kits were stolen from automobiles of physicians within the city of Los Angeles and neighboring communities.

**Survey of Errors in Causes of Death**—Kurt Pohlen, PhD, and Dr Haven Emerson, New York, are making a survey of the amount of errors in certification of causes of death, working with records of autopsies. Clinical findings and opinion have been compared with the postmortem protocols of the same cases. The study and collection of data are under the auspices of the joint committee on autopsies of the American Public Health Association and the American Hospital Association. The study ultimately will include 100,000 cases.

**Special Society Elections**—Dr Lewis J Moorman, Oklahoma City, was chosen president-elect of the National Tuberculosis Association at its meeting, May 8, and Dr James Burns Amberson Jr, New York, was installed as president. Dr Charles J Hatfield, Philadelphia, was reelected secretary. At the annual meeting of the American Branch of the International League Against Epilepsy in Boston, May 18, the following officers were elected: Dr Wilder G Penfield, Montreal, Canada, president, Dr Charles D Aring, Cincinnati, vice president and Dr Frederic A Gibbs, Boston, secretary-treasurer.

**Registration of Diathermy Apparatus**—The application form to be used in registering diathermy apparatus should be filled out promptly, all information pertinent to the particular case being given and then mailed to Mr T J Slowie, secretary, Federal Communications Commission, Washington, D C. If the application is satisfactory, the commission will send the applicant a certificate of registration which must be affixed in a conspicuous place to the diathermy machine to which it pertains. The certificate may be attached to the machine by means of mastic, cellulose tape or any adhesive material so long as the printed matter is plainly visible. Attention is called to the necessity of having each unit of diathermy apparatus in one's possession separately registered. Consequently, it must be clearly understood that one application form is to be used for only one unit. If the applicant has other units he should indicate how many and application forms will be sent for each one. The term "diathermy" is intended to include medical and surgical diathermy. Possession of an electric knife involves

the following principles to determine whether such knife should be registered. If the knife is an attachment of a diathermy machine, there is no need for a separate registration of the knife, since the radio energy generating apparatus will already be registered. If, however, the knife is not used in connection with or as a separate attachment to a diathermy unit, and if its radio energy generating apparatus is employed solely as an aid to surgical use, the knife should be registered. In effect, this means registering a diathermy unit which is used exclusively for surgical purposes. If the mechanism of a knife is not capable of generating radio frequency energy it need not be registered.

If a unit of diathermy apparatus which has been registered is ever transferred to the possession of another person, even for a short time, the person who takes possession must apply for a new certificate of registration. If the owner transfers, sells, assigns, leases or lends the registered apparatus, or if it is ever lost or stolen, such fact should be immediately communicated to the commission. In those cases in which there is a transfer of possession and the certificate of registration is not stolen or destroyed, such certificate should be returned to the commission. The commission should also be notified of any change in location of the apparatus. This registration does not apply to x-ray machines, sun lamps, infra-red lamps or ultraviolet ray devices.

**Public Health Under Hitler's Rule**—The *Nieuwe Rotterdamsche Courant* of April 14 writes that there must be a drastic overhauling of the methods of training physicians. "The whole medical education must be revised and given another spirit. The medical problem is not the treatment of a sick individual, dissociated from his environment, but the combating of the illness of a member of the community, which is paid by the community, ordered by the community and responsible to the community. The state cannot allow such an important class as the medical class, which holds in many ways a key position in the new society, to remain apart from the community and to be kept apart because the medical teachers fail to appreciate their vocation. New teachers must be carefully chosen, because they must be fit to educate the new generation of physicians in the principles of the physicians' new communal task in every sphere of medical science."

*L'Oeuvre* of April 19 states that "the discontent of the medical profession cannot be denied. Many of the members of the Council of the Order, themselves—with the exception of a few young men somewhat prematurely appointed, won over from the start to the methods of the iron fist and favoring authoritarian decisions—view with some disquiet the upsetting of professional traditions which were a guaranty for the patients as well as for the physician and which it is not enough to call 'routine' to render ineffective. There is no art in which it is more necessary to have long experience before passing judgment. The decrees which Vichy produces each day by the dozen, replacing the unwritten laws, are particularly severe for the medical profession. New tasks are perpetually being imposed while its independence and possessions are ceaselessly diminishing. If there is any need to reduce the gasoline ration, the authorities take care not to tamper with the rations of the black market or of private cars which still take women and children for rides in Paris, but the cars of the country doctors are the first to suffer. And the last possessors are made to become co-proprietors of their car, regardless of whether the doctor they share with has the same rounds or not. As for the patients, who cares? One would like to know the bureaucrat who conceived this bright idea. The obligatory contributions for family allowances are three times as much for the medical profession as for any other. Why? Because the state subsidizes all other funds except those of the physicians. Why this exception? And the physician is now inflicted with far more graceless tasks than ever before. Medical certificates are perpetually in demand for the diets of his patients, for the wood and coal rations of old people and for the layettes of newborn babies. When the physician comes home, tired out with long walks and climbing innumerable staircases, he is faced with reams of clerical work, with all the certificates which await him. He also is responsible for all prophylactic measures against infectious disease and for the keeping up to date of statistics at the health services of the prefecture. He is now asked to point out to these same services those of his patients suffering from venereal diseases. The whole medical profession has risen in arms over this point, such a request to denounce one's patients being in fundamental opposition with the principle of professional secrecy. However lofty the motives of the venereal specialists in their fight against this disease, even though this denunciation is made into a contribution to statistical work, even though it is restricted to such patients as

refuse to have intravenous injections over an indefinite period, it is distasteful to all physicians to practice with their patients such methods as are used only in the barracks and the brothel. Besides, the patients are wary nowadays. They pay their fee in cash and do not give their names. And the doctor has no more right to ask for their names than the priest in the confessional. Is the medical profession still a liberal profession or is it to become a form of civil service?"

*DNB* of April 27 reports from Rowne that the German Sick Fund Institution for the Ukraine has been created for the reich Germans, who are carrying on their important work of reconstruction in the Ukraine, hundreds of kilometers from the homeland. Its task is to look after the maintenance of the health and the recuperation of all the reich Germans active in the Ukraine. Every reich German active in the reich commissariat of the Ukraine must contribute to this institution, if his income is under a certain amount, just as in the reich. In contrast with the reich, the Germans in the Ukraine are insured if their incomes are less than 600 marks a month, whereas in the reich the limit is 300 marks a month, this is because of the special importance of health conditions in the Ukraine area. Voluntary participation in the scheme is also possible. As double insurances are not permissible, those active in the Ukraine must have withdrawn from the sick funds to which they belonged in the old reich, but this withdrawal is only temporary. The membership of a sick fund in the reich lapses for the period of activity in the Ukraine.

The new institution will not be inferior in its benefits to any similar institution in the reich. The contributions will be about as high as those in the reich. For those reich Germans who still draw their pay in the homeland, the contributions will be paid into the general sick fund of Katowice (Upper Silesia). Reich Germans in the Ukraine and their families in the reich will each receive a certificate enabling them to go to any doctor according to the system of free choice of doctors. By the creation of this sick fund institution a great work has been started, and the social welfare of the reich Germans in the Ukraine in the field of health insurance has been assured.

The Swedish trade union paper *Fackforeningsrörelsen* of April 24, in an article on the German labor situation, states that various regulations have been published against taking sick leave, especially in the armament factories. Press campaigns and meetings explain that to take holidays because of sickness is paramount to treason. In this connection it may be mentioned that the health condition of the German people has already been largely undermined by many years' hard work. The *Reichsgesundheitsblatt* contains sensational figures about the registered cases of illness in the reich over a period of forty-eight weeks in 1939 and in 1941.

|               | 1939    | 1941    |
|---------------|---------|---------|
| Diphtheria    | 128 897 | 154 752 |
| Scarlet fever | 119 730 | 226 755 |
| Tuberculosis  | 69,502  | 88 312  |
| Paratyphus    | 2 648   | 3 800   |

During the first twenty-five weeks of 1939 there were 6,135 cases of dysentery against 12,705 during the same period of 1941. Similar figures are shown for whooping cough. Compared with the difficult years preceding national socialist rule, these illnesses increased by from 500 to 800 per cent. The difficult conditions in Russia must have caused even these figures to rise greatly last year.

To increase the capacity of overworked soldiers and workers more extensive use is being made of stimulants such as amphetamine. A luftwaffe doctor recently considered it necessary to issue a warning against such preparations in the *Deutsche medizinische Wochenschrift*.

Deaths in Other Countries

Sir Edward Coey Bigger, M D, Dublin, Ireland formerly medical commissioner of the Ireland Local Government Board, chairman of the Irish Public Health Council and crown representative for Ireland on the General Medical Council, died in Dublin, June 1, aged 81.

CORRECTION

Dr Stuart McGuire—Under Medicine and the War in THE JOURNAL, June 6, page 504, in the item "Medical College of Virginia Hospital Unit" it was stated that "During the first world war, Base Hospital No 45 was organized at the Medical College of Virginia under the leadership of the Dr Stuart McGuire." This information was taken from the Richmond, Va., *Times-Dispatch* of April 28. Dr Stuart McGuire of Richmond is still living and well at the age of 74.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

May 2, 1942

#### Medical Reconstruction After the War

The Ministry of Health has appointed a committee of leading physicians and others to inquire into the organization of medical schools, particularly in regard to the facilities for clinical teaching and research and to make recommendations. The minister of health previously announced in the House of Commons that it will be the objective of the government as soon as may be after the war to insure that by means of a comprehensive hospital service appropriate treatment shall be readily available to every person in need of it. It is accordingly proposed to lay on the major local authorities the duty of securing in close cooperation with the voluntary agencies engaged in the same field, the provision of such a service by placing on a more regular footing the partnership between the local authorities and voluntary hospitals on which the present hospital services depend. The government recognizes that, to achieve the best results and to avoid wasteful multiplication of accommodation and equipment, it will be necessary to design such a service by areas substantially larger than those of individual local authorities. Patients will be called on to make a reasonable payment toward the cost, whether through contributory schemes or otherwise. In working out the details of the government's proposals special consideration will be given to the position of the teaching hospitals and to the question of assisting them by increased educational grants. This particular aspect of the future of hospital service is to be examined by the committee now appointed. The committee is not concerned with the curriculum for the training of medical students but with organization of medical teaching and its relation to the universities on the one hand and to the teaching hospitals on the other. It will consider such questions as the proper organization and distribution of medical schools, the appointment and remuneration of the teaching staff, the provision of an adequate range of cases for study and of suitable equipment, including the possibility of linking hospitals for teaching purposes and the organization of postgraduate teaching both for students specializing in some branch and for physicians wanting refresher courses.

#### Rehabilitation After Injuries to the Central Nervous System

At the Royal Society of Medicine, Prof. Geoffrey Jefferson opened a discussion on rehabilitation after injuries of the central nervous system. In a consecutive series of head injuries seen by him in private practice during the last two years the average time before specialist advice was sought was six months. Many cases were not seen until seven, eight or nine months after the injury. By that time a neurosis had been firmly established in a number of cases.

As to the validity of headache after a head injury, there are many doubters. We are learning about the mechanism of headache and are abandoning some time honored creeds notably the relation between pressure and headache as against local distortions of dural septums and traction on or pulsation of vessels. We do not with certainty know how to apply this knowledge except that we have comparative knowledge that pain continuing with unwavering intensity for months on end rarely has an organic cause. But we must beware of the danger of regarding all who have had a head injury as neurotic.

Rehabilitation after head injury includes (1) diversional and constructive occupations of sufficient variety and varying

degrees of difficulty for those still confined to bed as well as for the ambulant, (2) hospital maintenance work in the ward or outside, (3) physical therapy and (4) intellectual and recreational pursuits. There are two stages. The first stage covers the period in the hospital when the patient is confined to bed or ambulant and undergoing early treatment for the repair of his injury. The time at which the patient's interest is specifically aroused varies with the severity of the injury, the speed of recovery, the age and the intelligence. But rehabilitation in a diversional form should be instituted early while the patient is confined to bed and should take the form of reading or being read to, jigsaw, crossword and other puzzles, drawing or coloring, needlework, net and basket making, sewing, knitting and rug making. Physical therapy is provided for in all our brain injury centers.

The second stage begins some six weeks after the injury, when we should be in a position to gauge the prospects. The treatment will be in the main as in the first stage but with additions, such as gymnastics and physical training, speech training in cases of dysphasia, work in the garden, carpenter or engineer shop work, organized games (cricket, football, baseball), walks outside the hospital grounds, and visits to the town, the shops and the cinema.

#### How the People Are Fed

The distribution of food is controlled and rationed by the government. The minister of food has sent a personal letter of thanks to every executive food officer in which he says "It has been a year of many new ventures in food control, and all of them have demanded from your staffs hard work, patience and resource. Experience and elasticity are necessary for success in our great task of maintaining the health and courage of our people by keeping them adequately fed." There are fifteen hundred local offices or local ministries of food. Some idea of their work is given by a food officer in a typical borough in the London area. It is partly residential and partly industrial and has a population of one hundred and twenty thousand, which is served by one thousand food shops and six hundred catering establishments. There have been eighty-five thousand changes of address, and each takes about seven minutes to deal with. During the year the office has had to issue fifty-one thousand emergency cards for persons temporarily entering or leaving a district or who have lost their ration books. In addition, three hundred and sixty thousand ordinary ration books have been issued.

In a normal week never fewer than four thousand persons pass through the office with complaints or inquiries. These figures show how essential is full and harmonious cooperation between the public and the local food office. During the last three months there have been three thousand applications from persons wishing to change their retailers. Every person must be registered with one retailer, from whom alone they can obtain rationed foods. The applications to change were granted only when the reasons given were sound. To feed the one hundred and twenty thousand persons in the borough, the local food officer has to make available every week 6,000 pounds of meat, 20 tons of bacon, 20 tons of margarine, 12 tons of cooking fats, 46 tons of sugar, 4½ tons of cheese, 151,000 eggs (when they can be got) and 60,000 gallons of milk. This distribution of food is the most colossal undertaking ever attempted by one man. The food offices are ready for any emergency. If one occurred from extensive destruction in an air raid, the emergency feeding scheme could be put into complete operation at three hours notice. The food officer has for this purpose at least twice as much food as the Ministry of Food said he should have. When our war organization for this or other purpose is tested it will be found second to none and indeed more elastic and adaptable than the machine like method of

the Germans. They have had the advantage in the start, for we do not in time of peace make elaborate preparations for the destruction of other nations while lulling them into a sense of security by false assurances.

### Tuberculosis in the Merchant Navy

The need for mass radiography for the early detection of tuberculosis in adolescents has been pointed out by the president of the Royal College of Physicians and others. In a letter to the *Times* the management and medical staff of the Seamen's Hospital call attention to the need for this in the merchant navy and for the amelioration of living conditions on board ship, which, especially in wartime, are peculiarly favorable to the spread of infection. Statistics show that tuberculosis is among the highest causes of death among seamen. Moreover, the incidence is increasing under war conditions. The experience of the Seamen's Hospital Society over a long period, both at its hospitals and at its King George's Sanatorium for Tuberculosis, is that seamen do not present themselves for treatment until the disease has taken so strong a hold on them that prolonged treatment is required. The three main reasons for this are (1) lack of facilities for detection and control of the disease in its earliest stages, (2) the anxiety of the sailor lest during his treatment his wife and children should be inadequately provided for and (3) long voyages without any medical attention and the disinclination of seamen to undergo prolonged treatment in a foreign port. The sufferers are a grave source of infection to their fellows in the restricted quarters of a ship.

The signatories realize the difference between the use of mass radiography in the fighting services and in civil life and the practical difficulties peculiar to the mercantile marine. But they suggest that examination by miniature roentgenography should be included in the routine examination of seamen by the Shipping Federation, to other parts of which no objection is raised. Effective control would entail the institution of a personal record card. This might appear to differentiate merchant seamen from other workers, but a strong argument in its favor is that the migratory character of a sailor's employment deprives him of the contact with a panel or family physician which is available to landmen. Such a record could be incorporated in the seaman's discharge book and would be valuable to the physicians attached to the Seamen's National Approved Society in various ports.

### The Abdominal Surgery of Total War

The Bradshaw lecture on "The Abdominal Surgery of Total War" was delivered at the Royal College of Surgeons by Surgeon Rear Admiral Gordon-Taylor under war conditions. The college had been damaged in the indiscriminate bombing of London, so that the lecture room could not be used and the lecture was delivered in one of the museum rooms, which for safety have been emptied of their valuable contents. In the crowded audience, naval and military uniforms were prominent. The lecturer said that the most frequent cause of abdominal injury throughout the centuries was war. But heretofore the male was almost exclusively involved. Among the most primitive tribes a deliberate attack of man on woman is almost unknown. In the animal kingdom it is only on the rarest occasion that the male has made an onslaught on the female. This holds even for the fierce carnivora. But the miscreant nations who exultingly initiated the indiscriminate bombings of "total war" have destroyed the lives of countless women and children. After two and one-half years of total war we can take stock of our experience of abdominal injuries and compare our war surgery with that of the previous great war.

The lecture was based on a series of six hundred operations for abdominal injuries in casualties from Dunkirk, in the navy and the air force and among civilians during air raids. The

idea that the immediate mortality from abdominal injuries in war must be very high was not confirmed by the facts of the postmortem room. The immediate deaths due to abdominal injury were no more than 8 to 10 per cent of the total cases.

### PENETRATING INJURIES

In most of the penetrating abdominal injuries the projectile was a small fragment of bomb casing. The recovery rate was high when operation was prompt. Not only might the bowel be perforated by bullets, it might be scorched by incendiary bullets. The destructive effects of flying glass in air raids were now familiar. Coils of intestine were often cut to pieces inside the abdomen or hung out of gashes in the abdomen. Viscera might be damaged by driven fragments of bone although the missile did not penetrate the peritoneal cavity. As in the last war, the occasional immunity of viscera in penetrating wounds of the abdomen was observed. Also wounds of the hollow viscera occasionally recovered without operation. The importance of a buttock wound as leading to a track to the abdominal cavity was stressed. It was found in 20 per cent of all cases of abdominal injury. Hence the importance of not overlooking minute wounds of the buttock. The clothing should be removed and the patient examined all over. A case of large wound of the abdomen or of wide loss of abdominal wall was generally fatal.

### INTESTINAL INJURIES

Suture for wounds of the small intestine had a lower mortality than resection and should be preferred whenever possible. In resection the lecturer used end to end suture. Lengthy resections imply severe wounding and are not so promising as smaller ones. Yet 6 feet of small intestine has been removed with success and with cobbling of other injuries.

In wounds of the colon, suture should be combined with local chemotherapy. Colostomy sometimes proved valuable in the last war. If performed, it should be done early, before infection has secured a firm hold. Sulfonamide derivatives locally and orally have proved a valuable adjunct to surgery for patients with a damaged large intestine, and their use prophylactically is to be recommended. Resection of the colon is indicated in cases of infarction, extensive separation from the mesocolon, and where the viability of the intestine is destroyed or the wound is so large as to suggest formation of an artificial anus.

### INJURIES OF THE STOMACH

The prognosis of injuries of the stomach is better than in the last war. 60 per cent of recoveries as against 36.3. Acute dilatation of the stomach has been strikingly frequent in injuries, not only of the stomach but of other parts of the body. It has been observed in cases of severe contusion of the chest, fractured pelvis and ruptured bladder.

### THE EFFECT OF EXPOSURE TO BLAST

The direct effects of blast are experienced only close to the explosion, but the many indirect effects may produce death or serious injury. The intestine may show hemorrhages varying from hemorrhagic spots to large annular extravasations or even rupture of the bowel. The spleen may be torn. The liver may be bruised or torn, the kidneys and bladder are less often implicated. Blood clot has been seen in the peritoneum and retroperitoneal hematomas are characteristic, as well as effusions into the mesentery.

Abdominal injury due to blast in water ("immersion blast") was observed in the last war as well as in this war. It is produced by the near explosion of depth charges. Clinically the cases varied much in degree from mere ileus to severe peritonitis after rupture of the intestine. Hemorrhage into the nose and ears, hemoptysis, melaena and hematuria were observed.



#### THE RESULTS

In the lecturer's series of 163 operations for injuries of the large intestine there were 65 recoveries, in 119 operations on the small intestine there were 75 recoveries. Exteriorization operations on the large intestine did badly. Sulfonamide derivatives locally and orally proved of great value. Transfusion of blood or blood derivatives rendered a host of patients operable who otherwise would have perished.

#### BUENOS AIRES

(From Our Regular Correspondent)

April 18 1942

#### Failure of German Army Medical Service

The services of military hygiene and sanitation in the eastern German front were really deficient during the winter. The situation was aggravated because of the severity of the Russian climate and the appearance of infections in the military camps and also because of difference of opinion between the chiefs of the Nazi party and of the German army. General Dr Wolff, the highest chief of the German department of hygiene and sanitation, published an item at the beginning of the winter emphatically declaring that the medical and sanitary preparations for war on the eastern front were totally insufficient. Dr Wolff put the blame for the failure on Dr Conti, chief of German physicians, who during the courses on medical and sanitary preparedness gave more interest to ideologic teachings than to practical instruction. Dr Wolff asked the proper authorities for two changes in order to improve the courses of war medicine and war sanitation, namely (1) discontinuance of the ideologic courses of the Nazi party with the military and racial views of the party and (2) immediate rehabilitation of Jewish physicians for service on military sanitation. However, Dr Conti obtained support from the authorities for the refusal of Dr Wolff's first request. The second request was only partially accepted. Jewish physicians were rehabilitated for service as auxiliary physicians in civil hospitals but not in the army. Then the military commander "in revenge," mobilized all physicians up to the age of 60, and by this step the sanitary service of the reich was severely harmed. The failure of military sanitation is pointed out by Marshal Brauchitsch as one of the main causes for the retreat of the German army in Russia. Practically all the services of military sanitation are directed by the storm troops, which are those of Hitler's personal guard (S S). The sanitary situation at the front is grave. According to German reports the number of deaths from relatively slight wounds have increased because of the lack of a sufficient number of experienced surgeons. The number of cases of exanthematic typhus and of other infections has increased. Freezing has caused many more casualties than it caused during the war of 1914-1918. The cases of septicemia are also increasing.

#### New Building of Academy of Medicine

The National Academy of Medicine of Buenos Aires opened its new building on April 16. The academy was established in 1822, later it was united with the National Faculty of Medicine from which it was again separated in 1905. The work of the academy for the last few decades has been on the scientific rather than on the pedagogic field. The National Congress made of it an autonomous academy in 1925 in view of the efforts of Drs Eliseo Canton, Domingo Cabred and some other doctors. The scientific work carried on by the academy is of great importance. The new building was constructed with donations from the government and from Drs Rafael and Marcelino Herrera Vegas. The government made a donation of 2,000,000 pesos (\$500,000) to the academy. The beautiful building has several rooms, an assembly hall for eight hundred persons, laboratories and a library with twelve thousand books.

The Instituto de Investigaciones Físicas Aplicadas a la Patología Humana is a department of the academy. Dr Mariano R. Sastex is the head of the department.

#### Proceedings of Pan American Meeting

The Jornadas Neuro-psiquiátricas Panamericanas held its second reunion at Lima on March 20-25, 1939. The proceedings of that reunion were recently published in two large volumes. Drs Honorio Delgado and J. O. Trelles, professors of neuropsychiatry at the University of Lima, are the editors. The volumes contain important material on neurology, psychiatry and legal medicine which show the great progress of Latin American neuropsychiatrists. Some of the most important articles are on the variability of the cellular architecture of the cortex of the frontal lobe of the brain, pain from physiologic, anatomic, clinical, medicolegal and toxicologic angles, hypochondria, schizophrenia, social problems in relation to care of patients with mental diseases, biologic bases of civil incapacity of patients with mental diseases. The Tercera Jornada Neuropsiquiátrica Panamericana will be held at Buenos Aires in November with Dr Nerio Rojas as president of the reunion. Dr Nerio Rojas is a professor of legal medicine at the Faculty of Medicine of Buenos Aires.

#### Course on War Surgery

A course on war surgery was recently offered by the Facultad de Ciencias Médicas of Buenos Aires to physicians and youths in advanced studies of medicine. It began on April 16. Dr Alejandro Ceballos, professor of clinical surgery of the faculty, delivered a lecture on occasion of the opening of the course. The head of the University of Buenos Aires, several well known chiefs in the army and members of the profession attended the inaugural lecture, which dealt with the most modern treatments of wounds. The course is given as a measure of preparedness.

#### Personals

Prof. Dr. Eliseo B. Segura was appointed president of the National Academy of Medicine of Buenos Aires to succeed Dr. Mariano R. Castex, who recently resigned.—Dr. Eduardo Braun Menéndez of the Instituto de Fisiología de Buenos Aires, who recently lectured in the United States, was given an honorary degree of doctor of laws by the University of California.—Prof. Dr. Edgar Adrian of Cambridge lectured during March at the Academia Nacional de Medicina de Buenos Aires and at the Faculties of Medicine of Buenos Aires, La Plata and Rosario on neurophysiology. He also read papers before the Sociedad Científica Argentina, where he explained the problems of evacuation of children in London.—Dr. R. Castro O'Connor of Buenos Aires left Argentina for Great Britain recently to study plastic surgery. He will carry on his studies under the auspices of the Faculty of Medicine of Buenos Aires and the British Council. Dr. O'Connor will work in the clinic of Dr. Harold Gilhes.—Dr. George T. Pack of the Memorial Hospital of New York came to Argentina last April. Dr. Pack established a scholarship in the Memorial Hospital of New York for Argentinean physicians who wish to carry on special studies on cancer.—Dr. Juan Carlos Mujica, head of the general department of sanitation of the navy of Argentina, was appointed traveling delegate by the Pan American Sanitary Bureau. He will travel with Dr. John F. Long, the visiting inspector of the bureau, and will engage in studies on the prevention of pestilential diseases in Chile, Peru and Ecuador.

#### Brief Notes

There is typhus in almost all fighting fields in Europe. Therefore the general mail department of Argentina has established a service of disinfection of all mail from Europe with the aim of preventing typhus epidemics in this country.



## Deaths

**William P Wherry** ♂ distinguished as an ophthalmologist and otolaryngologist, one of the leaders of American medicine in this field, died at his home in Omaha, June 13, aged 61. Dr Wherry was born in Omaha, June 16, 1880. After attending preparatory schools in Omaha, he graduated from the University of Nebraska College of Medicine in 1903. He had been professor and chairman of the department of otolaryngology at the University of Nebraska College of Medicine and also a member and president of the staff of St Catherine's Hospital and the former Evangelical Covenant Hospital. He was a member of the medical staffs of the Union Pacific, the Chicago, St Paul, Minneapolis and Omaha and the Chicago and North Western railways.

Early in his medical career Dr Wherry became associated with organizational activities, having served as president of the Omaha-Douglas County Medical Society in 1919, of the Medical Society of the Missouri Valley in 1932 and of the Nebraska State Medical Association in 1941. He was chairman of the Section on Laryngology, Otology and Rhinology of the American Medical Association in 1934 and had been vice president of the American Laryngological Association, vice president of the Advisory Board for the Medical Specialties and secretary-treasurer of the American Board of Otolaryngology from the time of its foundation in 1924. He was also a fellow of the American College of Surgeons, the American Otological Society, the American Laryngological Association and the American Laryngological, Rhinological and Otological Society.

Dr Wherry gave especially of his time and energy to the work of the Omaha Mid-West Clinical Society, for which he had been treasurer since 1933, and to the American Academy of Ophthalmology and Otolaryngology. In this organization, which has done a monumental work in graduate instruction in its field, he was secretary of the Section of Instruction from 1920 to 1926, first vice president in 1924, executive secretary-treasurer since 1926 and editor of its *Transactions* and *Bulletin* since 1930. His interest in graduate medical education was significant, and he had served since 1938 on the Commission on Graduate Medical Education.

Dr Wherry had written many scientific contributions in the field of vision and on the pathology of the sinuses. He was widely known as a medical scientist, a teacher, a leader in public affairs and in education, a gentleman of charm and culture.

**Edward Joseph Ill** ♂ Newark, N J, College of Physicians and Surgeons, medical department of Columbia College, New York, 1875; past president of the Essex County Medical Society and the Medical Society of New Jersey, in 1893 vice president, in 1899 president and member of the executive council from 1901 to 1903 of the American Association of Obstetricians and Abdominal Surgeons, vice president for New Jersey of the Pan American Medical Congress in 1893, member of the Southern Surgical Association, chairman for the state of New Jersey of the American Society for the Control of Cancer, member of the board of governors of the American College of Surgeons, member of the board of education of Newark from 1878 to 1880, for many years state director of the Prudential Life Insurance Company of America, formerly surgeon to Woman's Hospital and medical director of St Michael's Hospital, gynecologist, supervising obstetrician and trustee of St Barnabas Hospital, consulting gynecologist, Beth

Israel Hospital, Newark, All Soul's Hospital, Morristown, Mountainside Hospital, Montclair, and the Rahway Memorial Hospital, Rahway, president of the Society for the Relief of the Widows and Orphans of Medical Men of New Jersey, aged 88, died, June 9, at his summer home in Island Heights. The Academy of Medicine of Northern New Jersey, of which he was the first president, created a special award in honor of Dr Ill, making the first presentation to him on his eighty-fifth birthday May 23, 1939 and at the same time conferring on him honorary membership. In 1934 a bust was presented to the academy to mark Dr Ill's eightieth birthday. The presentation of his portrait to the Hospital of St Barnabas and for Women and Children in 1940 marked his completion of fifty-eight years of service on the staff, and the following year the Essex County Medical Society awarded him a scroll of appreciation in recognition of his completion of more than fifty years in the practice of medicine.

**Terry Monroe Townsend** ♂ New York, University of Louisville (Ky) Medical Department, 1897, past president of the Medical Society of the State of New York and the Medical Society of the County of New York, member of the House of Delegates of the American Medical Association in 1929 and from 1935 to 1938 and in 1941, member of the American Urological Association, fellow of the American College of Surgeons, diplomate of the American Board of Urology, Inc, veteran of the Spanish-American War, director of urology, Morrisania City and Department of Correction hospitals, attending urologist, Lutheran Hospital, consulting surgeon, Sing Sing Prison Hospital, Ossining, consulting urologist, Ossining (N Y) Hospital and the Midtown and Community hospitals, New York, aged 65, died, May 16, of pneumonia.

**Granville Scott Hanes** ♂ Louisville, Ky, Hospital College of Medicine, Louisville, 1900, professor of proctology at the Kentucky School of Medicine, 1905-1906, professor of diseases of the rectum at the University of Louisville School of Medicine from 1906 to 1923, clinical professor of proctology and later professor emeritus, member of the American Proctologic Society and the Southern Surgical Association, fellow of the American College of Surgeons, in 1929 president of the Kentucky State Medical Association, on the staffs of the Louisville City, Kentucky Baptist, Jewish, St Anthony's

and Kosair Crippled Children's hospitals, aged 75, died, May 21, of injuries received when he fell from a sixth floor window.

**Charles Sylvester Skaggs** ♂ Carbondale, Ill, Barnes Medical College, St Louis, 1903, member of the House of Delegates of the American Medical Association from 1928 to 1938, past president of the Illinois State Medical Society and the St Clair County Medical Society, in 1937 was appointed by the late Gov Henry Horner as one of fifteen members of a newly created state advisory committee for the division of handicapped children of the Illinois Department of Public Welfare, aged 63, died, May 6, of cerebral hemorrhage and arteriosclerosis.

**Harold Guegnon Fabien Edwards** ♂ Shreveport, La, Medical Department of Tulane University of Louisiana, New Orleans, 1911, member of the American Roentgen Ray Society, Radiological Society of North America, Inc, American Radiological Society and the American College of Radiology, fellow of the American College of Physicians, member of the American Board of Radiology, Inc, served during World War I, attending radiologist, T E Schumpert Memorial Sanatorium and the Tri-State Hospital, aged 53, died, May 2, of coronary occlusion.



WILLIAM P WHERRY, M D, 1880-1942

Clyde W Morter \* Milwaukee, Wisconsin College of Physicians and Surgeons, Milwaukee 1907, assistant clinical professor of proctology at the Marquette University School of Medicine, member of the American Proctologic Society, member of the American Board of Surgery, on the staffs of Columbia Hospital, Milwaukee County Hospital and Dispensary and Mount Sinai Hospital, consulting proctologist at the Veterans Administration Facility, aged 61, died, April 11, of influenzal encephalitis and pneumonitis

Joseph Aloysius Meledy, Washington, D C, Tufts College Medical School, Boston 1918, member of the Massachusetts Medical Society, served in the U S Navy during World War I and at the time of his death was a lieutenant commander in the U S Naval Reserve at various times served on the staffs of the Veterans Administration facilities in Boston and Washington, aged 50, died, April 1, in the Walter Reed General Hospital of an intracranial lesion of an undetermined type and hemiplegia

Roy L Pierce, Mount Gilead, Ohio, Ohio Medical University, Columbus, 1896, member of the Ohio State Medical Association, for many years county health officer, formerly county coroner and member of the board of education of Mount Gilead formerly medical examiner for the U S Civil Service Commission and medical examiner for the draft board in the first and second world wars, organized the Mount Gilead chapter of the American Red Cross in 1917 aged 73, died May 3

James A Milligan, Garnett Kan, Central College of Physicians and Surgeons, Indianapolis, 1883, member of the Kansas Medical Society, member of the State House of Representatives from 1907 to 1909 and state senator from 1909 to 1911 and again from 1917 to 1919, formerly mayor of Greensburg, past president of the Santa Fe Medical and Surgical Society, aged 86, died, April 19, in the Ransom Memorial Hospital Ottawa, of carcinoma of the gallbladder

Earl Cunningham MacCordy \* St Petersburg, Fla, Tufts College Medical School Boston, 1916 served during World War I, acting assistant surgeon, U S Public Health Service on the staffs of the Mound Park and St Vincent's hospitals, aged 51, died, April 5, of coronary thrombosis

Ronald Bacon Rogers \* Neenah, Wis, Columbia University College of Physicians and Surgeons New York 1917 served in the U S Navy during World War I, president of the staff of the Theda Clark Hospital, aged 50, died, April 4 in the Mercy Hospital Oshkosh, of cirrhosis of the liver

Bernard Milnis, North Bergen N J, University of California Medical School San Francisco, 1936, member of the Medical Society of New Jersey on the staffs of the Christ Hospital, Jersey City and the North Hudson Hospital, Weehawken, aged 32, died April 19 of myelogenous leukemia

Charles Harold Newell, Omaha, John A Creighton Medical College, Omaha, 1908, member of the Nebraska State Medical Association, instructor in surgery at his alma mater, served during World War I, on the staff of the Nicholas Senn Hospital aged 59, died April 2, of coronary thrombosis

George S Lambert, New Rochelle N Y Columbia University College of Physicians and Surgeons, New York, 1928, member of the Connecticut State Medical Society, at one time health officer of Killingly and Danielson, Conn., aged 41, died April 2, of carcinoma of the liver and rectum

Hartsford Lee Ison, Wedowee Ala, Southern Medical College, Atlanta, Ga, 1891, member of the Medical Association of the State of Alabama, served during World War I, aged 74, died April 3 in a hospital at Montgomery of arteriosclerotic and hypertensive heart disease

Francis Clement O'Malley, Plains Pa, Maryland Medical College Baltimore, 1912, served with the American Expeditionary Forces in France during World War I as a captain in the medical department aged 55 died April 11, of chronic myocarditis

Milton Perry McElhannon, Belton, Texas, Vanderbilt University School of Medicine, Nashville Tenn, 1900 member of the State Medical Association of Texas, fellow of the American College of Surgeons aged 62, died, April 20 in Houston of bronchopneumonia

David Jackson Jacobson \* Bemidji, Minn Drake University College of Medicine Des Moines, 1913, on the staff of the Lutheran Hospital aged 51, died April 17 in the Worrall Hospital Rochester of myocardial infarction and coronary sclerosis

Charles W Peek, Cedartown Ga (licensed in Georgia in 1889) member of the Medical Association of Georgia served

for a number of terms in the general assembly of Georgia and one term in the state senate, aged 76, died, March 1, of heart disease

Otis Andrew Moore, Columbia, Mo, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910, aged 53, died April 8 in the Noves Hospital of gastric hemorrhage

Edward Henry Wolinski, Chicago, Loyola University School of Medicine, Chicago, 1919, member of the Illinois State Medical Society, on the staff of the Walther Memorial Hospital, aged 48, died April 23

Charles Day Moulton, East Orange N J, University of Pennsylvania Department of Medicine Philadelphia, 1902, aged 66, died, April 11, of arteriosclerosis, cerebral embolus and chronic myocarditis

Peter E Maras \* Jersey City, N J, University of Louisville (Ky) Medical Department 1911, on the staff of the Greenville Hospital aged 57, died, April 6, of coronary thrombosis

Charles Colfax McFarlin, Westport, Ind, Kentucky School of Medicine Louisville, 1902, served during World War I aged 73 died, April 6, of gastroenteritis and arteriosclerosis

Julia R Youngman Johnson, Los Angeles, Woman's Medical College of Pennsylvania, Philadelphia, 1903, aged 67 died March 17, of cerebral hemorrhage and hypertension

Nelson A Harris, Hackensack, N J New York Homeopathic Medical College, New York, 1881, aged 81, died, April 9 of chronic myocarditis

Edwin Glenn Smith, Atlantic City N J, Jefferson Medical College of Philadelphia, 1888, aged 80, died, April 3 of cardiac decompensation and arteriosclerosis

Joseph W Neal, Scotland Ga Atlanta Medical College, 1889 member of the Medical Association of Georgia, aged 76 died March 3 of carcinoma of the prostate

Davis W Collins, Effingham, Kan, Kansas City (Mo) Medical College 1898, member of the Kansas Medical Society aged 67 died March 14, of heart disease

Giuseppe Mario Pellettieri, St Louis (licensed in Missouri in 1915) aged 60, died April 6, in the Bethesda General Hospital of cardiovascular disease

Charles E Nelthorpe, Sherwood, Mich, Detroit College of Medicine, 1888, aged 80, died April 4 of arteriosclerotic heart disease and diabetes mellitus

Arthur Donald Wilson \* Mission Texas, Queen's University Faculty of Medicine, Kingston Ont Canada, 1930 aged 38, died, April 17

D Westervelt Rawlings, Kansas City Mo Marion-Sims College of Medicine St. Louis 1897 aged 77 died April 9, of coronary sclerosis

Mathias Aguire Serna, Crystal City, Texas Chicago College of Medicine and Surgery, 1916, aged 63 died, March 9 of pneumonia

Arthur Hale Gilmore, Eaton Ohio, Rush Medical College Chicago 1893, aged 71 died, March 17 in Chicago of heart disease

Hugh C Gault, St Clair Mo St. Louis Medical College 1882 aged 83, died, March 7 in St. Louis of ruptured aortic aneurysm

Charles Hunter Robinson, Cullom Ill, Chicago College of Medicine and Surgery 1910 aged 66, died April 14, of uremia

Monta Waynefort Jamison Middleton, New York Fort Wayne (Ind) College of Medicine, 1888, died, April 5

Louis Willard Matthei, Chicago, Rush Medical College Chicago, 1897, died, April 5

#### DIED IN MILITARY SERVICE

Leslie Turner Bolton, Reno, Nev, University of Tennessee College of Medicine Memphis, 1917, served as a medical officer during World War I, at one time acting assistant surgeon in the U S Public Health Service formerly on the staffs of the Veterans Administration facilities in Los Angeles San Francisco and Reno was called to active duty as a lieutenant colonel in the medical reserve corps of the U S Army Nov 15 1941 aged 51 died May 2 of uremia at sea enroute to foreign duty

## Bureau of Investigation

### CEASE AND DESIST ORDERS

#### Abstracts of Certain Federal Trade Commission Releases

The work of the Federal Trade Commission, in helping to protect the public against misrepresentation or fraud in the medical as well as other fields, has been greatly extended by the provisions of the Wheeler-Lea Amendment to the Federal Trade Commission Act. The Food, Drug and Cosmetic Act of 1938 added to the Food and Drug Administration's control of the advertising claims and statements made on the labels of medicine or on the carton or in the accompanying leaflet, whereas what might be termed collateral advertising, that which appears in newspapers and magazines and over the air, comes more actively under the purview of the Federal Trade Commission by virtue of the Wheeler-Lea Amendment.

THE JOURNAL has at various times commented on the activities of the Federal Trade Commission in this connection, even before the Wheeler-Lea Amendment gave it its added rights. In some cases the Commission may accept from the person or concern involved a stipulation that the objectionable practices or claims cited will be discontinued. In other cases the Commission issues what is known as a Cease and Desist Order, in which the individual or company cited is ordered to cease and desist from practices which have been declared objectionable. Abstracts of some of the orders issued during 1941 follow.

**Caboteks**—This alleged remedy for female disorders is put out by a Charles Campbell Battenfield Sr., trading as Dean Cabot of Pittsburgh, whose advertising represented the product as a cure or remedy or a safe and effective treatment for delayed menstruation. The Federal Trade Commission declared that the product is not safe to use, since it contains the drugs ergotin, apiol green, oil of savin and quinine sulfate in quantities sufficient to cause irreparable injury to health if used under the customary conditions or those prescribed in the advertisements. In November 1941 the Commission ordered Battenfield to discontinue these misrepresentations and also any advertisements which fail to reveal that the use of "Caboteks" may cause gastrointestinal disturbances and other serious consequences.

**"Flexible Kone" and "Dependon" Products**—These are put out by a Mrs. Anne M. Jenks of White Bear, Minn., trading as Jenks Physicians' Supplies and Dependon Products. In November 1941 the Federal Trade Commission ordered Mrs. Jenks to discontinue the following misrepresentations in her advertisements: that any preparations or devices that she sells are safe, competent or effective preventives against conception or pregnancy and effective treatments for certain female diseases. She also was ordered to discontinue any advertisements which failed to reveal that her "Flexible Kone Diaphragms" and "Flexible Kone Pessaries" cannot be worn without danger of injury and infection, or that the warning that her "Dependon Intrauterine Paste" is a caustic substance which may destroy healthy tissues and produce necrosis.

**Mineral Wells Crystals**—These are put out by Mineral Wells Crystal Producers, Inc., Mineral Wells, Texas. In November 1941 the Federal Trade Commission ordered the Texas concern to discontinue certain misrepresentations in its advertising. Among these were that the product as sold to the trade is uniformly derived from mineral water obtained in its natural state from the earth in the vicinity of Mineral Wells or that, as implied by the use of the word "Certified," the product has been endorsed or attested as to quality or fitness by some governmental, scientific or other recognized agency empowered and qualified to certify to such facts, when such an endorsement has not been obtained.

**Mother Nature Soap Lake Salts, Seltzer and Spirit**—These are promoted by the Soap Lake Products Corporation, Seattle. In August 1941 this concern was ordered by the Federal Trade Commission to cease representing that its nostrums when used externally will cure or benefit eczema or similar conditions, or when taken internally will prevent or cure various rheumatic conditions, gangrene or Buerger's disease, or offer anything more than temporary relief for any of the disorders named. In April 1939 the Commission had issued a similar order against the same concern.

**Parkelp**—This was a dehydrated kelp product put out in two forms known as "Granular Parkelp" and "Parkelp Tablets." In at least five instances the Food and Drug Administration seized shipments of Parkelp and declared the product to be misbranded under the Pure Food and Drugs Act because the amounts of minerals it contained were misrepresented or because of fraudulent therapeutic claims on the labels. Government chemists reported Parkelp to consist essentially of plant material (chiefly kelp) containing chlorine, potassium, sodium, calcium, phosphorus, iron and some other minerals. In July 1941 the Federal Trade Commission ordered Philip R. Park, Inc., San Pedro, Calif., to discontinue advertisements which represent that Parkelp has any therapeutic value beyond that afforded by its iodine content that it contains iron,

copper, calcium, phosphorus, sodium, potassium, magnesium, sulfur or other minerals in quantities sufficient to have therapeutic value in treating or preventing diseases or conditions resulting from a deficiency in such minerals, or that it will build resistance to mineral deficiency diseases or furnish food minerals other than iodine in quantities sufficient to be of value in combating mineral deficiency diseases, or that Parkelp contains minerals which are not present in food or that the average diet is deficient in the minerals necessary for proper functioning and health of the body.

**Rex Perio Pills**—This was put out by a Louis Podrofski of Chicago, who operated under the name Rex Drug Company. Analysis showed the product to contain ergotin, extract of black hellebore, aloes and oil of savin in quantities sufficient to cause serious and irreparable injury to health if used as directed in the advertisements. In July 1941 the Federal Trade Commission issued a cease and desist order against Louis Podrofski and the Rex Drug Company individually, directing them to cease disseminating any advertisements which would represent that their nostrum is a safe and effective treatment for delayed, scanty and painful menstruation or any which would fail to reveal that the use of Rex Perio Pills may cause gastrointestinal disturbances and excessive congestion and hemorrhage of the pelvic organs and, in cases of pregnancy, may result in cases of uterine infection and blood poisoning.

**Sterline's Combination Home Treatment**—This group of products put out for the treatment of asthma by W. K. Sterline, Sidney, Ohio, includes three nostrums, sometimes known as "Sterline's Asthma Compound," "Sterline's Bronchial Elixir" and "W. K. Sterline's Korma Powder." According to the Federal Trade Commission, one of the ingredients is sodium bromide, the use of which over a long period may cause rash and mental derangement. The Commission further found that the Sterline products have no generally recognized value in the treatment of asthma or bronchitis, and, in September 1941, ordered W. K. Sterline and Mumm, Romer, Robbins & Pearson, Inc., Columbus, Ohio, the agency that handles Sterline's advertising, to cease representing that these mixtures, when used separately or in any combination, are a cure or remedy for asthma or bronchitis, and to discontinue any advertisements for "W. K. Sterline's Compound" which fail to reveal that this preparation should not be used by persons suffering from active or latent tuberculosis, lest it cause mental derangement. The defendants were permitted to omit this warning, however, if their advertisements included the statement, "Caution: use only as directed on the label." It is interesting to note that in July 1937 W. K. Sterline had signed a stipulation in which he had promised the Federal Trade Commission that in the sale of his asthma treatment he would no longer represent that it would remove the cause of asthma or hay fever or offer any more than temporary relief of the symptom, nor would he state either directly or by inference that the use of it was safe, unless he explained that it was not intended for persons having tuberculosis.

**Thorson's Soap Lake Products**—Under this brand name one Roxie Thorson trading as Thorson's Soap Lake Products Company, Soap Lake, Wash., puts out "Salts," "Effervescent Soap Lake Salts," "Liniment," "Skin Aid Soap Lake Ointment," "Shampoo" and "Skin Aid Soap Lake Soap." In August 1941 the Federal Trade Commission ordered Roxie Thorson to cease representing that these preparations are a cure remedy or competent treatment for a long list of disorders, among which are diabetes, blood diseases, psoriasis, pyorrhea, Buerger's disease, gangrene, women's ailments, rheumatism, dropsy, high blood pressure, arthritis and a good many others. In January 1939 the Commission had issued a similar order against the names Roxie Thorson and Thorson's Soap Lake Products Company. Still earlier, in July 1930 and October 1931, shipments of Thorson's Soap Lake Salts had been declared in district federal courts to be misbranded under the Pure Food and Drugs Act because of fraudulent claims made for the product in or on the trade packages. In connection with one of these cases the government chemists had reported that the product essentially contained 50 per cent of sodium carbonate, 25 per cent of sodium sulfate (Glauber's salt) and 10 per cent of sodium chloride, with smaller amounts of other salts and 13 per cent of moisture.

**Triple X Relief Compound and Perio Pills**—The latter also was known as "Reliable Perio Compound" and "Perio Relief Compound," and both preparations were sold by one Earl Aronberg of Chicago, doing business as Positive Products Company and Rex Products Company. In September 1941 the Federal Trade Commission ordered Aronberg to discontinue any advertisements which represented that his preparations are effective remedies or treatments for delayed menstruation or are safe to use, or which failed to reveal that the use of these mixtures might cause gastrointestinal disturbances and severe toxic and circulatory conditions, and, in the case of pregnancy, might produce violent poisonous effects on the system.

**Wroblewski Nostrums**—These are distributed by one D. Stefan Wroblewski, operating under various trade names, and by three corporations, D. W. Wroblewski, Inc., D. Wroblewski and Company, Inc., and Daferu Drug Company, Inc., all of Brooklyn. In July 1941 the Federal Trade Commission ordered these respondents to discontinue their representations in the advertising of a long list of nostrum products under Polish names. The order particularly directed the respondents to discontinue all advertisements which represent it as harmless or which fail to contain a warning against its frequent and continued use and excessive dosage, and to caution the user that it should be taken only as directed on the label when the label contains proper cautionary directions. The order also prohibited use of the words "laboratory" and "scientific" or "Dr." when the latter refers to D. Stefan Wroblewski. The findings, is not a physician. Also banned were testimonials which purport to have come from the respondents' customers but which were prepared by the promoters themselves.

## Correspondence

### SURGERY IN CANCER OF THE PROSTATE

*To the Editor*—An opinion expressed in THE JOURNAL, March 7, page 855, in answer to a query from a doctor in California is entirely false and is not held, I am sure, by a majority of urologists.

Carcinoma of the prostate differs from carcinoma elsewhere in the body in no particular respect so far as treatment is concerned except for the newer procedures of diethylstilbestrol and castration. An early diagnosis of carcinoma of the prostate can and has been repeatedly made, and when made by the urologist trained to do radical prostatectomy, it can and has been repeatedly cured. The problem is one of early diagnosis, and this has been made and confirmed when the lesion is not larger than 1 cm in diameter.

In these cases, confirmation has usually been made by frozen section after perineal exposure, and if after such biopsy the presumptive clinical diagnosis has been proved false the perineum can be closed and no harm done. This procedure is now a recognized routine in all well trained urologic centers.

Confirmation of the suspicion of cancer of the prostate is so easily made by rectal palpation that an early diagnosis has even a better chance of being made than in cancer of internal organs that are beyond the reach of palpation. For years well trained urologists have told of the wisdom of routine rectal examinations for this reason more than any other. I can cite the cure of more than 20 patients with early carcinoma of the prostate from my own practice.

The difference of opinion arises from the failure of urologists such as the one who answered the query in THE JOURNAL to recognize the difference between early and late cancer. His remarks apply only to the latter.

FRANK HINMAN, M D, San Francisco

*To the Editor*—It appears to me that the statement in the March 7 issue of THE JOURNAL (in the department of Queries and Minor Notes) regarding carcinoma of the prostate to the effect that "It is the opinion among urologists that once the clinical diagnosis of carcinoma of the prostate has been made it is technically impossible to do any sort of surgical procedure that would effect a cure" is an unfortunate one. It seems to me an error to dismiss in such a cavalier fashion the not infrequent series of promising results of total prostatectomy in cases in which early diagnosis is not missed because of lack of awareness or suspicion of the nature of isolated hard areas in the prostate. As I see it, the chief problem about cancer of the prostate is that of making the physician who is not a urologist suspicious of what he feels on a carefully done rectal examination.

J GORDON SCANNELL, M D, Charles River, Mass

*To the Editor*—In THE JOURNAL, March 7, page 855, is a statement with regard to cancer of the prostate. This statement is untrue, and I seriously object to having it go unchallenged, because there is no question of the fact that many patients with early carcinoma in our clinic have been cured by total radical perineal prostatectomy and seminal vesiculectomy, and I know that this is true in several other clinics. I hope that you will do what you can to correct this misstatement.

The thing to be encouraged is that every male patient over 50 should have a rectal examination done, if there is a suspicious nodule present the patient should be sent to a competent urologist, who will proceed to take a biopsy, and if proved to be positive the biopsy should be followed by a total perineal

prostatectomy and seminal vesiculectomy after the method proposed by Young many years ago or by this operation as modified by ourselves.

O S LOWSLEY, M D, New York

Director, Department of Urology, James  
Buehnan Brady Foundation

*To the Editor*—The answer that "once the diagnosis of carcinoma of the prostate has been made, the condition is no longer surgical" is grossly in error. Statistics prove conclusively that carcinoma of the prostate has been cured in a considerable percentage of the cases by a radical operation in which the entire prostate with a portion of the vesical neck, the seminal vesicles and ampullae of the vasa deferentia have been removed with their fascial coverings in one piece. We have been assiduous in following all patients on whom our operation has been carried out. Some are still well from ten to twenty-six years after leaving the hospital. A meticulous analysis indicates that more than 40 per cent of the patients followed five years or longer after leaving the hospital have shown no evidence of recurrence or metastasis. That in rare instances metastases may become apparent after a longer period than five years cannot be denied, in fact, in a series of 100 patients there were 2 patients thought to be well who showed evidence of metastasis, one nine years and the other fifteen years after the radical operation.

In some cases in which the presence of carcinoma has been recognized by a very hard nodule in the posterior lobe of the prostate cures have been obtained by the removal of only one half of the prostate and the seminal vesicle above it. In other cases in which a considerable portion of the prostate was involved but the carcinoma had not passed beyond the capsule and surrounding fascias the radical operation has resulted in a complete cure, in many cases followed from five to twenty years.

Sir William Osler used to urge that a rectal examination be included in every physical examination. If such was the rule and practitioners realized that carcinoma always should be suspected when a definitely indurated area is found in the prostate, many patients could be subjected to a perineal operation in which the diagnosis could be confirmed and a radical cure obtained if carcinoma were found present.

Other clinics have confirmed my assertion that in well chosen cases carcinoma of the prostate may be cured by radical operation and definitely refute the assertion that "once the diagnosis of carcinoma has been made the condition no longer is surgical." In fact, with the radical operation performed fairly early the prognosis is excellent.

HUGH H YOUNG, M D, Baltimore

NOTE—These letters were referred to the urologist who wrote the reply. He comments:

*To the Editor*—The question was: What is the surgical treatment of malignant neoplasms of the prostate? This question implies, to me at least, that the diagnosis is obvious and that it is clinically made. The answer was that once a clinical diagnosis of carcinoma of the prostate has been made it is technically impossible to do any sort of surgical procedure that would effect a cure. Any one familiar with urologic conditions knows of the well recognized methods of perineal exposure and prostatic biopsy in suspicious cases, but not in clinically obvious carcinoma of the prostate. With conditions not readily diagnosable by palpation or any other well recognized clinical method a patient should, if properly managed, be subjected to perineal exposure of the prostate, prostatic biopsy and frozen section study. The procedure from there on is determined by the results of the microscopic study of that section. If the result is positive for carcinoma, the diagnosis is not a clinical one but microscopic and it is from this group that successes may be expected following radical perineal prostatectomy. All comments received dwelt on that particular phase of the subject which, as far as I am concerned had nothing to do with the question submitted.



## FATAL PULMONARY EMBOLISM FOLLOWING VARICOSE VEIN INJECTION

To the Editor—Drs Vaughn and Lees have contributed much to medical science by publishing and evaluating a case of "Fatal Pulmonary Embolism Following Varicose Vein Injection" (*THE JOURNAL*, April 11, p 1293). They deserve the highest appreciation for their honesty and courage.

The mechanism of occlusion of the vein after the injection of different obliterating solutions has been studied microscopically by many authors (McPheeters, H O. *Injection Treatment of Varicose Veins*, Philadelphia, F A Davis Company, 1938, chapter 29, pp 133-145). It requires several days' time from the onset of the injury of the endothelial lining of the varicose vein to the point at which the whole lumen of the vein is tightly filled with a well attached thrombus. As a rule, after the injection of the sclerosing solution not the entire endothelial lining of the vein is injured uniformly. Islands of destroyed endothelium have been found with stratified thrombi, attached to the wall of the injured vein, next to spaces of intact intima with loosely adherent blood clots. The organization of the whole thrombotic masses usually begins at the end of the first week after treatment, with the growth of fibroblasts and capillaries into them. Furthermore the extent of the effectiveness of an obliterating injection cannot be fully determined for a week after treatment, as one may encounter cases of progressive obliteration. Keeping this fact in mind, together with the pathologic condition of the obliterated vein, an additional possible reason for the case of fatal embolism is evident.

Three injections of sodium morrhuate had been given into the same vein on three consecutive days and a fourth injection was given on the fifth day. It is unlikely that there had been complete obliteration of the vein on the second, third or fifth day after the treatment was started. Had obliteration been complete after the first injection, the same vein should not have been injected again. However, partial obliteration might well have occurred following one of these injections, and the insertion of the needle and subsequent injection of sclerosing fluid into the incomplete thrombus may well have loosened a small blood clot which floated toward the heart or lung and caused the lethal embolism. This consideration strongly suggests the advisability of allowing a lapse of time between injections, and the majority of authors do not recommend treatments at less than weekly intervals.

Another possible cause of embolism is the injection of too small an amount of sclerosing solution with too little resultant injury to the intima. Sodium morrhuate 5 per cent cannot be considered as a powerful solution, and 15 cc is a small amount, as noted in an experimental study published from the Skin and Cancer Unit, New York Post-Graduate Medical School and Hospital (*Arch Dermat & Syph* 42:86 [July] 1940). According to Paul Linser, one of the originators of injection therapy for varicose veins, the proper solution for such treatment must possess "the necessary energy to injure the vein wall" (*Munchen med Wchnschr* 79:1598 [Sept 30] 1932). One should try to provoke a pronounced reaction with the first injection. Extensive injury to the intima guarantees a proper anchorage of the thrombus on the wall of the vein and minimizes the formation of blood clots within the area of thrombus formation, thus reducing the possibility of embolism. During the first years of injection treatment of varicose veins fatal accidents were attributed to the lack of effectiveness of the injected solutions or to faulty technique (*Munchen med Wchnschr* 79:1969 [Dec 2] 1932).

When one reviews the 61 cases of embolism compiled by Drs Vaughn and Lees, sodium morrhuate with 15 listed cases ranks first, while quinine-urethane follows. In the majority of cases the injections had been given at short intervals.

In addition to the conclusions of Drs Vaughn and Lees, the following rules governing the treatment of varicose veins should be observed:

- 1 Injections should not be given at less than weekly intervals.
- 2 A sufficiently large amount of a solution strong enough to produce extensive damage to the intima should be employed.
- 3 Because of publications about allergic reactions following the injection treatment of varicose veins with sodium morrhuate, including several of our own cases of severe shock (*New York State J Med* 37:1506 [Sept 1] 1937) we replaced sodium morrhuate successfully four years ago by the use of a sugar solution of high concentration and high viscosity (*M Rec* 147:307, 1938) and therefore recommended its adoption. With its use the results of treatment have been excellent and no untoward reactions have been noted. Furthermore, the results obtained reduced the total number of injections necessary in each case. The cramping pain occurring during the action of the injected sugar solution did not discourage our patients because they felt recompensed on contrasting the results obtained from other solutions previously used.

EUGENE F. TRAUB, M.D.

LUDWIG ISAAK, M.D.

New York

## TUBERCULOSIS AMONG MEDICAL STUDENTS

To the Editor—In the May 16 issue of *THE JOURNAL*, page 266 there is in an editorial comment on "Tuberculosis Among Medical Students" one statement of which should be corrected. "It must be recognized likewise that periodic x-ray examination is the only sure method of recognition of the disease."

It would have been much better to state that x-ray examination is of value in the detection of pulmonary tuberculosis, for there is, of course, no method that can be called a sure method for diagnosing tuberculosis or any other disease. I have seen many patients who had pulmonary tuberculosis and tuberculosis of the hilar lymphatic nodes with ulceration into a bronchus and roentgenoscopic examination did not reveal evidence of a pulmonary lesion, on the other hand, there are many infiltrations in the lung that have been diagnosed tuberculosis from roentgenoscopic study when the lesion was nontuberculous.

I think it is unfortunate that the medical profession at large and roentgenologists in particular have developed an idea that roentgenoscopy is the final word in diagnosis. I am sure that the entire profession recognizes the great value of roentgenoscopic study, but to attribute unfailing accuracy to any method of examination is an unfortunate mistake.

PORTER P. VINSON, M.D., Richmond, Va

## "CLINICAL ROENTGENOLOGY OF PREGNANCY"

To the Editor—Please be advised that the reviewer's statement regarding my book that a good number of the one hundred and nineteen illustrations had been "touched up" is not sufficiently clear. None of the photographs or reproductions were retouched.

The differentiation of the soft tissues of pregnancy is elicited by relative overexposure of the film and the use of a very bright spotlight later. This is becoming a common and useful practice in many branches of roentgenology.

The reviewer evidently considered the superimposed guidelines on the pelvimetry photographic reproduction as "touched up." To these he took objection. However, it is my considered opinion that these guidelines are absolutely essential for the reader if the book is to be used as a work of reference for practicing measurements on these illustrations.

WILLIAM SNOW, M.D., New York



## Medical Examinations and Licensure

### COMING EXAMINATIONS AND MEETINGS

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE  
CHICAGO Feb 15-16 1943 Sec Council on Medical Education and  
Hospitals Dr H G Werskotten 535 North Dearborn Street Chicago

#### NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and Exam-  
ining Boards in Specialties were published in THE JOURNAL June 13  
page 585

#### BOARDS OF MEDICAL EXAMINERS

ARIZONA \* Phoenix July 7-8 Sec Dr J H Patterson 826  
Security Bldg Phoenix  
CALIFORNIA Written San Francisco June 29 July 2 Oral exam-  
ination (required when reciprocity application is based on a state certi-  
cate or license issued ten or more years before filing application in  
California) Los Angeles Sept 16 Sec Dr Charles B Pinkham 1020  
N St Sacramento  
COLORADO \* Denver July 7-10 Application must be on file not later  
than June 21 Sec Dr George R Buck 831 Republic Bldg Denver  
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ford July 28 Sec to the Board Dr Creighton Barker 258 Church St  
New Haven Homoeopathic Derby July 14-15 Sec Dr Joseph H  
Evans 1488 Chapel St New Haven  
DELAWARE Dover July 14-16 Sec Medical Council of Delaware  
Dr Joseph S McDaniel 229 S State St Dover  
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on Licensure Dr George C Ruhland 6150 East Municipal Bldg Wash-  
ington  
FLORIDA \* Jacksonville June 22-23 Sec Dr William M Rowlett  
Box 786 Tampa  
GEORGIA Atlanta and Augusta June Sec State Examining Boards  
Mr R C Coleman 111 State Capitol Atlanta  
HAWAII Honolulu July 13-16 Sec Dr James A Morgan 55  
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State House Boston  
MISSISSIPPI Jackson June 24-25 Assistant Sec State Board of  
Health Dr R N Whitfield Jackson  
MONTANA Helena Oct 6 Sec Dr Otto G Klein First National  
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NEVADA Reciprocity Carson City Aug 3 Sec Dr Frederick M  
Anderson 215 N Carson St Carson City  
NEW HAMPSHIRE Concord Sept 10-11 Sec Board of Registration  
in Medicine Dr T P Burroughs State House Concord  
NEW MEXICO \* Santa Fe Oct 13-14 Sec Dr LeGrand Ward  
135 Sena Plaza Santa Fe  
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Mr Thomas B Casey 366 State Office Bldg Providence  
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50 Saluda Ave Columbia  
SOUTH DAKOTA \* Pierre July 21-22 Dir Medical Licensure Dr  
J F D Cook State Board of Health Pierre  
UTAH Salt Lake City June 29-30 Assistant Dir Department of  
Registration Mr G V Billings 324 State Capitol Bldg Salt Lake City  
WEST VIRGINIA Charleston July 6-8 Commissioner Public Health  
Council Dr C F McClintic State Capitol Charleston  
WISCONSIN \* Milwaukee June 30 July 3 Sec Dr H W Shutter  
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\* Basic Science Certificate required

#### BOARDS OF EXAMINERS IN THE BASIC SCIENCES

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tion Mr H W Grefe Capitol Bldg Des Moines  
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than June 24 Sec Mr Charles D Byrne University of Oregon Eugene  
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### North Dakota January Report

The North Dakota State Board of Medical Examiners reports  
the written examination for medical licensure held Jan 6-9,  
1942 The examination covered 13 subjects and included 100  
questions Four candidates were examined, 3 of whom passed  
and 1 failed Two physicians were licensed to practice medicine  
by reciprocity and 3 physicians so licensed by endorsement  
The following schools were represented

| School  | PASSED                  | Year   | Number      |
|---|-------------------------|--------|-------------|
|   |                         | Grad   | Passed      |
| Harvard Medical School                        |                         | (1940) | 1           |
| University of Minnesota Medical School        |                         | (1940) | 1           |
| Temple University School of Medicine          |                         | (1940) | 1           |
| School  | FAILED                  | Year   | Number      |
|   |                         | Grad   | Failed      |
| Loyola University School of Medicine          |                         | (1939) | 1           |
| School  | LICENSED BY RECIPROCITY | Year   | Reciprocity |
|   |                         | Grad   | with        |
| State University of Iowa College of Medicine  |                         | (1937) | Iowa        |
| Washington University School of Medicine      |                         | (1935) | Missouri    |
| School  | LICENSED BY ENDORSEMENT | Year   | Endorsement |
|   |                         | Grad   | of          |
| Northwestern University Medical School        |                         | (1930) | US PHS      |
| University of Minnesota Medical School        |                         | (1931) | N B M Ex    |
| University of Pennsylvania School of Medicine |                         | (1940) | N B M Ex    |

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Malpractice Liability of Physician for Alleged Negli-  
gence in Treatment of Burns**—In January 1934 the plain-  
tiff was severely burned on her face, neck, arms and legs by  
an explosion in one of the chemical rooms of the Standard Oil  
Company She was immediately taken to the company's first  
aid station and later the same day was removed to a hospital  
in Casper where she was treated by the defendant, a physician  
employed by the Standard Oil Company Among other treat-  
ment given, the burned areas were sprayed with tannic acid and  
later with mercurochrome and petrolatum On June 26, 1934  
the plaintiff was taken to Chicago and placed in the care of  
the defendant's brother medical director of the Standard Oil  
Company She remained in Chicago until about the first of  
September, during which time about two hundred skin grafting  
operations were performed The plaintiff then returned to  
Casper where she remained under the defendant's care until he  
was discharged in June 1936 When she returned from Chicago  
her feet and legs were crooked and a drop in her left foot had  
developed which prevented her from placing her left heel on the  
ground The right leg was finally straightened, but little could  
be done for the left because of the extreme tenderness of the  
burned areas The plaintiff subsequently sued the defendant for  
malpractice At the time of the trial the motion of the plain-  
tiff's left foot and left arm was very limited, and she was unable  
to walk without the aid of crutches At the close of all the  
evidence, the defendant made a motion for a directed verdict in  
his favor The motion was sustained and judgment entered  
thereon The plaintiff then appealed to the Supreme Court of  
Wyoming

On appeal the plaintiff contended that the trial court, in pass-  
ing on the motion for a directed verdict should have considered  
only the plaintiff's evidence and such of the defendant's evidence  
as was favorable to the plaintiff, together with all fair inferences  
therefrom The defendant argued that the trial court had the  
right and duty to consider all the evidence introduced The  
Supreme Court indicated that the plaintiff's contention was  
probably correct in most ordinary actions but held that a dif-  
ferent rule applies in malpractice cases In many instances the  
court pointed out a physician is required to choose one of two  
or more equally acceptable methods of treating a particular  
condition Where there is a fundamental difference of opinion  
among physicians the court said it would be unfair to permit  
a jury with no special training at all to decide a matter on  
which the profession itself had been unable to agree In *Harris  
v Schoonmaker* a malpractice case 50 Wyo 119 58 P (2d)  
415 60 P (2d) 360, the Supreme Court of Wyoming said that

"it is assuredly the duty of the court to survey the entire evidence in the case, where, as here, a motion to direct a verdict was made after the evidence of the parties had all been introduced. If this is not done, an unjust and inaccurate result might easily be reached." The court therefore concluded in the present case that if the act or omission of a competent physician or surgeon, on which a claim of negligence in a malpractice case is predicated, clearly involves and constitutes the exercise of an honest judgment, arrived at after careful and necessary investigation and approved by a respectable portion of competent and reputable men of the same school of medicine, and there is nothing, in the judgment of the trial judge, to indicate that the approval is not honestly made or that it or the act or omission is unreasonable, or that special circumstances or facts would make it fairer to submit the case to the jury, then it is not error to direct a verdict for the defendant.

The plaintiff's major contention concerning the defendant's conduct was that there had been an unnecessary delay in performing the skin grafting, that it should have been done in March or April rather than in July. The undisputed testimony of all the physicians who appeared as witnesses was that skin grafting should be done as soon as the condition of the wound and of the patient permits. The hospital chart showed that, during nearly all the time until the plaintiff was taken to Chicago, her pulse rate ranged between 90 and 100 and her temperature varied between 100 and 103 F. The plaintiff's condition was also indicated by the fact that on her trip to Chicago she had to be accompanied by her mother, a nurse and a physician, and she had to be lifted out of the Pullman car through a window. The plaintiff's evidence, as well as that of the physicians who testified on behalf of the defendant, was to the effect that the time to perform a skin grafting operation is largely a matter for the professional judgment of the attending physician. The Supreme Court therefore concluded that, in view of the obvious physical condition of the plaintiff during the time in question, the plaintiff had not made any showing that the defendant had negligently delayed the skin grafting operation.

The plaintiff also complained of the way her left arm was treated and contended that another method would not have left it with limited motion. The evidence showed that the arm was bandaged every day and then placed on a pillow on the plaintiff's chest and the defendant said that he exercised the arm as much as possible to keep it from getting stiff. The plaintiff's expert testified that it was not good practice to let the arm rest on the chest—that it should have been kept straight along the body, in splint or on a board. Both the plaintiff's witness and the defendant admitted that the scar tissue would be stiff. The difference seemed to be that, if the arm was to be stiff, the plaintiff's witness wanted it extended and the defendant wanted it bent. Since the stiffness of the arm was in the shoulder, not the elbow, however, the court held that the foregoing testimony was in no way material. Again the Supreme Court held that the way the arm was placed was a matter of professional judgment and that no negligence was shown.

Likewise the plaintiff contended that a different treatment would have prevented the foot drop. It was admitted that muscles destroyed by burns cannot be restored, but the plaintiff's expert indicated that the cause of the foot drop was the treatment received by the plaintiff before going to Chicago and stated that only a foot not properly supported will drop. The evidence showed, however, that while in the hospital the plaintiff's left heel had been supported by a "doughnut" and that by the use of pillows held in place by sand bags the foot had been kept in an upright position at all times. Since the drop did not occur before the plaintiff went to Chicago, the Supreme Court concluded that the defendant had not been negligent. Furthermore, there was no medical testimony of any want of care after the plaintiff's return home. The plaintiff argued, however, that since the defendant's brother had been selected by the defendant to perform the operation he was, in effect, the defendant's agent, and the defendant was liable for his negligence. The court held that a physician who merely arranges for an operation by another not his associate, employer or employee and lends casual assistance at the operation is not jointly liable for the negligence of the operating physician.

The Supreme Court further held that the plaintiff's argument to the effect that the defendant had admitted his own incompetence by advising the plaintiff to go to Chicago for treatment could not be sustained, saying

If it were valid, we fear that every physician who recommends that his patient should go to Mayo's, to Chicago, to Denver, or any other place, would thereby show that he is incompetent, and knowledge of that fact would thereby be conveyed to every one who participated in sending the patient away. A great number of the physicians in this state would, we fear, if the argument were true, stand convicted of incompetence, since scores are sent away from time to time to have the care of some other physician in larger cities.

After reviewing the evidence in detail, the Supreme Court concluded that the trial judge was justified in directing a verdict for the defendant. The judgment for the defendant was accordingly affirmed—*Smith v Beard*, 110 P (2d) 260 (Wyo., 1941).

**Pharmacy Practice Acts Right of State Board of Pharmacy to Establish Educational Requirements**—The pharmacy practice act of Nevada, passed in 1913, provides that "Licentiatees in pharmacy must be such persons as possess the fundamentals of a high school education and who have had at least five (5) consecutive years' actual experience in drug stores where the prescriptions of medical practitioners have been compounded, and who have passed a satisfactory examination before the state board of pharmacy." In January 1939 a bill was introduced in the Nevada assembly proposing, among other things, that every applicant for examination and registration as a pharmacist must be a graduate of a college of pharmacy recognized and approved by the Nevada state board of pharmacy after having received at least four years of pharmaceutical training and must pass an examination given by the Nevada state board of pharmacy. The bill was not enacted, but on May 25, 1939 the state board of pharmacy undertook to impose, by resolution, the educational requirements for licensure proposed by the bill. Thereafter, the petitioner applied to the board for permission to take an examination to become a licentiate in pharmacy. The application was denied because it did not show that the petitioner had received four years of training in a college of pharmacy. The petitioner then filed an original mandamus proceeding in the Supreme Court of Nevada against the board, asking that the court direct the board to accept his application for an examination.

If the legislature, said the court, instead of fixing the standards of education and experience for licentiatees, had employed language purporting to confer full and complete authority on the board of pharmacy to establish such standards, it would then be necessary for the court to decide whether the legislature could lawfully delegate such power to the board. The fact, however, that the legislature itself saw fit to establish such standards evidenced a legislative intent to reserve that power to itself and not to confer on the board the authority either to diminish or to add to the standards. The court admitted the importance of requiring that pharmacists possess such qualifications as the public safety demands but said that if higher qualifications than those prescribed are desirable the legislature has full power to impose them. The board was therefore ordered to examine the petitioner—*Estes v State Board of Pharmacy*, 111 P (2d) 48 (Nev., 1941).

## Society Proceedings

### COMING MEETINGS

- American Association for the Study of Neoplastic Diseases, Baltimore, June 25-27. Dr. Eugene R. Whitmore, 2139 Wyoming Ave. N.W., Washington, D. C., Secretary.
- American Physiotherapy Association, Lake Geneva, Wis., June 22-24. Miss Evelyn Anderson, Stanford University, Calif., Secretary.
- Maine Medical Association, Poland, June 21-23. Dr. Frederick P. Carr, 142 High Street, Portland, Secretary.
- Minnesota State Medical Association, Duluth, June 29-July 1. Dr. I. F. Souster, 493 Lowry Medical Arts Bldg., St. Paul, Secretary.
- Montana Medical Association of, Missoula, July 8-10. Dr. T. H. Walker, 206 Medical Arts Bldg., Great Falls, Secretary.
- New Mexico Medical Society, Santa Fe, June 25-28. Dr. L. F. Carter, 221 W. Central Avenue, Albuquerque, Secretary.
- West Virginia Medical Association, Charleston, June 11-13. Mr. Charles Lively, 1031 Quarrier St., Charleston, Executive Secretary.

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk ( \*) are abstracted below.

#### American Heart Journal, St. Louis

23 291-440 (March) 1942

- \*Further Studies in Immunization Against Rheumatic Fever V P Wasson and E E Brown New York—p 291
- \*Induced Anoxemia Test Study by Age Groups C T Burnett M G Nims and C J Josephson Denver—p 306
- Method for Perfusion of Rabbits Ears and Its Application to Study of Renin-Angiotensin-Vasopressor System with Note on Angiotensin Tachyphylaxis I H Page Indianapolis—p 336
- Value of Carbon Dioxide Baths in Treatment of Peripheral Vascular Disease and Allied Conditions I D Stein and I Weinstein New York—p 349
- Central Nervous System Manifestations in Acute Myocardial Infarction W B Bean and C T Read Cincinnati—p 362
- Quantitative Measurement of Reactive Hyperemia in Human Skin Individual and Seasonal Variations J R Di Palma Brooklyn S R M Reynolds Baltimore and Frances I Foster Brooklyn—p 377
- Pathologic Physiology of Circulation in Acute Thrombophlebitis and Post-Thrombotic Syndrome J R Veal and H H Hussey Washington D C—p 390
- Blood Pressure Studies on Negro and White Men and Women Living in Virgin Islands of United States G M Saunders and Huldah Bancroft Cleveland—p 410

**Immunization Against Rheumatic Fever**—After eight years of immunizing 101 ambulatory patients suffering from rheumatic heart disease with graduated injections of hemolytic streptococcus filtrate Wasson and Brown state that the patients have shown a striking reduction in the number of recurrences and decided improvement in health. Many patients have been observed for as long as six years since injections were discontinued and their health is materially better than that of untreated patients. Bacteriologic study shows that infections of the upper part of the respiratory tract would develop but would be of short duration and would seldom be followed by a flare-up of rheumatic fever. As the protracted prophylactic treatment has drawbacks an abbreviated method of immunization was tried on 42 children in 1941, the total skin test doses was given in four, instead of thirty eight, inoculations intradermally three weeks apart. The number of reported colds per child was greatly reduced, the mean gain in weight per child was  $7\frac{1}{2}$  pounds (3.4 Kg) in nine months there were few subacute rheumatic symptoms and a fresh attack of rheumatic fever developed in only 2 patients in 1 who has both congenital and rheumatic heart disease and is chronically decompensated and in another who at the outset had a moderate chorea and showed no improvement. Only prolonged observation will demonstrate whether the results of this form of treatment are as lasting as those of protracted treatment.

**Induced Anoxemia Test**—Burnett and his co-workers subjected 125 normal persons free from cardiovascular disturbances to anoxemia induced by inhalation of a 10 per cent mixture of oxygen. Electrocardiography before and after anoxemia led them to believe that there is a usual, or 'normal' response consisting of practically no symptoms, but of certain rather definite changes in the electrocardiographic pattern which are promptly reversed by the inhalation of 100 per cent oxygen. There was no significant difference in the electrocardiographic response in the different decades of life. However, they have encountered 'abnormal' responses (suggesting coronary artery insufficiency) in 19.2 per cent of normal subjects and 'normal' responses in abnormal subjects too frequently to justify the continued use of the test in its present form for clinical diag-

nosis. The belief that some degree of coronary artery change is associated with the aging process is not supported by the studies. This means that the induced anoxemia test is not a dependable means for demonstrating coronary artery disease or that the disease does not consistently occur in the later decades. The authors favor the former opinion. For the present the test should be used only as a hospital procedure.

#### American J Digestive Diseases, Fort Wayne, Ind

9 87-114 (March) 1942

- \*Prognosis of Regional Enteritis P W Brown and C J Donald Jr Rochester Minn—p 87
- \*Ulcerative Colitis—Allergic Phenomenon A F R Andresen Brooklyn—p 91
- Enzymatic Activity of Duodenal Juice and Blood Serum of Patients with Atrophy of Gastric Mucosa A M Serby and F Reich Chicago—p 98
- Free Tyrosine in Blood Filtrate as Indication of Liver Disease I R Jankelson Boston—p 99
- Study of Excretion of Bromsulphalein in Bile C W Wirts Jr and A Cantarow Philadelphia—p 101
- Limitations in Use of Color Indicators in Gastric Analysis J E Berk J E Thomas and M E Rebus Philadelphia—p 106
- Excretion of Neutral Red by Gastric Mucosa as Visualized Gastroscopically H H Lerner L Asher and Katherine Andrews Boston—p 109
- Prognostic Significance of Blood Urea Nitrogen Following Hematemesis of Melen L Schiff R J Stevens and H K Moss with technical assistance of Ellen S Garber Cincinnati—p 110

**Prognosis of Regional Enteritis**—The finding of 24 cases of regional enteritis in the hospital records prior to 1933 and of 154 up to 1941 (114 during the last four years) represented such a disproportionate increase as to indicate, in the opinion of Brown and Donald, an increasing incidence of the disease and not merely more acute recognition. Twenty-six per cent of the patients were Jewish and 70 per cent of them were less than 30 years old, whereas only 38 per cent of the gentle patients were less than 30. Roentgen examination after a barium sulfate enema revealed evidence of the disease in 124, and the barium sulfate meal identified 7 additional instances. Of the 178 patients 129 have been operated on one or more times. At the time of the report 87 of the patients were well, 29 were in fair condition, 26 were sick, 17 had died (exclusive of the 16 postoperative deaths) and there were no data on 3. It is not possible to predict the eventual status of the 29 patients listed as "fair." They are not invalids but they cannot be considered "well." The immediate mortality rate was lower and the ultimate result seemed better when the two stage operation was performed. The fate of those who require repeated intestinal resection is not encouraging. Only 14 of 23 patients so treated survived, and only 4 of them are considered "well." Twenty of 45 patients with complicating fistulas on whom there are data are apparently well, 19 after resection and 1 after a short-circuiting procedure. There were 9 deaths among the group of 45. Of the 31 who had short-circuiting operations 22 survived, and of these 14 were well at the time of the study, but only 7 have lived for three or more years after operation. When there is a preoperative diagnosis of a probable acute appendicitis in a patient found to have acute regional enteritis, such a patient should be kept under observation so that operation will not be delayed if complete resolution does not occur. Of 10 such patients 7 are well. Surgical intervention is the treatment of choice for regional enteritis. There is no known medical treatment that is of value in the sense that it cures the disease. The most important postoperative feature is maintenance of a high protein diet supplemented with components of the vitamin B complex.

**Ulcerative Colitis**—Andresen states that of 50 consecutive patients with severe ulcerative colitis only 2 died because of complications—in 1 mastoiditis with erysipelas and in 1 acute pyelonephritis. None of the patients required operation for the colitis. In 33 food allergy was the cause of the disease, and these were all treated successfully. The theory of allergy conforms well with the accepted criteria for the disease. The pathologic changes in early ulcerative colitis are identical with those demonstrated in allergy experiments on human beings and on animals. The symptoms of ulcerative colitis are easily explainable on an allergic basis. Proctoscopic and roentgen

study will demonstrate the effect of allergenic food and the improvement that follows when such food is withdrawn from the diet. Treatment based on an allergic theory has produced better results than that based on an infective etiology.

### American Journal of Hygiene, Baltimore

35 163-316 (March) 1942

- \*Epidemiologic Aspects of Encephalitis in Yakima Valley, Wash. Mixed St. Louis and Western Equine Types. W. M. Hammon and Beatrice E. Howitt, San Francisco—p. 163
- \*Study in Active Immunization Against Epidemic Influenza and Pneumococcal Pneumonia at Letchworth Village. IV. Results in Epidemic of Influenza A in 1940-1941. M. Siegel, R. S. Muckenfuss, M. Schneffer, Harriet Leslie Wilcox and Ann G. Leider, New York—p. 186
- Typhus Fever in Peiping. Epidemiologic Considerations. Wei Tung Liu, S. H. Zia, H. L. Chung and C. W. Wang, Peiping China—p. 231
- Diphtheria Immunization. Simultaneous Active and Passive Immunization in Guinea Pigs. I. Antigenicity of Toxoids, Fluid and Alum Precipitated, in Presence of Passive Antitoxin. J. J. Phair and Charlotte M. Root, Baltimore—p. 251
- Study of Epidemic of Influenza B. Clara Nigg, C. M. Eklund, Douglas E. Wilson and J. H. Crowley, Minneapolis—p. 265
- Search for Carriers in Outbreak of Acute Anterior Poliomyelitis in Rural Community. Incidence of Virus in Feces. G. Y. McClure, Albany, N. Y. and A. D. Langmuir, Peekskill, N. Y.—p. 285
- Diphtheria Immunization. Reactions of Adults Following Intranasal Toxoid. J. J. Phair, Baltimore—p. 292
- Slide Rule and Two Nomograms by Which Percentage Deviation of Man from Average Weight of Men of His Height and Age May Be Calculated. T. I. Edwards, Washington, D. C.—p. 307

**Encephalitis in Yakima Valley**—From the inductive epidemiologic analysis of 86 cases of encephalitis in human beings and of 20 cases of encephalomyelitis in horses in 1939 and 1940, it appears to Hammon and Howitt that the western equine virus and the St. Louis virus were present in the Yakima Valley simultaneously and produced some instances of mixed infections. Neutralization tests of the blood serum of 50 patients showed 84 per cent to be positive for the western equine virus, 72 per cent for the St. Louis virus and 56 per cent for both viruses. The serum from 75 closely comparable controls from the general population disclosed neutralizing antibodies for the western equine virus in 67 per cent, for the St. Louis virus in 28 per cent and for both in 27 per cent. The figures for patients and controls were compared with those obtained for serum from other areas in the West and the difference helped to establish the presence of the St. Louis virus in the serum of Yakima patients as etiologically significant. The serum of a few normal chickens, pheasants and a duck were found to neutralize the western equine virus, and the blood of some horses neutralized the St. Louis virus. Suggestive correlation was found between the occurrence of antibodies in patients only to the St. Louis virus and contact with, or proximity to, horses, an observation which may be significant, since antibody to this virus was found in horses.

**Immunization Against Influenza**—Siegel and his associates report data of their studies on the epidemiology of influenza A and the prophylactic value of the subcutaneous inoculation of influenza virus vaccines begun at Letchworth Village in 1937 and concluded in 1941. The last time at which vaccine was inoculated was on Dec. 6 and 7, 1940, six weeks before an epidemic of influenza A occurred which lasted from Jan. 14 to Feb. 26, 1941. A threefold increase in complement fixing antibodies followed inoculation in 45 per cent of the vaccinated population. A significant decline was observed within two months after inoculation. A secondary rise occurred shortly afterward in response to infection during the 1941 epidemic. At this time the control population also showed a significant rise in titer, the first since the last epidemic in 1939. An increase in antibody titer following epidemics of influenza A was observed at Letchworth Village in three successive outbreaks in 1937, 1939 and 1941. During these periods there was serologic evidence of widespread exposure to influenza A virus. In intervening periods the titer of the population usually declined within a few months after infection. Cases with a significant rise in complement fixing titer ("positive cases") could not be differentiated clinically from those without a significant rise in titer ("negative cases"). Within the period between the onset of the first and last positive case in each cottage there was no significant difference in the incidence of acute respira-

tory illnesses among those inoculated with influenza virus vaccine and others. Annual inoculation of influenza virus vaccine since 1937 did not seem to modify the results. There was no difference in the incidence of respiratory illness between those who responded to the influenza virus vaccine with a significant rise in titer and those who had no rise in titer following inoculation. Influenza A recurred in 3 patients, in 2 in 1939 and 1941, and in 1 in 1937, 1939 and 1941.

### American J. Orthodontics and Oral Surgery, St. Louis

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Oral Surgery

- Oral Tuberculous Lesions. R. H. Brodsky, New York—p. 132
- \*Aphthae and Herpetic Gingivostomatitis. L. R. Cahn and H. A. Bartels, New York—p. 140
- Oral Diagnosis and Public Health Practice. H. Strusser, New York—p. 151
- Extensive Plastic Repair for Restoration of Lower Lip. Report of Procedure in Case in Which Lower Lip Was Entirely Removed for Eradication of Epithelioma. M. N. Federspiel, Milwaukee—p. 163

**Aphthae and Herpetic Gingivostomatitis**—Results of various studies, Cahn and Bartels point out, demonstrate that aphthous ulcer, herpes labialis, aphthous stomatitis, herpetic stomatitis or acute infectious gingivostomatitis are caused by the herpes virus. The virus from aphthous lesions, when inoculated on the scarified cornea of rabbits, produced lesions identical to those caused by the herpes simplex virus. Encephalitis was induced in some animals subsequent to their inoculation with the virus from either herpes or aphthous lesions. Inclusion bodies were demonstrated in the cells of the injected cornea and the brains of animals inoculated with the virus of herpes or the virus of aphthous stomatitis. Rabbits inoculated with the virus of aphthous stomatitis were immune to the herpes virus. The herpetic antibody develops in the patient's serum during convalescence from herpes or aphthous stomatitis. The infection usually takes place in early childhood and is present thereafter. The virus remains dormant until some contributory factor lowers the local immunity of the tissue, when herpetic lesions occur. In contradistinction to other virus diseases, immunity is not permanent after an initial herpes simplex infection.

### Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

47 353-506 (March) 1942

- \*Post-Traumatic Painful Osteoporosis. Clinical and Roentgenologic Entity. L. G. Herrmann, H. G. Reinecke and J. A. Caldwell, Cincinnati—p. 353
- Further Lung Dusting Experiments. A. E. Barclay, K. J. Franklin and M. M. L. Prichard, Oxford, England—p. 362
- Contrast Visualization of Heart and Great Vessels in Emphysema. M. I. Sussman, M. F. Steinberg and A. Grishman, New York—p. 368
- Roentgenography with Aid of Chart Marked Off in Squares in Measurement of Cardiovascular System. E. Colim, Sao Paulo, Brazil—p. 377
- \*Roentgen Findings in Increased Lead Absorption Due to Retained Projectiles. H. R. Senturia, St. Louis—p. 381
- Post-Traumatic Para-Articular Ossification of Knee Joint (Pellagrossi's Disease). J. Kulowski, St. Joseph, Mo.—p. 392
- \*Bone Infarcts. S. C. Kahlstrom, Bath, N. Y.—p. 405
- Colon Studies. VIII. Diaphragmatic Flexure. J. L. Kantor, New York—p. 417
- Pelviometry by Perforated Plate Method. S. G. Henderson, Pittsburgh—p. 427
- Sigmoid Loop in Inguinal Hernia. Report of Case. C. G. Lyon, A. J. Brogan and J. G. Sawyer, Hines, Ill.—p. 437
- Effect of Roentgen Rays on Growing Long Bones of Albino Rats. I. Quantitative Studies of Growth Limitation Following Irradiation. C. L. Hinkel, Harrisburg, Pa.—p. 439
- Granulosa Cell Carcinoma. Report of Two Cases. A. M. Goss, J. B. Faison and M. Fellman, Jersey City, N. J.—p. 458
- Basal Cell Epithelioma. Concept of Its Histogenesis. J. V. H. and H. Bolker, Brooklyn—p. 463
- Gamma Radiation from Airplane Instruments. R. B. Tate, Cincinnati—p. 467

**Post-Traumatic Painful Osteoporosis**—To avoid confusion with atrophy of bone due to inactivity or disuse, Herrmann and his co-workers suggest that true osteoporosis is that type of atrophy of bone characterized by patchy demineralization.



tion with coexisting signs of vasomotor instability, trophic changes in the soft tissues and usually severe visceral pain. The expression "acute bone atrophy" only adds to confusion, since the word "atrophy" suggests a painful syndrome in which the affected bones are 'full of pores'. Consequently post-traumatic painful osteoporosis is the more logical term for the syndrome which frequently follows trauma to some multi-articular joint. Post-traumatic osteoporosis is characterized by partial loss of motor function of the affected part mild to severe vasomotor and trophic changes of the affected extremity, spotty demineralization of the bones near the site of trauma and mild to severe aching pain in the extremity. The functional disturbances are more extensive than can be explained on the basis of trauma alone and the aching pain is out of all proportion to the local signs of injury to the tissues. Roentgenologically there are two main forms of osteoporosis: the acute and the chronic form. The acute form is characterized by a mottled appearance of the bones due to the irregular rarefied areas in the spongiosa. The mottling is usually most definite in the carpal, tarsal metacarpal and metatarsal bones. In the chronic form the trabeculae of the bones are extremely fine and sometimes difficult to recognize. After the disease has reached the stage of almost complete decalcification, recalcification may begin spontaneously, but years later the roentgenograms may still show thinning of the cortex of the bones and thin lamellae containing irregular areas of recalcification. In cases without adequate treatment, recovery of function requires many months and frequently during recalcification extensive fusion of the carpal or tarsal bones takes place and this ankylosis usually causes great economic loss. The course of post-traumatic painful osteoporosis can be greatly shortened and most of the serious complications avoided if the disease is recognized in the acute phase and treated by thorough denudation of the main artery to the affected extremity (periarterial sympathectomy). Following periarterial sympathectomy 34 patients were relieved of aching pains and edema within twenty-four hours postoperatively, function began to improve within a few days and the patients resumed their work within an average time of three months. Complete return of function in a control group treated by physical therapy, roentgen therapy and other conservative measures took more than nine months. The course of the disease in the control patients was only slightly shortened, and unfavorable sequelae were about as frequent as when the process was left untreated.

**Roentgen Signs of Increased Lead Absorption**—Senturia discusses the 6 case reports found in the literature which describe roentgen changes of retained lead projectiles. He reports 2 cases which have recently come under his observation. Recently Key also reported roentgen changes due to increased lead absorption. A critical study of the roentgen changes suggests that absorption from the retained missile can occur and that poisoning may supervene. The changes consist in a definite alteration in the missile itself in that there is fragmentation, disintegration and apparent infiltration. The roentgen demonstration of such a transformation does not always coincide with a clinical diagnosis of lead poisoning, but it does indicate that absorption in sufficiently large quantities is a potential danger. Signs of saturation of the tissues with lead have been confirmed by analyses of specimens removed at operation and necropsy. Infantry shot and shrapnel which consist for the most part of lead are more likely to result in disintegration and absorption than are fragments of grenade or splinters of an aerial bomb which consist mainly of steel. Of the 9 cases discussed by the author all but 1 were in bone and adjacent to an active joint. It has been suggested that the constant motion of the articular surfaces is responsible for the disintegration of the bullet. Projectiles which remain embedded in soft tissue have not been known to show these changes. They soon become encapsulated and innocuous. The part that the synovial fluid plays in the solution of the lead would seem to warrant investigation. The interval between the gunshot wound and the onset of clinical symptoms of lead absorption in the 9 patients varied from one to twenty-two years. Individuals known to have retained projectiles of lead adjacent to active joints should have serial

roentgen examinations to detect changes as they occur. Obscure and unexplainable symptoms referable to the blood, gastrointestinal tract or nervous system may be solved by this means.

**Bone Infarcts**—Kahlstrom reports the occurrence of bone infarcts in a caisson worker and in 4 persons who have not been exposed to compressed air. While microscopic proof is lacking in these cases, the roentgen features are similar to those in which biopsy and necropsy studies were made. Three of the 4 patients had arteriosclerosis and 1 had neither a history of caisson disease nor evidence of arteriosclerosis.

## Anesthesiology, New York

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\*Rationale of Oxygen Therapy During Fever Therapy S C Cullen  
E F Weir and Evelyn Cook Iowa City—p 123

\*Ateleclasis D E Brace New York—p 131  
Apparatus for Automatic Recording of Diastolic and Systolic Blood Pressure in Clinical Practice H C Slocum Madison Wis—p 141

\*Effect of Certain General Anesthetic Agents on Small Blood Vessels in Ear of Rabbit T H Seldon J S Lundy and H E Essex Rochester Minn—p 146

Tolerance of Humans for Procaine Injected into Subarachnoid Space G E Burford New York—p 159

Story of Oil Ether Colonic Anesthesia J T Gwathmey Tucson Ariz—p 171

\*Early Recognition and Treatment of Shock C R Drew, Washington D C—p 176

Relation of Respiratory Pressures to Anesthesia S Iglauder Cincinnati—p 195

### Rationale of Oxygen Therapy During Fever Therapy

—The arterial oxygen tension is reduced when hyperpyrexia is present. The administration of oxygen, Cullen and his colleagues point out, prevents this reduction and may explain the clinical benefit derived from the therapy.

**Effect on Blood Vessels of Anesthesia**—Seldon and his co-workers observed the changes in the minute peripheral blood vessels of the ear of the rabbit produced by anesthesia with pentothal sodium, cyclopropane nitrous oxide, ethylene and ether. The vessels observed had grown into the transparent chamber of a Clark window inserted in the animal's ear. With pentothal sodium there was a sustained decrease in the systolic blood pressure and a sustained increase in the diameter of the arterioles and capillaries. When cyclopropane and oxygen were used there was a sustained increase in the systolic blood pressure, the diameter of the arterioles was decreased and the diameter of the capillaries was increased. When nitrous oxide and oxygen were employed there was a sustained increase in the systolic blood pressure, and the diameter of the arterioles and capillaries was decreased. When ethylene and oxygen were used there was a slight increase in the systolic blood pressure and the diameter of the arterioles and capillaries was decreased. When ether was administered by the drop method there was an increase in the systolic blood pressure, a decrease in the diameter of the arterioles with an apparent increase in the velocity of the blood stream through them and a decrease in the diameter of the capillaries with a decrease in the velocity of the blood stream through them. Ether and ethylene employed separately produced fairly similar results. The study suggests that the increase in the oozing of blood noticed in patients operated on under pentothal sodium anesthesia could result from the increase in the diameter of the arterioles and the capillaries caused by the anesthetic.

**Early Recognition and Treatment of Shock**—Drew states that there are three defects in the peripheral vascular tree which need to be corrected in surgical shock. They are arteriolar and venular constriction, capillary dilatation and stasis of circulatory fluids in the capillary bed or loss into the tissue. For the correction of these defects the following is recommended: 1 To aid the restoration of the electrolyte balance acid base equilibrium, normal arteriolar tone and circulatory volume, intravenous sodium chloride at first in isotonic form and then in hypertonic form if the former gives no response should be employed. 2 Capillary tone may be restored by using water soluble adrenal cortex extract in quantities sufficient to get a response in blood pressure. 3 The circulation may be sustained by adequate amounts of blood or plasma.



## Archives of Internal Medicine, Chicago

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- \*Relation of Cardiac Lesions to Clinical Course of Rheumatic Fever A D Console, New York—p 551
- Pulmonocardiac Failure as Result of Spinal Deformity Report of Five Cases A J Kerwin, Toronto, Canada—p 560
- Excretion of Coproporphyrin in Hepatic Disease I Correlation of Urinary and Fecal Excretion with Parenchymatous Hepatic Damage S Nesbitt, New Haven, Conn., and A M Snell, Rochester, Minn.—p 573
- Id II Urinary and Fecal Excretion in Biliary Obstruction S Nesbitt, New Haven, Conn., and A M Snell, Rochester, Minn.—p 582
- Hamartial Nature of Tuberos Sclerosis Complex and Its Bearing on Tumor Problem Report of Case with Tumor Anomaly of Kidney and Adenoma Sebaceum S E Moolten, New York—p 589
- Acute Bacillary Dysentery Clinicopathologic Study of 263 Consecutive Cases H H Macumber, Cristobal, Canal Zone—p 624
- \*Chemotherapy and Chemoserotherapy of Staphylococcal Infections J A Kolmer and H Brown, with technical assistance of Anna M Rule, Philadelphia—p 636
- Quantitative Studies on Antithrombin S J Wilson, Columbus, Ohio—p 647
- \*Therapeutic and Prophylactic Detoxication of Sulfanilamide Sulfapyridine and Sulfathiazole G J Martin, C Virginia Fisher and M R Thompson, New York—p 662
- Renal Lesions Following Intravenous Injection of Hypertonic Solution of Sucrose Clinical and Experimental Study R H Rigdon and E S Cardwell, Memphis, Tenn—p 670
- Liver and Biliary Tract Review for 1941 C H Greene, New York—p 691

**Cardiac Lesions and Rheumatic Fever**—From 2,300 consecutive necropsies Console selected all those giving clinical evidence of rheumatic fever, verrucae, acute pericarditis or chronic endocarditis. Aschoff bodies were accepted as unequivocal evidence of the disease. Of 98 cases with both clinical evidence of rheumatic fever and lesions of the endocardium or the pericardium, Aschoff bodies were present in the myocardium in 28. The interval between the last attack of polyarthritis and death in 27 was five months or less and in 71 from five months to thirty-six years. Aschoff bodies were found in all in which death occurred during the first decade of life, in 64 per cent of those dying during the second decade and in 11 per cent of those dying during a later decade. When Aschoff bodies were found in the myocardium (28 cases) with 1 exception the interval between the last attack of polyarthritis and death was five months or less. A curve of the frequency of death of patients with symptoms of rheumatic fever and cardiac lesions shows two distinct peaks—one in the first decade of life, corresponding with deaths from cardiac failure and the presence of Aschoff bodies in the myocardium, and the other between the ages of 40 and 60 years, associated with cardiac failure, deforming lesions of the valves and absence of Aschoff bodies. Minor degrees of valvular deformity were predominant in the first three decades of life, advanced deformity was common in the later decades. Valvular deformity increased with the duration of the disease after the onset of symptoms, but it had no constant relation to the number of attacks or to the age at onset.

**Staphylococcal Infection**—Experiments to determine the effectiveness of chemoserotherapy in the treatment of severe staphylococcal infection of mice and rabbits were carried out by Kolmer and Brown. The newer staphylococcus antitoxin and a sulfonamide drug appear to have an important synergistic action. Sulfathiazole and sulfathiazoline and then sulfapyridine and sulfadimethylpyrimidine have proved most effective in the treatment of experimental *Staphylococcus aureus* infection in mice. The complete cure of mice was not indicated by the survival rate, as varying percentages of mice which survived for twenty-one days have shown the presence of pyemic renal abscesses. However, there was a relation between the survival percentage and the incidence of renal abscesses. The simultaneous administration of staphylococcus antitoxin and a sulfonamide (chemoserotherapy) has given better results than therapy with one of the agents. Sulfathiazole and sulfapyridine were most effective for the treatment of staphylococcal septicemia in rabbits. All animals that survived for eighteen days, however, had pyemic abscesses of the kidneys or other organs, so that survival alone was not an index of complete cure. Sulfapyridine was also somewhat effective for the treatment of local lesions produced by the intradermal injection of *Staph. aureus*. It is concluded that the chemotherapy of staphylococcal infections is still unsatisfactory and inferior to sulfonamide therapy in hemolytic streptococcus and pneumococcal infections.

**Sulfonamide Compounds**—Martin and his co-workers used 7,000 white mice to study the effect of the therapeutic and prophylactic detoxication of sulfanilamide, sulfapyridine and sulfathiazole. The toxicity of sulfanilamide was reduced from 20 to 40 per cent by the simultaneous administration of a single dose of a compound used by the body in the general processes of detoxication. Calcium glucuronate was the most efficacious detoxifying compound. A combination of aminoacetic acid, cystine, calcium glucuronate and ascorbic acid provided the most consistent and the greatest protection. The reduction in toxicity had no effect on the chemotherapeutic efficacy of sulfanilamide. On the contrary, it appeared that the antistreptococcus activity was slightly but definitely enhanced. There was a difference in the percentage of death rates of approximately 10 in the 3,000 mice used. The possibility that decreased absorption may have been a factor in decreasing toxicity was disproved in experiments on dogs. When the detoxicant was given with sulfanilamide, absorption was increased to approximately 10 per cent, which possibly may be a factor in enhancing the chemotherapeutic efficacy of sulfanilamide. The acute toxicity of sodium sulfapyridine was reduced by as much as 50 per cent by the simultaneous admission of detoxifying chemicals. Aminoacetic acid and ascorbic acid were the most effective single detoxifying chemicals. Again, the presence of a detoxifying chemical distinctly prolonged the survival period of mice, and the detoxicant did not decrease the speed of absorption or the maximal concentration of sulfapyridine. For sulfathiazole, cystine and aminoacetic acid exerted the greatest effect in combating intoxication. Likewise animals receiving detoxifying chemicals with the sulfathiazole survived longer, and the speed of absorption was not altered by administration of a detoxifying chemical.

## Archives of Neurology and Psychiatry, Chicago

47 519-706 (April) 1942

- Studies on Corpus Callosum I Laterality in Behavior and Bilateral Motor Organization in Man Before and After Section of Corpus Callosum K U Smith and A J Akelantis, Rochester N Y—p 519
- Tractotomy for Relief of Trigeminal Neuralgia H Olivecrona, Stockholm, Sweden—p 544
- \*Western Variety of Equine Encephalitis in Man Clinicopathologic Study A B Baker and H H Noran, Minneapolis—p 565
- Amnesic Syndrome T Lidz, Baltimore—p 588
- Factors Affecting Changes Produced in Electroencephalogram by Stimulated Hyperventilation H Davis and W M Wallace, Boston—p 606
- Vascular and Interstitial Cell Changes in Thiamine Deficient Animals M Prados Montreal, Canada, and R L Swank, Boston—p 676
- \*Myasthenia Gravis Treated by Excision of Thymic Tumor Report of Two Cases E Campbell, N F Franklin and B Lipetz, Albany, N Y—p 645
- Suprasellar Aneurysm Report of Case with Recovery R M Menninger and R D Woolsey, St Louis—p 662
- Hemichorea (Hemiballismus) Association with Pallidal Lesion Involving Afferent and Efferent Connections of Subthalamic Nucleus Curative Therapy J W Papez, Ithaca, N Y, A E Bennett and P T Cushing Omaha—p 667

**Equine Encephalitis in Man**—Baker and Noran studied in detail 10 human cases of western equine encephalitis of the 1941 epidemic, 5 of the patients died. Of the fatal cases, the virus was isolated in 1 and neutralizing antibodies were found in the serum in another. Similarity of the pathologic lesions in all the fatal cases and their resemblance to the lesions in the horse leaves no doubt as to nature of the disease. Neutralizing antibodies were detected in only 1 of the 5 nonfatal cases. Nevertheless, the similarity of the clinical features and the occurrence of cases among farmers from nearby localities where equine encephalitis was prevalent makes the diagnosis highly probable. The clinical features of the disease such as sudden onset, generalized headache, nausea, fever and lethargy are surprisingly consistent. After a week or two the symptoms subside. About 10 per cent of the patients die. The neurologic signs are nuchal muscular weakness and hyporeflexia. The spinal fluid shows moderate pleocytosis, with predominance of the mononuclears. In the fatal cases, lesions are scattered throughout the nervous system, especially in the basal nuclei. The histopathologic changes are characterized by suppurative inflammatory elements. Polymorphonuclears are common and form focal, diffuse and perivascular infiltrations. Mononuclear cells may be prominent. Perivascular and scattered areas of demyelination are present and shadow the inflammatory lesions.

**Myasthenia Gravis**—From a review of literature on the association of a thymic tumor or enlargement of the thymus with myasthenia gravis, it appears to Campbell and his co-workers that the high incidence (approximately 50 per cent) of pathologic changes in the thymus is more than coincidental. Seven patients with myasthenia gravis were encountered at the Albany Hospital in the last six years and roentgen evidence of mediastinal tumor was observed in 3. The thymoma of 2 was removed at operation in 1 successfully and in 1 unsuccessfully. It appears probable that the thymic abnormalities may in some way be related to myasthenia gravis. Thymic tumors may bear a primary causal relation to myasthenia gravis or they may be secondary or associated causes as the goiter is frequently in acromegaly. The remission of symptoms which has been reported to follow thymectomy in 3 cases in the literature and in their case may be cited as evidence of a primary causal relationship. Although unconfirmed the experimental work of Adler, who produced myasthenia in dogs by injecting thymus extract and relieved the symptoms by prostigmine, is additional suggestive evidence. On the other hand the pathologic changes in the thymus may not be the sole cause of the disease, as they are absent in the other half of the cases. Furthermore, although the thymoma was completely removed in 1 of the authors' patients the myasthenia gravis persisted although in a milder form. Observations thus far available militate somewhat against thymic tumor and hyperplasia as the sole primary cause of myasthenia gravis.

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- Determining Factors in End Results Following War Wounds and Compound Fractures H W Orr Lincoln Neb.—p 237  
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Treatment of Leukemia by Radioactive Phosphorus L F Craver New York.—p 254  
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- Health Nutrition and National Defense T Parran Washington D C.—p 99  
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Use of Confidential Death Certificate in Province of Quebec P Parrot Quebec.—p 114  
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**Endocrinology, Springfield, Ill**

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Effect of Pressor and Oxytocic Fractions of Posterior Pituitary Extract on Loss of Water Administered to Albino Rats E M Boyd and N D Garand Kingston Ont. Canada.—p 433  
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IX Effects of Hypophysectomy on Distribution of Labeled Thyroxine and Diiodotyrosine in Thyroid Gland and Plasma M E Morton I Perlman Evelyn Anderson and I L Chaikoff Berkeley Calif.—p 495  
Parallelism in Response of Thyroid and Parathyroid to Various Hormones and Hormone-like Substances H T Blumenthal and L Loeb St. Louis.—p 502

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- Abnormalities of Intrauterine Environment Associated with 2000 Fetal and Neonatal Deaths Edith L Potter Chicago.—p 189  
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Injection Treatment of Hemorrhoids H E Bacon Philadelphia and F D Wolfe Chicago.—p 202  
Tuberculin Test S R Rosenthal Chicago.—p 205  
Evolution of Diagnosis and Treatment of Cardiovascular Diseases E Kenting Chicago.—p 208  
Endoscopy in Diagnosis and Treatment of Diseases of Chest S A Friedberg Chicago.—p 212  
\*Electrically Induced Convulsions for Treatment of Functional Psychoses J V Edlin Chicago.—p 216  
The Pathologist in the Cancer Clinic and in the Hospital E F Hirsch Chicago.—p 222  
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Etiology of Stammering Fundamentally a Wrong Psychophysiological Habit in Control of Vocal Cords for Production of Individual Speech Sound Beginning Presentation E L Kenyon Chicago.—p 232  
Doctor's Index—Medicine's Closest Ally F P Hammond Chicago.—p 258

**Electrically Induced Convulsions for Functional Psychosis**—Edlin induced convulsions with the Offner electric shock therapy apparatus in 126 cases of functional psychosis. The duration of the disorder before treatment ranged from less than six months to ten years and included all the functional psychoses with the exception of manic depressive psychosis. Patients who were ill for less than six months showed a 52.63 per cent recovery rate, and the rate for those affected from six months to one year was 30.76 per cent, for those ill from one to five years it was 21.05 per cent and for those ill from six to ten years it was 20 per cent. The greatest percentage of recoveries was shown by patients suffering from involutional melancholia. The next largest recovery rate was shown by patients with catatonia, and then those with hebephrenia and dementia precox combined with hebephrenic and catatonic features. The results as with convulsive therapy with metrazol and insulin, show that the duration of a psychosis is important from a prognostic point of view. The author prefers electrical to metrazol therapy because of the high percentage of recoveries and the almost total absence of fear. Psychotherapy is a necessary and vital adjunct to electrical therapy.

**Journal of Clin Endocrinology, Springfield, Ill**  
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- Association of Short Stature Retarded Sexual Development and High Urinary Gonadotropin Titers in Women Ovarian Dwarfism R F Varney A T Keoyon and F C Koch Chicago.—p 137  
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Vasomotor Reactions Persisting for Twenty Years in Male Treatment with Androgens Fluhring and Male Hypogonadism M S Biskind New York.—p 187  
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**Six Hour Pregnancy Test**—Salmon and his associates describe a six hour test for human pregnancy which is based on the observation that the chorionic gonadotropin causes a decided hyperemia of the ovaries of immature rats. The hyperemia is grossly discernible six hours after the injection of urine from pregnant women. To perform this test 3 animals weighing from 35 to 45 Gm are injected with 2 cc of the first morning specimen of urine and a necropsy is held at the end of six hours. Positive results were obtained in all but one of seventy-eight tests of pregnancy urines and negative results in all of the thirty-one tests of urine specimens from nonpregnant persons. A confirmatory twenty-four hour test based on

the proliferation of the epithelial and muscular elements of the vagina of the immature rat induced by the estrogens present in the pregnancy urine, is also described. Such confirmation is unnecessary as soon as one becomes familiar with the six hour ovarian vascular reaction.

### Journal Neuropath and Exper Neurology, Baltimore 1 1-128 (Jan) 1942

- Rise of Neuropathology G B Hassin, Chicago—p 1  
Studies in Pathology and Pathogenesis of Multiple Sclerosis, with Special Reference to Phlebothrombosis and Guiraud's Bodies O Marburg, New York—p 3  
Hemangioblastomas of Meninges and Their Relation to Lindau's Disease H Zeitlin Chicago—p 14  
Post Traumatic Cerebral Thrombosis and Infarction Report of Case and Discussion of Its Bearing on Problem of Immediate and Delayed Post Traumatic Apoplexy J A de Veer and J Browder, Brooklyn—p 24  
Brain Abscess Due to Endameba Histolytica A Stein and A Kazar, New York—p 32  
Progressive Subcortical Encephalopathy (Binswanger's Disease) C Davison, New York—p 42  
\*Histopathology of Central Nervous System in North Dakota Epidemic Encephalitis A Weil Chicago, and P J Breslich, Minot, N D—p 49  
\*Infundibuloma Newly Recognized Tumor of Neurohypophyseal Derivation with Note on Saccus Vasculosus J H Globus, assisted by R S Globus, New York—p 59  
Cerebral Histologic Changes in Acute Experimental Infection in Cats A Ferraro and L Roizin, New York—p 81  
\*Traumatic Degeneration of Spinal Cord (Spinal Concussion) G B Hassin, Chicago—p 100  
Present State of American Neurology P Bailey, Chicago—p 111

**Central Nervous System in Epidemic Encephalitis**—Weil and Breslich compared the histopathologic changes of the brains from 9 patients of the 1941 epidemic of encephalitis with those of other types of epidemic encephalomyelitis. In both the St Louis and the North Dakota epidemics the peculiar type of inflammatory reaction consisting of the combined proliferation of perivascular round cells and glia and the type of distribution of the inflammatory reaction throughout the brain with its maximal intensity in the basal ganglions and the midbrain were common. The two diseases are differentiated by the presence in the North Dakota epidemic of areas of tissue necrosis in the gray and the white matter of the brain. This fact calls for a comparison of this type of encephalitis with that following measles in which areas of severe necrosis around blood vessels of the white matter with destruction of axis cylinders, myelin sheaths and glia are found. The decided astrogliosis in the North Dakota cases, absent in the measles type, should not be described as an area of "demyelination." Microscopically the perivascular hemorrhages do not justify a classification of the North Dakota encephalitis as an "acute hemorrhagic leuko-encephalitis." Perivascular hemorrhages may be found in any type of acute encephalitis, especially that following scarlatina, influenza, pneumonia and bacteremia.

**Infundibuloma**—Globus describes for the first time a tumor derived from the neurohypophysis. It simulates the structure of the infundibulum including the neurohypophysis, and its vascular pattern is common to its site of origin—the infundibular region. The name infundibuloma, indicating its origin and its microscopic character, is suggested. Failure to find some relationship of this tumor to phylogenic remnants of the saccus vasculosus does not obviate the fact that it is an infundibular and autochthonous neoplasm. Two cases are reported.

**Traumatic Degeneration of Spinal Cord**—Hassin believes that trauma should be included with intoxications and infections as a possible cause of chronic degenerative disease of the central nervous system. Trauma as an etiologic factor is often looked on with suspicion and with even incredulity unless there is a definite history of a broken skull or neck. It is probable that the clinical features of degenerations caused by some form of trauma (concussion and contusion) only resemble the classic degenerative entities, such as amyotrophic lateral sclerosis, but are not identical with them. They are morbid entities, differing from the classic nontraumatic forms both pathologically and clinically. Thus a so-called incomplete form of amyotrophic lateral sclerosis, characterized solely by muscular atrophies and spasticity and no bulbar phenomena, may be produced by inflammatory, degenerative, neoplastic or granulomatous processes, fractures, dislocations, contusions and con-

cussions of the cervical region of the spinal cord. The subject of spinal concussion is controversial because reliable pathologic observations are lacking, but some of the greatest clinicians considered trauma as a significant cause of disturbances of the central nervous system. Studies of many cases of his own and those from the literature cause the author to believe that concussion is an unquestionable factor in the causation of disorders of the central nerve which, under certain circumstances, may resemble those of progressive muscular atrophy, amyotrophic lateral sclerosis, multiple sclerosis and other conditions, differing from them not only clinically and pathologically but also in their course. The suggestive pathologic features of degeneration of the cord due to trauma are foci of softening combined with degeneration of the anterior horn cells and the long fiber tracts, and in early stages with areas of rarefaction. The changes are analogous to those occurring in concussion of the brain. Mild traumas leading to degeneration are compatible with life, severe traumas are usually rapidly fatal, and there is no time for neural degeneration and the full development of signs and symptoms to appear.

### Laryngoscope, St Louis

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- Problem of Tonal Dip E G Wever, Princeton, N J—p 169  
Lymphoid Tissue in Upper Respiratory Tract D C Jarvis, Barre, Vt—p 188  
Petrositis with Contralateral Symptoms E H Brown, Tucson, Ariz—p 200  
Nonsurgical Treatment for Deafness E P Fowler Jr, New York—p 204  
Microscopic Study of Temporal Bones in Dysostosis Multiplex (Gargoyism) Dorothy Wolff, St Louis—p 218  
Otitic Meningitis Pneumonic Type III with Recovery Case A M Street, New York—p 224  
Type III Pneumococcus Meningitis and Septicemia with Complete Recovery M Moghtader, New York—p 226  
What Is Being Done for Deafness of School Children W M Hunt, New York—p 230  
Frontal Sinusitis Osteomyelitis and Meningitis, Operation, Recovery J S Hanley, New York—p 239  
Allergy in Otolaryngology and Ophthalmology Review of Recent Current Literature F K Hansel, St Louis—p 242

### Medical Annals of District of Columbia, Washington

11 83-124 (March) 1942

- Diseases of Arteries Affecting Extremities W M Yater, Washington—p 83  
Relation of Etiology to Treatment of Varicose Veins J R Veal Washington—p 90  
Physiologic Background of Peripheral Vascular Disease A W Duryce, New York—p 93  
Recent Advances in Surgical Treatment of Peripheral Disease N E Freeman, Philadelphia—p 95  
Peripheral Vascular Diseases Panel Discussion W M Yater, Washington, A W Duryce, New York, N E Freeman, Philadelphia and J R Veal, Washington—p 98

### Military Surgeon, Washington, D C

90 225-352 (March) 1942

- Medical Profession and Medical Preparedness I Abell—p 225  
Rehabilitation and Follow Up of Selective Service Men Rejected for Military Service C R Reynolds—p 232  
Some Problems of Selective Service L G Rowntree—p 238  
Present Policies and Activities of Medical Department of U S Army I B Wakeman—p 245  
Nutritional Problems of Army P E Howe—p 253  
Veterinary Service in Defense Effort R A Kelsner—p 266  
Influence of Tactics on Evacuation and Organization of Division Medical Service W P Dravenport—p 272  
General Mission of Military Aviation Medicine D N W Grant—p 281  
Medical Service at Remote Naval Bases L W Johnson—p 290  
Medical Service of Armored Force R H Duennner—p 300  
Blood Substitutes in Military Service D B Kendrick Jr and I R Newhouser—p 306  
Oral Diagnosis and Postoperative Complications—Their Importance to the Dentist Review of Two Cases J L Bernier—p 311

### Public Health Reports, Washington, D C

57 369-408 (March 13) 1942

- Pollen Concentration of Atmosphere A O Dahl and R V F—p 369  
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57 409-444 (March 20) 1942

- Milk Control in the Defense Program A W Tucker—p 422

# Southwestern Medicine, El Paso, Texas

26 67-102 (March) 1942

- Review of Surgical Treatment of High Blood Pressure R M Stuck Denver—p 68
- Tuberculous Osteomyelitis of Shafts of Large Long Bones W C Baom El Paso Texas—p 71
- Clinical Problems in Diagnosis and Treatment of Jaundice W H Nadler Chicago—p 74
- Acute Lymphatic Leukemia Precipitation by Severe Hemorrhage E H Brown Tucson Ariz—p 82
- Cyclopropane Safe Anesthetic Agent W W Hutchinson Los Angeles—p 85

## Surgery, St Louis

11 333-502 (March) 1942

- \*Studies on Intravenous Administration of Whole Bovine Plasma and Serum to Man A J Kremen H Hall H K Koselitzke Beatrice Stevens and O H Wangenstein Minneapolis—p 333
- \*Comparison of Effects of Local Application of Heat and of Cold in Prevention and Treatment of Experimental Traumatic Shock A Blalock Baltimore—p 356
- Study of Gastrointestinal Motility in Dog Following Ileocolostomy and Partial Colonic Resection D D Kozoll and H Necheles Chicago—p 360
- Pathogenicity of Bacteria of Appendicitis Peritonitis Experimental Study W A Altmeier Cincinnati—p 374
- \*Peptic Ulcer in Meckel's Diverticulum Causing Intrinsic Intestinal Obstruction Report of Two Cases J M Waugh W E Herrell and L K Crumacker Rochester Minn—p 385
- Chylorhax and Chyloperitoneum Effects of Reintroduction of Aspirated Chyle J M Little Winston Salem N C C Harrison Nashville Tenn and A Blalock Baltimore—p 392
- Surgical Management of Varicose Veins Importance of Individualization in Choice of Procedure H N Harkins and R Schug Detroit—p 402
- Congenital Malformations of Rectum and Anus Analysis of Embryologic Background Treatment and Results in Twenty Five Patients D E Harken Boston—p 422
- Bone Tumors with Reference to Their Treatment M M Copeland Baltimore—p 436
- Aspiration Biopsy Further Observations with Improved Instrument F Wrenn and J M Feder Anderson S C—p 456
- Use of Cold Air Blast on Precancerous Skin Lesions and Hemangiomas J K Poppe New Haven Conn—p 460
- Treatment of Major Wounds of Skull I Cerebral Fungus Treatment by Skin Grafting O R Hyndman Iowa City—p 466

Whole Bovine Plasma and Serum—Kremen and his associates evaluated the usefulness of whole bovine plasma and serum in man, studied the items contributing to reactions with their use and determined the effect of their proteins on the nitrogen balance of man. In order to eliminate the fibrinogen fraction, serum rather than plasma was used. The 120 patients selected for trial on bovine plasma and serum have been usually restricted to those with inoperable carcinoma, and then only those were given bovine plasma or serum who had only a slight or a negative cutaneous reaction to a preliminary cutaneous test. In the groups given whole plasma or serum the incidence of immediate reactions was 58.3 and 66.6 per cent respectively. When bovine serum was adsorbed on human erythrocytes the incidence of reactions was 24.5 per cent in 53 patients. Kaolin as an adsorbing medium did not remove any of the hemolysins or hemagglutinins. On two occasions bovine plasma was used for shock, 1 patient with a bleeding ulcer was given 300 cc of bovine plasma intravenously and the blood pressure was raised from 80 systolic and 40 diastolic to 130/90 and the other patient was given 500 cc of bovine serum and his blood pressure was raised from 90/70 to 110/80. Positive nitrogen balance can be attained by the intravenous administration of human plasma and can be approached closely with whole bovine plasma. The preparation of a satisfactory product of bovine albumin free from the globulin fraction may prove a safe and practical blood substitute. The incidence of reactions, although not severe is sufficient to contraindicate its clinical use at the present time.

Experimental Traumatic Shock—Blalock studied the effect of heat or cold applied to the injured part of animals in experimental shock produced by gross trauma to an extremity. Only large animals were used and pain was prevented by suitable anesthetic agents. Usually the animals were observed until they died. The results do not indicate that local cooling of the injured part would lessen the escape of blood and fluid into the traumatized area and the adjacent tissues. It is possible that the escape of fluid into the injured tissues would have been lessened had the part been cooled more rapidly. The average survival period of the animals in the group in which cold was applied was twice that of the group in which the body tempera-

ture was elevated by the local application of heat. It would appear that extreme degrees of heat should not be used even locally in the treatment of shock, particularly if means are not available for increasing the blood volume by blood or a suitable substitute. The patient who has been exposed to cold and moisture should be placed in a warm bed and covered with blankets. On the other hand, the indiscriminate use of hot water bottles and other heating devices may harm rather than improve the general condition of the patient.

Peptic Ulcer in Meckel's Diverticulum—Two cases of peptic ulcer in Meckel's diverticulum are reported by Waugh and his co-workers. Careful gross and microscopic examination of the specimens removed at operation revealed that intrinsic intestinal obstruction had developed in the ileum as a result of the inflammatory reaction associated with active ulceration in or near the diverticulum which contained gastric mucosa with typical parietal cells. This type of obstruction is similar to that occurring in the duodenum secondary to peptic ulceration. It is distinct from that usually associated with a complicated Meckel's diverticulum which is of an extrinsic or mechanical nature and which results from the formation of adhesions and inflammatory exudate about a Meckel's diverticulum which has perforated, with the subsequent occurrence of peritonitis. The 2 cases are probably the first to be reported in which proved peptic ulcer in Meckel's diverticulum resulted in intrinsic intestinal obstruction.

11 503-670 (April) 1942

- \*Malignant Adenoma of Lung Carcinoma like Tumors with Long Clinical Course W E Adams P E Steiner and R G Bloch Chicago—p 503
- Experimental Atelectasis in Dogs Its Effect on Plasma Volume Hemoglobin Hematocrit Blood Gases Circulation Time and Pulmonary Blood Flow J L Keeley and J G Gibson 2d Boston—p 527
- \*Some Observations on Acute Renal Hypertension W C Quinby and F A Simeone Boston—p 544
- Duodenal Obstruction A V Partipilo and G A Wiltrakis Chicago—p 557
- \*Obstruction of Stomach Due to Congenital Double Septum with Cyst Formation A R Metz R Householder and J F DePree Chicago—p 586
- Spinal Extradural Cysts F H Mayfield Cincinnati and E G Grantham Louisville Ky—p 589
- Shock and Hyperpyrexia Induced by Intravenous Glucose Infusion Case and Its Treatment J Medoff and S Burton Chicago—p 596
- Effect of Intravenous Theophylline with Ethylenediamine (Aminophyllin) on Rate and Depth of Respiration Clinical Study L Sperling S Weisman and R Papermaster Minneapolis—p 600
- Positioning in Surgery of Extremities L N Cozen Los Angeles—p 605
- Polyostotic Fibrous Dysplasia E H White Cincinnati—p 607
- Scalenus Anticus Factor in Congenital Torticollis S M Copland New Orleans—p 624
- Rat Bite Fever Two Cases A G Roghiano Valhalla N Y—p 632
- Intestinal Obstruction as Phase of Carcinoma of Cervix B Pearson and M Garcia, New Orleans—p 636

Malignant Adenoma of Lung—Adams and his colleagues report 5 cases of endobronchial tumor. The neoplasm is characterized by a long clinical course with low grade but definite malignant manifestations. Differentiation of the benign from the malignant epithelial tumor of the bronchus is not possible from bronchoscopic biopsy material, as no criteria are obtained as to the amount of tumor invading the surrounding structures or as to the presence of distal metastasis. In treatment it must be assumed that the tumor is malignant or potentially malignant and should be removed by lobectomy or pneumonectomy, preferably lobectomy if all the tumor bearing tissue is removed. Sections for microscopic study should include the entire tumor.

Acute Renal Hypertension—Quinby and Simeone studied the immediate effects of short lasting but total ischemia of the kidney in 10 cats and 7 dogs. A rise in blood pressure followed release of acute renal ischemia in 5 of the cats and the 7 dogs. Pressor effects were obtained by total occlusion of the renal arteries for as short a time as three minutes. Ischemia of greater duration than ten minutes did not increase the degree or duration of the pressor response when the occluding clamps were released. A mean arterial pressure of at least 50 to 60 mm of mercury was necessary to insure a detectable flow of blood through the kidney. Hypertension was produced without a demonstrable effect on the stroke volume or the rate of the denervated heart in animals from which the adrenal medullas were removed. The experiments suggest a convenient technique for studying renal hypertension.



**Obstruction of Stomach**—A case of complete congenital obstruction of the stomach by a mucosal cyst in a newborn infant which was successfully operated on the third day of life is presented by Metz and his associates. The cyst was gastric in origin and probably the result of the formation of two septums in the stomach. The operative technic consisted in reestablishing the lumen through the stomach by perforating the walls of the cyst. The boy at 3 years and 2 months of age was 3 feet 6 inches (107 cm) tall, weighed 38 pounds (17 Kg) and was in excellent health. A roentgen examination with a barium sulfate meal showed the stomach to be normal in size and shape with no evidence of a filling defect. The pylorus was patent and appeared to be functioning normally.

**Western J Surg, Obst & Gynecology, Portland, Ore**  
50 115-176 (March) 1942

- \*Duration of Pregnancy P. H. Arnot, San Francisco—p. 115  
Specific Interacting Substances of Eggs and Sperm A. Tyler, Pasadena, Calif.—p. 126  
Therapeutic Abortion—Fact and Fallacy H. C. Hessel, Chicago—p. 139  
Selection of Donors for Use in Artificial Insemination A. I. Weisman, New York—p. 142  
Acute Inversion of Puerperal Uterus S. D. Hart, Los Angeles—p. 145  
\*Etiology of Acute Inversion of Puerperal Uterus Classification Based on Analysis of Literature and Animal Observation Report of Case M. Salvin, Los Angeles—p. 147  
Septicemia Complicating Obstetric and Gynecologic Cases E. A. Pearson, Los Angeles—p. 156  
Umbilical Herniorrhaphy and Appendectomy on Newborn Within One Hour of Birth J. L. Bubis, Cleveland—p. 165  
Vaginal Cyst Case Report Complicating Pregnancy E. M. Wilder, Baltimore—p. 168  
New Bipolar Spot Coagulating Electrode for Neuro and General Surgery M. A. Glaser, Los Angeles—p. 171

**Duration of Pregnancy**—In an effort to determine the length of pregnancy, Arnot reviewed the history of the pregnancies of 3,606 patients and found the length to be two hundred and eighty and eight-tenths  $\pm$  ten and two-tenths days. Of the patients 53.5 per cent delivered later than the expected date of confinement, 42.44 per cent delivered before and only 4.07 per cent delivered on the estimated date. The average number of days late was eight and twenty-four hundredths and the average days early was eight and fifty-six hundredths. There was a tendency for women with menstruation cycles of less than twenty-eight days to deliver early and those with longer cycles to deliver late. Apparently in some women a mature child develops sooner than in others. There was a definite tendency for women to be consistent in the onset of their labors; if they were late with one baby they were apt to be late with subsequent babies, and vice versa. The baby's weight alone will not accurately determine prematurity or postmaturity. For uniformity, it is suggested that in using Naegle's rule one first count back three months from the last menstruation and then add seven days.

**Inversion of Uterus**—Salvin reports the occurrence of acute inversion despite the fact that every procedure was done according to the best accepted obstetric methods and good management. An etiologic factor was not present. The placenta was not adherent, labor was not difficult, the cord was of normal length, no traction was made on the cord and no undue pressure was exerted on the fundus. There was no evidence of uterine inertia. It was assumed that the patient would have had the inversion under any circumstances, and on the basis of the literature and the accepted classification (mismanagement and spontaneous) the inversion was called spontaneous. Accurate data on acute inversion was acquired by observing a supervised herd of cows which reflected facts on the issue of mismanagement. In the herd observed the ratio of inversion was 1/517 births. More than 90 per cent delivered themselves without an attendant, and the percentage of inversion among them was no greater in those needing assistance. Acute inversion was infrequent in primiparous cows except after abortion. As the cord breaks when the calf is born, traction on the cord had no relation to inversion, nor did an adherent placenta and its removal, inertia of the uterus, persistent contraction, shock or hemorrhage. Mismanagement played an insignificant part in the production of acute inversion in cows.

**Yale Journal of Biology and Medicine, New Haven**  
14 333-442 (March) 1942

- \*Observations on Massive Dose Arsenotherapy of Early Syphilis by Intravenous Drip Method I. Toxicology, Clinical Observations and Therapeutic Results J. F. Sadusk Jr., B. Craige Jr., N. Brookens, A. K. Poole and M. J. Strauss, New Haven, Conn.—p. 333  
\*Id II. Electrocardiographic Abnormalities Associated with Massive Arsenotherapy A. J. Geiger, B. Craige Jr. and J. F. Sadusk Jr., New Haven, Conn.—p. 357  
\*Id III. Pregnancy and Its Outcome Associated with or Following Treatment of Early Syphilis by Massive Arsenotherapy J. F. Sadusk Jr. and T. E. Shaffer, New Haven, Conn.—p. 365  
Streptococcus Hemolyticus Study of Virulence G. P. Blum, Philadelphia—p. 373  
Effect of Pneumococcal Lobar Pneumonia on Histamine Content of Lung A. Gilman and G. E. Lindskog, New Haven, Conn.—p. 387  
Air Borne Fungi in New Haven, Conn. Record for Year September 1940 to September 1941 N. S. Dimond and K. W. Thompson, New Haven, Conn.—p. 395  
Inversion of Uterus Report of Three Cases and Use of Chemotherapy H. Thoms, New Haven, Conn.—p. 399  
Possible Ariboflavinosis in Premature Infant S. S. Stevenson, New Haven, Conn.—p. 403  
Some Physician Friends of Joseph Farington, R. A. II. Anthony, Carlisle, G. H. Smith, New Haven, Conn.—p. 407

**Massive Arsenotherapy of Syphilis**—Since January 1940 Sadusk and his co-workers have used mapharsen by the continuous intravenous drip for the treatment of 33 patients with early primary and secondary syphilis. The patient received 0.24 Gm of mapharsen daily, or a total of 1.2 Gm during the five days. Primary fever of 101 F or higher occurred in 14, secondary fever of 101 F or higher in 10, toxicodermata at the end of therapy in 7, jaundice in 1, peripheral neuritis evidenced by paresthesias in the lower extremities during the second or third week following therapy in 18, nausea and vomiting (more often in the female) in 29, slight pain of a cramplike nature in the arm and forearm of the injected extremity in practically every patient, a moderately severe local thrombophlebitis of the forearm (usually on the fourth or fifth day of therapy) in 8, a leukocyte count falling to less than 5,000 at the end of therapy or shortly thereafter in 2, late secondary anemia, which usually reached its peak by the first or second week following therapy in 11, and electrocardiographic changes before, during and after therapy were frequent. The changes were abnormalities of the T waves. Other toxic reactions, convulsions, coma, hemorrhagic encephalitis and exfoliative dermatitis, were not observed. Nine teen of the 33 patients, receiving thirty-six "treatment courses," have had a complete reversal of their serum. The other patients have been followed for less than six months after therapy. The rate at which the serum of the 19 patients became negative varied from four to twenty-eight weeks after treatment. Four of the 33 patients have been lost for further observation. The serum of 2 of them was negative on the fourth and third week respectively, while the Wassermann reaction of the 2 others had reverted to negative by the ninth week though the Kahn test was still positive. Patients who are retreated do not necessarily acquire any sensitivity to arsenic during the first course of treatment. In fact the toxic reactions seen during the first course of treatment in the 3 patients who were retreated did not necessarily occur with the second course. Two patients became pregnant within eight weeks and fourteen weeks respectively after treatment, at which time their serologic reactions were still positive, no further antisyphilitic treatment was given and both were delivered of normal full term infants.

**Electrocardiogram and Massive Arsenotherapy**—Geiger and his associates obtained serial electrocardiograms before, during and after massive arsenotherapy in 23 cases of early primary or secondary syphilis. The changes were concordant diminution of the amplitude of the T wave in all leads and frequent inversion of the T wave in leads other than the third. The effects were most pronounced toward the end of treatment or immediately thereafter, however, all the changes returned to pretreatment values within a few weeks. The electrocardiographic changes were not related to the Hershheimer reaction, secondary fever or vomiting. It is probable that the abnormalities represented toxic arsenic effects of a transient and benign nature.



FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1 247-280 (Feb 21) 1942

- War Surgery of Abdomen J Walton—p 247  
Arsenic Content of Hair and Bone in Acute and Chronic Arsenic Poisoning. Review of Two Cases Examined Posthumously from Medico-legal Aspect E G Young and R P Smith—p 251  
\*Analysis of Incidence of Fainting in 5897 Unselected Blood Donors C L Greenbury—p 253  
Avitaminosis in Apparently Healthy Trinidadians K V Earle—p 255  
Psychosis Associated with Vitamin B Deficiency E Slater—p 257

**Incidence of "Fainting" in Blood Donors**—Greenbury studied the extent that age, sex, occupation, fatigue and lack of food had on the incidence of fainting in 5,897 blood donors (4,137 were female). The combined fainting rate for the sexes was 4.93 per cent. The incidence declined with age for both sexes, excepting for men 36 to 45 years of age. For men less than 45 the rate is significantly greater than for those more than 45, and for women less than 35 the incidence is significantly higher than for older women. Except for the 36 to 45 year group the incidence of fainting is greater among women, and in the 18 to 25 year group the difference reaches statistical significance (more than 20 to 1). The incidence of fainting was higher among clerical workers than among other groups, such as domestics and factory groups. The figures with regard to the effect of hunger and fatigue on the incidence of fainting give little information. However, there is a strong impression that hunger and fatigue are contributory causes. It is not improbable that the high incidence of fainting among clerical workers is due to the fact that because of conscription they are below the normal physical standard.

Glasgow Medical Journal

19 33-56 (Feb) 1942

- \*Nonarticular Rheumatism in the Army—Symptomatology. Etiology. Treatment. J H Hutchison—p 33

**Nonarticular Rheumatism in the Army**—During seven months Hutchison encountered 78 cases of nonarticular rheumatism in a military hospital. Such cases, whatever their nature, are curable and they do not require prolonged hospital treatment. Frequently men with nonarticular rheumatic manifestations are kept off duty too long. In the diagnosis of fibrositis if two of the three signs—well defined tenderness, spasm, nodule formation—are not present it can be assumed that the case is not one of active fibrositis. The average hospitalization period of 54 patients with fibrositis was twenty days, and every patient was returned to duty. Thus, when properly diagnosed and treated fibrositis should rarely be the cause of prolonged invalidism. Sciatica was less common but more serious, there were 6 cases. True sciatic neuritis can be differentiated from pain of sciatic distribution due to fibrositis by the absence or the diminution of the ankle jerk on the affected side, wasting and hypotonia of the thigh and the calf and occasionally analgesia of the upper and outer side of the foot. The average hospitalization in the 6 cases was thirty-nine days. Rheumatic infection, arthritis or gout was present in the remaining 18 cases. The precipitating factors in fibrositis were sudden strain, wear and tear, infection and sepsis, chilling and psychologic factors. Rest is always necessary in the treatment of fibrositis and sciatica. Heat is an invaluable adjunct for the relief of pain. Massage and heat form the most generally successful treatment for fibrositis. In sciatica massage should be employed cautiously and only in the later stages. Drugs for relieving pain are required in every acute case. The relief of pain following the injection of a local anesthetic in 22 cases was dramatic and rapid, and the power of movement returned. In chronic cases pain and stiffness were lessened. After the injection physical therapy should follow. The injection method may be used as a diagnostic aid, as it does not relieve pain of psychogenic origin.

Journal Obst & Gynaec of Brit. Empire, Manchester  
49 1-100 (Feb) 1942

- \*Pregnancy in Patient with Chronic Hypertension F J Browne and Gladys H Dodds—p 1  
Clinical and Pathologic Study of Permanently Enlarged Uterus J R Goodall G T Altman and J E Ayre—p 18  
Dysgerminoma. Complete Report on Case of Bilateral Dysgerminomas Complicating Pregnancy with Malignant Secondary Deposits and Fetal Termination J F Cunningham and J McGrath—p 36  
Arrhenoblastoma Case W K McIntyre—p 41  
Diabetes Insipidus in Pregnancy Case H C McLaren and M McLeod—p 51  
Superinvolution of Uterus Following Intrapartum Infection with Gas Forming Organisms T E Lennon and B Williams—p 59  
Categories of Abortion and Abortion Stillbirth Sequences P Malpas—p 65  
Vaginal Calculus F R Stansfield—p 82

**Pregnancy in Patient with Chronic Hypertension**—Browne and Dodds present histories of two hundred and thirty-nine pregnancies in 222 hypertensive patients. Only women under their care before the twentieth week of pregnancy are considered. Exacerbation, albuminuria, edema and the like occurred in 17.9 per cent of the pregnancies. If a rise in blood pressure from that before pregnancy alone or with edema were taken as evidence of exacerbation, this occurred in 82 per cent. There was no exacerbation in 17 per cent. There was no evidence that patients in whom an exacerbation occurred with albuminuria, edema and other signs of preeclamptic toxemia were suffering from occult or latent nephritis or that their underlying hypertension was fundamentally different from that in those who had no exacerbation or from those who had a further rise in blood pressure. Exacerbation seemed more likely in patients 30 or more years of age than in those less than 30. The fetal and neonatal mortality was 16.2 per cent. Intrauterine death of the fetus was often preceded by albuminuria but it also occurred when albuminuria was absent, especially if the systolic blood pressure rose to 160 or more millimeters. The same was true of spontaneous abortion and premature labor. If a patient's blood pressure at the start of her pregnancy was 150 systolic and 100 diastolic she had a 32 per cent likelihood of a successful pregnancy and of giving birth to a living and viable child. Tests of renal function were of little prognostic aid. The most valuable seemed to be the blood urea. If at the start of pregnancy this was 30 or more mg per hundred cubic centimeters, the chance of a living and viable child was small.

Practitioner, London

148 129-192 (March) 1942

- Hemorrhage in Obstetrics C Moir—p 129  
Puerperal Pyrexia D Baird—p 134  
Indications for Cesarean Section L Phillips—p 139  
Obstructed Labor R C Brown—p 151  
Mental Disorders in Pregnancy and Puerperium I Skottowe—p 157  
Standardization of Treatment of Arthritis R Pemberton—p 164  
\*Water Deficiency in General Practice R H Micks—p 172  
Minor Surgery VIII The Feet H L C Wood—p 177

**Water Deficiency in General Practice**—Micks states that the general practitioner, although he rarely treats dehydration, may by intelligent anticipation often prevent it from reaching the stage at which intravenous infusion is necessary, for example when the administration of sulfapyridine has to be pushed to the extent of producing vomiting, measures to combat dehydration can be instituted at an early stage. The parenteral administration of saline solution to such patients maintains a high output of urine. Infantile diarrhea rapidly produces collapse. In such cases the only satisfactory route may be the intravenous one and a matter for experts, and the practitioner who saves most cases of infantile diarrhea anticipates the need for special treatment by sending his patients early to a properly equipped children's hospital. The practitioner may have to treat diabetic coma in the patient's home. Some hundreds of units of insulin may be needed in a short time with saline solution rectally or orally, and he must resolve not to leave the house until recovery has begun. Diabetic coma is best treated in the hospital, but when this treatment is not available even an inexperienced practitioner can do much if he remembers that the two "specifics"—insulin and isotonic solution of sodium chloride should be given at once in abundance. Hypoglycemia need not be feared at first, as it takes many hours and much insulin to produce hypoglycemia in a comatose patient.

**Zeitschrift für Vitaminforschung, Berne****12 1-192 (Nos 1/2) 1942 Partial Index**

- Specificity of Histochemical Demonstration of Vitamin C According to Giroud and Leblond G Wolf Heidegger and H Wildmann—p 1
- Appearance of Strong Reducing Substances in Kupffer's Star Shaped Cells of Rat Liver Following Extirpation of Adrenals G Wolf Heidegger—p 24
- Problem of Minimum Protein Requirements I Abelin and E Rhy—p 56
- New Method of Determining Vitamin C in Blood J J Schenk—p 80
- \*Influence of Cooking Utensils on Destruction of Vitamin C A Fleisch—p 86
- Synthesis of Vitamin C in Human Infants P Rohmer and N Bezonoff—p 104
- Modification of Prothrombin Deficiency of Blood in Dog with Biliary Fistula by Means of Administration of Vitamin K S Thaddeus and G Frost—p 134

**Influence of Cooking Utensils on Destruction of Vitamin C**—Fleisch determined by titration the loss of vitamin C in milk, potatoes, kohlrabi, cauliflower and apricots caused by cooking in different types of kitchen utensils. A noticeable influence is already exerted by the length of time required until the boiling point is reached. The longer the time, the greater the destruction of vitamin C. Since pyrex has a poor heat conduction capacity, its destruction of vitamin C is greater than is the case in aluminum utensils. The destruction of oxydases by the cooking process does not prevent or reduce the destruction of vitamin C after the cooking process. This was ascertained over a period of twenty-four hours. When milk is heated in utensils of various materials for the same length of time, vitamin C destruction is least in pyrex, then follow aluminum, well tinned copper utensils, enamel ware, enameled cast steel and badly tinned copper. However, if the utensils of various materials are heated with the same flame intensity and if cooking of the food is continued to the same degree of doneness, poorly tinned copper, pyrex, enameled cast steel, double boiler and particularly the fireless cooker all destroy more vitamin C than does aluminum. This applied to all the aforementioned foods.

**Bol de la Asoc Méd de Puerto Rico, Santurce****34 41-78 (Feb) 1942 Partial Index**

- \*Diethylstilbestrol Dipropionate in Hyperplasia of Prostate J E Colon—p 41

**Diethylstilbestrol Dipropionate in Hyperplasia of Prostate**—Colon treated 9 cases of benign prostatic hyperplasia by intramuscular injections of diethylstilbestrol dipropionate. One mg in oil was administered for six injections. In 2 cases of fibrous and fibromuscular hyperplasia, respectively, the first series of injections was followed by a second series of weekly injections of 3 mg for five injections. The patients were treated at the same time with prostatic massage. In 5 cases the size of the prostate gradually diminished to normal. The patients void normally and show no residual urine or prostatic symptoms. The size of the prostate diminished in the 2 cases of hyperplasia with fibrosis and fibromuscular prostatic disorder, respectively. They void without difficulty but show some residual urine. All the patients were observed for several months after conclusion of the treatment and were found to be relieved of the symptoms.

**Munchener medizinische Wochenschrift, Munich****88 949-976 (Aug 29) 1941 Partial Index**

- Chemical Disinfectants M Waldhecker—p 949
- Interrelations Between Vitamins H Schroeder and J Kuhnau—p 954
- \*Treatment of Bronchial Asthma with Spinal Puncture and Insulin H Graeber—p 955
- Investigations on Hereditary Biologic Factors in Development of Homosexuality T Lang—p 961
- \*Eosin in Local Treatment of Psoriasis Vulgaris R Wernsdorfer—p 965

**Spinal Puncture and Insulin in Treatment of Bronchial Asthma**—Graeber points out the importance of differentiating between the treatment of the acute attack and the interval stage of asthma. Spinal puncture can be employed only in the acute attack. The method was employed two decades ago by Schultz, who assumed that the hydrostatic pressure conditions in the central nervous system may play a part in bronchial asthma. The author has practiced spinal puncture so far in 13 cases of

the allergic type without an essential cardiac component. The amount of fluid withdrawn varied between 15 and 25 cc, depending on the pressure. Favorable results were obtained in 7 of the 13 cases. Improvement was obtained in 3 cases, and the puncture was without any effect in the remaining 3. Spinal puncture should be employed only after the customary symptomatic remedies have failed. Repeated punctures offer little prospect of success. The mode of action of spinal puncture has not been explained. Insulin therapy was resorted to in 3 cases. Insulin has two distinct effects on the asthmatic patient. Protracted treatment with gradually increased doses has little effect on the bronchial asthma as such but exerts a favorable effect on the general condition and indirectly on the asthma. Insulin therapy here is employed as an adjuvant in every stage of asthma. The general condition is the decisive factor in the selection of patients for this treatment. The second form is insulin shock therapy with large intravenous or intramuscular doses. This is a formidable procedure and should be resorted to only in cases refractory to all other forms of treatment. Intercurrent infections with high fever (facial erysipelas, lacunar tonsillitis and pneumonia) effected cure in 3 severe and refractory cases of asthma.

**Eosin in Local Treatment of Psoriasis Vulgaris**—Wernsdorfer employed a mixture of eosin, chrysarobin and salicylic acid, either in an ointment base or in alcohol, in the treatment of patients with psoriasis. This was followed by irradiation with ultraviolet rays, at a distance of 60 cm, on the first day for five minutes but on later days for eight or ten minutes. This method is more effective in a much shorter time than the customary medicaments. The photodynamic action of eosin is discussed.

**Wiener klinische Wochenschrift, Vienna****54 833-852 (Oct 10) 1942 Partial Index**

- Pathogenesis and Prophylaxis of Tuberculosis in Childhood F Hamburger—p 833
- Bilateral Pneumothorax V Cepulic—p 837
- Laryngeal Tuberculosis E Wessely—p 841
- \*Changes in Pulmonary Vessels in Pneumonia M Fessel—p 843

**Changes in Pulmonary Vessels in Pneumonia**—Fessel shows that in the course of pneumonia pulmonary vessels, particularly the arteries, may develop inflammatory processes which lead to partial destruction of the wall and to narrowing of the lumen partly by endarteritic proliferation and partly by fibrin deposits and formation of thrombi. Such arterial changes have been observed in influenzal pneumonia and in the partial purulent breakdown of pulmonary tissue. Little attention has so far been given to the arterial inflammation which recurs after pneumonia has resolved. These changes are of vital importance for the function of the pulmonary circulation. Pneumonia accompanied by extensive interstitial inflammations on the arteries has a high mortality, but occasionally the patient survives. The majority of such patients have residual lesions left by the pneumonic process, such as pleural adhesions, callous indurations of the interstitial connective tissue and even calcification. In such instances it is not difficult to establish a relationship between the old vascular changes and the pneumonia. The author had the opportunity of examining such cases. He detected old cicatrized arterial lesions with chronic aneurysmatic dilatations and partial regeneration of the musculature which recall the picture described by Jaeger as the healed form of periarteritis nodosa. There are also cases in which the pulmonary parenchyma exhibits no permanent changes and in which except for the thickening of the interstitial tissue, the old vascular changes give the impression of an independent lesion. Cases of severe stasis in the pulmonary circulation are erroneously ascribed to an obscure, apparently independent, disease of the peripheral pulmonary arteries. Many cases which have been designated as primary pulmonary sclerosis, isolated endarteritis pulmonalis or thromboarteritis pulmonalis can be identified as an old and occasionally a relapsing pneumonic process. Not all such cases can be traced to a previous pneumonia. Other conditions that can elicit these or similar pictures are hematogenic-purulent, rheumatic or syphilitic inflammation of the vascular wall, periarteritis nodosa and Wasmann's periarteritis obliterans.

## Book Notices

**Advances in Colloid Science.** Edited by Elmer O. Kraemer, Ph.D. Biochemical Research Foundation of the Franklin Institute, Newark, Delaware. In collaboration with Floyd E. Bartell, Ph.D., Professor of Chemistry, University of Michigan, Ann Arbor, and S. S. Kistler, Ph.D., Associate Director of Research, Norton Company, Worcester, Mass. Volume I. Cloth. Price \$5.50. Pp. 434 with 161 illustrations. New York: Interscience Publishers, Inc. 1942.

It is unfortunate that a book such as this, possessing world-wide interest and for which subject matter should be drawn from all countries must be published when political conditions limit the sources. Nine of the twelve contributions emanate from American laboratories, all are written by competent leaders in each field described.

This collection of papers is not proposed for use as a textbook nor is it a general survey of the field of colloid chemistry. Rather, it is a series of subjects related to one another only in that each is a manifestation of colloidal phenomena. The authors give the detailed theoretical and experimental background for their subjects, description of results, comparison with theoretical results and conclusions regarding the value of the experiments. The papers are not reviews or compilations from the literature but represent original, individual work.

P. H. Emmett describes a method and apparatus for the determination of surface areas of particles by adsorption isotherms, while R. R. Sullivan and K. L. Hertel use the permeability method to determine surface area of fibers and powders. A. Tiselius gives a modification of adsorption analysis based on the determination of specific retardation volumes. The theory of detergency and comparisons of commercially available detergents under varying conditions is given by J. W. McBain. An excellent review and discussion of recent work on the structure, physical and chemical properties, enzymatic degradation and color reactions of starch is given by K. H. Meyer. R. E. Powell and H. Eyring discuss the theoretical frictional and thermodynamic properties of large molecules such as cellulose derivatives and rubber. Conclusions concerning the structure of certain inorganic gels as derived from x-ray diffraction data are presented by H. B. Weiser and W. O. Milligan. A study of the creaming of latex, so important when many substitutes for hevea rubber are being sought, is presented by G. E. Van Gils and G. M. Kraay. The phenomenon of the production of double refraction during stress or movement of certain liquids, such as colloids, known as streaming birefringence is excellently described and conditions are discussed by J. T. Edsall. Zeolites and permutits have been used for many years in the purification of liquids such as boiler feed waters, because they possess ionizable groupings which may be exchanged for metallic ions in solution. It has now been found that certain synthetic resins also possess this property of ion exchange, thus opening a great new field in liquid purification. This problem and the possibilities of the method are presented by R. J. Meyers. No book on colloids would be complete unless it included applications of the electron microscope, which can magnify an object thirty thousand times, to this type of work. T. F. Anderson describes the mechanics, use, technique and some of the results obtained with the instrument.

The average reader who has not had specific training in the field of colloids may find the mathematical and theoretical treatment rather confusing, but one who is working or deeply interested in these subjects will find this collection of papers invaluable. The basic theorems in each case are sound, the bibliography is adequate and the printing and illustrations are excellent.

**Shock Treatment in Psychiatry. A Manual.** By Luebe Jessner, M.D., Ph.D., Resident Psychiatrist, Baldpate, Georgetown, Mass. and V. Gerard Ryan, M.D., Associate Psychiatrist, Elmerest Manor, Portland, Conn. Introduction by Harry C. Solomon, M.D., Clinical Professor of Psychiatry, Harvard Medical School, Boston. Cloth. Price \$3.50. Pp. 149. New York: Crane & Stratton, Incorporated. 1941.

This is a useful manual giving explicit directions for the administration of shock therapies for mental disturbances. It is valuable for those who plan to use these therapeutic procedures.

**Fatigue of Workers. Its Relation to Industrial Production.** By Committee on Work in Industry of the National Research Council. Cloth. Price \$2.50. Pp. 165. New York: Reinhold Publishing Corporation. 1941.

Present day events emphasize the importance of maximum production in industry. This monograph is concerned with some of the factors responsible for fatigue in industrial workers. Although it was written before the outbreak of the war, it is nonetheless up to date. The last decade has witnessed a rapidly accumulating literature and interest in this nationally important problem. The material is presented in a rather interesting manner representing "the testimony" presented before the committee. Testimony in this sense implies a report to the committee and by members of the committee of the accumulated knowledge on certain phases of this subject.

The monograph has value because it indicates in broad terms the complexities of industrial fatigue. It gives special emphasis to some of the physical, psychologic and sociological factors. Of importance to the medical profession is the summary by Dill of the effect of heat and high altitude. Dill's investigations were derived from an intensive study of the circumstances of work at Boulder Dam but the findings can be applied and have been applied to other circumstances of industry, such as obtain in steel mills and other places where high temperature is a factor. The likelihood of our military forces being occupied in tropical climates makes these studies important now. Studies on high altitude are included in this chapter and represent chiefly the results of investigations at Columbia University and in Chile. These investigations give some idea of the problems affecting aviation medicine.

Psychologic influences on industrial fatigue are illustrated chiefly by case reports and summary comments. The effect of social and psychologic environment is presented in the investigations carried on for many years in the plant of the Western Electric Company. The latter chapters are illuminating for any one who desires a comprehension of the many aspects of the fatigue problem.

This monograph serves to emphasize the increasing importance of engaging the attention of the medical profession from the point of view of the practitioner and of the research investigator, for the alleviation of fatigue. It indicates the significance to the medical profession of the influence of social, economic and psychologic factors on national health. The medical profession cannot remain aloof from this problem.

**Socorro médico aereo en ortopedia y traumatología.** Por Julio Piñeiro Sorondo, profesor adjunto de ortopedia de la Facultad de ciencias medicas de Buenos Aires. Prólogo del Profesor Enrique Finocchietto. Paper. Pp. 172 with 58 illustrations. Buenos Aires: Imprenta Sebastian de Amorruutu e Hijos. 1941.

This is a well conceived and excellently written book. Its publication at this time is extremely opportune, since the world is just beginning to realize how extremely small is our knowledge of medical aid by air. It is not designed for the research worker in aviation medicine but should be compulsory reading for all medical men in charge of civilian defense or relief agencies such as the Red Cross or Relief Wings.

The book divides naturally into four parts. The first consists of two chapters: one an introduction in which unfamiliar terms and expressions are defined and the other the history of the part played by South America and France in the development of this powerful ally in the struggle against death and disease. The second part is in three chapters, the first of which deals with the effect of flight on the patient from the point of view of a physicist. The second chapter is an adequate consideration of the prevention of anoxia and apnea. The third chapter considers the indications and contraindications for the transportation of patients by air. Quite properly the author has been strongly influenced by Leduc's 1934 Paris thesis and Hippke's report of the transportation of wounded from Poland. Yet he has maintained his equilibrium and takes his stand somewhere between those two and at about the point occupied by the British and ourselves.

The third part of the book deals with the choice of the airplane, its equipment and its pilot. These three chapters are by far the most important in the book, since they contain most of the new material to be found therein. The author is to be

congratulated on the carefully tabulated lists and illustrations, which must have been boring to prepare but which are so necessary to one about to embark on a study of air ambulances and air borne patients

The closing three chapters are devoted to the position and progress of medical aid by air in Argentina

**The Problem of Tumours The Application of Blastogenic Agents to Gillates A Cytoplasmic Hypothesis** By J C Mottram M B, Director, Research Department, Mount Vernon Hospital Northwood Boards Price, 7s 6d Pp 91, with 33 illustrations London H K Lewis & Co, Ltd, 1942

Cancerogenic agents, e g cyclic hydrocarbons, radiations, heat and hypertonic solutions, have no chemical or physical properties in common that can explain their effects on cells. The author set himself the task of studying the response of cells to cancerogenic agents in order to determine, if possible, whether such response represents reactions common to many kinds of cells. The monograph deals with the changes in parametarial cells on exposure to cancerogenic agents. Exposures to such agents gave rise to abnormal cells which the author is inclined to regard as the equivalents of cancer cells. Because the changes from the normal seemed to involve primarily cytoplasm, the author speaks of a cytoplasmic hypothesis of cancerogenic action. It is noteworthy that in his cultures the abnormal cells gave rise to normal as well as to abnormal cells and hence had the power to revert to the normal. So far as is now known, such reversion does not occur in cancer cells. The monograph will interest especially students and investigators of fundamental cytologic problems.

**A Hand-Book of Ocular Therapeutics** By Sanford R Gifford, M A M D, F A C S, Professor of Ophthalmology Northwestern University Medical School, Chicago Third edition Cloth Price \$4 Pp 410, with 69 illustrations Philadelphia Lea & Febiger, 1942

When the ophthalmologic profession accords to a book the wholehearted welcome that greeted the first edition of this work it throws on the author the moral obligation of periodic revision in order that the textual material may be kept abreast of modern advances. Unfortunately, many authors do not recognize this obligation and our reference shelves and libraries are cluttered with antiquated volumes that tend to confuse the earnest searchers for truth. The profession may well rejoice that Gifford is well aware of the faith placed in his writings and continues to justify that faith by the careful preparation of the well thought out and revised third edition. In this some of the earlier material has been deleted and the space filled with careful descriptions of the therapeutic advances of the past four years. But the telling of the therapeutic measures is the minor aspect, the evaluation is the major. Gifford presents a fair estimate of just how good these recent measures are, based on the writing and personal word of expert clinicians and backed by his own extensive experience. That personal touch is what lifts the book out of the ranks of the ordinary.

**Anoxia Its Effect on the Body** By Edward J Van Liere Ph D, M D Cloth Price \$3 Pp 269, with 17 illustrations Chicago University of Chicago Press 1942

This book is one of the first to study the effect of anoxia on the various systems of the body. Its author is to be congratulated not only on his concept but also on his diligence in searching out the literature on the subject. He not only produces much new evidence but indicates many new lines of investigation. It is amazing that so much material could be compressed into so small a volume and yet maintain clarity. Any new departure in treating such a complex subject is certain to show some of the roughness of pioneer work. For instance, the method of presenting references could be improved on, and the index needs more expansion and cross references. Confusion also arises from the fact that many of the authors that he quotes did not fully appreciate the difference between mountain sickness and chronic altitude sickness. Nevertheless the book is a useful one and serves as an excellent introduction to aviation medicine as well as a magnificent reference work for the entire subject of anoxia.

**Obstrucción de la vena central de la retina** Por el Dr Federico Carlos Cerboni Tesis, Universidad nacional de Buenos Aires, Facultad de ciencias médicas Paper Pp 102, with 17 illustrations Buenos Aires 1941

The author, in his graduation thesis for the University of Buenos Aires, reviews the anatomy, histopathology and history of clinical observation covering obstruction of the central vein of the retina and reports his findings in 4 cases. The illustrations are chiefly photographs of fundus conditions. Various theories of pathogenesis are reviewed. While arteriosclerosis seems to be the most common factor, the condition in a certain number of cases is due to syphilis and in others to inflammation in or about the vein resulting from foci of infection in the teeth, tonsils or elsewhere. Of the author's 4 cases, arteriosclerosis with hypertension was present in 3, while, in the other, syphilis was considered probable, the patient being 38 years of age with a positive Kahn reaction. This was the only case in which improvement occurred, vision returning to 2/3 after three months. Secondary glaucoma occurred in 1 of the cases, but surgery was not required, as the eye remained free from pain. The only treatment given in the author's cases was acetylcholin, dietary measures and ethylmorphine hydrochloride, with miotics in the case in which glaucoma developed and antisiphilitic treatment in the case due to syphilis. In his review of therapy, the recent cases treated with heparin are discussed. Complete recovery of vision has occurred in only a few cases, 75 per cent according to Wessely. Glaucoma develops in from 13 to 23 per cent of cases and is especially difficult to control. The tension at the onset is usually below normal in the affected eye, the difference between the two eyes varying from 2 to 9 mm in the author's cases. According to Wessely the prognosis is less favorable in cases with a more marked difference in tension between the two eyes. It is less favorable in patients with higher blood pressure and more favorable in younger patients. The second eye is involved in approximately 6 per cent of cases, and Moore's statistics indicate that 41.6 per cent of affected persons die within six years as a result of cerebral vascular accidents. There is a bibliography.

**Trastornos cardíacos en los estados anémicos Contribución clínica y experimental a su estudio** Por el Dr Eugenio R Pietrafesa Tesis de doctorado, Universidad nacional de Buenos Aires Facultad de ciencias médicas Paper Pp 209 with 127 illustrations Buenos Aires Estudio de Artes Gráficas "Futura", Librería "El Ateneo," 1941

This monograph is based on an analyses of 20 clinical cases and experiments on 17 rabbits. The author's conclusions fall in line with the generally accepted point of view. He describes the clinical, roentgenographic and electrocardiographic alterations in the heart in anemia, and the changes induced in rabbits by hemorrhage as regards both the electrocardiogram and the microscopic appearance of the heart post mortem. He attributes the changes in the heart as primarily due to coronary insufficiency and submits a table subdividing the various varieties of coronary insufficiency to be encountered clinically on a systematic basis and places anemias in their proper location. Throughout this well documented report the author's findings are intelligently integrated with the findings in the literature. References are made to two hundred and seventy-three previous publications in the world's literature. This is a meritorious contribution to the subject in the Spanish language.

**The Jamaica Hospital A History of the institution 1892 1942** Written and Compiled by F G Riley M D, Historian of the Medical Board The Jamaica Hospital, Jamaica Long Island N Y Cloth Price \$1 Pp 172 with 20 illustrations Jamaica 1942

An intimate story of an institution and those who guided it through many years, told in a most interesting way. The story of the Jamaica Hospital "starts in the early eighties, the period of the horse car, the plank roads, toll gates, the high wheeled bicycle and the volunteer fire department. It progresses through the 'Gay Nineties,' the coming of the trolley, the telephone, the graphophone, the safety bicycle and the horse racing on Hillside Avenue on Sundays and holidays, and then into the early 1900's and the coming of the automobile, the fire roads." The printing and binding are exceptionally well done and the reading of the book is as pleasant to the eye as to the mind.



## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT HOWEVER REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS BUT THESE WILL BE OMITTED ON REQUEST.

### VITAMIN D AND HEALING OF LESIONS OF PULMONARY TUBERCULOSIS

To the Editor—I should like to know the current opinion with regard to the role of vitamin D in the utilization of calcium during the healing of a tuberculous pulmonary lesion. I am at present a patient in a sanatorium where the diet while otherwise well balanced could not possibly contain more than a very small variable quantity of vitamin D. The calcium intake is adequate mostly in the form of whole milk. The average adult patient does not receive any supplementary form of vitamin D and adult bed patients are not exposed to the sun. If the normal individual who usually gets a certain amount of solar irradiation requires a daily intake of 625 units of vitamin D would it not be reasonable to suppose that a patient with a tuberculous lesion which so often heals by calcification would require at least the average normal adult dosage? As far as I know in the usual sanatorium diet this could be accomplished only by the addition of some supplementary form of vitamin D. Is the administration of fairly large doses of vitamin D to adult bed patients a common practice in sanatoriums or is it regarded as unimportant?

Michael F. Flatley, M.D. Weimar Calif

ANSWER—Although vitamin D has been given empirically for a long time in the form of cod liver oil, there is a dearth of accurate knowledge regarding any specific effect it may have on human tuberculosis.

It would seem that benefits from cod liver oil and like products are due to its food value, vitamin A as well as vitamin D. Knudson and Floody (Fat as a Factor in Healing of Rickets with Vitamin D, *J. Nutrition* 20:317 [Oct.] 1940) showed that 5 per cent fat enhances the effect of vitamin D in healing. Any work done on cod liver oil therefore, cannot be accepted as final proof of a vitamin D effect. Work on pure vitamin D is relatively scarce.

The discussion of the problem therefore will be largely hypothetical, as experiments on tuberculous patients have been too few and the reported results too equivocal to have any practical significance. Spies and Glover (Renal Lesions with Retention of Nitrogenous Products Produced by Massive Doses of Irradiated Ergosterol, *Am. J. Path.* 6:485 [July] 1930) and Crimm, Strayer, Watson and Heimann (The Effect of Viosterol on the Absorption and Retention of Calcium, *Am. Rev. Tuberc.* 28:202 [Aug.] 1933) reported that vitamin D caused tubercles to calcify better in human tuberculosis. McClung and Glickman (Vitamin D Milk in Pulmonary Tuberculosis, *Bull. U. S. Vet. Admin.*, 1934, p. 26) reported greater improvement in tuberculous patients receiving vitamin D than in a control group. On the other hand Grayzel, Shear and Kramer (Vitamin D in Bone Tuberculosis in Children, *Am. Rev. Tuberc.* 24:106 [Aug.] 1931) found no advantage if the diet was balanced.

In animal experiments, little or no favorable results have been reported. Trevorrow, DeSavitsch, Black and Lewis (Effects of Prolonged Viosterol Administration and of Artificial Sunlight Radiation on Experimental Tuberculosis in Rabbits, *Proc. Soc. Exper. Biol. & Med.* 31:802 [April] 1934), Steenken and Baldwin (Effect of Irradiated Milk Compared with Vitamin D Oils on Inhalation Tuberculosis of Guinea Pigs, *Am. Rev. Tuberc.* 35:656 [May] 1937) and Steiner, Greene and Kramer (Effects of Vitamin D Deficiency on Experimental Tuberculosis in Rabbits, *ibid.* 35:640 [May] 1937) found no favorable effect in animal tuberculosis. Grant, Suysnaga and Stegeman (Effect of Rachitic Diets on Experimental Tuberculosis in White Rats, *ibid.* 16:628 [Nov.] 1927) showed a definite value of vitamin D, but not without balancing up other vitamins and minerals. A certain balance with vitamins A and C and calcium and phosphorus seemed to result in prolongation of the lives of guinea pigs.

All we are justified in concluding is that vitamin D does not affect the tuberculous lesion itself directly but perhaps produces favorable results in its role as a mobilizer of the serum calcium, which in turn tends to prevent a progression of the disease. In the presence of adequate calcium and phosphorus (and perhaps parathyroid hormone) vitamin D seems to allow a better absorption of calcium from the intestine. A deficiency of any of the three will affect the metabolism of the others. Likewise an excess of any one of the three with a deficiency of any of the others will have an equally unfavorable effect. High vitamin D for instance in the presence of low calcium and phosphorus actually robs the bones of calcium to keep the serum level up.

Vitamin D, calcium and phosphorus levels must therefore be maintained, as otherwise there will be a depletion of calcium, which is necessary for general metabolism even if it has no specific effect on the tuberculous process.

The problem of calcification itself in tubercles usually comes only after the battle has been won and the fibrous capsule produced. The important requirement in tubercle encapsulation (formation of collagen in connective tissue) is perhaps more dependent on vitamin C than on vitamin D.

The unfavorable effect of vitamin D deficiency seems, therefore, to be a late indirect effect more than anything specific. Any ill results probably come only after there is an imbalance of other vitamins and minerals resulting in a decrease of the calcium absorption and lowering of calcium in the blood. This would tend to increase cell permeability (Petersen, W. F., and Levinson S. A. Skin Reactions Blood Chemistry and Physical Status of "Normal" Men and of Clinical Patients. VII Study of Eighty-Three Tuberculous Patients, *Arch. Path.* 9:295 [Jan.] 1930) and enhance the development of allergy, exudation and progressive disease (Goldberg, Benjamin Medical, Symptomatic and Tuberculin Therapy. Specific Therapy, in his Clinical Tuberculosis Philadelphia, F. A. Davis Company 1 C-75, 1939). The later effects (calcification ossification and so on) probably take place after the crucial struggle has been ended.

The conclusions therefore are that vitamin D is an important link in the chain of favorable metabolic adjuvants and not only should be kept up to a standard level but also should be balanced with other important vitamins (vitamins A, B, C) and minerals, especially calcium and phosphorus in the form of bone meal or similar products, to avoid a deterioration in the defensive mechanism against any infection, including tuberculosis. The evidence at hand, however, fails to support an active specific effect on tubercles or the disease tuberculosis.

The last question may be answered "yes," but vitamin D is too often given in "shotgun dosage" of cod liver oil or in capsules rather than being made a problem of scientific dietetics.

### PROBABLE KIDNEY STONE

To the Editor—A white man aged 37 complains of attacks of severe pain over the left loin headaches backache and nervousness. Since the acute onset January 14 he has had three attacks with pains radiating to the left testis and frequency of urination. A penile blister was noted twenty years ago but no dork field examination was done. The lesion was cauterized and no further treatment given. He has had repeated negative blood Wassermann reactions. Examination revealed a sluggish facies pulse rate 80 temperature 98.6 F blood pressure 126 systolic and 70 diastolic head normal. The right pupil is slightly larger than the left and shows but little reaction to light though it reacts to accommodation. The ears nose and throat are normal. The heart apparently is not enlarged and the sounds are normal. The chest is clear. The kidneys were not palpable and the pain diffused over the left side is not localized. There is an atrophied left testis (said to be due to mumps) but no evidence of a penile scar. There is a small herniation through the left inguinal ring. The extremities are normal. The knee jerks are active. There is post pointing on the finger to nose test and a slight swaying on the Romberg test. Urinalysis gave negative reactions for albumin and sugar but 5 to 6 blood cells and 3 to 4 pus cells per high power field. The prostate was adenomatous and normal in size. The seminal vesicles were palpable and tender bilaterally. On cystoscopic examination slight edema and congestion were seen near the left ureteral orifice but a number 5 catheter passed to each kidney with ease. Indigo carmine appeared from the left kidney in four minutes and blue in six and from the right in four minutes and blue in seven. A specimen from the right kidney was loaded with blood cells and 2 to 3 pus cells per high power field. Urine from the left kidney was loaded with blood cells and one pus cell per high power field. A roentgenogram with catheters in situ revealed no evidence of stone. Skiodan pyelograms (retrograde) revealed kidneys normal in size position and outline. There is a tendency to a bifid pelvis on each side and some blunting of the calices of both kidneys. A diagnosis of chronic pyelonephritis and seminal vesiculitis was made. The blood Wassermann reaction was reported negative. A spinal puncture revealed white clear colorless fluid under normal pressure with three cells (two lymphocytes) complement fixation negative mastic test 21100. Because of a rather severe postpuncture headache I doubt if permission would be given for a repeat. Would you consider this man's symptoms and findings partly attributable to a latent spinal syphilis and if so would you advise treatment?

M. D. South Carolina

ANSWER—From the history, one would be inclined to make a diagnosis of renal colic due to stone. This patient has had several attacks of severe pain over the left loin with pain radiating to the testis frequency of urination and other classic symptoms of renal calculus. The roentgen examination is negative for stone. However, it is possible that the patient passed the stone before the exposure was made and hence the stone cannot be demonstrated. It may also be possible that the stone is of such density that it cannot be demonstrated with the roentgen ray. It is also possible that the stone rests over a bone and hence cannot be demonstrated. The history is so classic that one would be justified in diagnosing stone from the history alone. Furthermore cystoscopy revealed edema and congestion



near the left ureteral orifice. This is further evidence of disease in the left kidney. One not infrequently sees these cystoscopic findings after the patient has had a stone or when the stone is in the intramural part of the ureter. The fact that the catheters passed without difficulty or obstruction does not exclude the possibility of stone.

The patient's prostate and vesicles were tender and the fluid could not be examined. Because of tenderness the patient's prostate and vesicles should be massaged at weekly intervals for three weeks and the fluid examined under the microscope for evidence of vesiculitis, namely, pus in the microscopic preparation. Once in a while a patient with seminal vesiculitis has symptoms compatible with renal colic. Seminal vesiculitis is much more infrequently the cause of renal colic than is calculus. Probability is the rule of life, this patient probably has a renal calculus or has passed one. Large amounts of urinary crystals in the urine may produce just this picture. There is enough evidence here to justify a diagnosis of syphilis of the central nervous system, and there would not be much sense in again doing a lumbar puncture.

### SKIN BURN AND RHEUMATOID ARTHRITIS

*To the Editor*—A white man aged 61 was burned on his face the upper part of the chest and both hands and arms with strong sodium hydroxide solution. Three weeks after the accident he began to suffer from generalized rheumatoid arthritis, more especially in the shoulders, the fingers and the joints of the lower extremities. For the past five years he had mild diabetes mellitus. Never before had he had arthritis. Can sodium hydroxide burns of the skin cause rheumatoid arthritis?

Samuel H. Justa, M.D., Rocky Mount, N.C.

*ANSWER*—Since the specific cause of rheumatoid arthritis is not known, this question cannot be answered definitely. There seem to be a number of precipitating causes for rheumatoid arthritis. These include acute infections of the respiratory tract, changes incident to the postpartum period, acute chilling, shock and worry. By producing shock and worry, burns of the skin by sodium hydroxide might perhaps serve as a predisposing cause in a person "about ready" to have rheumatoid arthritis, but if so the occurrence is indeed rare and unusual. As far as is known, rheumatoid arthritis is not a recognized complication of any other type of cutaneous burn, even when the burn is extensive.

### LEAD POISONING FROM DENTAL BRACES

*To the Editor*—What is the possibility of the development in a youth aged 19 of lead poisoning from braces fitted by a dentist? The braces are alleged to have had a lead content of unknown quantity. Has any case of poisoning of this type ever been reported? A professor of biochemistry has found lead chloride in the youth's urine. Would you please state what percentage of lead found in urine would be considered pathologic?

M.D., Georgia

*ANSWER*—Lead poisoning from dental braces has not been reported as far as is known, and braces would be a most unlikely source of the disease. It would be particularly unwise to ascribe any lead absorption to such braces without knowing whether they contained a high concentration of lead. The concentration of lead in the urine which may imply pathologic changes in some cases is considered to be above 0.15 mg. per liter of urine.

### IRON THERAPY FOR CHILDREN

*To the Editor*—What iron preparation can be used in the treatment of secondary anemia in a 3 year old child? Liquid forms of any kind are not possible because of the taste. Capsules and coated tablets do not seem to be practical. A small ferrous sulfate tablet probably could be used, but I do not know of any such tablet. What is the usual method of iron administration at this age? Liquid forms are principally elixirs, which seem to have too high a percentage of alcohol for the amount of iron necessary.

Stanton S. Eddy, Jr., M.D., Middlebury, Vt.

*ANSWER*—Iron is conveniently given to children in the form of a solution of ferric ammonium citrate in water. The usual strength of this solution is from 10 to 50 per cent. The amount given is regulated by the strength of the solution and the weight of the child. For example, in a 10 per cent solution the amount given in twenty-four hours is 2 cc. per kilogram of body weight (1 cc. a pound). This may be divided into three portions and conveniently given at meal time in milk. Rarely will a child ever object to the taste. It is just as well to direct the mother to have the child take a drink of water following the iron, and not to continue the treatment longer than a month at a time. This does away with any discussion about staining the teeth.

### ESTIMATION OF THE SIZE OF A CUTANEOUS BURN AS RELATED TO THE SURFACE OF THE BODY

*To the Editor*—At a recent meeting of the staff of the hospital with which I am affiliated the problem of accurately determining the percentage of the surface of the body that has been involved in a burn was discussed. Some of the men believe that there is some form of table which will show approximately what portion of the body surface is in the arm, hand, thigh, fingers and so on. Each feels that the figures covering the involved portions are too high when the estimates are made by gross visual evaluation. Our group would appreciate any information you have on this subject.

J. M. Feder, M.D., Anderson, S.C.

*ANSWER*—The table adopted by the great majority treating burns for determining the approximate portion of the body surface involved has been one outlined by Dr. S. G. Berkow. Dr. Berkow is listed as residing in Perth Amboy, N.J. A reference which should prove valuable is

Berkow, S. G. Value of Surface Area Proportions in the Prognosis of Cutaneous Burns and Scalds. *Am. J. Surg.* 11: 315 (Feb.) 1931.

### EPILEPSY AND SELECTIVE SERVICE REGULATIONS

*To the Editor*—I should like to know whether army life would be detrimental to a man of 30 who has had epileptic seizures since the age of 7, when he received a blow on the head. He gets these seizures but once in four or five years.

M.D., New Jersey

*ANSWER*—Whether army life will be detrimental or not is a purely academic question. The fact is that the Selective Service regulations place individuals with epilepsy in class 4. Even if the fits occur only once every four or five years, such a classification should be made if it is established that the attacks are of epileptic type and that a severe head injury has been sustained.

### INFECTED TONSILS AND DIABETES

*To the Editor*—A girl aged 11 was first seen by me on Aug. 31, 1940 for infected tonsils and overweight. She wanted to have them removed. The urine at that time was normal. She then had a cold and I saw her again in April 1941. The urine at that time showed 4 plus sugar, it was not tested for acetone or diacetic acid. She was placed on a diet, which decreased the glycosuria somewhat but she still has 3 plus sugar in the urine. Blood sugar varies from 250 to 400 mg. per hundred cubic centimeters. Her weight has decreased from 128 pounds (58 Kg.) to 117 pounds (53 Kg.). I should like to know if it would be advisable to remove the infected tonsils at this time and by so doing expect an improvement in her diabetic condition.

M.D., Minnesota

*ANSWER*—If the patient is under good diabetic control, free from acidosis or dehydration, there would be no contraindication to tonsillectomy. Infected tonsils may impose an added metabolic stress and decreased tolerance, so that tonsillectomy may be expected to improve her diabetic condition. It would be advisable to wait at least two weeks after the active infection subsides before removing the tonsils. During this time the glycosuria, hyperglycemia and ketonuria, if present, can be properly controlled. If the diabetes is uncomplicated by acidosis, a diet which meets the physiologic needs of the patient should be prescribed. The amount of insulin should then be determined which will keep the blood sugar within a relatively normal range and minimize the glycosuria. A temporary preoperative and postoperative routine to meet the special conditions imposed by the tonsillectomy should be started the night before the operation. The previous regimen can usually be resumed twenty-four hours after the operation.

### METHODS OF VACCINATION AGAINST DIPHTHERIA AND SMALLPOX

*To the Editor*—I would like to have you answer the following questions if possible. Is it advisable in view of the fact that only two injections are required, to use alum precipitate diphtheria toxoid in high school instead of the regular toxoid? Is the possibility of severe local reactions enough to counterbalance the time saved in a busy health department? Please discuss the treatment of sterile abscesses after using alum precipitate toxoid. Is the practice of giving smallpox vaccinations in the thigh much more dangerous than that of using the upper arm?

M.D., Oregon

*ANSWER*—In view of the frequency with which severe local reactions occur following the use of two injections of alum precipitate diphtheria toxoid in older children, it would hardly seem advisable to use this method in high school students. For children under 10 years of age, two doses of alum precipitate toxoid, given two to four weeks apart, produced the higher level of diphtheria antitoxin in the blood. In high school students it would appear better to employ two or three doses of plain diphtheria toxoid.

The treatment of sterile abscesses produced by alum precipitate toxoid usually consists in the application of hot dressings, incision and draining.

Clinical experience seems to indicate that giving smallpox vaccinations in the thigh is attended by more frequent minor and more severe reactions than when the upper arm is used.

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## SURVEY OF INFLUENZAL MENINGITIS OVER A TEN YEAR PERIOD (1931-1941)

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LOS ANGELES

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ALHAMBRA, CALIF  
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A survey of cases of influenzal meningitis seen and treated in the contagious disease department of the Los Angeles County Hospital over a ten year period (July 1, 1931 to July 1, 1941) reveals some interesting data.

The series of cases reported represents a total of 63 patients. Of these 47 were under 6 years of age and 16 were over 6. There were 36 males and 27 females. The gross mortality for the series was 84 per cent.

The patients have been divided into four groups: group 1, who received only symptomatic treatment; group 2, who were treated with serum; group 3, who were given sulfanilamide; and group 4, who received sulfapyridine. Each group will be considered separately.

### GROUP 1 PATIENTS TREATED SYMPTOMATICALLY

In group 1 there were 19 patients, of whom 15 were under the age of 6 years. The remaining 4 were adults (ages, 33 to 73). Eleven were males and 8 females. Five were in the hospital less than twenty-four hours, the longest hospital stay being six weeks and the shortest three hours. The average for the group was six and six-tenths days.

Symptomatic treatment consisted of parenteral administration of fluids, transfusions and use of sedatives and anupretics.

All the patients in this group died.

### GROUP 2 SERUM TREATED PATIENTS

There were 19 patients in this group also, of whom 12 were males and 7 females. There were 12 under 6 years of age and 7 adults (ages, 7 to 76). Five were in the hospital less than twenty-four hours, the shortest stay being two hours and the longest seventeen days. The average hospital stay was seven and four-tenths days.

Anti-influenzal serum<sup>1</sup> was administered to every patient in the group. It was given intramuscularly

intravenously and intraspinally. By the last mentioned route the average amount used varied from 15 to 25 cc given once or twice daily. Intravenously, 100 to 200 cc of serum in 200 to 300 cc of isotonic solution of sodium chloride was given every eight hours.

All the patients in this group, as in the previous one, died.

### GROUP 3 SULFANILAMIDE TREATED PATIENTS

In this group all 13 patients received sulfanilamide orally and subcutaneously, together with Fothergill's serum intravenously, intraspinally and intramuscularly.

Nine were less than 6 years of age, and 4 were over this age. There were 6 males and 7 females. The shortest hospital stay was two days and the longest sixty days, with an average of fifteen and one-half days.

Only one patient survived. The history of the patient who survived is reviewed.

H. R., a white girl aged 6 years, was admitted on Dec. 16, 1938 with a history of insomnia, restlessness, anorexia and fever for two days and stiff neck and convulsions for twenty-four hours.

Physical examination revealed that the child was poorly nourished and developed, delirious and acutely ill, with a temperature of 104 F, a pulse rate of 148 and a respiratory rate of 36. There was boardlike rigidity of the neck. Brudzinksi's and Kernig's signs were present and Babinski's bilaterally.

The initial and subsequent laboratory data are summarized in table 1.

Treatment consisted in the administration of massive doses of sulfanilamide and anti-influenzal serum. In a ten day period from December 16 to 27 the patient received a total of 9,350 cc of 1 per cent sulfanilamide solution or 1402½ grains. The concentrations in the blood ranged from 2 to 13 mg per hundred cubic centimeters and that in the spinal fluid from 7 to 15 mg. The drug was discontinued because of the appearance of jaundice and severe anemia. Anti-influenzal serum 100 cc was given intravenously on admission and then every eight hours until a total of 791 cc had been given. On December 20 intrathecal administration of the serum was started in doses of 15 cc with 5 cc of complement and it was carried out daily up to and including December 31. On December 23, seven days after admission, the spinal fluid culture was negative and it remained so.

The patient was discharged on Feb. 17, 1939 as cured and was seen in the outpatient department in January 1941. At this time there were no complaints. The child was attending school and was doing well.

### GROUP 4 SULFAPYRIDINE TREATED PATIENTS

There were 12 children in this group. Of this number 7 were boys and 5 girls. The oldest was 8 years and the youngest 3 months, and both of them survived. The patients who lived numbered 9. 5 were 2 years or less, 1 was 3 years, 2 were 4 years and 1 was 8 years old. There were 3 deaths; the patients were 20 months, 2 years and 3 years of age respectively. It becomes

<sup>1</sup> From the contagious disease unit of the Los Angeles County Hospital and the University of Southern California School of Medicine.  
<sup>2</sup> Obtained from the Laboratories of the Commonwealth of Massachusetts and commonly referred to as Fothergill's serum.

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obvious that the mortality for this group is astonishingly low

The shortest hospital stay was eight days and the longest eighty-one days, making an average of fifty-one days, or seven weeks, in round figures

All the patients in this group except 1 received serum in addition to sulfapyridine

The cases in this group are briefly summarized

CASE 1—L P, a white girl aged 18 months, entered the hospital on April 7, 1939 with a history of fever, vomiting and stiff neck for twenty-four hours. The examination revealed that the child was irritable and acutely ill, with a temperature of 103 F, a pulse rate of 110 and a respiratory rate of 28. The neck and the spine were rigid. Kernig's and Brudzinski's signs were elicited.

The blood count showed 68 per cent hemoglobin, 3,500,000 red cells and 15,000 white cells, with 68 per cent lymphocytes

Cultures of spinal fluid taken daily for fourteen days were all positive for *H influenzae*.

The patient was given 1 Gm of sulfapyridine every four hours orally until July 16, when 1275 Gm of the drug had been administered. The concentration in the blood varied between 5 and 13 mg per hundred cubic centimeters. The child was discharged on August 11 as well.

CASE 3—J S, a white girl aged 2½ years, entered the hospital on May 20, 1939 with a history of chills, fever, vomiting and stiff neck for three days. Examination revealed her to be acutely ill, with a temperature of 103.6 F, a pulse rate of 138 and respiratory rate of 26. There was marked rigidity of the neck and the back, and Kernig's and Brudzinski's signs could be elicited.

The blood count revealed 65 per cent hemoglobin, 3,900,000 red cells and 14,500 white cells, with 91 per cent polymorphonuclear leukocytes. Examination of the spinal fluid showed a pressure of 240 mm, with 1,180 polymorphonuclear cells

TABLE 1—Laboratory Data for H R

| Date     | Blood                 |                 |                   |   |              | Spinal Fluid  |           |                          |                |        |   |              | Concentration of Drug, Mg per 100 Cc |              |
|----------|-----------------------|-----------------|-------------------|---|--------------|---------------|-----------|--------------------------|----------------|--------|---|--------------|--------------------------------------|--------------|
|          | Hemo globin, per Cent | Red Blood Cells | White Blood Cells | Poly morpho nuclear Leuko cytes, per Cent | Culture      | Icteric Index | Pres sure | Chlorides, Mg per 100 Cc | Pandy Reaction | Cells  | Poly morpho nuclear Leuko cytes, per Cent | Culture      | Blood                                | Spinal Fluid |
|          |                       |                 |                   |   |              |               |           |                          |                |        |   |              |                                      |              |
| 12/16/38 |                       |                 |                   |   | H influenzae |               | 400       | 730                      | +++            | 8,500  | 95  | H influenzae |                                      |              |
| 12/17/38 | 75                    | 40              | 15,100            | 85  | H influenzae |               | 400       | 690                      | +++            | 4,800  | 97  | H influenzae |                                      |              |
| 12/18/38 |                       |                 |                   |   |              |               | 400       |                          | ++++           | 9,600  | 99  | Negative     |                                      |              |
| 12/19/38 |                       |                 |                   |   |              |               | 100       |                          | ++++           | 10,100 | 99  | Positive     | 8                                    | 8            |
| 12/20/38 |                       |                 |                   |   |              | 10 15         | 300       |                          | +++            | 3,800  | 99  | Positive     |                                      | 8            |
| 12/21/38 |                       | 2 63            | 17,150            | 88  |              |               | 200       |                          | +++            | 3,600  | 99  | Negative     | 13                                   | 11           |
| 12/22/38 |                       |                 |                   |   |              |               | 300       |                          | ++++           | 7,000  | 99  | Positive     |                                      | 90           |
| 12/24/38 |                       |                 |                   |   |              |               |           |                          | +++            | 2,820  | 99  | Negative     |                                      | 16           |
| 12/27/38 |                       | 12              | 26,800            | 62  |              | 20            |           |                          | +++            | 4,500  | 99  | Negative     |                                      | 11           |
| 12/28/38 |                       | 22              | 37,259            | 66  |              |               |           |                          | +++            | 1,250  | 99  | Negative     |                                      | 15           |
| 12/29/38 |                       | 23              |                   |   |              |               | 150       |                          | ++             | 200    | 99  | Negative     | 0                                    | 0            |
| 12/30/38 |                       | 16              | 7,800             | 78  |              |               |           |                          |                |        |   |              |                                      |              |
| 1/2/39   |                       |                 |                   |   |              |               | 200       |                          | ++             | 28     | Lympho cytes                              | Negative     |                                      |              |

TABLE 2—Summary of Data by Groups

| Group   | Symptoms      | Total Patients | Sex |   | Age          |                  |                 | Hospital Stay   |                        |                       |                       | Complications |             |            |                  |           | Serum | Mortality per Cent |
|---------|---------------|----------------|-----|---|--------------|------------------|-----------------|-----------------|------------------------|-----------------------|-----------------------|---------------|-------------|------------|------------------|-----------|-------|--------------------|
|         |               |                |     |   | 2 Yr or Less | Total Under 6 Yr | Total Over 6 Yr | Less Than 24 Hr | Shortest Hospital Stay | Longest Hospital Stay | Average Hospital Stay | Otitis Media  | Mastoiditis | Septicemia | Bronchopneumonia | Sinusitis |       |                    |
|         |               |                | ♂   | ♀ |              |                  |                 |                 |                        |                       |                       |               |             |            |                  |           |       |                    |
| Group 1 | symptomatic   | 19             | 11  | 8 | 9            | 15               | 4               | 5               | 3 hr                   | 6 wk                  | 66 days               | 5             | 3           | 2          | 5                |           | 100   |                    |
| Group 2 | serum         | 19             | 12  | 7 | 8            | 12               | 7               | 5               | 2 hr                   | 17 days               | 74 days               | 2             |             | 1          | 4                | 1         | 100   |                    |
| Group 3 | sulfanilamide | 13             | 6   | 7 | 8            | 9                | 4               | 0               | 2 days                 | 60 days               | 155 days              | 4             | 2           |            | 2                |           | 9.3   |                    |
| Group 4 | sulfapyridine | 12             | 7   | 5 | 7            | 11               | 1               | 0               | 8 days                 | 81 days               | 51 days               | 2             |             | 0          |                  |           | 0     |                    |

Spinal puncture revealed a pressure of 400 mm, a reaction for globulin of 2+ and 810 polymorphonuclear cells. Both spinal fluid and blood cultures were positive for *Hemophilus influenzae*.

The patient was given sulfapyridine orally, 1 Gm every four hours, and the drug was discontinued on the fourteenth day. A total of 84 Gm had been administered. In addition, 40 cc of anti-influenzal serum was given intravenously every twelve hours. However, this treatment was discontinued on the fourth day because of a severe serum reaction. Blood and spinal fluid cultures were negative on the third day after admission, and the child steadily improved. She was discharged on the thirty-eighth day (May 5) with no residual complaints, and recent follow-up has revealed her to be in perfect health.

CASE 2—C H, A white girl aged 2 years, was admitted on June 19, 1939 with a history of anorexia, vomiting, a temperature of 103 F and a stiff neck for two days. On entry the temperature was 102.6 F, the pulse rate 126 and the respiratory rate 36. The child was semicomatose. There was boardlike rigidity of the neck and the spine. Kernig's sign was elicited.

Examination of the spinal fluid showed a pressure of 300 mm and cells numbering 76,000, all of which were polymorphonuclear. A blood count revealed 74 per cent hemoglobin and 14,550 white cells, with 86 per cent polymorphonuclear leuko-

cytes. *H influenzae* was found on culture of the initial spinal fluid taken. The cultures remained positive until death.

The patient received both sulfanilamide (10 grains [0.6 Gm] every four hours) and sulfapyridine. By the time she died she had received 50 Gm of sulfanilamide and 587 Gm of sulfapyridine in addition to 190 cc of anti-influenzal serum. The concentration in the blood varied from 4.5 to 16 mg per hundred cubic centimeters. At times the patient seemed to improve. The temperature ranged from 98.6 to 104 F and the spinal fluid cell count from 1,180 to 40. Several transfusions were performed. In spite of heroic treatment, the patient died on August 3. Autopsy revealed thick, purulent material at the base of the brain, considerable softening of the brain tissue and definite enlargement of the ventricles.

CASE 4—R J, a Negro boy aged 3 years, entered the hospital on July 6, 1939 with a history of vomiting, fever and stiff neck for four days. He was extremely restless, irritable and had a temperature of 99.4 F, a pulse rate of 110 and a respiratory rate of 24. The throat was inflamed. After being injected, the neck and spine were stiff and Kernig's and Brudzinski's signs could be elicited.

A blood count revealed 60 per cent hemoglobin, 3,600,000 red cells and 16,000 white cells, with 88 per cent polymorphonuclear leukocytes. Examination of spinal fluid showed a pressure of 240 mm, with 1,180 polymorphonuclear cells.

pressure of 250, with 2,200 polymorphonuclear cells. Both spinal fluid cultures and blood cultures were positive for *H. influenzae*.

The administration of sulfapyridine was started with 2 Gm, and then 1 Gm was given every four hours, with a total dose of 40 Gm in an eight day period. The spinal fluid culture became negative on July 12, and improvement was steady. The patient was discharged on August 11.

CASE 5—J. McG., a white boy aged 4 years entered the hospital on Feb 25, 1940 with a history of fever, vomiting and stiff neck for one day. Examination revealed that he was acutely ill and prostrated by continuous vomiting. The temperature was 103.2 F, the pulse rate 132 and the respiratory rate 36. The neck was stiff and Brudzinski's and Kernig's signs were elicited.

The blood count revealed 80 per cent hemoglobin, 5,190,000 red cells and 34,800 white cells with 86 per cent polymorphonuclear leukocytes. Examination of the spinal fluid showed a pressure of 135 mm, a reaction for globulin of 4 plus and 2,000 polymorphonuclear cells. *H. influenzae* was found on smear and on culture of the spinal fluid as well as of the blood.

The patient was given 1 Gm of sulfapyridine every four hours and 20 cc of 5 per cent sodium sulfapyridine solution intravenously on two occasions eight hours apart. He showed much improvement in three days and on March 2 was afebrile. Administration of the drug was continued until March 10 or for ten days after the spinal fluid cultures became negative. The total amount given was 113.5 Gm. In addition the patient received 210 cc of anti-influenzal serum intravenously. He was discharged on March 25.

CASE 6—R. B., a white boy aged 20 months was admitted on Nov 1, 1939 with a history of fever, lethargy for twelve days and coma for twenty-four hours. He was extremely toxic and comatose, rousing only to painful stimuli. The throat was severely injected and the left tympanic membrane red and bulging. The neck was rigid. There was paralysis of the right arm and leg.

A blood count revealed 88 per cent hemoglobin, 4,300,000 red cells and 16,000 white cells, with 61 per cent polymorphonuclear leukocytes. Examination of the spinal fluid showed a pressure of 350 mm, 74 cells (all lymphocytes) and a 3+ reaction for globulin. Spinal fluid cultures were positive for *H. influenzae* and continued so until death.

Sulfapyridine was given orally, the total dose being 25 Gm, 60 cc. of anti-influenzal serum was given intravenously. The patient showed no improvement. The spinal fluid cell count varied between 64 and 240 the presence of lymphocytes pointing to chronic meningitis. There was also evidence of hydrocephalus. The patient died on November 4.

CASE 7—E. M., a Mexican boy aged 3 years, entered the hospital on March 14, 1941 with a history of cough, fever, lethargy and vomiting for eight weeks and headache for two weeks. Examination revealed that he was well nourished and well developed, acutely ill and extremely irritable, with a temperature of 103.6 F, a pulse rate of 124 and a respiratory rate of 38. There was moderate rigidity of the neck, and Kernig's and Brudzinski's signs could be elicited.

A blood count revealed 68 per cent hemoglobin, 3,700,000 red cells and 13,050 white cells, with 76 per cent polymorphonuclear leukocytes. Examination of the spinal fluid showed a pressure of 130 mm and 1,782 cells, with 68 per cent polymorphonuclear leukocytes. The spinal fluid was positive for *H. influenzae* on smear and culture. A blood culture was negative.

The patient was treated intensively, first with sulfanilamide (the total received in twelve hours was 45 grains [3 Gm]) and then with sulfapyridine (268 Gm in a thirty-eight day period). The concentration in the blood varied from 8 to 144 mg per hundred cubic centimeters. In addition, 200 cc of anti-influenzal serum was given intravenously. Death occurred on April 4.

CASE 8—C. W., a white girl aged 8 years, entered the hospital on Aug 31, 1940 with a history of vomiting and headache for one day and coma for eight hours. Examination revealed that she was comatose and acutely ill with a tem-

perature of 104 F, a pulse rate of 144 and a respiratory rate of 36. There was boardlike rigidity of the neck, and Kernig's and Brudzinski's signs were elicited.

A blood count revealed 90 per cent hemoglobin, 4,550,000 red cells and 13,750 white cells, with 66 per cent polymorphonuclear leukocytes. The spinal fluid pressure was 350 mm, the reaction for globulin was 3+ and there were 9,856 cells, with 96 per cent polymorphonuclear leukocytes. Blood and spinal fluid cultures were positive for *H. influenzae*.

The patient was given a 1 per cent solution of sulfanilamide, 200 cc subcutaneously every eight hours, after a report on the culture was received and 800 cc had been given, the treatment was changed to continuous drip administration of 0.5 per cent sodium sulfapyridine solution, a total of 3,500 cc, or 35 Gm, being given. The drug was then given orally, 1 Gm every four hours, until a total of 163 Gm had been administered. In addition, 180 cc of anti-influenzal serum was given intravenously. The patient had a relapse during therapy, and so on October 21 administration of sulfathiazole, 1 Gm every four hours, was begun. This treatment was continued until October 18 when a total of 91 Gm had been given. The last spinal fluid culture, material for which was obtained on September 29, was negative. The patient was discharged on October 23.

CASE 9—G. S., a Mexican boy aged 1½ years, entered the hospital on Sept 9, 1940 with a history of cough and vomiting for one week and fever and stiff neck for three days. Examination revealed that he was acutely ill, restless and irritable, with a temperature of 102.6 F, a pulse rate of 144 and a respiratory rate of 44. There was evidence of pneumonitis of the lower lobe of the left lung the neck was rigid and Brudzinski's and Kernig's signs could be elicited.

A blood count revealed 92 per cent hemoglobin, 5,300,000 red cells and 39,600 white cells, with 67 per cent polymorphonuclear leukocytes. Examination of the spinal fluid showed a pressure of 240 mm, with 208 lymphocytes. Blood and spinal fluid cultures were positive for *H. influenzae*.

The child was treated with emulsion of sulfapyridine, 5 grains (0.3 Gm) every four hours given orally and a 0.5 per cent solution given intravenously. A total of 40 Gm was given over a ten day period. Also 125 cc of anti-influenzal serum was given intravenously. The concentration in the blood varied between 6 and 175 mg per hundred cubic centimeters. The cultures remained positive until October 20, medication was continued for five days afterward. The patient was discharged on November 27.

CASE 10—R. M., a Mexican boy aged 3 months, entered the hospital on Oct 21, 1940 with a history of irritability and fever for one week. Examination revealed that he was acutely ill, holding his head in the opisthotonic position. The fontanel was bulging, the neck and the spine were stiff and Kernig's and Brudzinski's signs could be elicited.

A blood count revealed 55 per cent hemoglobin, 3,420,000 red cells and 16,150 white cells, with 74 per cent polymorphonuclear leukocytes. On examination of the spinal fluid it showed a pressure of 225 mm with 2,160 polymorphonuclear leukocytes. A smear and a culture of the spinal fluid were positive for *H. influenzae*, as was a culture of the blood.

Intravenous administration of 1 per cent sulfapyridine solution was started immediately, 25 cc being given every four hours day and night for three days, and then emulsion of sulfapyridine was given. Administration of the drug was continued until November 11 when a total of 56 Gm had been given. In addition, 150 cc of anti-influenzal serum was given intravenously. The concentration in the blood varied from 2 to 85 mg per hundred cubic centimeters. The patient was discharged on November 29.

CASE 11—R. U., a Mexican girl aged 2 years, entered the hospital on Feb 1, 1941 with a history of chills, fever and vomiting for five days. Examination revealed her to be extremely irritable and acutely ill, with a temperature of 103 F, a pulse rate of 116 and a respiratory rate of 24. Both tympanic membranes were bulging and there were pneumonitis of the left lung and boardlike rigidity of the neck and back.

A blood count revealed 90 per cent hemoglobin, 4,950,000 red cells and 18,800 white cells. The spinal fluid pressure was 400 mm, and there were 1,400 cells, of which 80 per cent were

polymorphonuclear leukocytes. A spinal fluid culture was positive for *H. influenzae*.

Intravenous drip administration of 0.5 per cent sodium sulfapyridine solution was started, and in three days the patient had received 5,000 cc, or 50 Gm, of the solution. She was then given sulfapyridine orally until she had received 151.5 Gm more. The concentration in the spinal fluid varied from 8.5 to 50 mg per hundred cubic centimeters. Spinal fluid cultures remained positive until March 10, after which use of the drug was continued for five days. The patient was discharged as well on April 22.

CASE 12—M. G., a white boy aged 4 years, was admitted to the hospital on April 21, 1941 with a history of fever, vomiting and stupor for three days. Examination revealed him to be comatose, acutely ill and moderately dehydrated, with a temperature of 104 F, a pulse rate of 150 and a respiratory rate of 44. There was pneumonitis of the base of the right lung, the neck was rigid and Kernig's sign was present and Brudzinski's absent. Examination of the spinal fluid showed a pressure of 400 mm and the presence of polymorphonuclear leukocytes. A spinal fluid culture was positive for *H. influenzae*.

The patient was given sodium sulfapyridine intravenously, 50 cc of 5 per cent solution, followed by continuous drip administration of a 0.5 per cent solution. This was continued for four days. The drug was then given by mouth until May 7, 1941. The concentration in the blood varied from 2 to 6 mg per hundred cubic centimeters. The spinal fluid culture became negative on April 27 and remained so thereafter. The patient was discharged on May 19.

#### COMMENT

A 100 per cent mortality for any disease is always most discouraging. However, with the dawn of the era of chemotherapy a ray of hope shines forth on the gloomy therapeutic horizon. With the advent of sulfanilamide the results obtained with influenzal meningitis were nothing to comment about. With the introduction of sulfapyridine, and with a certain amount of knowledge gained in the field of chemotherapy through experience with sulfanilamide, good results were obtained. When it is noted that the oldest patient in the last group of 12 was 8 years of age, or that 7 of the 12 patients in this group and 5 of the 9 survivors were 2 years or less, the contribution becomes much more significant. Thus, the fourth group rightfully commands interest and attention.

We have now more or less established a routine in the Los Angeles County Hospital with regard to treatment of influenzal meningitis. Immediately after diagnosis (this is usually a matter of a few hours only), continuous drip administration of sodium sulfapyridine (0.5 or 1 per cent solution in isotonic solution of sodium chloride) is begun, regardless of whether the patient is willing or able to take the drug orally. The purpose is to obtain as high a concentration as possible in the blood and the spinal fluid within twenty-four to forty-eight hours. We feel that the time element is important. We strive for a concentration of at least 10 to 12 mg per hundred cubic centimeters and do not complain if it reaches the high level of 20, 30 or 40 mg. It may be seen that in 1 instance the concentration in the blood and in the spinal fluid reached 50 mg with no ill effects. It is usually not necessary to maintain the drip of sulfapyridine for longer than seventy-two hours. The dose of the drug is calculated in the early stages on the basis of 2 to 3 grains (0.13 to 0.2 Gm) per pound (450 Gm) of body weight in twenty-four hours, with from one half to two thirds of the first twenty-four hour dose being given in the short space of three to four hours. The concentration in the blood and in the spinal fluid are determined

daily. The dose is regulated accordingly. Administration of the drug is continued for two weeks after the spinal fluid becomes sterile and the temperature drops to normal, because of the tendency to relapse. Toward the end of this period the dose is gradually tapered off. During the period of therapy special attention is paid to the maintenance of good general nutrition. Dextrose intravenously, blood by transfusion and vitamins are given as needed. A blood count and a urinalysis are performed at least every two days and oftener if indicated. We endeavor to maintain an alkaline  $p_H$  of the urine. Occasionally use of the drug must be discontinued because of some unfavorable reaction. It is interesting to note that in group 4 (12 patients) it did not become necessary to do this in spite of the heroic measures taken. Because our experience has given us a thoroughly wholesome respect for the sulfonamide drugs, we are ever on the alert for any untoward reaction.

It should be mentioned again that 11 of the 12 patients in group 4 received Fothergill's anti-influenzal serum, however, in view of the fact that 32 patients previously had received the serum, with a mortality of 100 per cent, we feel no credit is due it with regard to the 25 per cent mortality in group 4. We should mention too that none of the patients of group 4 received any therapy intraspinally.

It is of interest that the average hospital stay per patient for groups 1 and 2 was six and six-tenths and seven and four-tenths days, respectively. However, with the advent of chemotherapy and the use of sulfanilamide, in spite of the high mortality the life of the patients had been prolonged by at least a week, the average being fifteen and one-half days. With the use of sulfapyridine the average hospital stay per patient increased to fifty-one days. It is our experience that a patient who survives remains in the hospital at least thirty days and usually two to three months.

With regard to spinal punctures, we do not hesitate in the least to do them daily. As a rule a patient with meningitis has a spinal puncture every one to two days until the temperature drops to normal and the spinal fluid shows signs of clearing. During the two week period when the patient is afebrile and is still receiving the drug a puncture is done every three or four days. The procedure during this period, we feel, is invaluable, as it is not always possible to evaluate the patient's progress accurately by the clinical appearance alone. On many occasions we have done a spinal puncture on a patient who was afebrile and uncomplicating and had no meningeal signs only to find a change in the fluid. Thus we were able to predict a relapse and start treatment again as much as three to four days before the patient became febrile or showed any clinical manifestations of such an occurrence. The spinal fluid in such a case will show a growth on culture, an increase in globulin and an increase in the number of cells or a change in the type of cells from lymphocytes to polymorphonuclear leukocytes. Our patients remain in the hospital fourteen days after chemotherapy has been discontinued. Three or four spinal punctures are done during this period. Hence, every patient who survives will have had a minimum of ten and an average of fifteen to twenty. The record for number held by a 2 year old girl who was in the hospital seventy-five days and had sixty-nine taps. From our experience with all types of meningitis through 17 years, we are certain that we have never done a spinal puncture on any patient any harm by a carefully performed spinal



What the future holds for influenzal meningitis with new sulfonamide drugs coming to the fore no one can predict. We can only hope that a future follow-up study will present results as gratifying as those reported here.

## SUMMARY

Sixty-three patients with influenzal meningitis were seen and treated over a ten year period (July 1, 1931 to July 1, 1941) in the contagious disease department of the Los Angeles County Hospital.

The gross mortality for the entire series was 84 per cent. However, when the series is broken down into groups one is better able to evaluate the true state of affairs. Group 1 consisted of 19 patients treated only symptomatically. In this group all patients died. Group 2 also had 19 patients. These were treated with serum alone. All received anti-influenzal serum. All died in this group too. Group 3 the sulfanilamide treated patients numbered 13 there was 1 survivor. In the last, or fourth group, there were 12 patients, with 9 survivors or a mortality of about one fourth. The patients in this group were treated with sulfapyridine.

## TREATMENT OF MENINGOCOCCIC MENINGITIS WITH SULFONAMIDES

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Early in 1937 Schwentker, Gelman and Long<sup>1</sup> described the use of sulfanilamide in the treatment of 10 patients with meningococcic meningitis at Sydenham Hospital. Nine of the 10 patients treated recovered. Many other reports confirming the value of this drug in meningococcic meningitis have appeared.<sup>2</sup> It soon became apparent that sulfanilamide was at least as effective in meningitis as antimeningococcus serum. In fact, all the evidence points to the conclusion that the drug is more reliable than serum. For example, in Waghelestein's<sup>3</sup> series reported from Sydenham Hospital in 1938 the mortality rate in a series of 368 serum treated patients was 27 per cent, while among 72 patients receiving sulfanilamide the fatality rate was 15 per cent. As each new sulfonamide drug became available it was employed in meningococcic infections. During the past two years it has become evident that sulfapyridine,<sup>4</sup> sulfathiazole<sup>5</sup> and sulfadiazine<sup>6</sup> are all effective in

meningococcic meningitis. In fact it appears probable that they may be more effective than sulfanilamide, and one or other of them may replace it in the treatment of meningitis.

The present paper deals with 110 patients with meningococcic meningitis who were admitted to Sydenham Hospital between Jan. 1, 1938 and Jan. 31, 1942. During this four year period Baltimore and the vicinity did not experience a large outbreak of meningococcic meningitis, so that it must be considered that these were endemic cases. However, it should be noted that, as judged by the number of patients admitted to the hospital, there was between February 1941 and January 1942 an incidence of the disease which is distinctly greater than usual for Baltimore (chart 1).

## DIAGNOSIS

Nearly all the cases included in this paper presented obvious clinical symptoms of meningitis on admission. Fever, petechial rash, headache, stiffness of the neck, bulging fontanel, delirium and extreme irritability were the most frequent symptoms. Lumbar puncture in all 110 cases revealed turbid cerebrospinal fluid. The diagnosis of meningococcic meningitis was confirmed by smear and culture in all but 5 cases. Four of the 5 patients had received sulfonamide drugs before admission to the hospital.

An attempt was made to type the meningococci isolated from 20 of the patients in the series. Three of these cultures could not be typed, 4 were of group II while the remaining 13 were of group I. This finding may be of some significance, since the organisms of group I are more likely to cause epidemics. They are generally said to be more virulent than those of group II, although group II organisms were isolated from 2 of our patients who were extremely ill.

## TREATMENT

During 1938 and 1939 all the patients in the series were treated with sulfanilamide. During 1940 sulfapyridine was used in a few cases and in 1941 sulfathiazole and sulfadiazine were used with increasing frequency. In fact, all of the last 46 patients were treated with sulfathiazole or sulfadiazine. In all 57 of the 110 patients were treated with sulfanilamide, 36 with sulfathiazole, 10 with sulfadiazine and 7 with sulfapyridine. None of the 110 patients received antimeningococcus serum.

In the treatment of so dangerous an infection as meningococcic meningitis it is essential to administer as quickly as possible an amount of the sulfonamide which will provide the blood and body fluids with a concentration of drug sufficient to halt the spread of infection. At the same time overdosage must be avoided, since extremely high concentrations of the sulfonamides may be attended by toxic effects which may be disastrous in patients who are suffering from severe meningococcic toxemia. The dosage of the sulfonamide derivative must be varied with age and weight and with the severity of the infection, so that each patient must be considered as an individual problem. Nevertheless, we shall describe the plan to which, in a general way, our course of treatment now conforms.

Adults who are only mildly or moderately ill are usually given an admission dose of 4 to 6 Gm. of the

From Sydenham Hospital, Baltimore City Health Department.  
1 Schwentker, F. F., Gelman, Sidney, and Long, P. H. Treatment of Meningococcic Meningitis with Sulfanilamide. *J. A. M. A.* 108: 1407 (April 24) 1937.

2 Carey, B. W., Jr. The Use of Para-Aminobenzenesulfonamide and Its Derivatives in the Treatment of Infections Due to  $\beta$ -Streptococcus Hemolyticus, the Meningococcus and the Gonococcus. Report of Thirty-Eight Cases. *J. Pediatr.* 11: 202 (Aug.) 1937. McIntosh, Rustin, Wilcox, D. A. and Wright, F. H. Results of Sulfanilamide Treatment at Babies Hospital, New York City. Survey of Fifty-Eight Cases Observed Prior to June 10, 1937. *ibid.* 11: 167 (Aug.) 1937. Willien, L. F. Sulfanilamide Therapy in Meningococcic Meningitis. *J. A. M. A.* 110: 630 (Feb. 26) 1938.

3 Waghelestein, J. M. Sulfanilamide in Treatment of One Hundred and Six Patients with Meningococcic Infections. *J. A. M. A.* 111: 2172 (Dec. 10) 1938.

4 Somers, R. B. U. M. & B. 693 in Cerebrospinal Fever. A Review of One Hundred and Forty-Three Cases Treated Under Field Conditions. *Lancet* 1: 921 (April 22) 1939.

5 Bank, H. S. Sulfathiazole in Cerebrospinal Fever. *Lancet* 1: 104 (Jan. 25) 1941.

6 Dingle, J. H., Thomas, Lewis, and Morton, A. R. Treatment of Meningococcic Meningitis and Meningococcemia with Sulfadiazine. *J. A. M. A.* 116: 2666 (June 14) 1941.

7 Branham, S. E. The Meningococcus (*Neisseria Intracellularis*). *Bact. Rev.* 4: 59 (June) 1940.

sulfonamide by mouth, while infants and children in this category receive an initial oral dose of 0.1 Gm per kilogram of body weight. One sixth to one fourth of the admission dose is then administered every four hours. If no untoward symptoms appear, this regimen is continued for ten days. Half of this dose is given for the next two days and on the thirteenth day after beginning of treatment the drug is discontinued.

Patients who appear critically ill, as evidenced by high fever, delirium, prostration or stupor, are given an initial oral dose of the sulfonamide derivative which is 30 per cent more than that employed in the cases of mild involvement, and the running dose of drug is correspondingly higher. If the patient is unconscious or delirious, the sulfonamide is given by stomach tube, and this method of administration is continued until it becomes certain that he is able to swallow. In addition to the oral dose of the sulfonamide, severely ill patients are usually given the drug parenterally. Sodium sulfapyridine, sodium sulfadiazine and sodium sulfathiazole are administered intravenously in 5 per cent solution in distilled water or isotonic solution of sodium chloride. The initial dose of these sodium salts is 0.03 Gm per kilogram of body weight, and this amount may be repeated every six, eight or twelve hours as necessary. Sulfanilamide may be given subcutaneously in 0.8 per cent solution in isotonic solution of sodium chloride in doses of 0.05 Gm per kilogram.

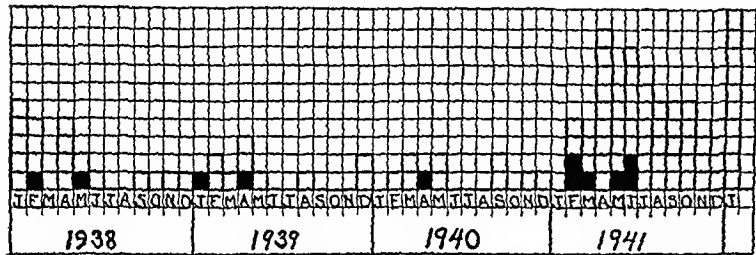


Chart 1—Cases of meningococcic meningitis admitted to Sydenham Hospital between 1938 and 1942. Each column represents one month. Each black square indicates a fatal case, each white one a case in which the patient survived.

The concentration of free sulfonamide derivatives in the blood and spinal fluid varied considerably from patient to patient despite efforts to standardize the dosage employed. In general the concentrations were higher among the more severely ill patients who were given larger quantities of the sulfonamide derivative. All but 6 of the 75 patients tested had an average blood concentration of free sulfonamide derivatives above 5 mg per hundred cubic centimeters, while 36 averaged between 5 and 10 mg, 30 between 10 and 15 mg, and 3 were over 15 mg per hundred cubic centimeters. On the whole, the concentration was lower with sulfathiazole than it was when the other drugs were employed.

The concentration of free sulfanilamide, sulfapyridine and sulfadiazine in the spinal fluid was usually between two thirds and four fifths of that in the blood. With sulfathiazole the ratio of free drug in the spinal fluid to that in the blood was definitely lower. Blood and spinal fluid of 10 patients were examined simultaneously for sulfathiazole content (procaine hydrochloride was not used in doing the lumbar punctures). In each instance a measurable amount of the drug was found in the spinal fluid. The concentration in the spinal fluid ranged from one-fourth to a little more than half that found in the blood. An analysis of our data indicates that a blood concentration of free sulfanilamide between 10 and 15 mg per hundred cubic centimeters is sufficient, while

with sulfadiazine 8 to 12 mg per hundred cubic centimeters has always proved effective. When sulfathiazole is employed even lower concentrations of the drug appeared to be effective, and a blood level of 6 to 10 mg per hundred cubic centimeters of this drug is apparently sufficient. Obviously, more severely ill patients

TABLE 1—Age Distribution and Mortality Rate Among One Hundred and Ten Meningococcus Meningitis Patients Treated with Sulfonamides

| Age                  | Cases | Died | Mortality, per Cent |
|----------------------|-------|------|---------------------|
| Under 1 year         | 10    | 1    | 10.0                |
| 1 to 5 years         | 24    | 1    | 4.2                 |
| 6 to 10 years        | 16    | 0    | 0.0                 |
| 11 to 15 years       | 9     | 0    | 0.0                 |
| Total under 15 years | 59    | 2    | 3.4                 |
| Total over 15 years  | 51    | 10   | 19.6                |
| Total all cases      | 110   | 12   | 10.9                |

require more of the sulfonamide derivative than do those who are only moderately ill, and it is impossible to set arbitrary limits for the blood concentrations required. The amount of drug administered must be adjusted to the needs of each patient and the dose varied in accordance with the clinical course of the disease. Nevertheless it should be recalled that overdosage with the sulfonamides may cause symptoms which may lead to the erroneous conclusion that the meningococcic infection is not being controlled. The finding of a blood concentration much higher than those described should bring this possibility to mind.

In every case great attention is paid to general supportive measures. Everything possible is done to make the patient comfortable and to avoid such complications as bed sores, stomatitis and infection of herpetic lesions. With the exception of morphine and its derivatives, sedatives are used freely. Paraldehyde administered intravenously, intramuscularly or by rectum has proved to be the most generally useful drug for the control of the great restlessness, delirium and excruciating headache which make the nursing of patients with severe meningitis so difficult. Fluids are given freely by mouth as well as by venoclysis and hypodermoclysis. Constipation and inability to swallow combine with high

TABLE 2—Effectiveness of Various Sulfonamides

| Drug Employed | Cases | Deaths | Case Fatality Rate, per Cent |
|---------------|-------|--------|------------------------------|
| Sulfanilamide | 57    | 10     | 17.5                         |
| Sulfapyridine | 7     | 0      | 0.0                          |
| Sulfathiazole | 36    | 2      | 5.6                          |
| Sulfadiazine  | 10    | 0      | 0.0                          |
| Total         | 110   | 12     | 10.9                         |

fever to cause severe dehydration and acidosis in many meningitis patients. This is especially true in the case of infants and children, and it is essential to restore the fluid and alkali balance as soon as possible. This is done by the administration of 5 per cent dextrose and saline solution and, when necessary, sixth-molar sodium lactate solution. In older patients it is not uncommon to encounter greatly diminished kidney function, and a large fluid intake is required for this reason also. We do not believe that the fluid intake should be curtailed

in order to obtain a high concentration of the sulfonamide derivative in the blood and cerebrospinal fluid. Enough fluid should be given to maintain normal hydration, acid base equilibrium and kidney function. The patient should also receive whatever dose of the sulfonamide is necessary to insure an adequate concentration of the drug. Occasionally blood transfusion is indicated and appears to be of great value. This is especially true in small infants whose hemoglobin often drops rapidly at the onset of severe meningococcic infection.

We believe that frequent lumbar punctures should be avoided and forced spinal drainage is never employed. As a general rule, specimens of spinal fluid are obtained only on admission and on the twelfth hospital day. Occasionally an additional lumbar puncture is done to reduce dangerously increased intracranial pressure or to determine progress in a doubtful case. Sometimes additional samples of spinal fluid are taken in order to compare the concentration of the sulfonamide in the cerebrospinal fluid with that in the blood.

As long as a sulfonamide derivative is being administered, hemoglobin estimations and white blood cell counts are done every other day and the urine is examined frequently in order to detect any toxic action of the drug as soon as possible. Minor symptoms due to these drugs are of rather frequent occurrence. Vertigo, anorexia and general malaise are especially common with sulfanilamide and sulfapyridine. These symptoms often cause patients considerable discomfort, but they usually need not be regarded as sufficient reason for discontinuing treatment. On the other hand, the occurrence of drug fever or rash, severe leukopenia, rapidly developing hemolytic anemia and gross hematuria should be considered as indications for immediate withdrawal of the drug or, if further treatment is necessary, for changing from one sulfonamide derivative to another. Among our patients the commonest of these more dangerous symptoms was drug fever, which usually began toward the end of the first week of treatment but which, on occasion, was noted as early as forty-eight hours after the beginning of sulfonamide therapy. In our experience it was most common with sulfanilamide and sulfathiazole and sometimes confused the clinical picture considerably. Sulfonamide fever was always suspected when, after two or three days of improvement, the patient became subjectively worse and the temperature rose. Examination of the spinal fluid was of great assistance at this point. If it was found that the cell count had greatly decreased and that the spinal fluid sugar had increased, it was considered safe to withdraw the drug. When an increase in the spinal fluid sugar was noted under these circumstances, cultures of the spinal fluid almost always proved to be negative.

Drug rashes of various types were noted. They were most common in cases in which sulfanilamide or sulfathiazole was given. Four of the 36 patients receiving sulfathiazole developed scleritis and typical erythema nodosum which promptly disappeared when the drug was discontinued. Transient neutropenia with a total white blood cell count below 2,500 was noted twice with sulfathiazole and once among the 7 patients treated with sulfapyridine. Gross hematuria lasting two days was encountered once among the 36 patients treated with sulfathiazole and twice among 10 treated with sulfadiazine, but all 3 of these patients recovered without any evidence of permanent impairment of kidney function.

Acute hemolytic anemia was noted in 3 patients treated with sulfanilamide. One of these patients died as a result of very rapidly developing anemia which began on the second day of treatment. Aside from this, drug complications were not encountered which did not promptly disappear when the sulfonamide derivative was discontinued. The more serious ill effects of the drug did not usually make their appearance before the end of the first week of treatment. By this time it was usually obvious that the patient was well on the road to recovery. Withdrawal of the drug at this point was never followed by a relapse or by a recurrence of the infection.

#### RESULTS

Twelve of the 110 patients (11 per cent) in the series died. One of these deaths was due to acute hemolytic anemia apparently caused by sulfanilamide. One patient died six hours and 1 twelve hours after admis-

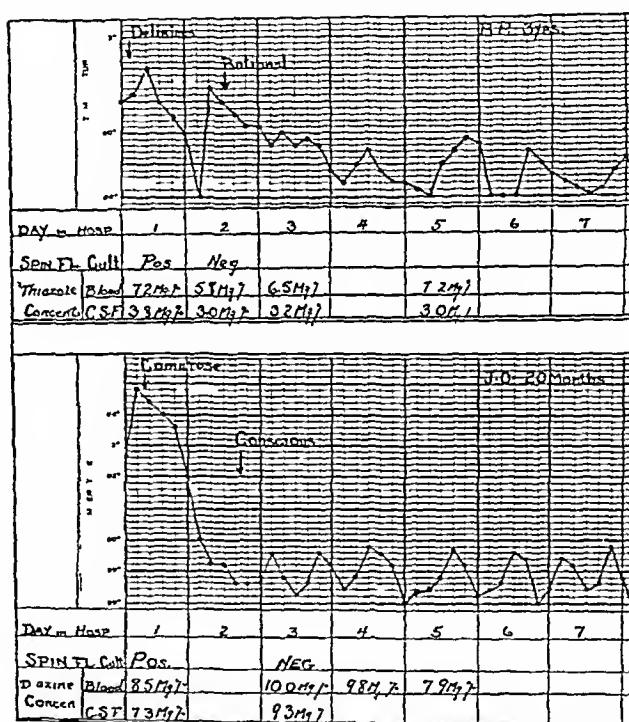


Chart 2—Upper curve represents clinical course of patient treated with sulfathiazole. A child aged 3 years was extremely ill on admission; there was rapid improvement and recovery. Lower curve shows prompt recovery of an extremely ill infant aged 20 months treated with sulfadiazine.

sion to the hospital. One man aged 65 who had had precordial pain and dyspnea for a number of years apparently died of coronary disease during convalescence from meningitis. In 4 of the fatal cases there was a history of chronic alcoholism, and 1 of the patients of this group had apparently been on a drinking bout for many days before he contracted meningitis. Our experience with other alcoholic patients with meningococcic meningitis indicates that such patients on the whole do not respond as readily to treatment as do non-alcoholic patients. Whether this is due directly to the effect of alcohol or to the fact that these patients are usually in poor general health and inadequately fed is not clear. It appears to be a fact, however, that the chronic alcoholic addict with meningococcic infection is in greater than average danger of succumbing.

As can be seen from table 1 only 2 children of the 59 under 15 years of age died. One of these deaths

occurred among the 10 infants in the series who were under 1 year of age. This baby entered the hospital, after eight days of the disease, with well developed symptoms of subarachnoid block. A mortality rate of two deaths among 59 patients in the group under 15 years of age is exceedingly low and is especially interesting in connection with the fact that there were ten deaths among 51 adults. The groups of cases in question are too small, however, to warrant the conclusion that sulfonamide therapy is more effective among children than adults. In fact, statistical analysis reveals the fact that the observed difference in mortality rates may be fortuitous. This seems especially likely when one considers that the death rate among the adults, as we have shown, may have been affected by such factors as alcoholism which would not influence the outcome among children. It is nevertheless true that our results with sulfonamide therapy among children have been at least as good as among adults. This is in contrast with our experience with antimeningococcus serum. With this form of treatment, employed in Sydenham Hospital before 1937, the results among children were much less satisfactory than they were in the treatment of adults.

It is apparent that the total of twelve deaths among the 110 patients treated is quite low. Since none of the patients received specific serum, the results obtained clearly indicate the effectiveness of sulfonamide therapy. However, as we have already pointed out, the patients were not treated during an epidemic period, and it is reasonable to assume that the mortality rate during an epidemic would be appreciably higher. Furthermore, we are unable to offer an opinion regarding the advisability of using specific serum in addition to sulfonamide therapy. It is possible that such a combination would have reduced our mortality rate. We have the feeling, however, that if serum is to be employed it should not be administered intrathecally but only intravenously. In our opinion the ill effects of the intraspinal administration of serum would outweigh the advantages it would add to sulfonamide treatment.

Although we have stated that the patients described in the present communication were not treated during an epidemic, it should not be assumed that they were all only mildly ill. On the contrary, many of those who recovered appeared to be critically ill on admission, and a number of them seemed to be moribund. In fact, 58 of the patients were prostrated, comatose, delirious or completely disoriented on entry to the hospital. One of the striking effects of sulfonamide therapy was the rapidity with which these ominous symptoms disappeared. Many patients whose symptoms began suddenly and who apparently were the victims of a fulminating infection improved rapidly after the institution of sulfonamide therapy. Usually improvement was noted within twenty-four or thirty-six hours and nearly always it was apparent after seventy-two hours that the patient would recover.

It is difficult to compare one sulfonamide with another as regards its effectiveness in meningitis. The severity of the disease varies so greatly from patient to patient and from time to time in a community that only the study of a large series of patients treated with each drug during an epidemic can yield conclusive results. Obviously, the patients described in the present paper do not comprise such a group, but our experience to date makes us lean toward the opinion that sulfathiazole, and

probably sulfadiazine, is superior to sulfanilamide. This belief is based not only on the lower mortality rate with these drugs, as shown in table 2, but also on the fact that the response to treatment is more rapid when sulfathiazole or sulfadiazine is used. Patients treated with these drugs have recovered from their stupor and delirium more rapidly than those treated with sulfanilamide, and in general their temperature curve has returned to normal more quickly. Incidentally, it should be noted that every one of our last 43 patients, all of whom were treated with sulfathiazole or sulfadiazine, has recovered. Chart 2 illustrates the type of clinical response obtained with these drugs.

That sulfathiazole is found in normal spinal fluid in relatively low concentrations has been known for some time.<sup>8</sup> Our results and those reported by others,<sup>5</sup> however, indicate that this drug is of great value in meningococcic meningitis. The effectiveness of sulfathiazole, despite its inability to enter the spinal fluid in high concentration, may mean that it is relatively more active against the meningococcus than are the other drugs. Or it may be that the drug diffuses into the meninges, which are the actual site of the infection, in high concentration.

The usual complications and sequelae of meningococcic meningitis were encountered among our patients. The most distressing of these, permanent bilateral eighth nerve deafness, occurred seven times. Five of the patients were children and none of them have shown any signs of improvement. One patient has permanent unilateral fourth and seventh nerve palsy in addition to eighth nerve deafness. Arthritis involving one or more joints occurred in 5 cases. All these patients recovered completely without aspiration or surgical drainage. Five patients showed severe meningococcic conjunctivitis on admission, but all recovered completely under the usual sulfonamide therapy together with local application of the drugs. The low incidence of hydrocephalus was remarkable. Only 1 child showed this complication. This was the infant, already described, who entered the hospital with well defined symptoms of subarachnoid block. One child aged 8 years, who was apparently normal before his attack of meningitis, has shown unmistakable evidence of mental retardation since recovery.

#### CONCLUSIONS

1 One hundred and ten patients with meningococcic meningitis were treated with sulfonamides at Sydenham Hospital in Baltimore between January 1938 and February 1942. None of the patients received specific antimeningococcus serum. No epidemic of meningitis occurred in Baltimore and the vicinity during the four year period studied.

2 Twelve of the 110 patients (11 per cent) died. Only two deaths occurred among 59 children under 15 years of age. One of 10 infants under 1 year of age died.

3 Despite its relatively low concentration in the spinal fluid, sulfathiazole was found to be strikingly effective. This drug and sulfadiazine are apparently superior to sulfanilamide in the treatment of meningococcic meningitis.

Harford Road and Herring Run

<sup>8</sup> Sadusk, J. F., Jr., Blake, F. G. and Seymour, A. *Antibacterial Actions on Absorption, Excretion, Diffusion and Acetylation of Sulfonamides in Man*. *Yale J. Biol. & Med.* 12: 631 (July) 1940.

## MENINGOCOCCIC MENINGITIS

PROGNOSTIC SIGNIFICANCE OF THE SPINAL  
FLUID SUGAREMILIE RUNDLETT, MD  
ANGELO M GNASSI, MD  
ANDPRESTON PRICE, MD  
JERSEY CITY, N J

Seventeen cases of meningococcic meningitis were admitted to this hospital during the period from July 1941 to March 1942. They afforded us an opportunity to verify two principles, namely (1) that the initial spinal fluid sugar content is inversely proportional to the virulence of the organism and (2) that in favorable cases there is a gradual increase in the spinal fluid sugar as the number of viable organisms is decreased. Repeated quantitative determinations of the spinal fluid sugar have made it possible to predict the outcome in cases showing no clinical improvement. It is to be emphasized that the result of the clashing forces, body resistances and virulence of the organisms determines the severity of the disease.

## CLINICAL FEATURES AND COMMENT

All 17 patients presented classic signs and symptoms of meningitis on admission. Seven patients had petechiae, and of these 5 had bacteremia. The presence of a positive blood culture did not influence the course of the disease if no other complication appeared. However, three of six patients with bacteremia did have

## Clinical Observations in Seventeen Cases of Meningococcic Meningitis

| Case | Age | Sex | Outstanding Symptoms |          |            |           | Spinal Fluid |         |               | Total Dose |                |         |           | Hematuria |
|------|-----|-----|----------------------|----------|------------|-----------|--------------|---------|---------------|------------|----------------|---------|-----------|-----------|
|      |     |     | Coma                 | Delirium | Drowsiness | Petechiae | Smear        | Culture | Blood Culture | Arthritis  | Intravenous Gm | Oral Gm | Rectal Gm |           |
| 1    | 36  | Q   | ++                   | ++       | +          | 0         | +            | +       | 0             | +          | 10             | 94      | 15        | +         |
| 2    | 22  | Q   | +                    | +        | +          | 0         | +            | +       | 0             | +          | 3              | 80      | 0         | +         |
| 3    | 23  | Q   | +                    | +        | +          | 0         | +            | +       | 0             | +          | 0              | 32      | 0         | +         |
| 4    | 6   | Q   | +                    | +        | +          | 0         | +            | +       | 0             | +          | 0              | 114     | 0         | +         |
| 5    | 45  | Q   | +                    | +        | +          | 0         | +            | +       | +             | +          | 4              | 132     | 0         | +         |
| 6    | 50  | Q   | +                    | +        | +          | 0         | +            | +       | +             | +          | 4              | 42      | 0         | +         |
| 7    | 16  | Q   | +                    | +        | +          | 0         | +            | +       | +             | +          | 0              | 67      | 0         | +         |
| 8    | 4   | Q   | +                    | +        | +          | 0         | +            | +       | +             | +          | 0              | 36      | 0         | +         |
| 9    | 19  | Q   | +                    | +        | +          | 0         | +            | +       | +             | +          | 19             | 112     | 0         | +         |
| 10   | 16  | Q   | +                    | +        | +          | 0         | +            | +       | +             | +          | 15             | 61      | 0         | +         |
| 11   | 22  | Q   | +                    | +        | +          | 0         | +            | +       | +             | +          | 8              | 45      | 0         | +         |
| 12   | 43  | Q   | +                    | +        | +          | 0         | +            | +       | +             | +          | 5              | 74      | 0         | +         |
| 13   | 42  | Q   | +                    | +        | +          | 0         | +            | +       | +             | +          | 5              | 71      | 0         | +         |
| 14   | 48  | Q   | +                    | +        | +          | 0         | +            | +       | +             | +          | 5              | 7       | 6         | +         |
| 15   | 7   | Q   | +                    | +        | +          | 0         | +            | +       | +             | +          | 5              | 46      | 11        | +         |
| 16   | 15  | Q   | +                    | +        | +          | 0         | +            | +       | +             | +          | 25             | 51      | 0         | +         |
| 17   | 27  | Q   | +                    | +        | +          | 0         | +            | +       | +             | +          |                |         |           | +         |

polyarticular arthritis and prolonged fever. This fever persisted in spite of chemotherapy well after the spinal fluid had returned to normal. Perhaps this lack of response to the drug suggests that the arthritis is allergic or toxic rather than bacterial in origin. Two patients had ptosis, which cleared up within three days in 1 instance and ten days in the other.

## METHOD

Quantitative determinations of the spinal fluid sugar were done according to the well known method of

Folin and Wu for blood sugar. Standards used contained 50, 25, 12.5 and 0 mg of dextrose per hundred cubic centimeters. Colorimetric readings below 10 mg per hundred cubic centimeters were considered unreliable and recorded merely as "less than 10 mg per hundred cubic centimeters." Initial sugar determinations were, of course, done on admission, but all dextrose was withheld from the patients during the four hours previous to their subsequent lumbar punctures. On many specimens of spinal fluid, as well as on frequent blood specimens, a modification of the method

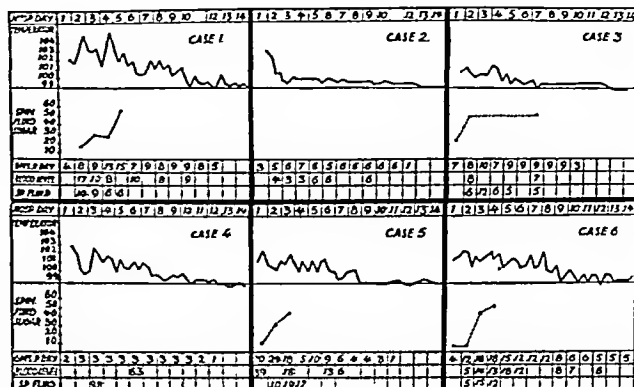


Chart 1—Clinical course of meningococcic meningitis in cases 1, 2, 3, 4, 5 and 6.

of Bratton and Marshall was used for the free sulfadiazine content. Discrepancies between the spinal fluid level and the blood level in the accompanying charts are due to the fact that the specimens were not taken simultaneously.

## SPINAL FLUID SUGAR CURVE

1 *Correlation with Smear and Culture*—The spinal fluid of all patients which showed a gradual increase in sugar content had no growth of meningococci in mediums containing 5 mg of para-amino-benzoic acid per hundred cubic centimeters. In only case 5 did a direct smear on a second specimen demonstrate organisms. When the sugar content reached a normal level the spinal fluid itself was invariably cloudy.

2 *Initial High Spinal Fluid Sugar*—In cases 9, 10 and 15 the initial spinal fluid sugar was 40, 36 and 42 mg per hundred cubic centimeters respectively and the infections were mild clinically with rapid recovery. In case 10 sulfadiazine was given for an infection of the upper respiratory tract on admission and the diagnosis of meningitis was made on the third hospital day.

3 *Initial Low Spinal Fluid Sugar*—Cases 3, 5, 6, 7, 8, 12 and 16 represent the normal course of severe infections without arthritis. The spinal fluid sugar gradually rose to normal on the third to the fourth hospital day, while the temperature fell to normal, usually at the end of one week. In case 5, in which admission was made with the patient in coma, the spinal fluid sugar was normal on the third hospital day whereas the temperature remained 102 F. Some patients had a decided fall in temperature on their first day (case 12) but it soon rose and remained elevated until well after the spinal fluid sugar had become normal.

4 *Polyarthritis*—Cases 1, 11, 13, 14 and 17 illustrate a persistent spiking temperature well after the spinal fluid sugar has returned to normal. Each of the patients in this group had polyarticular pain, redness



and swelling which appeared usually on the third or fourth day. In spite of a rising or persistent fever, the normal sugar content of a moderately cloudy spinal fluid indicated that the meningeal infection was controlled. Of the 6 patients with positive blood cultures, arthritis developed in 4 of them.

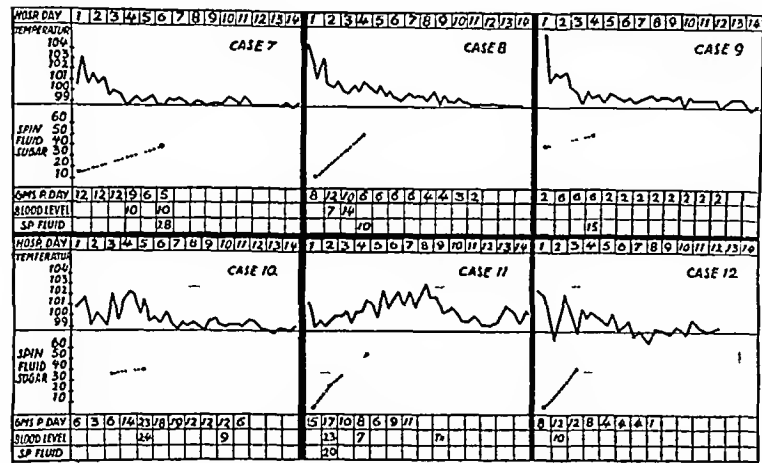


Chart 2—Clinical course of meningococcic meningitis in cases 7, 8, 9, 10, 11 and 12

CHEMOTHERAPY

The initial spinal fluid was examined bacteriologically and for sugar content. Therapy consisted of sulfadiazine<sup>1</sup> intravenously, orally or rectally and supportive treatment such as intravenous or subcutaneous fluids, sedation and special nursing care. The initial dose depended on the clinical condition of the patient, and the subsequent doses were regulated by the spinal sugar, sulfadiazine levels and clinical condition of the patient. A spinal fluid level of 8 to 12 mg per hundred cubic centimeters was considered desirable for the usual case, and in 2 particularly severe infections a level over 20 mg per hundred cubic centimeters was attained. It is worth while mentioning that in case 17 a total of 25 Gm was given intravenously in the first twenty-four hours. This amount was sufficient to clear the spinal fluid on the fourth day. On the sixth day sulfadiazine was reinstituted for arthritis, and here, as in other instances, the course of the arthritis was not affected.

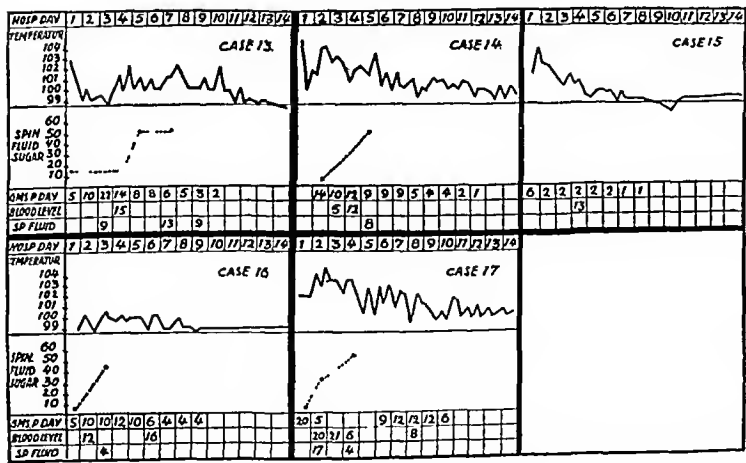


Chart 3—Clinical course of meningococcic meningitis in cases 13, 14, 15, 16 and 17

In 6 cases transient microscopic hematuria was noted, but this was not considered an indication to stop the drug. Instances of leukopenia or anemia were not encountered. Two children vomited the drug during the first few days of their disease but later retained the drug orally without difficulty.

1 Much of the sulfadiazine used was supplied by Dr D. Brice of the Lederle Laboratories, Pearl River, N. Y.

The results of sulfadiazine therapy were uniformly successful, as in the report of Dingle, Thomas and Morton<sup>2</sup> in which but one death occurred.

CONCLUSIONS

- 1 Seventeen consecutive patients with meningococcic meningitis were treated with sulfadiazine with no mortality.
- 2 A rise in the cerebrospinal fluid sugar is a favorable sign and usually precedes cytologic or clinical improvement. It gives rapid indirect evidence of the bacteriologic status of the spinal fluid more accurately than smear, culture or cell count. However, the latter procedures should not be omitted.
- 3 Sulfadiazine did not influence the course of arthritis of these patients.
- 4 Rectal administration of sodium sulfadiazine may be used as an adjuvant, but an adequate blood level is not obtained by this route alone.

Since this paper was submitted for publication, 6 additional patients with meningococcic meningitis were admitted and treated at our hospital. This represents a series of 23 consecutive patients treated with sulfadiazine without a death.

ARTERIOSCLEROSIS AND VARICOSE VEINS OCCUPATIONAL ACTIVITIES AND OTHER FACTORS

A STUDY OF 536 PERSONS, DIVIDED INTO AGE GROUPS, WHO HAD BEEN SITTING, STANDING, WALKING OR CLIMBING STAIRS FOR TEN YEARS OR MORE AT THEIR WORK

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The present study was undertaken with the primary objective of developing data which might throw further light on our understanding of the production of arteriosclerosis. It was appreciated that certain other factors of interest might be uncovered as the investigation progressed.

Although years of study by numerous workers have been devoted to this great enigma of biology, it can be fairly stated that today it is not known whether arteriosclerosis should be considered as a disease or as a purely degenerative process. The fundamental importance of diet, climate, infection, metabolism, race, heredity and many other factors is yet to be finally evaluated. Age alone does not appear to be responsible, since arteriosclerosis may be present in some persons at 30 years or less, whereas others may show practically none at the age of 70.

A popular hypothesis has been that arteriosclerosis is related to prolonged stress and strain on the arteries. The question in favor of this theory is the oft observed development of calcified plaques at the points of greatest stress in the vessel walls. Aside from this example

2 Dingle, John H., Thomas Lewis and Morton Allan R. Treatment of Meningococcic Meningitis and Meningococcemia with Sulfadiazine, J. A. M. A. 116: 2666 (June 14) 1941.  
Read in part before the Section for the Study of the Peripheral Circulation, American Heart Association, Cleveland, May 30, 1941.  
From the Medical Department of R. H. Macy & Co., Inc., Vascular Clinic of the New York Post Graduate Medical School and Hospital, Columbia University.  
The statistical analyses were made by Miss M. C. McCall.

what constitutes wear and tear on the arteries is an open question. In opposition to this belief, as pointed out by Fox,<sup>1</sup>

the relation of arteriosclerosis to forced work is nil in the wild animals. If one considers the activity of an animal in its enclosure, one finds that those animals that prance, jump, run and climb the most are least affected while those which are rather quiet exhibit the highest incidence of lesions. Those that best illustrate the most pronounced forms of arteriosclerosis—bovine, parrot and ducks—are relatively placid animals.

And again "Arteriosclerosis is not confined to the beasts like horses, that work hard, but also occurs in the placid duck." Thus and other paradoxical evidence regarding the relation of prolonged physical stress and strain to the development of arteriosclerosis served as stimulation to study of the problem herein presented.

#### PURPOSES

The questions concerning which we hoped to obtain information were

1 What is the incidence of arteriosclerosis and of varicose veins in the lower extremities in a normal working population of the two sexes of various age groups?

2 Does prolonged physical stress and strain or posture affect the degree or the rate of production of arteriosclerosis?

3 Does prolonged physical stress and strain or posture affect the degree or the rate of production of varicose veins?

4 Does the use of tobacco or alcohol influence the degree or the rate of production of arteriosclerosis?

5 Is there a difference in the tendency toward the development of arteriosclerosis or varicose veins between persons of the two sexes who have been undergoing similar occupational activity for ten years or more?

6 Is there any relation between hypertension and the development of arteriosclerosis?

7 Do arteriosclerosis and varicose veins tend to occur together?

#### PERSONS STUDIED

A series of 536 persons over 40 years of age representing four different types of occupational activity was studied. Workers of both sexes were included. The classifications comprised persons who had for ten years or more been predominantly

1 Sitting Typists clerical workers and other persons engaged in work which was mainly done sitting.

2 Standing Elevator operators clerks selling behind counters and other persons engaged in work requiring standing.

3 Walking Special policemen, porters cleaning women, furniture salesmen and so on.

4 Climbing Stairs Delivery men and other persons climbing stairs most of the time.

A large department store offered an excellent opportunity for studies of persons of these classifications.

The average duration of employment at the same occupation of the men in the series was approximately twenty years and that of the women seventeen years. The average age for men was  $52.6 \pm 7.7$  years and that for women  $50.8 \pm 7.1$  years. Of the persons studied, 51.5 per cent were over 50 years of age.

#### METHODS

Each person had, in addition to a complete physical examination, study of the lower extremities by the following techniques

1 Determination of any history of pain on walking relieved by rest.

- 2 Inspection for rubor on dependence and pallor on elevation.
- 3 Palpation of arteries and palpation and inspection of veins.
- 4 Oscillometric studies at four levels foot, above ankles, calf and thigh.
- 5 Complete roentgenographic studies of the soft tissues.

#### CRITERIA

The first three techniques were found to be subject to individual interpretation, so that for the purpose of this study any person presenting positive evidence in response to only one of these (history, rubor and pallor or absence of pulse) was considered not to have arteriosclerosis of the arteries of the legs.

TABLE 1—Incidence of Arteriosclerosis of the Leg Arteries in All Groups in the Study

|            |                | Disease Revealed<br>by Roentgen<br>Examination |                          |                 |                                     |  |  |
|------------|----------------|--|--------------------------|-----------------|-------------------------------------|--|--|
| Age Groups |                | Total<br>in<br>Group                           | With<br>Arteriosclerosis |                 | Total<br>with<br>Calcifi-<br>cation | Number<br>with<br>Calcifi-<br>cation<br>Only | Disease<br>Revealed<br>by<br>Other<br>Evidence |
|            |                |  | Num-<br>ber              | Per-<br>centage |                                     |  |  |
| Men        |                |  |                          |                 |                                     |  |  |
|            | All groups     | 300  | 141                      | 46              | 130                                 | 115  | 6  |
|            | Standers       | 89   | 35                       | 43              | 30                                  | 30   | 3  |
|            | Walkers        | 129  | 64                       | 50              | 62                                  | 54   | 2  |
|            | Sitters        | 40   | 16                       | 40              | 16                                  | 15   |  |
|            | Stair climbers | 47   | 23                       | 39              | 22                                  | 16   | 1  |
|            | 40 to 49       | 137  | 34                       | 27              | 30                                  | 27   | 4  |
|            | Standers       | 40   | 7                        | 17              | 5                                   | 5  | 2  |
|            | Walkers        | 62   | 12                       | 23              | 11                                  | 11   | 1  |
|            | Sitters        | 16   | 4                        |                 | 4                                   | 4  |  |
|            | Stair climbers | 29   | 11                       |                 | 10                                  | 7  | 1  |
|            | 50 to 59       | 104  | 57                       | 55              | 50                                  | 48   | 2  |
|            | Standers       | 32   | 17                       |                 | 16                                  | 15   | 1  |
|            | Walkers        | 49   | 29                       | 59              | 28                                  | 22   | 1  |
|            | Sitters        | 11   | 4                        |                 | 4                                   | 4  |  |
|            | Stair climbers | 12   | 7                        |                 | 7                                   | 7  |  |
|            | 60 and over    | 64   | 50                       | 77              | 50                                  | 40   |  |
|            | Standers       | 17   | 14                       |                 | 14                                  | 10   |  |
|            | Walkers        | 28   | 23                       |                 | 22                                  | 21   |  |
|            | Sitters        | 13   | 8                        |                 | 8                                   | 7  |  |
|            | Stair climbers | 6  | 5                        |                 | 5                                   | 2  |  |
| Women      |                |  |                          |                 |                                     |  |  |
|            | All groups     | 231  | 46                       | 20              | 42                                  | 32   | 4  |
|            | Standers       | 107  | 22                       | 21              | 20                                  | 16   | 2  |
|            | Walkers        | 56   | 10                       | 18              | 9                                   | 6  | 1  |
|            | Sitters        | 66   | 13                       | 19              | 12                                  | 10   | 1  |
|            | Stair climbers | 2  | 1                        |                 | 1                                   |  |  |
|            | 40 to 49       | 123  | 10                       | 8               | 10                                  | 7  |  |
|            | Standers       | 48   | 3                        | 6               | 3                                   | 2  |  |
|            | Walkers        | 25   | 4                        |                 | 4                                   | 3  |  |
|            | Sitters        | 46   | 3                        | 6               | 3                                   | 2  |  |
|            | Stair climbers | 1  |                          |                 |                                     |  |  |
|            | 50 to 59       | 81   | 21                       | 26              | 19                                  | 16   | 2  |
|            | Standers       | 43   | 11                       | 27              | 10                                  | 9  | 1  |
|            | Walkers        | 22   | 2                        |                 | 2                                   | 1  |  |
|            | Sitters        | 16   | 8                        |                 | 7                                   | 6  | 1  |
|            | Stair climbers |  |                          |                 |                                     |  |  |
|            | 60 and over    | 27   | 10                       |                 | 13                                  | 9  | 2  |
|            | Standers       | 16   | 8                        |                 | 7                                   | 5  | 1  |
|            | Walkers        | 6  | 4                        |                 | 3                                   | 2  | 1  |
|            | Sitters        | 4  | 2                        |                 | 2                                   | 2  |  |
|            | Stair climbers | 1  | 1                        |                 | 1                                   |  |  |

It was realized also that spasm might play an important role in many of the series who had subnormal oscillometric readings.<sup>2</sup> In order to eliminate spasm as nearly as possible only those persons who presented some evidence of arterial disease other than subnormal oscillometric readings and those who had subnormal readings which remained low after warming of the extremities in a foot bath for twenty minutes at 96 to 98 F were considered to have arterial disease.

With the oscillometer used, evidence of disease was considered to be readings of only a faint trace ( $\frac{1}{8}$

<sup>1</sup> Fox, Herbert. Arteriosclerosis in Lower Mammals and Birds. Its Relation to the Disease in Man. chapter 6, p. 153. Arteriosclerosis edited by L. A. Cowdry. New York: Macmillan Company, 1935.

<sup>2</sup> It was impossible to perform experiments with nerve blocks or reflex dilatation on so large a series.

degree or less for each foot) or of zero over the arch of at least one foot (normal being 1/4 to 1 degree)

That the disease demonstrated by the oscillometer in this series was due predominantly to arteriosclerosis rather than to thromboangitis obliterans will be demonstrated later

Roentgenograms of the soft tissue were studied for evidence of calcification and were graded as 1 to 4 plus

TABLE 2—Incidence of Arterial Impairment According to Sex and Age

|       | 40-49<br>Years | 50-59<br>Years | 60 Years<br>and Over | Total |
|-------|----------------|----------------|----------------------|-------|
| Men   | 27%            | 53%            | 77%                  | 46%   |
| Women | 8%             | 26%            | 56%                  | 26%   |

TABLE 3—Incidence of Arterial Involvement Among Men Aged 40 to 49

|                | Total | Number with Arterial<br>Involvement | Percentage |
|----------------|-------|-------------------------------------|------------|
| Stair climbers | 29    | 11                                  | 38         |
| Others         | 108   | 23                                  | 21         |

in accordance with the degree of severity noted. All calcification shown by roentgenogram was considered to be positive evidence of arteriosclerosis.

It is accepted that the presence of calcification in the arterial walls does not necessarily indicate occlusion or even narrowing of the lumen but nevertheless is definite evidence of arteriosclerosis.

Arteriosclerosis or other disease of the minor vessels in the absence of the changes in major vessels is frequently not detected by roentgen examination, and undoubtedly minor grades of arteriosclerosis were not included.

A certain amount of the material became irrelevant as the work progressed, and in some instances the age group or occupational classification was too small to prove statistically significant. Consequently the data reported is condensed and confined to what we feel to be the most significant facts.

RESULTS

The term arteriosclerosis whenever used in this paper refers to the presence of arteriosclerosis in the arteries of the legs, and calcification refers to calcification in the arteries of the legs. Table 1 indicates the distribution of these conditions in the various age groups and occupational classifications.

SEX AND AGE DIFFERENCES

The total incidence of arteriosclerosis in this series of actively employed people over 40 years of age was found to be 35 per cent. There was a decided difference for the sexes, the incidence for men being 46 per cent and that for women being 26 per cent. As would be expected, there was also an increased percentage of vascular disease with advancing age (table 2).

Arteriosclerosis appeared to develop about a decade later in women than in men.

Occupational Differences—In order to rule out differences due to age and sex, our results were studied for the two sexes by decades and by the four occupational classifications mentioned. The only statistically significant difference due to occupation (table 3) was found among men in the age groups 40 to 49, who showed a much higher incidence of arterial involvement in stair climbers (38 per cent) than in those not climb-

ing stairs (21 per cent). There is not more than one chance in one hundred that this difference is due to sampling.

The number of women stair climbers was too small for statistical analysis. We were unable to show any significant differences among standers, walkers and sitters.

In the age group 50 to 59, the incidence of arteriosclerosis in men who climbed stairs (58 per cent) was no greater than in those who stood (53 per cent) or those who walked (59 per cent). The sitters had a lower incidence (36 per cent), but there were not enough men in this classification for the low figure to be considered statistically significant. This was also true of men over 60.

Among the women there was no difference at all between those who stood (62 per cent) and those who sat (63 per cent). The walkers had a higher incidence (14 per cent), but this also was not considered to be a significant difference.

Roentgenographic Changes—The majority of the instances of pathologic change in both sexes were revealed by roentgenograms. Among the women 91 per cent of the instances of disease were detected by this means, and among the men 95 per cent. Had we used calcification as the only basis for diagnosis the conclusions would have been essentially the same as they were when all cases of arterial involvement were included (table 4).

The difference in the degree of calcification in the two sexes proved to be most interesting. The men had a much higher incidence of roentgenographic changes than did the women. They also showed a much higher percentage of severe (3 and 4 plus) calcification, the incidence being 30 per cent for the men and 12 per cent for the women.

There were no instances of 4 plus changes among the women, but there were 12 cases of such changes among the men. There were 5 cases of 3 plus changes among

TABLE 4—Incidence of Calcification by Severity in the Two Sexes

|       | Total | Number with<br>Calcification | Number with<br>3 and 4 +<br>Calcification |
|-------|-------|------------------------------|---|
| Men   | 305   | 135 (44%)                    | 41 (39%)                                  |
| Women | 231   | 42 (18%)                     | 3 (1%)                                    |

TABLE 5—Incidence of Plaques by Age Groups

| Age Groups (Both Sexes) | Number with<br>Calcification | Percentage with<br>Plaques |
|-------------------------|------------------------------|----------------------------|
| 40-59                   | 40                           | 7                          |
| 50-59                   | 74                           | 10                         |
| 60 and over             | 63                           | 9                          |

the women and 29 cases among the men. Every occupational classification was represented, although there was no statistical significance in any of the differences.

3 The formula used was  $\delta d = \frac{\sqrt{pq(1+1)}}{n_1 n}$  in which  
p = total percentage of occurrence  
q = 1 - p  
n<sub>1</sub> = number in first sample and  
n = number in second sample  
It was necessary for the actual difference between the two percentages to be at least 2.4 times the standard error of the difference in order to be considered significant.  
As a check on this formula the chi square test  $\chi^2 = \frac{(n_1 - n)^2}{n} \frac{1}{(n_1 + n)}$  was applied, and the results agreed with the first formula.

**Calcification with Plaques** Plaques were noted in 18.5 per cent (25) of the men with calcification and in 14.3 per cent (6) of the women. The persons who had 1 and 2 plus calcification had the highest incidence of plaques, 23.4 per cent. Of the persons showing 3 and 4 plus roentgenographic changes, only 9.7 per cent had plaques.

TABLE 6—Incidence of Arterial Disease Among Persons Who Used Tobacco and Those Who Did Not

|            | Percentage With Pathologic Changes | Percentage Without Pathologic Changes |
|------------|------------------------------------|---------------------------------------|
| Men        |                                    |                                       |
| Tobacco    | 45.8                               | 54.2                                  |
| No tobacco | 46.9                               | 53.1                                  |
| Women      |                                    |                                       |
| Tobacco    | 50.0                               | 50.0                                  |
| No tobacco | 39.9                               | 60.1                                  |

TABLE 7—Incidence of Arterial Disease Among Persons Who Used Alcohol and Those Who Did Not

|            | Percentage With Pathologic Changes | Percentage Without Pathologic Changes |
|------------|------------------------------------|---------------------------------------|
| Men        |                                    |                                       |
| Alcohol    | 46.3                               | 53.7                                  |
| No alcohol | 45.7                               | 54.3                                  |
| Women      |                                    |                                       |
| Alcohol    | 19.5                               | 80.5                                  |
| No alcohol | 20.1                               | 79.9                                  |

All the men who showed plaques had normal oscillometric readings. One of the women who had plaques had subnormal oscillometric readings.

As would be expected, the incidence of plaques increased with age (table 5).

**Oscillometric Readings**—The incidence of subnormal oscillometric readings was higher for women with arterial involvement (21.7 per cent) than for men (9.2 per cent). Spasm was a more frequent factor in women than in men. This fact was demonstrated by rechecking of the oscillometric readings after use of warm foot soaks previously mentioned.

**Subnormal Oscillometric Readings Considered as Evidence of Arteriosclerosis** It is felt that the subnormal oscillometric readings in this study can be considered for the most part as evidence of arteriosclerosis. The lesion most likely to be confused would be thromboangitis obliterans. We do not believe that this is an important factor in the present series for the following reasons:

1. No definite case of thromboangitis obliterans was encountered.

2. Among the men, in whom one would expect to encounter thromboangitis obliterans most frequently, the greater incidence of the disease as discovered was in the form of calcification.

3. The incidence of oscillometric evidence of occlusion was equal among the women and among the men.

4. Less than 1 per cent of patients with thromboangitis obliterans are women.

**Symptoms**—Questions relative to pain in the legs and feet were asked in an effort to ascertain the presence of symptoms referable to the disease. Only those persons who gave a specific history of pain on walking relieved by rest were considered as having significant symptoms. Those having other reasons for pain, such as arthritis or weak feet, were not considered as having relevant symptoms.

Only 5.6 per cent of the men and 4.3 per cent of the women who proved to have definite pathologic changes had such complaints.

A question may be raised here regarding the small percentage of employees with definite arterial disease who had symptoms. While the employment factor may have decreased the number of employees who admitted symptoms, it must be remembered that the subjects were active, working people and that if they had pain of any great severity related to activity they would be unable to work.

**Tobacco and Alcohol**—The effect of the use of tobacco on the production of arteriosclerosis also was investigated. Of the men 62.9 per cent and of the women 23.8 per cent smoked. The incidence of arteriosclerosis was exactly the same among those who used tobacco as among those who abstained (table 6).

Tobacco apparently played no determinable part in the incidence of arteriosclerosis in this series. This statement should not be interpreted as decreasing the importance of abstinence from the use of tobacco in cases of already existing vascular disease. It has been proved that the use of tobacco may in such cases produce sufficient vasospasm of the collateral vessels to interfere with the nutrition of the tissues and result in gangrene.

The use of alcohol and its effect on the statistics was studied with similar results (table 7).

It seems that the use of alcohol did not play a determinable part in the incidence of arteriosclerosis in this series. The figures reported have no bearing on the therapeutic value of alcohol in obliterative arterial disease, in which its vasodilating effects are fully recognized. While any attempt to indicate the amount of alcohol habitually consumed would be unreliable, the figures given are fairly reliable, since 72.7 per cent of the men and 35.5 per cent of women admitted using alcohol to some degree.

**The Relation of Hypertension and Arteriosclerosis**—The incidence of arteriosclerosis in persons with hypertension was next subjected to analysis. A systolic

TABLE 8—Incidence of Arteriosclerosis Among Persons with Hypertension and Those with Normal Blood Pressure

|  | Total | Number with Arterial Involvement | Percentage |
|--|-------|----------------------------------|------------|
| All persons with hypertension          | 147   | 63                               | 46.3       |
| All persons with normal blood pressure | 339   | 115                              | 29.6*      |
| Men with hypertension                  | 76    | 45                               | 63.1       |
| Men with normal blood pressure         | 229   | 93                               | 40.6       |
| Women with hypertension                | 71    | 20                               | 23.2       |
| Women with normal blood pressure       | 160   | 22                               | 13.8       |

\* There is only one chance in one hundred that this difference is due to sampling.

TABLE 9—Incidence of Hypertension

|       | Total | Number with Hypertension | Percentage |
|-------|-------|--------------------------|------------|
| Men   | 303   | 76                       | 24.9       |
| Women | 231   | 71                       | 30.4       |

pressure of 150 mm. of mercury was arbitrarily selected as the upper limit of normal blood pressure.

A greater incidence of arteriosclerosis was found among the persons with hypertension than among those without hypertension (table 8). It is interesting to note that 63 per cent of the hypertensive men had arteriosclerosis. Only 28.2 per cent of the women with hypertension had arteriosclerosis.

The incidence of hypertension was slightly higher for women than for men (table 9).

We conclude from these figures that hypertension and arteriosclerosis tend to occur together in both sexes but that either may occur independently

*Varicose Veins*—Studies of the incidence of varicose veins also revealed interesting material Of all persons over 60 years of age, 73 per cent were found to have visible varicose veins There was a decided difference between the two sexes in the incidence of varicose veins In order to rule out the possibility of pregnancy's

TABLE 10—Incidence of Varicose Veins

|                         | Total | Number with Varicose Veins | Percentage with Varicose Veins |
|-------------------------|-------|----------------------------|--------------------------------|
| Men                     | 305   | 125                        | 40.7                           |
| Women                   | 231   | 167                        | 72.2                           |
| Never pregnant          | 133   | 89                         | 66.9                           |
| One or more pregnancies | 98    | 78                         | 79.5                           |

influencing the percentage of women with varicose veins, women who had never had a pregnancy were also considered (table 10)

From the figures we can conclude that women over 40 have a higher incidence of varicose veins than men of the same age and that this difference is not entirely due to pregnancy, since the incidence was higher even when the pregnancy factor was removed from the data

A possible explanation for the difference according to sex may include the noticeable difference in the firmness of the surrounding tissues supporting the venous back pressure, especially during the periods of engorgement of the female pelvic organs The greater use of the leg muscles in the male, with more active emptying of the veins, may also be a factor

The occupational occurrence of varicose veins in men and in women who had never been pregnant was then studied The men who climbed stairs had the lowest incidence, while the other three classifications varied only slightly

Among women, those who sat at their work had the lowest incidence, with the walkers having a slightly higher incidence However, there was not a large enough difference to prove statistically significant (table 11)

The only classification that had the same incidence of varicose veins in the two sexes was the sitters In all other occupations the women showed a much higher incidence than the men

TABLE 11—Incidence of Varicose Veins by Sex and Occupation

|                | Men   |                            | Women (Never Pregnant) |                            |
|----------------|-------|----------------------------|------------------------|----------------------------|
|                | Total | Number with Varicose Veins | Total                  | Number with Varicose Veins |
| Standers       | 89    | 36 (40.5%)                 | 63                     | 47 (73.8%)                 |
| Walkers        | 129   | 53 (41.0%)                 | 28                     | 19 (67.9%)                 |
| Sitters        | 40    | 20 (50.0%)                 | 42                     | 23 (56.8%)                 |
| Stair climbers | 47    | 16 (34.0%)                 |                        |                            |

It appears that when the weight of the venous blood column is increased by standing or walking there is produced a decided increase in varicose veins in women but not in men

*Relation of Varicose Veins to Arterial Disease* There seems to be a significantly higher incidence of arterial disease in men with varicose veins This was true of all age groups In women the difference, while also present, is not statistically significant (table 12)

4 To be considered statistically significant a difference would have to be at least 15 per cent The actual difference is only one and four tenths times the error of the difference It is necessary for the error to be at least two and four tenths times the difference, which in this case would be approximately 15 per cent

This finding is consistent with the results obtained by one of us in improving arterial circulation in cases of advanced occlusion by eliminating the attendant varicose veins<sup>5</sup>

COMMENT

In this study of the relation between sex, occupation, age, tobacco, alcohol, pregnancy and hypertension and the development of arteriosclerosis and varicose veins in the lower extremities, certain interesting observations have been made

Roentgen examination provided the most important single method of detecting arterial changes in this series There were, however, a few cases in which arteriosclerosis in the legs was detected by the oscillometer without changes being demonstrable by roentgen examination

While the figures presented are not of sufficient volume to constitute final evidence, the statistics obtained and subjected to analysis point to the probability that arteriosclerosis of the leg arteries develops earlier in men who climb stairs than in men who do not The statistical difference was considered significant for the age group 40 to 49, but of no consequence in later decades This variation on inquiry did not appear to be due to occupational shift, so that the reason was not obvious The incidence of arteriosclerosis did not seem to vary significantly in the other three occupational classifications Men showed a higher incidence

TABLE 12—Incidence of Arterial Disease Among Persons with Varicose Veins

|                              | Total | Number with Arterial Disease | Percentage |
|------------------------------|-------|------------------------------|------------|
| Men with varicose veins      | 125   | 74                           | 59.2       |
| Men with no varicose veins   | 180   | 67                           | 37.2       |
| Women with varicose veins    | 167   | 37                           | 21.9       |
| Women with no varicose veins | 64    | 9                            | 14.0       |

of arteriosclerosis than did women of the same age groups who had worked at exactly the same types of occupations

Had roentgenographic evidence alone been used, these conclusions would not be changed

While the incidence of subnormal oscillometric readings was small in this series of actively employed persons, the oscillometer was responsible for detecting a larger percentage of arterial disease in women than in men

Of the men who had calcification, 41 (30.4 per cent) showed 3 and 4 plus roentgenographic changes Of the women, 5 (11.7 per cent) showed 3 plus changes The women showed no 4 plus changes The old explanation for such observations, namely that women live a more sheltered and less active existence, was clearly eliminated in this study The explanation is not completely clear, but the results of an experimental study of cholesterol fed rabbits by Ludden, Bruger and Wright<sup>6</sup> may be of interest in this regard In a doubly checked series it was found that the administration of testosterone propionate and estradiol dipropionate exerted no noteworthy inhibitory influence on the development of arteriosclerosis in male rabbits fed cholesterol In female rabbits, however, the development of hypercholesteremia was definitely inhibited and the deposition of cholesterol in the aorta was prevented

5 Pratt, G. H. Segmental Sclerosis of the Superficial Veins and Varicose Veins, Ulcers and Diminished Arterial Supply, J. A. M. A. 113: 925-927 (Sept. 2) 1939  
6 Ludden, J. B., Bruger, Maurice and Wright, I. S. Experimental Arteriosclerosis. IV. Effects of Testosterone Propionate and Estradiol Dipropionate on Experimental Arteriosclerosis in Rabbit Aorta, J. A. M. A. 113: 58 (Jan.) 1942



by the administration of these steroid hormones. In later studies by Bruger<sup>7</sup> it was shown that castration prevented this protection in the female. It appears, therefore, that at least in man and in the rabbit there is a definite difference between the two sexes in the reaction of the arterial walls toward atheromatous-like changes. The exact mechanism is not yet understood.

It appears conclusively proved that neither tobacco nor alcohol had any effect on the development of arteriosclerosis in this series.<sup>8</sup>

The incidence of arteriosclerosis was considerably greater among persons with hypertension than among persons who had normal blood pressure.

Many of the subjects were found to have definite arteriosclerosis, some with considerable calcification and yet had no complaints of pain or fatigue in the lower extremities.

A decided difference between the sexes was noted in the studies of the incidence of varicose veins (40.7 per cent in men, 73.2 per cent in women). While pregnancy accounted for some of this variation even among the women who had never been pregnant 67 per cent showed varicose veins. It was also interesting that the women who sat at their work had definitely fewer varicosities than either those who stood or those who walked, but the men showed no increase at all on standing and walking as against sitting. These observations regarding varicose veins may be associated with the fact that the surrounding tissues of the female are softer and less supportive to the vein walls and also that at times of pelvic congestion there may be a great tendency to back venous pressure. It is also possible that the high incidence of varicose veins in working women over 40 years of age may be related to the wearing of high heels, with resulting compression of the soft vein walls by the leg muscles. Studies in these fields are suggested.

There seems to be some evidence in favor of a definite relation between the development of arteriosclerosis and varicose veins in men. Such a relation in women is not clearly demonstrated by our data.

This study will be of interest particularly in connection with the mobilization of men over 40. In addition, the necessity of manning and fighting from bases in extreme frigid temperatures such as Alaska and Iceland, will increase the importance of the arteriosclerotic problem.

#### CONCLUSIONS

1 Men had a higher incidence of arterial disease than did women of the same ages who had been employed at similar occupations an equal length of time. Among the younger men (age group 40 to 49) stair climbing apparently produced a significantly higher incidence of arteriosclerosis than did standing, sitting or walking. No significant difference could be established among the last three classifications. Over the age of 50 there were no significant differences in the incidence of arterial disease in any of these classifications.

2 The use of alcohol and tobacco did not influence the incidence of arteriosclerosis in the series studied.

3 There was a definite relation in both sexes between the incidence of hypertension and of arteriosclerosis of the lower extremities.

7 Bruger, Maurice. Unpublished results.

8 The findings in reference to alcohol are in complete agreement with the work of M. A. Ruffer who performed autopsies on over 800 Mohammedan pilgrims and found arteriosclerosis as common as in Europeans (Studies on the Paleopathology of Egypt, Chicago University of Chicago Press, 1921). The Mohammedans are exceptionally strict in their total abstinence from alcohol.

4 Women showed a much higher incidence of varicose veins than men employed at the same occupations. This difference held true even when the factor of pregnancy was removed from the data. Women who had been pregnant showed a higher incidence of varicose veins than women who had never been pregnant. Varicose veins were extremely common among the working women of this series.

5 Women who stood or walked showed a much higher incidence of varicose veins than those who sat at their work.

6 This difference was not found in men.

7 There was a higher incidence of arteriosclerosis of the leg arteries in men with varicose veins. This difference was not statistically established in women.

## RENAL COMPLICATIONS OF SULFADIAZINE

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The recent literature concerning sulfapyridine and sulfathiazole renal calculi, causing anuria with at least six deaths reported in a summary of the literature out of 29 cases by Kawaichi and Rogers,<sup>1</sup> and 2 deaths reported by Lindner and Atcheson<sup>2</sup> testifies to the lethal qualities of these drugs. That the new drug sulfadiazine should be devoid of these serious complications, as was suggested by experimental and clinical reports, was optimistic to say the least. Trevett, Nelson and Long<sup>3</sup> found only 4 instances of hematuria, with renal colic in only 2 of 125 patients given sulfadiazine. Billings and Wood<sup>4</sup> treated 105 patients with pneumonia using sulfadiazine intravenously and orally without a single renal complication, i.e. hematuria, renal colic, oliguria or anuria. Borst<sup>5</sup> states that the crystals of the acetylated and active free forms of sulfadiazine are extremely soluble so that renal damage is nil. Finland, Strauss and Peterson<sup>6</sup> in their treatment of 446 patients with sulfadiazine reported only 3 patients having hematuria, 1 of whom had renal colic with anuria requiring ureteral catheterization. Only 1 other patient has been reported in the literature by Hughes, Sayen and La Towsky<sup>7</sup> as having anuria.

In spite of this evidence of the low incidence of renal complications in the literature we have seen 11 patients with various types of renal symptoms or anuria due to sulfadiazine alone, and we have seen as many patients with renal complications due to the other sulfonamides. We feel that there exists a false sense of security concerning sulfadiazine which should be modified because of its increased use in military medicine. One can imagine one's embarrassment trying to treat a soldier

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1 Kawaichi, George K. and Rogers, W. Barnes. Urinary Calculi from Sulfonamides. Urol. & Cutan. Rev. 45: 477 (Aug.) 1941.

2 Lindner, H. J. and Atcheson, D. W. Sulfathiazole Crystallization in the Kidney. J. Urol. 47: 262 (March) 1942.

3 Trevett, G. I., Nelson, R. A. and Long, P. H. 11 Studies in Sulfadiazine. Bull. Johns Hopkins Hosp. 69: 303 1941.

4 Billings, F. T., Jr. and Wood, W. Barr, Jr. 111 Studies on Sulfadiazine. Bull. Johns Hopkins Hosp. 69: 314 1941.

5 Borst, R. C. C. The Effectiveness of the Sulfonamides on the Bacteria Encountered in Infection of the Upper Part of the Urinary Tract. New York State J. Med. 42: 216 (Feb. 1) 1942.

6 Finland, Maxwell, Strau, Elia, and Peterson, O. L. Sulfadiazine. J. A. M. A. 116: 2641 (June 14) 1941.

7 Hughes, P. B., Sayen, J. J. and La Towsky, L. W. Sulfadiazine Calculi in the Urinary Tract. J. Urol. 47: 274 (March) 1942.

in the jungles of Malaya or the deserts of northern Africa if he is suffering with anuria due to the sulfonamides

The following 4 cases required cystoscopy and ureteral catheterization

CASE 1—J S, a white man aged 36, was admitted to the hospital on Oct 30, 1941 with a cellulitis of the leg. He was given an average of 5 Gm of sulfadiazine daily for nineteen days, at which time he developed right renal pain and oliguria, which progressed rapidly to anuria. The urinalysis reported gross hematuria. The average daily blood level was 10 mg per hundred cubic centimeters, the highest being 139 mg per hundred cubic centimeters, the nonprotein nitrogen was 52 mg per hundred cubic centimeters. A cystoscopy on November 18 showed coarse orange crystals in both ureteral openings and on the bladder floor. There was 15 cc of red brown syrupy urine aspirated from the right kidney pelvis and 7 cc from the left kidney pelvis. The catheters were left indwelling for forty-eight hours and they were irrigated every two to four hours with isotonic solution of sodium chloride. After removal of the catheters the patient continued to complain of left renal colic for the following ten days. An intravenous pyelogram was made which showed nonfunction of the left kidney.

On November 28 a cystoscopy and dilation of the left ureter were done. Fifteen cc of old bloody urine was obtained from the left pelvis. The patient immediately improved and was discharged home on December 12.

CASE 2—R K, a white man aged 24, admitted to the hospital on Jan 13, 1942 with pneumonia, received 4 Gm of sulfadiazine daily for seven days. The drug was then stopped for eight days. He was given 8 Gm on February 19 and 12 Gm the following day, whereupon he developed renal colic over first the left and then the right kidney. Oliguria, followed rather rapidly by anuria, occurred on the third day. The blood sulfadiazine was 96 mg per hundred cubic centimeters. The bladder was catheterized and only 50 cc of bloody urine obtained. A cystoscopy was done and many orange colored calculi were found on the bladder floor, varying in size from a glass headed pin to very small crystals. The ureteral orifices showed small crystals protruding from them. There was 20 cc of muddy appearing urine from the right pelvis and 15 cc from the left pelvis. The indwelling ureteral catheters were irrigated with warm isotonic solution of sodium chloride every two to four hours for thirty-six hours. Retrograde pyelograms showed bilateral, small, nonopaque calculi. The patient gradually improved over a period of five days before he was free from all symptoms. He was discharged on February 28.

CASE 3—R O, a white man aged 21, admitted on Feb 24, 1942 with a compound fracture of the maxilla, a fracture of the nose and facial lacerations, was given 6 Gm of sulfadiazine daily for six days. On the sixth day, the blood sulfadiazine was 8 mg per hundred cubic centimeters, his intake of fluid was 4,560 cc and his output 1,120 cc. He developed renal colic on the right side. On the seventh day his intake was 7,580 cc and his output was only 620 cc. Urinalysis showed a decreased specific gravity, hematuria and many sulfadiazine crystals. He appeared edematous. Cystoscopy and ureteral catheterization were done on March 5, it first being necessary to do a circumcision because of phimosis. The cystoscopy showed a reddish brown bladder urine and a few calculi and crystals on the bladder floor. The right ureteral orifice showed definite bullous edema, as is characteristic in many lower ureteral calculi. The left orifice showed a few crystals protruding from the meatus, but no edema. There was 15 cc of thick bloody urine from the right pelvis, but no residual urine was obtained from the left, owing to mechanical reasons. The ureteral catheters were irrigated with warm isotonic solution of sodium chloride at frequent intervals for thirty-six hours. Retrograde pyelograms were made which showed minimal hydronephrotic changes in both kidneys. The patient was completely relieved in five days and was discharged on March 10.

CASE 4—H B, a white man aged 59, was admitted on March 2, 1942 with a cellulitis of the chin. He received 8 Gm of sulfadiazine daily for four days, when he complained of colic-like pains over both renal areas, radiating to the groins. His intake on the fourth day was 5,580 cc and his output was 1,500 cc of urine. It became increasingly more difficult for the patient to void, and the amount of urine decreased. Urinalysis showed hematuria and albuminuria, with low specific gravity. The sulfadiazine blood level was 11 mg per hundred cubic centimeters and the nonprotein nitrogen 82 mg per hundred cubic centimeters. In view of the high blood nitrogen with oliguria, it was felt imperative to do a cystoscopy on March 6. This showed about 2 Gm of orange colored crystals on the floor of the bladder, which apparently had collected there because of moderate hypertrophy of the prostate with a resulting residual urine. These crystals were recovered and found to consist entirely of acetyl sulfadiazine. The prostate gland showed a 2 plus lateral lobe and median commissure hypertrophy. The right ureteral orifice had typical bullous edema while the left appeared normal. There was 15 cc of red brown syrupy urine aspirated from the right pelvis and 3 cc from the left pelvis. The ureteral catheters were irrigated at frequent intervals for forty-eight hours with warm saline solution. Retrograde pyelograms showed probable nonopaque renal and ureteral calculi in both renal pelves and ureters. The patient continued to have left ureteral and renal colic for a period of five days after removal of the catheters. His residual urine was reduced to 50 cc. The patient refused transurethral prostatectomy and he was discharged home on March 19 with nonprotein nitrogen of 40 mg per hundred cubic centimeters.

The following 7 cases are reported because they illustrate varying degrees of renal complications but were treated conservatively. In the 6 fatal cases summarized by Kawaichi and Rogers, only conservative treatment was employed.

CASE 5—D L, a white boy aged 9 years, was admitted to the hospital on Feb 17, 1942 and operated on for acute appendicitis. An intussusception and an abscess over the appendical stump developed, for which reoperation was performed. He was then given 5 Gm of sulfadiazine for five days. On the fifth day oliguria appeared with hematuria, and the urine output for twenty-four hours was 150 cc. The urine showed hematuria, albuminuria and many crystals. The blood sulfadiazine was 145 mg per hundred cubic centimeters. The drug was stopped, fluids were urged orally and the patient was completely relieved in two days. He was discharged on his twenty-fourth hospital day.

CASE 6—M G, a white girl aged 10 years, admitted to the hospital on Jan 31, 1942 with an acute osteomyelitis of the right hip, was given 6 Gm of sulfadiazine daily for ten days. On the fifth day of the administration of the drug oliguria appeared for twenty-four hours, her output being 240 cc of urine which had a reduced specific gravity and was bloody. The peak blood level was 98 mg per hundred cubic centimeters and the nonprotein nitrogen 34 mg per hundred cubic centimeters. No treatment other than forcing fluids was attempted, and the drug was continued for five days. The oliguria disappeared, but the hematuria persisted until the drug was discontinued. The patient was discharged with a normal urine on the seventeenth hospital day, February 17.

CASE 7—J W, a white woman aged 36, admitted to the hospital on Feb 22, 1942 with first and second degree burns, was given sulfadiazine in the wounds and 6 Gm orally, by mouth, for six days. Her intake was 1,500 cc and output 1,000 cc. On the sixth day she developed nausea and renal colic on the left side. Urinalysis showed a decreased specific gravity, hematuria and many crystals. No oliguria was present. The drug was stopped and 1,500 cc of fluid given intravenously, for a total intake of 2,300 cc and 1,300 cc output the following day. The pain stopped immediately and the urine cleared rapidly. She was discharged home with a normal urine on the seventeenth hospital day.

CASE 8—W C, a white man aged 41, admitted on Jan 8, 1942 with a recurrent osteomyelitis, was given 6 Gm of sulfadiazine daily for nine days. He had an average intake of 4,000 cc and an output of 2,000 cc. On the ninth day there appeared a stabbing pain in the left costovertebral angle radiating to the groin. Urinalysis showed only a decreased specific gravity. No oliguria, hematuria or crystals were reported. The peak level of sulfadiazine was 10 mg per hundred cubic centimeters. The drug was stopped and an intake of 5,040 cc with an output of 2,650 cc was obtained. His pain disappeared in six hours. He was discharged on the thirteenth day with a normal concentrating power of the urine.

CASE 9—G K, a white boy aged 5 years, admitted to the hospital on March 19, 1942 with a foreign body and corneal ulcer of the right eye, was given sulfadiazine 4 Gm daily for three days. The average fluid intake was 1,000 cc and the output was 450 cc. The blood level on March 22 was 15 mg per hundred cubic centimeters. On March 23, the fourth day, hematuria appeared and the urine was loaded with sulfadiazine crystals. The drug was stopped and fluids were forced to 3,000 cc daily. The hematuria persisted for two days. The nonprotein nitrogen was 37 mg per hundred cubic centimeters. The urine was clear on March 25.

CASE 10—A H, a Negro boy aged 2 months, admitted to the hospital on March 15, 1942 with spasmodic croup, received 3 Gm of sulfadiazine daily beginning on March 14. The average daily fluid intake was 1,000 cc. The output could not be determined. On March 18 there were many crystals in the urine. On March 21 there were many crystals, hematuria and albuminuria. The next two days the urine became worse and the drug was stopped on March 24, at which time the urine output was 303 cc. The urine was clear in twenty-four hours.

CASE 11—E M, a white woman aged 73, was admitted to the hospital on March 16, 1942 with a three weeks history of influenza and chronic cough and urinary incontinence for five days. An ulcerating vaginitis due to the staphylococcus was diagnosed. Sulfadiazine 5 Gm was given the first twenty-four hours and then 4 Gm daily. Sulfathiazole ointment 5 per cent was applied to the vagina. On the third day she had severe pain in the lower abdomen. The sulfadiazine was discontinued on the sixth day. Hematuria occurred on the eighth day, with a urinary output of only 870 cc. The following day, March 26, there was only 430 cc of bloody urine. On March 29 the output was 1,350 cc, the urine still showing some blood. Urologic consultation was requested because of hematuria. On March 31 a cystoscopy showed orange colored crystals on the floor of the bladder, which, when analyzed, consisted of pure acetyl sulfadiazine. Pyelograms were normal. The patient was discharged on April 3.

#### COMMENT

Certain conclusions can be drawn from this group of cases. The most striking point is that sulfadiazine is just as toxic to kidneys as any of the other sulfonamides. The drug should not be used without careful daily check of the urinary sediment, and intake and output of fluids should be kept adequate. An output of at least 1,500 cc should be maintained. Likewise the average daily dose ought to be no more than 4 Gm. There are certain conditions that tend to produce renal complications. They are as follows:

- 1 The sudden concentration of the drug, such as results from intravenous administration or large doses orally, may result in a rather rapid and dramatic anuria within thirty-six to forty-eight hours, as noted in case 2.

- 2 Dehydration with a low intake of fluids, even with an average dose of 4 Gm a day, may give renal complications.

- 3 Defects of the urinary tract such as partial obstruction will allow the concentration of the drug with crystal and calculus formation. This was noted in a

4 months old baby with hydronephrosis and hydroureter with infection requiring nephrectomy. A section of the kidney showed the pelvis filled with crystals and calculi of sulfapyridine and sulfathiazole. Another example is patient 4, with hypertrophy of the prostate, whose bladder floor contained 2 Gm of acetyl sulfadiazine.

#### TREATMENT

We feel that the following method of treatment will give good results in any type of sulfonamide renal complications.

- 1 Stop the drug immediately with the first sign of hematuria, renal colic or oliguria. We do not agree with those who contend that hematuria or crystals in the urine are not important as long as anuria does not develop.

- 2 Force fluids. However, a positive water balance of over 5,000 cc should be avoided, since edema of the brain can occur with possible death, as has been reported.

- 3 If oliguria is present with a urinary output of 500 cc or more, a delay of twelve to twenty-four hours before cystoscopy, with the hope that diuresis will relieve the situation may be tried.

- 4 Cystoscopy and catheterization of the ureters should be done immediately when oliguria persists or anuria is present. Delay will only allow further accumulation of calculi. Kawaichi and Rogers,<sup>1</sup> in their summary of the literature, showed that 6 of the 29 patients died, and these had had conservative treatment. Likewise, in 1 of Lindner and Atcheson's 2 fatal cases conservative treatment had been employed.

- 5 The ureteral catheters are left indwelling for periods of twenty-four to forty-eight hours until the return flow of urine is clear. Even this will not remove all the calculi, and if further obstruction occurs there should be no hesitancy in doing another cystoscopy and ureteral catheterization. That these calculi may persist for years has been shown by Newman and Schlesser,<sup>8</sup> who removed a sulfapyridine stone two years later.

- 6 The kidneys should be irrigated with warm sodium bicarbonate solution of 2.5 per cent or warm isotonic solution of sodium chloride. We have at times alkalinized the patient intravenously as well as orally.

- 7 Retrograde pyelograms should be made prior to withdrawal of the catheters.

#### CONCLUSION

- 1 In 11 cases in which renal complications appeared secondary to the administration of sulfadiazine there were no serious consequences, though the potentialities were present.

- 2 Analysis showed that complications usually appeared by the seventh day of drug administration. The average daily dose was 5.5 Gm. The average blood level was 11 mg per hundred cubic centimeters. This would suggest a safe dose of 4 Gm a day with a safe blood level of not over 8 mg per hundred cubic centimeters.

- 3 We believe that sulfadiazine, being better tolerated by the stomach, is therefore a more dangerous drug to produce renal complications because physicians are more likely to be less vigilant.

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<sup>8</sup> Newman H. R. and Schlesser I. H. Sulfonamide Renal Calculus Surgically Removed Two Years After Administration of Sulfapyridine. *J. Urol.* 47: 258 (March) 1942.

PREGNANDIOL EXCRETION IN FEMALE  
PSEUDOHERMAPHRODITISM(CONGENITAL ADRENAL HYPERPLASIA)  
STUDIES IN TWO CASES

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The end product of progesterone metabolism, pregnandiol, is determined as sodium pregnandiol glucuronide by a gravimetric method developed by Venning and Browne.<sup>1</sup>

Estimations of this complex have been made by various investigators in normal and pathologic menstrual periods, in normal pregnancy, abortions, toxemias and, lastly, in cases of the adrenogenital syndrome.<sup>2</sup> Except in an isolated case (a child aged 3 years), there have been no data available among children.<sup>3</sup>

The accumulated literature to date has already been well summarized, but it may be well to recall a few pertinent facts regarding the excretion of pregnandiol. This compound is excreted in the urine during the luteal phase of the normal menstrual cycle when the corpus luteum is active and absent during the first half of the intermenstrual phase. The amount of pregnandiol determined for the whole cycle may vary from 34 to 54 mg, although the daily output may be 2 to 10 mg.<sup>4</sup>

During pregnancy the compound is excreted in increasing quantities in the urine as gestation proceeds, when its production is attributed to the placenta. The mean figure as given by Venning<sup>5</sup> is 75 mg a day and by Cope<sup>6</sup> as 55 mg daily, with wide variations. The presence of pregnandiol in association with amenorrhea is suggestive of pregnancy and is to some extent used as a diagnostic aid.<sup>7</sup> The absence or diminution of pregnandiol during pregnancy is indicative of a pathologic condition such as threatened abortion or death of the fetus.<sup>8</sup> There is some difference of opinion as to

the metabolism of pregnandiol in toxemias of pregnancy and the role of the kidney in its excretion.<sup>9</sup> The metabolism of progesterone in the body has been adequately described by Hamblen,<sup>10</sup> Venning,<sup>11</sup> and Cope<sup>6</sup> and includes ovarian, hepatic, uterine and renal factors.

Our interest was stimulated by 2 cases of pseudohermaphroditism which we had occasion to study and in which pregnandiol titers were determined. We speculated as to the diagnostic value of pregnandiol in these cases, and, because of the paucity of data in the young age group, determinations on other children were made for comparison. These include a pubescent boy and girl, 2 girls with prolonged menstrual bleeding, a precocious pubescent child and a Loran-Levi dwarf.<sup>12</sup> These are not included in this report.

The need for total and complete urine specimens was stressed by several groups, but recently Bachman<sup>8</sup> suggested that only a portion of the urine is necessary for analysis. He felt that the general trend of values gives enough information in certain conditions, especially in the last months of pregnancy.

We expected the amount of pregnandiol in the urines of children to be very small, therefore, in order that a sufficient yield of the compound could be obtained large pooled volumes of urine were extracted. In most instances the urines were pooled into forty-eight hour lots and the total volume was extracted. Some times with this procedure the final weighed precipitate was of no significance.

Pseudohermaphroditism is a syndrome applied in cases of virilism with an anomaly of the external genitalia present at birth, that is, an enlarged clitoris, a urethral opening just beneath the phallic structure, as in hypospadias, a vagina that usually opens into the urethra with no external orifice. Howard and White

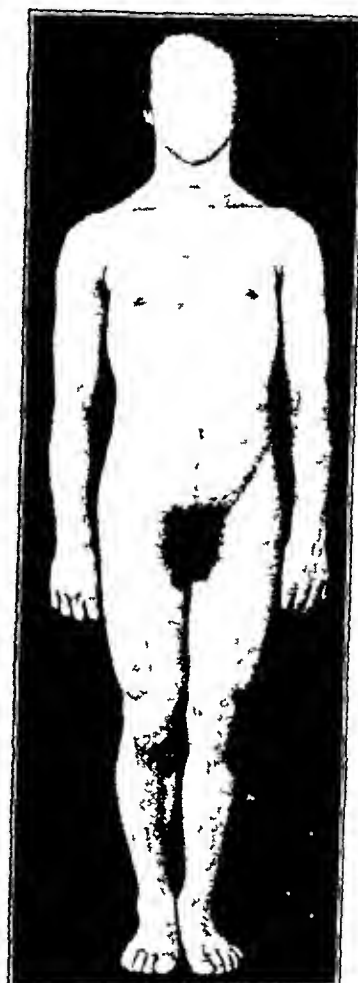


Fig 1—Appearance of patient 1, a pseudohermaphrodite aged 10 years

hill<sup>13</sup> aver that this congenital abnormality in a patient with ovaries as the gonads is found only in cases of adrenal cortical hyperplasia. They further state that these patients are of small stature. Young<sup>14</sup> described 4 female pseudohermaphrodites who presented the fol-

Based on a thesis submitted to the Pediatric Department in 1941 by Dr. Genitis for the M.S. degree.

Dr. J. H. Kiefer rendered aid in the visualization of the genital tract and Dr. B. O. Barnes in the assay for urinary 17 ketosteroids.

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1. Venning, Eleanor H., and Browne, J. S. L. Isolation of a Water Soluble Pregnandiol Complex from Human Pregnancy Urine. *Proc. Soc. Exper. Biol. & Med.* **34**: 792 (June) 1936. Venning, Eleanor H. Gravimetric Method for the Determination of Sodium Pregnandiol Glucuronide (an Excretion Product of Progesterone), *J. Biol. Chem.* **119**: 473 (July) 1937. Further Studies on the Estimation of Small Amounts of Sodium Pregnandiol Glucuronide in Urine, *ibid.* **126**: 595 (Dec.) 1938. Venning, Eleanor H., Henry, J. S., and Browne, J. S. L. The Measurement of a Pregnandiol Complex in the Urine, *Canad. M. A. J.* **36**: 83 (Jan.) 1937.

2. Hain, A. M., and Robertson, E. M. Estimation of Luteal Activity and Early Diagnosis of Pregnancy, *Lancet* **1**: 1324 (June 10) 1939. Hamblen, E. C., Ashley, Catherine, and Baptist, Margaret. Sodium Pregnandiol Glucuronide: The Significance of Its Excretion in the Urine, *Endocrinology* **24**: 1 (Jan.) 1939. Weil, P. G. The Excretion of Pregnandiol in the Toxemias of Pregnancy, *Science* **87**: 72 (Jan. 21) 1938. Wilson, R. B., and Randall, L. M. Studies on Pregnandiol. II. The Excretion of Pregnandiol During Normal Pregnancy, *Proc. Staff Meet., Mayo Clin.* **13**: 813 (Dec. 21) 1938. Venning and her collaborators<sup>1</sup>. Browne, Henry and Venning<sup>1</sup>. Browne, Henry and Venning<sup>11</sup>. Venning, Weil and Browne<sup>9</sup>. Bachman, Leekley and Hirschmann<sup>8</sup>. Buxton<sup>8</sup>. Cope<sup>6</sup>. Hamblen, Powell and Cuyler<sup>10</sup>. Stover and Pratt<sup>3</sup>. Wilson, Randall and Osterberg<sup>7</sup>.

3. Stover, R. F. and Pratt, J. C. Progesterone Studies. Pregnandiol Excretion, *Endocrinology* **24**: 29 (Jan.) 1939.

4. Venning. Further Studies<sup>1</sup>. Venning, Henry and Browne<sup>1</sup>.

5. Browne, J. S. L., Henry, J. S., and Venning, Eleanor H. The Urinary Excretion of Prolan and Pregnandiol in Normal Pregnancy and in Early and Late Toxemias, *J. Clin. Investigation* **17**: 503 (July) 1938.

6. Cope, C. L. Excretion of Pregnandiol in Toxemia of Pregnancy, *Lancet* **2**: 158 (Aug. 10) 1940.

7. Wilson, R. B., Randall, L. M., and Osterberg, A. E. Studies on Pregnandiol, *Am. J. Obst. & Gynec.* **37**: 59 (Jan.) 1939.

8. Bachman, Carl, Leekley, Dorothy, and Hirschmann, H. Excretion of Sodium Pregnandiol Glucuronide in Urine of Normal Human Pregnancy, *J. Clin. Investigation* **19**: 801 (Nov.) 1940. Buxton, C. L. Pregnandiol Determination as an Aid in Clinical Diagnosis, *Am. J. Obst. & Gynec.* **40**: 202 (Aug.) 1940.

9. Venning, Eleanor H., Weil, P. G., and Browne, J. S. L. Excretion of Sodium Pregnandiol Glucuronide in the Adrenogenital Syndrome, *J. Biol. Chem.* **128**: cvii (June) 1939. Cope<sup>6</sup>.

10. Hamblen, E. C., Powell, N. B., and Cuyler, W. K. The Metabolism and Utilization of Progesterone, *Am. J. Obst. & Gynec.* **24**: 1 (Oct.) 1939.

11. Browne, J. S. L., Henry, J. S., and Venning, Eleanor H. The Significance of Endocrine Assays in Threatened and Habitual Abortion, *Am. J. Obst. & Gynec.* **38**: 927 (Dec.) 1939. Venning. Further Studies<sup>1</sup>.

12. Bronstein, I. P., and Fabricant, N. D. Pituitary Dwarfism with Atrophic Rhinitis, *Am. J. Dis. Child.* **60**: 1140 (No.) 1940.

13. Howard, J. E., and Whitehill, M. R. Virilism Internus, *C.* **4**: 50 (Dec.) 1937.

14. Young, H. H. Genital Abnormalities. Hermaphroditism and Pseudohermaphroditism, Baltimore: Williams & Wilkins Company, 1941, p. 103.



lowing identical conditions (1) enlargement of the adrenals with hyperplasia of the androgenic zone of the cortex, (2) hypoplastic ovaries and (3) an enlarged clitoris and a persistent urogenital sinus into which the vagina opened. He was the first to examine the urogenital system with the cystoscope in this type of patient and perform successfully plastic surgery.

The pathologic condition of the adrenal gland in pseudohermaphroditism is controversial.<sup>15</sup> Grollman<sup>16</sup> originally attributed the pathologic condition to special "androgenic" tissue but recently postulated that the virilism was due to inclusion testicular rests in the adrenal cortex or to a derangement of steroid metabolism.

Venning, Weil and Browne<sup>9</sup> followed the course in 2 cases of the adrenogenital syndrome by the excretion of pregnandiol in the urine. A woman aged 29 with symptoms of virilism had a carcinoma of the adrenal cortex and excreted 12 mg of pregnandiol daily for seven days. Corpus luteum was not found at autopsy. A woman aged 25 excreted 20 to 30 mg daily for two weeks and showed an enlargement of the left adrenal gland. No further follow-up on the patients was reported. Finkler's<sup>17</sup> patient with this syndrome, a woman aged 25, excreted 21.9 mg of pregnandiol for the first ten days and for the next four days an average



Fig 2—Perineum (patient 1) showing phallic structure

of 29 mg daily. Stover and Pratt<sup>3</sup> found no pregnandiol in the urine of a 3 year old child with the adrenogenital syndrome.

#### REPORT OF CASES

We have studied 2 cases of pseudohermaphroditism in the past two years and extracted the urine for the pregnandiol complex.

CASE 1—L G, a 10 year old child (fig 1) was referred because of cessation of growth in the last two years. This patient as well as patient 2 was thoroughly studied from the point of view of physical development (sexual and menstruation) and complete laboratory studies, including roentgenograms of the head (sella), wrist and knee, fundi and visual fields, basal metabolism, blood cholesterol and sugar tolerance in addition to roentgenographic cephalometric appraisal. Delivery was normal, a mass noted in the perineum at birth increased steadily in size. Pubic hair appeared at 3 years and the voice deepened at 5 years. Play and demeanor were masculine and the psychological tests coincided with this observation. The child looked older than the chronological age, the voice was husky, the muscular development pronounced and masculine distribution of hair was noted.

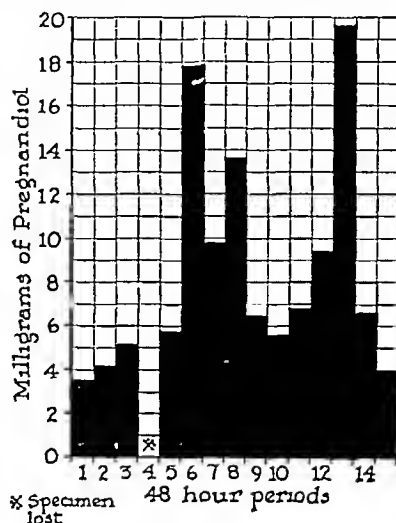


Fig 3—Pregandiol excretion (patient 1) over a period of twenty eight days

Examination of the perineum (fig 2) revealed a large phallic structure with an orifice at the base, which on probing and endoscopy demonstrated a urethra and a vagina. Testes and a scrotum, bifid or otherwise, were not demonstrable. Studies with iodized poppyseed oil confirmed our suspicions in outlining what seemed to be a vagina and a uterus. Retrograde pyelograms were negative. Roentgenograms of a wrist and knee gave evidence of premature epiphyseal closure.

The urinary 17-ketosteroids were twice normal at the beginning of the study and a year later four times normal (30 and 69 mg in twenty-four hours, respectively).<sup>18</sup> The urinary gonadotropic assay<sup>19</sup> was less than 66 mouse units per liter and the estrogenic assay negative. Pregandiol was excreted in increased amounts ranging from 0.34 to 197 mg in forty-eight hours (fig 3). An exploratory laparotomy was advised and refused. At the insistence of the parents and because of their interpretation of the milieu as being masculine they entered the child in a new school as a boy and the entire activity and association is now as a male. At a recent visit no regression of symptoms was noted but both the parents and the child exhibited a happier frame of mind. Statural growth, as was expected, remained the same.

CASE 2—P M, a 4 year old child was born as a girl, but the parents were told at the time of delivery that there was an enlargement of the clitoris. Her appearance was that of an 8 year old, with deep voice and pubic hair. An orifice was noted at the base of the enlarged clitoris. A bone age of 12 years was determined by roentgenograms of the wrists. Examination of the skull was negative for a sellar abnormality. A genitourinary examination by endoscopy and injection of iodized oil demonstrated a vagina and a cervix similar to those described in case 1. Vaginal smears showed no cornified epithelium.

The 17-ketosteroids were increased in amount (37 mg in twenty-four hours). Gonadotropic assays were less than 66

<sup>15</sup> Wintersteiner Oskar. The Adrenogenital Syndrome. *J A M A*. 116: 2679 (June 14) 1941.

<sup>16</sup> Gersh I and Grollman Arthur. The Relation of the Adrenal Cortex to the Male Reproductive System. *Am J Physiol* 126: 368 (June) 1939.

<sup>17</sup> Finkler R S. Pseudohermaphroditism. Pregandiol Glucuronide Excretion. *J Clin Endocrinol* 1: 151 (Feb) 1941.

<sup>18</sup> Fraser R W, Forbes Anne P, Albright Fuller, Sulkowich H B and Reifenstein E C Jr. Colorimetric Assay of 17 Ketosteroids in Urine. *J Clin Endocrinol* 1: 234 (March) 1941.

<sup>19</sup> Zondek B. Die Hormone des Ovarium und des Hypophyse vorder Lappen. Berlin Julius Springer 1931.



mouse units per liter of urine. Urinary estrogenic assays were negative. Pregnandiol determinations at various intervals showed an increase in several specimens, a 20 mg yield in the one forty-eight hour analysis. Pregnandiol was not recovered in some of the other specimens.

Laparotomy was done and female organs were visualized and interpreted as showing no gross abnormality.<sup>20</sup> There was a suspicion that the right adrenal gland was slightly enlarged, but no tumor masses were palpated. A posterior approach at a later date is contemplated with the idea of resecting the adrenals.

The 2 cases are duplicates as regards description.

#### COMMENT

We determined the titer of pregnandiol in 2 pseudohermaphrodites. There are few figures for comparison, not only in this age group but in this syndrome, as most of the work has been done on adults with obstetric problems.

The pseudohermaphrodites excreted pregnandiol in varying amounts. In a study of adult patients with the adrenogenital syndrome higher titers were found, and it is possible that the compound increases in amount as the condition progresses. Stover and Pratt's 3 year old pseudohermaphrodite excreted no pregnandiol and our 4 year old child excreted irregular amounts. Perhaps the difference in amount is due to one of the other factors influencing the metabolism of this steroid compound. That the adrenal cortex may elaborate progesterone is possible, for there exists a close relationship in structure between progesterone, androgens, cholesterol and desoxycorticosterone. Further work is indicated for correlating endocrinopathies and pregnandiol excretion. The extraction of large amounts of urine in children is needed to obtain a sufficient yield of the compound. Perhaps studies made daily or at short intervals may reveal significant data if done over a long period of time. With adolescent problems, in lieu of other criteria of maturation, pregnandiol values may be used to indicate the general trend of ovarian function.

#### SUMMARY

Pregnandiol titers in pseudohermaphroditism are definitely elevated and suggest an adrenal factor.

More data are desirable in children before normal ovarian function at puberty can be gaged. Pregnandiol determinations may be made a basis for study of disturbances in this period and may be related to various endocrinopathies.

Since this paper was submitted, patient 2 had a partial adrenalectomy in March 1942 and microscopic section revealed a small adenoma. We have also studied a third pseudohermaphrodite, aged 15 years, whose internal organs were feminine. Partial adrenalectomy was performed and hyperplasia was found on microscopic study, suggestive changes appeared several months later. In the 15 year old patient we were able to obtain only one preoperative pregnandiol value of 36.2 mg in twenty-four hours.

<sup>20</sup> Sections of the ovaries, both right and left showed increased density of the stroma surrounding the follicles. They seemed to have reached the stage of development of early puberty, and there was evidence of atresia of the follicles.

**Intestinal Digestion**—The intestinal juice contains at least five enzymes: enterokinase, by the action of which trypsinogen is converted into trypsin, erepin, which produces further cleavage of the proteoses and peptones into amino acids, and the three enzymes sucrase (or invertase), maltase and lactase, which hydrolyze respectively the three disaccharides sucrose, maltose and lactose.—Sherman, Henry C. *Chemistry of Food and Nutrition*, New York, Macmillan Company, 1941.

## ACID FAST ORGANISMS IN SPUTUM WITH NORMAL OR QUESTIONABLE ROENTGENOGRAPHIC FINDINGS

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AND

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A rather rare but often puzzling problem for physicians who deal primarily with abnormal conditions of the chest is the case in which tubercle bacilli are or have been reported found in the sputum and yet the x-ray films fail to show any definite parenchymal lesion. Are we to put our entire faith in the x-ray film and disregard the positive sputum, allowing the patient to continue a normal life, or are we to tell our patient that he has clinical tuberculosis which needs treatment, in spite of the negative or questionable roentgen ray finding?

In order to help us determine our course of procedure in this type of case, we went over the records of our patients at the Trudeau Sanatorium for the past thirty years and picked out all those of patients who had come to us either because they had been told by their physician that tubercle bacilli had been found in their sputum or because these organisms were found in our own laboratory while their roentgenograms taken at the sanatorium failed to show any definite pulmonary involvement. By following these patients each year after leaving the sanatorium, we believed that we should be in a position to evaluate more clearly the significance of these particular findings. As a coincidence we were able to find exactly 100 cases—an incidence of 1.5 per cent of admissions studied—which filled the aforementioned requirements, although in 6 of these the roentgenogram showed a slightly more than questionable lesion. The present report is based on these 100 cases.

The first point which we wished to clear up was whether the offending organisms were found previous to the patient's entering Trudeau Sanatorium or in our own laboratory. Our figures show that slightly over half of the patients, 55, came to us as a result of the positive sputum having been found in an outside laboratory, while in 37 instances the organisms were first demonstrated while the patients were under treatment with us. In only 8 cases were the previous positive findings confirmed in our own laboratory.

The next point which seemed of significance to us was the number of times that tubercle bacilli were found in the sputum in each case, as it would seem that the more often the bacilli were demonstrated in individual cases the more significant the finding would be in regard to the prognosis. A single positive finding was reported in 75 of the cases, while in 13 cases a positive report was obtained two to three times and in 12 cases the sputum showed organisms over three times. It is particularly interesting that of the last 12 patients the follow-up records show that 8 have reported themselves continually well for five, seven, seven, nine, ten and thirty years, 2 had relapses but were well at the end of fourteen years, while 1 died of tuberculosis in the sixth year and 1 has not been heard of since discharge.

We then tried to bring out the significance of the Gaffky count in this series. Of course it must be remembered that many of these cases were studied long before this method was used and that most of the patients in whose sputum the organisms were found

before coming to us had no history of a Gaffky count. Our observations show that this was true for 57 of our patients, while of the 43 remaining patients for whom we have a report 13 had a Gaffky I and 25 a Gaffky II or III while in 5 cases the count was over Gaffky III, a Gaffky VI being the highest recorded. In cases in which more than one count is reported we have used only the highest one in each case. Again, in studying the follow-up records of our 5 patients with more serious conditions, those whose Gaffky count was over III, it is interesting to note that all of them are reported as well over a period of seven, seven, fifteen, fifteen and thirty years respectively.

For the past eighteen years, basing our belief on the statistical studies of Brown and Heise<sup>1</sup> we have felt at Trudeau Sanatorium that in order to make a positive diagnosis of pulmonary tuberculosis number 4 or 5 of the following diagnostic criteria should be present or, in their absence any two of the first three: (1) history of hemoptysis of a drachm (37 cc) or more of blood, (2) history of simple wet pleurisy, (3) persistent moderately coarse rales in the upper third of the chest, (4) parenchymal changes shown in the roentgenograms and (5) tubercle bacilli in the sputum.

In this study criterion 5 was present in all cases and criterion 4 roentgenographic changes, was absent. Nine patients gave a history of hemoptysis of a drachm or more of blood, while many others had had streaked sputum. Eight gave a history of pleurisy with effusion. Eleven had rales in the upper third of the chest. Two patients had apical rales on physical examination, in addition to having had hemoptysis, while 3 had similar rales and an associated pleurisy with effusion. In 67 cases there was no history of hemoptysis or pleurisy and no rales were heard. In 33 cases there was, in addition to the reported positive sputum, at least one of the other cardinal symptoms, yet the roentgen study failed to confirm this rather definite diagnosis.

We were indeed most fortunate in following up this series of cases, for in only 1 were we unable to find at least one year's report. Forty of the cases were followed from one to ten years and 39 from eleven to twenty years, while in 21 we received word as to the physical condition for over twenty years. Our classification at the end of this time is as follows (table 1).

TABLE 1—Follow-Up Study from One to Thirty Years on the Hundred Patients Here Reported

| Years After Leaving Sanatorium | Well | Relapsed and Well | Relapsed and Alive | Relapsed and Chronic | Dead | No Report | Total |
|--------------------------------|------|-------------------|--------------------|----------------------|------|-----------|-------|
| 1 to 10                        | 31   | 4                 | 0                  | 0                    | 4    | 1         | 40    |
| 11 to 20                       | 25   | 5                 | 2                  | 1                    | 3    |           | 36    |
| Over 20                        | 15   | 3                 | 0                  | 0                    | 0    |           | 18    |
|                                | 71   | 12                | 2                  | 1                    | 7    | 1         | 94    |

The patients under the heading of "well" are those who have been well or working, or at least able to do so, and have had negative sputum for at least two years. "Relapsed and well" refers to those patients who reported that they had had a relapse some time after leaving us but had recovered from this and at the time

of their final report were well. "Alive" refers to those patients concerning whom we could find nothing relative to their physical condition except the fact that they were still living. "Relapsed and chronic" is self explanatory, as is the last classification, "dead." It will be noted that 77 of the 100 patients were "well" after hav-

TABLE 2—Cause of Death

| Patient | Cause                | Years After Leaving Sanatorium |
|---------|----------------------|--------------------------------|
| 1       | Tuberculosis         | 6                              |
| 1       | Unknown              | 9                              |
| 1       | Asthma               | 9                              |
| 1       | Suicide              | 11                             |
| 2       | Carcinoma of colon   | 4 and 12                       |
| 1       | Carcinoma of stomach | 16                             |

ing left the sanatorium from one to thirty years ago, 12 had relapses but again regained their health, 2 were reported as simply "alive," while only 1 came under the heading of "relapsed and chronic" at the time of the last report. Seven had died, while only 1 failed to send in a report.

The cause of the 7 deaths (table 2) is indeed most interesting especially since only 1 patient was reported as having died of pulmonary tuberculosis six years after leaving the sanatorium. One patient was reported as having died of "cause unknown" nine years after leaving us and after having sent in a report of "well" during the eight previous years. Although we cannot be certain, this does not sound like death due to tuberculosis. One patient died of asthma nine years after leaving the sanatorium, 1 committed suicide, the remaining 3 were of particular interest as having died of carcinoma of the intestinal tract, the colon being affected in 2 and the stomach in the remaining 1. Death occurred four, twelve and sixteen years respectively after leaving the sanatorium in these 3 cases. We are rather at a loss to explain this, and possibly it is merely a coincidence.

An examination of the histories of these patients reveals that 3 of them had been sent here with a diagnosis of renal tuberculosis and the positive sputum was found on routine examination. The remaining 97 all gave a history of such symptoms as streaking, chronic fatigue, continuous low grade fever, cough or expectoration, in the majority of instances over a period of many months before admission and for which medical advice had been sought. Their average length of stay in the sanatorium was four months. Their treatment was the usual hygienic dietetic regimen, practically all of them being ambulant throughout their stay. There was no collapse therapy done.

The question of the reliability of the reported findings of acid fast tubercle bacilli must be considered. It is possible that some of these represent laboratory errors. Others may be due to nonpathogenic acid fast bacilli. The number of cultures and guinea pig inoculations that were done in this series was too small to be statistically important, for 80 per cent of these patients were admitted before 1930, before which time cultures and guinea pig inoculations were not routinely done. The facts that all of these patients had symptoms suggesting chronic illness that many had an associated pleurisy with effusion, hemoptysis or rales and that the number of reported relapses was similar to that expected from a minimal group suggest that the diagnosis in the majority of instances was valid.

1 Brown L. and Heise F. H. The Value of the Trudeau Sanatorium's Five Diagnostic Criteria of Pulmonary Tuberculosis in Negative Diagnosis Study of 264 Cases Admitted to the Sanatorium Diagnosed as Nontuberculous and Followed Up from One to Seven Years. *Am Rev Tuberc* 9:398 (July) 1924.

## SUMMARY AND CONCLUSIONS

One hundred cases with reported positive sputum and negative or questionable roentgen ray findings were followed for one to thirty years after discharge.

In this series 12 patients had relapses during this time and there have been 7 deaths, only 1 of them being reported as due to pulmonary tuberculosis.

Although it is possible that in a small number of these cases the acid fast organisms found were nonpathogenic or due to a laboratory error, the very favorable prognostic significance of negative or doubtful roentgen ray findings in cases of suspected pulmonary tuberculosis, even though the sputum is reported as positive, seems to be clearly demonstrated.

## Clinical Notes, Suggestions and New Instruments

### CAVERNOUS SINUS THROMBOPHLEBITIS

#### CURE WITH SULFATHIAZOLE

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KENNETH R. BELL, M.D., Captain, M.C., U.S. Army  
AND

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CAMP CLAIBORNE, LOUISIANA

L. H., a nurse in the Army Nurse Corps, was admitted to the surgical service of the Station Hospital, Camp Claiborne, La., on Sept. 20, 1941 immediately after an automobile accident in which she sustained a severe laceration of the lower lip and the chin and fracture of both maxillas and palatine bones, which separated as a single unit from all bony attachments. There was a displacement of the maxillas 1 cm posteriorly and superiorly, accompanied by severe hemorrhage of the posterior nasal and maxillary vessels, which was controlled by stabilization of the maxillas with an emergency dental and elastic tension splint in conjunction with an orthopedic plaster head cap.

The lacerations of the soft tissue were repaired and 1,500 units of tetanus antitoxin was administered. A roentgenogram on September 21 revealed a comminuted fracture of both nasal bones with fracture of the cartilage on the left side. Therapy at this point consisted in periodic intranasal instillation of 1 per cent ephedrine sulfate in saline solution. It was deemed unwise to consider any manipulations of the fractured nasal bones at this time because of the considerable amount of local swelling that was present and because of the danger of widening fracture lines already communicating with the base of the skull.

The patient's temperature ranged within 1 degree of normal until September 28, when there was a sudden elevation to 105 F., the pulse rate was 120 and regular, the respiratory rate 30 per minute and the blood pressure 128 systolic and 64 diastolic. She soon became irrational. Six Gm. of sulfapyridine sodium in 150 cc. of sterile distilled water was administered by vein and followed with 1,000 cc. of 5 per cent dextrose in saline solution. The pulse was of poor volume and weak but regular. Within six hours the temperature dropped to 101 F., the patient's condition generally appeared much improved, and she had cleared mentally by the morning of September 30. Since the initial intravenous dose of 6 Gm. of sulfapyridine sodium she continued with the drug, taking 1 Gm. of sulfapyridine orally every four hours.

From the Station Hospital

Dr. Bell died on Dec. 4, 1941

Valuable consultation was rendered in this case by Capt. Leon Ferber, Chief of Neuropsychiatric Section, and Capt. Paul A. L. Black of the Ear, Nose and Throat Clinic, Station Hospital, Camp Claiborne, Louisiana.

On the morning of September 30 physical examination revealed that the right palpebral fissure was narrower than the left because of ptosis of the right upper eyelid. The right pupil was irregular and smaller than the left. The fundi were of normal color and appearance, and there was no edema. A coarse estimation of the visual fields revealed no defect. The abdominal reflexes were absent bilaterally. The left knee jerk was hyperactive, and a positive Babinski reflex was elicited on the right. The neck appeared to be moderately stiffened and Kernig's sign was present. There was an impairment of extraocular movements on the right indicating involvement of the third, fourth and sixth cranial nerves. A lumbar puncture was done, and 4 cc. of cloudy fluid under slightly increased pressure was removed, with a count of 450 polymorphonuclear cells.

At this point it was believed that we were dealing either with meningitis or with an early brain abscess of the middle brain fossa on the right side or a combination of the two. On October 1 the patient appeared generally improved, but there were severe edema and ptosis of the right eyelid. The results of the remainder of the neurologic examination were unchanged. On October 2 the ptosis of the right eyelid was extreme. There was considerable proptosis of the bulb with definite fixation. There was considerable swelling surrounding the right orbit and extending into the right temporal region. No tenderness could be elicited on pressure on the eyeball, and extraocular tension was increased. The conjunctiva protruded with edema. The pupil, still small and irregular, barely reacted to light. Ophthalmoscopic examination revealed considerable distention of the central retinal vein of the right eye. Extraocular movements continued to be impaired. The neck continued stiff and painful, and the Kernig and Brudzinski signs were present. The left knee jerk continued hyperactive. At this time it was believed that the patient had a definite cavernous sinus thrombosis on the right.

On October 5 a culture of blood taken on September 29 was reported to have grown *Staphylococcus aureus*. Sulfapyridine therapy was discontinued and sodium sulfathiazole administered by vein in doses of 3 Gm. in sterile distilled water every six hours, until a level in the blood of 4 mg. per hundred cubic centimeters was obtained. Then a dose of 1 Gm. of sulfathiazole was given orally every four hours. The rectal temperature continued between 101 and 103 F. The general condition of the patient was fair. Considerable moist and crepitant rales became manifest throughout the chest. There was a moderate cough with profuse expectoration of purulent sputum which had no particular odor. Examination of the sputum revealed a short chain streptococcus to be the predominating organism with considerable blood and pus. No fusiform spirochetal organisms could be found. A roentgenogram of the chest (fig. 1) revealed four pulmonary abscesses each approximately the size of a 50 cent piece (30 mm.). Two were located in the lower lobe of the left lung and two in the midcentral portion of the right pulmonary field. The dose of sulfathiazole was increased to 2 Gm. every four hours, and further symptomatic therapy continued to include daily blood transfusions ranging from 100 to 250 cc. each with sufficient dextrose and saline solution given by vein to maintain proper food intake. In addition, together with vitamin preparations, considerable liquid proteins were administered through a nasal tube in order to balance the diet. A culture of the blood which was taken on October 7 was reported positive on October 19 for *Staphylococcus aureus*.

On October 21 the patient experienced a sudden loss of consciousness, accompanied by a typical Jacksonian seizure beginning with clonic twitchings of the right side of the mouth and then spreading to include the entire right side of the face. Her head turned jerkily to the right. This was followed by atonic convulsion of the left arm, forearm, and hand and of the left leg. These movements quickly subsided to become a generalized seizure. This syndrome recurred several times within fifteen minutes, following the initial

Sodium amytal was administered intravenously for control of the episode. On awakening from the action of the drug, she continued in a highly restless state with frequent aimless motions of the arms. It was believed at this time that the patient's clinical signs and symptoms were the result of a cerebral embolus or of an abscess located in the right motor area.

All the former external signs of cavernous sinus thrombosis had gradually begun to disappear by this time. The proptosis and edema about the right eye had receded. However, on October 23 the patient suddenly showed a red papular eruption over the elbows, knees, arms and legs. The lesions were warm and centrally spotted and were surrounded by a purplish coloration which faded off into the normal surrounding tissue. Initially they measured about  $\frac{1}{4}$  inch (0.6 cm) in diameter and gradually increased in size, in some instances to  $\frac{1}{2}$  inch (1.2 cm) in diameter. This was believed to be an integral part of the embolic shower, the etiologic reservoir of which was in the pulmonary abscesses. At the same time there developed severe gross hematuria believed to have originated in the embolic shower. The blood urea nitrogen content was 16.8 mg per hundred cubic centimeters and the creatinine content 2 mg per hundred cubic centimeters.

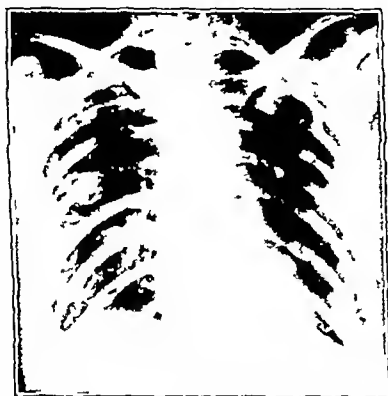


Fig 1—Four pulmonary abscesses



Fig 2—Improvement of the pulmonary abscesses can be noted



Fig 3—The abscesses are completely healed

This state existed for one week. The patient remained comatose or semicomatose. The embolic cutaneous lesions gradually lost their reddish hue and tapered off into a purplish coloration. On October 31 it was apparent that there was extensive paresis of the left arm and left leg. All evidence of the previously existing cavernous sinus thrombosis had disappeared. However, after the sudden onset of gross hematuria, which lasted for two days, there was a gradual decline in the urinary blood until it was apparent only microscopically. A gradually increasing pitting edema was becoming more apparent every hour until after forty-eight hours a state of mild to moderate anasarca existed. In addition there appeared severe tympanites but there was no evident melena. A culture of the urine at this time was positive for *Staphylococcus aureus*.

During this episode the concentration of sulfathiazole in the blood was maintained at 25 to 33 mg per hundred cubic centimeters for six days. Cultures of blood taken subsequently were reported negative for any growth. After the maintenance of this high level for six days the drug was withdrawn. Roentgen examination of the lungs revealed that the pulmonary abscesses were healing (fig 2). Multiple small transfusions of whole blood were administered and all foods liberating the sodium ion were eliminated from the diet. Two days after elimination of the drug the sensorium had cleared completely. The generalized edema was disappearing, and the formerly affected right eye became perfectly normal. A roentgenogram of the chest at this time revealed complete healing of all four pulmonary abscesses (fig 3). Except for severe muscular wasting the patient appeared her normal self again, having

regained complete function in the left arm and leg. As a precaution against any latent residual infection, medication with sulfathiazole, in a dose of 1 Gm three times a day, was continued for three months from the date on which chemotherapy was instituted.

#### COMMENT

Early in the second week of convalescence our patient presented Eagleton's<sup>1</sup> six diagnostic signs used as criteria of cavernous sinus thrombosis: (1) fracture of both maxillas with infection, (2) *S. aureus* infection of the blood stream, (3) venous congestion with thrombosis of the central vein of the right retina, (4) paralysis of the third, fourth and sixth cranial nerves on the right, (5) periorbital cellulitis involving the temporal region and (6) subsequent development of pulmonary abscesses. Recognizing our predicament, we were fully aware of Schall's<sup>2</sup> success in using heparin with chemotherapy and of Bancroft's<sup>3</sup> advice along the same line. Nevertheless, having seen the brains which Mallory demonstrated at the Massachusetts General Hospital, showing the vast cerebral hemorrhages following the administration of heparin, and remembering his and Libman's opinion with regard to the use of heparin, we proceeded as we had been, placing all confidence in chemotherapy. Since the organism recovered from the blood

was *Staphylococcus aureus* we used sulfathiazole. Our initial attempt to build up a high concentration of the drug in the blood necessitated our giving it intravenously 6 Gm at a time and then continuing administration of the drug through a Levin tube directly into the small bowel. Initially we used sulfapyridine (as did Lyons<sup>4</sup>), not knowing at the time the particular organism with which we were dealing. Because of the sudden violent clinical manifestations we believed the cause of infection to be a streptococcus. However, as soon as *Staphylococcus aureus* was identified a change was made to sulfathiazole. During the early stage of the illness there evidently were infected emboli traveling the venous pathway only to localize in the lungs resulting in four pulmonary abscesses as noted on roentgen examination. However, our efforts at establishing an extremely high concentration of sulfathiazole in the blood prevailed, and concentrations ranging from 25 to 33 mg per hundred cubic centimeters were maintained for six days during the most critical stage of the illness. We feel that this prolonged high concentration of sulfathiazole in the blood stream was imperative. Many factors, all of which were discouraging seemed to follow one after the other as one might expect from a patient refusing to die early in cavernous

1 Eagleton W. P. Cavernous Sinus Thrombophlebitis. New York: Macmillan Company, 1916.

2 Schall L. A. Treatment of Septic Thrombophlebitis of the Cavernous Sinus. *J. A. M. A.* 117: 581 (Aug 23) 1941.

3 Bancroft F. W. Use of Anticoagulants in Cases of Postoperative Thrombosis and Embolism. *Arch. Otolaryng.* 32: 93 (Nov) 1940.

4 Lyons Champ. The Treatment of *Staphylococcus* Cavernous Sinus Thrombophlebitis with Heparin and Chemotherapy. *Ann. Surg.* 113: 113 (Jan) 1941.



ous sinus thrombosis After the appearance of the lung abscesses, arterial embolism developed to a considerable degree. Emboli were scattered over both the upper and lower extremities, and finally there ensued convulsive seizures, jacksonian in character, with a left hemiparesis and prolonged unconsciousness for thirteen days, during which severe gross hematuria occurred which lasted two days.

The various arguments present themselves at this point. Was this unconscious state the result of single or multiple infected cerebral emboli, or was the extremely high concentration of sulfathiazole in the blood producing cerebral edema? If the latter, then how could one explain the left hemiparesis and facial weakness? We are therefore inclined to feel that our patient perhaps did have multiple small cerebral abscesses which yielded to treatment and healed, just as we know that the pulmonary abscesses healed as a direct result of the maintenance of sulfathiazole in a high concentration in the blood stream.

The gross hematuria we attribute to renal infarction during which the patient lost considerable amounts of protein, the albumin-globulin ratio being reversed to such an extent that anasarca developed. No evidence for a nephrotic state could be detected, and we are therefore of the belief that the anasarca was purely the result of hypoproteinemia. From the onset of this state she was given considerable amounts of protein through a nasal tube, multiple small daily blood transfusions, intravenous injections of calcium and milk by mouth to replace the calcium lost with the albumin. Lastly, all food liberating the sodium ion was removed from the diet. Within four days there was a reversal of the tissue fluid balance, after which the convalescence was rapid and uneventful.

#### CONCLUSION

In a case of cavernous sinus thrombophlebitis the maintenance of a sustained concentration of sulfathiazole in the blood of 25 to 33 mg per hundred cubic centimeters resulted in a complete cure even after pulmonary abscesses and arterial embolism ensued.

#### ADDENDUM

The following is a final note by Henry W. Brosin, Captain, M. C., Chief of Neuropsychiatric Section, LaGarde General Hospital, New Orleans:

On superficial examination the patient was an alert, fairly well oriented, mildly cooperative, unmarried white woman aged 34, who looked much older. She was tense, anxious, restless, picking at her face and fingers, moving her body quickly from one position to another, apparently anxious to escape the examination situation. She attempted to put up a good front with an offhand manner suggestive at times of an empty euphoria. She attempted shallow humor to shield her underlying apathy and depression. Strong effort was made to deny the existence of all organic injury or residuals with the claim that she could do full duty if only the doctors would cure her headache and frequency, urgency and dysuria. She boasted of her ability to prescribe for herself, insisting that no doctor understood her as well as she understood herself. After some weeks she claimed to be able to control the headache by the use of ephedrine nose drops and gargles. In speaking of her urinary difficulties she became frankly vulgar in her attacks on the physicians' inability to help her, a state of mind which was in sharp contrast to the primness which characterized her behavior before the accident. Visiting nurses who knew her before the accident were explicit in their description that she was now an entirely different woman because of her restlessness, use of vulgarity, aggressiveness, irritability and unreasonableness. There was an inappropriate affect noted in this patient when she spoke about her mother and other intimates. Her recent and remote memory were apparently fair, but careful examination elicited difficulties in both spheres. The content was that of regression in a neurotic adult. The sensorium

was clear but suggestive of the deterioration due to organic damage to the cortex in her decreased ability to do problems and comprehend abstractions.

It was the opinion of this staff that the patient showed frank evidence of organic deterioration of the cerebral cortex.

#### PRESERVATION OF PROTHROMBIN IN DRIED PLASMA

MAX M. STRUMIA, M.D., BRYN MAWR, PA.

Loss of prothrombin in plasma dried from the frozen state and restored with sterile distilled water has been previously pointed out.<sup>1</sup> It has been suggested that prothrombin may be lost in the process of drying because of the loss of carbon dioxide, with resultant increased alkalinity of the plasma when it is restored with distilled water. Whereas the  $pH$  of fresh citrated plasma varies between 7.4 and 7.7, the alkalinity of plasma restored with distilled water from the dried state varies from a  $pH$  of 8.2 to 9.3. My associates and I found that the preservation of prothrombin is good up to a  $pH$  of 7.7 and very poor with a  $pH$  of 8.2 and higher. Thus the average content of prothrombin of plasma regenerated from the dried state with distilled water is from 15 to 20 per cent of normal.

If the regeneration is accomplished with cold distilled water saturated with carbon dioxide, the prothrombin in the resulting plasma solution averages between 50 and 60 per cent of normal when the original content was up to 80 per cent of normal. This method, however, is not convenient for practical use.

We have found it difficult to buffer the sodium citrate solution used for the collection of blood but have found that the use of a diluted solution of citric acid in place of distilled water for the regeneration offers a practical solution to the maintenance of a lower  $pH$  and the preservation of prothrombin in the dried plasma. The following experiment is typical. Plasma from pool 113-A, separated from citrated blood two days after collection, showed in the fresh liquid specimen a  $pH$  of 7.4 and a prothrombin content which in several determinations varied from 65 to 70 per cent of normal. Lot *a* (300 cc) was dried from the frozen state to a residual moisture of 0.8 per cent in less than seventy-two hours. Lot *b* was similarly dried, and the residual moisture was 0.7 per cent. Both specimens were contained in standard 400 cc bottles.<sup>2</sup> Lot *a* was regenerated with 250 cc of distilled water. Complete solution occurred in eighty-two seconds, including the time consumed by the introduction of the distilled water. The resulting solution had a turbidity of 280 (nephelometric reading with photoelectric colorimeter with filter 66), a  $pH$  of 8.5 and a prothrombin content of 20 per cent of normal. Specimen *c* was regenerated with 250 cc of 0.1 per cent citric acid solution. It was completely dissolved in seventy seconds, including the time taken for the introduction of the solution of citric acid, and had a turbidity of 300, a  $pH$  of 7.85 and a prothrombin content of 67 per cent of normal (average of several determinations). The citric acid solution was sterilized at 120°C in the steam sterilizer for fifteen minutes in lots of 250 cc contained in the standard 400 cc bottle.

The intravenous administration to patients of dried plasma regenerated with 0.1 per cent citric acid solution has not given rise to reactions.

#### CONCLUSIONS

Excessive alkalinity of plasma regenerated from the dried state can be avoided and a good prothrombin content maintained by regeneration with 0.1 per cent citric acid solution instead of the customary distilled water.

From the Bryn Mawr Hospital.  
1 Florsdorf, E. W. and Mudd, Stuart. The Procedure and Apparatus for Preservation in the Lyophilic Form of Serum and Other Substances, *J. Immunol.* 20: 389 (Nov.) 1935. Strumia, M. M., McGraw, J. J. Blood Plasma: Its Place in the Practice of Medicine with Special Consideration to the Problems of Preservation. *J. A. M. A.* 118: 427-429 (Feb. 7) 1942.  
2 Strumia, M. M., Newhouser, I. R., Kendrick, D. B. and McGraw, J. J. Development of Equipment for Administration of Dried Plasma in the Armed Forces War Med. 2: 102-113 (Jan.) 1942.



unless the physician directs otherwise." Since interstate shipments of this preparation are subject to the Federal Caustic Poison Act, not only should the label contain the name of the caustic substance, but the word "Poison" must be stated on the label together with directions for treatment in case of accidental personal injury

### COLOR FILMS IN FIRST AID TRAINING

Humble and Means<sup>1</sup> describe what appears to be a novel and interesting method of illustrating first aid treatment of wounds—by color films. To attain realism they resorted to simulating wounds. Brachial or femoral hemorrhage was produced for example by means of a small syringe, rubber tubing and ammoniacal carmine solution. The valve of the syringe dips into a bottle reservoir at the side of the patient, and the tubing, fixed to the nozzle of the syringe, is led around the body to a desired point in the limb, the end of the rubber tubing being embedded in the simulated wound. Arterial bleeding is imitated by causing the patient to squeeze the bulb of the syringe in time with the cardiac rhythm. The patient's face is "made up" to suggest profound shock. He is taught to act his part. The effect is so realistic that several medical men have been unable to differentiate the simulated wounds from real ones, and it is said that about 1 per cent of the audiences fainted. The authors have reproduced simple lacerations, burns, compound fractures, arterial hemorrhage and the like. They also staged and filmed a mock air raid incident in which trapped and wounded casualties were liberated from heavy debris and treated first by street methods and ultimately in a first aid post. The films have been shown at first aid posts and to wardens, firemen, army units, the first aid personnel of business firms and the general public. The practical and instructional value of these films is self evident.

### "PATENT MEDICINE" SHOWS

Physicians have noted rather blatant claims in present day "patent medicine" advertising on the radio. Protection of the public against such nostrums has increased greatly since the time when the ancient vender went from town to town with a horse and wagon, accompanied by an old Indian chief and a banjo player and carrying a stock of "cure-alls." Advertising beyond the package—that is, newspaper, magazine and radio advertising—did not receive the special consideration of any federal agency until the enactment of the Wheeler-Lea Amendment to the Federal Trade Commission Act. A clause in that particular act reads "The term 'false advertisement' means an advertisement, other than labeling, which is misleading in a material respect, and in determining whether any advertisement is misleading, there shall be taken into account (among other things) representations made or suggested by statement, word, design, device, sound, or any combination thereof." This includes, no doubt, statements that are made via radio. Following the enactment of this legislation an

attempt was made by some promoters to avoid direct statements of a misleading character by adding a qualifying word or phrase. This makes little, if any, difference in the impression created when such words are hurriedly read by the announcer. Such phrases as "in the absence of an organic trouble, this will build your blood back to normal," "acts to prevent," "we believe it reduces," "perhaps your kidneys are to blame" and "should give you soothing relief" are seldom carefully analyzed by the vast majority of listeners. The radio stations over which such material is being broadcast will become interested in the misleading nature of the copy. Their programs are subject to review by the Federal Communications Commission every six months in connection with the reissuance of their licenses.

### COSMETICS AND THE LAW

The following item appears in the Information Digest for April 2, 1942, issued by the Office of Government Reports at Washington, D. C.

#### HEALTH AND WELFARE

The Food and Drug Administration, since enactment of the Food, Drug and Cosmetic Act of 1938, has seized more than 300 consignments of cosmetics containing potentially dangerous ingredients, Federal Security Administrator McNutt announced. Articles such as sight-destroying eyelash dyes, harmful skin bleach creams, lipsticks and a highly injurious permanent waving solution were taken. Mr. McNutt said the law has brought "a marked improvement in the safety of cosmetics now on the market."

The information calls attention to the fact that some manufacturers seem to be motivated entirely by the desire for profit and without regard for the welfare of the consumer. Especially reprehensible is the promotion of products for enhancing beauty which have such vicious results as the destruction of eyesight. The cosmetic industry is now undergoing experiences similar to those encountered by the drug industry in the years following the enactment of the first comprehensive piece of legislation definitely affecting them—the Food and Drugs Act of 1906 as amended. Some concerns in the cosmetic field are following closely in the footsteps of those pharmaceutical concerns which in 1906 instituted the reforms which led to their development as ethical concerns. Those houses were encouraged in their efforts by the work of the Council on Pharmacy and Chemistry in that field. Similarly, the consideration for the acceptance of advertising in the publications of the American Medical Association of cosmetic preparations which the manufacturers submit with adequate information as to the suitability of the formula and with limitation of claims to honest statements may serve to encourage the further development of ethical cosmetic concerns. Needless to say, some others will continue to flout, evade and violate the provisions dealing with cosmetics in the legislation mentioned. The vast majority of cosmetic preparations on the American market are safe to use. Those who market cosmetic preparations without sufficient scientific study to establish safety should be ready to accept the fullest penalty that the laws provide.

<sup>1</sup> Humble, B. H., and Means, A. G. Color Films in First Aid Training, *Lancet* 1: 569 (May 9) 1942.

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# MEDICINE AND THE WAR

*In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession*

## THE PROCUREMENT OF PHYSICIANS

A Statement for The Journal of the American Medical Association

PAUL V McNUTT  
Washington, D C

On June 8 I described to the American Medical Association at its Atlantic City meeting the acute need for physicians for the military services. I pointed out how far the recruitment of physicians lagged behind expected quotas. In conclusion I stated bluntly the fact, which could not have been evaded by any analysis, that unless voluntary recruitment progressed more rapidly some more rigorous form of selective service must be resorted to.

Those facts were necessary in order to permit the medical profession to diagnose its own case. And the case is urgent, physicians are members of what is probably the most indispensable of all professions. Despite the harshness of the facts and the bluntness with which I had to state them, I felt that the profession should be informed.

In fairness to the recruitment record of many of our states, it seems in order at this time to give the profession some further idea of how its problem is distributed. The failure of a sufficient number of physicians to volunteer for military service is not spread thinly over the whole country. There is an acute lag in certain populous states. Other states have supplied nearly all that they should supply.

We need more than twenty thousand additional physicians by the end of this year. But eight states—New York, Illinois, California, Pennsylvania, Massachusetts, New Jersey, Michigan and Ohio—should account for nearly sixteen thousand of that shortage.

By contrast, sixteen states have fewer than a hundred physicians to go to reach the total number they should supply. In order not to deplete unduly available medical service in those areas, we are asking that the Medical Officers Recruiting Boards be withdrawn and that further enlistments from those areas be then discouraged except in the case of the men under 37 in the urban areas. Those states are Alabama, Arizona, Delaware, Idaho, Louisiana, Mississippi, Montana,

Nevada, New Mexico, North Dakota, South Carolina, South Dakota, Utah, Vermont, Wyoming and Virginia.

The acute problem for the next few months for those states is an equitable distribution of medical service within their borders. This will avoid the necessity for any consideration of plans to allocate doctors from other states to meet civilian needs.

More than one hundred and thirty thousand physicians have returned their registration forms to the Roster for Scientific and Technical Personnel. Those forms are now being processed. When that work is complete we shall be able to give the profession a more comprehensive report on the relation of available medical service to wartime needs.

The seriousness of the deficit in the number of physicians available for armed forces should not be underestimated. The need must be met. It will be met by one method or another. Neither must we underestimate the serious drain this puts on available medical services in civilian communities. It will mean long hours and hard work—sacrifices which will multiply the deep debt that every community owes to its physicians.

It cannot be met simply by multiplying the hours of the physicians who are left. There will be a real need to exercise every possible means for minimizing unnecessary medical services in order that the real needs may be met.

It is my belief that the lag in recruitment has been due chiefly to the fact that the individual physician has not realized the genuine urgency of the need. Measures must be taken which will bring those home to every individual. This means that there will have to be some education of the general public. Preventable illness must be reduced to a minimum. Unreasonable demands on the physician's time must be reduced to a minimum. Thus only max available medical service adequately cover the needs.

## PROVISIONS OF THE AMERICAN RED CROSS FOR THE CARE OF CASUALTIES CAUSED BY ENEMY ACTION

At the request of the Surgeon Generals of the Army and Navy the American Red Cross and the Division of Medical Sciences of the National Research Council have organized and are conducting a joint undertaking to procure from voluntary donors large amounts of human blood to be processed into dried blood plasma to be used for transfusions. It was agreed that this plasma is to be available not only for a military emergency but also for civilian catastrophes for which blood transfusions may be indicated.

The organization known as the Red Cross Blood Donor Service is the only official agency for recruiting blood donors for the armed forces and for the U S Office of Civilian Defense. It has established blood donor centers in eighteen of our larger cities that are conveniently near the laboratories producing dried blood plasma for the armed forces. About four hundred thousand donations of blood had been procured by the service up to June 15, and plasma is being processed and released to the Army and Navy as rapidly as pos-

sible This project is being carried on at an accelerating rate

At present the available plasma by no means adequately meets the requirements of the armed forces, which at such a time must have first call on all our efforts to assist in their care and support. However, large amounts of human blood plasma are being produced, and the Surgeon General's Office of the Army, acting for itself and the Navy, is cooperating with the Red Cross as far as present conditions allow for the protection of the civilian population.

Army Regulations No. 500-60, issued Dec. 1, 1939, govern the War Department activities in connection with disaster relief. These regulations recognize the responsibility for the relief of suffering in case of disaster placed on the American National Red Cross in its congressional charter of Jan. 5, 1905 and establish the methods of cooperation between the United States Army and the Red Cross. These regulations set forth a mechanism by which the Red Cross may call on the Army for supplies and medicines whenever disaster or catastrophes demanding such assistance may occur. This relationship has recently been confirmed by the Surgeon General as applying to the supply of dried blood plasma that may be available in this country in case of a catastrophe among the civilian population. It may be said, therefore, that the supply of dried human plasma held by the Army in this country may be called on by the Red Cross for civilian catastrophes in which blood transfusions may be indicated.

Because of the fact that up to the present time the Army and Navy are not maintaining a large supply of plasma in this country, the Surgeon General's Office of the Army has allowed the Red Cross to procure a supply of dried plasma from that being processed for the armed forces. This supply is being held by the Disaster Relief Service of the Red Cross in a number of its chapters in so-called target areas, and, as the available amount of plasma increases, these depots are being backed up by larger amounts at strategic points. It is thus planned to have on hand a supply of plasma that may be used during the first few hours of a catastrophe and a larger supply not far away that can be called on immediately. This plan of distribution has been determined in conjunction with the Medical Division of the United States Office of Civilian Defense, and the plasma is to be released immediately by the

Red Cross to an authorized representative of the Medical Emergency Service of the Office of Civilian Defense in any locality where enemy action has caused casualties.

Other measures for civilian protection have been taken by the Red Cross. As the Blood Donor Service has supplied blood to the laboratories somewhat faster than they have been able to complete the drying process at the beginning of their operations, a large number of units are being held in the frozen state. The Army and the Red Cross have agreed to release a large supply of frozen plasma on the Pacific Coast to the Surgeon General of the U. S. Public Health Service from the processing laboratory there, which will be available for civilian protection through cooperation with the Office of Civilian Defense. Frozen plasma in other laboratories may also be made available for civilian protection.

The Red Cross Blood Donor Service is also procuring blood directly for the Office of Civilian Defense, which plans to have 50,000 units of dried plasma processed in a laboratory that is not being used for military purposes. The service has arranged that its highly trained bleeding teams, of which there are about forty in the blood donor centers, shall be on call at all times as blood procurement teams in case of catastrophe. These teams consist of a doctor, four graduate nurses, a secretary and one or two men helpers. The whole blood that may be on hand in the refrigerators of any blood donor center when a catastrophe occurs will be available to hospitals for transfusion purposes if needed.

Blood donor centers are located in Boston, New York, Brooklyn, Philadelphia, Baltimore, Washington, Pittsburgh, Rochester, Buffalo, Cincinnati, Cleveland, Indianapolis, St. Louis, Chicago, Detroit, Milwaukee, San Francisco and Los Angeles.

These facilities of the American Red Cross for providing blood for transfusions of civilians that may be injured by enemy action indicate that, if and when enemy attacks on the civilian population occur, a transfusion service will be available. These facilities are being gradually expanded and supplemented by the developments sponsored and directed by the Office of Civilian Defense, to which the Red Cross has given full cooperation.

As the supplies of plasma of the armed forces increase in this country, the amount available to the Red Cross in case of civilian catastrophes will be further reassuring.

### COURSES ON CHEMICAL DECONTAMINATION PROBLEMS

Starting June 29 and again on July 13, four day courses on chemical decontamination problems will be given at the Massachusetts State College, Amherst, Mass. Registration will be limited to fifty for each of the courses, which are sponsored by the Massachusetts State College, the Massachusetts Department of Public Health and the Massachusetts Committee on Public Safety in cooperation with the United States Office of Education, with the object of training chemists and bacteriologists in methods of contamination detection and decontamination of water supplies, foods and areas so that municipalities may have competent technical advisers to the local committees on public safety. The major portion of the course will comprise work in the laboratories and field demonstrations. Applications for registration, which may be made to any local civilian defense headquarters, will be accepted from citizens of the United States who have completed an approved four year college course, majoring in chemistry or bacteriology, plus two years of professional experience, or six years of equivalent

professional experience. Rooms will be provided for three nights in dormitories at Massachusetts State College, and meals will be served at the college dining hall. The total cost of rooms and meals will be \$8 per person.

### DEGASSING STATIONS IN SAN FRANCISCO

San Francisco has the most comprehensive program for gas protection of any large community in the United States. Col. George Baehr, chief of medical division of the Office of Civilian Defense, is reported to have said the latter part of May on a tour of inspection of the degassing station at San Francisco Hospital. According to the San Francisco Chronicle of May 26 the board of supervisors of the city authorized forty-one degassing stations throughout the city and appropriated a total of \$689,564 for civilian defense. The chairman of the Red Cross gas committee, Dr. M. L. Tainter, has prepared a plan which would provide for a degassing unit for each square mile of San Francisco, and at an estimated cost would be, it was said, remarkably low.

## MOBILE UNIT OF CHICAGO BLOOD DONOR SERVICE

The Chicago chapter of the American Red Cross placed in operation, June 8 a mobile unit for the collection of blood from donors. Certain requirements must be filled by the local community requesting the mobile unit, and the facilities must be inspected and approved by a representative of the blood donor service of the American Red Cross before a definite date can be arranged. There must be a minimum of 100 persons over 18 and under 60 years of age who weigh 120 pounds or more and who are in good health. The local facilities must provide a clean, well ventilated space adequate for (1) a reception room to accommodate about 16 persons, (2) a room to accommodate ten cots with a sink with running water, (3) a smaller adjoining room or additional space which may be curtained off to be used as a recovery room, (4) a room with adjoining kitchen facilities which may be used as a canteen, (5) conveniently located toilets.

For the present, the mobile unit will not be sent outside of the area covered by the Chicago chapter of the American Red Cross which includes Cook and Du Page counties and the southern half of Lake County, Ill.

## MANY JUNE GRADUATES ENTER MILITARY SERVICES

The annual national survey of colleges, technical schools, other than military academies and theological seminaries, and universities in the United States made by the Investors Syndicate indicates that 50 per cent of all the male graduates in June from one hundred and fifty-six leading institutions would join the Army, Navy or Marine Corps after commencement. Of another group of sixty-six schools more than 25 per cent of the graduates were to enter the military services, while of a third group of one hundred schools less than 25 per cent of the graduates were to enter the military services.

Among the non-war positions offered to graduates, the profession of teaching received two out of every five 'mentions,' while secretarial work ranked second to teaching in non-war employment opportunities, being cited in one seventh of the mentions.

The survey indicated that less than 3 per cent of the June graduates would enter such fields as medicine, chemistry, nursing, laboratory research, banking, selling, social work, home economics, accounting and clerical work.

## MEDICAL AND SURGICAL RELIEF COMMITTEE

The Medical and Surgical Relief Committee, a nonprofit relief organization organized in 1940, is composed of physicians, surgeons and dentists throughout the United States who have volunteered their assistance. Since the United States went to war the policy of the committee has been to concentrate its efforts on relief in the United States. Up to June 4 the committee had supplied one hundred and eighty-six emergency medical field units to hospitals and casualty stations throughout the country. Now the committee intends also to distribute emergency medical field units to whatever country our own fighting forces are sent.

The committee has its headquarters at 420 Lexington Avenue, New York City where it functions under a permit under the department of state (No 357). A report is filed with the department of state every month and the accounts are audited quarterly by certified public accountants. The committee is dependent on public contributions for its support. Its medical and surgical supplies are obtained from the medical profession which contributes used and obsolete surgical instruments, food supplies and pharmaceuticals. The instruments are reconditioned and then distributed. The committee which is constantly sending canned foods and pharmaceutical products to welfare agencies has recently sent a large amount of milk products to be distributed to the undernourished children of Tennessee, Georgia and the Carolinas. The committee recently donated 23 cases of dental instruments and supplies to Dr. Gordon Agnew, professor of dental surgery in West China University of whom word has been received of his safe arrival

in China with these supplies. Many foot dental drills which had been donated by the committee of dentists throughout the country will be found useful in districts where there is no electricity.

During May supplies valued at \$10,240.64 were furnished needy hospitals, first aid posts, emergency medical services and other relief agencies in the United States and allied nations. The shipments included 41 emergency medical field sets, 11 cases of assorted instruments, 31 cases of medical supplies, and concentrated foods.

## CIVILIAN DEFENSE

The Cambria County (Pa.) commissioners have purchased thousands of dollars' worth of medical supplies for the health committee of the Johnstown Defense Council and these have been recently distributed among the mobile units.

At a conference in Duluth, May 11, Major Paul Swan of St. Paul, of the Minnesota Defense Force said that the state serum laboratory has prepared a reserve of serum which will be distributed to key points in Minnesota and northern Wisconsin for use in emergencies, the serum will be distributed under the direction of the Minnesota adjutant general. At this meeting the coordination of the medical phases of civilian defense in northeastern Minnesota and northwestern Wisconsin were discussed by Dr. Frank J. Elias of Duluth, chairman of the ninth councilor district of the Minnesota State Medical Association and Dr. Wallace D. Hunt of the seventh corps defense region and officials from Minnesota and Wisconsin.

## COURSE ON MEDICAL ASPECTS OF CHEMICAL WARFARE

The second five day course on medical aspects of chemical warfare was conducted on April 20-24 by the Medical Division of the Office of Civilian Defense in cooperation with the University of Cincinnati College of Medicine and the assistance of the Chemical Warfare Service, Edgewood Arsenal, Maryland. The thirty-six physicians who attended the course were addressed, among others by Drs. James H. Bennett, Marion A. Blankenhorn, Albert L. Brown, R. H. Broh-Kahn, Howard D. Fabing, Leon Goldman, Robert A. Kehoe, Milan A. Logan, Willard M. Machle, Arthur Mirsky, Vinton E. Siler and Mr. George Hermann.

Similar courses were presented in the Western states at Los Angeles, June 5-7, Palo Alto, May 29-31 and Seattle, June 12-14. A group of instructors is thus being trained who will conduct institutes for physicians in their own communities in cooperation with the state and local medical societies and the state and local defense councils.

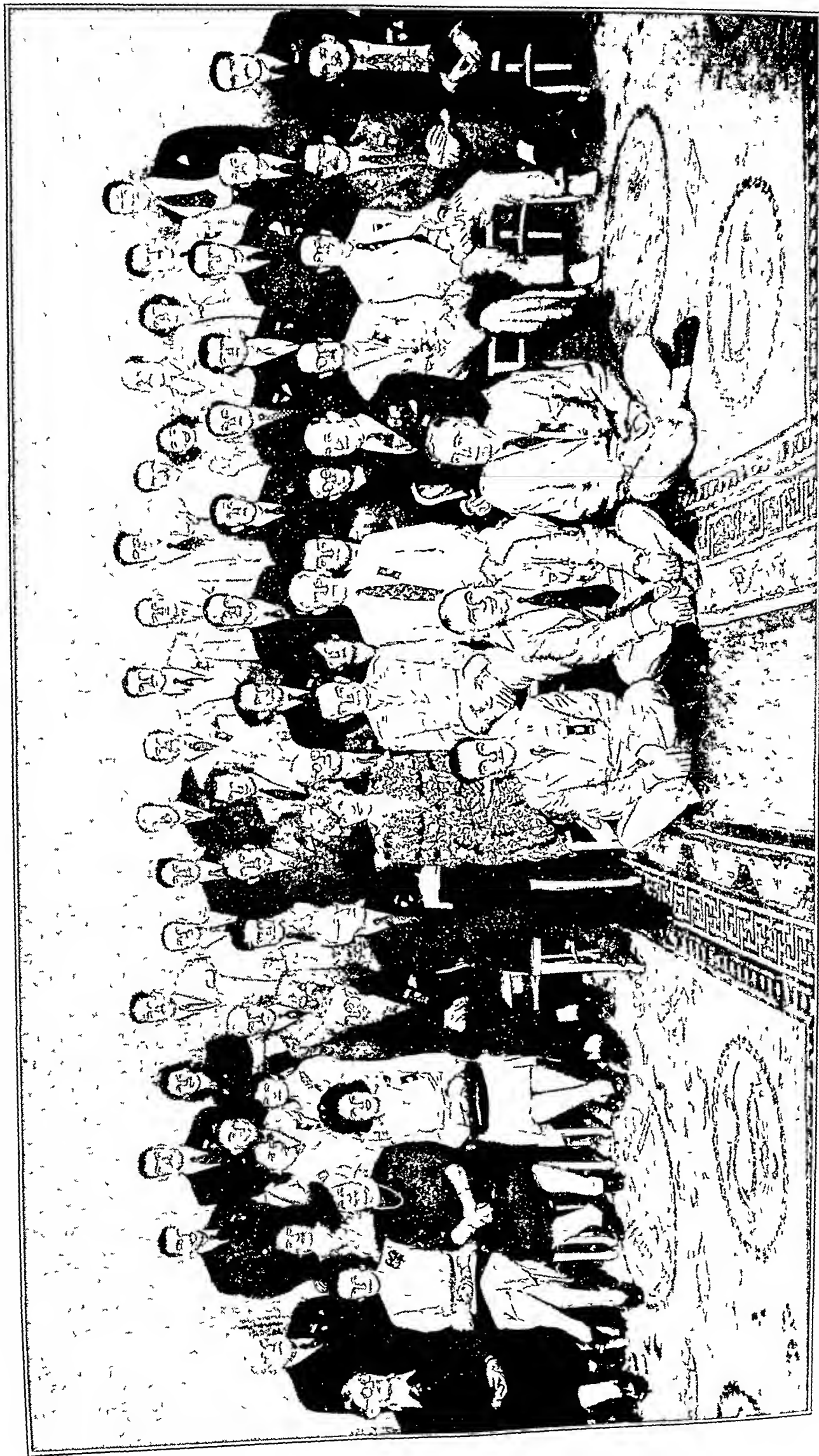
## EMPTY VACOLITERS GIVEN TO ARMY AND NAVY IN HONOLULU

Since the raid on Pearl Harbor, Hospital Purveyors, Ltd. has issued more than 8,000 empty vacoliters free of charge to the army and navy and the several hospitals in and about Honolulu and these hospitals have been permitted to retain the empty containers since they use the contents for intravenous injections. The vacoliters are the property of the Baxter Laboratories of Glendale, Calif., and in normal times are returned to the laboratory for refilling. Mr. Emery S. Beardsley, president of Don Baxter Incorporated has authorized the manager of Hospital Purveyors to continue donating these containers as long as they may be of use to the community. Each empty vacoliter is valued at thirteen cents.

## AIR RAID CASUALTY STATIONS

Los Angeles County, Calif. now has an air raid casualty station available for every 10,000 of population. Dr. W. L. Halverson, county health officer, reports. He says there is a total of one hundred and eighty stations, 53 per cent of them fully equipped and the remainder partially equipped. The lack of equipment at some stations is not serious as equipment from nearby stations can be easily transferred.





PAN AMERICAN DELEGATES TO THE NINETY THIRD ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION ATLANTIC CITY JUNE 8 12 AMONG THOSE INCLUDED IN THIS PICTURE, TAKEN AT THE RECEPTION TO THE VISITORS BY THE BOARD OF TRUSTEES AND THE COUNCIL ON SCIENTIFIC ASSEMBLY ARE DR AND MRS FRED W RANKIN LEXINGTON KY DR FRANCO SEDASIAO VIEIRA BRAZIL DR JOSE RODRIGUEZ PASTOR PUERTO RICO DR OLIN WEST CHICAGO DR JAMES E PAULLIN ATLANTA GA DR MORRIS FISHBEIN CHICAGO DR AND MRS RAIMUNDO DE CASTRO CUBA DR AND MRS ELVIRA REY CHILIA CUBA DR AND MRS ALEJANDRO LIPSCHUTZ CHILE DR HUGH S CUMMING WASHINGTON D C DR AND MRS VICTOR CASTRO CUBA DR AND MRS JORGE CAVELIER COLOMBIA DR B SEPULVEDA MEXICO DR VICENTE S TOYOS GOMEZ CUBA DR DARIO VERA GONZALEZ PARAGUAY MISS MARTA DE LINNIN VENEZUELA DR ANCELO LOBO MACHADO BRAZIL DR ENRIQUE KOPPISCH PUERTO RICO DR IGNACIO CHAVEZ MEXICO DR JOSE B GOMEZ ARGENTINA DR AQUILES DR CARLOS M QUINTEROS ARGENTINA DR JOAS JACQUES DORNELLES BRAZIL DR RUTILIO ALAMILLA GUTIERREZ MEXICO DR FREDERICO VAN DOMSELAAR ARGENTINA DR RENE BARON ARGENTINA DR ENRIQUE JOSE CERVANTES NEW YORK DR RUY GOYANNA BRAZIL DR RAUL ALCAYAGA ARGENTINA DR PINOCHET MOREIRA CHILE DR MANUEL ROCA GARCIA COLOMBIA

# ORGANIZATION SECTION

## PROCEEDINGS OF THE ATLANTIC CITY SESSION

MINUTES OF THE NINETY-THIRD ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, HELD IN ATLANTIC CITY, JUNE 8-12, 1942

### HOUSE OF DELEGATES

#### *Second Meeting—Tuesday Morning, June 9*

The House of Delegates was called to order at 9 35 a m by the Speaker, Dr H H Shoulders

#### Roll Call and Presentation of Minutes

On motion of Dr William R Brooksher, Arkansas, seconded by Dr James Q Graves, Louisiana and carried, the House dispensed with the roll call and with the reading of the minutes

#### Report of Reference Committee on Credentials

Dr J Newton Hunsberger, Chairman, reported that one hundred and sixty-three members of the House of Delegates had been registered, that there are one hundred and seventy-five members of the House in all, but that there are two from the Philippine Medical Association who cannot be here, one from the Hawaiian Territorial Medical Association and several others who cannot be in attendance

#### Presentation and Address of Surgeon General James C Magee

Dr Fred Rankin President-Elect, presented the distinguished Surgeon General of the United States Army, Major General James C Magee, who addressed the House as follows

*Colonel Rankin, Dr Shoulders, Gentlemen* I had the privilege of appearing before this body two years ago at the beginning of the present military emergency I am very happy now to have the opportunity of repeating that experience I have no intention of making a speech because I think the points of view of my office have already been fully explained by Colonel Lull who I understand has explained our position in detail I do want, however, to make clear to you all my very deep sense of appreciation of the efforts expended by this House and by the medical societies that it represents in the furtherance of the medical effort in the present war We all know that we are having lots of difficulties, but they have not been insurmountable, and whatever those may be that are now facing us, I am quite sure that they will be ironed out This is probably America's largest medical military effort It must go through and I am quite sure it will go through Meanwhile, I would like to say a word further I believe in the last two years that we have witnessed a type of medical service for the American soldier that has never been excelled by any nation I believe I can safely say that no soldier has gone without proper medical care or succor He has been skilfully treated, he has been skilfully treated because the character of men in organized medicine in America is superior to any And if we continue in the future as we have in the past, I believe the American medical profession will add to its laurels I am very happy to be here and I will not detain you longer

#### Report of Reference Committee on Medical Education

Dr Walter G Phippen Chairman presented the following report, which on motions duly made, seconded and carried, was adopted section by section and as a whole

1 Request that American Medical Association inspect and Approve or Disapprove Present and Future Schools for Train-

ing of Medical Record Librarians Your reference committee considered the request presented by Dr W A Coventry, Minnesota on behalf of the American Association of Medical Record Librarians, and duly heard its proponents and members of the Council on Medical Education and Hospitals This request is that the American Medical Association undertake the standardization, inspection, approval and listing of schools for the training of medical record librarians Your reference committee believes that this is a proper function of organized medicine and that the need of such standardization is imperative Your reference committee believes that this undertaking should properly be carried out by the Council on Medical Education and Hospitals, but that since it involves the expenditure of funds your reference committee recommends that the standardization, inspection approval and listing of schools for the training of medical record librarians be referred to the Board of Trustees

2 Report of Council on Medical Education and Hospitals on Demise of Dr William D Cutler Your reference committee has reviewed the report of the Council on Medical Education and Hospitals and notes with sorrow and with approval the statement on the demise of Dr William D Cutler and moves the adoption of that statement

3 Report of Council on Medical Education and Hospitals on Programs for Accelerated Curriculums and for the Medical Student Your reference committee agrees with the wisdom of the Council on Medical Education and Hospitals in recommending the policy of local self determination by individual medical schools in adopting a program for accelerated curriculums It commends the Council on Medical Education and Hospitals for the part that it played in working out a program for the medical student vis-a-vis his military obligations and for its study and consideration of these situations caused by depletion of interns, residents and faculty members

4 Appendix to Report of Council on Medical Education and Hospitals Your reference committee has reviewed the appendix to the report of the Council on Medical Education and Hospitals entitled "Essentials of an Approved Internship" and recommends that the first sentence in paragraph one of section seven entitled Radiology be changed to read as follows "This department should be equipped with suitable shockproof apparatus" With this small change your reference committee recommends the adoption of "Essentials of an Approved Internship as presented in the appendix of the report of the Council

5 Outline of "Essentials of an Acceptable School for Clinical Laboratory Technicians" Your reference committee recommends at the request of the Council on Medical Education and Hospitals that the outline of "Essentials of an Acceptable School for Clinical Laboratory Technicians" adopted in its revised form June 4, 1941 be amended by the introduction of the words 'approved medical schools' in chapter one, paragraph one so that its first sentence reads as follows "Acceptable schools for training laboratory technicians may be conducted by approved medical schools general hospitals, or state health laboratories affiliated with hospitals where the majority of the student's practical training is received"

Respectfully submitted

WALTER G PHIPPEN, Chairman  
JAMES R MILLER  
EDWARD H SKINNER  
A W ADSON  
I J MENVILLE

### Report of Reference Committee on Hygiene and Public Health

Dr Felix J Underwood, Chairman, presented the following report

1 Resolution Expressing Appreciation of American Medical Association for Friendly Cooperation of the Broadcasting Companies Your reference committee approves the resolution presented by the Board of Trustees to the effect that a copy of its resolution expressing the appreciation of the American Medical Association for their friendly cooperation be transmitted by the Bureau of Health Education to the broadcasting companies

2 Report of Board of Trustees Dealing With Work of Bureau of Health Education Your reference committee warmly approves the work being done by the Bureau of Health Education in every way, but more particularly in the matter of its radio series Doctors At Work, which has now been in production over two years and which, in itself, is a development of eight years of effort The trustees might well consider the expenditure of funds for the further development of this type of program

3 Report of Committee to Study Problems of Motor Vehicle Accidents Your reference committee approves the report and commends the Red Cross and other agencies which have interested themselves in first aid Attention is called to the fact that first aid manuals are written by physicians and that first aid teaching is initially done by physicians and that the cooperation lies in their willingness to render the service and the willingness of the agencies concerned to accept it

4 Resolution on Control of Venereal Disease Your reference committee approves of the resolution in principle The committee is not in a position to adjudicate the ethics of the situation, but it is convinced that the practice brought out by the resolution is detrimental to the efforts for reducing the incidence of venereal disease

Respectfully submitted,

FELIX J UNDERWOOD, Chairman  
W F DRAPER  
HOLMAN TAYLOR  
ROBERT L ANDERSON  
F S CROCKETT

On motions duly made, seconded and carried, the first three sections of the report of the reference committee were adopted

Dr Underwood moved the adoption of the fourth section of the report referring to the Resolution on Control of Venereal Disease Dr Arthur T McCormick, Kentucky, moved as a substitute that the House adopt the resolution as presented This motion was seconded, and after discussion by Drs Thomas A McGoldrick, New York, R W Fouts, Vice Speaker, A T McCormack, Kentucky, Clyde L Cummer, Section on Dermatology and Syphilology, and Holman Taylor, Texas, it was moved by Dr Clyde L Cummer, Section on Dermatology and Syphilology, that this section of the report be rereferred to the reference committee for revision, and the motion was seconded by Dr Arthur J Bedell, Section on Ophthalmology, Dr McCormack withdrawing his motion The motion to rerefer this section of the report to the reference committee was adopted

On motion of Dr Underwood, seconded by Dr A T McCormack, Kentucky, and carried, the report was adopted as a whole with the exception of the fourth section, which was rereferred to the reference committee

### Report of Reference Committee on Amendments to the Constitution and By-Laws

Dr Walter E Vest, Chairman, presented the following report

1 Resolutions Requesting Change in By-Laws Limiting Time for Introduction of New Business in House of Delegates Your reference committee has considered the resolutions presented by the State Medical Society of Wisconsin proposing that all resolutions introduced by delegations from the constituent associations be presented to the Secretary of the American Medical Association sixty days in advance of the annual session and referred by the Secretary to the state secretaries and the individual delegates to the American Medical Association

It is the opinion of your reference committee that the principle embodied in this resolution is sound but that the adoption of the proposed amendment to the By-Laws would prove impractical, in that it would necessitate that resolutions adopted by state associations within the proposed sixty day period lay over until the second annual session of the American Medical Association's House of Delegates subsequent to their adoption by the state associations Your reference committee recommends that the resolutions introduced by the State Medical Society of Wisconsin be not adopted

Your reference committee recommends to the constituent state associations, however, that the principles involved be followed and that resolutions adopted by state associations intended for presentation to the House of Delegates of the American Medical Association be presented to its Secretary promptly after adoption by such state associations and that such resolutions as are received in time be published in the number of THE JOURNAL containing reports of officers

2 Report of Judicial Council on Amendment to Constitution Relative to Composition of House of Delegates Your reference committee has carefully considered that portion of the report of the Judicial Council referred to it for consideration, that is the recommendation that the Constitution, article 5, section 2, be amended to make delegates elected by the sections of the Scientific Assembly ex officio delegates without the right to vote

It is the opinion of your committee that the Constitution should not be so amended because (1) a large number of the members of the American Medical Association are now in government service and are therefore unlikely to wield influence on their representatives in this House of Delegates and (2) the adoption of such an amendment might tend toward the classification of the American Medical Association as a business league rather than as it is now classified, namely, as a scientific body Your reference committee therefore recommends that the reapportionment of 1943 be made under the existing constitutional provisions

3 Proposed Amendment to Constitution Relative to Number of Trustees Your reference committee has given careful consideration to the proposed amendment to the Constitution presented to the House of Delegates at the Cleveland session in 1941, and it is its opinion that this proposed amendment should not be adopted

The Board of Trustees as at present constituted seems to have discharged its varied and important duties in a highly efficient manner, leaving no reason to believe that numerical expansion of the Board would increase its efficiency

Respectfully submitted,

WALTER E VEST, Chairman  
WALTER F DONALDSON  
KARL S J HOHLEN  
EDWARD M PALIETTE SR  
WILLIAM WESTON

The first section of the report of the reference committee was adopted on motion of Dr Vest, seconded by Dr William R Brooksher, Arkansas, and carried after discussion by Drs T K Gruber, Michigan, Arthur J Bedell, Section on Ophthalmology, and Dr Vest

No action was taken on the second section of the report of the reference committee, since the Speaker ruled that the subject matter therein contained had been referred to the Reference Committee on Sections and Section Work

The recommendation of the reference committee contained in the third section of the report was adopted by rising vote on motion of Dr Vest, seconded by Dr A T McCormack, Kentucky, and carried after discussion by Drs Edward H Cullen, Texas, Thomas S Cullen, Maryland, William R Molony Sr, California, Edward H Skinner, Section on Radiology, John Brown, Utah, William Weston, Section on Pediatrics, John H Fitzgibbon, Oregon, Walter B Martin, Virginia, A T McCormack, Kentucky, Olm West, Secretary, and Dr Vest

On motion of Dr Vest, seconded by Dr A T McCormack, Kentucky, and carried, the report of the reference committee with the exception of the second section on which no action was taken, was adopted as a whole

### Report of Reference Committee on Reports of Officers

Dr Deering G Smith, Chairman, presented the following report which on motions duly made, seconded and carried, was adopted section by section and as a whole

1 Address of Speaker Your reference committee appreciates the leadership of the Speaker in the efforts of this House of Delegates to preserve the "American way of life" He has made a keen analysis of the present situation and your reference committee agrees with him that the record of the medical profession is "altogether sufficient to give to the American people, to soldiers and to the mothers and fathers of soldiers, the highest form and the fullest measure of assurance as to what you and the profession you represent can be depended on to do today, tomorrow and until victory has been won"

2 Address of the President Dr Lahey has been a militant leader of our Association during these troublesome times, and his work as Chairman of the Board of Procurement and Assignment Service has been outstanding Your reference committee approves of his preparedness and war efforts, which took precedence over the usual presidential duties He has taken every opportunity to try to make the public and the medical profession conscious of the seriousness of the war In spite of his efforts and the efforts of others, it is apparent that the country is still not aware of the urgency of the situation Your reference committee expects that you, as leaders of the medical profession, will assist Dr Lahey in preaching this gospel "that optimism is one of the things which can lead to our downfall"

3 Address of the President-Elect It is very fitting and indeed remarkable that our President-Elect should also hold a high position in the Army of our country In his address, he has shown deep insight into the many problems now confronting the medical profession Your reference committee believes that the physicians appreciate the privilege of having been accorded a voice in the allocation of medical personnel in the war program and recommends that we stand back of the Procurement and Assignment Service It agrees with Dr Rankin that this is a young man's war but that the old men left at home will have to do work of equal importance and believes that the standards of medical education, including internship, should be kept at as high a level as is consistent with the war effort Every attempt should be made to conserve the teaching facilities including even essential younger men, so that the supply of well trained physicians shall be maintained Your reference committee concurs in the necessity for the curtailment of the postgraduate education of specialists The principles of this curtailment have been stated clearly in the address of the President-Elect The suggestion of Dr Rankin that meetings for the postgraduate education of the general practitioner, with programs featuring intensive instruction by competent teachers with the elimination of discussions, be sponsored by this Association seems to be admirable Your reference committee recommends that this proposal be referred to the Board of Trustees for study

Respectfully submitted,

DEERING G SMITH, Chairman  
EDWARD C PODVIN  
THOMAS A PITTS  
J H IRWIN  
MEREDITH MALLORY

### Report of Reference Committee on Reports of Board of Trustees and Secretary

Dr L H Bauer, Chairman, presented the following report, which on motions of Dr Bauer, duly seconded and carried was adopted section by section and as a whole

#### REPORT OF SECRETARY

Membership and Fellowship Your reference committee notes with satisfaction the steady increase in membership and Fellowship in the Association It seems to the committee that the increases are an indication of a steadily mounting feeling among physicians of the importance of being associated with organized medicine

Secretaries' Conference The Secretaries' Conference held annually is an excellent additional means of coordinating all state activities with those of the national body and these conferences should be continued

War Activities These will be discussed in detail by another committee and are referred to only for sake of completeness and to invite the attention of the House to the fact that a tremendous strain has been thrown on the Secretary's Office by the necessity of carrying on these war activities

Submission of Memorials and Resolutions The matter of requiring all memorials and resolutions for the House of Delegates to be submitted in advance so that they may be printed prior to the session is a good idea in theory but not practicable of execution As a resolution pertaining to this specific matter has been introduced and referred to another committee for action, this committee makes no recommendation about it

Suspension of Dues for Military Service This is a matter of information and requires no action other than education of the members It does not seem to be clearly understood that no member as such pays any dues whatever to the American Medical Association His membership is contingent on his being a member in good standing in his county or district society, and of the dues which he pays to his county and state societies not one cent accrues to the American Medical Association Only Fellows pay dues, and these dues are largely in payment of the publications to which they may subscribe Therefore it seems to your reference committee that not only is it a fact that Fellowship dues cannot be suspended or remitted without amendment of the Constitution and By-Laws but also that there is no reason to suspend or remit them The heavy load of dues is usually in the state and county assessments, and these organizations can take such action as they deem fit In fact, many of them already have arranged for revision of dues for those in the military services The subscriptions to the publications of the American Medical Association also furnish a means whereby the doctor in military service may keep abreast of the changes in general medicine pending the time he may return to private practice Hence it does not seem to your committee that it is advisable to recommend amendment of the Constitution and By-Laws to provide for the remission of dues of Fellows who are in the military service

Service of the Secretary The committee notes that this year completes twenty years of service of Olin West as Secretary of the American Medical Association He extends his thanks and appreciation as usual to all those with whom he has had contact It seems to the committee that it is high time for the House of Delegates to pay tribute to Olin West One familiar with organized medicine can hardly think of the American Medical Association without thinking of Olin West, and the converse is equally true Your reference committee therefore recommends that the House extend its felicitation and thanks to Dr West and its hope that he will continue to serve us as Secretary for many years to come

#### REPORT OF BOARD OF TRUSTEES

The report of the Board of Trustees contains, as usual, a wealth of material which it behooves every member of the House to study Specifically, your reference committee invites your attention to the following

1 Income and Expenditures It is comforting to note that gross income, income from Fellowship dues and subscriptions and income from advertising were all greater for 1941 than for 1940 However, not too much optimism should prevail, as costs are going up and income from Fellowship dues may decrease as the result of many Fellows entering the military service and not keeping up their Fellowships, and advertising is likely to fall off as the result of the restrictions on certain commodities Increases are bound to occur also in wages and salaries, not only because of possible wage increases, but also because of additional personnel necessary to handle war activities The maintenance of the Councils bureaus and committees was about \$22,000 less for 1941 than for 1940 This probably will not occur again A new building for storage purposes had to be constructed This cost will probably be nearly \$215,000, but this is an expense that will not occur again for many years at least The Board of Trustees states that it is effecting economies wherever such economies will not interfere with efficient operation It is a noteworthy fact which accounts probably in no small measure for the efficiency of the Association that



many of the employees have been in its employ for fifteen to thirty-five years. This speaks for the employer-employee relationship of the Association.

2 **THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION** Your reference committee notes with approval the action of the Trustees in dividing *THE JOURNAL* into three volumes a year instead of two. The program of medicine and war is approved. It is noted that the increase in subscribers to *THE JOURNAL* is steadily increasing, but there are still some states with less than 50 per cent of their physicians receiving it.

3 **Special Journals** Two of these journals showed a loss in the number of subscribers, all the others an increase. Two of them show an increase in income over the cost of publication. There is still a loss incurred in the publication of these journals as a whole, but it is gratifying to note that last year the loss was over \$18,000 less than for the preceding year. These journals fill a useful, even necessary, place, and their publication should be continued even though they are operated at a loss.

4 **WAR MEDICINE** This journal has had a remarkable reception and it is filling a necessary place in medical publications. It is noted that the Division of Medical Sciences of the National Research Council wishes it to be published monthly. The matter of when and if this is to be done should be left to the Board of Trustees.

5 **HYGEIA** *HYGEIA* had the largest subscription of any year of its existence through the efforts of the auxiliaries. It has been placed in a considerable number of schools, hospitals and reading rooms of women's clubs and other organizations. *HYGEIA* serves a useful purpose in educating the public in the principles of health and the aims of the American medical profession in improving the health of the general public. Effort should be made by the state and county societies to extend the distribution of this magazine.

6 **Press Relations** The attention of those who have criticized the American Medical Association on its press relations is invited to the report of the Board of Trustees on this particular subject. More than eighty-one thousand stories were published in the daily press of the United States in 1941, all this in addition to a large number of feature stories and editorials. During the last annual session, more space in the local newspapers was given to the news of the session than in any previous session. Over thirty-one hundred inquiries have been received from newspapers and radio stations, which indicates that the Association is considered an authority on medical matters, as indeed it should be. The scope of the material issued covers practically the field of medicine. Your reference committee feels that the press relations activities of the Association should be commended and that effort should be made to continue these activities along the same lines.

7 **Library** The use of the library is constantly increasing and, it is believed, would be even more extensively used if its services and facilities were more widely understood.

8 **QUARTERLY CUMULATIVE INDEX MEDICUS** This is a most valuable publication. It is unfortunate that the war has interrupted exchange relations with many foreign periodicals and prevented the receipt of many others. Nothing can be done about it, however, and possibly some of the material can be indexed for historical purposes at a later date.

9 **American Medical Directory** Your reference committee feels that this publication does not receive the publicity which it should. It is rather amazing that only about seventy-three hundred copies are distributed. This is an important reference book, and its value to hospitals, medical boards and county medical societies should be emphasized.

10 **Cooperative Medical Advertising Bureau** This Bureau continues to carry on its efficient activities and is of material assistance to many state journals.

11 **Mailing and Order Department** This requires no comment except to note the tremendous volume of mail passing through the Association's office.

12 **Council on Pharmacy and Chemistry** The Council has continued its useful and satisfactory relations with various governmental agencies. In the field of new drugs the Council

has been concerned with developments in sulfonamide therapy and in developments in the vitamin field. The Council has issued many reports and publications as in previous years. The work of the Council is approved and it is urged to keep a close watch on the development of vitamin therapy and to deprecate the tendency of certain commercial organizations to further "shot gun" vitamin therapy. The whole field of vitamin therapy should be clarified in order that therapeutic indications may be thoroughly understood. It should also continue to clarify the nomenclature in the production of new drugs and to discourage the use of multiple names for the same drug.

13 **Council on Physical Therapy** The work of the Council on Physical Therapy is very diversified and the attention of the House is invited to the report of its work as stated in the report of the Board of Trustees. The work of the Council is commended and it is urged to use every effort to keep control of physical therapy in the hands of a responsible medical profession and not allow it to become a commercial football.

14 **Council on Foods and Nutrition** This Council has been also largely concerned with the subject of vitamins, and the same recommendations are made to it as have just been made to the Council on Pharmacy and Chemistry. It is noted that the Council is gradually limiting its scope to devote more attention to those products which are most important from a health point of view. Your reference committee recommends approval of this trend. Steps should also be taken by the profession at large to educate the public on the purpose of the certification of foods, as the public very largely misunderstands the ideals and aims of the Association in such certification.

15 **Chemical Laboratory and Tests and Standards** The Laboratory is now in its thirty-sixth year and has been a most useful adjunct to the Council on Pharmacy and Chemistry. Both the Laboratory and the Council on Pharmacy and Chemistry suffered severely in the loss of the secretary, Dr. Paul Nicholas Leech, and the member Dr. C. W. Edmunds. The Laboratory has carried out tests on many new therapeutic agents. Seventy-two substances have been examined in addition to the various dosage forms of other products. The Laboratory has cooperated with various other organizations. The Association may well be proud of the record of the Laboratory.

16 **Council on Industrial Health** The work being done by this Council has great potentialities for service during the present emergency. There is industrial mobilization during this war as well as military mobilization. The Council feels that the physicians in community practice must be prepared to provide industrial health services in medium size and small plants and that a high degree of organization will be necessary to meet the medical requirements of wartime industrial production. Education of industrialists is essential if the advantages of medical supervision over workers is to be accepted. The Council recommends that an agency for public information preferably attached to the Subcommittee on Industrial Health and Medicine, should undertake this educational activity. The Council wisely points out that failure to encourage a voluntary program may lead to some compulsory form of medical supervision. Your reference committee therefore recommends that such an agency be set up in accordance with the recommendations of the Council. The Procurement and Assignment Service has a part to play in this industrial mobilization just as it does in military mobilization, and the Council is cooperating fully with that agency. This agency also may serve as a source of information to employers needing medical personnel. The Council reports further progress on a Dictionary of Industrial Health which is a compilation and standardization of nomenclature of industrial health. Steps have been taken by the Council to help remedy the deficiency in industrial medical education, particularly in undergraduate teaching. Health education has been recognized as a proper function of industrial practice. Attention is invited to the necessity of improving the character of the membership in cooperating committees. Industrial health in state societies and down into the local societies. The sections of the Scientific Assembly have contributed help in various problems through the creation of advisory committees. Cooperation has been intimate with other agencies of the American Medical Association in the preparation of reports and in the development of



health activities. Interest has been maintained in industrial nursing, and there are prospects of the promotion of the professional status of the industrial nurse under proper supervision. The Council is also cooperating with lay agencies in investigating and arranging for appraising established industrial medical services. The Council is also preparing an outline of principles for use in preemployment and periodic physical examinations. Occupational disease reporting is important if progress is to be made. State societies can assist in making possible the collection of such statistics. The Council has in the formation stage a program for clarifying the atmosphere on workmen's compensation and the publishing of useful data which will be of value not only to physicians but to others concerned with the subject. A committee has been appointed to carry out this program. All these actions of the Council should, in the opinion of your reference committee, be approved by the House and the various studies and programs should be continued. Aside from the work connected with actual war medicine, there is no factor which will contribute so much to the war effort as industrial health.

17 Bureau of Medical Economics. While matters pertaining to the war were referred to another committee, we cannot discuss the Bureau of Medical Economics without considering the war, as most of its activities for the past year were in the field of medical preparedness. The survey of medical personnel made by the Bureau was a marvelous piece of work. Nothing equal to it has ever been accomplished before. Despite the excellent work of the Bureau, the work could not have been done so completely and thoroughly without the wholehearted cooperation of state and county societies, to all of which the Association owes thanks. Thanks are also due to the Army and Navy for their complete cooperation. Continuous revision of the census keeps it up to date. Various special lists have been compiled of practically all necessary and useful classifications of physicians. Such lists are of inestimable benefit to the Procurement and Assignment Service. The latter service was created in October 1941, and a consultant office was established in Chicago with the head of the Bureau of Medical Economics, Dr Leland, as supervisor. This has all been a tremendous amount of work, reflecting great credit on the Bureau of Medical Economics and, in the opinion of your reference committee, the medical profession is greatly in the Bureau's debt. The Bureau has also compiled an index and digest of official actions of the House of Delegates, which will be a continuing publication and will be most useful to every one concerned with the work of organized medicine and in particular to future reference committees of this House. The work of the Bureau of Medical Economics with reference to medical service plans and the program of the Farm Security Administration will form the subject of a supplemental report by your reference committee.

18 Bureau of Investigation. This Bureau continues to be a most useful factor in the educational activities of the Association. Ten thousand inquiries were submitted to the Bureau during the past year, which gives an idea of the magnitude of the work. The Bureau is being used in an ever increasing way by teachers, news agencies and Better Business Bureaus. It has also cooperated with government agencies.

19 Bureau of Exhibits. There is no question that the Scientific Exhibit at the Cleveland session was the finest on record, and great credit is due the Bureau for it. Exhibits are also available for loan purposes and are increasing in number and educational value. Health exhibits are being lent to museums and assist in health education. Motion pictures are also available for loan.

20 Committee on American Health Resorts. The committee has prepared rules for the listing of acceptable health resorts which have been approved by the Board of Trustees. These rules are carefully drawn and will doubtless prove of value in classifying health resorts and protecting the public against unwarranted therapeutic claims and against institutions with inadequate or improper medical supervision.

21 Committee to Study Air Conditioning. The committee is continually appraising developments and publications relative to air conditioning and public health. It has compiled a large

amount of information which is available on request, and occasional publications are issued. The work of the committee should be continued.

22 Proposed Committee to Confer with the Specialty Boards. Because of constantly changing conditions due to the war and changes going on in the specialty boards, the Board of Trustees decided that now was an inexpedient time to appoint committees suggested a year ago. Approval of the action of the Board of Trustees is recommended by the reference committee.

Respectfully submitted,

LOUIS H. BAUER, Chairman  
A. R. McCOMAS  
J. F. HASSIG  
WILLIAM R. MOLONY SR.  
PARKE G. SMITH

#### Report of Reference Committee on Miscellaneous Business

Dr Charles G. Strickland, Chairman, presented the following report, which on motions of Dr Strickland, duly seconded and carried, was adopted section by section and as a whole.

1 Resolution on Preserving Progressive Techniques in Medical Practice. This resolution was given a new title in a committee conference with Dr Cary, and certain paragraphs in the preamble were eliminated in the interests of clarity. With these changes your committee recommends the passage of the resolution, which now reads as follows:

##### POSTWAR MEDICAL PLANNING

WHEREAS The conditions under which physicians have been able to function in the United States provide the factor most nearly responsible for the relatively enviable position which medicine now occupies and which is enabling organized medicine to provide the personnel and professional competence that represent an essential, even vital contribution to the war effort; and

WHEREAS It is a chief responsibility of the profession to do its utmost to continue progressive methods in medical service which will provide opportunity for those physicians who are called to military service to reenter private practice under conditions which will insure continued progress and maximum effectiveness in civilian service; therefore be it

Resolved That we the House of Delegates of the American Medical Association place ourselves officially on record as recognizing our responsibility for making the utmost effort to preserve the elements of independence and freedom of action that will make possible the easy reentry of physicians to civilian practice. To this end we recommend that a definite part of each program of every component member medical society be devoted to a reconsideration of the traditions, the standards, the freedoms and the effects of the absence of restraints and outside controls which have contributed so materially to American medicine's unequalled progress and vast achievements.

2 Resolution Requesting Approval of Principles of American College of Apothecaries. Your reference committee sympathizes with and approves of the high ideals mentioned in the preamble of this resolution requesting endorsement of the American College of Apothecaries and it deplors the encroachment of commercialism on the old line pharmacy. It is, however, unable to recommend the passage of the suggested resolution, which to a certain extent commits the American Medical Association as sponsors of an organization outside our immediate profession.

3 Resolutions on Hospital Corporations Engaging in Practice of Medicine. While these resolutions were given careful consideration, your reference committee was informed by Dr E. H. Skinner, Section on Radiology, that somewhat similar resolutions would be introduced today by the California delegation. Dr Skinner asked us to defer action and to consider the resolutions together.

4 Resolution on Tribute to Physicians and Surgeons of Honolulu County Medical Society. Your reference committee recommends the resolution for approval.

5 Resolutions on Elimination of Requirement of Certification of Checks for Purchase of Special Tax Stamps in Connection with Dispensing of Opium. Your reference committee recommends these resolutions to the House of Delegates for approval.

6 Resolutions Requesting Change in By-Laws Limiting Time for Introduction of New Business in House of Delegates. Your reference committee believes that the present methods of handling new business are fair and equitable. It does not believe the suggested change with the requirements that resolutions shall be filed with the Secretary sixty days in advance

of the annual session is feasible or desirable. It might mention that several state societies hold their annual sessions less than sixty days before the American Medical Association session and it recommends the defeat of these resolutions.

7 Resolutions on Standards for Percentage Determination of Hearing Loss. On page 69 of the American Medical Association Handbook your reference committee notes that the Council on Physical Therapy reports progress on this subject and promises a definite report in the near future. No data were furnished that this final report had been made. The standing of the Council on Physical Therapy, however, is such that your reference committee unhesitatingly recommends the approval of the standards set when, as and if set.

Respectfully submitted,

CHARLES G. STRICKLAND, Chairman  
JOHN T. DONOVAN  
H. C. MACATEE  
ANDREW F. MCBRIDE  
J. H. FITZGIBBON

### Report of Reference Committee on Legislation and Public Relations

Dr. E. S. Hamilton, Chairman, presented the following report, which was adopted section by section and as a whole on motions of Dr. Hamilton, duly seconded and carried.

1 Resolution on Aid to Our Government. Your reference committee recommends that this resolution be passed.

2 Report of Board of Trustees Relative to Meetings with Hospital Associations. Your reference committee recommends that the request of the Board of Trustees for additional opportunity for the Bureau of Medical Economics to study this problem be granted.

3 Resolution on Appreciation to Broadcasting Companies. Your reference committee recommends that this resolution be adopted.

4 Report of Bureau of Legal Medicine and Legislation. Your reference committee wishes to commend most heartily the report of the Bureau of Legal Medicine and Legislation in content, showing, as it does, a large amount of study and statistical work with regard to legislation all over the United States. It especially commends that portion of the report which concerns the safeguarding of accounts of deceased physicians from excessive taxation. It also commends the continued vigilance with regard to attempts to extend the scope of activity of non-medical practitioners in the various states of the nation. It is not in sympathy with the use of osteopaths as interns in Army hospitals and commends the War Department for the opposition to such legislation. It commends the bringing to the attention of the medical profession the proposed broadening of the base of the Social Security Act to include employees now excluded and to grant additional benefits of employees now covered by the act, as this appears to be an encroachment of socialized medicine, and it recommends the adoption of the report as presented by the Bureau of Legal Medicine and Legislation.

Respectfully submitted,

E. S. HAMILTON, Chairman  
DON F. CAMERON  
STEPHEN E. GAVIN  
HENRY A. LUCE  
CARL R. STEINKE

### Report of Reference Committee on Hygiene and Public Health

Dr. Felix J. Underwood, Chairman, presented the following report, which was adopted on motion of Dr. Underwood, seconded by Dr. A. T. McCormack, Kentucky, and carried.

Resolution on Control of Venereal Disease. Your reference committee is completely in accord with the provisions of this resolution and recommends its adoption. It is inconceivable that any reputable physician should so degrade his profession and himself as to issue certificates to prostitutes to the effect that they are free from venereal disease. This is a baneful practice which encourages the maintenance of vice and may do incalculable damage by giving false assurance of safety and lead to an appreciable increase in venereal disease. Moreover, it tends

to nullify the efforts of the duly constituted authorities, federal, state and local, to deal with the problems of prostitution by law enforcement and other accepted methods. Your reference committee wishes only that it were gifted with the power of expression to emphasize more strongly its approval of the spirit and intent of the provisions of this resolution.

Respectfully submitted,

FELIX J. UNDERWOOD, Chairman  
W. F. DRAPER  
HOLMAN TAYLOR  
ROBERT L. ANDERSON  
F. S. CROCKETT

### NEW BUSINESS

#### Resolutions on Rebates

Dr. Dwight L. Wilbur, California, submitted the following resolutions, which were referred to the Reference Committee on Amendments to the Constitution and By-Laws, with which the Judicial Council will sit.

WHEREAS, The Principles of Medical Ethics of the American Medical Association in chapter III, article I, section I, states that "The obligation assumed on entering the profession demands that he use every honorable means to uphold the dignity and honor of his vocation, to evaluate his standards," and

WHEREAS, Section 5 of the same chapter and article states that "It is unprofessional to receive remuneration from patents or copyrights on surgical instruments, appliances, medicines, foods, methods or procedures. It is equally unprofessional by ownership or control of patent or copyrights either to retard or to inhibit research or to restrict the benefit to patients or to the public to be derived therefrom. It is unprofessional to accept rebates on prescriptions or appliances or perquisites from attendants who aid in the care of patients," and

WHEREAS, Article VI, section 4, of this chapter states that "When a patient is referred by one physician to another for consultation or for treatment, whether the physician in charge accompanies the patient or not, it is unethical to give or receive a commission by whatever term it may be called or by any guise or pretext whatsoever," and

WHEREAS, Section 5 of this same article and chapter states that "It is unprofessional for a physician to dispose of his professional attainments or services to any lay body, organization, group or individual, by whatever name called, or however organized, under terms or conditions which permit a direct profit from the fees, salary or compensation received to accrue to the lay body, or individual employing him. Such a procedure is beneath the dignity of professional practice, is unfair competition with the profession at large, is harmful alike to the profession of medicine and to the welfare of the people, and is against sound public policy and

WHEREAS, Recent articles in magazines of wide national circulation have called attention to shady practices of secret rebates to physicians and

WHEREAS, Commercial concerns and laboratories by the employment of cappers and steerers and by secret rebating are largely responsible for these criticisms, and

WHEREAS, The Better Business Bureau has complained of practices in which secret rebates were offered or accepted by physicians, and

WHEREAS, The dishonest acts of a few may be reflected to the discredit of the many, now, therefore be it

Resolved, That it be declared unethical for the members of the American Medical Association or its component branches to refer patients to commercial organizations, laboratories or other physicians who advertise to the public and others than the medical profession who employ steerers or cappers or who offer to pay rebates or commissions in any other manner violate the Principles of Medical Ethics of the American Medical Association or its component branches, and be it further

Resolved, That any physician violating these resolutions be subject to whatever disciplinary action is deemed advisable by the county society of which he is a member.

#### Proposed Amendments to the By-Laws

Dr. John Andrew, Colorado, presented the following proposed amendments to the By-Laws, which were referred to the Reference Committee on Amendments to the Constitution and By-Laws.

1 Amend chapter XII, section 6, of the By-Laws to read as follows:

SEC. 6. ASSOCIATE FELLOWS.—The following may be elected in accordance with section 5 chapter IV, to Associate Fellowship physicians who are members of the chartered national medical societies of countries adjacent to the United States, American physicians in foreign countries and engaged in medical missionary and educational and philanthropic labors, dentists holding the DDS who are members of state or local dental societies who are active members of the American Pharmaceutical Association secretaries and executive secretaries of constituent societies and societies who are not eligible for membership as physicians representative teachers and students of science allied to medicine in the United States and not eligible to regular membership. Associate Fellows shall enjoy the same privileges as regular Fellows as to subject to the same conditions.

2 Amend chapter IV, section 5, of the By-Laws to read as follows

**SEC 5 ASSOCIATE FELLOWS**—Applications for Associate Fellowship from foreign physicians, from American physicians engaged in missionary and similar labors in foreign countries and from secretaries and executive secretaries of constituent associations and component societies who are not eligible for membership as physicians must be approved by the Judicial Council, applications from dentists must be approved by the Section on Laryngology, Otolaryngology and Rhinology, from pharmacists by the Section on Pharmacology and Therapeutics and from representative teachers and students of science allied to medicine by the officers of a section

#### Resolution on Safeguarding Women in Industry

Dr Jean Paul Pratt, Section on Obstetrics and Gynecology, presented the following resolution, which was referred to the Reference Committee on Hygiene and Public Health

**WHEREAS** There have been repeated assertions in the press and elsewhere that American industry in its all out war effort will be obliged to depend more and more on women employees as replacements for able bodied men essential to the armed forces and

**WHEREAS** The rate of absenteeism in industry due to sickness is considerably larger for women than men and

**WHEREAS** In addition to specific health problems relating to pregnancy, menstruation, venereal disease and the proper custody of dependent small children, certain conditions of work and unhealthful exposures more seriously affect the health of women than male workers and

**WHEREAS** Various agencies in the government in industry and in labor are greatly interested in the health as well as the legal and economic status of women workers, he it

**Resolved** That the Council on Industrial Health take these matters promptly under advisement with such help as can readily be secured from the Section on Obstetrics and Gynecology in order that the practicing profession, industrial physicians and obstetricians/gynecologists be informed about the best methods of safeguarding the physical well being of women in industry

#### Resolution Urging Civilians to Seek Medical Advice While Sufficient Doctors Remain Available

Dr Stanley H Osborn, Section on Preventive and Industrial Medicine and Public Health, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business

**WHEREAS** It is well known that many individuals with chronic diseases of one type or another who expect to seek medical advice or who have been advised by their physicians to have treatment and

**WHEREAS** The early symptoms of many diseases are mild in character and many persons postpone seeking medical advice or the patients postpone treatment recommended by the physician and

**WHEREAS** Many thousands of physicians have gone into the armed services of the country and tens of thousands of doctors will soon be commissioned and gone to war in the future, therefore he it

**Resolved** That this body recommend that all persons who expect to seek medical opinion or who have had medical or surgical care prescribed for them should seek medical advice or follow such advice while sufficient doctors remain available to the civil population

#### Resolution on Message from Mr Paul V McNutt

Dr Charles H Henninger, Pennsylvania, presented the following resolution which was referred to the Reference Committee on Military Preparedness

**WHEREAS** There has come to this House of Delegates a message directly from the chief of the War Man Power Commission, Mr Paul V McNutt, indicating the needs of the nation in this great emergency for the services of the physicians of our country and

**WHEREAS** The American medical profession has never failed in any previous emergency to meet the needs of the armed forces of our country for medical officers and

**WHEREAS** The Procurement and Assignment Service for Physicians, Dentists and Veterinarians was established by the President of the United States to enable the medical profession to meet all the demands placed on it to provide medical officers for all the governmental services for industry and for our civilian population, therefore he it

**Resolved** By the House of Delegates of the American Medical Association that we tender to Mr Paul V McNutt our appreciation of his message and of his cooperation that we pledge to the President of the United States to the War Man Power Commission and to the Procurement and Assignment Service every aid that this organization can possibly render in meeting this objective and that the Board of Trustees and the War Participation Committee of the American Medical Association be requested to give consideration to all of the means by which these objectives may be attained

#### Resolutions on Improvement of Relations Between Physicians and Insurance Companies

Dr Lyell C Kinney, California, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations meeting jointly with the Reference Committee on Miscellaneous Business

**WHEREAS** It is desirable that physicians and insurance companies cooperate to the fullest extent especially in the interest of persons covered by health and accident insurance and

**WHEREAS** A serious situation has arisen in the administration of certain health and hospitalization schemes whereby medical services are being billed under the term 'hospital services' and are being paid for by insurance companies as they are labeled hospital services and

**WHEREAS** The continuation or extension of such practices will inevitably lead to the inclusion of any type of medical service under the label 'hospital service' at the convenience of the corporations involved and to the detriment of medical care now, therefore he it

**Resolved** That the House of Delegates of the American Medical Association hereby requests insurance companies to cooperate with the organized medical profession to the end that hospitalization policies shall include only hospital benefits. If the inclusion of indemnification for medical services such as surgery or radiology is desired, then payment of such shall be made only on receipt of certified statement from a physician that he has rendered such. Fees for medical services should be paid to physicians via indemnity to the assured or by check payable jointly to assured and physician. This practice should be maintained irrespective of whether a hospital chooses to bill for medical services as a part of its hospital bill and be it further

**Resolved** That the House of Delegates of the American Medical Association requests hospitals and physicians to cooperate with it in this important step by seeing that bills for hospital and medical services are clearly distinguished, the latter should bear the name of the physician rendering the service to indicate clearly that the charge is for medical service

#### Resolutions on a Program for Refresher Training in General Clinical Medicine

Dr B J Hein, Ohio, presented the following resolutions, which were referred to the Reference Committee on Medical Education

**WHEREAS** At the conclusion of hostilities many young medical officers who will return to civilian practice will need refresher training in general clinical medicine, he it

**Resolved** That the Board of Trustees of the American Medical Association instruct the Council on Medical Education and Hospitals to develop a program for such training in conjunction with the various medical schools and constituent state medical societies and be it

**Resolved** That the Board of Trustees confer with the proper government authorities as to the possibilities of granting a furlough with full pay and allowance to medical officers desiring to take advantage of such refresher courses

Dr R W Fouts, Vice Speaker, at the request of the Speaker read a report of the Reference Committee on Reports of Officers at the 1930 annual session dealing with Executive Sessions of the House

The meeting recessed at 12 25 p m

### Tuesday Afternoon, June 9

The House of Delegates was called to order by the Speaker at 2 o'clock

On motion of Dr Walter E Vest, West Virginia, duly seconded and carried, attendance at the Executive Session was granted to members of the House of Delegates, alternate members of the House of Delegates, officers, Trustees and persons allied to the administrative affairs of the American Medical Association, presidents, secretaries, executive secretaries, chairmen of councils and editors of constituent state and territorial medical associations, secretaries and executive secretaries of component county medical societies, the secretary of the Southern Medical Association, the secretary of the American College of Physicians, Dr Benvenuto R Diño of the Philippine Islands, visitors from the Army and Navy, and Dr Thomas Parran, Surgeon General of the United States Public Health Service

### Executive Session—Tuesday Afternoon, June 9

The Sergeants-at-Arms polled the House, after which the House went into Executive Session at 2 15, with Dr H H Shoulders, Speaker, presiding

#### Report of Reference Committee on Executive Session

Dr Thomas A McGoldrick, Chairman, presented the following report which was adopted on motion of Dr McGoldrick, seconded by Dr A T McCormack, Kentucky, and carried

The following resolution has been presented by title and referred to your reference committee

#### RESOLUTION REQUESTING CHANGE IN SOCIAL SECURITY ACT

**WHEREAS** Under the Social Security Act payments for medical care given to recipients of aid from the blind, old age and dependent children's divisions of the Department of Social Welfare can no longer be made to physicians directly but instead these payments must be made to the patient and

WHEREAS, Experience in New York City has shown that this method of payment has worked a hardship on the physicians who have rendered medical care to these persons by forcing them to make one or more additional calls to collect their bills, and

WHEREAS, In New York City it has been proved that nearly 5 per cent of these patients have not paid their doctors for medical care rendered with the money which the State Department of Social Welfare gave them but instead have spent the money for other uses, and

WHEREAS, The New York City Department of Welfare has stated that this percentage is only a fraction of the number of patients who did not pay their physicians for medical care, as shown by the great many complaints from physicians who have telephoned to that department, rather than written letters which could be submitted in evidence, and

WHEREAS, The Medical Society of the State of New York requests the American Medical Association to take steps looking to a change, therefore be it

*Resolved*, That the American Medical Association consider having legislation initiated to provide a change in the Social Security Act so that persons rendering medical care to recipients of aid from any government agency may be paid directly by that agency

Owing to the lack of information on this practice throughout the United States and in the absence of any reasons for approval presented to your reference committee, it recommends that the resolution itself be not approved

Respectfully submitted,

THOMAS A. MCGOLDRICK, Chairman  
LUCIUS F. DONOHUE  
R. E. SCHLUETER  
WALTER W. KING  
LLOYD NOLAND  
E. H. CARY  
CLYDE L. CUMMER

#### Report of Reference Committee on Military Preparedness

Dr. John H. O'Shea, Chairman, presented the following report

1 Resolution on Women Physicians Obtaining Commissions in Medical Reserve Corps of United States Army and Navy. A similar resolution was presented at the 1941 session of this House. Your reference committee, in consideration of this resolution, is not unmindful of the splendid work of the eight thousand women physicians of this country. Their position in the field of medicine in America is unquestionably established. The nation is, however, now at war, with the whole responsibility for its successful prosecution resting with our armed forces. Your reference committee, after hearing discussions which included statements from representatives of both the Army and the Navy, concluded that this is a problem involving technical and administrative considerations wholly within the province of the Surgeon Generals of the Army and the Navy. Any recommendations from this body would be presumptive interference with those agencies responsible for the successful prosecution of the war. Your reference committee therefore recommends that this resolution be disapproved.

2 Report of Committee on Medical Preparedness and Report of Board of Trustees Dealing with Medicine and the War. These reports were considered together. They both deal with the formation and activities of the Committee on Medical Preparedness and the development of the Procurement and Assignment Service. It is gratifying to note the present cordial relationship existing between the government and the medical profession. The report of the Committee on Medical Preparedness again demonstrates the efficiency of organization of the American Medical Association and its willingness to serve to the limits of its capacity. The response of the individual physician to the call for voluntary duty in the prosecution of the Selective Service effort reveals no depreciation of the historic spirit of our American physicians.

The Committee on Medical Preparedness concludes its report with two specific recommendations

(a) The first is that, since its original objectives have been attained, this committee should be now discharged. Your reference committee recommends that this be done and that the Committee on Medical Preparedness be commended for its splendid accomplishments. The untiring efforts and personal sacrifices of the members of the Committee on Medical Preparedness deserve much greater recognition than is indicated in the all too modest tone of its report.

(b) The second recommendation is that a new committee be named to be known as the Committee on Participation of the Medical Profession in the War Effort. Your reference committee recommends that a committee of five members be appointed by the Speaker of the House, with the President, President-Elect, Chairman of the Board of Trustees, Secretary of the Association and the Editor of THE JOURNAL as ex officio members. Your reference committee felt however that, for purposes of brevity, some further consideration should be given to the proposed title of this committee. It submits for consideration as an alternative the name of "War Participation Committee of the American Medical Association."

Respectfully submitted,

JOHN H. O'SHEA, Chairman  
FRANCIS F. BORZELL  
WILLIAM D. JOHNSON  
S. E. THOMPSON  
GEORGE F. LULL  
HAROLD W. SMITH  
CHARLES H. PHIFER

Dr. O'Shea moved the adoption of the first section of the report, recommending disapproval of the Resolution on Women Physicians Obtaining Commissions in Medical Reserve Corps of United States Army and Navy. The motion was seconded by Dr. Robert E. Schlueter, Missouri, and carried after discussion by Dr. Emily D. Barringer, New York.

Section 2 (a) of the report of the reference committee, dealing with the report of the Board of Trustees and with the report of the Committee on Medical Preparedness, was adopted on motion of Dr. O'Shea, seconded by Dr. John Z. Brown, Utah, and carried.

Dr. O'Shea moved that section 2 (b) of the report of the reference committee, recommending the appointment of a "War Participation Committee of the American Medical Association" be adopted, and the motion was seconded by Dr. A. T. McCormack, Kentucky, and carried.

The report of the reference committee was adopted as a whole on motion of Dr. O'Shea, seconded by Dr. William R. Brooks, Arkansas, and carried.

#### Report of Reference Committee on Legislation and Public Relations

Dr. E. S. Hamilton, Chairman, read the following majority report

Resolutions on Approval of Activities of National Physicians' Committee for the Extension of Medical Services. Your reference committee, after considerable discussion of these resolutions by several members of the Board of Trustees and by a number of others interested, believes that the following modified resolution expresses more nearly the attitude of the American Medical Association.

WHEREAS, The American physicians and the American Medical Association have been placed in a most favorable light before the American public by the activities of outside groups of individual physicians assisted by business firms, entirely independent of organized medicine, therefore be it

*Recommended*, That the House of Delegates of the American Medical Association hereby express gratitude and deep appreciation for the outstanding service rendered its members and its official organization by these groups.

Respectfully submitted,

E. S. HAMILTON, Chairman  
DON F. CAMERON  
CARL R. STEINFELT

Dr. H. A. Luce, Michigan, presented the following minority report on these resolutions.

This minority report is an unqualified endorsement of the resolutions as introduced.

Respectfully submitted,

HENRY A. LUCE  
STEPHEN E. GAYLOR

Dr. Hamilton moved the adoption of the majority report of the reference committee, and the motion was seconded by Dr. A. T. McCormack, Kentucky.

Dr Luce moved the adoption of the minority report of the reference committee, and the motion was seconded by Dr Clarence G Brindler, New York, and there was discussion by Drs Thomas A McGoldrick, New York, Francis J Savage, Minnesota, E H Cary and Holman Taylor, Texas, E S Hamilton, Illinois, R W Gouts, Vice Speaker Roger I Lee, Acting Chairman of the Board of Trustees, Henry C Macatee, District of Columbia, James R Bloss, member of the Board of Trustees, Charles Gordon Heyd, member of the Council on Medical Education and Hospitals, J Newton Hunsberger, Pennsylvania, Carl R Steinke, Ohio, and Louis H Bauer, New York

The minority report was approved

On motion of Dr William R Brooksher, Arkansas, seconded by Dr Thomas A McGoldrick, New York, and carried, the House rose from executive session at 3 30 p m

## Tuesday Afternoon—Continued

The House reconvened in regular session at 3 30 p m with Dr H H Shoulders, Speaker, presiding

### Presentation and Address of Dr Benvenuto R Diño

The Secretary presented Dr Benvenuto R Diño of the Philippine Islands, who addressed the House as follows

*Mr Speaker, Officers and Members of the House of Delegates* I appreciate this kind generosity that you have shown toward me, a humble member of the medical profession of the Philippines. It is a great honor to be presented before this distinguished audience the cream and the flower of American medicine. I do not feel that you are giving this honor to me personally, but I do feel that this is another evidence of your recognition of the gallant stand taken by the Filipino people, soldiers and civilians and physicians alike, side by side with their American comrades in the preservation of American ideals the American way of life in our defense of that great American flag

*Mr Speaker*, you know the conditions prevailing now in my country. The Philippine Medical Association could not send delegates to this convention. I am of the conviction, however, that I voice the sentiments of my colleagues in the Philippines when I say right here and now that we are grateful to the American Medical Association that we will always remember those American pioneer physicians who have introduced hygiene, sanitation, public health in my country, those American pioneer physicians responsible for our medical education. We are grateful to the government and to the people of America for praising the words of His Excellency, President Manuel Quezon of the Philippines in his address before the House of Representatives last week. 'No amount of suffering, destruction and even death can lessen our unflinching loyalty can lessen our unswerving faith in America.' Thank you

### Presentation of Dr Ludvig Hektoen

The Speaker presented to the House Dr Ludvig Hektoen, Chicago, recipient of the Distinguished Service Award, who said

*Mr Speaker and Gentlemen* Just a word of deep, heartfelt personal thanks for the great honor you have shown me. Thank you

The House recessed at 3 45 p m, to reconvene on Thursday, June 11, at 1 p m

## Third Meeting—Thursday Afternoon, June 11

The House of Delegates was called to order at 1 10 p m by the Speaker Dr H H Shoulders

### Report of Reference Committee on Credentials

Dr J Newton Hunsberger, Chairman, stated that a total of 163 delegates had been seated

### Roll Call

The Secretary called the roll and announced that more than a quorum had responded

### Presentation of Minutes

On motion of Dr William R Brooksher, Arkansas, seconded by Dr A T McCormack, Kentucky, and carried, the House dispensed with the reading of the minutes

### Report of Reference Committee on Sections and Section Work

Dr A T McCormack, Chairman, presented the following report, which was adopted on motion of Dr McCormack, seconded by Dr Walter B Martin, Virginia, and carried after discussion, but the introduction of the proposed amendment to the Constitution contained in the report lies over until next year

The Report of the Judicial Council on the Reapportionment of Delegates. Your reference committee has carefully considered this report and has instructed its chairman to offer an amendment to the Constitution, article 5, section 2, that delegates elected by the sections of the Scientific Assembly be ex officio delegates without the right to vote

Since it is necessary for this amendment to lie over until the next annual session, your reference committee also recommends the adoption of the second or alternative recommendation of the Judicial Council that, because of the number of members of the Association now in government service and therefore unlikely to wield influence on their representatives in this House of Delegates, the reapportionment in 1943 be made under the present constitutional provisions

Respectfully submitted,

A T MCCORMACK, Chairman.  
L G CHRISTIAN  
OLIN H WEAVER  
B F COOK  
ARTHUR J BEDELL

### Report of Reference Committee on Medical Education

Dr Walter G Phippen, Chairman, presented the following report, which was adopted section by section and as a whole on motions of Dr Phippen, duly seconded and carried

1 Resolutions on a Program for Refresher Training in General Clinical Medicine. (a) Your reference committee has considered these resolutions, hearing members of the Ohio delegation and members of the Council on Medical Education and Hospitals in support of them. Your reference committee feels strongly that there will surely develop a need for refresher courses for physicians returning to civilian practice, particularly among the younger group who enter military service soon after their intern training. It is evident that medicine will make many advances while these men are serving with the armed forces, and it seems only just that these physicians be given the opportunity before they reenter civilian practice to bring themselves abreast of the times. Therefore your reference committee recommends that the House of Delegates instruct the Council on Medical Education and Hospitals to develop a program of refresher courses for physicians returning to civilian practice after the war. In arranging such a program, consideration should be given to cooperation with medical schools, approved hospitals and medical societies

(b) Your reference committee also recommends that the Board of Trustees confer with the proper government authorities as to the possibility of granting a furlough with full pay and allowances to such physicians returning to civilian practice after the war as may desire to take advantage of such refresher courses

Respectfully submitted,

WALTER G PHIPPEN, Chairman  
JAMES R MILLER  
EDWARD H SKINNER  
L J MENVILLE  
A W ADSON

### Report of Reference Committee on Legislation and Public Relations

Dr E S Hamilton Chairman presented the following report, which on motions by Dr Hamilton duly seconded and carried, was adopted section by section and as a whole

1 Resolution on Medical Service Plans. Your reference committee calls attention to an apparent inaccuracy in the final paragraph in which the statement at the behest of the parent



organization" is made. It recommends that the following resolution be adopted at this time in substitution of the original resolution:

*Resolved*, That the House of Delegates of the American Medical Association approves that principle of medical service plans on a service basis when sponsored by a constituent state medical association or a component county medical society in accordance with the recommendations relative to medical service plans adopted by the House of Delegates.

Respectfully submitted,

E. S. HAMILTON, Chairman  
DON F. CAMERON  
STEPHEN E. GAVIN  
HENRY A. LUCE  
CARL R. STEINKE

2 Resolutions on Hospital Corporations Engaging in Practice of Medicine. The joint committee consisting of the Reference Committee on Miscellaneous Business and the Reference Committee on Legislation and Public Relations feels with respect to the resolutions that they introduce no new principles not already accepted by this House at former sessions and ask only definite clarification and study by the Board of Trustees. Your joint committee recommends the adoption of these resolutions.

3 Resolutions on Improvement of Relations Between Physicians and Insurance Companies. In regard to these resolutions, your joint committee feels that they involve many additional technicalities and require prolonged and delicate negotiations with insurance carriers which will be time consuming and difficult of attainment. So before committing our organization definitely to the line of action which these resolutions demand, your joint committee recommends that the resolutions be referred to the Board of Trustees for study by itself and the Bureau of Medical Economics as to the facts, feasibility of action requested and as to ways and means of accomplishing the desired results. Your joint committee does not at the present time recommend the passage of these resolutions in their present form.

Respectfully submitted,

REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS  
CHARLES G. STRICKLAND, Chairman  
JOHN T. DONOVAN  
H. C. MACATEE  
ANDREW F. MCBRIDE  
JOHN H. FITZGIBBON

REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS  
E. S. HAMILTON, Chairman  
DON F. CAMERON  
STEPHEN E. GAVIN  
HENRY A. LUCE  
CARL R. STEINKE

4 Resolution on Adequate Medical Care. During the discussion of this resolution it was suggested by the officers of the Medical Society of New Jersey that the enabling portion of the resolution be amended to read:

*Resolved*, That the American Medical Association encourage and assist in the development of mechanics by county and state medical societies for the purpose of providing medical care for low wage groups, for the destitute and for any other groups needing assistance in obtaining medical care, and further be it

*Resolved*, That efforts be made by the several state medical societies to procure enabling legislation whereby such mechanisms can be empowered to administer for government or other responsible agencies the medical care needed by clients of governmental agencies or persons who are adjudged unable to provide such medical care for themselves.

Your reference committee wishes to commend the Medical Society of New Jersey for its laudable efforts to provide medical care for low income groups, but, as far as developing a plan or fostering legislation by the parent organization is concerned, it has been the considered judgment on many previous occasions that plans should originate in local communities, since they have separate and distinct problems and needs. It, therefore, disapproves of this resolution.

Respectfully submitted,

E. S. HAMILTON, Chairman  
DON F. CAMERON  
STEPHEN E. GAVIN  
HENRY A. LUCE  
CARL R. STEINKE

## Report of Reference Committee on Hygiene and Public Health

Dr. Felix J. Underwood, Chairman, presented the following report, which on motions of Dr. Underwood, duly seconded and carried, was adopted section by section and as a whole:

1 Resolution on Safeguarding Women in Industry. Your reference committee has given careful consideration to this resolution and has changed somewhat the phraseology of the body of the resolution. The intent remains the same but it is the belief of the committee that the objective will be better served if a change is made. Your reference committee proposes that the resolution be changed to read as follows:

*Resolved* That the Council on Industrial Health be requested to give its immediate consideration to the preparation of a directional and informative pamphlet for the guidance of physicians and allied workers concerned with the health and well being of girls and women engaged particularly in the rapidly developing war industries. This might include the steps for taking histories and for standardized examinations of female workers with special reference to their mental and physical status. In the preparation of this pamphlet, the various sections of the American Medical Association could be called on for material recommendations it found desirable.

2 Resolution Urging Civilians to Seek Medical Advice While Sufficient Doctors Remain Available. Your reference committee has given careful consideration to this resolution and is of the opinion that it would be a wise and timely action. Certain it is that as time goes on the attention of remaining physicians will have to be devoted more and more to acute and emergency cases. The sooner that persons with chronic ailments which they intend to have corrected apply for advice or treatment, the better the chances will be of receiving the attention desired.

Respectfully submitted,

FELIX J. UNDERWOOD, Chairman  
ROBERT L. ANDERSON  
F. S. CROCKETT  
W. F. DRAPER  
HOLMAN TAYLOR

## Report of Reference Committee on Amendments to the Constitution and By-Laws

Dr. Walter E. Vest, Chairman, presented the following report, which was adopted section by section and as a whole on motions of Dr. Vest, duly seconded and carried:

1 Proposed Amendments to By-Laws re Associate Fellowships. Your reference committee has carefully considered the proposed amendments to the By-Laws providing for the election of lay secretaries and executive secretaries of constituent associations or component societies to Associate Fellowship. It recognizes fully the worth of these lay secretaries to the individual organizations they serve and to organized medicine generally. Your reference committee feels further that the men and women are to be congratulated on the excellent work they are doing. The profession generally should thank them for their loyalty, their service and their accomplishments in behalf of the organized profession. It is the opinion of your reference committee, however, that such an amendment would serve no useful purpose. Those eligible under such an amendment already are allowed all the rights and privileges pertaining to Associate Fellowship and even more in that they are permitted to remain in executive sessions of the House of Delegates. It is the belief of your reference committee that a lay secretary might be at times in a less strategic position to serve his organization by such member relationship than otherwise would be the case. Moreover, careful study of chapter IV, section 5, of the By-Laws convinces your reference committee that the House of Delegates in providing for Associate Fellowship did so only on the basis of secretarial attainment. It is therefore the recommendation of your reference committee that the proposed amendments be not adopted. Your reference committee does recommend, however, that chapter IV, section 5, of the By-Laws be amended so that the "Section on Pharmacology and Therapeutics" read "Section on Experimental Medicine and Therapeutics" to conform to the present title of that section.

2 Resolutions on Rebates. Your reference committee has given very serious consideration to these resolutions. It

opinion of your reference committee that the practices referred to in the resolutions are beneath the dignity of a learned profession are basically dishonest and are a violation of the Principles of Medical Ethics. Your reference committee therefore recommends that the following substitute resolutions be adopted:

**WHEREAS** It has been brought to the attention of the House of Delegates that the unscrupulous practice of rebates to physicians is being engaged in by various commercial organizations, laboratories, supply houses and in some professional relationships between certain physicians and

**WHEREAS** All such practices are clearly in violation of the Principles of Medical Ethics, therefore be it

**Resolved** That the House of Delegates of the American Medical Association express stern disapproval of the practice by any of the members of its component societies of referring patients to commercial organizations, laboratories or other physicians who advertise to the public and others than the medical profession who employ so-called steerers or carriers or who pay or offer to pay rebates or commissions in any guise what ever or who in any other manner violate the Principles of Medical Ethics of the American Medical Association and be it further

**Resolved** That any member violating these resolutions be subject to such disciplinary action as is deemed advisable by the county society in which such physician holds membership and be it further

**Resolved** That the Secretary of the American Medical Association be instructed to send a copy of these resolutions to each state and county society accompanied by a letter to the secretary of each setting forth that all such unethical practices are disreputable and unscrupulous and if not controlled may soon bring the reputation of the entire medical profession

Respectfully submitted

WALTER E. VEST, Chairman  
WALTER F. DONALDSON  
KARL S. J. HOHLEN  
EDWARD M. PALLETTE, SR.  
WILLIAM WESTON

#### Report of Reference Committee on Reports of Board of Trustees and Secretary

Dr. Louis H. Bauer, Chairman, presented the following report which was adopted section by section and as a whole on motions of Dr. Bauer, duly seconded and carried after discussion:

1 Report of Bureau of Medical Economics in Report of Board of Trustees. Two activities of the Bureau of Medical Economics in which no comment was made in the general report of your reference committee have been held over for further discussion, and the report follows. These activities are those listed as Medical Service Plans and the program of the Farm Security Administration.

(a) Medical Service Plans. A recommendation was made a year ago that the Bureau establish some method of coordination and interchange of material pertinent to the administration of prepayment plans for medical care sponsored by medical societies. The Bureau began a study of such plans, and data are coming in. It is contemplated that the Bureau will become a clearing house for factual data pertaining to the whole subject which will be available to all state and county medical societies.

It might be well at this point to review briefly the principles already adopted by the House of Delegates in 1938. 1 Hospital service insurance was approved in principle. It was felt that these plans should confine themselves to provision of hospital facilities and should not include any type of medical care. 2 It was recognized that health needs are not identical in different localities but depend on local conditions and therefore are local problems. 3 Cash indemnity insurance plans were considered practicable of development in order to cover in whole or in part the costs of emergency or prolonged illness. Such plans were also to have approval of the county and state medical societies of their respective areas. 4 A stand was reiterated against any system of compulsory health insurance. 5 A conviction was expressed that voluntary indemnity insurance may assist many income groups to finance their sickness costs without subsidy. It was further stated that development of group hospitalization and establishment of insurance plans on the indemnity principle to cover the cost of illness would assist in the solution of these problems.

As a result of the adoption of these principles, various organizations came into being. Not only is the cash indemnity principle being used but medical service plans, some on the so-called unit plan, have also developed. Taken as a whole, progress has been slow and disappointing. It seems to your reference committee that there are two outstanding reasons for this. First, the public has not shown any great desire for such plans. Its attitude is often that it has always obtained medical care when and where it wanted it, and paid for it when and if it pleased—so why budget ahead for something it believes it can get anyway? The other reason is partly tied up with the first. The original idea of all such plans was to find some means of delivering good medical care to those in the economic group above indigence and below complete self sufficiency. This aim has to a large extent been lost sight of, and there has been a tendency to make the fee factor more important than the delivering of good medical care. One thing is certain, and that is that the development of sound, workable, voluntary plans will do more than anything else to avert the introduction of some compulsory plan.

The Bureau of Medical Economics feels that the principles already adopted by the House are sound and should be adhered to and that there is nothing to indicate that medical service organizations and group hospitalization cannot function separately as parallel services in communities that are sufficiently interested to support them. Your reference committee agrees in general but feels that certain modifications are advisable. 1 Reiteration should be given to the fact that the aim of all plans should be to facilitate delivery of the best medical service to those who are in the economic group below self sufficiency. 2 To help carry this out, approval should be given to the principle of medical service for the low income groups, provided the local situation warrants and the local county and state medical societies approve. 3 The part to be played by the American Medical Association should be restricted to the adoption of broad general principles and to acting as a clearing house, as already planned by the Bureau of Medical Economics. The idea that the American Medical Association can and should develop a plan on a countrywide basis is contrary to sound common sense. One of the claims we have always made in opposing state medicine is that medical control cannot be centralized. Conditions vary in different states and even in different counties in the same state. What will work in one locality is impracticable in another. Plans, therefore, should be largely local in character so far as details are concerned and national only so far as broad general principles are concerned.

The matter of the cash allowance of \$3 a day for hospitalization for those employed under the Social Security Act is not yet sufficiently definite for the House to take action on it. The matter should be referred to the Board of Trustees for appropriate action, if and when the matter becomes more definite.

(b) Program for Farm Security Administration. Medical care plans sponsored by the Farm Security Administration are operating in more than nine hundred counties of thirty-seven states and involve more than one hundred thousand families and more than five hundred thousand persons. The Farm Security Administration now proposes what amounts to a voluntary health insurance plan for all farm families in an average county in one or more areas and would give more complete medical care than the present Farm Security plan does, all to be worked out between the county agricultural planning committee and the county medical society. Because financial conditions have changed for the better in farm communities since the original proposition was made it is probably less urgent now. Furthermore it requires more study than can be given it during this meeting. Therefore your reference committee recommends that the matter be referred back to the Board of Trustees for study and such action as it deems fit.

Respectfully submitted

LOUIS H. BAUER, Chairman  
J. F. HASSIG  
A. R. MCCOMAS  
WILLIAM R. MOLODY, SR.  
PARKE G. SMITH

**Presentation and Address of Miss Mary Switzer,  
Assistant to Mr Paul V. McNutt**

Dr Frank H Lahey, Past President, presented Miss Mary Switzer, assistant to Mr Paul V McNutt, who spoke as follows

*Dr Lahey, Mr Speaker* I may say that I feel that I am also part of the staff of the American Medical Association since our close working relationships with Dr Lahey and his board have made us all feel that we are one body working for a very precious common objective

**NEW BUSINESS**

**Resolution Passed by the Section on Ophthalmology  
in 1941 Recommending Rescinding of Resolution  
Passed by the House of Delegates in 1935  
and Resolution Passed by Section on  
Ophthalmology in 1942 Rescinding  
1941 Resolution**

Dr Arthur J Bedell, Section on Ophthalmology, presented the following resolutions from the section, the latter resolution rescinding the former, both being tabled by the House on motion of Dr W E Kittler, Illinois, seconded by Dr Walter E Vest, West Virginia, and carried

At a meeting of the Section on Ophthalmology in executive session on June 4, 1941 it was moved by Dr A R Irvine and seconded by Dr S Judd Beach that the section recommends to the House of Delegates that the following resolutions adopted by it in 1935 be rescinded

WHEREAS, There have been many complaints regarding the action of some ophthalmologists in giving lectures to and consulting with opticians and optometrists, and

WHEREAS, It is universally conceded that to care for the diseases and conditions of the human eye demands the unusual knowledge of a graduate physician who has been especially prepared, and

WHEREAS, The eye is an integral part of the body, and

WHEREAS, No one but a physician so trained should be permitted to diagnose, treat or prescribe for eye conditions, and

WHEREAS, Lecture, address or any other form of instruction to opticians and optometrists by ophthalmologists is not only a breach of the Principles of Medical Ethics which control our professional relationships but is also to the detriment of the ocular health of the public by giving it a false sense of security, and

WHEREAS, General health and ocular comfort depend on the best medical care, therefore be it

*Resolved*, That the Section on Ophthalmology of the American Medical Association declares that it is unethical for any member of the American Medical Association to give lectures or courses of instruction or to consult with any one not associated with the actual medical service, and be it further

*Resolved* That the House of Delegates of the American Medical Association be asked to make a ruling to this effect

At a meeting of the Section on Ophthalmology in executive session, June 10, 1942 the following resolution was presented by Dr Parker Heath and seconded by Dr Charles A Bahn

*Resolved*, That the Section on Ophthalmology instructs its delegate to the House of Delegates of the American Medical Association that it wishes to rescind the resolution of 1941

**Report of Reference Committee on Military  
Preparedness**

Dr John H O'Shea, Chairman, presented the following report, which was adopted on motion of Dr O'Shea, seconded by Dr William R Brooksher, Arkansas, and carried

Resolution on Message from Mr Paul V McNutt Your reference committee recommends approval of this resolution and that it be referred to the newly created War Participation Committee of the American Medical Association for continued action

Respectfully submitted,

JOHN H O'SHEA, Chairman  
FRANCIS F BORZELL  
WILLIAM D JOHNSON  
S E THOMPSON  
GEORGE F LULL  
HAROLD W SMITH  
CHARLES H PHIFER

**Resolution from Section on Preventive and Industrial  
Medicine and Public Health on Civilian  
Health Protection in War**

Dr Stanley H Osborn, Section on Preventive and Industrial Medicine and Public Health, presented the following resolution, which was adopted on motion of Dr Osborn, seconded by Dr George Blumer, Connecticut, and carried

WHEREAS, A major inadequacy in the civilian health protection in war as in peace time continues from the failure of many states and of not less than half the counties in the states to provide even minimum necessary sanitary and other preventive services for health, by full time professionally trained medical and auxiliary personnel on a merit system basis supported by adequate tax funds from local and state and where necessary from federal sources, therefore be it

*Resolved*, That the Trustees of the American Medical Association be urged to use all appropriate resources and influences of the Association to the end that, at the earliest possible date, complete coverage of the nation's area and population by local, county, district or regional full time modern health services be achieved

**Requests for Unanimous Consent to Introduce  
Resolutions**

**RESOLUTION DEALING WITH SCHOOLS OF OPTOMETRY**

Dr A T McCormack, Kentucky, requested unanimous consent to introduce a resolution dealing with schools of optometry, which was not granted

**RESOLUTION DEALING WITH THE STATUS OF WOMEN  
PHYSICIANS IN REGARD TO THE WAR**

Dr Emily D Barringer, New York, received unanimous consent for the introduction of the following resolution

WHEREAS, At a public meeting last evening, called for the purpose of informing women physicians what part they might play in war activities the fact was disclosed that there is little accurate information as to what the women physicians of the United States have done, to date, in medical preparedness for war service, and

WHEREAS, The American Medical Women's Association started about two years ago an intensive study of women physicians available for war service, and during the past summer a coast to coast personal canvass was carried on by the chairman of this special committee, and all of this material has been compiled, tabulated and is ready for use, and

WHEREAS, This fact has been publicized in the newspapers and press of the country and, through the courtesy of the Editor of the *New York State Journal of Medicine*, a series of letters has been published relative to the problems of war time service for women physicians, and

WHEREAS, The American Medical Association has not to date helped its minority group of women physicians to make use of their earnest efforts to do a patriotic job in time of great national emergency, and it has been stated in this House of Delegates during this week that military rating applies to only a small group of women physicians now ready to serve, and

WHEREAS, Governor McNutt in a recent address has stressed the urgent need of five thousand physicians by July 1, and

WHEREAS, The American Medical Women's Association is ready to produce its quota of women physicians for that date, therefore be it

*Resolved*, That the Editor of *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* be requested to write a sympathetic editorial on this subject and that *THE JOURNAL* print a full and detailed report relative to it from the American Medical Women's Association

It was moved by Dr Barringer that the resolution be adopted and the motion was seconded by Dr Arthur J Bedell, Section on Ophthalmology, but, after discussion, was not adopted

**ELECTION OF OFFICERS**

The Speaker declared the next order of business to be the election of officers

**Election of President-Elect**

Dr Olin H Weaver, Georgia, nominated for President Elect Dr James E Paullin, Atlanta, Ga, and the nomination was seconded by Drs F S Crockett, Indiana, Walter G Plummer, Massachusetts, William R Brooksher, Arkansas, H B Everett and E G Wood, Tennessee, Clyde L Cummer, Section on Dermatology and Syphilology, James Q Graves and Leon J Menville, Louisiana, John Z Brown, Utah, Stephen I Gr Wisconsin, Henry A Luce, Michigan, J Newton Hunter, Pennsylvania, Thomas A Pitts, South Carolina, S I Har son and E H Cary, Texas, William A Mulherin, Georgia, Andrew F McBride, New Jersey, Thomas F Th Iowa, Marion C Pruitt, Georgia, and the New York

tion Dr George W Kosmak, New York, moved that the nominations be closed, and the motion was seconded by Dr Marion C Pruitt Georgia, and Dr Robert A Peers, California, and carried. On motion of Dr A T McCormack, Kentucky, seconded by Dr Walter G Phippen, Massachusetts, and carried, the Secretary cast the vote of the House for Dr James E Paullin, Atlanta, Ga, for President-Elect of the American Medical Association and the Speaker declared Dr Paullin so elected.

#### Election of Vice President

Dr John Andrew, Colorado, nominated for Vice President Dr John W Ames, Denver.

Dr E H Cary, Texas, nominated for Vice President Dr William J Carrington, Atlantic City, N J, and the nomination was seconded by Drs Hilton S Read, New Jersey, and George W Kosmak, New York.

The Speaker, hearing no other nominations, declared the nominations closed and the tellers spread the ballot. The Secretary announced that 140 votes had been cast, of which Dr Carrington received 75 and Dr Ames 65. The Speaker declared that the House had elected to serve as Vice President for the ensuing year Dr William J Carrington, Atlantic City, N J, and requested the New Jersey delegation to bring Dr Carrington to the hall to present him to the House.

#### Introduction and Address of Dr James E Paullin

Dr A A Walker, Alabama, introduced to the House Dr James E Paullin, Atlanta, Ga, newly elected President-Elect, who addressed the House as follows:

*Mr Speaker, Gentlemen* With the deepest feeling of humility I accept from this House of Delegates the office of President-Elect of the greatest and most magnificent medical organization in the world. To have been chosen as one in whom you are willing to place this confidence fills my soul with pride and is recognized as a tribute, which, any one would agree, is the highest honor which a noble profession can bestow on one of its members.

At this particular time no one is more conscious of the numerous responsibilities which rest on the American Medical Association than I. No one realizes more than I the obligation which this organization representing a group of the best citizens of these United States has assumed and will continue to assume in an all out effort to win this war.

No one appreciates more the increasing dependence of the federal government on us for leadership, guidance and help in that field where we are best qualified to perform, and no organization is more willing to cooperate whole heartedly with the federal government in performing this duty.

It seems terribly strange and at times almost irreconcilable that a profession which has always served individuals and peoples as an effective agent in the prevention of disease, diminishing health want curing the sick, prolonging and making more effective the declining years and a profession which is always busily engaged both by precept and by example in teaching others to enjoy the blessings of peace, happiness and contentment should assume this role now in a greater and more powerful degree because of the inhuman, cowardly and dastardly act of two individuals who respect neither God nor man and to whom justice, wisdom and charity are unknown.

The enormity of the task that faces us we are just beginning to realize. The citizens of our country look to us now to furnish to our boys who have made and are willing to make the supreme sacrifice to protect those who remain at home necessary medical care and rapid rehabilitation from disease and injury. The medical profession will do this and I am firmly convinced from an intimate knowledge and close association with this group of professional people over a long period of years that they will not fail. They never have failed, and my belief is that they never will fail.

I therefore as your President-Elect together with every other officer and employee of our Association pledge the fullest cooperation of this the largest greatest most altruistic and

humanitarian group on this earth, our all out effort in this national crisis to win this war not only for our people but for all people wherever they are or whoever they may be who wish life, liberty and freedom.

To this end we ask for and beseech the help, aid and guidance of Him who said "Thou shalt have no other gods before Me." God bless you every one.

#### Election of Secretary

Dr William R Brooksher, Arkansas, nominated Dr Olin West, Chicago, to succeed himself as Secretary of the American Medical Association, and the nomination was seconded by Drs E G Wood, Tennessee, and William A Mulherin, Georgia, and many others. Dr Leon J Menville, Louisiana moved that the nominations be closed, and the motion was duly seconded and carried unanimously. Dr Arthur J Bedell, Section on Ophthalmology, moved that, in recognition of the service of the Secretary, the House stand and cast the ballot unanimously for Dr West. The motion was carried by a rising vote, and the Speaker declared Dr West elected Secretary for the ensuing year.

#### Election of Treasurer

Dr James R Bloss, Chairman, Executive Committee, Board of Trustees, in behalf of the Board of Trustees placed in nomination for Treasurer Dr Herman L Kretschmer, Chicago, to succeed himself. On motion of Dr E H Cary, Texas, seconded by Dr Joseph F Smith, Wisconsin, and carried, the nomination was confirmed, and the Speaker announced that Dr Herman L Kretschmer, Chicago had been elected Treasurer for the ensuing year to succeed himself.

#### Election of Speaker of House of Delegates

Dr R W Fouts, Vice Speaker, took the Chair and stated that the next order of business was the election of a Speaker of the House of Delegates.

Dr E G Wood, Tennessee, nominated Dr H H Shoulders, Nashville, Tenn, to succeed himself as Speaker of the House of Delegates. The nomination was seconded by Drs H B Everett, Tennessee, Andrew F McBride, New Jersey, William R Brooksher, Arkansas, John Z Brown, Utah, J Newton Hunsberger, Pennsylvania, and James Q Graves, Louisiana. Dr Thomas F Thornton, Iowa, moved that the nominations be closed. The motion was seconded by Dr William R Brooksher, Arkansas and carried. On motion of Dr A T McCormack, Kentucky, seconded by Dr Andrew F McBride, New Jersey, and carried, the Secretary cast the ballot of the House for Dr H H Shoulders, Nashville, Tenn, for Speaker of the House of Delegates for the ensuing year, and the Vice Speaker declared Dr Shoulders so elected.

#### Election of Vice Speaker of the House of Delegates

The Speaker resumed the Chair and announced that the next order of business was the election of a Vice Speaker of the House of Delegates.

Dr James Q Graves, Louisiana, nominated Dr R W Fouts, Omaha, to succeed himself as Vice Speaker of the House of Delegates and the nomination was seconded by Drs G Henry Mundt, Illinois, Olin H Weaver, Georgia, and Leon J Menville, Louisiana. It was moved by Dr William A Mulherin, Georgia, seconded by Dr John Z Brown, Utah and carried, that the nominations be closed, and the Speaker declared Dr R W Fouts, Omaha, unanimously elected Vice Speaker of the House of Delegates for the ensuing year to succeed himself.

#### Election of Trustees

Dr William R Molony Sr, California, nominated for Trustee to succeed Dr Arthur W Booth, Elmira, N Y whose term has expired and who is not eligible, according to the By-Laws, for reelection, Dr Edward M Pallette Sr, Los Angeles and the nomination was seconded by Drs Charles E Mongan, Massachusetts, William Weston, Section on Pediatrics, James M Hayes, Minnesota, Joseph F Smith, Wisconsin, E S Hamilton, Illinois, Robert L Anderson, Pennsylvania, Hilton S Reed, New Jersey and E E Barlow, Arkansas.

Dr Thomas A McGoldrick, New York, placed in nomination the name of Dr Charles Gordon Heyd, New York

It was moved by Dr William A Mulherin, Georgia, seconded by Dr L W Larson, Section on Pathology and Physiology, and carried, that the nominations be closed

The tellers spread the ballot and the Secretary announced that 139 votes had been cast, of which Dr Edward M Pallette Sr received 104 and Dr Charles Gordon Heyd 35 The Speaker declared Dr Edward M Pallette Sr, Los Angeles, elected Trustee for a term ending in 1947 to succeed Dr Arthur W Booth On motion of Dr Thomas A McGoldrick, New York, seconded by Drs George W Kosnak, New York, and Robert A Peers, California, and carried, the vote for Dr Pallette was made unanimous

The Speaker announced that the next order of business was the election of a Trustee for a term of five years to succeed Dr R L Sensenich, South Bend, Ind

Dr F S Crockett, Indiana, nominated Dr R L Sensenich, South Bend, Ind, to succeed himself for a term of five years, and the nomination was seconded by Drs E S Hamilton, Illinois, James C Sargent, Wisconsin, William R Brooksher, Arkansas, John Z Brown, Utah, John H O'Shea, Washington, and Robert E Schlueter, Missouri The nominations were closed on motion of Dr A T McCormack, Kentucky, seconded by Dr J Newton Hunsberger, Pennsylvania, and carried On motion of Dr Andrew F McBride, New Jersey, seconded by Dr James C Sargent, Wisconsin, and carried, the Secretary cast the ballot of the House for Dr R L Sensenich, South Bend, Ind, to succeed himself as a Trustee for a term ending in 1947 The Speaker declared Dr Sensenich so elected

### Nominations for Standing Committees

#### NOMINATIONS BY DR FRED W RANKIN, PRESIDENT

Dr Fred W Rankin, President, submitted the following nominations for standing committees, which, on motions duly made, seconded and carried, were confirmed by the House

Dr Lloyd Noland, Fairfield, Ala, to succeed Dr Holman Taylor, Fort Worth, Texas, as a member of the Judicial Council for a term ending in 1947

Dr Clyde L Cummer, Cleveland, to succeed himself as a member of the Council on Scientific Assembly, for a term ending in 1947

Dr James E Paullin, President-Elect, requested that he be relieved of his membership on the Council on Scientific Assembly in view of his election as President-Elect and that Dr Rankin be allowed to appoint some one for his unexpired term The request of Dr Paullin was granted on motion of Dr G Henry Mundt, Illinois, seconded and carried

Dr Rankin nominated as a member of the Council on Scientific Assembly to fill the unexpired term of Dr James E Paullin ending in 1943 Dr Edward L Bortz, Philadelphia The nomination was confirmed on motion of Dr John Z Brown, Utah, seconded by Dr Olin H Weaver, Georgia, and carried

#### NOMINATION BY THE BOARD OF TRUSTEES

Dr James R Bloss, Chairman, Executive Committee, Board of Trustees, placed in nomination the name of Dr Reginald Fitz, Boston, to succeed himself as a member of the Council on Medical Education and Hospitals for a term ending in 1949 It was moved by Dr Arthur J Bedell, Section on Ophthalmology, seconded by Dr E S Hamilton, Illinois, and carried, that the nomination be confirmed, and Dr Reginald Fitz, Boston, was declared elected a member of the Council on Medical Education and Hospitals for a term of seven years to succeed himself

### Election of Associate and Affiliate Fellows

The Secretary presented the following nominations for Associate and Affiliate Fellowship, properly approved according to the By-Laws, which, on motions, duly made, seconded and carried were confirmed

### NOMINATIONS OF AMERICAN MEDICAL MISSIONARIES FOR ASSOCIATE FELLOWSHIP APPROVED BY THE JUDICIAL COUNCIL

Ainslie, C A, Guatemala, C A  
Allison, Mary Bruns, Douglaston, N Y  
Casberg, Melvin A, Yeotml District, India  
Horner, Marjory C, Congo, Belge, W C, Africa  
Horner, W Howard, Congo, Belge, W C, Africa  
Hugblett, W S, Cocoa, Fla  
Vroon, John, Sialkot, Punjab, India  
Wallis, Calvin P, Baguio, P I

### NOMINATIONS FOR ASSOCIATE FELLOWSHIPS APPROVED BY THE SECTIONS INDICATED

#### PRACTICE OF MEDICINE

McLern, Franklin C, Chicago

#### LARYNGOLOGY, OTOTOLOGY AND RHINOLOGY

Fountain, Lee S, San Antonio, Texas  
Murray Harold H, Seattle

#### EXPERIMENTAL MEDICINE AND THERAPEUTICS

Flemister, L J, Jr, Washington, D C  
Shelinski, Herman A, Philadelphia

#### PATHOLOGY AND PHYSIOLOGY

Novak, Milin V, Chicago

#### PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

Gudakunst, Don W, New York  
Lambert, Sylvester M, Walnut Creek, Calif

### NOMINATIONS FOR AFFILIATE FELLOWSHIPS APPROVED BY THE COUNCIL ON SCIENTIFIC ASSEMBLY

|  |  |
|--|--|
| Aaron, Charles D, Detroit                    | Jackson, Clarence M, Minneapolis       |
| Aderhold, Thomas M, El Reno, Okla            | Jaudon, Benjamin Y, St Louis           |
| Allen, Addie B, Los Angeles                  | Jeffers George D, Parkersburg, W Va    |
| Allen, Charles E, Kansas City, Mo            | Johnson, Arthur W, Mechanicsville, N Y |
| Allen, Charles Lewis, Los Angeles            | Kahrs, W H, New York                   |
| Andrews, R W, Poughkeepsie, N Y              | Kellogg John H, Battle Creek, Mich     |
| Bailey, Frank J, Red Bluff, Calif            | Kelly, Howard A, Baltimore             |
| Biddle, Andrew P, Detroit                    | Kirkpatrick, Joseph H, Los Angeles     |
| Black, Carl E, Sr, Jacksonville, Ill         | Leenhouts, A, Holland, Mich            |
| Bonnell, C H, Rye, N Y                       | Littlewood Frank B, New Rochelle, N Y  |
| Bowerman, Edwin A, Buffalo                   | Lyon, I P, Buffalo                     |
| Brush, Arthur C, New York                    | Macqueen, Donald K, Laurium, Mich      |
| Burkhard, Edwin D, Homelake, Colo            | Mayor, Hermon S, Kansas City, Mo       |
| Campbell, D M, Detroit                       | Marchildon, John W, Los Angeles        |
| Chapin, Henry Dwight, Bronxville, N Y        | Martin, William C, Detroit             |
| Chapman, Newton D, Port Richmond, N Y        | McCray, E H, Waltham, Ark              |
| Clemons, E Jay, Los Angeles                  | McKern, James W, Long Beach, Calif     |
| Cochrane, William J, Lake City, Minn         | Miner, Stanley G, Detroit              |
| Collie, Henry G, St Petersburg, Fla          | Minnick, Edwin M, Danvers, Ill         |
| Creevey, George M, New Hartford, Conn        | Morrison, James F, Brooklyn            |
| Cuthbertson Hugh A, Chicago                  | Myrick, H G, Boston                    |
| Dickert, John G, Englewood, N J              | Ohle, Henry C, Baltimore               |
| Dockstader, Charles H, Mississippi, L I, N Y | Parker, Owen William Fly, Minn         |
| Doolittle Willard F, New York                | Parker, Walter R, Grosse Pointe, Mich  |
| Enos Clinton, Denver                         | Pope, M Y, Monticello, Ark             |
| Farrar, L K P, New York                      | Potter, Marjory J M, La Mesa, Calif    |
| Finnay, J M T, Baltimore                     | Potter, Will H, La Mesa, Calif         |
| Friedenwald, Harry, Baltimore                | Pratt, Charles A, New Bedford, Mass    |
| Frost Edward L, Buffalo                      | Renrud George I, Detroit               |
| Frothingham, G E, Detroit                    | Rich, Charles O'N, Omaha               |
| Gardner, William S, Baltimore                | Roberts A J, Jackson, Mich             |
| Genung L T, Ithaca, N Y                      | Sawbridge, Edward Stephen, Mich        |
| Godfrey, Willoughby L, Battle Creek, Mich    | Sevey, Minnie A, Sacramento, Calif     |
| Grandison, W G, Charlestown, Mass            | Sheller, William O, Los Angeles        |
| Hias S V, New York                           | Simon, I S, Los Angeles                |
| Hamel, Albert H, St Louis                    | Soper Horace W, St Louis               |
| Harris, Eva Lillian, Oakland, Calif          | Stevens Rollin H, Detroit              |
| Hastings, Hill, Los Angeles                  | Strickland, William I, Fort, Mo        |
| Hawkins, F L, Meredith, N H                  | Swint, Roger C, Atlanta, Ga            |
| Heller I N, New York                         | Thompson Archibald B, Rapid, Mich      |
| Heller Joseph M, Washington, D C             | Van Doren William, Minneapolis, N Y    |
| Hill Charles L, Nashville, Tenn              | Waddington, J F G, Davenport, Iowa     |
| Hirsch, A B, New York                        | Wessinger John A, New York, Mich       |
| Hoffman, Lawrence H, San Francisco           | Woolsey George, New York               |
| Holmes, May S, Orleans, Mass                 | Wylie Eugene C, Detroit, Mich          |
| Hopkins C W, Elmhurst, Ill                   |  |
| Hume, Arthur M, Owosso, Mich                 |  |
| Hurrell M Louise, Kingston, N Y              |  |
| Jackson Carl A, Kansas City, Mo              |  |



### Appointment of Members of War Participation Committee of American Medical Association

In accordance with the action of the House of Delegates, the Speaker appointed the following members of the newly created War Participation Committee of the American Medical Association: Drs. Walter F. Donaldson, Pittsburgh, Chairman, Edward R. Cunniffe, New York, Clyde L. Cumner, Cleveland, John H. O'Shea, Spokane, Wash., and William R. Molony Sr., Los Angeles. In accordance with the action of the House, the ex officio members of the Committee are the President, the President-Elect, the Chairman of the Board of Trustees, the Secretary and the Editor of *THE JOURNAL* of the American Medical Association.

### Place of 1945 Annual Session

Dr. James R. Bloss, Chairman, Executive Committee, Board of Trustees, reported that two invitations had been received for the 1945 annual session, one from New York and the other from Atlantic City, N. J., and that the Secretary has information showing that the accommodations to be provided by each of the cities are such that a satisfactory session can be held in either of them.

Dr. Andrew F. McBride, New Jersey, invited the Association to come to Atlantic City, N. J., in 1945 and Dr. Thomas A. McGoldrick invited the Association to meet in New York in 1945.

### Presentation and Address of Vice President

Dr. Hilton S. Read, New Jersey, presented the newly elected Vice President, Dr. William J. Carrington, Atlantic City, N. J., who addressed the House as follows:

*Mr. Speaker and Members of the House:* Let me thank you for this totally unexpected and wholly surprising honor, the greatest that has ever come to me in my life. It takes my breath away, and I have just enough breath left to say to you that I will devote a full measure of zeal and devotion and loyalty to this American Medical Association which it so richly deserves. Thank you.

### Place of 1945 Annual Session (Continued)

The tellers spread the ballot and the Secretary announced that 107 votes had been cast, of which New York received 65 and Atlantic City, N. J., 42. The Speaker declared that New York had been selected as the place of annual session in 1945.

### Expressions of Appreciation

It was moved by Dr. A. T. McCormack, Kentucky, that the House of Delegates of the American Medical Association express to the Medical Society of New Jersey and to the Atlantic County Medical Society, to the officials of Atlantic City and New Jersey and to the people, its profound gratitude for the splendid hospitality that had been extended to the American Medical Association during the stay in Atlantic City, to the press of the United States for the excellent reports that had been made, and to the newly elected Vice President, Dr. Carrington, and his associates for the untiring work that all know was necessary to make this session the smooth, perfect success it has been and to the Woman's Auxiliary of New Jersey and of Atlantic City for the beautiful hospitality they had extended. The motion was seconded by Drs. J. Newton Hunsberger, Pennsylvania, and Olin H. Weaver, Georgia, and carried unanimously.

Dr. Arthur J. Bedell, Section on Ophthalmology, moved that the Secretary stand and receive the resolution that the members of the House of Delegates desire to rise and express appreciation to the Speaker of the House for the masterful way in which he has conducted this session.

The Delegates arose and the Secretary stated that the intent of the gentleman's suggestion was carried out enthusiastically and without any opportunity to put the question and that

the Speaker might therefore consider himself thanked and appreciated.

The Speaker expressed to the members of the reference committees his high appreciation as well as that of the House for the excellent work they had done, that in many instances the job of the reference committees was an arduous one that there were about sixty members of the reference committees out of one hundred and seventy-five in the House, that the entire membership of the House had found its way to the rooms of the reference committees, and that the excellent work done by the committees had simplified the procedure of the House. The Speaker requested the House to join with him in a little expression of appreciation to the members of the reference committees.

The House of Delegates adjourned sine die at 4:10 p. m.

### REGISTRATION AT ATLANTIC CITY

The total registration at Atlantic City was 8,238. Below are summaries of the registration by sections and by states.

#### Registration by Sections

|  |              |
|--|--------------|
| Practice of Medicine                                 | 2,473        |
| Surgery, General and Abdominal                       | 1,119        |
| Obstetrics and Gynecology                            | 549          |
| Ophthalmology  | 429          |
| Laryngology, Otolaryngology and Rhinology            | 308          |
| Pediatrics   | 406          |
| Experimental Medicine and Therapeutics               | 90           |
| Pathology and Physiology                             | 257          |
| Nervous and Mental Diseases                          | 185          |
| Dermatology and Syphilology                          | 237          |
| Preventive and Industrial Medicine and Public Health | 217          |
| Urology  | 193          |
| Orthopedic Surgery                                   | 239          |
| Gastroenterology and Proctology                      | 345          |
| Radiology  | 336          |
| Anesthesiology                                       | 138          |
| Sessions for the General Practitioner                | 189          |
| Session on Legal Medicine                            | 9            |
| Two or more sections or no sections marked           | 519          |
| <b>Total</b>   | <b>8,238</b> |

#### Registration by States

|                      |     |                |              |
|----------------------|-----|----------------|--------------|
| Alabama              | 38  | New Jersey     |              |
| Arizona              | 10  | Atlantic City  | 77           |
| Arkansas             | 11  | State at large | 1,009        |
| California           | 180 | New York       | 1,507        |
| Colorado             | 22  | North Carolina | 96           |
| Connecticut          | 166 | North Dakota   | 6            |
| Delaware             | 45  | Ohio           | 386          |
| District of Columbia | 220 | Oklahoma       | 34           |
| Florida              | 73  | Oregon         | 18           |
| Georgia              | 78  | Pennsylvania   | 1,936        |
| Idaho                | 4   | Rhode Island   | 52           |
| Illinois             | 357 | South Carolina | 31           |
| Indiana              | 87  | South Dakota   | 2            |
| Iowa                 | 46  | Tennessee      | 50           |
| Kansas               | 22  | Texas          | 92           |
| Kentucky             | 42  | Utah           | 8            |
| Louisiana            | 46  | Vermont        | 16           |
| Maine                | 22  | Virginia       | 146          |
| Maryland             | 244 | Washington     | 29           |
| Massachusetts        | 300 | West Virginia  | 64           |
| Michigan             | 218 | Wisconsin      | 53           |
| Minnesota            | 87  | Wyoming        | 2            |
| Mississippi          | 7   | Canada         | 56           |
| Missouri             | 92  | Foreign        | 87           |
| Montana              | 5   |                |              |
| Nebraska             | 34  |                |              |
| Nevada               | 1   |                |              |
| New Hampshire        | 31  | <b>Total</b>   | <b>8,238</b> |

## THE SCIENTIFIC EXHIBIT

The Scientific Exhibit at the Atlantic City session was noted for its Pan American participation. Several of the proposed exhibits from Central and South America were canceled because of the difficulties of transportation, there were eighteen Pan American exhibits on the program, however, of which thirteen were eventually installed, the others being delayed or lost in transit.

The large number of Army and Navy uniforms that were seen in the Scientific Exhibit constantly attested the part which the medical profession is playing in the present emergency. Many prospective exhibitors were forced to withdraw from participation in the meeting because of war duties. Others, however, obtained leave to present their material. The U S Army, the U S Navy, the U S Public Health Service, the Selective Service System, the Procurement and Assignment Service and the Office of Civilian Defense all had exhibits relating to the war effort.

The Special Exhibit on Fractures was presented for the twelfth time under the auspices of a committee composed of Dr Kellogg Speed, Chicago, chairman, Dr Frank D Dickson, Kansas City, Mo., and Dr Walter Estell Lee, Philadelphia. Appreciation is expressed to Dr James H Mason III, Atlantic City, who served as local representative, and to Mrs Nellie McGurran, superintendent of the Atlantic City Hospital, for their help and cooperation. Nearly fifty physicians assisted with the demonstrations in six booths continuously throughout the week, and a pamphlet describing the exhibit was distributed.

The Special Exhibit on Backache was presented for the third time under the auspices of a committee composed of Dr Frank R Ober, Boston, chairman, Dr Carl E Badgley, Ann Arbor, Mich., Dr J Archer O'Reilly, St Louis, Dr Arthur Stendler, Iowa City, and Dr Philip D Wilson, New York, with the collaboration of Dr Eben J Carey, Milwaukee, Dr Albert Ferguson, Brookline, Mass., Dr H Close Hesseltine, Chicago, Dr K G Hansson, New York, Dr Theodore A Willis, Cleveland, and Dr Walter Zeit, Milwaukee, and an advisory committee consisting of Dr Fremont A Chandler, Chicago, Dr H Earle Conwell, Birmingham, Ala., Dr John S Coulter, Chicago, Dr Philip Lewin, Chicago, Dr Robert D Schrock, Omaha, Dr E Harlan Wilson, Columbus, Ohio, and Dr Walter J Zeiter, Cleveland. A group of fifty physicians participated throughout the week in the demonstrations, and a pamphlet describing the exhibit was distributed.

Lectures and demonstrations on poliomyelitis and diabetes were given throughout the week in two theaters adjoining the exhibits.

The Section on Practice of Medicine presented twenty-nine exhibits, including sixteen in the symposium on cardiovascular disease. Dr Louis B LaPlace, Philadelphia, was the section representative.

The Section on Surgery, General and Abdominal, presented twenty-eight exhibits. The section representative was Dr Grover C Penberthy, Detroit.

The Section on Obstetrics and Gynecology presented ten exhibits. The section representative was Dr Charles Edwin Galloway, Evanston, Ill.

The Section on Ophthalmology had eleven exhibits. The committee from the section consisted of Dr Georgiana Dvorak Theobald, Oak Park, Ill., chairman, Dr Derrick Vail, Cincinnati, and Dr W Ivan Lillie, Philadelphia.

The Section on Laryngology, Otology and Rhinology presented six exhibits. The section representative was Dr Fred W Dixon, Cleveland.

The Section on Pediatrics had six exhibits. The section representative was Dr Arthur F Abt, Chicago.

The Section on Experimental Medicine and Therapeutics presented twenty-three exhibits. The section representative was Dr Dwight L Wilbur.

The Section on Pathology and Physiology presented twenty exhibits. The section representative was Dr Frank W Konzelmann, Philadelphia.

The Section on Nervous and Mental Diseases presented seven exhibits. The section representative was Dr Frederick P Moersch, Rochester, Minn.

The Section on Dermatology and Syphilology showed eleven exhibits. The section representative was Dr Hamilton Montgomery, Rochester, Minn.

The Section on Preventive and Industrial Medicine and Public Health presented fourteen exhibits. The representative to the section was Dr Paul A Davis, Akron, Ohio.

The Section on Urology presented seven exhibits. The section representative was Dr John H Morrissey, New York.

The Section on Orthopedic Surgery presented ten exhibits. The representative to the section was Dr Jesse T Nicholson, Philadelphia.

The Section on Gastro-Enterology and Proctology had ten exhibits. The representative to the section was Dr Grant H Laing, Chicago.

The Section on Radiology presented ten exhibits. The section representative was Dr S W Donaldson, Ann Arbor, Mich.

The Section on Anesthesiology presented seven exhibits. The section representative was Dr Paul M Wood, New York.

Seventy-eight motion pictures were shown continuously throughout the week in four theaters directly adjacent to the exhibits.

Thirty-six papers read before the sections of the Scientific Assembly were correlated with the exhibits in the Scientific Exhibit.

Acknowledgment is made to the local committee on Scientific Exhibit, of which Dr R A Kilduffe was chairman.

## REPORT OF THE COMMITTEE ON AWARDS

The Committee on Awards made the following report:

## GROUP I

*(Awards in Group I are made for exhibits of individual investigation, which are judged on the basis of originality and excellence of presentation.)*

The GOLD MEDAL to Eben J Carey and Leo C Massopust, Marquette University Medical School, Milwaukee, for exhibit on Experimental Ameboid Motion of Motor End Plates.

The SILVER MEDAL to Deryl Hart and Samuel E Upchurch, Duke University School of Medicine and Duke Hospital, Durham, N C., for exhibit on Air Disinfection with Bactericidal Radiant Energy.

The BRONZE MEDAL to O V Batson, Graduate School of Medicine of the University of Pennsylvania, Philadelphia, for exhibit on the Vertebral Vein System as a Mechanism for Spread of Metastases.

CERTIFICATES OF MERIT, Group I, are awarded to the following (alphabetically arranged):

Louis H Barenberg, David Green, Walter Levy and Nathan Greenstein, Morrisania City Hospital, New York, for exhibit on Prevention of Contagion in Pediatric Wards with Use of Human Serum or Plasma.

Carlos Monge and Associates from the Faculty of Medicine and National Institute of Andean Biology, Lima, Peru, for exhibit on Chronic Mountain Sickness.

Joseph F Ross and Milun A Chapin, Evans Memorial and Massachusetts Memorial Hospital, Boston, for exhibit illustrating the Application of Radioactive Isotopes to Medical Investigation

Donald Slaughter and T T Wright, Baylor University, College of Medicine, Dallas, Texas, for exhibit on a Quantitative Pain Threshold Machine

Howard I Suby, Robina M Suby, Fuller Albright and Hirsch Sulikowitch, Massachusetts General Hospital, Boston, for exhibit on Kidney Stones (a) Retrograde Dissolution of Calcium Phosphate, (b) Determination of Chemical Composition by X-Ray Appearance

J Ross Veal and Roy G Klepser, Gallinger Municipal Hospital, Washington, D C, for exhibit illustrating the Treatment of Frostbite of the Extremities

In addition the following exhibits are deemed worthy of Honorable Mention (alphabetically arranged)

That of Frank W Hartman, Victor Schelling, Henry N Harkens, Brock Brush and Kenneth W Warren, Henry Ford Hospital, Detroit, on the Relative Value of Pectin Solution in Shock

That of Joseph M Hill, E E Muirhead and Lewis Waters, Baylor University Hospital, Dallas, Texas, on Shock Therapy

That of Henry Minsky, Mount Sinai Hospital, New York, on the Zonular Chamber of the Eye

That of E A Rovenstine, Homer W Smith, E M Papper and S E Bradley, New York University College of Medicine, New York, on Circulatory Changes During Spinal Anesthesia

That of Isaac Starr and A J Rawson, University of Pennsylvania, Philadelphia, on the Ballistocardiograph, with Records Obtained in the Common Diseases of the Heart and Circulation

That of Max M Strumia and John J McGraw, Bryn Mawr Hospital, Bryn Mawr, Pa, on the Preparation and Preservation of Human Blood Plasma

#### GROUP II

*(Awards in Group II are made for exhibits which do not exemplify purely experimental studies and which are judged on the basis of excellence of presentation and correlation of facts)*

The GOLD MEDAL to John C Bugher and Manuel Roca-Garcia, Section of Special Studies, National Department of Health, Bogota, Colombia, for exhibit on the Epidemiology of Jungle Yellow Fever

The SILVER MEDAL to Emanuel Libman of New York for exhibit illustrating Endocarditis and "Libman-Sack Disease"

The BRONZE MEDAL to L M Randall, M C Piper, L A Brunsting and M B Dockerty, Mayo Clinic, Rochester, Minn, for exhibit on Kraurosis and Allied Lesions of the Vulva and Certain Neoplasms of the Ovary

CERTIFICATES OF MERIT, Group II, are awarded to the following (alphabetically arranged)

Charles S Capp and Martha Mottram, University of California Hospital, San Francisco, for exhibit on Bone Lesions Involving the Sacrum

William Dameshek, Tibor J Greenwalt, Russell J Tat and Camille Dryfus, J H Pratt Diagnostic Hospital and Boston Dispensary, Boston, for exhibit on the Hemolytic Syndromes Hemoglobinurias, Hereditary and Acquired Hemolytic Anemias

William Dressler, Israel Zion Hospital, Brooklyn, and the Brooklyn Hospital, New York, for exhibit on the Cardiac Topography and Physical Diagnosis of the Heart

Carl F Jordan and Irving H Borts, Iowa State Department of Health Des Moines, Iowa, for exhibit on Brucellosis or Undulant (Malta) Fever

Irwin Schulz Milwaukee Children's Hospital, Milwaukee, for exhibit on Wringer Injury

Frederick Steigmann, Hans Popper and Karl A Meyer, Cook County Hospital, University of Illinois College of Medicine and Cook County Graduate School of Medicine, Chicago, for exhibit on Liver Function in Clinical Medicine

In addition, the following exhibits are deemed worthy of Honorable Mention (alphabetically arranged)

That of Thomas N Horan and C Graham Eddy, Eloise Hospital and Harper Hospital, Detroit, on Laparoscopy Intra-Abdominal Photography in color

That of Elmer H Loughlin, Richard H Bennett, Samuel H Spitz and William W Carty with the assistance of Mary E Flanagan, Long Island College Hospital, Brooklyn, on Pneumonia

That of L H Mousel, H W Schmidt and A H Bulbulian, Mayo Clinic, Rochester, Minn, on Causes, Prevention and Treatment of Postoperative Atelectasis

That of Don Carlos Peete, University of Kansas Medical School, Kansas City, Kan, on Acute Rheumatic Fever and Its Complications

That of Harold W Smith, Bureau of Medicine and Surgery Navy Department, Washington, D C, on the Medical Department of the United States Navy

That of Marcy L Sussman, M F Steinberg and Arthur Grishman, Mount Sinai Hospital, New York, on Angiocardiography in Congenital and Rheumatic Heart Disease

#### CERTIFICATES OF APPRECIATION

Especially noteworthy are the thirteen exhibits contributed by our sister Pan American republics. These were planned before the war was brought to the shores of the Western Hemisphere but, in spite of the difficulties and hazards which the war entailed, these exhibitors with the support of their governments were most willing to carry on as planned. Most of the exhibits which have not arrived were either lost or delayed in transit.

With this splendid contribution to the Scientific Exhibit at this session, Certificates of Appreciation are gratefully awarded to each of the following exhibitors

Raul F Vacarezza and Juan Paso, Catedra de Patologia y Clinica de la Tuberculosis, Buenos Aires, Argentina, for exhibit on Epidemiology of Tuberculosis in Argentina—Its Influence on the Human Economic Value

Enrique Viacava, Buenos Aires, Argentina, with the assistance of Hayes E Martin, Memorial Hospital, New York, for exhibit on Cancer of the Lip

Guillermo A Bosco, University of Buenos Aires Medical School, Buenos Aires, Argentina, for exhibit on Anatomic Revision of the System of Coronary Arteries. New Nomenclature of Myocardial Infarct and Clinical and Symptomologic Bases for an Anatomicotopographic Diagnosis of Coronary Arterial Obstruction

Alejandro Lipschutz, Department of Experimental Medicine of the National Health Service, Republic of Chile, Santiago, Chile, for exhibit on Experimental Uterine and Extragenital Fibroids Induced by Estrogens. Metaplasia and Adenomatous Polyps of Endometrium

Gonzalo Esguerra-Gomez, Clinica de Marly, Bogota, Colombia, for exhibit on Bone Changes in Leprosy

Horacio Zalce, Mexico City, Mexico, with the assistance of Bradley L Coley, Memorial Hospital, New York, for exhibit on Bone Tumors

J Menendez Feros, service of Pedro A Castillo, University of Havana, Havana, Cuba, for exhibit on the Electrocardiogram

P L Farinas, University Hospital, Havana, Cuba, for an exhibit on Mucosography of the Organs of the Respiratory Tract

V Pardo-Castello and Francisco R Tiant, University of Havana Medical School, Havana, Cuba, for an exhibit on Leprosy. The Correlation of Its Clinical, Immunologic, Pathologic and Bacteriologic Aspects

National Department of Health of Brazil, Service of Studies and Investigations of Yellow Fever, Rio de Janeiro, Brazil, for an exhibit on Yellow Fever in Brazil

National Department of Health of Brazil, Malária Service for the Northeast, Rio de Janeiro, Brazil, for an exhibit on the Story of the Eradication of Anopheles (Myzomyia) Gambiae from Brazil

(Carlos Monge and Associates from the Faculty of Medicine and National Institute of Andean Biology, Lima, Peru, are awarded the Certificate of Merit in Group I)

(John C. Bugher and Manuel Roca-Garcia, Section of Special Studies, National Department of Health, Bogota, Colombia, are awarded the Gold Medal in Group I)

#### SPECIAL CERTIFICATES OF MERIT

Of great interest and value are the special lectures and demonstrations on diabetes and the Kenny method for the treatment of poliomyelitis. The large and attentive audiences at each of these demonstrations is convincing evidence of the interest and appreciation of them. The Committee on Awards compliments the director of the Scientific Exhibit on the arrangement of these exhibits and expresses its appreciation to the exhibitors by awarding to each of them a Special Certificate of Merit.

#### SUBSIDIZED EXHIBITS

Of unusual educational value are the Special Exhibits on Fractures and Backache sponsored by the American Medical Association, and the exhibit on Dietary Deficiency Diseases presented by members of the Council on Foods and Nutrition of the American Medical Association.

#### COMMENTS AND RECOMMENDATIONS

On entrance to the Scientific Exhibit this year, one is immediately impressed with the pleasing and attractive appearance of the hall. This creates an atmosphere immediately favorable to the attendance at and interest in the individual exhibits. The Committee on Awards commends those responsible for the Scientific Exhibit for this splendid achievement.

The showing of silent and sound motion pictures in small theaters adjoining the exhibit hall is again proving to be a most valuable adjunct to the exhibit proper. The excellence of these pictures from the point of view both of photographic and of educational value, is worthy of special commendation. It is the recommendation of the Committee on Awards that this feature of the Scientific Exhibit be continued.

The Scientific Exhibit is intended to serve two primary purposes: the presentation of new developments in medicine and the instruction of the profession in regard to diseases and conditions of interest and importance to them. The exhibit this year serves well both of these purposes, but especially impressive is the teaching value of many of the exhibits and demonstrations.

The representatives to the Scientific Exhibit from the sixteen sections have rendered invaluable service to the Committee on Scientific Exhibit and to the director of the Scientific Exhibit in encouraging the presentation of exhibit material of special interest and merit. Only the limitation in the number of awards available prevented official recognition of a large number of exhibits of undoubted merit.

The Committee on Awards wishes to express the appreciation of the thousands of physicians who have profited by these exhibits to the Committee on Scientific Exhibit of the Board of Trustees, the Advisory Committee to the Scientific Exhibit, the section representatives and to the director of the Scientific Exhibit for this unique and interesting postgraduate instruction in medicine.

Under the able direction of Dr. Thomas G. Hull, the Scientific Exhibit has clearly become the outstanding feature of the annual session of the American Medical Association.

HAROLD S. DIEHL, Minneapolis, Chairman  
MAX M. PEET, Ann Arbor, Mich.  
JOHN W. SCOTT, Lexington, Ky.  
A. C. IVY, Chicago  
H. S. MARTLAND, Newark, N. J.

## MEDICAL LEGISLATION

### MEDICAL BILLS IN CONGRESS

*Changes in Status*—S. 2412 has been reported to the Senate, providing benefits for the injury, disability, death or enemy detention of civilians and for the prevention and relief of civilian distress arising out of the present war. H. R. 7164 has passed the Senate, amending the Soldiers' and Sailors' Civil Relief Act of 1940. The purpose of the reported bill is to make available additional and further relief and benefits to persons in the military and naval forces. Among other things, it brings within the purview of the act transactions occurring subsequent to Oct. 17, 1940, provides for the cancellation of leases entered into by persons subsequently called into military service and covering premises occupied for dwelling, professional, business, agricultural or similar purposes, and, in connection with premiums on insurance policies, extends the benefits of the law to policies up to \$10,000 face value. H. R. 7239 has been reported to the

House, proposing to authorize the Director of the Census to issue certifications of birth records.

*Bills Introduced*—The President has submitted to Congress a supplemental estimate of an appropriation in the amount of \$10,000,000 to assist students, in such numbers as the chairman of the War Manpower Commission shall determine, participating in accelerated programs in degree-granting colleges and universities in engineering, physics, chemistry, medicine (including veterinary), dentistry and pharmacy and such other technical and professional fields as the chairman may determine to be necessary in connection with the national war effort. H. R. 7231, introduced by Representative Dickstein, New York, proposes to create in each corps area of the United States, as now constituted, a medical training school for the instruction of physicians for the armed forces and the United States Public Health Service.

## WOMAN'S AUXILIARY

### Pennsylvania

The Allegheny County auxiliary held its seventeenth birthday party in January, at which Mrs. Charles C. Crouse, state president, was guest of honor. Mrs. Homer W. Grimm, president of the auxiliary, spoke on "Our Part in Defense." A gift of \$350 was voted to the Red Cross.

At the January meeting of the Lycoming County auxiliary, with Mrs. P. Harold Decker presiding, Miss Pauline Naegely of the local chapter of the American Red Cross gave an outline of all the branches of service calling for volunteers to cooperate during the present emergency.

The annual Health Day meeting of the Allegheny County auxiliary was held, March 24, at Pittsburgh. Mrs. Edna Pearson, supervisor of the division of education of the state department of health, spoke on health day programs. Mrs. J. A. Lawrence, from the Pittsburgh chapter of the American Red Cross, talked on the necessity of the blood bank.

The March meeting of the Chester County auxiliary at Thorndale, \$2 was received from each member to apply to the Medical Benevolence Fund. A general discussion of defense activities followed talks by Mrs. Walter W. Davis and Mrs. Howard B. F. Davis on "Nurses Aids."

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS EDUCATION AND PUBLIC HEALTH)

### CALIFORNIA

**State Medical Election**—Dr Karl L. Schaupp, San Francisco, was chosen president-elect of the California Medical Association at its recent meeting in Del Monte and Dr William R. Molony, Sr., Los Angeles, was inducted into the presidency. Dr George H. Kress, San Francisco, was reelected secretary-treasurer. The 1943 session will be held at Del Monte the date to be decided later.

**Health Department Activities**—The cities of Antioch and Pittsburg have transferred the administration of their health affairs to the Contra Costa County Health Department in charge of Dr William A. Powell. Martinez, Dr Fred P. Nevius has been serving as health officer of Antioch and Dr George C. Kelso as health officer of Pittsburg. With the exception of the cities of Richmond and El Cerrito, nearly all of Contra Costa County is now under the jurisdiction of the county health unit. Plans are under way to establish a full time health unit in Marin County.

**Surgical Impostor Never Studied Medicine**—Arthur Osborne Phillips, alias Dr James Herman Phillips, was charged May 26 with impersonating a surgeon and performing major operations without a license at a hospital in Chico, newspapers reported May 28. The man who is said to have served prison terms in five states was held in the city jail on charges of practicing medicine illegally and illegal possession of firearms. The newspaper report stated that an agent for the California Board of Medical Examiners claimed that Phillips' knowledge of surgery came from prison textbooks. The report further stated that according to the state board of medical examiners, the alleged impostor is believed to have performed thirty-one appendectomies during spasmodic masquerading as a physician in the past fourteen years. He assertedly had performed four appendectomies, tonsillectomies and abdominal operations during the two months he had been in Chico. He signed one death certificate and one birth certificate. It was stated

### DELAWARE

**Society News**—The New Castle County Medical Society of Delaware was addressed on May 19 at the Academy of Medicine, Wilmington, by Drs Briece S. Vallett on "Careinoma of the Prostate Gland," Victor D. Washburn "Modern Catheters in the Management of Urinary Retention" and Lang W. Anderson "Some Urologic Problems." All are of Wilmington. Dr Allen F. Voshell, Baltimore, recently addressed the society on "Anatomy of the Knee Joint in Relation to Internal Derangements."

### FLORIDA

**Venereal Disease Control Program**—The state department of health has launched a program of venereal disease control in cooperation with the Works Progress Administration and the U. S. Public Health Service. The campaign will be emphasized in military and war industry areas.

**State Medical Election**—Dr Eugene G. Peck, Ocala, was chosen president-elect of the Florida Medical Association at its annual session in Hollywood April 15. Dr Gilbert S. Osincup, Orlando, was inducted into the presidency and Dr Shaler A. Richardson, Jacksonville, was reelected secretary. St. Petersburg was designated as the place for the next annual meeting April 12-14, 1943.

### GEORGIA

**Postgraduate Clinics**—The Emory Medical Alumni Association conducted its postgraduate clinics June 2-4. At the annual banquet Thursday the following program was presented:

Dr. Walter C. Jones, Jr., Miami, Fla., Reflexes Observed During Abdominal Surgery.  
Dr. Eugene A. Stead, Jr., Atlanta, The Teaching Program in the Department of Medicine.  
Dr. William B. Clark, New Orleans, Anterior Segment Eye Diseases.  
Dr. William K. Parks, Jacksonburg, Miss., The Internist's Responsibility Regarding Physical Problems of Geriatric Patient.

**Crawford Long Memorial Building**—The Medical Association of Georgia at its recent meeting in Augusta set aside \$5000 as a nucleus for a fund to construct the Crawford W. Long Memorial Building. The fund will be increased from

year to year as the association directs. The building is to serve as a memorial to the late Dr. Long and as the permanent headquarters of the association. According to a resolution adopted by the association this action marks the one hundredth anniversary of Dr. Long's discovery of anesthesia. Construction will begin when a suitable fund is available. Plans will be under the direction of the council of the association.

### ILLINOIS

**State Committee to Disseminate Information**—The organization of a statewide public health committee is under way in Illinois to disseminate accurate information for the purpose of developing a widespread intelligent lay understanding of existent public health problems, what is being done, and what can be done to solve them. Frederic C. Woodward, vice president emeritus of the University of Chicago, is chairman of the committee.

**Outbreak of Smallpox**—Eleven thousand persons in the Argo-Summit war plant area southwest of Chicago have been vaccinated because of an outbreak of smallpox there the week of June 15. The disease was discovered when a 21 year old Negro, a resident of Chicago, entered Cook County Hospital with a condition first diagnosed as secondary pustular syphilis. An investigation revealed that he had been visiting his relatives in Summit where others were apparently ill with chickenpox and where subsequent investigation disclosed 8 other cases of smallpox. All the cases were traced to a small Negro boy from Missouri who visited recently in Argo. Twelve nurses of the Cook County Public Health Unit made a house to house canvass, instructing all persons who had not been vaccinated within the last five years to be vaccinated by their own physicians or to be vaccinated by the health department physicians. Vaccination stations were set up in the Argo-Summit Health Center and in the public schools in Summit for persons unable to pay their private physicians. About 4000 persons in plants were vaccinated by industrial physicians, 3000 by family physicians and 4000 in the vaccination clinics.

### Chicago

**Personal**—Dr. Samuel M. Feinberg, Chicago, was appointed honorary member of the Sociedad Argentina para el Estudio de la Algeria, Buenos Aires, Argentina. Dr. Karl A. Meyer has been chosen president of the board of trustees of the University of Illinois.

**Honorary Citations Awarded to Physicians**—Northwestern University presented an award of merit during its commencement June 12 to Dr. Herman L. Kretschmer, treasurer of the American Medical Association, in recognition of worthy achievement which has reflected on Northwestern University. The collegiate division of the University of Chicago awarded honorary citations to the following doctors of medicine, all graduates of Rush Medical College, in special recognition of achievements in their special fields:

Dr. Edward V. L. Brown, 1898, professor of ophthalmology (Rush), University of Illinois College of Medicine.  
Dr. Ralph C. Brown, 1904, professor of medicine (Rush) at Illinois.  
Dr. Noble Sproat Hanes, 1904, professor of obstetrics and gynecology at Illinois.  
Dr. Archibald L. Hoyne, 1904, professor of pediatrics (Rush) at Illinois.  
Dr. Harry E. Mock, 1906, associate professor of surgery, Northwestern University Medical School.  
Dr. Dallas B. Phemister, 1904, Thomas D. Jones, professor and chairman of the department of surgery, University of Chicago.  
Dr. Wilbur E. Post, 1903, Rush professor of medicine at Illinois.  
Dr. Kellogg Speed, 1904, professor of surgery (Rush) at Illinois.

### LOUISIANA

**State Medical Election**—Dr. Charles C. De Gravelles, New Iberia, was chosen president-elect of the Louisiana State Medical Society at its recent annual meeting and Dr. Emmett L. Irwin, New Orleans, was inducted into the presidency. Other officers include Drs. John T. O'Ferrall, New Orleans, William V. Garnier, Bastrop, and Edwin H. Lawson, New Orleans, vice presidents. The next annual meeting will be held in Baton Rouge. Dr. Paul T. Talbot, New Orleans, is secretary-treasurer.

**Dr. Fenner Honored**—Dr. Erasmus D. Fenner, New Orleans, first physician on the staff of Charity Hospital, New Orleans, to complete fifty years service at the hospital was presented with a loving cup in special ceremonies in his home June 1. Dr. Fenner graduated at Tulane University of Louisiana School of Medicine, New Orleans, and was for years in charge of the children's wards and clinics. In 1907 he cof-



finned his work to orthopedics and the surgical diseases of children. In 1920, when separate fracture services were established in the hospital on Dr Fenner's suggestion, he was placed in charge of one of the services and has remained in charge of one or more service continuously since then. He became a member of the teaching staff at Tulane in 1893. He was professor of pediatrics from 1903 to 1907, when a separate department of orthopedics was established with Dr Fenner as the first head. He resigned from this position in 1927, becoming emeritus professor of orthopedics and surgical diseases of children.

### MICHIGAN

**Russel Award to Dr Freyberg**—The Henry Russel Award of the University of Michigan, Ann Arbor, went this year to Dr Richard H. Freyberg, assistant professor of internal medicine at the medical school and director of the Rackham Arthritis Research Unit, for "distinguished achievement in medical research." The award is given annually to a member of the faculty below the rank of associate professor. Dr Freyberg graduated at the University of Michigan Medical School, Ann Arbor, in 1930. In the same year Dr Freyberg received the Sternberg medal, given to the student displaying ability in the study of preventive medicine.

**Construction Started on School of Public Health**—Construction of the new \$750,000 School of Public Health at the University of Michigan, Ann Arbor, has begun. The new unit is located on a hill opposite the observatory and immediately south of the University Hospital group. The west section will be three stories high and contain the principal classrooms, offices, library, auditorium and lounge. Eastward there will extend two wings, each two stories high, to house laboratories and research facilities. The east section will provide facilities for normal animals on the first floor and medium preparations and glassware services on the second floor. On the first floor will be offices and workrooms designed for the teaching of physiologic hygiene and maternal, infant and school health and accommodations for the study of virus diseases. The north wing of the first floor will be assigned to industrial health, with a large laboratory for studies in environmental health, research rooms for industrial toxicology, chemical laboratory and control chambers for studies on human subjects. The second floor will accommodate facilities for health education, museums, public health laboratory practice, public health nursing, laboratories for biostatistics and public health engineering. The third floor will contain classrooms and seminars for graduate and postgraduate instruction. The Rockefeller and W. K. Kellogg foundations have made most of the money available for construction of the unit.

### MINNESOTA

**Physicians Honored**—Dr Henry F. Helmholtz, Rochester, was awarded the Christmas Seal distinguished service plaque of the Minnesota Public Health Association on May 22. The honor went to Dr Helmholtz for his public health and Christmas Seal work in Olmsted County during the past twenty years. Dr Philip S. Hench, Rochester, has been awarded the Heberden Medal for 1942 by the Heberden Society of London "in recognition of his outstanding contributions to knowledge and progress in rheumatic diseases." The society was founded in 1936.

### MISSISSIPPI

**State Medical Election**—Dr Ellis LeRoy Wilkins, Clarksdale, was chosen president-elect of the Mississippi State Medical Association at its annual meeting in Jackson, May 14. Dr Wilkins has been serving as treasurer of the association for a number of years. Dr Thomas M. Dye, mayor of Clarksdale, who has for twenty-five years served as secretary, was reelected to another term of three years. Dr Hubert Lowry Rush, Meridian, was installed as president.

### MISSOURI

**Dr Wood Named Professor of Medicine**—Dr William Barry Wood Jr., Baltimore, has been appointed Busch Professor of Medicine at Washington University School of Medicine, St. Louis, to succeed Dr David P. Barr who resigned last year to accept a similar position at Cornell University Medical College, New York. Dr Wood graduated at Johns Hopkins University School of Medicine in 1936. For a time he worked as an assistant at the Thorndike Laboratory at the Boston City Hospital and more recently as associate in medicine at Johns Hopkins University School of Medicine. He is a member of the Committee on Pneumonia of the Surgeon General of the U. S. Army.

### NEBRASKA

**Personal**—Dr Maine C. Andersen has been appointed director of the health service at the University of Omaha effective September 1. He succeeds Dr John C. Sharpe resigned. Both are from Omaha.—Dr Gregory L. Endre, Omaha, has been named director of the newly created Dodge Saunders counties health unit.

**State Medical Election**—Dr Albert L. Cooper, Scottsbluff, was named president-elect of the Nebraska State Medical Association at its annual meeting in Omaha, May 4-7. Dr Dexter D. King, York, was installed as president and Dr Roy B. Adams, Lincoln, was reappointed secretary-treasurer to serve until May 1945. The 1943 session will be held in Lincoln.

### NEW YORK

**New Professor of Anatomy**—Donald Duncan, Ph.D., associate professor of anatomy, University of Texas Faculty of Medicine, Galveston, Texas, has been appointed professor and head of the department of anatomy at the University of Buffalo School of Medicine, Buffalo. Dr Duncan received his Ph.D. at the University of Minnesota in 1929 and has served on the faculties of medicine of Buffalo and Utah universities.

### New York City

**School Honors Class of 1892**—Dr Charles D. Cropsey, Rutherford, N. J., and Dr Arthur B. Van Loon, Albany, N. Y., were presented with diplomas during the eighty-second annual commencement exercises at the New York Medical College, Flower and Fifth Avenue hospitals, June 5. The physicians are two of the nine surviving members of the class of 1892, and the diplomas marked their completion of fifty years in the practice of medicine.

**Thirty Years of Public Relations**—The committee on public health relations of the New York Academy of Medicine has published a report summarizing "its thirty years of service to the people of greater New York" since its establishment in 1911. The report covers the committee's activities on community health organization, prevention of disease and care of the sick, control of environment, child care, delinquency and crime, war problems and a number of other subjects relating to the city's health population.

**Directory of Tuberculosis Clinics**—There are twenty-six officially designated district clinics and forty non-district consultation and survey clinics serving New York City, according to the directory of tuberculosis clinics compiled by the New York Tuberculosis and Health Association. The directory, which is just off the press, gives the location of each clinic, the type of service given, the names of the physicians and nurses in charge and the medical social workers. Maps showing the boundaries for the Tuberculosis District Clinics are also included in the directory, copies of which may be obtained by writing to the New York Tuberculosis and Health Association, 386 Fourth Avenue.

**Venereal Disease Films for Men**—The bureau of social hygiene of the department of health announces that two new films are available for projection to audiences of men anywhere in the city. The films for laymen tell the facts about prophylaxis for syphilis, gonorrhea and other venereal diseases. The film "Know for Sure" was produced for the U. S. Public Health Service and "Health Tactics" for the Bureau of Medicine and Surgery of the U. S. Navy. Physician lecturers associated with industrial plants, schools and other organizations are invited to schedule these films in their health education program. Motion picture projection equipment and personnel are also provided.

### OHIO

**Surgeon Honored on Eightieth Birthday**—Dr John C. Oliver, professor emeritus of surgery, University of Cincinnati College of Medicine, was honored on his eightieth birthday, May 7, when the Elizabeth Gamble Deaconess Home Association and Christ Hospital dedicated their fifty-second annual report to him as a tribute to his long service to the hospital and to the city. Dr Oliver, who graduated at Miami Medical College in 1885, now known as the University of Cincinnati College of Medicine, is the only surviving member of the original group of eighteen staff members formed in 1885 at the Christ Hospital. He still serves as consultant in surgery.

**Dr Evans Receives Chemists' Medal**—William H. Evans, Ph.D., professor and chairman of the department of chemistry, Ohio State University, Columbus, was awarded the annual medal of the American Institute of Chemical Engineers meeting in Atlantic City, May 16, for "outstanding service."

the science of chemistry and the profession of chemists in America. Dr Evans received the award in recognition of accomplishments in the field of oxidation of organic compounds, particularly in the oxidation of carbohydrates. Dr Evans received his degree of doctor of philosophy at the University of Chicago in 1905, since then he has been a member of the Ohio faculty.

**Physicians Missing in War Area**—Newspapers report that Capt John A Marsico, formerly of Lorain, a member of the American forces in the Philippines when Corregidor fell, May 7, is 'missing in action'. According to the report, the war department will consider the persons serving in the Philippine Islands as 'missing in action' from the date of the surrender of Corregidor until definite information to the contrary is received. Captain Marsico is said to have been serving in the Philippines for the past eighteen months. Major James H Bahrenburg and Capt Mark G Herbst, Canton, were reported missing, May 23. It was believed that both physicians were on the Bataan peninsula when it was surrendered to the Japanese.

#### PENNSYLVANIA

**Society News**—Dr Joseph H Barach, Pittsburgh, addressed the Clearfield County Medical Society in Clearfield, May 21, on "Clinical Consideration of Functional and Organic Diseases of the Blood Vessels".—A joint meeting of the Reading Eye, Ear, Nose and Throat Society and the Reading Dental Society, May 20, was addressed by Dr Robert Henry Ivy, Philadelphia, on "Plastic and Maxillofacial Surgery".—Dr Eldridge L. Elason, Philadelphia, addressed the Delaware County Medical Society at the Chester Hotel, Chester, June 11, on "Man and His Gallbladder".—Dr Irwin M Pochapin, Pittsburgh, addressed the Washington County Medical Society, Washington, June 17, on "Medical Aspects of Chemical Warfare".

#### Philadelphia

**Scarlet Fever Quarantine Lifted**—A scarlet fever quarantine, in effect at the Philadelphia State Hospital at Byberry since March 6, has been lifted, newspapers reported on June 5. The quarantine was imposed because of the prevalence of the disease in Philadelphia. The report stated that 4,089 cases had developed in Philadelphia up to June 5 this year as compared with 2,320 during the same period in 1941. The removal of the quarantine from the hospital permits visitors for the first time since March 6.

**College of Pharmacy Commencement**—Dr Hubley R. Owen, city director of public health, gave the principal address at the one hundred and twentieth annual commencement of the Philadelphia College of Pharmacy and Science, May 27. His subject was "Keeping Fit for Victory". An honorary degree of doctor of science was awarded among others, to Dr Randle C. Rosenberger, professor of preventive medicine and bacteriology at Jefferson Medical College of Philadelphia. At the alumni homecoming the preceding day the presidential address was delivered by Dr Henry H. Perlman, Philadelphia.

#### VIRGINIA

**The Horsley Prize**—Dr James W. Watts, associate professor of neurosurgery, George Washington University School of Medicine, Washington, D. C., received the John Horsley Memorial Prize in medicine, May 4, for his paper on "Psychosurgery," written in association with Dr Walter Freeman, Washington. The award carries a stipend of \$600 and is presented every two years by the University of Virginia, Charlottesville. The president and visitors research prize was awarded to Walton C. Gregory, M.A., Amherst, research worker in biology at the university, and Arthur W. Jones, LL.B., Norfolk, won the \$50 Andrew Fleming prize in biology, given annually to a graduate student.

**Gifts to University of Virginia**—More than \$500,000 will go to the University of Virginia Department of Medicine, Charlottesville, under specific bequests and pledges, according to a recent announcement. Under the will of the late Mr. William James Rucker, Charlottesville, \$25,000 was left to the medical school for research in etiology and treatment of arthritis. One third of the residual estate estimated at more than \$1,000,000 will go to the University Hospital. The other two thirds is to be divided between the Martha Jefferson Hospital and Sanitarium, Charlottesville, and St. Luke's Hospital, St. Louis. Under the will of Dr. William E. Hopkins, Los Angeles, the medical school has received \$13,432 for the purchase of medical books and journals for the medical school library. On the death of Dr. Hopkins' widow, the residuary estate of about \$125,000 will go to the medical school. Dr.

Stephen H. Watts, professor of surgery at the school from 1907 to 1928, has established an endowment fund for the purchase of books and periodicals for the library. The McIntyre Tumor Clinic at the university will receive the residue of the \$11,000 estate of the late Nancy Vance for the treatment and terminal care of persons with incurable cancer. The John and Mary R. Markle Foundation has given \$2,000 to support further investigations on heparin in relation to peritoneal adhesions and other tissue reactions under the direction of Drs. Edwin P. Lehman and Floyd E. Boys, and the National Research Council has granted \$2,000 to the department of physiology for work in endocrinology under the direction of Dr. Sydney W. Britton. The department of syphilology and dermatology has been given \$3,600 by E. R. Squibb and Sons for the study of a new arsenical in the treatment of syphilis over a three year period.

#### WEST VIRGINIA

**State Meeting to Be in Huntington Instead of Sulphur Springs**—The state medical association announces that the state medical meeting will be at the Prichard Hotel, Huntington, instead of at White Sulphur Springs. The date remains the same, July 13-15.

#### GENERAL

**Phillips Memorial Medal Awarded**—The John Phillips Memorial Medal of the American College of Physicians was awarded jointly to the late Dr. James D. Trask and to Dr. John R. Paul, who is associate professor of medicine at Yale University School of Medicine, New Haven. Dr. Trask died on May 24, 1942. Dr. Paul graduated at Johns Hopkins University School of Medicine, Baltimore, in 1919 and has been at Yale since 1928.

**National Maternal Council Suspends Activities**—Because of lack of funds the National Maternal and Child Health Council, formerly National Council for Mothers and Babies, Washington, D. C., will suspend activities, although the council will continue as a corporation for the present. It is announced. A fund to finance the council through contributions from its constituent members has failed, and support from foundations could not be assured.

**Kober Medal Goes to Dr. Van Slyke**—Dr. Donald D. Van Slyke, chief chemist at the Rockefeller Institute Hospital, New York, was presented with the George M. Kober Medal, May 6, during the annual meeting of the Association of American Physicians in Atlantic City. The award, which is given for outstanding service to medicine, was presented to Dr. Van Slyke for his "contributions to the treatment of diabetes and Bright's disease, as well as for his work toward oxygen treatment of pneumonia." Dr. Van Slyke was born in Pike, N. Y., in 1883. He received his Ph.D. degree at the University of Michigan, Ann Arbor, in 1907 and his degree in medicine at the University of Oslo in 1938. He has been research chemist for the Rockefeller Institute since 1907 and chief chemist at its hospital since 1914.

**Report on Prevention of Blindness**—The National Society for the Prevention of Blindness expended almost \$164,000 in 1941. A new program instituted during the year was a glaucoma demonstration project in connection with clinic procedures. Fifteen hospitals in New York are participating by organizing special services for glaucoma patients. During the year the society extended its services to many groups interested in sight conservation, cooperated in sight-saving classes and sponsored a four month course at the George Warren Brown Department of Social Work, Washington University, St. Louis. Recommendations for statewide programs were made by the society at the invitation of the Maine commissioner of health and welfare and the Louisiana commissioner of public welfare. The society made 750 broadcasts in 1941 and used such other means as newspapers, magazines, exhibits and film showings to reach the general public. More than 25,000 pamphlets were distributed.

**Conference on Tomorrow's Children**—The third New England Conference on Tomorrow's Children will be held in Cambridge, Mass. July 8-10 under the auspices of the Harvard Summer School and twenty-seven cooperating organizations. As in the first two conferences, the program this year will deal with various phases of child, family and population problems in relation to the war crisis of modern society. The program is designed to be of special interest to workers in the fields of health, social work, education, religion, family relations, eugenics and social and economic planning. The opening session will be devoted to "The Family in the World Crisis of Democracy." In the afternoon there will be symposiums on "The Family and the New World Order," "Nation and Family

and "Family Living and Community Life" There will also be roundtables on "Marriage and Family Relations in Wartime," "Child Development and Protection in Wartime" and "Social-Economic and Population Planning in Wartime"

**Research Fellowships Awarded**—The Finney-Howell Research Foundation announces that the following eight fellowships have been awarded for one year

Dr Julius B C Abels, to work at the Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York

Dr Glenn Horner Algate, to work at the National Cancer Institute, Bethesda Md

Bernard E Kline, M.S. to work at McArdle Memorial Laboratory, University of Wisconsin Madison

Margaret Nast Lewis, Ph.D., to work at the Crocker Radiation Laboratory, University of California, Berkeley

Alfred G Marshall, Ph.D. to work at Crocker Radiation Laboratory, Glasgow, Scotland

Rose I Shukoff, to work at the Glasgow Royal Cancer Hospital, Glasgow, Scotland

Emilia Vicari, A.M., to work at the Roseco B Jaelson Memorial Laboratory, Bar Harbor, Maine

Benjamin Norman Horowitz, Ph.D. to work at Harvard University, Converse Memorial Laboratory, Cambridge Mass

The Finney-Howell Research Foundation was created under the will of the late Dr George Walker, Baltimore, to support "research work into the cause or causes and the treatment of cancer"

**International College of Surgeons**—The National Assembly of the International College of Surgeons will be held at the Shirley-Savoy Hotel, Denver, July 15-18 Among the speakers will be

Dr Edwin C Henry, Omaha, Acute Abdomen

Dr Buen T King, Seattle A New and Function Restoring Operation for Bilateral Abductor Cord Paralysis

Dr Andre Crotti, Columbus, Ohio, Some of the Pitfalls in Thyroid Surgery

Dr Manuel Manzanilla A, Mexico City, Surgery of Diabetes Mellitus

Dr Elmer Hess, Erie, Pa., Treatment of Tumors of the Upper Urinary Tract

Dr Thomas A Shallow, Philadelphia, Osteogenic Sarcoma with Report of Sixty Five Cases

Dr Edward V M Mastin, St Louis An Improved Operation for Repair of Inguinal Hernia

Dr Verne C Hunt, Los Angeles Surgical Consideration of Obstruction Lesions of the Common Duct

Dr Albert A Berg, New York, The Preservation of the Sphincter Ani in Radical Operation for Carcinoma of the Rectum

Dr Rudolf Nissen, New York Drainage into Alimentary Canal as Method of Choice in Operative Treatment of Puerperal Cysts and Fistulae

Dr Tom Bentley Throckmorton, Des Moines Iowa Psychotherapy in General Medicine and Surgery

Dr Harry H Everett, Lincoln, Neb., Certain Observations on Right Upper Quadrant Surgery

A military symposium will be the feature of the meeting

**Navy Awards E Pennant to Manufacturers of Medical Supplies**—In the U S fleet, service is recognized by granting to any unit which has particularly distinguished itself the privilege of displaying the letter E. If a ship surpasses all others in gunnery, an E is painted on the winning turret and all men who helped win the honor are accorded the privilege of wearing a white E on the sleeve of their dress uniform. If a ship has distinguished itself in engineering, the E is painted on the funnel and again the champion men are given the right to wear the E. There is no more coveted honor. The first All Navy E ever awarded to a pharmaceutical manufacturing company was presented on June 12 to John Wyeth & Brother, Inc., of Philadelphia, it was one of two made at the recommendation of the Bureau of Medicine and Surgery of the Navy, the other award having been made to Johnson & Johnson of New Brunswick, N J, manufacturers of medical supplies

At the ceremony of award to John Wyeth & Brother Robert L Johnson, president of Temple University, was toastmaster, the speakers were Rear Admiral Charles M Oman, Medical Corps, U S Navy, Senator James J Davis, Representative Leon Sacks, Mayor Bernard M Samuel, Mr Frank F Law and Mr Alfred Barol, president and vice president respectively of John Wyeth & Brother. In his address, Admiral Oman said "It is the custom of the Navy to recognize service in whatever capacity it is to be found. Your contributions, which can be considered only in terms of the alleviation of human sufferings, are beyond price. It is of the merciful work that your medicines have done in our great sea battles, such as Coral Sea and Midway, that we like to think. A man wounded, in pain, is a man demobilized. A sound man, quickly healed after being put out of action, is one more strong hand to man the guns. Your drugs have helped to heal the wounded and to put them back into the battle full of life—and fighting mad, so we have brought the Navy E ashore, and it is my privilege to present the pennant to you today"

The award was made for a period of six months, at the end of which time the company's record will be reviewed again by the Navy and, if performance merits continued recognition, the

right to fly the Navy E will be granted for an additional six months, and every six months the company's record will be similarly reviewed. John Wyeth & Brother, which was founded in 1860, has supplied the armed forces with pharmaceuticals in the Civil War, the Spanish-American War, World War I and the present war

## FOREIGN

**Public Health Under Hitler's Rule**—*Donaueschingen* Belgrade, of April 25 cited an official announcement that there is a shortage of six thousand doctors for the front. It is also stated that the reference in *Universal* to 2,040 cases of typhus means nothing, as the yearly average for typhus is 3,621 cases.

*De Standaard*, Amsterdam, of March 24 reported that the burgomaster of The Hague has ordered that two gardens are to be devoted to the cultivation of medicinal herbs. One is to be at the Duinlaan near Kijkduin and the other between the Schenk and the railway to Leiden. Medicinal herbs will be grown which once had to be imported. The total area given over to this cultivation is to be about 40 hectares (100 acres).

*Donaueschingen* Belgrade, of April 23 reported that, thanks to the energetic efforts of the Ministry of Public Health, large quantities of vaccine have been imported and a great part of the population inoculated against typhus and cholera.

*Transocean* of April 24 reported that the Ministry of Health denied rumors alleging the existence of an epidemic (of typhus) in Athens and the Piraeus. It was stated that there had been a few cases, but not 1 has been serious. It also stressed that all hygienic measures had been taken to prevent the possibility of epidemics.

*Beilingske Aftenavis*, Copenhagen, of April 28 stated that the Esbjerg County Council's previous 8,000 kroner grant for delousing the citizens of Esbjerg has been increased by 7,000 kroner, as the work is more comprehensive than first expected.

*Transocean* of April 28 reported from Sofia that the public health authorities have registered during the past week 39 cases of typhus in the Shumen district of northern Bulgaria. They were mostly confined to gypsies and the epidemic is already abating.

*DNB* of May 4, 1942 states that addressing a meeting of the doctors and representatives of the other healing professions of the Gau Karnten in Klagenfurt, Reich Health Leader Dr Conti, who was accompanied by Gauleiter Dr Ramer, said that the birth rate in 1941 was evidence of the unbroken vitality of the German people. He announced that the number of births in 1941 was 1,528,000 live births, only slightly below the figure for 1940, which was a record year. In spite of the heavy war time tasks, the favorable development had continued, its significance could be fully estimated only by comparison with the figures for 1932 and 1933, when the number of births was considerably less than a million.

## CORRECTIONS

**Sulfonamide Resistance Developing During Treatment of Pneumococcal Endocarditis**—Dr Morton Hamburger Jr, senior author of the Clinical Note with the foregoing title in *THE JOURNAL*, May 30, requests the following correction of the third sentence in the second paragraph under the subtitle "Course" on page 409: "Sulfapyrazine was again administered, and after four days of treatment the blood became sterile. Treatment was continued for thirty-four days with blood levels of the drug maintained between 64 and 165 mg per hundred cubic centimeters."

**Federal and State Aid**—In *THE JOURNAL*, June 6, page 503 the medical economic abstract entitled "Federal and State Aid" stated that \$5,071,000 of federal funds were given to aid crippled children and \$3,739,000 of federal funds were given for maternal and child health. Dr Edwin F Daily, director of the Division of Health Services, Children's Bureau, U S Department of Labor, Washington, D C, writes that these figures should be reversed, that is \$5,071,000 was given for maternal and child health, and \$3,739,000 of federal funds were given to crippled children. The error was made, Dr Daily said by the U S Department of Commerce, which published the report "Federal and State Aid," 1941. These figures represent payments to the states from the federal treasury in a given fiscal year and are exclusive of payments to Hawaii, Alaska, Puerto Rico and the District of Columbia. The total amount of federal grants-in-aid paid to the forty-eight states, Alaska, Puerto Rico and the District of Columbia in 1941 was \$5,486,079 for maternal and child health services and \$3,091,000 for crippled children's services.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

MAY 9, 1942

#### The Question of Adding Calcium to Bread

In August 1940 the Medical Research Council, on the advice of their accessory food factors committee recommended that white flour be replaced by a flour of greater extraction in order to save shipping and to improve the nutritional qualities of bread. They also recommended the addition of calcium carbonate, since cereals do not contain enough for the growing animal. Cereals also contain phytic acid, which prevents the body from making use of some of the other calcium in food by precipitating it in the alimentary canal and so preventing its absorption. Dr Israel Harris of the Research Institute, Liverpool, objects to the recommendation in the *Times*. There, he says, is no calcium shortage in the adult population. He also thinks that the addition may do harm, since it has long been established that calcium interferes with kidney function. Middle aged persons whose kidneys show weaknesses are bound to suffer. Children and pregnant women who require more calcium need other items as vital, and they can all be found in milk. Dr Harris also does not admit that the calcium content of bread is not readily absorbed.

Sir Edward Mellanby of the Medical Research Council states in reply to Dr Harris that the average person eats five sevenths of a pound of bread daily, in which the extra calcium would amount to 0.13 Gm, the amount contained in a sixth of a pint of milk. To say that this could injure the kidneys or blood vessels is absurd, especially in view of the war restrictions on the supply of milk to adults. The Food Rationing Advisory Committee of the Medical Research Council, composed of many well known scientists has assured the Ministry of Food that 'there is neither medical nor scientific evidence that the consumption of bread fortified by the addition of appropriate quantities of calcium salts is harmful to patients suffering from any type of disease.'

#### Increased Stocks of Food

Mr G. R. Whalley, principal assistant secretary of the cold storage division of the Ministry of Food speaking at a luncheon of the British Association of Refrigeration stated that our food stocks are 30 per cent higher than they were a year ago. This increase was no mean effort, considering how we had been cut off from our normal food supplies from other countries. A policy was being pursued of dispersing food stocks all over the country. The ministry had under direct control upward of six thousand warehouses for cold storage. He hoped that by the middle of the summer a substantial addition would be made to our cold storage capacity and he forecast a great development of the industry after the war.

#### Women's Work in the War

In this war, even more than in the last, women are playing a great part not only in taking the places of men who have joined the fighting services but in munition and other work auxiliary to those services. They are making an ever increasing contribution to what has become known as the Merchant Service of the Air. Last year these aircraft flew 5,500,000 miles and this year they will cover 8,000,000. The jobs performed by women range from architects, detailed designs for factory extensions, air raid shelters and other buildings to overhauling aero engines. They are beginning to be employed

at airports as traffic clerks. A rapidly growing number are being employed in the factories where aircraft engines and other components are overhauled and repaired. One woman has been trained to compute the time of sunset and sunrise in any part of the world, the duration of twilight and to make a reliable wind analysis.

#### Association of Austrian Physicians in Great Britain

The victims of Nazi oppression are now present in large numbers in Britain from all the enslaved countries, of which Austria was the first. They include many physicians. An association of Austrian physicians in Britain has been formed under the chairmanship of Prof. Friedrich Silberstein of Vienna University. The desire is to continue the great traditions of the Vienna medical school in the spirit of scientific progress such as was accomplished by Pirquet, Wenckebach, Chrostek and Landsteiner. The association is affiliated with the free Austrian movement and aims at the cooperation of Austrian physicians in the war effort. There are now three hundred and sixty Austrian physicians in Britain, of whom more than half are already engaged in work of national importance in hospital and other institutions.

#### A Great Medical Missionary Society

The Medical Missionary Auxiliary of the Church Missionary Society, the largest medical organization of this kind in the world, is celebrating its jubilee this year. In large areas of Africa and the East its hospitals, clinics and welfare centers are doing work which equals that of the twelve great voluntary hospitals of London. But the beginning of medical missions dates back much longer than fifty years. The Church Missionary Society sent its first missionary physician to the Maoris of New Zealand in 1836. Another landmark was the sending of the first physician by the society to Kashmir in India in 1865. From this small beginning came a chain of hospitals along the northwestern frontier, which have been centers of peace and good will among the tribes people. From its earliest stages the mission hospital has been a great reconciling agency. Time has shown that foes of long standing forget their feuds and live at peace within the hospital wards. Today the large mission hospital at Hangchow is carrying on its work among Chinese soldiers and refugees with the full consent of Japanese officials and is equally ready to treat Japanese patients. Medical missionaries look toward the future and are giving far more attention to preventive medicine and the raising of the general level of health by the teaching of hygiene and the spread of welfare clinics. With the spread of government medical services new plans of cooperation with them are being developed.

#### Social Biology in the War Effort

In a letter to the *Times* the president of the British Social Hygiene Council, Sir Walter Langdon-Brown and other officials of that body call attention to the importance of social biology at present. The falling birth rate and other problems of social biology have shown the need for a national movement to promote the application of existing biologic knowledge to current social problems. At the last meeting of the British Association for the Advancement of Knowledge it was proposed that an institute of social biology should be promoted forthwith as a consultative directive agency. The British Social Hygiene Council has been impressed with the adverse effect on the war effort of the failure to apply current knowledge to the problem of human relationships, personal anxieties and family instability. It regards this as a serious factor in the failure to obtain the nation's emotional drive toward a maximum efficiency. As a first step it proposes to convene a



national conference of the various interests—scientific and administrative—to consider how best social biology can be utilized in promoting the war effort and in safeguarding the future quality of the nation. Such a conference would help to integrate biologic knowledge and spiritual values into a system which would appeal both intellectually and emotionally to those responsible for the postwar social structure.

Restoration of Museum of Royal College  
of Surgeons

The destruction of the great museum of the Royal College of Surgeons by indiscriminate bombing has been described in previous letters. The immensity of the collection, the impossibility of securing storage elsewhere and the difficulty of securing transportation for it necessitated its retention in London. Special provisions made in reinforcing tunnels of the subbasement did not save valuable specimens. Most of the museum and part of the college were destroyed by a bomb which struck room V, the subadjacent war museum (of the last war) and tore rooms, utterly demolishing them and shattering room IV, the instrument and invertebrate rooms. Incendiaries completely gutted room III and the historical and mummy rooms. Fallen roof girders broke open the subbasement, exposing to destruction much of the stored material. The comparative osteology and physiology store rooms were completely destroyed. It was a disaster. The loss of numerous Hunterian specimens, of the expression of Hunter's distinctive attitude toward vital phenomena and of his sustained pioneer efforts to unravel their nature is irreparable.

Already preparations for the restoration of the museum, as far as that is possible, are advanced. At the suggestion of the anatomist Prof. Wood Jones, the University of Manchester has presented specimens prepared by the late Professor Watson to illustrate Hunterian ideals. The medical committees of the Royal Cancer Hospital and of St. Mark's Hospital (for diseases of the rectum) have presented specimens illustrating different forms of rectal disease. The Royal Australian College of Surgeons is arranging for hospitals throughout Australia and New Zealand to collect pathologic specimens commonly seen in those countries and rare in the British Isles. The Institute of Anatomy at Canberra has earmarked many duplicate specimens for transfer to England and has promised to organize after the war expeditions to collect specimens of rare marsupials and monotremes. The rector of the Egyptian university and the dean of the Faculty of Medicine have promised that Egyptian surgeons will collect specimens of diseases not encountered in Great Britain. After the war these will be presented as a token of gratitude for the hearty cooperation that has existed for many years between British and Egyptian surgeons, most of whom are fellows of the English college.

Health in the Factory

Though damaged by bombs, the London School of Hygiene and Tropical Medicine carries on and does much valuable war work. The war has produced a great expansion of industry and recruitment of thousands of women workers and has led to a great increase in the number of medical officers employed in industry. At the school about 100 from all over the country and from a wide range of industries attend lectures. Among the subjects of the lectures are "Nature and Prevention of Toxic Risks," "Nature, Prevention and Treatment of Occupational Skin Disease," "Factory Hygiene Assessment of Standards and Methods of Investigation," "Ophthalmology in Relation to Industrial Medicine" and "Protective Clothing and Appliances." Each lecture is followed by a discussion open to all.

BRAZIL

(From Our Regular Correspondent)

May 15, 1942

Diagnosis of Tuberculosis

Drs. Guilherme Lacorte and Estacio Monteiro of Oswaldo Cruz Institute, Rio de Janeiro, accomplished some research on the diagnosis of tuberculosis. They examined by various methods material suspected of being tuberculous from twenty-nine sources, some human beings and some lower animals. Microscopic examination gave the largest percentage of positive results, 61.6, followed by the taking of cultures with 45 per cent, inoculation with 37 per cent and examination of smears with 33 per cent positive results. Unfortunately, microscopic examination is unsuitable in the majority of cases, and inoculation has the disadvantage of causing a high death rate among the small animals used.

Dr. Newton Neves da Silva of Porto Alegre, Rio Grande do Sul, emphasized the value of Loewenstein's method of culture as a means of confirming a suspicion of tuberculosis. He said that it is better than the inoculation method, that cultures can be taken from different materials without delay and that they can be made repeatedly with ease.

From human specimens suggestive of tuberculosis, including sputum, urine, ascitic fluid, lymph nodes, pus, pleural liquid and gastric juice, Dr. Fontes Magarao and his co-workers of Rio de Janeiro obtained positive results in 43.8 per cent when using bacteriologic methods, that is, cultures and inoculations. Colonies developed in twenty to thirty days, while the inoculation of guinea pigs did not give positive results in less than two months after the injection.

Syphilis Among Workers

In a group of 3,700 workers in banks living in the city of São Paulo, Dr. Durval Rosa Borges found that 1,147 had signs of syphilis, i. e. 31 per cent of the total.

The diagnosis was made by four criteria

| Criterion                   | No. of Cases | Per Cent |
|-----------------------------|--------------|----------|
| Previous serologic reaction | 200          | 5.40     |
| History of chancre          | 29           | 0.78     |
| Clinical evidence           | 7            | 0.18     |
| Present serologic reaction  | 911          | 24.60    |

There are conflicting data in the city on the matter. Prof. Geraldo Paula Souza, director of the Instituto de Higiene, has found only 2.59 per cent of positive serologic reactions for syphilis among students of the University of São Paulo, while in the obstetric clinic of the same university Prof. Raul Briquet says that more than 50 per cent of the pregnant women present positive Wassermann reactions. Briquet's statistics refer to the poorer classes of citizens.

Anorectal Tuberculous Fistulas

In a paper on tuberculous anal fistulas, Dr. Jose Maria Caldas of Rio de Janeiro pointed out that the diagnosis can be made clinically. In a series of 66 fistulas, Dr. Caldas found that 19 per cent were tuberculous, 80 per cent of the patients were males. The author concluded that anorectal tuberculous fistulas are always secondary. The primary focus of tuberculosis is in the lungs in 100 per cent of the cases. While sometimes the patient appears to be healthy, he should nevertheless be sent to a lung specialist for search of a possible hidden primary focus.

Diagnosis of Paludism by Analysis of  
the Bone Marrow

In many parts of Brazil paludism exists as an endemic disease. Drs. Ulysses Lemos Torres and Jose de Paula e Silva of Escola Paulista de Medicina studied smears of the bone marrow obtained by sternal puncture. They concluded that sternal puncture is the best method to search for the parasite.



## Deaths

**Henry Gottlieb Steinmetz** ♂ Lansing Mich., Indiana University School of Medicine, Indianapolis, 1927, assistant physician at the Logansport State Hospital, Logansport Ind., from 1929 to 1934 and assistant superintendent from 1934 to 1937, served as medical director of public health of district number 6, Bloomington, Ind. from 1937 to 1939, taught the first course for nurses in public health administration at Indiana University in 1937 served as assistant medical director of public health in Arlington, Va. 1940-1941, acting health officer of Genesee County (Mich.) from 1941 until February 1942, when he became assistant director of the venereal division, Michigan Department of Health, served during World War I, member of the Medical Society of Virginia, American Psychiatric Association, American Public Health Association and the Michigan Public Health Association, received a master of public health degree from Johns Hopkins University, Baltimore, aged 45, died, April 22, of anesthetic shock.

**Duncan Cameron Walton** ♂ Medical Inspector, Commander, U S Navy, retired, Annapolis, Md., Johns Hopkins University School of Medicine, Baltimore, 1909, entered the Navy, April 12, 1910, and retired, Sept. 1, 1935, for incapacity resulting from an incident of service, served as commanding officer of the Marine Hospital at Quantico, Va., during World War I, in 1922 was assigned as chief, department of toxicology, at Edgewood Arsenal, Md. where he served until 1925, with a similar assignment from 1928 to 1931, formerly lectured on toxicology at the Naval Medical School, Army Medical School, Washington, D C, and the Naval Academy, member of the American Society for Pharmacology and Experimental Therapeutics and the Association of Military Surgeons of the United States, formerly associated with the Bureau of Medicine and Surgery in Washington, D C, aged 55, died recently in the U S Naval Hospital of coronary thrombosis, arteriosclerosis and hypertension.

**William Henry Best**, New York, University of Pennsylvania School of Medicine, Philadelphia, 1909, member of the Medical Society of the State of New York, deputy health commissioner of the city department of health since 1934, joined the health department in 1916 as a medical inspector and successively held the positions of borough diagnostician of Brooklyn, assistant sanitary superintendent and chief of the Brooklyn division of the bureau of preventable diseases and acting director, formerly assistant clinical professor of dermatology at the Long Island College of Medicine, served as a major in the medical department of the U S Army during World War I and at the time of his death was a lieutenant colonel in the medical reserve corps, aged 57, formerly visiting dermatologist to the Kings County Hospital, Brooklyn, consulting dermatologist at the Bushwick Hospital and the Hospital of the Holy Family, Brooklyn where he died June 3.

**Ralph Munson Beach** ♂ Brooklyn Columbia University College of Physicians and Surgeons, New York 1902 assistant clinical professor from 1930 to 1941 and since then professor of clinical obstetrics and gynecology at the Long Island College of Medicine, fellow of the American College of Surgeons served in various capacities on the staff of the Long Island College Hospital attending and consulting obstetrician from 1907 to 1928, Jewish Hospital attending obstetrician from 1907 to 1941 and chief obstetrician and gynecologist since 1941, Methodist Hospital, attending obstetrician and gynecologist from 1926 to 1928 Israel Zion Hospital chief obstetrician and gynecologist Williamsburgh Maternity Hospital, from 1910 to 1912 aged 61, died recently.

**Seymour Jerome Cohen** ♂ Chicago, Rush Medical College Chicago 1920, at one time assistant and associate in pharmacology at the University of Illinois College of Medicine served during World War I pharmacologist for the Municipal Tuberculosis Sanitarium formerly secretary of the Chicago Tuberculosis Society member of the American Society for Pharmacology and Experimental Therapeutics and the American Trudeau Society attending physician at the Michael Reese Dispensary aged 46 died, June 11 in the Michael Reese Hospital of uremia.

**Smith Augustus Spilman** ♂ Ottumwa Iowa Chicago Medical College 1879 member of the House of Delegates of the American Medical Association in 1926 an Affiliate Fellow of the Association fellow of the American College of Surgeons past president of the Iowa State Medical Society for-

merly surgeon for the Chicago, Milwaukee and St Paul and the Chicago, Burlington and Quincy and Wabash railroads, formerly surgeon and president of the staffs of the Ottumwa and St Joseph's hospitals aged 89, died, April 11, of coronary occlusion.

**Walter Babcock Swift** ♂ Boston, Harvard Medical School, Boston, 1907, member of the New England Society of Psychiatry, past president of the National Society for the Study and Correction of Speech Disorder, assistant in neurology from 1911 to 1914 and instructor in neuropathology, 1914-1915, at the Tufts College Medical School, had been affiliated with the Massachusetts General, Boston City and Boston Psychopathic hospitals, author of 'Speech Defects in School Children and How to Treat Them', aged 73, died, May 3 of pneumonia.

**Mark Eugene Lott**, Dallas, Texas, University of Texas School of Medicine, Galveston, 1904, professor of clinical surgery at the Baylor University College of Medicine, member of the State Medical Association of Texas and the American Association for the Surgery of Trauma fellow of the American College of Surgeons, member of the American Board of Surgery, served as a lieutenant colonel in the medical department of U S Army during World War I, on the staff of the Baylor University Hospital, aged 63, died, April 26.

**Charles Sweetser Benson** ♂ Haverhill, Mass. Columbia University College of Physicians and Surgeons, New York, 1896, fellow of the American College of Surgeons, past president of the Essex North District Medical Society, vice chairman of the medical advisory board of the Selective Service System, draft board physician during World War I, medical director of the Benson Hospital and Clinic, formerly member of the school committee, aged 69, died, April 30, of coronary thrombosis.

**Constantine Popoff** ♂ Haverhill, Mass. Harvard Medical School, Boston, 1910, member of the American Board of Radiology, Inc., New England Roentgen Ray Society, Radiological Society of North America, Inc., and the American College of Radiology, on the staffs of the Amesbury (Mass.) Hospital and Haverhill Municipal Hospital, on the draft board during the first and second world wars, aged 58, died, May 30, at his summer home in Hampton Beach, N H, of coronary thrombosis.

**Theodore Thompson** ♂ Shelbyville, Ill., Rush Medical College, Chicago, 1897, past president of the Shelby County Medical Society and the Central Illinois District Medical Society, at one time mayor of Shelbyville, served as a captain in the medical department of the U S Army during World War I, formerly member of the board of education formerly on the staff of the Decatur and Macon County Hospital, Decatur, aged 69, died, April 18, of heart disease.

**Hubert Spencer Steenberg** ♂ U S Army, retired, Milwaukee, Milwaukee Medical College 1902, entered the medical department of the U S Army as a captain on Sept. 17, 1920 and was retired on June 20, 1929 for disability not incident to the service served with the Wisconsin National Guard in Puerto Rico during the Spanish-American War and as medical officer during World War I, aged 65, died, April 26 in the Veterans Administration Facility.

**Henry Joseph Hoye**, Providence, R I Johns Hopkins University School of Medicine, Baltimore, 1899, member of the Rhode Island Medical Society, fellow of the American College of Surgeons, for many years medical director of the state unemployment relief commission associate surgeon St Joseph's Hospital consulting surgeon Rhode Island Hospital, aged 68, died April 26 of diabetes mellitus and arteriosclerotic heart disease.

**Robert Grisham Reaves** ♂ Knoxville Tenn., University of Virginia Department of Medicine Charlottesville 1915 member of the American Academy of Ophthalmology and Otolaryngology, member of the American Board of Otolaryngology, served in the medical department of the U S Navy during World War I, part owner of the Reaves-Leach Infirmary, aged 54, died April 25, in the Fort Sanders Hospital of typhoid.

**Jason Newell Robertson**, Wolcott N Y University of Vermont College of Medicine Burlington 1877 member of the Medical Society of the State of New York, past president of the Wayne County Medical Society served for many years as health officer for the village and town of Wolcott past president of the board of education of Wolcott medical member of the draft board during World War I aged 88 died April 7.

**George W. Miel** © Denver, Jefferson Medical College of Philadelphia, 1883, an Affiliate Fellow of the American Medical Association, past president of the Medical Society of the City and County of Denver, at one time treasurer of the Colorado State Medical Society, for many years staff surgeon for the Santa Fe Railroad, served at various times as chief and as president of the staff of St. Anthony's Hospital, aged 82, died, April 5.

**Percival Gordon White** © Los Angeles, McGill University Faculty of Medicine, Montreal, Que., Canada, 1905, fellow of the American College of Physicians, served as a major in the medical department of the U. S. Army in France during World War I, on the staff of the California, Cedars of Lebanon and Good Samaritan hospitals, a founder of the Moorcroft White Clinic, aged 61, died, April 28.

**David Crooker Dow**, Cambridge, Mass., Tufts College Medical School, Boston, 1898, member of the Massachusetts Medical Society, for many years medical examiner of the first Middlesex district, served as a lieutenant in the U. S. Navy during World War I, for many years on the staff of the Cambridge City Hospital, aged 67, died, May 27, of cerebral hemorrhage.

**James Prentiss Aylen**, Fargo, N. D., Bellevue Hospital Medical College, New York, 1888, member of the North Dakota State Medical Association and the Western Surgical Association, fellow of the American College of Surgeons, formerly superintendent of the Grafton (N. D.) State School, consultant for the Northern Pacific Railway, aged 78, died, April 29.

**Howard Wesley Hassell**, Bridgeport, Pa., Jefferson Medical College of Philadelphia, 1893, member of the Medical Society of the State of Pennsylvania, past president of the Montgomery County Medical Society, medical director of Bucks and Montgomery counties, formerly physician for the Eastern State Penitentiary, Philadelphia, aged 72, died, May 24.

**Hillis Hall Hattery**, Pendleton, Ore., College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904, served overseas as a captain in the medical department of the United States Army during World War I, aged 61, died, April 25, in St. Anthony's Hospital of hypertensive cardiorenal disease.

**Charles Jaeger**, Denver, Missouri Medical College, St. Louis, 1888, member of the Colorado State Medical Society, a founder, a member of the advisory board and for many years president of the staff of the Presbyterian Hospital, on the staffs of the Children's, St. Joseph's, Denver and St. Luke's hospitals, aged 78, died, June 5.

**Sherman Perry** © Winchendon, Mass., Harvard Medical School, Boston, 1907, member of the New England Obstetrical and Gynecological Society, past president of the Worcester District Medical Society, on the staffs of the Henry Heywood Memorial Hospital, Gardner, and the Millers River Hospital, aged 63, died, April 20.

**Paul Eugene Payne**, Columbia, S. C., University of Georgia Medical Department, Augusta, 1919, member of the South Carolina Medical Association, served during World War I, health officer of Columbia, aged 45, died, May 4, in the Columbia Hospital of lobar pneumonia, cirrhosis of the liver and diabetes mellitus.

**John Fitzgerald Ryan**, Rock Springs, Wyo., University of Colorado School of Medicine, Denver, 1934, formerly instructor of pathology at the Tulane University of Louisiana School of Medicine, New Orleans, aged 34, died, April 27, at the Wyoming General Hospital of the effects of a lethal drug, self administered.

**James Clinton Willis** © Shreveport, La., Vanderbilt University School of Medicine, Nashville, Tenn., 1887, fellow of the American College of Surgeons, past president of the Louisiana State Medical Society, chief surgeon, Tri-State Hospital, aged 77, died, April 26, in the Colonial Hospital, Rochester, Minn.

**Benjamin Charles Pilkey**, Huron, Ohio, College of Physicians and Surgeons, Baltimore, 1896, served as a first lieutenant in the medical department of the U. S. Army during World War I, formerly county health officer, aged 75, died, April 24, in the Samaritan Hospital, Ashland, of chronic organic heart disease.

**Frederick Eugene Vaughan** © Mount Kisco, N. Y., Albany (N. Y.) Medical College, 1909, member of the county board of health, fellow of the American College of Surgeons, on the staff of the Northern Westchester Hospital, aged 57, died, April 14, of cerebral hemorrhage, arteriosclerosis and hypertension.

**William Joseph Delahanty** © Worcester, Mass., Dartmouth Medical School, Hanover, N. H., 1883, for many years trustee of the Worcester State Hospital and on the staffs of the Worcester City Hospital and St. Vincent Hospital, where he died, May 10, of arteriosclerosis and gangrene of the feet, aged 84.

**Edwin Abner Sayers**, Nashville, Tenn., University of Nashville Medical Department, 1908, member of the Tennessee State Medical Association and the American Association for the Surgery of Trauma, formerly on the staff of the Nashville General Hospital, aged 55, died, April 24.

**Henry Martyn Field** © Norwood, Mass., Harvard Medical School, Boston, 1904, served overseas in the medical department of the U. S. Army with rank of lieutenant colonel, on the staff of the Norwood Hospital, aged 66, died, May 20, of coronary occlusion.

**Irwin Alexander H. Bottenhorn**, Columbus, Ohio, Starling-Ohio Medical College, Columbus, 1909, also a dentist, professor of dentistry, College of Dentistry, Ohio State University, aged 59, died, April 7, in the White Cross Hospital of heart disease.

**Claude Allen Symons**, Memphis, Tenn., University of Tennessee College of Medicine, Memphis, 1914, served overseas as a first lieutenant in the medical department of the U. S. Army during World War I, aged 52, died, April 15, of coronary occlusion.

**Bruce E. Miles**, St. Joseph, Mo., Ensworth Medical College, St. Joseph, Mo., 1902, member of the Missouri State Medical Association, on the staff of State Hospital number 2, aged 65, died, April 21, in a hospital at Kansas City of coronary occlusion.

**James Franklin Scrivner**, Irvine, Ky., University of Louisville Medical Department, 1892, member of the Kentucky State Medical Association, formerly member and chairman of the board of education, aged 71, died, April 13, of chronic nephritis.

**William Ransom Campbell**, East Smithfield, Pa., Eclectic Medical Institute, Cincinnati, 1897, member of the Medical Society of the State of Pennsylvania, formerly a captain in the medical corps of the regular U. S. Army, aged 71, died, April 27.

**Morris Daniel Silver**, Detroit, University of Missouri School of Medicine, Columbia, 1901, College of Physicians and Surgeons, Baltimore, 1902, aged 61, died, April 26, in the Grace Hospital of hypertension and cerebral hemorrhage.

**Albert Fowler Rodrick**, Swampscott, Mass., Tufts College Medical School, Boston, 1901, served during the Spanish American War and World War I, aged 69, died, April 30, in the U. S. Naval Hospital, Chelsea, of coronary thrombosis.

**Albert Gallatin Stevens**, Cape May, N. J., Hahnemann Medical College and Hospital of Philadelphia, 1892, at one time mayor of West Cape May, for many years health officer, aged 72, died, April 17, of myocarditis and arteriosclerosis.

**Myron M. Metz**, Williamsville, N. Y., University of Buffalo School of Medicine, 1896, member of the Medical Society of the State of New York, vice president of the New York State Health Officers' Association, aged 71, died, April 6.

**John Ross Martin**, Huntsville, Texas, Kansas City (Mo.) Medical College, 1899, member of the State Medical Association of Texas, county health officer, served during World War I, aged 65, died, April 30, of carcinoma of the colon.

**Thomas Albion Stoddard** © San Francisco, University of California Medical Department, San Francisco, 1907, member of the American Academy of Orthopaedic Surgeons, formerly health officer of Santa Barbara, aged 62, died, April 7.

**George Walter Rogers**, Dauphin, Man., Canada, Manitoba Medical College, Winnipeg, 1905, past president of the Manitoba Medical Association, aged 67, died, April 28, in the Dauphin General Hospital of chronic myocarditis.

**Bernard William Mast**, La Crosse, Wis., Chicago College of Medicine and Surgery, 1910, member of the State Medical Society of Wisconsin, on the staff of the Grandview Hospital, aged 57, died, April 29, of cerebral hemorrhage.

**Paul Best Yates** © Columbus, Ohio, Ohio State University College of Medicine, Columbus, 1935, assistant professor of anatomy at his alma mater, aged 40, died, April 2, of injuries received in an automobile accident.

**John William Wilkins**, Mount Olive, N. C., Medical College of Virginia, Richmond, 1913, member of the State Society of the State of North Carolina, aged 55, died, April 25, in a hospital at Goldsboro of pneumonia.

Orvel Addison Suttle, Mount Vernon Ill Barnes Medical College, St Louis, 1909 served as a major in the medical department of the U S Army during World War I aged 70 died April 23 of angina pectoris

John Louis Morris @ Princeton, Ind Jefferson Medical College of Philadelphia 1896 past president of the Gibson County Medical Society formerly county coroner, aged 73, died April 24 of coronary occlusion

Freeman Hubert Sanders Spartanburg S C, Atlanta Medical College 1915 member of the South Carolina Medical Association aged 50 died April 3 in the Spartanburg General Hospital of gastric hemorrhage

Reuben Dorsey Williamson Castroville Texas Memphis (Tenn) Hospital Medical College 1898 member of the State Medical Association of Texas aged 66, died April 2, in the Santa Rosa Hospital, San Antonio

James Monroe Sleicher, Chehalis Wash Gross Medical College Denver, 1888 Kentucky School of Medicine Louisville 1905, member of the Washington State Medical Association, aged 88, died April 6

Oscar Stenberg @ Spokane Wash Trinity Medical College Toronto Ont Canada 1902 on the staffs of the Sacred Heart Deaconess and St Lukes hospitals, aged 67, died, April 24, in Rochester, Minn

Isaac Rendall Strawbridge @ Philadelphia, Medico-Chirurgical College of Philadelphia 1903 on the staff of the National Stomach Hospital aged 62 died April 12, of hypertensive cardiovascular disease

Charles Huber, Harrison Ohio Medical College of Ohio, Cincinnati, 1881 formerly mayor of Harrison and member of the board of education aged 87, died, April 4, in the Deaconess Hospital Cincinnati

John Chesley Stewart @ Atlanta Ga Atlanta School of Medicine 1910, examining physician for the Selective Service System on the staff of the Grady Hospital aged 64 died, April 9 of angina pectoris

James Gwynn Staples @ Gorgas, Ala, University of Louisville (Ky) Medical Department 1901 aged 66 died, April 20 in a hospital in Birmingham of tumor of the right kidney, type undetermined

Paul Lindsay Scott, Toronto Ont Canada, University of Toronto Faculty of Medicine 1900 professor in the department of materia medica at the Ontario College of Pharmacy, aged 73, died, April 3

William Francis Logan, Kansas City Mo Kansas City Hahnemann Medical College 1911, veteran of the Spanish-American War and World War I aged 69, died, April 10, in St Luke's Hospital

Carl Sinclair Moore, La Grande Ore Jefferson Medical College of Philadelphia 1913, member of the Oregon State Medical Society, served during World War I, aged 53, died in April in Portland

Joshua Leon Yeagley, Waldron Mich, Toledo (Ohio) Medical College 1901 member of the Michigan State Medical Society aged 68 died, April 12 of injuries received in an automobile accident

Berta Wechsler, Columbus Ohio, Julius-Maximilians-Universität Medizinische Fakultät, Würzburg Bavaria Germany 1918, member of the Ohio Medical Association, aged 48 died April 16

Thomas Richard Kennerdell, Cleveland Western Reserve University Medical Department Cleveland 1909 served during World War I, on the staff of the Grace Hospital, aged 58, died, April 23

Richard E Howard, Fort Lauderdale Fla Lincoln (Neb) Medical College of Cotner University 1904 formerly professor of bacteriology and histology at his alma mater, aged 73, died April 7

Gertrude Broeksmit, Cedar Rapids Iowa Woman's Medical College of the New York Infirmary for Women and Children New York, 1882 aged 82, died, April 26 of coronary thrombosis

Jefferson D Hopper Jackson Tenn Kentucky School of Medicine, Louisville 1892 member of the Tennessee State Medical Association, aged 80 died April 22 of cerebral sclerosis

Isaac Harter Moore, Seattle University of Pennsylvania Department of Medicine Philadelphia 1878 member of the Washington State Medical Association aged 87 died April 12

Donald Stuart MacNaughton, Brooklyn Long Island College Hospital, Brooklyn 1903 member of the Medical Society of the State of New York, aged 63, died April 24

Neal Matlock @ Medora Ind Kentucky School of Medicine Louisville 1901 past president of the Jackson County Medical Society, aged 64 died April 27 of coronary occlusion

James Carlyle Johnstone, Imola Calif Loyola University School of Medicine Chicago 1917 aged 78 died, April 21 in the Napa State Hospital of chronic myocarditis

James Coleman Winn, Gilmer, Texas, Memphis (Tenn) Hospital Medical College 1913 owner of the Elmwood Sanitarium, aged 72, died, April 4, of coronary occlusion

Robert Smith Allen, Gunnison, Colo, Denver College of Medicine, 1900 member of the Colorado State Medical Society, aged 68 died April 14 of angina pectoris

Isabella Florence Kelso, Waterloo, Iowa, State University of Iowa College of Homeopathic Medicine, Iowa City, 1893, aged 86, died April 22 of heart disease

Hendery Allison @ Kingsville Texas, University of Louisville (Ky) Medical Department 1899 aged 66, died, April 21, of heart disease and cerebral hemorrhage

Louis J Smith, Cleveland, Western Reserve University Medical Department Cleveland 1887 aged 77, died, April 3, of coronary embolism and arteriosclerosis

Thomas Reading, Hatboro, Pa, Hahnemann Medical College and Hospital of Philadelphia 1888, aged 77, died, April 24, of carcinoma of the bladder

Frederick Carl Belzig, Chicago, Chicago College of Medicine and Surgery, 1914, member of the Illinois State Medical Society aged 52 died recently

Charles M Thruston, San Francisco, Louisville (Ky) Medical College 1890 aged 73, died March 16, of bronchopneumonia plevitis and cystitis

Emily Frances Wells, Burbank Calif, University of Michigan Department of Medicine and Surgery, Ann Arbor 1879 aged 87 died recently

Moses Carlisle Sycle, Richmond Va, University College of Medicine Richmond 1903, served during World War I aged 61, died March 24

Joel E Johnson, Joplin Mo, Vanderbilt University School of Medicine Nashville, Tenn, 1890, aged 77, died, March 27, in the Freeman Hospital

Edward Perrone Overby, East Point, Ga, Southern Medical College, Atlanta, 1883, aged 87, died, April 1 of cerebral hemorrhage

Sara Holmes Oram, Apalachin, N Y Hahnemann Medical College and Hospital, Chicago 1887, aged 82, died, April 7 of arteriosclerosis

Herbert Mason Maynard @ Ionia, Mich, Grand Rapids (Mich) Medical College, 1907, aged 64, died, April 27, of coronary occlusion

Doan Parks, Galesburg Ill Hahnemann Medical College and Hospital Chicago, 1890 aged 72, died April 29, of coronary thrombosis

William Patrick Morse, Princeton Ky, Hospital College of Medicine Louisville, 1907, aged 67, died April 24 of cerebral hemorrhage

John Lee Pickens, Pensacola Fla Meharry Medical College Nashville Tenn 1911, aged 56 died April 23, of myocarditis

B L Ousley, Christiana Tenn University of Tennessee Medical Department Nashville 1901, aged 69 died April 2

James W Yancey, Ward Ark (licensed in Arkansas in 1903) aged 81, died April 27 in a hospital at Little Rock

#### DIED IN MILITARY SERVICE

Joseph Anthony Macca, Forest Hills N Y, Georgetown University School of Medicine, Washington D C 1932 member of the Medical Society of the State of New York formerly on the staffs of the Mary Immaculate and Queens General Hospital Jamaica was called to active duty as a first lieutenant in the medical reserve corps of the U S Army in May 1941 was stationed at Camp Blanding Fla, and later at Fort Dix N J where he died May 29 of pulmonary embolism following an operation three weeks previously aged 37

## Correspondence

### GRAY HAIR OR BALD HEADS

*To the Editor* —Among middle aged men it is rather uncommon to see a man who is both bald and gray. He is either bald, without grayness in the fringe of hair at the back of his head and at the temples, or he is gray with a good supply of hair all over his head. If he is both gray and bald it will be found that the baldness usually came first. Premature aging is likely to be present in such instances. Fairly young men may be gray or bald without other physical evidences of premature aging. A man may be quite old with numerous evidences of extreme senility and yet be neither gray nor bald.

For a number of years laboratory workers have noted that animals kept on synthetic diets became more or less gray and that the color of the hair returned to normal after certain of the so-called factors of vitamin B complex were added to the diets. Ralli and her associates placed a group of rats on diets deficient in the "filtrate factor" of vitamin B complex. Some of these rats were given only a small amount of sodium chloride, the others were given large amounts of sodium chloride. The fur of the rats on the low salt intake became gray, on the average, fifty-five days earlier than did that of the animals on the high salt diet.

While graying of the hair may be due to a vitamin deficiency, there is no evidence as yet to indicate that baldness is due to the same cause or causes as grayness. Whatever the cause of gray hair, it seems evident that it is not the same as the cause of baldness.

There is another type of grayness observed in the man who is gray at the temples only, he is rarely bald, but the hair at the top of his head may be thinner than normal. It is unusual to see a man under 55 who does not fall into one of these three groups: (1) bald on top, (2) gray without baldness, (3) gray at the temples and thinner on top.

Why does a woman often become gray but rarely bald?

Why is the man doing manual labor less likely to have white hair in the temporal region than the hard worked or worried businessman?

By what metabolic processes, endocrine, vitamin or neurogenic, are these changes induced? Would studies of groups of persons belonging to the bald, the gray or those gray only at the temples give a lead?

Calcium pantothenate, iodine and sodium chloride have been advocated in the treatment of graying of the hair. These remedies, however, seem to be of slight if any value in human beings. Nor has a worth while remedy for baldness yet been suggested.

Although little or nothing at present can be done to prevent the changes which bring about baldness or grayness, it can be predicted with a fair degree of accuracy that the man who is losing considerable hair from the top of his head will become bald before he is gray, that the one who is becoming gray all over his head will be slow in becoming bald, and that the man who becomes gray chiefly at the temples is not likely to become bald. Old age, of course, alters all these prognostications.

EDGAR G. BALLENGER, M.D., Atlanta, Ga

[NOTE—Obviously Dr Ballenger offers impressions unsupported by statistical data. In the solution to some of the problems he suggests may lie the keys to a better understanding of the processes of aging.—ED.]

### "TUBERCULOSIS AMONG MEDICAL STUDENTS"

*To the Editor* —In the May 16 issue of THE JOURNAL appears a current comment on "Tuberculosis Among Medical Students," and in the discussion the emphasis is placed on the environment of the students. Although "contact with patients" is mentioned, it seems to me that this is the chief source of tuberculosis in students who are clumsy and careless in their first approach to the ill but undiagnosed patient. I believe that it is in the second and third years particularly that tuberculosis has its greatest incidence among medical students. It is in this period that the student is struggling to acquire a technique in physical diagnosis.

As a teacher of physical diagnosis at Harvard Medical School I am amazed, startled and disgusted with the manner in which a young man with a stethoscope will allow a total stranger to cough directly into his face. Yet with each second year group I plead with the students that self protection is still the first law of nature.

In textbooks and lectures this aspect of our hazardous work is seldom presented in an impressionable way. A question I asked in the examinations this year was "Describe protective techniques employed by doctors in examining patients." The answers ranged from immunization to legal aid, but they all included rigid "self protection."

EARLE M. CHAPMAN, M.D., Boston

### "NONSPLINTING TREATMENT OF FRACTURES OF ELBOW JOINT"

*To the Editor* —I have read with a great deal of concern the article appearing in the March 21 issue of THE JOURNAL by Dr. A. A. Neuwirth, entitled "Nonsplinting Treatment of Fractures of the Elbow Joint."

It seems that in these times it will be unavoidable that a great many traumatic conditions must be treated by many physicians who have not been especially trained in this line of procedure. For this reason I think it is particularly important that the undoubted advantage incident to anatomic reposition should not be unduly minimized. Certain it is that it is not always possible to obtain anatomic reposition, but equally certain it is that, if anatomic reposition can be obtained without interference with function, this should be the goal, particularly in growing children.

I question very seriously the advisability of oversimplification of the problem of treating fractures about the elbow and of the advisability of lumping them all into one group. One may admit that a series of 6 cases, however fortunate the end result, hardly justifies the categorical statement "It is my opinion that the nonfixing type of treatment in fractures of the elbow may be applied in all cases with profit and with greater retention of normal function and should be the rule, with fixation and splinting the exception."

It may well be that nonsplinting may be the answer to certain types of fracture of the elbow. Certainly, I believe that there are many types of fractures to which it will not apply. I hope that it will not be adopted indiscriminately until further research has been carried out as to its indication and value.

D. H. O'DONOGHUE, M.D., Oklahoma City  
Assistant Professor of Orthopedic Surgery, University of Oklahoma School of Medicine

## Medical Examinations and Licensure

### COMING EXAMINATIONS AND MEETINGS

#### BOARDS OF MEDICAL EXAMINERS

##### BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL June 20, page 671

#### NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS *Part III* Various centers, June or July Exec Sec Mr Everett S Elwood 225 S 15th St, Philadelphia

#### EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY *Oral Groups A and B* Cleveland Jan 14-15 1943 Final date for filing application is Dec 7 *Written* Various centers Nov 16 Final date for filing application is Oct 5 Sec Dr C Guy Lane, 416 Marlboro St, Boston

AMERICAN BOARD OF INTERNAL MEDICINE *Written* Oct 19 Final date for filing application is Sept 1 Sec, Dr William S Middleton, 1301 University Ave, Madison Wis

AMERICAN BOARD OF OPHTHALMOLOGY *Oral* Chicago, Oct 9-10 Sec Dr John Green 6830 Waterman Ave, St Louis

AMERICAN BOARD OF ORTHOPAEDIC SURGERY *Oral and Written* Chicago Jan 9-10 Final date for filing application is Nov 1 Sec, Dr Guy A Caldwell 3503 Prytania St New Orleans

AMERICAN BOARD OF PATHOLOGY *Oral and Written* Richmond Va, Nov 9-10 Final date for filing application is Sept 1 Sec Dr F W Hartman Henry Ford Hospital Detroit

AMERICAN BOARD OF PEDIATRICS *Written* Locally Sept 18 *Oral* Chicago Nov 23 Final date for filing application is July 1 Sec Dr C A Aldrich 707 Fullerton Ave Chicago

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY New York December Final date for filing application is Oct 1 Sec, Dr Walter Freeman 1028 Connecticut Ave NW, Washington, D C

AMERICAN BOARD OF SURGERY *Part I* Oct 7 Final date for filing application is Aug 22 Sec. Dr J Stewart Rodman 225 S Fifteenth St, Philadelphia

AMERICAN BOARD OF UROLOGY If a sufficient number of applications are received an examination will be held in the east at the same time or shortly after one of the national meetings Sec, Dr Gilbert J Thomas 1409 Willow St Minneapolis

### Vermont February Report

The Vermont State Board of Medical Registration reports the oral and written examination for medical licensure held at Burlington, Feb 10-12, 1942 The examination covered 12 subjects and included 90 questions An average of 75 per cent was required to pass Five candidates were examined, all of whom passed Three physicians were licensed to practice medicine by endorsement The following schools were represented

| School   | PASSED | Year Grad | Number Passed |
|--|--------|-----------|---------------|
| Harvard Medical School                                   |        | (1940)    | 1             |
| Univ of Rochester School of Medicine and Dentistry       |        | (1940)    | 1             |
| Woman's Medical College of Pennsylvania                  |        | (1926)    | 1             |
| University of Vermont College of Medicine                |        | (1936)    | 1             |
| Kongelige Frederiks Universitet Medisinske Fakultet Oslo |        | (1924)    | 1             |

| School                                    | LICENSED BY ENDORSEMENT | Year Grad | Endorsement of |
|---|-------------------------|-----------|----------------|
| University of Kansas School of Medicine   |                         | (1936)    | Kansas         |
| University of Vermont College of Medicine |                         | (1940)    | N B M Ex       |
| University of Toronto Faculty of Medicine |                         | (1925)    | New Jersey     |

### Arizona January and April Reports

The Arizona State Board of Medical Examiners reports the written examination for medical licensure held at Phoenix, Jan 6-7, 1942 The examination covered 10 subjects and included 100 questions An average of 75 per cent was required to pass One candidate was examined and passed Two physicians were licensed to practice medicine by reciprocity The following schools were represented

| School                                 | PASSED | Year Grad | Number Passed |
|--|--------|-----------|---------------|
| Craigton University School of Medicine |        | (1940)    | 1             |

| School                                    | LICENSED BY RECIPROCITY | Year Grad | Reciprocity with |
|---|-------------------------|-----------|------------------|
| University of Michigan Medical School     |                         | (1925)    | Michigan         |
| Jefferson Medical College of Philadelphia |                         | (1898)    | R Island         |

The Arizona State Board of Medical Examiners also reports the written examination for medical licensure held at Phoenix, April 7-8, 1942 The examination covered 10 subjects and

included 100 questions An average of 75 per cent was required to pass Three candidates were examined and passed Two physicians were licensed to practice medicine by reciprocity and two physicians so licensed on endorsement of credentials of the National Board of Medical Examiners The following schools were represented

| School                                  | PASSED | Year Grad | Number Passed |
|---|--------|-----------|---------------|
| Rush Medical College                    |        | (1939)    | 1             |
| Harvard Medical School                  |        | (1939)    | 1             |
| University of Texas Faculty of Medicine |        | (1940)    | 1             |

| School   | LICENSED BY RECIPROCITY | Year Grad | Reciprocity with |
|--|-------------------------|-----------|------------------|
| University of Arkansas School of Medicine        |                         | (1936)    | Arkansas         |
| University and Bellevue Hospital Medical College |                         | (1921)    | New York         |

| School                                      | LICENSED BY ENDORSEMENT | Year Grad | Reciprocity with |
|---|-------------------------|-----------|------------------|
| Johns Hopkins University School of Medicine |                         | (1926)    |                  |
| University of Wisconsin Medical School      |                         | (1936)    |                  |

### Nevada Reciprocity Report

The Nevada State Board of Medical Examiners reports 3 physicians licensed to practice medicine by reciprocity and 1 physician so licensed on endorsement of credentials of the National Board of Medical Examiners on February 2 The following schools were represented

| School                                   | LICENSED BY RECIPROCITY | Year Grad | Reciprocity with |
|--|-------------------------|-----------|------------------|
| University of Georgia Medical Department |                         | (1915)    | Georgia          |
| Tufts College Medical School             |                         | (1923)    | New York         |
| Long Island College Hospital             |                         | (1926)    | New York         |

| School                                     | LICENSED BY ENDORSEMENT | Year Grad | Reciprocity with |
|--|-------------------------|-----------|------------------|
| University of Illinois College of Medicine |                         | (1926)    |                  |

### Rhode Island April Report

The Rhode Island Board of Examiners in Medicine reports the written examination for medical licensure held at Providence, April 2-3, 1942 The examination covered 9 subjects and included 60 questions An average of 80 per cent was required to pass Seven candidates were examined, all of whom passed The following schools were represented

| School                                    | PASSED | Year Grad       | Number Passed |
|---|--------|-----------------|---------------|
| Harvard Medical School                    |        | (1937)          | 1             |
| Tufts College Medical School              |        | (1939), (1941)* | 2             |
| St Louis University School of Medicine    |        | (1940)          | 1             |
| Jefferson Medical College of Philadelphia |        | (1941)*         | 1             |
| Temple University School of Medicine      |        | (1940)          | 1             |
| Woman's Medical College of Pennsylvania   |        | (1933)          | 1             |

\*Licenses have not been issued

### Oregon January Report

The Oregon State Board of Medical Examiners reports the written examination for medical licensure held at Portland, Jan 21-23, 1942 The examination covered 12 subjects and included 84 questions An average of 75 per cent in each subject was required to pass Nine candidates were examined, all of whom passed The following schools were represented

| School                                 | PASSED | Year Grad | Number Passed |
|--|--------|-----------|---------------|
| University of Oregon Medical School    |        | (1939 2)  | 8             |
| University of Wisconsin Medical School |        | (1940 6)  | 1             |

### California January Report

The Board of Medical Examiners of the State of California reports 27 physicians licensed to practice medicine by reciprocity and 5 physicians so licensed by endorsement from January 2 through January 30 The following schools were represented

| School   | LICENSED BY RECIPROCITY | Year Grad     | Reciprocity with |
|--|-------------------------|---------------|------------------|
| Chicago College of Medicine and Surgery  |                         | (1916)        | Wisconsin        |
| College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois |                         | (1907)        | S Dakota         |
| Northwestern University Medical School   |                         | (1904)        | Iowa             |
| (1905) South Dakota (1911) Idaho   |                         |               |                  |
| The Hahnemann Medical College and Hospital Chicago   |                         | (1919)        | Colorado         |
| University of Illinois College of Medicine   |                         | (1922)        | Indiana          |
| (1926) (1933) Illinois (1933) Minnesota  |                         |               |                  |
| University of Louisville School of Medicine  |                         | (1937)        | Kentucky         |
| Johns Hopkins University School of Medicine  |                         | (1936)        | Maryland         |
| University of Minnesota Medical School   |                         | (1926) (1931) | Minnesota        |



|  |                         |                  |
|--|-------------------------|------------------|
| Missouri Medical College                                 | (1896)                  | Missouri         |
| Creighton University School of Medicine                  | (1924)                  | Nebraska         |
| University of Nebraska College of Medicine               | (1926),                 |                  |
| (1930), (1940) Nebraska                                  |                         |                  |
| Columbia University College of Physicians and Surgeons   | (1916) New Jersey,      | (1917) New York  |
| Cornell University Medical College                       | (1910)                  | Nevada,          |
| (1934) New York  |                         |                  |
| University of Rochester School of Medicine and Dentistry | (1939)                  | New York         |
| Western Reserve University School of Medicine            | (1935)                  | Ohio             |
| Hahnemann Medical College and Hospital of Philadelphia   | (1933)                  | Washington       |
| McGill University Faculty of Medicine                    | (1900)                  | S Dakota         |
| School   | LICENSED BY ENDORSEMENT | Year Endorsement |
| College of Medical Evangelists                           |                         | Gard of          |
| Bennett Medical College                                  | (1908),                 | (1938) N B M Ex  |
| Cornell University Medical College                       |                         | (1912) U S Army  |
| University of Vermont College of Medicine                |                         | (1935) N B M Ex  |
|  |                         | (1930) N B M Ex  |

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Malpractice Limitation of Actions in Relation to Unauthorized Operation**—An account for medical services given by defendant Dray was assigned to the Physicians' and Dentists' Business Bureau. In a suit on the account, the physician who rendered the services was made an additional defendant at the instance of Dray, who filed a cross complaint against the physician for damages. A demurrer to the cross complaint and to a subsequently filed amended cross complaint was sustained and Dray appealed to the Supreme Court of Washington.

The cross complaint alleged that the defendant Dray consulted the physician, who advised her to go to a hospital for a laboratory test, that at the hospital she was placed on an operating table and anesthetized, and that while under the influence of the anesthetic the physician performed "an operation upon her against her will and without her consent, in which he removed her uterus." The operation was performed in March 1936 and the cross complaint was filed Dec 1, 1938. The demurrer was sustained on the ground that the statute of limitations had run against the cause of action, the trial court holding that the cause of action stated was for an assault and battery which was barred by the two year statute of limitations applicable to such actions.

While an unauthorized operation is, in contemplation of law, an assault and battery, it also constitutes malpractice, the court said, even though negligence is not charged, and the general rule is that in the absence of a special statute of limitations malpractice actions are controlled by the limitations applicable to actions for damages generally. Courts which have recognized an unauthorized operation as an assault and battery have nevertheless held that, in contemplation of the statute of limitations, such an operation amounts to malpractice, the cause of action for which is subject to the statute of limitations applying generally to actions for damages to the person. When a plaintiff has several remedies for the same cause of action, the fact that one or more of his remedies have become barred will not affect his right to any of the others which are not barred. The statutes of Washington allow three years for the commencing of an action for damages for injuries to the person. Accordingly, the Supreme Court concluded that the cross complaint had been filed in time even though the two year statute for damages for an assault and battery had already run. Nor was the cause of action stated in the amended cross complaint barred although it was filed more than three years subsequent to the operation. While it is apparent, continued the court, that an attempt was made in the later complaint to set up a cause of action ex contractu, the cause stated still sounded in tort. No new cause of action having been set up, the statute of limitations did not bar the action even though the amended cross complaint was filed more than three years after the cause of action arose. The judgment of the trial court was therefore reversed and the cause remanded with direction to overrule the demurrer.—*Physicians' and Dentists' Business Bureau v Dray*, 111 P (2d) 568 (Wash., 1941)

**Harrison Narcotic Act Exempt Preparations Administered by Physician, Record Keeping Requirement**—The appellant, a licensed physician of Hawaii, administered preparations, such as paregoric and cough syrup, containing a limited amount of narcotics to patients whom he personally attended. Because he kept no records of such transactions, he was convicted of violating the Harrison Narcotic Act. The conviction was upheld by the United States circuit court of appeals, ninth circuit, and the case came before the United States Supreme Court for review.

Section 6 of the Harrison Narcotic Act, after exempting certain attenuated narcotic preparations from the act, contains the following proviso:

"Provided further, that any manufacturer, producer, compounder, or vendor (including dispensing physicians) of the preparations and remedies mentioned in this section lawfully entitled to manufacture, produce, compound, or vend such preparations and remedies, shall keep a record of all sales, exchanges, or gifts of such preparations and remedies."

Congress, in the opinion of the court, by the use of the words "dispensing physicians," meant to exclude physicians administering to patients whom they personally attend. That not all physicians are required to keep records was manifest to the court because of the use of the qualifying adjective "dispensing." A physician, to come within the record keeping requirement, must be one who manufactures, produces, compounds or vends the drugs, or possibly only one who vends if the parenthetical phrase applies only to "vendor." This construction, the court continued, was borne out by a consideration of the act as a whole. The word "administer" more appropriately describes the activities of a physician in personal attendance than does the word "dispense." Admittedly, the court pointed out, the words "dispense" and "dispensing" are used in several senses in the act, but Congress evidently was aware of the differentiation between "administer" and "dispense" for when it wished to include all possible functions of physicians with respect to drug distribution it used the two terms in conjunction. Furthermore, in dealing with true narcotics, Congress unequivocally exempted physicians from record keeping when in personal attendance on patients. It was difficult for the court to perceive why a different requirement should obtain when a physician, under similar circumstances, administers preparations containing only a limited amount of narcotics. A construction of the parenthetical phrase "(including dispensing physicians)" as encompassing only physicians who would be covered by the word "vendor" did not, the court said, imply that Congress was tautologic but rather that it acted cautiously to preclude any contention that physicians selling drugs were not "vendors" simply because of their professional status.

On all the evidence, the Supreme Court concluded that the physician was not a "dispensing physician" within the meaning of the proviso and that his failure to keep records of the exempt narcotic preparation he administered constituted no violation of the act. The judgment of conviction was reversed and the cause remanded for further proceedings.—*Young v United States*, 119 F (2d) 399, 62 S Ct 510 (1942)

## Society Proceedings

### COMING MEETINGS

- American Physiotherapy Association, Lake Geneva Wis. June 23 July 1 Secretary
- Miss Evelyn Anderson, Stanford University, Calif., Secretary
- Minnesota State Medical Association Duluth June 29 July 1 Dr B F Souster, 493 Lowry Medical Arts Bldg, St Paul Secretary
- Montana Medical Association of, Missoula, July 8 10 Dr T F Walker, 206 Medical Arts Bldg, Great Falls Secretary
- Washington State Medical Association Spokane Aug 17 19 Dr A Spickard 1305 Fourth Ave Seattle Secretary
- West Virginia Medical Association Huntington July 13 15 Mr Lively, 1031 Quarrier St, Charleston Executive Secretary
- Wyoming State Medical Society Cheyenne Aug 16 17 Dr A Keith, Capitol Bldg Cheyenne, Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

#### American Journal of Ophthalmology, Cincinnati

25 261-386 (March) 1942

- Lipid Degeneration of Cornea. Report of Case. H. C. Donahue, Boston —p. 261
- Moore's Subjective Lightning Streaks. F. H. Verhoeff, Boston —p. 265
- Procedures in Intracapsular Cataract Extraction. New Method. D. B. Kirby, New York —p. 269
- Periphlebitis and Phlebitis Retinae. Case Report. G. de Ocampo, Manila, Philippine Islands —p. 278
- Vitamin Therapy in Ophthalmology. A. M. Yudkin, New Haven, Conn. —p. 284
- Muscle Imbalance in Myopia. W. W. Baum, Salem, Ore. —p. 291
- Cultural Studies on Patients with Uveitis and Other Eye Diseases. C. Berens, S. Rothbard, and D. M. Angevine, New York —p. 295
- Regarding Early Detection of Avitaminosis. A. by Gross, or Biomicroscopic Examination of Conjunctiva. M. L. Berliner, New York —p. 302
- Use of Doryl in Treatment of Glaucoma. S. T. Clarke, Boston —p. 309
- Studies on Infectivity of Trachoma. VI. Effect of Sulfanilamide on Virus. L. A. Julianelle, St. Louis, and J. E. Smith, Rolla, Mo. —p. 317
- Psychologic Problems in Ophthalmologic Diagnosis. W. Bab, San Francisco —p. 321

#### American Journal of Tropical Medicine, Baltimore

22 121-190 (March) 1942

- Sarcosporidiosis with Parasites Found in Heart. Case. H. R. Gilmore, Jr., B. H. Kean, and F. M. Posey, Jr., Ancon Canal Zone —p. 121
- Tropical Neurasthenia. A. C. Reed, San Francisco —p. 127
- \*Probability of Detecting Intestinal Protozoa by Successive Stool Examinations. W. G. Sawitz, and E. C. Faust, New Orleans —p. 131
- Influence of Bacterial Flora on Cultivation of Endameba histolytica. B. C. Chinn, L. Jacobs, Lucy V. Reardon, and C. W. Rees, Washington, D. C. —p. 137
- \*Evaluation of Culture Method as Aid in Diagnosis of Amebiasis. H. Tsuchiya, St. Louis —p. 147
- Guinea Worm Dracunculus insignis (Leidy, 1858). Common Parasite of Raccoons in East Texas. A. C. Chandler, Houston, Texas —p. 153
- Human Intestinal Myiasis Due to Syrphid Larvae. Report of Additional Case (Eristalis Tenax). J. C. Swartzwelder, and S. J. Cali, New Orleans —p. 159
- Periodicity in Plasmodium Vaughanii. R. D. Maxwell, and J. M. Nadler, Syracuse, N. Y. —p. 165

**Detecting Intestinal Protozoa.**—Six normally passed stools from each of 118 children were examined by Sawitz and Faust by the two direct and the zinc sulfate concentration techniques for intestinal parasites. Of the 708 specimens examined, Endameba histolytica was recovered from the specimens of 63 children, Endameba coli from 74, Endolimax nana from 100, Giardia lamblia from 91, Chilomastix mesnili from 53, Trichomonas hominis from 21, Diandameba fragilis from 6, and Iodameba butschli from 72. By the direct iodine or hematoxylin stained fecal film technique 52 of the possible 378 specimens were found positive for Endameba histolytica, that is, less than one in five. By their combination with the zinc sulfate centrifugal flotation technique about one out of three or four infections was detected in a single examination. The efficiency of the iodine or hematoxylin stained film for the nonpathogenic protozoa was one in four, but one of these techniques combined with zinc sulfate centrifugal flotation technique gave a probability of one in two.

**Diagnosis of Amebiasis by Culture Method.**—Tsuchiya submitted the stools from 100 patients with acute or chronic dysentery to the direct microscopic concentration and the cultural laboratory procedure. Of 14 acute cases the respective methods were diagnostic in 14, 14 and 13 and respectively in 72, 77 and 84 of 86 chronic cases. The chronic cases when broken down showed 15 clinical cases, 50 carriers with a large

number of cysts and 21 carriers with a few cysts, and the three procedures were diagnostic in 12, 13 and 15 of the clinical cases, in 49, 50 and 49 of first group of carriers, and in 11, 14 and 20 of the other carrier group. The culture method should be included in the routine examination of stools for Endameba histolytica. It increases the percentage of positives when employed with other methods and serves as a check on negatives otherwise obtained.

#### Annals of Internal Medicine, Lancaster, Pa.

16 415-632 (March) 1942

- \*Exophthalmometric Measurements in Patients with Thyroid Diseases with Some Discussion of Their Significance. C. Galli-Mainini, Buenos Aires, Argentina —p. 415
- \*Digitalis in Prevention of Recurrent Cardiac Failure in Patients with Sinus Rhythm. M. Sokolow, San Francisco; H. B. Weinberg, Davenport; Ios, J. L. Plaut, and L. N. Katz, Chicago —p. 427
- Gaucher's Disease. I. Case with Hemolytic Anemia and Marked Thrombopenia. Improvement After Removal of Spleen Weighing 6,822 Gm. II. Lipid Analysis of Gaucher's Spleen. H. Mandelbaum, L. Berger, M. Lederer, A. E. Sobel, and I. A. Kaye, Brooklyn —p. 438
- Electroencephalographic Changes During Hyperventilation in Epileptic and Nonepileptic Disorders. A. Q. Brill, and Herta Seidemann, New York —p. 451
- Certain Infections in Background of Patients with Coronary Occlusion. J. T. King, Baltimore —p. 462
- Heterophile Antibody Reaction Caused by Bacterial Infection. S. Bornstein, New York —p. 472
- \*Treatment of Delirium Tremens with Faradic Shock Therapy. New Approach Based on Psychobiologic Concept. N. J. Berkwitz, Minneapolis —p. 480
- \*Cardiopercardiopexy. Surgical Treatment of Coronary Arterial Disease by Establishment of Adhesive Pericarditis. S. A. Thompson, and M. J. Ransbeck, New York —p. 495
- Electroretinography. I. Cathode Ray Visualization of Lung Chest Sounds. F. L. Dunn, W. E. Rahm, Jr., and R. M. Cochran, Omaha —p. 521
- Liver Function in Menstruation. R. Heilig, and N. L. Kantiengar, Mysore, South India —p. 538

**Exophthalmometric Measurements.**—The degree of proptosis in various stages and types of exophthalmic goiter was determined by Galli-Mainini in 126 patients by actual exophthalmometric measurements. For control the eyes of 50 healthy persons were measured and the readings fell between 14 and 17.5 mm. All measurements over the latter figure were considered to be exophthalmic. The measurements of 13 patients with nontoxic nodular goiter, giving no past history of exophthalmos and not appearing to have it at the time of examination, ranged from 14 to 18 mm. Only 1 was above the higher range of normal. Those of 3 patients with toxic nodular goiter were between 15 and 22 mm. The measurements of 58 thyrotoxic patients with diffuse goiters, 40 of whom gave a history of exophthalmos and all of whom appeared to have it at the time of examination, ran from 18 to 25 mm. Twenty-one of 34 with spontaneous myxedema having actual measurements from 15 to 25 mm had definite exophthalmos by measure. The measurements of 4 with myxedema following thyroidectomies for toxic goiter without exophthalmos were within normal limits. All 14 with myxedema following thyroidectomy for toxic goiter with exophthalmos showed exophthalmos of 19 to 27 mm at the time of measurement.

#### Digitalis in Prevention of Recurrent Cardiac Failure

—Sokolow and his colleagues investigated the probability of digitalis preventing recurrent cardiac failure in a recovered ambulatory patient. Four patients who had previously had cardiac failure with a regular rhythm and who were compensated on the usual therapy were observed for thirty-one to sixty weeks. 3 had hypertensive heart disease and 1 had arteriosclerotic heart disease. Each was kept on a comparable controlled regimen of activity, salt, fluid and caloric intake. The only variable was the administration or the omission of digitalis. Cardiac failure always recurred when digitalis was withheld. Administration of digitalis tended to prevent the development of failure in patients with a regular sinus rhythm. Digitalis also proved of value in relieving the congestive failure that occurred when the drug was withdrawn. In 3 patients the cardiac reserve became so diminished that irreversible cardiac failure occurred in spite of treatment. The vital capacity, venous pressure response or venous pressure to compression of the right upper quadrant circulation time and weight when correlated with the clinical signs proved of value in determining

the trend of the circulatory status. Continuous digitalization is of value in preventing recurrent cardiac failure in ambulatory patients with regular sinus rhythm. It is not wise to omit giving digitalis to patients with diminished cardiac reserve who have had cardiac failure previously, even though they are free from symptoms.

**Treatment of Delirium Tremens**—Beikwitz used faradic shock for the treatment of 33 patients less than 55 years of age with uncomplicated delirium tremens following alcoholism. One electrocardiograph electrode was applied to the forehead and another to the back of the neck. A series of fifteen subconvulsive electrical shocks was given with a faradic current of half a second duration at intervals of half a second. The patient received an average current of about 10 milliamperes in each shock. Immediately after electrical shock an intravenous injection of 8 to 10 cc of a 5 per cent solution of pentothal sodium to produce general anesthesia for three to five minutes was given. For a few minutes after awakening the patient was usually confused and poorly coordinated. As the effects of the pentothal sodium wore off, the patient's apprehensiveness, hallucination and tremors diminished or were absent. Shock treatment was repeated daily until all apparent symptoms of delirium disappeared. Forty-three similar patients were given only the routine medical treatment. Among the 76 patients there was only 1 death of a patient who did not receive faradic shock treatment. The mean number of days that strong sedation was used by the group receiving shock treatment was two and eighty-one hundredths as compared with five and five hundredths days. After the first treatment strong sedation was needed only for six tenths of a day. This low figure strongly indicates the effectiveness of the treatment. Experience with the faradic treatment has shown that the necessary "protective" measures (chemical and physical restraints) often aggravate or prolong the condition. Shock therapy promptly removes the acute psychotic symptoms in most cases and consequently lessens the need for these undesirable protective measures.

**Cardiopericardiopexy**—Thompson and Raisbeck outline the technic of cardiopericardiopexy, or the production of adhesive pericarditis by introducing sterile talc into the pericardial sac. Animal experimentation has revealed that the pericardium is able to furnish a collateral circulation to the myocardium that is sufficient to overcome the ischemia produced by sudden complete ligation of a main branch of the coronary artery. Collateral myocardial circulation is produced by any or all of the following ways: (1) formation of new channels between the main coronary arteries, (2) dilation and proliferation of already existing intercoronary channels and (3) formation of new extracardiac channels from the newly adherent pericardium. The beneficial effects of this operation may be due to the formation of intracardiac collaterals resulting from the myocardial reaction as well as to the formation of new extracardiac collaterals from the adherent pericardium. Although the reaction subsides and the operative stimulation ceases, the original impetus may accelerate the process of spontaneous collateral formation to a rate equal to or greater than the occlusive process. Patients selected for this operation are those with a typical anginal syndrome related to effort, those with objective physical electrocardiographic and roentgen evidence of coronary and myocardial disease and those in whom improvement does not follow fairly prolonged medical treatment. A previous coronary occlusion is not considered a contraindication, but sufficient time must have elapsed to permit healing of the infarct and there must be no evidence of activity. A group of the author's patients who were completely incapacitated have been relieved of their anginal pain and have returned to their former occupation. The relief from angina is complete in some and partial in others. No patient has failed to show symptomatic relief and a definite increase in his exercise tolerance. Follow-up study (exercise tolerance, blood pressure, direct venous pressure, fluoroscopy and roentgen and electrocardiographic examination) does not reveal any evidence of cardiac compression or cardiac hypertrophy due to adhesive pericarditis. The simplicity of the operation and the benefits elicited appear to warrant further employment of the procedure.

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2 Amino Heptane Sulfate as Nasal Vasoconstrictor A W Proetz, St Louis—p 112  
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- Threshold Erythema Dose of Roentgen Rays II Experimental Investigation of Various Aspects of Erythema Reaction and New Clinical Criterion for Standard Threshold Erythema Reaction J C Belisario, Sydney, Australia—p 641  
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**Artificial Fever for Juvenile Neurosyphilis**—Five patients of ages from 11 to 20 years were treated by Nielsen and his associates in the Kettering hypertherm. Four of them presented a picture of dementia paralytica and 1 a tabetic picture without the typical dementia paralytica colloidal gold curve of the spinal fluid. Four of the patients were given a complete course of artificial fever. This consisted of fifty hours of treatment in ten to eighteen sessions at a temperature of 105 to 106 F. One patient received an additional course of thirty hours about two and a half years after the first course. One patient died during the twelfth treatment. Necropsy showed the cause of death to be cerebral edema and subarachnoid hemorrhage. During fever therapy the patients received weekly intramuscular injections of bismuth subsalicylate and intravenous injections of mapharsen. The mapharsen was administered at the height of the fever. After the last fever treatment chemotherapy was continued for six weeks. After this, regular courses of arsenical and bismuth preparations were given up to the time of the report. The 4 surviving patients have been closely followed for one to three and a half years. At the time of writing the 3 patients with dementia paralytica are at home and all have shown definite improvement in both physical and mental activity. The condition of the tabetic after one year of improvement has remained stationary, except that the atrophy of his optic nerve has progressed to the point of blindness. The Wassermann reaction of 3 patients returned to normal immediately after therapy and of the tabetic patient after 1 year. The normal reaction of 1 of the patients became negative at a later date.

**Endogenous Allergy**—Endogenous allergy embraces types of hypersensitivity and hyposensitivity which result from allergens formed within the body. Urbach divides the endogenous allergens into two groups: the autoendogenous allergens which arise from altered endogenous substances as a result of atrophic, degenerative or other changes in the tissues, and the heteroendogenous allergens which are derived from heterogeneous protein from bacteria, fungi and parasites after multiplication or growth within the body. The category of autoendogenous allergy may include paroxysmal hemoglobinuria, autoagglutination, a syndrome resembling serum sickness from absorption of autogenous protein, a cutaneous auto-sensitization phenomenon, an autoanaphylactic ocular disease and menstrual allergy, pregnancy, hormone and physical allergy. The heteroendogenous allergies include certain acute exanthems, some acute arthritides and infestations. The recognition that autogenous substances, micro-organisms and parasites may act as endogenous allergens will induce the physician to search for them when an incriminating exogenous allergen cannot be found after thorough investigation. New diagnostic methods are necessary for identifying endogenous allergens. The test substances for such methods are uveal pigment, human milk, menstrual serum, urinary proteoses and undenatured bacterial antigens, and the determination of anti-hormones. The application of these principles will be of definite therapeutic value in dealing with allergies of endogenous origin.

### Archives of Ophthalmology, Chicago

27 637-844 (April) 1942

- Dystosis Multiplex (Hurler's Disease, Lipochondrodysplasia, Gar-golism). Report of Ocular Findings in Five Cases with Review of Literature. F. C. Cordes and M. J. Hogan. San Francisco—p. 637.
- Experiences with Iridocyclitis. H. Eggers. New York—p. 665.
- Chemotherapy in Treatment of Gonorrheal Ophthalmia. Relative Effectiveness of Sulfanilamide, Sulfapyridine and Sulfathiazole. R. T. Wong. Honolulu, Hawaii—p. 670.
- Retinitis Pigmentosa with Widespread Gliosis—So Called Choroideremia. F. H. Verhoeff. Boston—p. 688.
- Crystalline Dystrophy of Cornea. A. R. Sherman. Newark, N. J.—p. 692.
- The Cornea. II. Transfer of Water and Sodium Chloride by Hydrostatic Pressure Through Excised Cornea. D. G. Cogan and V. E. Kinsey. Boston—p. 696.
- Local Use of Sulfanilamide and Derivatives in Practice of Ophthalmology. E. S. Connell and B. C. Trowbridge. Kansas City, Mo.—p. 705.
- Devic's Disease (Opticomyelitis). Clinicopathologic Study. H. H. Nolan and C. G. Polan. Minneapolis—p. 707.
- Survey of Records of Glaucoma in Ophthalmic Clinics. M. J. Schoenberg. New York—p. 716.
- Vollmer Tuberculin Patch Test. Its Possibilities in Ophthalmic Practice. B. Friedman and F. C. Keil Jr. New York—p. 728.
- Intranasal Drainage for Cure of Chronic Tear Sac Infection. New Technique Aided by Electrocoagulation so Simplified as to Be an Office Procedure. D. J. Morgenstern. Brooklyn—p. 733.
- Eye in Adrenal Sympatricoblastoma (Neuroblastoma). Importance of Ocular Findings with First Pathologic Report of Metastatic Tumor in Choroid. L. Bothman. Chicago and S. S. Blankstein. Milwaukee—p. 746.
- Mechanism of Production of Exophthalmos in Exophthalmic Goiter. J. N. Seitchik. Philadelphia—p. 762.

### Arkansas Medical Society Journal, Fort Smith

38 225-248 (April) 1942

- Trochanteric Fractures of Femur. F. W. Carruthers. Little Rock—p. 225.
- What Can We Do for the Patient with Arthritis? L. E. King. Hot Springs National Park—p. 228.

### Bulletin of Johns Hopkins Hospital, Baltimore

70 201-334 (March) 1942

- Rat Bite Fever. Review of American Cases with Reevaluation of Etiology. Report of Cases. T. M. Brown and J. C. Nunemaker. Baltimore—p. 201.

**Rat Bite Fever**—Few diseases Brown and Nunemaker believe are in a more confused state with regard to etiology than rat bite fever. They review the subject and present evidence which suggests that *Streptobacillus Moniliformis* infection is induced with greater frequency by the bite of a rat than is *Spirillum minus* infection. There is good evidence that *Spirillum minus* causes an illness which may be indistinguishable from that produced by the streptobacillus. It has been

suggested that some patients may have been infected with both agents. The relative etiologic significance of the two micro-organisms in rat bite fever will be furthered by the proper search for both agents in future cases.

### California and Western Medicine, San Francisco

56 111-166 (March) 1942

- Common Bile Duct. Its Reconstruction by Transplantation of Biliary Fistula. W. Crane. Oakland—p. 118.
- Sulfonamide Therapy. Its Beginnings in the United States. C. Weiss. San Francisco—p. 121.
- Colon. Indications for Intubation Decompression in Its Surgical Conditions. L. C. Bennett. Los Angeles—p. 123.
- Ureteral Splint. Some Experiences with Its Use. L. Kindall. Oakland—p. 127.
- Microcytic Anemia in Liver Disease. E. Wayburn. San Francisco—p. 130.
- Femoral Hernia. Modified Position for Its Repair. C. E. Rees. San Diego—p. 134.
- Poisoning in Childhood. Certain Significant Aspects of Its Etiology and Treatment. R. F. Chittenden. North Hollywood and R. Mapes, Beverly Hills—p. 137.
- Vitamin Therapy in Dermatology. F. G. Novy Jr., Oakland—p. 144.

### Connecticut State Medical Journal, Hartford

6 239-316 (April) 1942

- Is Tuberculosis Controlled? C. B. Gibson. Meriden—p. 241.
- Present Status of Bone Tuberculosis. P. P. Swett. Bloomfield—p. 245.
- Certain Details in Treatment of Pulmonary Tuberculosis. E. J. Lynch and K. S. Howlett Jr. Shelton—p. 248.
- Combating Tuberculosis with Education. C. C. Wilson. New York—p. 253.
- Tuberculosis in Schools. P. S. Phelps and Mary H. Harkin. Hartford—p. 255.
- Place of Tuberculosis Association in Civilian Preparedness for War and Peace. I. V. Hisecock. New Haven—p. 258.
- Evaluation of Problem of Care of the Mentally Defective in Connecticut. H. Yarnet. Southbury—p. 261.
- Pulmonary Moniliasis. M. A. Hankin and S. Spinner. New Haven—p. 264.
- Development of Physiology in Connecticut. J. F. Fulton and H. E. Hoff. New Haven—p. 266.

### Journal of Aviation Medicine, St. Paul

13 1-104 (March) 1942

- Transportation of Patients by Airplane. W. R. Lovelace 2d. Rochester, Minn. and J. Hargreaves. Washington, D. C.—p. 2.
- Some Limitations of Electrocardiogram in Physical Examination for Flying. C. E. Kossmann. Randolph Field, Texas—p. 26.
- \*Effect on Vital Capacity of Swift Ascent to Simulated Altitude of 35,000 Feet. M. Eckman and A. L. Barach. New York—p. 36.
- \*Problems Inherent in Protection of Flying Personnel Against Temperature Extremes Encountered in Flight. E. A. Pinson and O. O. Benson Jr. Dayton, Ohio—p. 43.
- Cornal Transplantation. Its Value to Aviation Medicine. R. A. Perritt. Chicago—p. 53.
- Effect of Flight on Hearing. P. A. Campbell. Randolph Field, Texas—p. 56.
- Aviation Medical Standards. British Royal Air Force versus U. S. Army Air Corps. N. C. Mashburn. Maxwell Field, Ala. and F. A. Marshall. Dothan, Ala.—p. 62.

**Effect on Vital Capacity of Swift Ascent**—The effect on the vital capacity of the lungs of 4 subjects of lowering the barometric pressure by 2,000 to 3,000 feet per minute was studied by Eckman and Barach in a simulated altitude of 18,000 and 35,000 feet, before ascending and on descending at 18,000 feet and at sea level. The average observations with an unheated spirometer show an apparent fall in vital capacity of from 4,570 cc at sea level to 4,470 cc and 3,875 cc at pressures equivalent to an altitude of 18,000 and 35,000 feet, respectively. With a return to sea level a rise of from 3,875 cc at 35,000 feet, 4,500 cc at 18,000 feet and 4,755 cc at sea level occurred. The data with the heated spirometer show that the average fall was from 5,035 cc at sea level to 4,955 cc at 18,000 feet and 4,665 cc at 35,000 feet. The apparent decided fall in vital capacity at diminished barometric pressures was probably due to the precipitation of water vapor of the expired gases when they were cooled to room temperature. When correction for vapor tension and temperature was made, the fall was minimal. The minimal fall in vital capacity at barometric pressures equivalent to an altitude of 35,000 feet was probably due to an inadequate technique in measuring the changes in temperature in the gas collecting bells or to the expansion of gases in the intestine with the upward displacement of the diaphragm.



It is unlikely that the fall in barometric pressure at a high altitude decreases the pressure only on the outer surface of the pulmonary capillaries with consequent dilatation of these vessels and a resultant decrease in volume.

**Protection of Flying Personnel Against Extreme Temperature**—It is pointed out by Pmson and Benson that the designing of adequate clothing which will protect the flier presents two unusual aspects—the extremely low temperatures encountered in flight and the rapidly changing environmental conditions as changes in altitude are effected. The average decrease in temperature with each thousand foot increase in altitude is about 3.5 degrees F. Heating the cabin and the use of insulated or heated clothing have been tried. When the advantages and disadvantages of these three methods of protecting the flying personnel against the cold of high altitudes are considered, electrically heated clothing appears to be most adaptable and it may be used in combination with varying amounts of insulative clothing. Its advantages are that the heat supplied can be adjusted to the changing requirements, and the bulkiness of the clothing can be reduced to a minimum, permitting normal activity and efficiency. Its disadvantages are that protection is inadequate in case the power supply fails or in forced landing and abandonment of ship on a cold terrain, that a rather large amount of energy is needed for each suit at extremely low temperatures and that the normal mechanism responsible for heat balance may be upset to such an extent that the individual probably cannot make proper adjustments with respect to the correct supply of heat needed. Under such conditions the internal body temperature may fall 2 or 3 degrees without causing any undue feeling of discomfort and without eliciting the shivering reflex. Eventually shivering will occur as the result of central excitation and when it does occur it may be so severe as to impede the flier's normal performance of his duty. The application of heat to all surfaces of the body together with proper distribution of the heat with respect to intensity will minimize the aforementioned objections. With proper distribution and application of heat, decreases in internal body temperature can be prevented. Suitable protection for the face in heated clothing presents the same difficulties (restriction of vision and breathing) as when insulative clothing is worn.

### Journal of Infectious Diseases, Chicago

70 97-192 (March-April) 1942

- \*Studies on Brucellosis in Mexico. Comparative Study of Various Diagnostic Tests and Classification of Isolated Bacteria. M. Ruiz Castaneda, R. Tovar and R. Velez, Mexico, D. F. Mexico—p. 97
- Antigenic Relationship Between Horse Antibodies and Proteins of Normal Horse Serum. G. G. Wright Jr., Chicago—p. 103
- Study of Hemolytic Streptococci from Horse Treated with Sulfanilamide After Streptococcal Bacteremia Developed During Immunization. Jessie L. Hendry, Albany, N. Y.—p. 112
- Individual Response in Rabbits to Immunization with Complex Antigen. M. R. Irwin and A. Golden, Madison, Wis.—p. 119
- Nutritive Requirements of *Salmonella*. III. Typhoid Bacillus, Carbon Source and Amino Acid Requirements. W. Burrows, Chicago—p. 126
- Studies on Anaerobic Bacterial Flora of Suppurative Periodontitis. Elizabeth S. Hemmens and R. W. Harrison, Chicago—p. 131
- Brucella Complement Fixation Reaction. B. Wise and H. W. Craig, Durham, N. C.—p. 147
- Studies on Transmission of Lymphocytic Choriomeningitis Virus by Arthropods. A. Milzer, Chicago—p. 152
- Immunologic Specificity of Sulfonamide Azoproteins. A. G. Wedum, Cincinnati—p. 173
- \*Arthritis in Rats Caused by Pleuropneumonia-like Microorganisms and Relationship of Similar Organisms to Human Rheumatism. W. S. Preston, Ann Arbor, Mich.—p. 180
- Group of Coliform Bacilli Serologically Related to Genus *Salmonella*. C. A. Peluffo, P. R. Edwards and D. W. Bruner, Lexington, Ky.—p. 185

**Brucellosis in Mexico**—The increasing number of patients with brucellosis applying for diagnosis or treatment at the General Hospital of Mexico City gave Ruiz Castaneda and his associates an opportunity for isolating and classifying a relatively large number of brucella strains. Of 200 patients with brucellosis submitted to the usual procedures, 83.5 per cent were probably infected in Mexico City and the rest in endemic regions in parts of the Republic. Eighty-four per cent of blood cultures were positive, as compared with 93 per cent of positive agglutination tests and 80 and 60 per cent, respectively, for the allergic and opsonic tests. About 10 per

cent of the 1940 cases gave negative serologic and allergic tests while *Brucella* was isolated from the blood. The classification of 150 strains of *Brucella* showed that 143 were *Brucella melitensis*, 5 *Brucella abortus* and 2 *Brucella suis*. The prevalence of *Brucella melitensis* in Mexico was corroborated by epidemiologic data pointing to the consumption of dairy products from goats as a main source of infection.

**Arthritis in Rats**—The fact that arthritis is a frequent complication of other diseases in animals known to be caused by the organisms of bovine pleuropneumonia and the mastitis of sheep and goats prompted Preston to report the isolation of pleuropneumonia-like microorganisms from spontaneous arthritis in rats, to produce experimental arthritis in them, to study its pathologic changes and to attempt to isolate similar organisms from patients suffering from rheumatoid arthritis. He studied the fluid aspirated from the joints of 19 patients with typical rheumatoid arthritis. From several patients more than 1 specimen of fluid was obtained for study. On no occasion was any organism related to the pleuropneumonia group obtained. The negative results agree with those of all other workers reporting similar studies.

### Journal of Nervous and Mental Disease, New York

95 405-536 (April) 1942

- Occurrence of Unilateral (Jacksonian) Grand Mál Seizures in Tetany. Report of Case, with Particular Reference to Differential Diagnosis and Clinical Detection of Syndrome. J. M. Meredith, University, Va.—p. 405
- Metrazol Shock Therapy in Presence of Generalized Osteoporosis. Case Report. V. L. Evans, Aurora, Ill.—p. 414
- Cortical Frequency Spectrums of Healthy Adults. F. A. Gibbs, Boston—p. 417
- Attempted Suicide. Survey of 150 Patients Admitted to Two General Hospitals. A. B. Siewers and E. Davidoff, Syracuse, N. Y.—p. 421
- Blood Bromides. Study of Blood Serum Bromide Level in 145 Consecutive Admissions to Bliss Institute. S. Liebman and Ellen Richman, St. Louis—p. 442
- Some Remarks on Tumors of Brain in Childhood. O. Murburg, New York—p. 446
- Metrazol Therapy in Affective Psychoses. Study of Controlled Series of Cases. E. Ziskind, Esther Somerfeld Ziskind and L. Ziskind, Los Angeles—p. 460
- Gestalt Dynamics and Psychopathology. G. W. Kisker and G. W. Knox, Columbus, Ohio—p. 474

### Journal of Thoracic Surgery, St. Louis

11 357-468 (April) 1942

- Significance of Metastasis in Primary Carcinoma of Lungs. Report of Two Cases with Unusual Site of Metastasis. A. Ochsner and W. DeBakey, New Orleans—p. 357
- Topographic Classification of Cancer of Lung, with Special Reference to Surgical Implications of Circumscribed Variety. H. Neuhof, C. B. Rubin and I. A. Sirov, New York—p. 388
- \*Pneumonectomy for Carcinoma of Lung. S. W. Harrington, Rochester, Minn.—p. 396
- Experiences with Total Pneumonectomy. N. S. Shennstone, Toronto, Canada—p. 405
- \*Unexpandable Lungs. Report of Twenty Seven Cases. J. E. Farler, Buffalo—p. 424
- Experimental Observations on Certain Intracranial Complications of Particular Interest to the Thoracic Surgeon. E. M. Kent, B. Blades, St. Louis—p. 434
- Huge Chondrosarcoma Arising from Chest Wall and Extending into Thorax and Abdomen. Report of Case. F. R. Harper, Denver—p. 446
- Prevention of Tissue Emphysema Following Closed Pneumothorax. H. H. Cherry, Paterson, N. J.—p. 451
- Pulmonary Abscess. Value of Early One Stage Operation. R. H. Shaw, Dallas, Texas—p. 453
- Laryngoscopic and Bronchoscopic Ultraviolet Lights for Treatment of Tuberculosis of Respiratory Tract. P. D. Crumm, Evansville, Ind.—p. 467

**Pneumonectomy for Carcinoma of Lung**—Because of the relatively short time (the first successful pneumonectomy for pulmonary carcinoma was reported by Graham in 1932) during which carcinoma of the lung has been treated surgically, it is impossible to predict the ultimate place that surgical intervention will have in its treatment. The technical problems have been solved to a point which makes the operative procedure relatively small. With the advancement in operative procedure and improvement in diagnostic methods that are constantly taking place, Harrington believes that the results of surgical treatment will improve and that surgery will become the accepted treatment. Future improvement in results will come mostly on early diagnosis and immediate surgical treatment.



**Unexpandable Lungs**—About 5 per cent of therapeutic pneumothoraces terminate in unexpandable lungs. Among 318 patients receiving therapeutic pneumothorax during two years Farber encountered 27 with unexpandable lungs, in 5 of them a bronchopleural fistula was demonstrated. In the other 22 various etiologic factors were the cause for unexpansion: bronchial stenosis in 3, massive parenchymal fibrosis in 16, visceral pleural thickening due to long standing pyopneumothorax, oleopneumothorax or hydropneumothorax in 20, pleural adhesions in 3 and imperative collapse in 5. The dangers connected with the dead pleural space are empyema, tuberculosis, mixed infection and bronchopleural fistula. In this connection Churchill has warned against the danger of temporary collapse for a pulmonary process that requires permanent collapse, such as thoracoplasty. The early replacement of unsuccessful pneumothorax by permanent collapse might reduce the incidence of unexpandable lungs.

### Journal of Urology, Baltimore

47 203-402 (March) 1942 Partial Index

- Sodium Sulfathiazole: Clinical Study. G. Carroll, L. Kappel and B. Lewis. St. Louis—p. 209.
- Sulfathiazole Therapy in Urinary Tract Infections. E. P. Alvea. Durham, N. C.—p. 219.
- Simultaneous Bilateral Operation for Renal and Ureteral Calculi. J. T. Priestley and T. L. Schulte. Rochester, Minn.—p. 255.
- Sulfonamide Renal Calculi Surgically Removed Two Years After Administration of Sulfapyridine. H. R. Newman and I. H. Shleser. Boston—p. 258.
- \*Sulfathiazole Crystallization in Kidney. H. J. Lindner and D. W. Atcheson. New Orleans—p. 262.
- Solution of Incretions and Calculi in Alkaline Cystitis. S. F. Wilhelm and B. Levine. New York—p. 270.
- Sulfadiazine Calculi in Urinary Tract: Report of Case. P. B. Hughes, J. J. Saven and L. W. La Touche. Philadelphia—p. 274.
- Modification of Munro Apparatus for Tidal Drainage of Urinary Bladder. F. H. Hesser. Durham, N. C.—p. 283.
- \*Calcification of Vasa Deferentia. O. S. Lowsley and P. J. Riaboff. New York—p. 293.
- Influence of Temperature on Sulfathiazole Therapy of Gonococcal Infections. F. B. Bang. Baltimore—p. 299.
- Carcinoma of Prostate: Young's Radical Perineal Prostatectomy. L. G. Lewis. Baltimore—p. 302.
- Prostatic Carcinoma. B. S. Barringer. New York—p. 306.
- \*Relationship Between Skeletal and Genitourinary Tuberculosis. J. C. McClelland and K. F. Davis. Toronto, Canada—p. 320.
- \*Supernumerary Kidney with Vaginal Ureteral Orifice. J. H. Shane. Dallas, Texas—p. 344.
- Perineal Prostatectomy and Transurethral Resection: Comparison of Results. C. A. Owen. Omaha—p. 366.
- Disturbance of Acid Base Balance of Blood: Their Significance and Influence on Prognosis in Elderly Surgical Patients. H. S. Rupert. Greeley, Colo.—p. 379.
- Use of Desiccated Plasma in Urology. J. M. Hill and E. E. Muirhead. Dallas, Texas—p. 387.

**Sulfathiazole Crystallization in Kidney**—Lindner and Atcheson report two fatal cases of complete anuria following sulfathiazole. The results of cystoscopy and necropsy are presented. When sulfathiazole is used the urine should be checked daily as to volume of fluid intake and output, hematuria, crystals, albuminuria and casts. The blood sulfathiazole level does not indicate the degree of crystallization. Sulfathiazole concretions are not radiopaque. The crystals may mechanically block the ureters but it is more likely that serious block occurs in the tubules. The best therapy is renal lavage with warm water through ureteral catheters supplemented by fluids, alkali and heat.

**Calcification of Vasa Deferentia**—Lowsley and Riaboff cite the thirty-second case of calcification of the vasa deferentia, ampullas of the vasa deferentia and the seminal vesicles. The reported cases have been divided into inflammatory and non-inflammatory groups in both of which the calcified tissue on microscopic examination appears as a hard mass sometimes of lichen-like consistency. The condition may occur at any age, from youth to senility; the youngest patient was 14 and the oldest 81. Of the 32 cases 21 were found at necropsy, 1 at operation and 10 including the authors' case were diagnosed in the living subject. The diagnosis is based on roentgen observations confirmed by vasography. Calcification of the vas should be differentiated from stones in the ureters and in the bladder. On rectal examination it should not be confused with a neo-

plastic growth. No symptoms are specific, but when a small stone is present in the lumen of the vas deferens it may manifest itself by an attack of spermatic colic-like pain and blood in the urine.

**Skeletal and Genitourinary Tuberculosis**—In a study by McLelland and Davis, a urine culture of 297 patients with skeletal tuberculosis revealed 66 with urinary tuberculosis. Urinary symptoms were absent in 42, mild in 18 and severe in only 6. In this way tuberculosis of the urinary tract was discovered some time before symptoms appeared. Of the 66 patients 27 are dead after an average of five years of observation. This death rate is practically twice that of complicated and uncomplicated skeletal tuberculosis. The authors conclude that a patient with a single skeletal tuberculous focus has an 18 per cent chance of having genitourinary tuberculosis, while the chance in 1 with multiple lesions is 32 per cent.

**Supernumerary Kidney**—Shane reports a case of supernumerary kidney which before operation was thought to be a duplication of the pelvis and ureter. Of the 40 cases reported in the literature the ureter was fused with the normal kidney in 15, was not fused in 13, ended as a blind sac in 1, was lacking in 2 and was present but not traced or described in 10. Four of the 13 supernumerary kidneys with separate ureters were ectopic. In the author's case the ureter opened into the vagina just beneath the urethra. It emphasizes that any child with enuresis should not be relegated to the group of 'bed wetters' until a complete urologic study is made. The author's patient complained of lack of bladder control, pyelitis and pregnancy. A general physical examination, a plain urinary roentgenogram and an excretory urogram revealed nothing unusual. Cystoscopic examination showed a normal bladder and two ureteral meatuses on the right side and only one on the left. The catheters were withdrawn after a pyelographic film was made and the cystoscope was reintroduced, when some urine spurted just beneath the urethra. Compression of the urethra against the cystoscope caused another spurt, allowing a small slit in a vaginal fold to be seen. A ureteral catheter was introduced into this orifice and with the cystoscope in the bladder a catheter was passed into the one ureteral meatus on the left side. The two catheters were injected with an opaque medium, and the pyelograms of the right side were interpreted as a reduplication of the pelvis and ureter. On the left side the upper pelvis was dilated and drained by a dilated ectopic ureter into the vagina. Specimens of urine taken from all four segments were clear except the one from the ectopic ureter, which contained pus. The patient was allowed to go through the pregnancy. Operation fourteen months after delivery revealed two separate kidneys on the left side, one much smaller above the normal appearing kidney. The supernumerary kidney with ectopic ureter drained into the vagina. The supernumerary kidney, its pelvis and a portion of its ureter were removed. Microscopic study of the removed tissue showed considerable fibrosis and round cell infiltration. Since operation the patient has been free from any urinary soiling or infection. The upper pelvis on the right side may also drain a supernumerary kidney. This segment may later become infected and require a surgical procedure.

### Minnesota Medicine, St. Paul

25 161-240 (March) 1942

- Undulant Fever. D. G. Mahle. Plainview—p. 177.
- Marked Retraction of Mandible. G. B. New and J. B. Erich. Rochester—p. 181.
- Ocular Manifestations of Head Trauma. T. J. Edward. St. Paul—p. 184.
- Accumulated Experience of Department of Pathology, University of Minnesota on Neuropsychiatric Material. I. General Review. A. B. Baker and H. H. Moran. Minneapolis—p. 187.
- Intrapleural Pneumolysis: Experiences with This Procedure at Opening Sanatorium. G. A. Hedberg. Nopeming—p. 191.
- Differential Diagnosis of Idiopathic Low Back Pain. R. A. Glormley. Rochester—p. 196.
- \*Quinidine in Auricular Fibrillation. R. Berman and J. S. Blumenthal. Minneapolis—p. 198.

**Auricular Fibrillation**—Of 97 patients with auricular fibrillation seen during 1939, Berman and Blumenthal treated 48 with quinidine in doses up to 48 grains (3 Gm.) a day. The disorder of 15 was regulated and that of 33 did not respond.

to treatment. There were 6 deaths. The disorder in none of the 49 control patients became regular, there were 2 deaths. After the heart rate was retarded with digitalis, quinidine was administered according to the method of Weisman, the total daily dose was divided into three or four equal parts and administered at hourly intervals during the morning. The daily dose was increased by 3 to 5 grains (0.2 to 0.32 Gm) as long as fibrillation persisted and until toxic symptoms developed. The highest dose given was 48 grains. Toxic symptoms of nausea, vomiting, diarrhea, collapse and death occurred following doses as low as 3 grains. Eight of the 15 patients whose condition was regulated remained so for two to twenty-four months after regulation (average fourteen months) and 7 relapsed in one to fourteen months after an average regularity of six months. Quinidine should not be used when the fibrillation has been established for years, when the patient is old and feeble, when the heart is extremely large, when coronary disease is pronounced, when compensation cannot be established or when the heart cannot be slowed with digitalis.

### New England Journal of Medicine, Boston

226 411-468 (March 12) 1942

- \*Curare Treatment of Spastic Children. Preliminary Report. E. Denhoff and C. Bradley, East Providence, R. I.—p. 411.  
Paradoxical Hematemesis. Report of Case. F. Hinman Jr., Baltimore—p. 417.  
Endoscopy. E. B. Benedict, Boston—p. 449.

**Spastic Children**—Denhoff and Bradley administered curare in various doses by several routes to 6 children with cerebral palsy. Throughout the period of treatment the children's daily activities were not curtailed. Two children each were given curare by the subcutaneous, intravenous or intramuscular route. The intramuscular route proved the most satisfactory, and subsequent determinations were made on the basis of this route. The optimal dose for each child was determined by gradually increasing the initial dose of 5 mg by 5 mg until mild paralytic symptoms of overdosage appeared. A maintenance dose was then established slightly (4 to 8 mg) below this level. To eliminate any possibility that beneficial effects of curare injection could have resulted through suggestion, the response of each child to intramuscular injection of sterile saline solution was observed and also after each child had been on a maintenance dose for some time the results during several days to several weeks without medication were noted. The effect of curare combined with 10 to 20 mg of amphetamine sulfate daily was studied. Progress under physical therapy was definitely accelerated by curare in the 6 children. When amphetamine sulfate was added, the accomplishments of 4 of the children were even further increased because of the additional "drive" that the drug imparted. Without curare the amphetamine presumably stimulates the same drive, but because of rigid, unmanageable limbs the child is frustrated in his attempt to accomplish some muscular act and as a result becomes irritable or sulky. By systematic individual adjustment 0.9 to 3.3 mg of curare per kilogram of body weight resulted in muscular relaxation lasting approximately four days. Toxic or dangerous side effects were not encountered, and continued use did not appear to establish tolerance.

### North Carolina Medical Journal, Winston-Salem

3 109-160 (March) 1942

- Further Improved Technic for Cure of Inguinal Hernia. T. C. Bost, Charlotte—p. 109.  
Management of Some of Problems of Later Life. R. D. McMillan, Red Springs—p. 113.  
Some of Problems of Antenatal Care in North Carolina. A. W. Makepeace, Chapel Hill—p. 117.  
Acute Perforation of Peptic Ulcer. Study of Thirty Nine Consecutive Cases. N. P. Battle, Rocky Mount—p. 120.  
Lymphocytic Meningitis. A. A. Barron, Charlotte—p. 125.  
Thrombophlebitis. Treatment by Novocain Injection of Sympathetic Nerves. W. H. Sprunt Jr., Winston-Salem—p. 127.  
Treatment of Facial Paralysis. B. E. Ellis, Indianapolis—p. 130.  
Importance of Recognizing Fundus Pathology. C. R. Mills, Greensboro—p. 132.  
Instruction versus Service in Health Program. P. Y. Greene, Graham—p. 134.  
Ureteral Ectopia. W. E. Daniel, Charlotte—p. 137.  
Accessory Abdominal Testicle. O. W. Cranz, Kinston—p. 140.

### Psychiatric Quarterly, Utica, N. Y.

16 219-436 (April) 1942 Partial Index

- Anxiety in a Neurosis of Seventy Years Standing. C. P. Oberndorf and A. Eisendorfer, New York—p. 221.  
Mental Defectiveness with Unusual Syndrome of Congenital Physical Anomalies. S. Androp, Catonsville, Md.—p. 264.  
Hirsutism. J. H. Schwartz, Queens Village, N. Y.—p. 281.  
Ten Year Comparative Study of Treatment of General Paresis with Fever Therapy (Radiant Energy) and Chemotherapy. K. H. Slaght and N. Jones, Rochester, N. Y.—p. 306.  
Massive Dose Testosterone Therapy in Male Involutional Psychosis. M. Ziefert, Brooklyn—p. 319.  
The Problem of Psychogenic Precipitation in Schizophrenia. O. Kant Worcester, Mass.—p. 341.  
Asphyxial Episodes and Their Prevention in Electric and Other Convulsive Therapies. H. Brill and L. Kalinowsky, West Brentford, N. Y.—p. 351.  
Without Psychosis—Chronic Alcoholism. Follow Up Study. C. A. Whitaker, Louisville, Ky.—p. 373.  
Experience with Intravenous Use of Solution of Crystalline Zinc Insulin in Hypoglycemic Treatment of Schizophrenia. L. Reznikoff and J. J. Scott, Scaucus, N. J.—p. 399.

### Southern Surgeon, Atlanta, Ga

11 227-304 (April) 1942

- War and Medical Service. P. V. McNutt, Washington, D. C.—p. 227.  
Collateral Cerebral Circulation by Muscle Graft. Technic of Operation with Report of Three Cases. F. E. Kredel, Charleston, S. C.—p. 235.  
How Can the Medical Profession Augment National Efficiency During War Time? L. G. Rowntree, Washington, D. C.—p. 245.  
Polycystic Kidney Disease—Its Surgical Management. J. U. Reaves, Mobile, Ala.—p. 254.  
Relationship of U. S. Public Health Service to National Defense. J. A. Crabtree, Washington, D. C.—p. 266.  
\*Chemotherapy an Adjunct to Surgery, with Report of Use of Sulfathiazole Intraperitoneally. A. S. Jackson, Madison, Wis.—p. 274.  
\*Important Factors in Surgical Management of Patients with Severe Hyperthyroidism. G. Crile Jr., Cleveland—p. 282.

**Chemotherapy and Surgery**—Jackson questioned twelve leading surgeons on the value of the intraperitoneal use of sulfanilamide and sulfathiazole. Eight feel that the drugs definitely lower the mortality and ten that they decrease complications. A review of 161 major operations performed in clean surgical cases in which a sulfonamide derivative in the form of powder was sprinkled in the incision reveals that no infections occurred. Still more remarkable results were obtained with the use of sulfathiazole intraperitoneally in 13 cases of perforated appendix, 3 of pelvic abscesses, 3 abscesses from perforation of a malignant growth of the colon or sigmoid, 2 of perforated ulcer, 2 of perforation of the gallbladder with localized abscess and 1 of acute perforation of the gallbladder with free bile throughout the peritoneal cavity. In the latter series there were no deaths or serious complications, such as pulmonary sequelae, prolonged wound drainage, cystitis, postoperative ileus or obstruction. Sulfathiazole did not prevent postoperative thrombophlebitis, as 2 instances occurred. Chemotherapy will never replace good surgery but as an adjunct to it it is without an equal.

**Severe Hyperthyroidism**—Crile believes that a unilateral injury of a recurrent laryngeal nerve constitutes a definite hazard, for the incidence of recurrent laryngeal nerve paralysis seems to be an important factor in influencing the postoperative mortality rate of thyroid surgery. Rarely is the paralysis directly responsible for a postoperative death, but it may affect the patient's convalescence in devious ways and thus increase the mortality rate of thyroid surgery. Injury of a recurrent laryngeal nerve may be the initial accident leading to serious postoperative complications. Since the author has adopted a technic in which the inferior thyroid arteries are ligated outside the capsule of the thyroid, the incidence of persistent recurrent laryngeal paralysis of the vocal cord has fallen to 0.29 per cent in the last 375 cases. There have been no deaths since the advent of the sulfonamide drugs, the threat of pneumonia has practically disappeared and the operation need no longer be performed in stages. The importance of diet, sedation, oxygen and antipyretics in the postoperative care of these patients can never be overemphasized.

### Wisconsin Medical Journal, Madison

41 285-368 (April) 1942

- Cardiac Emergencies and Their Management. J. A. Evans, Plover—p. 297.  
Report on Cesarean Sections and Hospital Deliveries in Wisconsin—1934 to 1940 Inclusive. W. C. Keettel, Madison—p. 317.

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## Lancet, London

1 219-248 (Feb 21) 1942

\*Meningococcal Encephalitis H S Banks and J E McCartney —p 219  
Intestinal Flutulence Without Excessive Fermentation A Hurst —p 225

\*Histoplasmosis of Darling Report of Case D C L Derry W I Card R Wil on and J T Duncan —p 224

\*Pulmonary Fat Embolism Clinical and Radiologic Observations J C Scott F H Kemp and A H T Robb Smith —p 228

**Meningococcal Encephalitis**—Banks and McCartney discuss their observations on encephalitis and cite cases illustrating the main clinicopathologic types. During the epidemic of 1940-1941 a number of cases of fulminating and acute meningococcal infection were observed. Experience suggests that the meningococcus invades meningeal or cerebral vessels and thence reaches the subarachnoid space. In the ordinary form, beyond an occasional capillary thrombosis there is little or no recognizable cerebral lesion. When the organism is highly virulent and the dose massive, cases are found near the peak of an epidemic in which cerebrospinal invasion is of much greater intensity and range. Three distinct clinicopathologic degrees of this invasion can be recognized. The first the most intense and probably the most rare is a fulminating encephalitis without or with meningitis. This form is characterized by a profuse purpuric rash with rapid onset of coma and by death within twenty-four hours. Intense congestion and edema, small hemorrhages and widespread capillary thrombosis in the central nervous axis, with little evidence of polymorphonuclear infiltration, are seen. The process is consistent with a toxic effect produced by a massive dose of a highly virulent organism. In the most rapidly fatal cases, meningitis does not have time to develop. In others meningitis commences and occasionally the adrenals, accompanied by massive hemorrhage, may be invaded. Mixtures of these two fulminating forms may occur. The second type, slightly less intense than the fulminating is an acute encephalomyelitis. It is characterized by signs of acute meningitis which rapidly become complicated by encephalitic signs. These patients usually die within a few days without regaining consciousness. Recovery with transient parkinsonian symptoms may also result. Pathologically congestion and edema with capillary thrombosis and hemorrhages scattered regionally are seen. Another lesion is an inflammatory reaction, shown by perivascular polymorphonuclear cuffing and hemorrhage. Under sulfonamide treatment both the meningitis and the cerebral inflammatory reaction usually clear up but the toxic damage is relatively unaffected and it is probably the principal cause of death. In the third main syndrome a meningitis with focal encephalomyelitis, the cerebral invasion is less and may be seen at the most virulent phase of an epidemic and also at other stages. The clinical picture is diverse and includes protracted and recurrent delirium with sudden fatal collapse, or sudden convulsions with secondary coma and death, or even deep coma from large subdural hemorrhage. The pathologic lesion is a purulent meningitis with a limited number of small hemorrhages and sometimes thrombosis and slight perivascular infiltration usually about the basal ganglia, midbrain, medulla or upper cord.

**Histoplasmosis of Darling**—Derry and his colleagues believe that they are reporting the first case of histoplasmosis of Darling to occur outside the American continent. Nothing in their patient's history suggested a probable source of the infection. The patient a soldier of 30 was admitted to an emergency medical service hospital on April 8 1940 from a base hospital in France with the complaint of cough and sore throat for three months and a painless swelling in the pre-tracheal region a month before which had disappeared in five days. On the supposition that the case might be kala azar, antimony intravenously was started but stopped owing to the discovery of the fungus and large doses of potassium iodide were given. However the patient died four and a half months

after admission. Diagnosis cannot be made on clinical grounds alone, microscopic and cultural methods must be employed. The increase in the number of cases recently reported from America suggests to the authors that this infection has been overlooked in the past in America and in this country. Cultures of the strain of the yeast form *Histoplasma capsulatum* from their patient were found to be still viable up to nine months on dextrose-agar. These periods are longer than those recorded for survival of some of the American strains on other mediums.

**Pulmonary Fat Embolism**—The records and roentgen studies of 4 patients who have survived fat embolism are discussed by Scott and his co-workers. Clinically the first case was one of pulmonary and systemic fat embolism with characteristic signs. After an interval of six days there was sudden respiratory distress associated with purpuric hemorrhages over the neck and upper parts of the trunk. The physical signs were those of acute pulmonary edema and the roentgen changes were typical of the condition. There was no laboratory information to confirm the presence of fat. The second patient showed slight cyanosis and a raised respiratory rate after signs of shock had passed, and these signs were thought to be due to pulmonary fat embolism because the chest was not injured and the roentgenogram showed no abnormality. Fat was found in the sputum and the urine the next day, and in diminishing quantities at subsequent examination. The sputum was not examined microscopically. The third instance was pulmonary fat embolism in a patient with chronic bronchitis who recovered from a subsequent pneumonia. These 3 patients had sustained fractures. The wall of the chest of the last patient was injured by direct violence. Clinically and roentgenographically extensive consolidation of the left lung attributed to pulmonary concussion was elicited. Subsequently it was shown that there was pulmonary fat embolism. Bronchitis and later a pneumonia developed from which the patient has recovered, but bronchitis persists. Considerable quantities of fat may be retained in the lungs, sufficient to cause definite respiratory embarrassment, without producing roentgen changes.

## Medical Journal of Australia, Sydney

1 157-184 (Feb 7) 1942

Use of Cystourethrogram in Diagnosis of Various Conditions in Lower Portion of Urinary Tract H Mortensen —p 157

Studies in Tuberculosis R Webster —p 160

Treatment of Essential Hypertension B T Shallard —p 166

**Tuberculosis**—Webster states that biopsy study of lymph nodes in the diagnosis of tuberculosis of joints is the procedure that holds promise and merits careful examination and judicious application, as too often clinical and roentgen signs are insufficient to establish a diagnosis in the early and imperative stage. From the observations of Valls and of Seddon and the author's results, it appears that tuberculous inguinal lymphadenitis is a frequent concomitant of tuberculosis of the knee joint and that biopsy of the lymph nodes in relation to other suspected joints might profitably be instituted. Several of the inguinal nodes which enabled the author to obtain confirmatory laboratory evidence of tuberculosis of the knee joint were so small that the initial hemisection of the unformalized specimen was difficult. The only patients in whom inguinal adenitis was clinically evident were 2 children considered to be suffering from tuberculosis of the hip joint. This feature supports the attribution of tuberculosis of the inguinal nodes in these 2 children to cutaneous tuberculous foci rather than to tuberculosis of the hip joint. Tuberculous lymphadenitis was demonstrated in the inguinal lymphatic nodes of 6 of 7 patients all but 1 of whom were suffering from tuberculosis of the knee joint, in an inguinal node of 1 adult exhibiting advanced tuberculosis of the ankle joint and in an axillary node of a child affected with tuberculosis of the wrist joint. Uniformly negative results with respect to tuberculosis were obtained from the study of the lymphatic nodes excised from 15 patients with arthritis. If the tubercle bacilli reach the inguinal lymphatic nodes and initiate reactive changes other micro-organisms particularly the pyogenic cocci may be expected to do likewise.

**Anales del Instit. Mod. de Clin. Méd., Buenos Aires**  
21 1-700 (No 1) 1940 Partial Index

\*Acute Syphilitic Ataxia H. Williams, D. A. Passanante and D. Mamone—p. 131

**Acute Syphilitic Ataxia**—Williams and his collaborators direct attention to an atypical form of acute ataxia in cases of neurosyphilis the clinical symptoms of which correspond to the type of acute tabetic ataxia described by Guillain. The type described by the authors is tabetiform rather than tabetic. It is controlled by antisyphilitic therapy. The Argyll Robertson sign disappears and the achilles and patellar reflexes reappear, whereas in acute tabetic ataxia the Argyll Robertson sign is present and the patellar and achilles reflexes are absent. The author believes that the tabetiform type of acute syphilitic ataxia is caused by posterior meningomyeloradiculitis in cases of neurosyphilis.

**Archivos Argentinos de Pediatría, Buenos Aires**  
17 1-112 (Jan) 1942 Partial Index

\*Treatment of Bacillary Dysentery with Sulfathiazole J. M. Valdes and J. B. Sosa Gallardo—p. 3

Essential Subacute Myocarditis Case J. P. Garrahan, R. Kreutzer and C. Ruiz—p. 14

Consideration of Hemorrhagic Syndromes in the Newborn Maria Luisa Aguirre and F. Gonzalez Alvarez—p. 26

Pericarditis in Still's Disease J. R. Diaz Nielsen and E. A. Kirchmayer—p. 45

Thrombosis of Splenic Vein D. Fuks—p. 61

**Treatment of Bacillary Dysentery with Sulfathiazole**—Valdes and Sosa Gallardo quote figures which indicate that a large percentage of acute diarrheas in infants are caused by dysenteric infections. In view of the fact that therapeutic measures such as diet, serum, bacteriophage and symptomatic drugs produced only mediocre results, the authors decided to use sulfathiazole. The drug was administered by mouth in doses recommended for coccid infections, namely 0.2 Gm per kilogram of body weight daily. This amount was given divided at four hour intervals. After forty-eight hours the dose can be diminished, but the medication is to be continued for from four to eight days. The authors treated 35 cases (17 of Shiga dysentery, 16 of Flexner and 2 of Sonne) which had been bacteriologically verified. There was no mortality, tenesmus, colic and other disturbances disappeared within six to eight hours after the ingestion of the drug, the number of evacuations decreased and became normal before seventy-two hours had elapsed, toxic symptoms improved. The authors gained the impression that the cases of diarrhea which proved refractory to sulfathiazole must be considered of nondysenteric origin.

**Monatsschrift fur Unfallheilkunde, Berlin**  
47 417-500 (Dec) 1940

\*Remarkable Late Results in Central Nervous System of Acute Carbon Monoxide Poisoning in Very Hot Atmosphere K. Humperdinck—p. 417

Question of Possibility of Walking with Fresh Femoral Fracture Insurance Aspects A. Slany—p. 430

**Late Central Nervous Sequels Following Monoxide Poisoning in Hot Atmosphere**—Humperdinck reports the history of a locksmith aged 40 who worked on a ventilator inside a large economizer. The temperature was so high that the work had to be interrupted every five or six minutes. It required in all two and one-half hours, but the worker felt faint and had to interrupt the work for one hour. There was no loss of consciousness, vomiting or severe vertigo. In the evening of the same day a change was noted in the man. He was in a state of agitation and talked as if intoxicated. He continued to work for eight more days, but there was a decided change in his behavior. The formerly quiet worker talked and sang constantly and complained of fatigue and headache. Gradually a severe psychosis developed. Examination disclosed no signs of cerebral tumor or syphilis but rather symptoms of a severe organic disease of the brain, which in many respects resembled that of dementia paralytica. Death occurred six years later. Necropsy disclosed extensive foci of malacia in the medullary substance of both hemispheres. Since all other causes of malacia could be excluded, it was ascribed to anoxemia and, because of the history, to acute carbon monoxide poisoning. Compensation had at first been denied, because typical signs of acute carbon monoxide poisoning were not present. The influence of the almost unbearable heat cannot be ignored.

**Virchows Archiv f. path. Anat. u. Physiol., Berlin**  
307 1-280 (Dec 30) 1940 Partial Index

So Called Basophilic Degeneration of Heart Muscle K. Umeda—p. 1  
Primary Tumors of Heart Pathologic Aspects W. Schunk—p. 18  
Calcium and Iron Incrustations of Lungs in Callous Gastric Ulcer with Pyloric Stenosis Extrarenal Calcifications in Hypochloremia W. Vollard—p. 85

\*Extramedullary Myelopoiesis in Embryonal Adenosarcomas (Wilms Tumors) M. Svendsen—p. 99

\*Flat, Cavernous Hemangioma of Dura ("Pachymeningitis Hemorrhagica Interna") H. Hompesch—p. 111

Investigations on Vitamin A Metabolism of Eye E. Schairer and H. Pitzelt—p. 124

Influence of Extracts of Anterior Pituitary and of Colchicine on Islet of Langerhans Problem of "Pancræotropic Hormone" H. Guthert—p. 175

\*Fatty Infiltration of Liver H. W. Sachs—p. 253

**Extramedullary Myelopoiesis in Embryonal Adenosarcomas**—Svendsen reports typical adenosarcoma in 2 children aged 3 years and in a woman aged 21. He emphasizes the pronounced vascularization of the tumors and suggests that some of the cavities lined with low to flat epithelium like cells are embryonal traces of vessels. Around these cavities erythropoiesis could be observed. Granulopoiesis could be seen near the epithelium-like nodules. Reports in the literature regarding blood-forming tissues in the renal pelvis are associated with these observations. The author suggests that adenosarcomas originate in mesenchymal cells of the renal excretory system. The spaces lined with high columnar epithelium-like cells are regarded as formations belonging to the pronephros. The mesenchymal cells give rise to various connective tissue formations, structures belonging to embryonal hematic islands and hemopoietic tissue.

**Flat, Cavernous Dural Hematoma "Hemorrhagic Internal Pachymeningitis"**—According to Hompesch there is as yet no agreement about the genesis of so called hemorrhagic internal pachymeningitis. Clinicians still believe that it can originate from a primary hemorrhage. Jores and Laurent as well as van Vleuten and Boeckmann, demonstrated that this view is untenable. The author reviews 7 cases which throw light on the genesis of hemorrhagic internal pachymeningitis. The vascular form of hemorrhagic internal pachymeningitis does not have an inflammatory or reactive pathogenesis. On the contrary, it could be demonstrated that this disorder is a flat cavernous hemangioma. It is a tumor-like defect. Hemorrhages are always secondary manifestations. The original aspects may be changed by such hemorrhages. The author suggests replacing the term hemorrhagic internal pachymeningitis by flat cavernous hemangioma of the dura, which corresponds to the nature of this disease.

**Fatty Infiltration of Liver**—Sachs demonstrates that five topographic types can be differentiated in fatty infiltration of the hepatic lobules and cells: (1) scattered drops in the lobules, (2) central peribiliary infiltration, (3) central perivascular infiltration, (4) peripheral perivascular infiltration and (5) focal perivascular infiltration. The diffuse fatty infiltration is regarded as a particularly extensive form of the central perivascular or the peripheral perivascular fatty infiltration. In order to draw etiologic conclusions from the topographic type of fatty infiltration, the cases with pure topographic type of infiltration were selected first from the entire material and classified according to their diagnosis at necropsy. It was possible to classify most of the complicated cases. The tabulation permitted inferences about the etiology and it was possible to classify type 1 as the physiologic, type 3 as the hypoxemic and type 4 as toxic fatty infiltration. For the type listed under 2 a connection with brown hepatic pigment was suspected and it was attempted to explain type 5 as similar to hypoxemic toxic fatty infiltration. It is assumed that the nutritional etiology is of importance but that it only intensifies the fatty infiltration which is brought on by other factors. Fatty degeneration is not a primary metabolic disturbance but is only the result of a parenchymal lesion, which would be hidden in retarded utilization of fat, residues were not formed in damaged hepatic cells. A storage function of the liver is denied, and steatosis is regarded as the severest form of fatty infiltration. The author suggests a hypothesis of hepatic utilization of fat and its disturbances and a topographic and morphologic classification of fatty infiltration.



## Book Notices

**The Principles of Neurological Surgery** By Loyal Davis M.S. M.D. Ph.D. Professor of Surgery and Chairman of the Division of Surgery Northwestern University Medical School Chicago Second edition Cloth Price \$7 Pp 503 with 303 illustrations Philadelphia Lea C Febiger 1942

A second edition of this elementary treatise on neurologic surgery indicates that it has been found useful. In this edition many errors which crept into the first edition have been corrected. The advice given is sound and conservative. It is a little difficult to see what purpose is served by the first chapter. A practitioner who depended on the sketchy information contained in it could not possibly make a satisfactory neurologic examination. The author would have done better to emphasize those examinations of special importance to neurosurgery at greater length. The chapter is so condensed that it necessarily abounds in dogmatic half statements. Plate I is unsatisfactory, hardly any student with only the picture C in mind would recognize a choked disk. Photographs are proper in support of a scientific thesis, but in an elementary treatise such as this a good analytic drawing would be much more useful. Moreover, the material in the chapter is badly organized, for example, uncinate fits are described under the olfactory nerve and not with the regional symptomatology of the cerebrum.

An excellent chapter on craniocerebral injuries follows. One notes only an occasional lack of specificity in the directions for treatment. For example, that one should give "a solution of cream, eggs and sugar which contains 1 calory for each cubic centimeter of fluid." One wonders how many practitioners could make up such a solution. Figures 14 and 15, attributed to Dr Paul B Magnuson, are copied from Cushing (*Brit M J*, Feb 23, 1918, figs 4 and 14). The normal pressure of the human spinal fluid is usually given as 70-180 mm of water. In discussion of the gliomas the author notes that "these tumors have been subdivided by various methods by many individuals and as a result there is still no completely uniform nomenclature by which the gliomas may be classified." He then proceeds to follow slavishly the classification of Bailey and Cushing. Why not say so? The author does not mention in the discussion of angiomas that a preoperative diagnosis may be made by angiography or that it is possible by this method to recognize glioblastomas in a large percentage of cases. In general he seems inclined to overestimate the dangers of the method. Many of the roentgenograms are not very demonstrative to the uninitiated, figure 53, for example. It seems illogical to put Zenker's fluid into an abscess. The wall of a cerebral abscess collapses and shrinks of its own accord when it is evacuated, and the Zenker's fluid can only make more necrotic tissue, as will also coagulation of the wall with an electric cautery. The advice given concerning trigeminal neuralgia is excellent. The discussion of spinal cord injuries, injuries of peripheral nerves and of spinal cord tumors is clear and concise. The same cannot be said concerning the chapters on the autonomic nervous system. But here the author finds himself on controversial ground and has not resisted the temptation to enter into too much detail for an elementary treatise. However, he ends by leaving the reader in no doubt of his own attitude toward the problem. The reviewer is in entire sympathy with his discussion of surgical epilepsy. After completing the book, one has the impression that its defects are of minor importance and that the advice given is sound and conservative. It is a safe guide to place in the hands of the practitioner.

**A Textbook of the Practice of Medicine** By Various Authors Edited by Frederick W Price M.D. CM FRCP Consulting Physician to the Royal Northern Hospital London Sixth edition Cloth Price \$12.50 Pp 2 032 with 99 illustrations New York & London Oxford University Press 1941

The last previous edition of this well known British textbook of medicine appeared only four years ago. Many sections have been entirely rewritten and there have been extensive revisions in others. This revision has encountered exceptional difficulties on account of the war. There are four new contributors the list includes such authorities as Sir W Langdon Brown W S C Copenman N Hamilton Fairley Lord Horder, Donald

Hunter, Sir Arthur Hurst and Sir W H Willcox (the last having died since this edition went to press). As is inevitable, there is considerable disparity in the information contained in different sections. The treatment of gonococcal infections is given only three sentences, although the treatment of coliform bacillus infections is discussed in detail (the two incidentally, having been written by the same contributor), in the light of present information available, it would probably have been valuable to write in greater detail concerning the prophylactic value of tetanus toxoid. In some sections no references at all are cited, others give the names of individuals with the dates of their contributions in parentheses, there are exceedingly few full references—one of them (p 440) being to an article published in 1910. Under treatment of the leukemias no mention is made of radioactive phosphorus, although antileukocytic serums are mentioned. Such minor criticisms could be multiplied but in the main, the contributors and the editor have done an excellent job which should insure the continued popularity of this standard textbook.

**Competitive Swimming and Diving** By David A Armbruster Sr M.A. Associate Professor of Physical Education and Head Swimming Coach University of Iowa Iowa City Cloth Price \$3.25 Pp 301 with illustrations St Louis C V Mosby Company 1942

Swimming is the "king of sports and the sport of queens." Its age, excellence as exercise, its worldwide appeal, its rating as big business, its romance and glamor warrant such a designation. Wherever the climate permits, it is a leading sport. Even football with costly stadiums, high salaried coaches and experts on publicity takes second place to the millions invested in seaside resorts, the pageantry of popular beaches and the interest in the selection of bathing beauties. Notwithstanding its popularity as a sport, the technique, kinesiological principles, physiology and physical laws of swimming have received relatively little attention. The head coach of swimming at Iowa has recognized this fact and has successfully produced a book to meet this need. It should prove an excellent addition to the library of those interested in physical education and sports. The book is comprehensive, concise and well written. Its illustrations "were secured almost entirely from an underwater movie study of some of the world's greatest swimmers." They are, therefore, forceful and informative. The chapters on "conditioning" and "competitive springboard diving" are especially valuable. The volume should prove a useful guide for the experienced coach and the expert swimmer. The beginner should find it helpful in learning the various phases of the intricate techniques essential in acquiring grace and speed in diving and swimming.

**Proceedings of the American Diabetes Association First Annual Meeting Cleveland Ohio June 1 1941** Volume I Cloth Pp 148 with illustrations Cincinnati 1942

Five years ago a group of men informally discussed the idea of forming a national diabetes association and later invited the cooperation of local diabetes organizations in several large cities. The Committee for the Establishment of an American Diabetes Association met in New York City in 1940 at the time of the annual meeting of the American Medical Association. A constitution and by-laws were adopted and on Aug 28 1940 the American Diabetes Association was incorporated as a nonprofit organization in the state of Ohio. The first annual meeting of the association was held a few days previous to the annual session of the American Medical Association in Cleveland in June 1941. This volume contains the proceedings of that meeting and the various papers and discussions presented. A list of members of the American Diabetes Association, the constitution and by-laws and the report of the secretary and treasurer. The Banting Memorial Address given by Dr Elliott P Joslin entitled "Diabetes Yesterday Today and Tomorrow" contains some delightful intimate historical bits about Dr Joslin's early interest and despair in treating children with diabetes before the introduction of insulin and the great things he has been able to do for these patients since insulin was discovered. There are also papers and discussions by other well known workers in this field.



**A New Dictionary of Quotations on Historical Principles from Ancient and Modern Sources** Selected and edited by H. L. Mencken. Cloth Price, \$7.50. Pp. 1,317. New York: Alfred A. Knopf, 1942.

There are many books of quotations, so that one might well wonder why Mr. Mencken should decide to bring out his own. Certainly it was not from a lack of knowledge of other works, because he himself refers to the famous Bartlett's, later revised by Christopher Morley, also the books by Hoyt and Stevenson. The Mencken book differs by being planned on a historical arrangement, adequate as to bibliography, by the omission of platitudes and by a free intermixture of unusual materials with the old and the hackneyed. He has chosen many Biblical quotations omitted by previous compilers, and he has selected somewhat from foreign writers and provided adequate translations. A long list of acknowledgments to various publishers indicates the extent of the writers from whom Mr. Mencken has selected. The natural humor of the writer is apparent in his citation of the definitions of chiropractic and osteopathy, which are certainly not to be found in any other book of quotations. Under Golf appears the statement "It is unjust to claim the privileges of age and retain the playthings of childhood," taken from Samuel Johnson. Under this there is a reference "See also Child Labor." When Child Labor is consulted, one finds that classic of Sarah N. Cleghorn, now widely quoted:

The golf links lie so near the mill  
That almost every day  
The laboring children can look out  
And see the men at play.

For those of the medical profession there are considerable numbers of references under the usual headings of physicians, food, heart, health, medicine and similar topics, offering innumerable texts for useful exercises in writing. The book is excellently printed, easily readable and certainly a contribution well worth while.

**Immunology** By Noble Pierce Sherwood, Ph.D., M.D., F.A.C.P., Professor of Bacteriology, University of Kansas, Lawrence. Second edition. Cloth Price, \$6.50. Pp. 639, with 34 illustrations. St. Louis: C. V. Mosby Company, 1941.

In this edition two new chapters have been added: one on the reticuloendothelial system and the other on serum reactions. Revisions have been made in other chapters and the references brought up to date. The book continues to be essentially a textbook for beginning students of immunology and serology. It is written simply and covers the subject very well. No attempt is made to go extensively into the many complicated problems of immunology. The author has tried rather to introduce as many as possible of the more interesting phases of the subject to beginners. One may question the advisability of so many references, but the large list offers a good selection for varied interests. The book is well printed on a good quality of paper, and the illustrations are well selected. The author is well known as a competent student of the subject about which he writes, and the book should continue to prove of great value.

**The Diseases of the Basal Ganglia** Proceedings of the Association December 20 and 21, 1940. New York: Editorial Board: Tracy J. Putnam, M.D., Chairman, Angus M. Fiantz, M.D., and S. Walter Ranson, M.D. Research Publications Association for Research in Nervous and Mental Diseases. Volume XXI. Cloth Price, \$10. Pp. 719, with 268 illustrations. Baltimore: Williams & Wilkins Company, 1942.

Like its predecessors, this volume holds a vast fund of information valuable for the research man in the field of the nervous system. Yet the work serves to emphasize how far the association has moved away from its original purpose. No longer does one get the feeling of an active group of eager scientists discussing vigorously a particular problem bringing to it original and recent work with a spirit of scientific controversy. Instead the papers are formal and long (never completely read at the meeting) and the discussion is sterile and minimal. The chapters on anatomy are excellent, the vascular supply is well done but could be shortened by half. There is no reason for a hundred and fifty pages devoted to histopathology with detailed clinical histories in Leo Alexander's chapter. Much in this volume is summary of knowledge, a shorter, concisely written symposium on newly discovered facts is what is expected from the proceedings of the Association for Research in Nervous and Mental Diseases.

**El signo de Arce** Por Aquiles S. Lentino. Tesis de doctorado. Universidad Nacional de Buenos Aires, Facultad de Ciencias Médicas. Pp. 33, with 15 illustrations. Buenos Aires: Imprenta Amorrotu, 1941.

This is a doctorate thesis which emphasizes the importance of the localization of intrathoracic tumors and describes particularly Arce's sign. Jose Arce is the dean of the medical department of the University of Buenos Aires, formerly head of the Institute of Clinical Surgery. Arce's sign is the radiologic sign observed by comparing radiographic images before and after the establishment of pneumothorax. In the roentgenograms obtained after pneumothorax it is noted that pulmonary tumors undergo double displacement, both vertical and horizontal, in the direction of the pulmonary hilus. When comparing the roentgenograms one sees that the tumor shadow has not undergone any displacement, it may be affirmed that the tumor is extrapulmonary and it may be said that there is no Arce's sign or that the finding is negative. The thesis constitutes an excellent, though brief, presentation of the subject of pulmonary tumors, with illustrative roentgenograms which in the most part are nicely reproduced. Several interesting case histories are appended.

**A Study of the Effect of Lead Arsenate Exposure on Orchardists and Consumers of Sprayed Fruit** By Paul A. Neal, Surgeon, et al. From the Division of Industrial Hygiene, National Institute of Health. Prepared by direction of the Surgeon General, Federal Security Agency, Public Health Service. Public Health Bulletin No. 267. Paper Price 40 cents. Pp. 181, with 42 illustrations. Washington, D. C.: U.S. Government Printing Office, 1941.

Several years ago the U. S. Public Health Service was assigned the problem of studying the effect of lead arsenite on orchardists and consumers of fruit that had been sprayed with this toxic insecticide. The present volume contains the first comprehensive report of the investigations of the Public Health Service. An epidemiologic study has led the authors to conclude that the unusual environmental exposure to lead to which orchardists in the state of Washington are exposed constitutes no important health hazard. The children in the Wenatchee district showed higher values for blood lead, urinary lead and urinary arsenic content but there was in the opinion of the investigators no indication at the time of the examination of adverse effects on the health of these children. There appear to be no data in this series of studies on which there could be based a satisfactory tolerance for the lead content of apples and other fruits which have been sprayed with lead arsenite.

**Psychoanalytical Method and the Doctrine of Freud** By Roland Dulla, docteur ès-lettres, agrégé de philosophie. With an introduction by I. F. Strauss, M.A., M.D., F.R.C.P., Physician for Psychological Medicine at Bartholomew's Hospital, London. Volume I: Exposition. Volume II: Discussion. Translated from the French by T. F. Lindsay. Cloth Price, \$9. Pp. 415, 331. New York, Toronto & London: Longmans, Green & Co., 1941.

These two volumes consist of closely printed pages of citation of literature, quotations of case histories and endless argumentation of a philosophical rather than a scientific nature. The work does nothing to clarify psychoanalysis, and no one will be persuaded to take any stand on the controversies raised except to agree with the reviewer that paper was wasted.

**Modern Medicine: Its Progress and Opportunities** By Nellie W. W. Minnesota Department of Health, and S. A. Welsman, M.D., F.A.C.P., Clinical Associate Professor of Medicine, University of Minnesota. Minneapolis: Cloth Price, \$2. Pp. 218. New York: George W. P. Publisher, Inc., 1942.

This volume, which presents for the lay reader a review of the historical development of certain aspects of medicine, is a little that has not been reproduced elsewhere in more intelligent terminology.

**Was der praktische Arzt über Vitamine wissen soll** Von Dr. R. F. Recknagel, Chefarzt des Sanatoriums Schloss Hornburg. Pp. 135. Leipzig: Georg Thieme, 1941.

This is a brief presentation of some important facts about vitamins. It gives also some pertinent data regarding commercial vitamin preparations available in Germany. It is of little value to physicians in this country.

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS BUT THESE WILL BE OMITTED ON REQUEST.

### WOUNDS AND DISINFECTANTS

To the Editor—I am particularly desirous of obtaining an authoritative opinion on the efficacy of various antiseptics for use in first aid work in schools and minor emergency cases. I should like to know the antiseptic or therapeutic value of various drugs, their phenol coefficients and margins of safety or therapeutic indexes. I am interested in comparisons especially between mercurochrome tincture of iodine and the organic mercurial compounds such as mercurin, merthiolate and metophen and their margins of safety, possibilities of tissue damage and their indication for prevention of infection when used immediately after injury. Please omit name.  
M D., Missouri?

To the Editor—The first aid manual of one of the large Pacific Coast companies is being remodeled and I need specific and exact information from sources who should best know about the treatment of certain conditions. Would you be so kind as to answer briefly the following questions for me? What is the best antiseptic first aid treatment for minor wounds and abrasions for which a physician's services are not ordinarily required? What is the best first aid antiseptic for severe cuts and lacerations before a physician's services can be obtained? Is tincture of iodine a superior or inferior antiseptic when used in these conditions? Why? What do you consider to be the best antiseptic to be used under the conditions mentioned? Why? Would a thorough cleansing of the wound with soap and water by the man on the job be considered as sufficient or superior precaution against infection without the added use of an antiseptic? You may feel that these questions somewhat overlap, therefore you may rather feel that you want to answer them all in one group rather than under separate headings. In any case I would appreciate your opinion. Would you also give me references—either books, articles or men, which or whom I may consult concerning the foregoing?  
L McDonough Gould M D Seattle

ANSWER—These queries can be condensed into two fundamentally important questions, neither of which can be answered simply or with any degree of finality.

First, In the treatment of minor injuries what disinfectants are best? Unfortunately, no method has yet been discovered which measures directly and quantitatively the bacteriologic effects of disinfectants in wounds. Much attention has been devoted to the phenol coefficient and similar in vitro tests of iodine, mercurials and other antiseptic agents. For a valuable summary of these studies reference may be made to McCulloch's *Disinfection and Sterilization* (Philadelphia, Lea & Febiger, 1936). Phenol coefficient tests give most of the mercurials high ratings because they measure bacteriostatic rather than bactericidal power, and even minute amounts of these compounds in cultures prevent the growth of test organisms. If, however, the phenol coefficient test and other standard in vitro tests are so modified by dilutions or by the employment of neutralizing agents as to eliminate the factor of bacteriostasis, very different results will be obtained. By such tests Geppert (*Berl Klin Wchnschr* 26, 789, 819, 1889), Shuppen (*Bull* 198, U S Dept Agr 1930), Meleney and Chatfield (*Surg Gynec & Obst* 52, 430, 1931), Brewer (*THE JOURNAL*, May 20, 1939, p 2009 and personal communication) and others have demonstrated conclusively that the more commonly used organic mercurial compounds, including those mentioned in the query, are relatively feeble germicides. Mercurials as a class are unsurpassed in bacteriostatic power, and it might be supposed that they would for this reason have a beneficial effect in wounds. It must be remembered, however, that skin, sweat, blood and wound secretions contain sulfides and perhaps other reducing agents which have more or less neutralizing effects on all mercurials. The whole question is much confused at present. All that can be said with certainty is that mercurials are far less antibacterial when used on skin and in wounds than the standard in vitro tests might lead one to suppose that the phenol coefficient values of mercurials are not a reliable index of their disinfectant value under conditions of clinical use and that it is not possible at this time to say definitely which of the mercurial compounds is best. Price's quantitative tests of skin disinfection (*THE JOURNAL* Nov 26, 1938, p 1993) seems to show that tincture of iodine is superior to mercurochrome for this purpose, nevertheless,

iodine should not be used in wounds except possibly as a preliminary to debridement.

Second, What first aid treatment should be given traumatic wounds? Fresh wounds should be visualized as containing relatively few bacteria. What germs are present are apt to be concentrated in spots, here and there. For the first four or eight hours an undisturbed wound may be expected to show little change in character, at the end of that time secretions appear, and if any bacteria are present they may be spread by the secretions to all parts of the wound, where they proceed to multiply rapidly and invade the adjacent tissues to a greater or lesser extent. Thus a relatively painless, dry lesion with localized bacterial implants is transformed into a painful, discharging, generally infected one. If a wound is seen during the first few hours, every effort should be made to avoid the second stage just described.

The important principles in the treatment of fresh wounds are to prevent entrance of additional bacteria from without, to remove foreign bodies and devitalized tissue, to prevent if possible the spread of infection from localized areas to the rest of the wound, and to do nothing that will lessen the normal antibacterial powers of body tissues. Many time honored methods of wound treatment violate these fundamental principles and do more harm than good. Washing a wound with water or some weak antiseptic solution in a first aid station, and attempts to wash the surrounding skin with soap, are almost sure to introduce many new bacteria, and the entire wound may thus become seeded with infectious organisms. Flushing a wound with alcohol, iodine or any of the mercurial solutions rarely accomplishes the purposes of disinfection and prevention of infection, instead, the infection already present is thereby spread into previously sterile parts of the wound, the local tissues are injured by the chemical, and the natural defenses of the body are reduced. The only dependable means of disinfecting a wound rapidly is by thorough debridement. The great majority of fresh lacerations will heal with primary closure and rest, provided no foreign or devitalized material is present, and provided the tissues have not been damaged by ill advised treatment with disinfectants. The tissues, if given a chance, are usually capable of taking care of any infection that may be present. Body defenses are best increased by rest, elevation of a dependent part, giving of tetanus antitoxin and the administration of a sulfonamide drug when that is indicated.

The following specific methods of treatment are to be recommended. Fresh, clean scratches, abrasions and excoriations, involving only the superficial layers of skin, may be painted with a mercurial. Aqueous solutions are less painful than alcoholic and probably are just as good. A crust quickly forms which seals the lesion off, preventing further contamination, and under the crust healing usually takes place without evidence of infection. If dirt or grease has been ground into the skin, it must first be removed, with a sterile instrument if possible, but by washing if necessary. So-called soap substitutes may be useful for this purpose, since they are efficient detergents and do not cause pain. A satisfactory method of dressing these wounds is to powder them with sterile sulfanilamide and then cover them with sterile dry gauze. Fresh lacerations of a minor nature which do not require treatment by a physician usually do well if they are merely covered with a sterile unmedicated gauze pad, over which a dressing is applied with gentle pressure. All puncture wounds should be treated in the same way at the first aid station. In case of severe lacerations or avulsed wounds control of hemorrhage is the first consideration. This should be done by tourniquet if possible. If bleeding is not an important feature, or after it has been stopped, the wound should be simply covered with a sterile dressing pending the arrival of a physician. The use of iodine or mercurials in such wounds is to be discouraged or even forbidden. Recent experience with war wounds suggests, however, that sterile sulfanilamide powder in these wounds does relatively little damage to the tissues, although it inhibits the development and spread of infection. As a result the second stage of wound infection is delayed, subsequent treatment by the surgeon, whether simple suture or debridement, is facilitated and the chances of obtaining a primary closure of the wound are increased. Sterile sulfanilamide powder conveniently prepared in sterile paper envelopes for emergency use is or soon will be available.

PROPERTY OF THE

SEASONAL VARIATION IN DIABETES MELLITUS,  
CORRELATION OF BLOOD PHOSPHORUS  
AND BLOOD SUGAR

To the Editor—Will you kindly send me any information you have about (1) the seasonal variation in diabetes mellitus and (2) the correlation of blood phosphorus and blood sugar? Please cite references  
John F Kenney, M D, Pawtucket, R I

ANSWER—1 Dr Herbert L Lombard, director, Division of Adult Hygiene of the Massachusetts Department of Public Health, points out that in 1937 the deaths from diabetes during December and January to May inclusive numbered 16,926 and during June to November inclusive 13,661, thus showing a preponderance in the winter months For comparison he computed deaths from cancer proportional to diabetes totals, and the figures are 15,294 and 15,293 respectively for the two periods, thus emphasizing the significance of the preponderance of diabetes deaths in the colder section of the year Dr Lombard's table follows

| Month     | Diabetes Deaths,<br>United States,<br>1937 | Cancer Deaths, 1937,<br>Proportioned to<br>Diabetes Totals |
|-----------|--|--|
| December  | 2,846                                      | 2,624  |
| January   | 3,330                                      | 2,638  |
| February  | 2,859                                      | 2,305  |
| March     | 2,837                                      | 2,625  |
| April     | 2,598                                      | 2,514  |
| May       | 2,460                                      | 2,588  |
| Totals    | 16,926                                     | 15,294   |
| June      | 2,202                                      | 2,488  |
| July      | 2,261                                      | 2,610  |
| August    | 2,131                                      | 2,596  |
| September | 2,217                                      | 2,464  |
| October   | 2,411                                      | 2,628  |
| November  | 2,439                                      | 2,507  |
| Totals    | 13,661                                     | 15,293   |

Combining the data as done by Dr Lombard for December to May inclusive for comparison with June to November inclusive, the results are

|                  | Indefinite | Gradual | Rapid | Sudden | Totals |
|------------------|------------|---------|-------|--------|--------|
| December to May  | 270        | 347     | 80    | 91     | 788    |
| June to November | 267        | 336     | 89    | 91     | 783    |

But here is shown no preponderance in the winter months, It would seem, therefore, that at present there is no evidence of a seasonal relation of the onset of diabetes, and such is what one would expect from the hereditary and constitutional character of the disease

2 The correlation of blood phosphorus and blood sugar is not a simple one For example, in normal animals the whole or serum phosphate falls when dextrose or epinephrine (which tend to raise the blood sugar) or insulin (which lowers the blood sugar) is administered There is an increase in the hexose monophosphate content of skeletal muscle after insulin and epinephrine injections The whole problem has recently been reviewed by Soskin, Levine and Hechter (*Am J Physiol* 134 40 [Aug] 1941), whose article should be consulted for other references

Soskin and his associates conclude that the fall in blood inorganic phosphate is due to insulin, it is not reflected in a change in the total phosphate content of the blood and they believe that it is probably due to an esterification of the inorganic phosphate outside the muscle The rise in the hexose monophosphate content of muscle is due to epinephrine and results from the breakdown of muscle glycogen "The usual observation of phosphate changes in both blood and muscle after the administration of either insulin or epinephrine to the intact normal animal is due to the reflex evocation of the secretion of one gland by the effects of the hormone of the other gland"

For other references and a general discussion of the subject, see also Jensen, H F *Insulin, Its Chemistry and Physiology*, New York, Commonwealth Fund, 1938, pages 143-145

The relative distribution of diabetic deaths in South America, Australia and New Zealand would be of value in drawing conclusions about seasonal influenza

As for onset, figures as a rule mean little, because the date of onset of diabetes is rarely determined with accuracy Joslin statistics place onset as indefinite in 86 per cent of adults and 35 per cent of children, gradual (within two months to one week) in 94 per cent of adults and 44 per cent of children, rapid (within the course of six days) in 27 per cent of adults and 3 per cent of children and sudden (in the course of one day) in 19 per cent of adults and 3 per cent of children These figures are based on a study of 1,009 adults and 489 children Obviously, data concerning adults are of little value, and even for children data in the indefinite and gradual groups would not carry much weight However, with children when the types are rapid and sudden, the months of onset deserve attention All the cases of children with diabetes in Joslin's clinic have been classified in the four groups of indefinite, gradual, rapid and sudden by months in the following table The term unknown refers to cases in which the type of onset is not definitely recorded, but in which a guess was made at the month

| Month     | Indefinite | Gradual | Rapid | Sudden | Unknown | Totals |
|-----------|------------|---------|-------|--------|---------|--------|
| January   | 93         | 81      | 16    | 15     | 5       | 210    |
| February  | 34         | 58      | 13    | 18     | 7       | 130    |
| March     | 44         | 50      | 16    | 12     | 6       | 128    |
| April     | 32         | 40      | 11    | 15     | 8       | 106    |
| May       | 24         | 48      | 10    | 10     | 8       | 100    |
| June      | 61         | 50      | 18    | 8      | 10      | 147    |
| July      | 48         | 60      | 18    | 10     | 8       | 144    |
| August    | 35         | 52      | 9     | 15     | 11      | 122    |
| September | 54         | 68      | 15    | 20     | 14      | 171    |
| October   | 27         | 51      | 15    | 15     | 5       | 113    |
| November  | 42         | 55      | 14    | 21     | 11      | 145    |
| December  | 43         | 70      | 14    | 21     | 12      | 160    |
| Totals    | 537        | 683     | 169   | 182    | 100     | 1,671  |

The largest number of cases in the indefinite and gradual classes occur in January This can be attributed to the psychological tendency, when in doubt, of placing cases in January of the same year when seen rather than in the preceding year

TOTAL ALOPECIA

To the Editor—A woman aged 40 had alopecia areata eight years ago which was treated with various local applications, irradiations and the administration of thyroid and anterior pituitary extracts with no appreciable success In three years the alopecia became total and is now universal, there are also dryness of the skin and a decrease in sweating She has a baby 15 months old, from the fifth month of pregnancy to the third month of lactation the hair on the mother's head grew considerably but disappeared at the end of that period the baby was weaned in the second month What is known of the endocrine aspect? Would corpus luteum therapy have prospects of success?  
M D, Arizona

ANSWER—It is well known that pregnancy stimulates the pilosebaceous apparatus and intensifies pigmentation of the skin Thus it is relatively common to find patches of darkened skin on the face and especially in the folds at the axillas and groins during this period At the same time some lanugo hairs may become dark and bristly, so that more hairs seem to be present With the cessation of pregnancy the normal color of the skin and hair and other characteristics of the hair gradually return In this woman with total alopecia the added stimulus toward hair growth normally present during pregnancy was just sufficient to make new hair appear When the interim stimulus of pregnancy stopped, the hair growing impetus was insufficient and the initial alopecia succeeded

That the endocrine secretions determine in large measure the character of hair growth is acknowledged by all students Accumulated clinical observations and experimental studies show that length, thickness and pattern of hair growth are influenced by increases in endocrine materials due either to administration or to hypertrophy of appropriate glands Thus tumors of the adrenal glands may give rise to increased hair growth and pituitary known endocrine causes for increased hair growth are pituitary basophilism and arrhenoblastoma of the ovary

Knowledge of the influence of the endocrine secretions on hair growth is so fragmentary that one hesitates to make positive and unqualified statements Nevertheless, it can be seen that the corpus luteum activity during pregnancy in the early months probably did not account for the hair growth increase probably growth following the administration of progesterone has been recorded Relatively huge quantities would have to be administered to approximate the amount present in pregnancy Of course, corpus luteum secretion would not account for it

sive hair growth occurring in men. There is a better chance that increased adrenal gland activity accounts for the augmented hair growth in pregnancy.

There is no accepted successful endocrine therapy for alopecia areata. Bengtson claimed that he caused hair growth in alopecia totalis with pituitary products, but his results have not been corroborated. It would seem best to persist in the use of the best known nonendocrine methods even though they are not very effective at the age of 40 in alopecia totalis. Mild erythema doses of ultraviolet rays may be given over an extended period. The well tried use of irritants, such as phenol neutralized after an interval with alcohol, or applications of Cutler's solution are worth while if persisted in. The prognosis of the patient described is distinctly bad because of her age and the totality of the alopecia.

#### EFFECT OF ESTROGENS ON THE CLOSURE OF EPIPHYSES

To the Editor—A girl, aged 14, 5 feet 8 inches (172.7 cm) tall and weighing 130 pounds (59 Kg) has been menstruating regularly for two years. She is in good physical condition except for evidence of healed infantile rickets. Two years ago she was treated elsewhere for three months with large doses of estrogenic substance because with the onset of puberty she had become emotionally unstable. The instability had never been present before this time, and there is no sign remaining now. The girl is already taller than her mother. She has increased 2 inches (5 cm) in height in the last twelve months. Her father is unusually tall. She and her parents visualize that with the present rate of growth and the height at her present immature age, she will soon be pathologically tall. What is the status of endocrine therapy with regard to causing her to cease growing tall by hastening the closure of the epiphyses now? Do such methods have authoritative medical approval? Has enough of this kind of therapy been carried out for one to judge the results from what has happened to persons given such therapy? What adverse effects might such therapy reasonably be expected to have on the pituitary and gynecologic functions of the patient in the future?

George W. Williamson, M.D. Dundee, Mich.

ANSWER—The emotional instability which often marks adolescence is probably associated with changes in the endocrine balance involving increase of the production of estrogen. There is no well known evidence that treatment of young women with such instability with further doses of estrogen is of benefit and no evidence of what this may do for menstrual regularity and the rest of puberal development. It would be expected that such treatment would hasten the union of epiphyses, thereby limiting growth in height. This effect does not appear to have been important if present, since she is said to have grown 2 inches during the second year after the onset of menses. The first thing which should be done is to reassure the patient and her parents that, after menstruation has become regularly established, growth seldom continues long and that she almost certainly will not grow another 2 inches. For objective evidence of this matter, a roentgenogram of the femur may be obtained to decide whether the union of the proximal and distal epiphyses has been completed. If so, no significant gain in height will be expected. There is no therapy for hastening the union of epiphyses which is based on any extensive series of clinical cases, and the use of estrogens, androgens (in the male) or thyroid in either sex is based on theoretical considerations. It should therefore be employed only as experimental therapy under the observation of competent clinical observers. There is no reason why such therapy should have any lasting effect on the pituitary gland or its ability to control the activity of other endocrine organs.

#### REMOVAL OF ESCHAR IN DIABETIC WOMAN

To the Editor—A woman aged 65 with diabetes of long standing received a second degree burn on the sole of the foot from a hot water bottle. Tannic acid jelly and methylrosaniline solution were applied; this formed an eschar which is thick and difficult to remove. There is no active infection present. The diabetes is controlled by diet and insulin but the condition of the foot is very painful and any attempt to remove the eschar is unsuccessful. Can you give some advice as to the proper method of removing this thick and painful crust?

Jean Darche, M.D. Trois Rivières, Que.

ANSWER—A separation of the eschar in a burn of this type may be slow indeed. It is sometimes accelerated by a moist dressing of boric acid for part of the time and by the use of an ointment such as plain petrolatum for the rest of the time. Attempts at surgical removal are usually painful and destined to failure. Should, however, infection develop beneath the crust it is usually advisable to remove it surgically. After the crust is separated soap and water cleanliness plus an ointment such as plain white petrolatum or scarlet red ointment will accelerate the healing.

#### EPIDURAL INJECTION OF PROCAINE HYDROCHLORIDE FOR ACUTE SACROILIAC DISEASE AND SCIATIC NEURITIS

To the Editor—Symptoms of acute sacroiliac disease and sciatic "neuritis" could often be alleviated by an injection of 60 to 75 cc of 0.5 per cent procaine hydrochloride into the caudal canal. What would be the effect of such an injection on patients with low back pain secondary to displacement of the intervertebral disk in the third to fifth lumbar spaces? If no relief of symptoms is obtained in these cases from such an injection could this be used as a differential diagnostic test? I would appreciate your giving me references on the use of caudal injections of procaine for the relief of pains referred along the course of the sciatic nerve.

M.D., Alabama

ANSWER—Pain associated with so called acute sacroiliac disease and sciatic neuritis may be caused by muscle spasm. Such muscle spasm may be relieved by injections of procaine hydrochloride. Displacement of the intervertebral disk from the third to the fifth lumbar spine may be merely a bulging disk with the fibers of the annulus fibrosus or capsule of the disk still intact. Such bulging disks have been seen to relax or go back into the intervertebral space after a laminectomy has been performed. In these instances anesthesia relaxes the muscle spasm and compression forces acting on the disk are diminished, permitting the space to widen and the contour of the disk to retract to normal. Injection of procaine might be expected to be of some value in a case of this type. If the disk is actually ruptured and the nuclear material of the central portion of the disk has been extruded into the extradural space, bringing pressure against a nerve root or impinging a spinal nerve root against a pedicle, the injection of procaine could be of little value. For purposes of differentiating between these two kinds of disk lesions, procaine injections may be of some value. The technique of an epidural injection of procaine or of warm physiologic solution of sodium chloride has been described by Comroe in his textbook on arthritis, page 793. References dealing with this or related subjects include:

Bankart A. S. B. Painful Backs. *Post Grad M. J.* 9:166 (May) 1933.

Feiling Anthony. Hunterian Orations on Sciatica. Its Varieties and Treatment. *Brit. M. J.* 1:386 (March 10) 1928.

Gardner W. P. Sciatic Syndrome. *Minnesota Med.* 16:36 (Jan) 1933.

Miller L. F. Value of Epidural Block in Sciatica. *M. J. & Rec.* 135:221 (March 2) 1932.

Comroe Bernard J. Arthritis and Allied Conditions, ed. 2. Philadelphia: Lea & Febiger, 1941.

#### SURGICAL RELIEF OF DYSMENORRHEA

To the Editor—A married woman aged 37 who has never been pregnant has had severe dysmenorrhea since the onset of the menses with no relief until a year ago when I started using narcotics. The pain has always been intractable for one day when the flow was established; the pain would cease. For the past six months however the pain has been as severe (not constantly but spasmodically) for four or five days premenstrually as on the first day of flow. Premenstrual tension has been severe also. I have tried practically every remedy. Allergy has been ruled out; there is no ascertainable pelvic pathologic condition. Progesterone therapy has been ineffectual as have been a dilation and curettage and premenstrual therapy with sedatives, catharsis and cadene. About the only medication mentioned in the literature that I have not tried is testosterone propionate whose efficacy I feel has not been proved. I now intend to remove surgically the menstruating portion of the uterus. (The patient is reconciled to not having a child and fears a neurectomy from the dysmenorrhea.) Do you think this surgical treatment would completely eliminate the dysmenorrhea? Would there be premenstrual or menstrual symptoms at all, even though there would be no flow?

M.D., New York

ANSWER—A far simpler and at the same time conservative operation which yields excellent results in cases of intractable dysmenorrhea is presacral sympathectomy. It consists in the removal of that portion of the sympathetic nervous system which lies in the lower lumbar and upper sacral regions. The technique is as follows:

The patient should be placed in the Trendelenburg position after a midline incision has been made from umbilicus downward toward the pubis for about 10 to 12 cm. After the peritoneal cavity is opened, the small intestine is packed off and the sigmoid and rectum are pushed to the left side and held there with a wide retractor. The uterus, adnexa and bladder may then readily be inspected and palpated. The region of the lower two lumbar vertebrae and the upper part of the sacrum is exposed to view. In thin women it is possible in some cases to see the presacral nerve immediately beneath the peritoneum. Whether or not the nerve is seen the parietal peritoneum above and in the middle of the sacral promontory is elevated and incised with scissors. This incision is extended upward for about 4 or 5 cm and for a similar distance down along the sacrum. When the peritoneal flaps are pulled aside a fibrocellular layer of connective tissue will be exposed covered by more or less adipose tissue. This tissue can easily be separated from the peritoneum and the lower end of the aorta without



danger. It is in this layer that the presacral nerve lies. With an aneurysm needle the tissue is elevated at the bifurcation of the aorta, and the dissection is carried to a still higher level. As this is done it will be found that in most instances the tissue spreads out triangularly. The middle sacral artery should be pushed away from the nerve, but if it is injured it can readily be ligated. After the dissection is carried as high as it is desirable to go, the layer of nerve tissue is separated from the underlying tissue down past the sacral promontory into the pelvic cavity. In this region the plexus has divided into the two hypogastric nerves, hence it is necessary to dissect one of these nerves at a time. At least 2 or 3 cm of each hypogastric nerve should be resected in addition to 4 or more cm of the superior hypogastric and the intermesenteric plexuses. The fibrous tissue layer which contains the hypogastric nerves is much more resistant than that which contains the presacral nerve. As the dissection is carried out, nerve filaments projecting outward will be encountered. These should be followed as far laterally as possible before one cuts them. In most instances ganglions will be included in the resection. The dissected tissue should preferably be removed in one piece. It is not necessary or advisable to ligate the presacral nerve or the hypogastric nerves before cutting them, because the only blood vessels in intimate contact with them are insignificant vasa nervorum. Rarely is bleeding encountered which requires more than simple temporary pressure to check it. (Where the mesosigmoid is short, care must be exercised to avoid injury to the inferior mesenteric vessels.) After the nerve is resected, the posterior parietal peritoneum is sutured with plain catgut and the abdominal wall is closed in the customary way.

This operation does not interfere with pregnancy or labor. In fact, not only does it nearly always completely relieve menstrual pain but it also greatly diminishes the pains of labor.

If the menstruating portion of the uterus is completely removed, naturally there would be no further cyclic bleeding. If the entire corpus uteri is not removed, the dysmenorrhea may persist. Regardless of this, the surgical operation indicated in this case is not hysterectomy but pelvic sympathectomy.

#### OXYQUINOLINE, ECZEMA AND CUTICURA

To the Editor—I treated a man with a subacute eczema of the lower third and lateral aspect of the left leg with moist compresses, Lassar's paste, Unna's paste and the like with no improvement. He had never had eczema before, he felt fine, and the physical examination was negative. Finally I told him that I could do no more and advised consultation. Instead, he procured Cuticura Ointment, which promptly healed the eczema. Cuticura Ointment contains beeswax, petrolatum, oxyquinoline, unbleached paraffin and unbleached liquid petrolatum. What action has oxyquinoline? Was the secret of this cure merely the application of an emollient ointment?

M D., Nebraska

ANSWER—Oxyquinoline sulfate (Chinosol) is a neutral salt of oxyquinoline (8-hydroxyquinoline), from which the latter is readily liberated in a nascent condition. In the report of the Council on Pharmacy and Chemistry (*THE JOURNAL*, May 28, 1910, p 1801) it was shown that oxyquinoline is decidedly less efficient in its killing power on bacteria than is phenol, the 1 per cent solution is not certainly fatal to the bacillus of typhoid fever even after ninety minutes' exposure. On the other hand, its power of restraining development is far superior to that of phenol, one part in ten thousand is sufficient to prevent development of *Staphylococcus pyogenes* or the *Eberthella typhosa*. As an antiseptic in various conditions, as vaginitis, rhinitis and similar catarrhs, there is much evidence of its value. It has also been used successfully as an intestinal disinfectant, and Lorch (*Deutsche Aerzte Zeitung*, 1908, p 406) has even obtained favorable results in the treatment of Asiatic cholera. As a local application to mucous membranes, it may be used in strengths of from 1/500 to 1/2,000.

The only active ingredient in the ingredients listed as being contained in Cuticura Ointment is oxyquinoline, which is now being incorporated in some proprietary ointments for its germicidal and fungicidal effect. In the event the subacute eczema of this patient had been irritated by previous stimulating local applications or was the site of secondary infection, "the secret of cure" in this case could well be the bland character of the proprietary ointment plus the fact that it contained an agent (oxyquinoline) which is effective in combating infection. In view of the complex nature of the etiologic factors of eczema, e g local irritants and neurogenic causes, these may have been obviated coincidentally with the application of the proprietary ointment in this case. The factor of coincidence is an important one to be considered in all cases of dermatitis in which prompt healing occasionally occurs after the application of an unknown complex proprietary. It is factors such as these that lead patients to write glowing testimonials to the manufacturer.

Chinosol, the brand of oxyquinoline sulfate manufactured by the Chinosol Company (Parmele Pharmacal Company, distributor), formerly accepted by the Council on Pharmacy and Chemistry, was omitted from New and Nonofficial Remedies 1911 because unwarranted claims were made in the advertising.

#### RECONSTRUCTION OF CONTINUITY OF BILE DUCTS

To the Editor—I have a case in which a part of the common bile duct has completely sloughed out. At the first operation a stone was found at the junction of the hepatic and gallbladder ducts, with an emptying of the gallbladder. The stone and the gallbladder were removed and a T tube was placed in the common duct where the stone was removed. There was drainage for about eight weeks, the wound closed up and the patient felt fine for a month, when jaundice developed and an operation revealed another stone in the same location. The stone was removed and a T tube was reinserted. After the patient recovered from this, jaundice slowly developed again and at the third operation the duct had stenosed completely at its upper end by adhesions. A T tube was again sutured in, with the hope that it would granulate over, but the same process is being repeated now that the tube is being spontaneously pushed out. I have read somewhere about gelatin tubes being used for anastomosis of blood vessels. Where are such tubes available and would this be feasible in attempting to anastomose two ends of the common duct? Are silver, gold or glass tubes ever used for such purposes?

H J Van Duine, M D., Byron Center, Mich.

ANSWER—In plastic operations for the reconstruction of continuity between the ends of the bile ducts or between the extrahepatic bile ducts above a site of stricture and an opening made in the duodenum, absorbable tubes of any kind have no advantages over nonabsorbable tubes. In fact, the latter are preferable, because the longer they can be kept in position the better the chance will be not only for good anastomosis to result but also for the inflammatory reaction around the site of anastomosis to subside without too much formation of scar tissue to contract the anastomosis. The best nonabsorbable tubes are those made of rubber, because they are flexible and pass out of the anastomosis and through the gastrointestinal tract without the possibility of occurrence of pressure necrosis which might be the case if rigid tubes of metal or glass were used and became fixed at any point in the intestine.

If a rubber tube or catheter is used in anastomosing the two ends of the common bile duct, enough of it must extend beyond the sphincter of Oddi into the duodenum so that peristalsis will pull the tube out of the duct. If it does not pass the sphincter of Oddi the tube will remain in the duct, and, since it is a foreign body, bile pigment and cholesterol will be deposited in such a manner as to obstruct the lumen of the tube, and a large stony deposit will form around it, since it forms a nucleus for such deposition.

Studies of the results of the surgical treatment of stricture of the common bile duct indicate that the best chances for preventing recurrence of stricture occur in those cases in which there is a sufficient portion of normal duct above the stricture to enable the surgeon to anastomose it accurately to an opening made in the duodenum (hepaticoduodenostomy) and also in those cases in which the stricture is small in extent, can be excised and the ends of the duct can be approximated without tension. Results in such cases are satisfactory, provided there is not too much hepatic damage or infection.

#### References

- Walters, Waltman. Strictures and Injuries of Bile Ducts. A Study of Results of Operations in Eighty Cases, *THE JOURNAL*, July 15, 1909, p 209.  
Walters, Waltman, and Lewis, E B. Strictures of the Common Bile Ducts, *Proc. Inter State Proctograd M A North Amer*, 1939, p 319.

#### CHRONIC ASYMPTOMATIC SYPHILIS

To the Editor—A white unmarried man aged 20 was admitted to the hospital eight months ago because of tetanus. He was given tetanus antitoxin. A routine Wassermann and Kahn test was 2 plus. Three days after the serum was administered he suffered from severe serum sickness and arthritis. The Wassermann and Kahn tests taken about a month have shown 1 plus or 2 plus reactions during the past few months. There are no symptoms, signs or history of congenital or acquired syphilis. Can this be due to the tetanus antitoxin or should the patient be considered syphilitic and so treated, or should any other tests be performed?

A A Fisher, M D., Woodside, L I., N Y

ANSWER—While the possibility of biologic false positivity in Wassermann and Kahn reactions due to tetanus and disease cannot be denied, this is highly improbable in the fact that both tests have given repeatedly positive results. Under the conditions the possibility of chronic latent syphilis to be seriously considered. A complete examination of the spinal fluid is strongly advisable because nonspecific reactions do not occur as frequently as with serum. It might be noted that with some increase of protein, positive Wassermann and Kahn tests and positive colloidal gold reactions were observed, the results of which



virtually prove the presence of chronic asymptomatic syphilis. Otherwise, serum tests should be tried with three or four different laboratories employing complement fixation and flocculation tests. If all or the majority should give positive reactions there would be strong presumptive evidence of chronic latent syphilis. On the other hand, if the majority observed negative reactions, treatment for chronic syphilis could be omitted on the basis of supposedly nonspecific reactions. It is also advisable to employ the Kahn verification test, although its status in differentiating between falsely positive reactions and those due to latent syphilis cannot be defined at the present time.

#### TREATMENT OF A PATIENT IN THE ABSENCE OF SIGNS OF SYPHILIS BUT WITH POSITIVE SEROLOGIC TESTS

*To the Editor*—A white woman aged 21 came for a premarital serologic test on Aug 12, 1939. A Kahn test was positive. There had been a Kahn test in 1936 which was negative. She had a tuberculous peritonitis in 1933 but no other tuberculous lesion. There were no signs or symptoms of syphilis. The Kahn test was repeated on Aug 16, 1939 and was again positive. A spinal puncture was performed on Oct 20, 1939 and was entirely normal. On Aug 19, 1939 1 cc of bismuth in oil and 0.06 Gm of mapharsen were given and this was given for twelve doses then bismuth in oil only for eight doses and then both for ten doses until a total of seventy-one doses of each were given, at one week intervals until July 1940 when there was a rest period and then completion of treatment with 0.1 Gm of bismarsen in ten doses. She was given moderate oral doses of potassium iodide with the bismuth compound part of the time. The Kahn reactions were positive on the blood Aug 14 and Aug 16, 1939; negative on the spinal fluid Oct 22, 1939; positive on the blood, Jan 22, 1940, negative on the blood, June 29, 1940; positive, June 14, 1941 and positive Sept 13, Oct 18 and Dec 27, 1941. There are no signs or symptoms of syphilis and no history of any exposure or lesion. I felt that she had had adequate treatment. Should she have more treatment and if so what?

M D Michigan

*ANSWER*—If this young woman does have syphilis, she has had almost a sufficient amount of treatment. However, the evidence is by no means conclusive that she had syphilis, as the serologic reports in the inquiry suggest the possibility that they are of a biologically false positive type. It would seem advisable even now to take several samples of blood and to send them to different laboratories to be examined the same day in an effort to determine whether the reports coincide. If the serologic reports from the same sample of blood are conflicting, that is, some positive in varying strengths and some negative, it would then be advisable to continue with observation only. If, however, it should happen that the reports are all 4 plus, two courses of a bismuth compound, twelve injections each, given twice a year for approximately three years would be ample. If she should marry in the meantime and become pregnant, a complete course of treatment throughout the pregnancy would be necessary.

#### TETANUS PROPHYLAXIS

*To the Editor*—In a discussion among the physicians here there is disagreement as to whether tetanus antitoxin should be given in every case of skin laceration and brush burn or whether it should be given only in selective cases. I shall appreciate your letting me know whether members of the clinic would have any additional responsibility in this regard and also what is the general rule and safe legal procedure in administering the antitoxin with a general view of giving antitoxin in practically all lacerations, abrasions and puncture wounds.

M D Texas

*ANSWER*—Tetanus bacilli and spores are so widely distributed in nature that almost any wound may serve as port of their entry into the body. It is indeed true that in civil life wounds are only rarely followed by tetanus, but unfortunately it is not possible to tell beforehand whether tetanus will develop from a particular wound. Tetanus is a deadly disease. While tetanus antitoxin will prevent tetanus, it has little curative effect once tetanus is established. In view of the facts the physician on whom falls the duty to treat first a person who has been exposed to possible tetanus infection and intoxication through a wound cannot be exempt from blame if tetanus develops in case he did not inject antitoxin serum promptly. For prophylactic purposes an injection of 1,500 units is generally regarded as an adequate dose.

It is generally agreed that the average puncture and skin abrasion that does not occur in an area of farm soil or barnyard dirt should not receive tetanus antitoxin. One industrial surgeon has had thousands of cases in which no tetanus antitoxin has been administered and not a single case of tetanus developed. On the other hand, seriously injured persons with large compound fractures from any location should be immunized with both tetanus and gas antitoxin care being taken to give about double, or more of the prophylactic dose.

#### LAUGHING AND PETIT MAL

*To the Editor*—In *Queries and Minor Notes* in *The Journal* Jan 3, 1942 page 94 the case presented in *Laughing and Petit Mal* is one of classic narcolepsy with cataplexy. This condition is described in Best and Taylor *The Physiological Basis of Medical Practice* Baltimore William Wood & Co 1937 page 1394. The only abnormal observation in the case presented is the unconsciousness which never occurs in cataplexy. However, the extremely short period of unconsciousness mentioned may not be true unconsciousness.

Lawrence M Serra, M D, Baltimore

*To the Editor*—It appears most likely that the answer to the question in *Laughing and Petit Mal* has missed the correct diagnosis in the case presented. From the information given it appears most likely that the patient does not have the petit mal form of idiopathic epilepsy at all but rather is a victim of narcolepsy with cataplexy. Contrary to the answer administration of amphetamine or ephedrine is the proper treatment for the drowsiness (narcolepsy), but no treatment other than the voluntary control of laughter will be effective against the cataplectic seizures.

Paul C Bucy M D Chicago

Associate Professor of Neurology and Neurological Surgery University of Illinois College of Medicine

*COMMENT*—In answering the query it was assumed that the facts as given by the questioner were correct and that the patient did lose consciousness momentarily. If this is so, only a diagnosis of petit mal can be considered, for loss of consciousness would not occur in the other conditions under consideration. True, an attack of narcolepsy might confuse the observer; electroencephalographic tracings would aid in the differential diagnosis. Giving amphetamine or ephedrine is the proper treatment for narcolepsy. However, such a diagnosis cannot be made in view of the definite statement by the questioner that the patient did lose consciousness.—Ed

#### ALOPECIA FURFURACEA

*To the Editor*—A woman aged 35 with a diagnosis of alopecia furfuracea has good general health and no pulmonary circulatory or renal disease. The Wassermann reaction is negative. For several months she has had a condition of the scalp accompanied by a good deal of dandruff as indicated by the diagnosis. The local condition cleared up fairly satisfactorily with the use of a saturated solution of molecular sulfur and also with hypodermic medication with an arsenic preparation sodium cacodylate and with internal administration of vitamins. After the improvement of the condition of the scalp she has noticed that her hair continues to fall out profusely. I should like to know if there has been any definite progress made in the science of organotherapy or if there are specific vitamin substances administered hypodermically or orally that would possibly have a tendency to check this malady.

M D Massachusetts

*ANSWER*—Alopecia furfuracea usually involves the temporal and frontal regions first and is associated with branny desquamation of the corneous layer. It is a seborrheic disorder that usually attacks young adults and may persist for several years before the loss of hair is great enough to attract the patient's notice. The thinning process is gradual. Local therapy with stimulating hair lotions and the use of sulfur and salicylic acid are indicated, together with careful hygiene of the scalp. Low systemic tone or anemia must also be treated as indicated. In a recent article (Waisman, Morris, and Kepler, E J *Alopecia Areata. An Appraisal of Endocrine Factors in Its Causation* *THE JOURNAL*, May 3, 1941, p 2004) the following statement was made: "It is our opinion that endocrine treatment, at least in the present state of its development, is ineffectual." The use of vitamins in alopecia is still in its experimental stage and its present status is inconclusive.

#### INTRADERMAL INJECTIONS OF TYPHOID AND DIPHTHERIA VACCINES

*To the Editor*—Please inform me whether the intradermal injection of typhoid and diphtheria vaccines is as effective as the subcutaneous injection for immunization. What doses do you advise for intradermal immunization?

E Fernandez Soto M D, Havana, Cuba

*ANSWER*—The indications are that the intradermal injection of typhoid vaccine and of alum precipitated diphtheria toxoid is just as effective as the subcutaneous. Great care must be used to deposit the vaccine or toxoid intradermally in order to obtain the maximum immunologic response. For intradermal injection of standard typhoid vaccine the dose is one-tenth the dose for subcutaneous injection. This means that 0.1, 0.15 and 0.2 cc. are injected, with an interval of seven days or so between the injections. The same dose is used for children. The U S Army gives one injection of 0.1 cc. of typhoid vaccine intradermally in routine reimmunizations (two years or more after the first immunization). The intradermal dose of alum precipitated diphtheria toxoid is 0.1 cc. A second injection of the same quantity in about three weeks may be advisable.

## PATCH TEST FOR ANTIMONY

To the Editor—I have not had any experience with patch tests for dermatitis. I would appreciate your advice concerning the use of patch tests for workmen for the Texas Mining and Smelting Company. This company makes antimony—the only smelter in North America and probably the only one outside of China. I have had several cases of dermatitis resulting from handling antimony. How would you prepare the test?

J. A. Simpson, M.D., Laredo, Texas

ANSWER—The handling of antimony and its compounds is an occasional cause for contact dermatitis. All workmen who are exposed and all new applicants who will be exposed should be tested by the patch or contact method. A piece of cotton or gauze about  $\frac{1}{2}$  to 1 inch square is dipped in an aqueous solution of 2 per cent antimony chloride and is applied to a clear spot on the arm or back. The dressing is protected by a piece of cellophane and held by two strips of adhesive tape. The patch is removed at the end of forty-eight hours (sooner if well defined dermatitis results). A positive test is indicated by a redness or vesiculation or both at the site of the contact of the skin and the antimony chloride. As a control test, similar procedures should be carried out on the arms of the doctor and nurse, who are presumably not especially exposed to the metal. If the control tests are positive the solution is too strong, but Sulzberger (Dermatologic Allergy, Springfield, Ill., C. C. Thomas, 1940, p. 442), states that 2 per cent antimony chloride solution is the correct strength and that it is not a primary irritant, in other words, it will not cause dermatitis to all but only to those who happen to be allergic to it.

## SODIUM CACODYLATE FOR VINCENT'S ANGINA

To the Editor—In The Journal, March 14, 1942, page 936, there is an article on the use of sodium cacodylate. I should like to know if sodium cacodylate is indicated in the treatment of Vincent's angina either for treatment or for prevention. I have been using sodium cacodylate for many years before a tonsil operation and after. Several of my doctor friends also use this. We have found that it has cut down postoperative soreness and hemorrhages to a high degree. I should like to know the indications for use and results in Vincent's infection. I like this product for use in this manner and I am afraid that the manufacturers will discontinue making this in ampule form after seeing the article referred to.

D. H. Anthony, M.D., Memphis, Tenn.

ANSWER—Sodium cacodylate along with other arsenicals is still rather widely employed in the treatment of Vincent's angina, although in recent years its value has been discounted in favor of active local therapy. It is not likely that the manufacture of this preparation will be discontinued as long as there continues to be a demand for this form of arsenic for injection. The Council on Pharmacy and Chemistry has voted to omit this type of product from N. N. R. because of the lack of evidence to justify its continued use.

## FENESTRATION OPERATION FOR OTOSCLEROSIS

To the Editor—I have a patient, aged 30, with otosclerosis. During the past two years his hearing has become worse. He has heard about the operation for otosclerosis which Lempert has popularized recently. Could you give me further information as to its value?

M.D., New York

ANSWER—The fenestration operation for otosclerosis is being done by a number of otologists in this country with encouraging results. The published reports are summarized in the February 1942 issue of the *Archives of Otolaryngology*. Before considering the operation, the patient must have a good nerve of hearing as determined by the bone conduction tests. He must understand that the operation is still new. Late results ten or twenty years after are not yet known. It is not always successful, and there is the possibility that the hearing in the ear that is operated on may be made worse. In competent hands there is a better than 50 per cent chance of a lasting substantial hearing improvement in suitable cases, judging by the published reports.

## NODULES OF RHEUMATOID ARTHRITIS

To the Editor—Please discuss the pathogenesis, histology and clinical significance of the fibrous skin nodules which are found associated with chronic arthritis. How would you differentiate them clinically and histologically from the juxta-articular nodules of late syphilis?

M.D., New York

ANSWER—The subcutaneous nodules of rheumatoid arthritis are found in about 20 per cent of the cases and constitute a pathognomonic lesion of this disease discernible on physical examination. They are most commonly found over the olecranon or distal to it. Other sites are the tendons of the fingers, knees, feet, wrists and ankles, the base of the skull and the area over the spinous processes. They are occasionally found on the thoracic wall or over the scapulas. One cannot differentiate them clinically from the juxta-articular nodules of syphilis. However, they can be distinguished from one another on micro-

scopic examination. The nodules of rheumatoid arthritis have three reasonably well defined merging zonal areas: (a) the central zone, or zone of necrosis; (b) the intermediate zone, comprising proliferating cellular tissue, the cells of which may or may not be regularly oriented (palisading); and (c) the peripheral zone, consisting of the inflamed tissues in which the nodule develops. Exudation is rarely a prominent feature of these lesions. Aschoff-like nodules are rarely if ever seen. The pathogenesis and cause of these lesions remain unknown.

## ROENTGENOGRAPHIC DETECTION OF A SWALLOWED ERASER

To the Editor—A boy aged 8 years accidentally swallowed an eraser on Sept. 25, 1941. He was placed on a soft diet. The parents were instructed to watch the stools. On the following day a flat roentgenogram demonstrated a definite shadow 1.5 by 4.5 cm. on the right side in the region of the ileocecal valve. He still had no complaints, temperature, respiration and pulse being within normal limits. The third roentgenogram was taken on the following day and of this time, no trace of a shadow could be found. On the following day two more roentgenograms were taken, one high enough to include the diaphragm and the lower parts of the lungs. The second was low enough to include the upper third of the femurs. No shadow was found corresponding to the first picture. Why did we get a shadow the first day, while the remaining three plates failed to find it? The stools have all been examined carefully even up to date.

M.D., Missouri

ANSWER—This query cannot be answered satisfactorily because common school erasers vary considerably in the amount of mineral content. They seldom contain enough metallic salts to give high x-ray contrasts when lying in the stomach or bowel. Pure rubber defies detection, whereas red rubber tubing is easily visible because of the mineral oxides used in manufacture. In dealing with a common eraser swallowed by a child it might be visualized in a film of critical quality, whereas in one less critical it could be entirely missed. It could be further obscured by overlap of osseous structures.

## SMALL BREASTS

To the Editor—A woman aged 20 complains of lack of bust development. She weighs 107 pounds (48.5 Kg.), is 5 feet 2 inches (157.5 cm.) tall and menstruates regularly. One sister older and one younger have the same degree of development. Her breasts are rather small.

M.D., Colorado

ANSWER—It is inadvisable to attempt to stimulate the development of the breasts in this case. The only conditions under which breast growth may be stimulated are those in which the ovaries are not functioning, as in sexual infantilism or in amenorrhea due to underfunctioning of the ovaries. In these states the application of estrogens, either locally in the form of ointment or by other routes, will cause an increase in the size of the breast while treatment is continued. Regression occurs following cessation of treatment. In women who are menstruating regularly estrogen therapy is of doubtful value in bust development and may easily derange the regularity of the menstrual cycles. In such women apparently the breast tissue is scanty.

## DUSTING POWDER FOR TRICHOPHYTOSIS

To the Editor—A paper by D. T. Prehn in The Journal, Aug. 20, 1933, included a formula (salicylic acid 5 Gm., menthol 2 Gm., camphor 8 Gm., boric acid 50 Gm. and starch 35 Gm.) for a powder for use in mycotic infections of the skin. I have used this powder in some cases but find it difficult to use because it is hygroscopic. In the climate of Hawaii the powder becomes so moist that it forms a paste. I wish to know whether some modification of this powder might render it more satisfactory for general use or if some other more satisfactory formula for a good powder for use in the treatment of trichophytosis is known.

M.D., District of Columbia

ANSWER—In the preparation of the formula of Prehn, it is essential that the menthol and camphor are mixed separately so that no liquefaction takes place, and that the starch is very dry and moisture free. A satisfactory formula for a good powder for use in the treatment of trichophytosis is: thiosulfate 6 Gm. and boric acid 24 Gm.

## ULTRAVIOLET BURNS OF THE EYE

To the Editor—In Queries and Minor Notes (The Journal, April 4, 1943) I note with interest the query of Dr. Jonas S. Friedenwald concerning ultraviolet burns of the eye. For the past several months I have been treating a treatment in cases of this type with a great deal of success. The treatment is not original with me, but I am not able to recall the source from which it was obtained. The treatment is as follows: One or two drops of 1 per cent pontocaine is instilled in each eye after which the patient sits before an infra-red lamp at a distance of approximately 18 inches and gazes steadily at the lamp for a period of twenty minutes. This is sufficient for practically all such "flesh" cases, and in some cases which relief is not obtained the process is repeated in two hours. I have successfully employed this treatment in several hundred cases of ultraviolet workers and have not seen a case in which it did not work.

Lionel A. Jacoby, M.D., Occident, Calif.

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## COCCIDIOIDAL GRANULOMA (COCCIDIOIDOMYCOSIS)

ITS INCIDENCE IN MAN AND ANIMALS AND  
ITS DIAGNOSIS IN ANIMALS

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DENVER

The increasing importance of coccidioidal infection is apparent to workers in medical science, judging from available literature on the subject. Since the first discovery of human coccidioidal granuloma in South America by Wernicke (1892),<sup>1</sup> and in California by Rixford (1894)<sup>2</sup> and Giltner's<sup>3</sup> discovery of the disease in California cattle, the general conception of the malady has changed materially.

Our purpose in this paper is to correlate available data on the nature, incidence and geographic distribution of coccidioidal granuloma, designated "coccidioidomycosis" by Dickson,<sup>4</sup> in both man and animals. A conception of the human phase of the disease is quite incomplete without coordinating the physician's researches on human beings with the veterinarian's investigations on lower animals. To the physician, veterinarian or other scientist interested in coccidioidal infection a wealth of literature is available. A monograph was prepared for the California State Board of Health<sup>5</sup> in which are cited one hundred and seventy-two references.

### THE DISEASE IN MAN

A highly fatal disease in man known as coccidioidal granuloma was recognized for many years in central California, while in the same locality a nonfatal influenza-like disease existed also and was known locally as "valley fever," "desert fever," "desert rheumatism," or "San Joaquin Valley fever." The relationship of these two diseases was not recognized until 1936, when the work of Dickson and Gifford<sup>6</sup> showed that the two maladies were caused by the same organism, *Coccidioides immitis*.

The discussion of coccidioidal infection in man should be considered from two points of view: first the primary, acute, uncomplicated type with low mortality, known as "valley fever," and, second, the more commonly known, highly fatal chronic form, coccidioidal granuloma.

### VALLEY FEVER

In its initial stage "valley fever" resembles influenza and is followed in a few days by the eruptive phase of erythema nodosum in about 5 per cent of the cases, and less frequently by erythema multiforme. The cutaneous lesions are often associated with arthritis, sore throat and conjunctivitis. The disease may be confused with pneumonia, tuberculosis, pleurisy, smallpox, measles, tularemia, syphilis and typhoid and rarely with poliomyelitis. All ages of both sexes are susceptible, fortunately, however, the mortality is negligible.

Smith<sup>6</sup> reports that thousands of migratory workers in California have acquired coccidioides infection during recent years, according to clinical observations, laboratory examinations and coccidioidin skin tests. Newcomers appear more susceptible to the benign infection than do native or old time residents, who may have acquired a degree of immunity to the disease through previous coccidioidal infection. Smith also states that an investigation was made of 432 patients with "San Joaquin fever" in Kern and Tulare counties during the seventeen months beginning December 1937. All recovered without sequelae.

### COCCIDIOIDAL GRANULOMA

As commonly known, coccidioidal granuloma in human beings is a chronic, progressive, highly fatal fungous disease affecting the lungs, skin, lymph nodes, bones, meninges, thoracic viscera and other body tissues. Kessel<sup>7</sup> says that 70 per cent of the cases occurring in the Los Angeles County Hospital indicate that the initial lesion is in the lung. In contrast to the wide distribution of the lesions observed in man, the infection in cattle has thus far been confined to the thoracic lymph nodes and the lungs. Coccidioidomycosis in man is a close mimic of tuberculosis and frequently may be mistaken for that disease, however, the exclusion of acid-fast organisms and the recovery of the fungus from the sputum or body tissues should verify the diagnosis. Microscopic examination often discloses otherwise unsuspected cases. Dickson says that frequently the diagnosis is tuberculosis clinically, but on gross examination of sectioned tissues the true diagnosis is found to be coccidioidal granuloma.

6. Smith, C. E. Epidemiology of Acute Coccidioidomycosis with Erythema Nodosum (San Joaquin or Valley Fever). *Am. J. Pub. Health* 30: 600-611 (June) 1940.  
Kessel, J. F. Recent Observations on Coccidioides Infection. *Am. J. Trop. Med.* 21: 447 (May) 1941.

From the Branch Pathological Laboratory, Bureau of Animal Industry, U. S. Department of Agriculture.

1. Wernicke, Robert. Ueber Einen Protozoenbefund Bei Mycois Fungoides (?) Centralblatt f. Bakt. 12: 859-861, 1892.

2. Rixford, Emmet. Early History of Coccidioidal Granuloma in California. *Spec. Bull.* 57, issued by the California Dept. Pub. Health June 1931, pp. 58.

3. Giltner, L. T. Occurrence of Coccidioidal Granuloma (Oidiomycosis) in Cattle. *J. Agric. Research* 14: 531-541 (Sept. 16) 1918.

4. Dickson, E. C. Coccidioides Infection. Part I. *Arch. Int. Med.* 59: 10, 9-1044 (June) 1937.

5. Dickson, E. C. Primary Coccidioidomycosis. The Initial Acute Infection Which Results in Coccidioidal Granuloma. *Am. Rev. Tuberc.* 78: 272-279 (Dec.) 1938. Dickson, E. C. and Gifford, M. A. Coccidioides Infection (Coccidioidomycosis). II. The Primary Type of Infection. *Arch. Int. Med.* 62: 551-571 (Nov.) 1938. Dickson, E. C. Coccidioidomycosis. The Preliminary Acute Infection with Fungus Coccidioides. *J. A. M. A.* 111: 1362-1365 (Oct. 8) 1938.

Involvement of the joints in both benign and chronic types of coccidioidomycosis is reported by Rosenberg and his co-workers<sup>8</sup> at the Mayo Clinic. While the joint involvement in these cases of mild involvement usually subsided, in the serious phase of the disease the affected joints often resulted in generalized fatal infection.

#### MODE OF TRANSMISSION

There is at present no evidence that man to man, animal to man or animal to animal infection occurs under natural conditions yet the disease may be readily transmitted experimentally from infected tissues to laboratory animals. The danger arising from handling diseased tissues or coccidioides cultures should be recognized.

Pulmonary infection may be acquired by inhalation of the vegetative phase of dust laden chlamydospores.

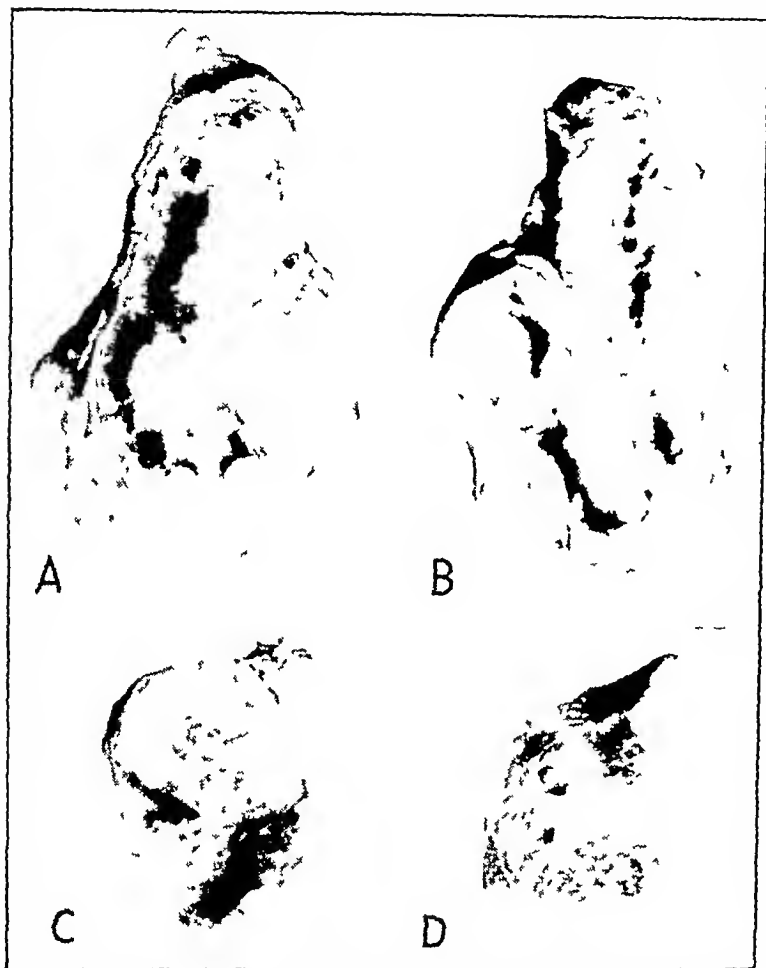


Fig. 1—A, B, C, involved lymph nodes showing the variation in size and location of the granulomatous areas. Note the distinct encapsulated foci in B, also the striking resemblance to tuberculosis lesions. D, granulomatous areas in the lung containing a number of encapsulated foci. Somewhat reduced from photographs with a magnification of  $1\frac{1}{2}$  diameters.

This mode of infection was verified accidentally by a laboratory technician who inhaled sporulating cultures. The vegetative form of the fungus is believed to exist more frequently during rainy periods in arid regions where the winters are relatively warm and the summers are hot, dry and dusty. By special mediums and laboratory technique, Stewart and Meyer<sup>9</sup> recovered the coccidioides spores from the soil on a California ranch on which human infections had been diagnosed. Reporting an epidemic of coccidioid infection among a party of students and faculty members of Stanford

University, Davis and his associates<sup>10</sup> comment regarding the likely source of infection through inhaling spore-laden dust during the collection of specimens in the vicinity of a rattlesnake hole. Later examination of the soil from the same area revealed the presence of *Coccidioides immitis*. Abrasion of the skin may be a route of infection, and in rare instances the disease may be acquired by the gastrointestinal tract.

#### GEOGRAPHIC DISTRIBUTION

In 1931 Beck<sup>11</sup> reported 286 human cases of chronic coccidioid granuloma. Of these, 254 occurred in California and 16 in other states—Arizona, Colorado, Illinois, Kansas, Missouri, Nebraska, New Mexico, Pennsylvania, South Carolina, Texas and Washington. 14 cases occurred in South America and 2 in Italy. Other localities reported by Miller<sup>12</sup> in 1936 are Alaska, Tennessee, Louisiana and Hawaii. Evans and Ball<sup>13</sup> report 1 human case in Old Mexico. Kessel<sup>7</sup> says

Between the years of 1893 and 1939, 660 cases of coccidioidosis have been reported to the California State Department of Public Health. The actual geographical origin of the infections is not known in all cases but the majority of the reported cases originate in the southern portion of the San Joaquin Valley. Of 100 cases of coccidioid granuloma observed in the Los Angeles County Hospital in recent years, 51 probably originated in the San Joaquin Valley, 31 in southern California and 8 in Arizona, New Mexico or Texas. Dr. J. D. Aronson of the U. S. Office of Indian Affairs recently tested 140 Indian children on the Pima Reservation near Phoenix, Ariz., with coccidioidin from our laboratory and reports that 90 per cent of them developed a positive reaction.

A new area of primary coccidioid infection in the vicinity of Camp Roberts, California, is reported by Shelton,<sup>14</sup> who found 14 infected soldiers from among 736 recruits recently stationed at that camp. These infected men gave a negative reaction to the coccidioidin skin test on arrival. However, after three months' stay their reaction to the test became positive.

In Texas, Smith<sup>15</sup> reports a case of coccidioid infection occurring in a man living in the vicinity of El Paso who had never been in California. From Texas, also, Caldwell<sup>16</sup> reports 3 proved cases from the Dallas area and 3 more human infections since the publication of his article. At San Angelo, Texas, Schulze<sup>17</sup> reports that 18 per cent of 100 private patients reacted to the coccidioidin skin test. All these reactors were ranch men none of whom had ever visited the San Joaquin Valley. Three cases of the acute "valley fever" type infection and 9 cases of the granulomatous disease arising in western Texas are mentioned by Schulze<sup>17</sup> having been reported by other observers.

In the vicinity of Phoenix, Ariz., Phillips<sup>18</sup> states that he found 10 per cent of the older residents of the

10 Davis, Burt L., Jr., Smith, Ruth Tangier and Smith, C. H. A. Epidemic of Coccidioid Infection (Coccidioidomycosis). *J. A. M. A.* 118: 1182-1186 (April 4) 1942.

11 Beck, M. D., Traub, J. and Harrington, F. S. C. A. Granuloma. *J. Am. Vet. M. A.* 78: 490-499 (April) 1931.

12 Miller, H. E. Coccidioid Granuloma. *Weekly Bulletin C. State Dept. Pub. Health*, Jan. 11, 1936.

13 Evans, Newton and Ball, H. A. Coccidioid Granuloma. *Ann. N. Y. Acad. Sci.* 15: 1891-1895 (Dec. 14) 1937.

14 Shelton, R. M. A Survey of Coccidioidomycosis in California. *J. A. M. A.* 118: 1186-1190 (April 4) 1942.

15 Smith, L. M. Coccidioid Granuloma. *Report of a Case Occurring in Western Texas*. *Arch. Dermat. & Syph.* 29: 105-107 (1933).

16 Caldwell, G. T. Coccidioid Granuloma. *A. I. G. J.* 1: 1-7 (1933). Cases Recognized in Texas. *Tex. J. Med.* 28: 327-331 (1933). Coccidioid Granuloma. Personal communication to the author.

17 Schulze, V. L. Personal communication to the author. Angelo, Texas, March 1942.

18 Phillips, E. W. Presence of Coccidioid Infection in Southern Arizona. *South. Med. J.* 27: 48-51 (Feb.) 1939.

8 Rosenberg, E. T., Dockerly, M. B., and Meyerding, H. W. Coccidioid Arthritis. Report of Case in Which Ankles Were Involved. Condition Unaffected by Sulfanilamide and Roentgen Therapy. *Proc. Staff Meet., Mayo Clin.* 17: 161-166 (March 18) 1942.

9 Stewart, R. A., and Meyer, K. F. Isolation of *Coccidioides immitis* (Stiles) from the Soil. *Proc. Soc. Exper. Biol. & Med.* 29: 937 (May) 1932.

Salt River Valley gave positive coccidioidin reactions. Many of these persons were from rural areas in contact with livestock but, curiously enough, the largest incidence of positive reactors were found not among cattlemen but among men who handled sheep.

Mills and Farness<sup>19</sup> cite the case of a 15 year old boy attending a private school near Tucson, Ariz., who showed cavitation of the lungs on roentgen examination. The continued absence of acid-fast organisms, high eosinophilia and general absence of fever prompted the more thorough examination of the sputum, which resulted in recovery of a fungus recognized as *Coccidioides immitis*. The finding of this positive case stimulated these physicians and a dozen or more clinical diagnoses came to their attention. Intradermic coccidioidin tests on 60 Arizona patients in the Pima County Hospital showed that 20 per cent gave a positive reaction. Similar results were obtained in other groups of patients. Farness<sup>20</sup> cites 5 human cases apparently arising in Arizona.

The latest published articles and personal communications (1942) indicate that at least 790 cases of chronic coccidioidal granuloma have been recognized in human beings. Of this number, Wynns,<sup>21</sup> who is epidemiologist of the California State Board of Health, reports a mortality of nearly 40 per cent in 744 California cases of this highly fatal chronic form of the disease. His report includes Beck's 254 cases.

The senior author (G. W. S.) has observed but 1 human case of coccidioidomycosis at the Colorado General Hospital, reported by O'Toole<sup>22</sup> and originating from California. Physicians concerned with the treatment of this disease may find valuable suggestions in our bibliography.<sup>23</sup>

The data herein cited indicate not only that the disease in man is recognized in California but that it is becoming an important public health problem in many other localities.

#### THE DISEASE IN ANIMALS

While the greatest interest in coccidioidal infections has centered in human medicine, the veterinary phase of the problem has its place in relation to public health and animal welfare. Cummins and his associates<sup>24</sup> make a direct plea to the veterinarian, the physician, the internist, the surgeon and the pathologist for a closer cooperation and a more thorough investigation of this important disease in its relation to man and the lower animals.

Pulford and Larson<sup>25</sup> state that the ever widening distribution of coccidioidal granuloma forces one to

the conclusion that the disease is either spreading or is becoming better recognized by the medical profession and that it should no longer be called the "California disease." Smith<sup>26</sup> believes that the discovery of coccidioidal granuloma in cattle should be of great value in locating new foci of infection.

A variety of animals may be sources of coccidioides infection. Emmons<sup>27</sup> of the U. S. Public Health Service recovered the fungus in 25 of 105 trapped rodents representing six species in the vicinity of San Carlos, Ariz. Spores of the fungus were also found in the soil of this locality, possibly arising from animal contamination.

From Tucson, Ariz., Farness<sup>28</sup> reports a case of coccidioidal infection occurring in a great Dane dog. Later in a personal communication he cites 5 additional canine cases diagnosed either by cultural methods or by human coccidioidin applied as a cutaneous test. Farness also has 2 cats under observation in which he suspects coccidioidomycosis.

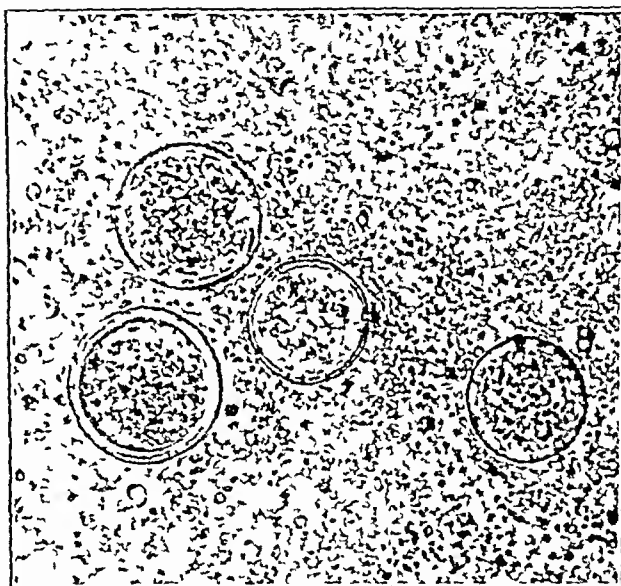


Fig. 2—Press preparation of the purulent contents of a lymph node lesion illustrating spherules with distinct double contour capsule.  $\times 600$

Another canine case occurring in a 2 year old male English setter is reported in Canada by Plummer<sup>29</sup> and Radmore.<sup>30</sup> The dog in question was raised in Canada and was mated with a female setter from California. In sections, coccidioidal spherules were demonstrated in large numbers in the lung and brain tissues. Although the lungs grossly resembled tuberculosis, evidence of acid-fast organisms was not demonstrated.

While engaged in the diagnosis and treatment of human coccidioidal infections in Arizona, Phillips<sup>31</sup> called attention to a condition in sheep resembling coccidioidal granuloma.

In a band of 56 sheep kept for three years near Phoenix, 30 head gave positive reactions with 0.1 cc

19 Mills C. W. and Farness O. J. *Coccidioides Immitis* Infection in Southern Arizona. *Tr. Am. Climat. & Clin. A.* (1940) 56: 147-153 (1941).

20 Farness O. J. *Coccidioidomycosis*. *J. A. M. A.* 116: 1749-1752 (April 19) 1941.

21 Wynns H. I. *Coccidioidal Granuloma*, personal communication to the authors.

22 O'Toole Elizabeth. *Coccidioidal Granuloma with Some Notes on Coccidioidin and Coccidioides Vaccine*, presented at the Colorado-Wyoming Academy of Science Meeting, Golden, Colo., Nov. 7, 1941.

23 *Coccidioidal Granuloma: Queries and Minor Notes*. *J. A. M. A.* 111: 555 (Aug. 6) 1938. Etter I. E. and Schumacher F. L. *Pulmonary Actinomycosis: Recovery After Thermal Therapy*. *ibid.* 117: 1023-1034 (Sept. 9) 1939. Sox H. C. and Dickson F. C. *Experimental Therapy in Coccidioidal Granuloma*. *ibid.* 106: 777-779 (March 7) 1936. Tomlinson C. C. and Brainerd Paul. *Granuloma Coccidioides: Report of a Case Responding Favorably to Antimony and Potassium Tartrate*. *ibid.* 91: 947-951 (Sept. 29) 1928.

24 Cummins W. T., Smith I. K. and Halliday C. H. *Coccidioidal Granuloma: An Epidemiologic Survey with a Report of Twenty-Four Additional Cases*. *J. A. M. A.* 93: 1046-1049 (Oct. 5) 1929.

25 Pulford D. S. and Larson E. F. *Coccidioidal Granuloma: Report of a Case Treated by Intravenous Dye, Colloidal Lead and Colloidal Copper with Autopsy Observation*. *J. A. M. A.* 93: 1049-1056 (Oct. 5) 1929.

26 Smith C. E. Personal communication to the authors from the department of public health, Stanford University School of Medicine, San Francisco, Feb. 20, 1942.

27 Emmons C. W. *Isolation of Coccidioides from Soil and Rodents*. *Pub. Health Rep.* 57: 109-111 (Jan. 23) 1942.

28 Farness O. J. *Coccidioidal Infection in a Dog*. *J. Am. Vet. M.* 4: 267-263 (Sept.) 1940.

29 Plummer P. J. *Coccidioidomycosis with a Pathological Report of a Case in a Dog*. *Canad. J. Comp. Med. & Vet. Sc.* 5: 146-148 (May) 1941.

30 Radmore R. C. S. *An Unusual Condition Found in a Dog*. *Canad. J. Comp. Med. & Vet. Sc.* 5: 149 (May) 1941.

31 Phillips E. W. Personal communication to the author. Feb. 20, 1942.



of human coccidioidin administered under aseptic conditions. After this several sheep became ill with temperatures of 105 F or higher, and in 2 abscesses developed in the axillary lymph nodes. Aspirated pus from the softened lymph nodes was cultured, resulting in the recovery of a fungus-like organism which on inoculation killed male guinea pigs with septicemia. The tentative conclusion was that a variant of *Coccidioides immitis* was present in the Phoenix district, that it affects sheep in particular and that it produces a nonfatal, usually undiagnosed illness in human subjects. He further states that open ulcers persisted for one year on three of the sheep mentioned. These sheep were destroyed without further laboratory examination.

Beck in 1929 reported a single positive case of coccidioidial granuloma in sheep.

#### COCCIDIOIDAL GRANULOMA IN CATTLE

During the past ten years 78 positive cases of coccidioidial infection in bovines were diagnosed in the laboratory of the Denver Bureau of Animal Industry which originated from localities as follows: California 62, Arizona and Texas 5 each, Old Mexico 4, Colorado<sup>32</sup> and New Mexico<sup>33</sup> 1 case each. These definitely diagnosed cases represent many additional cases in lots sent for slaughter when only representative samples from a lot were sent to the laboratory for examination. For example, in one lot 6 specimens were submitted with the statement that 45 steers were similarly affected. In another instance a single specimen was submitted with the notation that 36 steers from the San Joaquin Valley showed similar lesions.

With few exceptions these tissues were from cattle slaughtered at federally inspected abattoirs<sup>34</sup>. Their origin and probable source of infection were traced through shipping records in practically all instances. This group consisted of 32 male animals, 33 females and 13 in which the sex was not given.

Two 8 to 10 month old calves were the youngest animals noted that showed coccidioidial infection<sup>35</sup>.

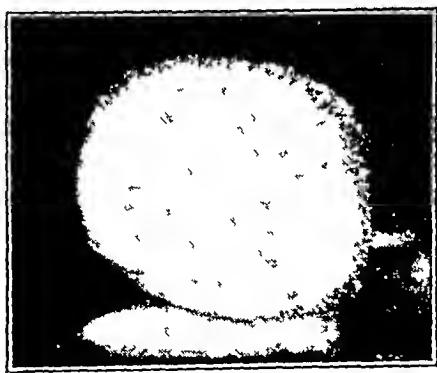


Fig 3—Single colony of *Coccidioides immitis*, showing a cotton like growth on solid medium,  $\times 2$

Thirty-nine cattle were from 10 months to 3 years old, 17 were past 4 years and the ages of the remaining 22 were unknown. The lesions were distributed as follows: bronchial lymph node only in 21 animals, mediastinal lymph node only in 21 animals, bronchial and mediastinal lymph nodes in 13 animals, pulmonary lesions with lymph node involvement<sup>36</sup> in 8 animals and in 15 animals the location of the lesions was unidentified.

32 Stiles, G. W., Jr., Shahan, M. S., and Davis, C. L. Coccidioidial Granuloma in Cattle in Colorado, *J. Am. Vet. M. A.* 82: 928-930 (June) 1933.

33 Stiles, G. W., Jr., and Davis, C. L. Case of Bovine Coccidioidial Granuloma from the Southwest, *J. Am. Vet. M. A.* 87: 582-585 (Nov.) 1935.

34 Three positive specimens were submitted by the California State Department of Agriculture.

35 Davis, C. L., Stiles, G. W., and McGregor, A. N. Coccidioidial Granuloma in Calves, *J. Am. Vet. M. A.* 92: 562-563 (April) 1938.

36 Davis, C. L., Stiles, G. W., and McGregor, A. N. Pulmonary Coccidioidial Granuloma. A New Site of Infection in Cattle, *J. Am. Vet. M. A.* 91: 209-215 (Aug.) 1937.

#### CATTLE CASES REPORTED BY OTHERS

In 1918 Giltner reported the first cases of coccidioidial granuloma in bronchial and mediastinal lymph nodes from cattle slaughtered at San Diego, Calif. From these tissues *Coccidioides immitis* was recovered on



Fig 4—Hanging drop preparation of the mold, showing intricate net work of mycelia,  $\times 200$

culture, and pathogenicity was determined by successful experimental injections into guinea pigs, rabbits, dogs, cattle, sheep and swine.

During 1931 Beck reported 10 cases of coccidioidial infection occurring in cattle in addition to 9 other bovine cases previously reported. During the period from Dec 17, 1938 to Feb 6, 1939, Bengston,<sup>37</sup> in charge of the bureau's pathologic laboratory at Chicago diagnosed 20 cases of coccidioidial granuloma from California and Texas cattle aged from 1 year upward. Steers, cows and bulls were affected. In 16 cases the mediastinal lymph nodes only were involved, in 3 cases the bronchial lymph nodes and in 1 case the bronchial lymph nodes and lungs were infected.

From the bureau's laboratory in Washington D. C. Schoening<sup>38</sup> reports several positive cases of coccidioidial granuloma during recent years. A summary of the data now at hand shows a total of 116 definite diagnosed cases of bovine coccidioidial granuloma in the United States. However, it is probable that many more cases in cattle have escaped identification or were not submitted for laboratory confirmation.

#### LABORATORY MANIFESTATIONS OF BOVINE LESIONS

In the study of the diseased tissues as they occur in the bovine, it is possible to observe different stages in the development of the lesions. Cattle affected with coccidioidial granuloma show no clinical symptoms and, as has been previously mentioned, the lesions thus far observed have been confined to the thoracic lymph

37 Bengston, J. S. Coccidioidial Granuloma (in F. H. Animal.) The Bureau of Veterinary 15: 14 (May) 1937.

38 Schoening, H. C. Personal communication to the author, 1942.

and the lungs and are detected only when the animals come to slaughter. In the purulent stage of the affected lymph nodes all or part of the tissues may be involved. In this stage the node is enlarged and on incision is found to contain a pale, yellowish tenacious pus, granular in consistency and resembling somewhat actinomycotic material. It is not uncommon to find the tissue traversed by many trabeculous striations imparting a honeycomb appearance to the wall of the abscess with the formation of pus pockets.

The purulent stage is followed by granulomatous changes in which the contents have a cheesy consistency resembling somewhat the caseous lesion of tuberculosis (fig 1). In this stage the lesion is walled off from the uninvolved lymphoid tissue by a connective tissue capsule and contains several encapsulated foci with purulent centers. Calcareous deposits are found in the older lesions. Grossly, the lesions of coccidioidal granuloma in cattle may be confused with tuberculosis, actinomycosis, actinobacillosis or abscesses due to *Corynebacterium pyogenes*. Laboratory examination of the suspected material is often necessary to make a correct diagnosis.

The 78 bovine cases reported herein were diagnosed in the Denver laboratory either by the demonstration of spherules in press preparations of the purulent contents, positive cultures of *Coccidioides immitis* being obtained or by microscopic sections. In many instances all three methods of diagnosis were employed. Cover slip preparations of the purulent contents of the affected lymph nodes disclose spherical bodies with a retractile, double contoured capsule (fig 2). The parasites may vary in size from 10 to 50 microns. Occasionally the spherules are seen surrounded by distinct rosettes with clubs radiating out from the capsule which aids in the differential diagnosis from actinobacillosis and actino-

4) In the tissues however, the organisms appear only in the spherical form.

Microscopic study of sections of the lesions stained with hematoxylin-eosin show a granulomatous process consisting of connective tissue, blood vessels, lympho-

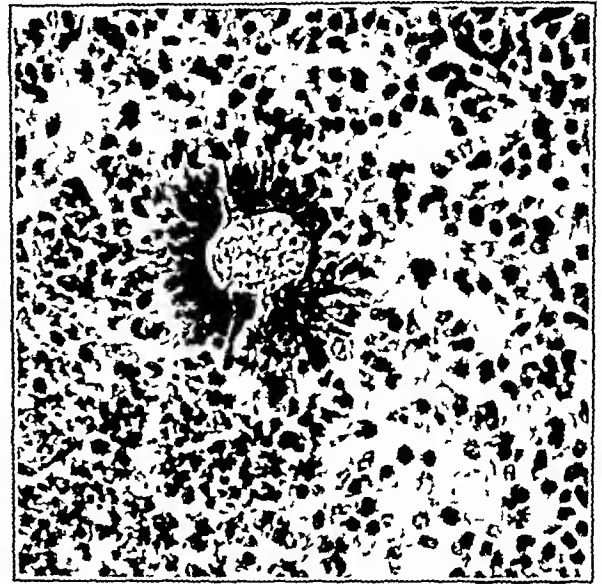


Fig 6—Section of a purulent area demonstrating a rosette formation surrounding the parasite.  $\times 500$

cytes, plasma cells, mononuclear and polymorphonuclear leukocytes, a few eosinophils and giant cells. Scattered throughout the tissue are seen variable numbers of double contoured spherules, the majority of which have been taken up by giant cells (fig 5). Usually a single parasite is seen within a giant cell, but as many as six spherules have been noted within a single giant cell in some sections. Some of the parasites which are presumably the more recent sporulating forms, often show a strong affinity for eosin. Occasional spherules show ruptured walls, and in some sections one or more parasites may be surrounded by a group of eosin-staining radiating clubs forming a well defined rosette (fig 6). In some fields the cellular reaction mimics a tubercle and only the presence of the spherules within the giant cells or in the tissue enables a differentiation from a tuberculous process. In some instances it may be necessary to cut blocks from different portions of the lesion in order to demonstrate the spherules in the tissues.

#### SUMMARY

1 Coccidioidal granuloma appears to be acquired by inhaling spores of the fungus by cutaneous infection through wounds or rarely through the gastrointestinal route.

2 While coccidioidal granuloma has been considered peculiar to California its appearance both in man and in animals from other localities indicates that the malady is either spreading or has not heretofore been recognized.

3 Coincident with this disease in man an increase is noted in the number of cases occurring in lower animals. In regions in which man has acquired infection cattle, dogs, sheep, wild rodents and possibly other animals may harbor the fungus.

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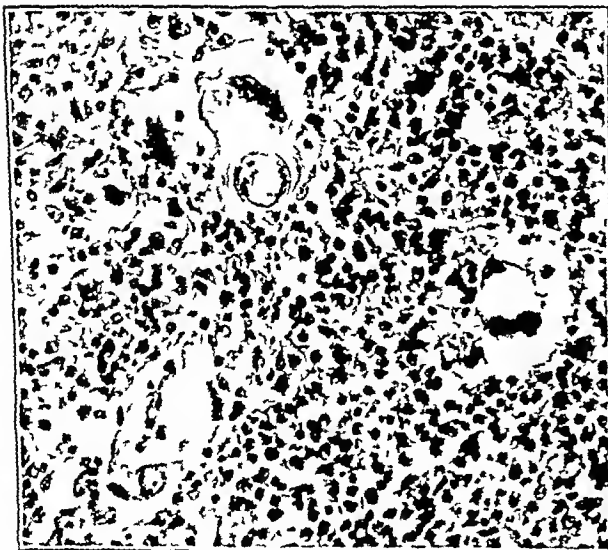


Fig 5—Section from a lymph node section containing inflammatory cell and several giant cells containing spherules.  $\times 300$

mycosis. Cultures from the pus on meat-inoculation agar will yield a growth of *Coccidioides immitis* after incubation for from forty-eight to seventy-two hours at 37°C. The mold on solid mediums produces white cotton-like colonies (fig 3). Hanging-drop preparations from the growth show an intricate network of mycelia (fig

PATHOLOGIC LESIONS PRODUCED  
BY SULFATHIAZOLE

REPORT OF FOUR FATAL CASES

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AND

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BALTIMORE

We are presenting 4 fatal cases of sulfathiazole treatment in which autopsy revealed histopathologic lesions not characteristic of any previously described disease process. Rake, Van Dyke and Corwin<sup>1</sup> described identical pathologic lesions in their experimental work on mice inoculated with sulfathiazole. They stated that 77 per cent of the mice given a 2 per cent sulfathiazole diet died during a four week period and that the lesions were

tolic and 100 diastolic. The physical examination was otherwise noncontributory. The content of nonprotein nitrogen, cholesterol and total protein in the blood was normal on admission, as was the carbon dioxide combining power. The membranes were ruptured, and a normal delivery followed three hours in labor. Immediately after delivery the blood pressure was 140 systolic and 90 diastolic. The albuminuria and edema promptly disappeared. The further clinical course is shown in the accompanying table. On the eighth postpartum day 150 grains (9 Gm) of sulfathiazole was given because of the presence of a mild infection of the upper respiratory tract. On the fifteenth postpartum day a diagnosis of probable drug fever was made. Sixth molar sodium lactate solution and other fluids were forced. The carbon dioxide combining power of the blood was raised to 73 volumes per cent as a result of the lactate therapy. On the eighteenth postpartum day 90 grains (6 Gm) of sulfathiazole was given (15 grains [1 Gm] every four hours for six doses) after a chill, a temperature of 105 F, tenderness in the right costovertebral angle and clumps of white blood

Clinical Course in Case 1

| Postpartum day                                  | 8             | 9    | 10  | 11  | 12  | 13       | 14           | 15           | 16  | 17   | 18           | 19                   | 20  |
|---|---------------|------|-----|-----|-----|----------|--------------|--------------|-----|------|--------------|----------------------|-----|
| Temperature, F                                  | 98.6          | 98.6 | 100 | 100 | 100 | 100      | 100          | 104          | 101 | 98.6 | Chill<br>105 | 105                  | 105 |
| Sulfathiazole dosage                            | 150<br>grains |      |     |     |     |          | 90<br>grains | 75<br>grains |     |      | 90<br>grains |                      |     |
| Sulfathiazole, blood level                      |               |      |     |     |     |          |              |              |     |      |              | 10 mg<br>per 100 cc  |     |
| Escherichia coli in urine culture               |               |      |     |     |     | Positive |              |              |     |      |              |                      |     |
| White blood cell clumps in urine                |               |      |     |     |     |          |              |              |     |      | +            |                      |     |
| Drug rash                                       |               |      |     |     |     |          |              |              |     |      |              | +                    |     |
| Right costovertebral angle, pain and tenderness |               |      |     |     |     |          |              |              |     |      | +            |                      |     |
| Respiratory rate                                |               |      |     |     |     |          |              |              |     |      |              | 45                   | 70  |
| Nonprotein nitrogen                             |               |      |     |     |     |          |              |              |     |      |              | 83 mg<br>per 100 cc  |     |
| Carbon dioxide                                  |               |      |     |     |     |          |              | 75<br>vol %  |     |      |              | 75<br>vol %          |     |
| White blood cells                               |               |      |     |     |     |          |              |              |     |      |              | 7,100 per<br>cu mm   |     |
| Polymorphonuclear cells                         |               |      |     |     |     |          |              |              |     |      |              | 93%                  |     |
| Pulse rate                                      |               |      |     |     |     |          |              |              |     |      |              | 130/80               | 110 |
| Blood pressure                                  |               |      |     |     |     |          |              |              |     |      |              |                      | +   |
| Coma and death                                  |               |      |     |     |     |          |              |              |     |      |              |                      |     |
| Total proteins                                  |               |      |     |     |     |          |              |              |     |      |              | 6.8 mg<br>per 100 cc |     |
| Anterior and posterior repair                   |               |      |     |     |     |          |              |              |     |      |              |                      | +   |

chiefly in the spleen and the genitourinary tract. They reported tuberculous-like lesions in sulfathiazole treated monkeys; they attributed these lesions to tuberculosis. However, in the kidneys from these monkeys they demonstrated crystals surrounded by leukocytic zones. The microscopic lesions are so similar to the focal necrosis seen in infections that no doubt many cases since the introduction of the drug have been overlooked. To report, we selected 4 cases in which we feel that the lesions were clearcut and could not be confused with lesions produced by septic infection. The histories do not suggest septicemia. Bacterial stains revealed no organisms. All blood cultures were negative.

CASE 1—History—Mrs. K. B., aged 32, was admitted to the maternity ward of the Union Memorial Hospital April 18, 1941, with hypertension, albuminuria and pitting edema of the lower extremities complicating a full term pregnancy. She had previously had two full term pregnancies, each complicated with toxemia. On admission her blood pressure was 180 sys-

tolic and 100 diastolic. The physical examination was otherwise noncontributory. The content of nonprotein nitrogen, cholesterol and total protein in the blood was normal on admission, as was the carbon dioxide combining power. The membranes were ruptured, and a normal delivery followed three hours in labor. Immediately after delivery the blood pressure was 140 systolic and 90 diastolic. The albuminuria and edema promptly disappeared. The further clinical course is shown in the accompanying table. On the eighth postpartum day 150 grains (9 Gm) of sulfathiazole was given because of the presence of a mild infection of the upper respiratory tract. On the fifteenth postpartum day a diagnosis of probable drug fever was made. Sixth molar sodium lactate solution and other fluids were forced. The carbon dioxide combining power of the blood was raised to 73 volumes per cent as a result of the lactate therapy. On the eighteenth postpartum day 90 grains (6 Gm) of sulfathiazole was given (15 grains [1 Gm] every four hours for six doses) after a chill, a temperature of 105 F, tenderness in the right costovertebral angle and clumps of white blood cells in the urine had been observed. The diagnosis was probable pyelitis. On the nineteenth postpartum day lactate solution and other fluids were forced to combat uremia and acidosis. On the twentieth postpartum day, coma, a rise in the pulse rate and a drop in the blood pressure came on suddenly. Death occurred one-half hour after the onset of coma. The fluid intake averaged 3,500 cc each day and the urinary output 1,500 cc. The blood cultures were repeatedly negative. The drug rash consisted of small red nodules on the face, neck, chest and forearms. Autopsy—Most of the normal observations are contained in this report. Gross Examination. A recent, unhealed orificial sinus wound was present. There was no jaundice or other abnormal manifestations. All the serous cavities contained a colored fluid, 1,000 cc was removed from the peritoneal cavity and each pleural cavity contained about 800 cc. Examination of the visceral cavities was unimportant except for the bilateral fibrous pleural adhesions. The lungs were dark, air containing and of normal color except along the periphery, where a purplish tinge and a doughy consistency were present. Both lungs were crepitant to palpation. The mediastinal nodes were not unduly enlarged. The surface of the lungs presented a reddish gray color speckled with milium pin head size grayish white nodules.

From the Department of Pathology of the Union Memorial Hospital, Baltimore.  
Dr. Arnold R. Rich of the Johns Hopkins Hospital, gave permission for use of the last 2 cases. Dr. Warfield T. Longcope, of the Johns Hopkins Hospital, assisted in the preparation of this paper.  
1. Rake, Geoffrey, Van Dyke, H. B., and Corwin, W. C. Pathologic Changes Following Prolonged Administration of Sulfathiazole and Sulfapyridine, *Am. J. M. Sc.* 200:353 (Sept.) 1940.

These were encountered in all the lobes. Grossly, one was impressed by the sharp demarcation of these grayish areas which were not surrounded by hemorrhagic zones. The lungs



Fig 1 (case 1)—Lymph node showing the thick edematous capsule infiltrated with leukocytes and the sharply defined area of necrosis and accumulated polymorphonuclear cells  $\times 100$

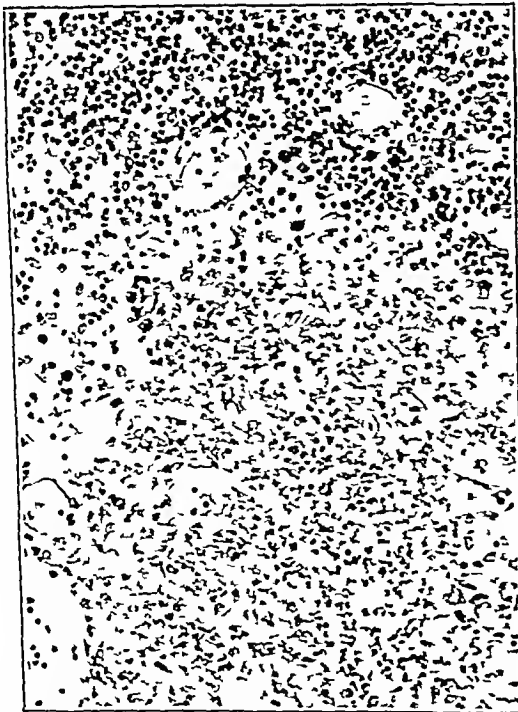


Fig 2 (case 1)—Lymph node with higher magnification showing necrosis and polymorphonuclear cells more clearly  $\times 200$

did not show any excess of edema. They were light in weight for their volume and readily floated in water. The patchy necrosis grossly resembled tuberculosis but no scars or focal lesions of tuberculosis were encountered anywhere.

The heart was normal except for a moderate increase in the pericardial fluid.

The peritoneal cavity presented many large lymph nodes in the folds of the mesentery and in the omentum. These averaged from 1 to 2 cm in diameter. They were not only encountered by palpation but could be seen as dome shaped elevations along the mesenteric fold. The cut surface presented necrotic pulp. Many of them had actually undergone softening to form a creamy fluid. There were no adhesions.

The spleen weighed 425 Gm. The consistency was doughy, and the cut surface presented a gray, mushy parenchyma.

The kidneys weighed 175 Gm each. They were normal in shape. Multiple petechial hemorrhages were seen through the capsules. The cut surfaces presented a moist parenchyma characterized by hyperemia together with miliary hemorrhages. A gritty substance was distributed throughout the parenchyma. The concretions were translucent and typical of crystals. The mucosa of the pelvis showed no hemorrhage or exudate. The pelvic mucosa contained many crystalline deposits. The bladder showed no evidence of inflammation.



Fig 3 (case 1)—Spleen showing areas of focal necrosis destroying the greater part of the malpighian bodies and the reticulum saturated with polymorphonuclear cells  $\times 100$

The uterus was the size of an orange and typical of the postpartum period. The cavity contained shreds of retained placenta.

Exploration of the skull cavity revealed no gross pathologic changes and the brain showed nothing abnormal except hyperemia of the meninges.

**Microscopic Examination.** The lungs showed edema and moderate hyperemia. Throughout all the lobes there were small necrotic areas characterized by accumulations of polymorphonuclear cells. The parenchyma was necrotic in these areas. In fact many areas showed merely necrosis with relatively few polymorphonuclear cells except along the margin of the necrosis. There was no fibrosis. Bacterial stains revealed no tubercle bacilli or other organisms.

The bone marrow including that of the ribs and the femurs was also characterized by distinct areas of necrosis and by massing of leukocytes into nests which either displaced the marrow or necrotized it. In addition to the presence of polymorphonuclear cells there was definite fragmentation of cells. Large mononuclear cells contained cell particles.

The kidney sections showed areas of necrosis and nests of polymorphonuclear leukocytes apparently more numerous in



the medullary portion of the kidneys than in the cortex. The predominating cells were polymorphonuclear. Some necrotic areas showed erosion of the vessel walls, and in several vessels the necrosis extended through the wall into the lumen, which

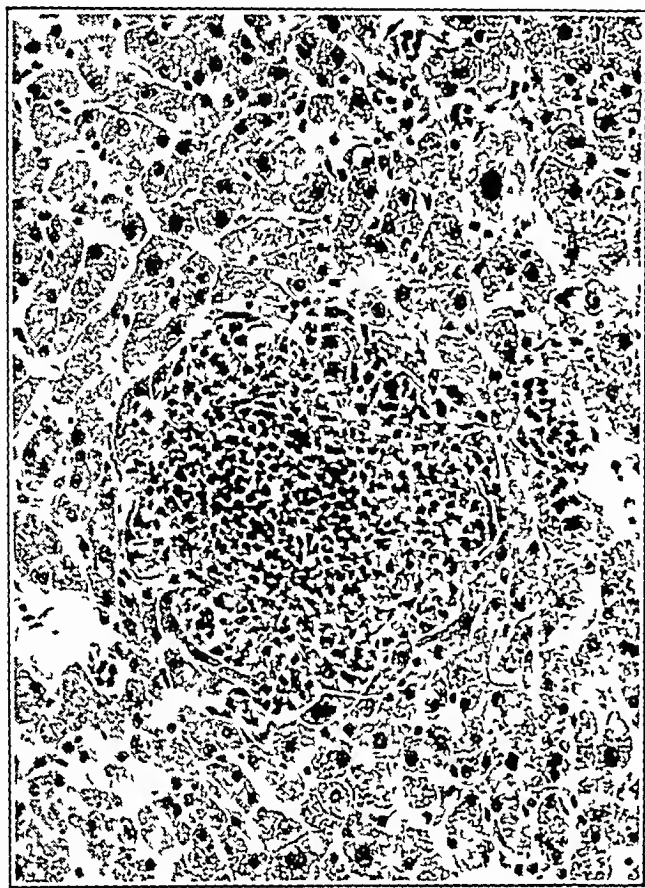


Fig. 4 (case 1)—Liver showing focal necrosis characterized by accumulation of polymorphonuclear cells  $\times 200$



Fig. 5 (case 3)—Kidney showing sharply defined area characterized by coagulation necrosis and accumulation of polymorphonuclear cells  $\times 100$

in turn was occluded by a thrombus. Many of the thrombi contained nests of polymorphonuclear cells. The necrotic areas were not confined to any particular structure. They were seen in the glomeruli, in the conducting as well as the convo-

luted tubules and even in the capsule of the kidney. The greater number of necrotic areas, however, were confined to the medulla.

In the adrenal glands similar areas of necrosis were encountered in the central zones.

In the lymph nodes, two rather distinct types of lesion could be demonstrated. One was characterized by a coagulation necrosis, well defined and not infiltrated with leukocytes. Areas of this type were so numerous that there was considerable occupying large areas of the lymphoid stroma. Other areas were characterized by displacement of the lymphoid tissue with nests of polymorphonuclear and phagocytic cells.

The spleen showed a process similar to that described for the lymph nodes. The characteristic lesions were encountered chiefly near the malpighian bodies.

The uterus, heart and bladder were essentially normal except for remnants of decidual and placental tissue within the uterine cavity.

The pancreas presented areas of necrosis.



Fig. 6 (case 1)—Kidney with higher magnification showing clearly the destruction of parenchyma and accumulation of polymorphonuclear cells  $\times 200$

The liver sections showed military and distinct areas of focal necrosis, some of which were infiltrated with polymorphonuclear cells.

In the brain, many thrombotic emboli were seen in the vessels. Within some of the thrombi there were necrotic areas. Occasional areas of disintegration and accumulation of polymorphonuclear cells were encountered. These were interpreted as infarctions.

**Bacteriologic Examination.** Bacterial stains were made on the sections were studied by Dr. Hugh Spencer, University of Maryland, and Dr. Arnold Rich, the Johns Hopkins Hospital. Their opinions coincided with ours, that the areas of necrosis were of a nonbacterial type.

**Anatomic Diagnosis.** This was as follows: (1) hemorrhagic and diffuse nephritis with precipitation of casts and areas of military focal necrosis, (2) military focal necrosis of the lungs, lymph nodes (mesenteric), pancreas, adrenals and bone marrow, (3) generalized edema, (4) bilateral pleural effusion, (5) peritoneal effusion, (6) recent pelvic hyperemia (infection), (7) postpartum condition of the uterus and embolism and infarction.



**CASE 2—History**—A Negro woman aged 73 admitted to the Provident Hospital April 30 1941 two days before had had intermittent excruciating pains in the right upper quadrant. Profuse constant vomiting occurred on the day previous to admission. Five years before admission the patient had had a renal calculus which she had passed after an attack of severe renal colic.

On admission the temperature was 98 F the pulse rate 110 the respiratory rate 20 and the blood pressure 160 systolic and 100 diastolic.

Physical examination revealed that the patient was obese and was oriented coherent and cooperative but acutely ill. There was no jaundice no cyanosis no edema and no rash. The bones and joints were normal. Neurologic examination gave negative results. The head neck heart and lungs were normal. The abdomen was tender over the gallbladder and over the right costovertebral angle.

There was moderate muscle spasm on deep palpation over the gallbladder.

On April 11 and 12 the temperature varied between 104 and 106 F the pulse rate was 130 and the respiratory rate 40 to 45. A deep coma gradually developed followed by death. Further clinical details are not available.



Fig 7 (case 1)—Lung showing edema a distinct area of necrosis and a pool of polymorphonuclear cells  $\times 200$

**Laboratory Examination**—The urine showed a 1 plus reaction for albumin no sugar no acetone no red blood cells and no casts but numerous clumps of white blood cells. A blood count revealed 4160 000 red cells and 8900 white cells with 80 per cent polymorphonuclear leukocytes. The hemoglobin content was 88 per cent and the nonprotein nitrogen content 40 mg per hundred cubic centimeters. The icteric index was 5 and the phenolsulfonphthalein test revealed a retention of 40 per cent. A urine culture showed *Staphylococcus aureus* and *Esch coli*. Roentgenograms revealed a stag horn calculus in the pelvis of the right kidney.

**Course**—The patient was treated with sulfathiazole 645 grams (43 Gm) from April 2 to 10. The white cell count never exceeded 15 000 with 89 per cent polymorphonuclear leukocytes and there was no drop in the number of white cells. There was no agranulocytosis and no drop in the hemoglobin content of the blood. The concentration of sulfathiazole in the blood never exceeded 5 mg per hundred cubic centimeters. On April 8 9 and 10 the temperature varied between 100 and 101 F. It then rose to 103 F the pulse rate was 130 and the respiratory rate 40. Administration of the drug was



Fig 8 (case 2)—Lung showing area similar to that in case 1

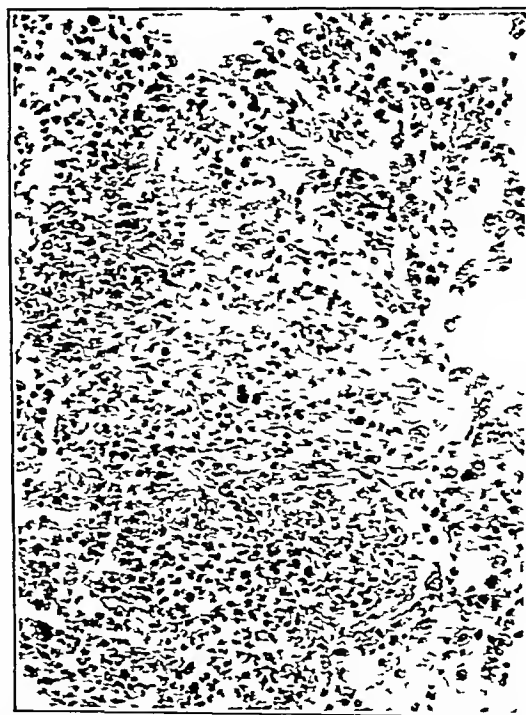


Fig 9 (case 1)—Lung showing larger area of necrosis more advanced characterized by coagulation and destruction of parenchyma  $\times 200$

**Autopsy**—Gross Examination. External examination was essentially noncontributory. The serous cavities contained a moderate amount of watery fluid. All the viscera presented normal anatomic relations. The right lung adhered to the

thorax by means of dense adhesions. The lungs felt somewhat boggy, they showed many bright red hemorrhagic spots and also numerous small pale areas. Sectioning revealed that the lung was red, with blood tinged fluid flowing from it. There were, however, no areas of frank consolidation.

The heart weighed 410 Gm, otherwise it was normal.

The spleen was soft and wrinkled. The cut surface presented a mushy pulp.

The liver weighed 1,205 Gm, the cut surface was a pale reddish brown.

The gallbladder was normal.

The left kidney weighed 110 Gm. A stag horn calculus filled the pelvis. The pelvic mucosa of both kidneys was speckled with small petechial hemorrhages. The kidney parenchyma was swollen and edematous.

**Microscopic Examination** There is no need to give a detailed report of the pathologic observations, which except for the stag horn calculus in the left kidney were identical with those in case 1 in that miliary focal necrosis was encountered throughout the entire lung parenchyma, liver, kidneys and spleen. Bone marrow was not available for study.

**CASE 3—History**—A Negro man aged 73 was admitted to the Johns Hopkins Hospital July 18, 1941 with a complaint of severe epigastric heaviness, knifelike in character, which followed a heavy meal. There was no nausea or vomiting. There was a history of a 20 pound (9 Kg) loss of weight in the past six weeks. The patient was definitely jaundiced. There was a tender epigastric mass easily palpable. The blood pressure was 140 systolic and 100 diastolic. Physical examination otherwise gave negative results. A diagnosis of carcinoma of the head of the pancreas was made.



Fig 10 (case 1)—Rib showing large areas of coagulation necrosis with most of the cells in the necrotic area polymorphonuclear,  $\times 200$

**Course and Laboratory Study**—Examination of the urine gave negative results. A blood count showed 5,040,000 red cells, and there was 14 Gm of hemoglobin per hundred cubic centimeters. There were 6,200 white cells, with 58 per cent polymorphonuclear leukocytes. The sedimentation rate, corrected, was 24 mm an hour, the icteric index was 40, and the albumin-globulin ratio was 1.2. The total protein content was 6.4 mg, the nonprotein nitrogen content 32 mg and the fasting blood sugar content 100 mg per hundred cubic centimeters. On the fifth day after admission the patient began

to vomit, moist rales were detected in the bases of both lungs and the temperature was elevated. The leukocyte count rose to 17,780. A roentgenogram showed consolidation in the base of the right lung. The patient lived four days after a diagnosis of pneumonia in the base of the right lung had been made. During these four days 720 grams (48 Gm) of sulfathiazol



Fig 11 (case 3)—Bone marrow from femur showing nests of polymorphonuclear cells and necrosis,  $\times 100$

was given in 5 per cent solution intravenously at the rate of 60 grains (4 Gm) every eight hours. The temperature ran from 99 to 101 F, and the highest level of sulfathiazole in the blood was 101 mg per hundred cubic centimeters. The fluid intake was 3,500 cc a day, and the urinary output averaged 1,575 cc a day. No further clinical data concerning the patient's last four days were available.

**Autopsy** (Dr. Arnold Rich)—Anatomic Diagnosis. The provisional anatomic diagnosis was carcinoma of the head of the pancreas and obstruction of the duodenum, common bile duct and pancreatic ducts, metastases to the liver and mesenteric, aortic and hepatic lymph nodes, jaundice, ascites, hydrothorax on the left, hydropericardium, edema of the extremities, hypertrophy of the stomach wall, severe generalized and moderate coronary arteriosclerosis, emphysema, dense pleural adhesions on the right, a calcified hilar lymph node in the right lung, hydrocele, bilateral aspiration pneumonia, lower lobe, left lung, and emaciation.

**Microscopic Examination** A description of the pathologic lesions would be a repetition of that in case 1. The provisional anatomic diagnosis was not changed, and areas of focal necrosis infiltrated with polymorphonuclear cells were encountered in the kidneys, spleen, liver, bone marrow, lymph nodes and lungs.

**CASE 4**—A Negro boy aged 8 months was admitted to the Sydenham Hospital Feb 26, 1941 with a clinical picture of whooping cough. The temperature was 101 F, the pulse rate 140, the respiratory rate 30 and the weight 10 lb (4.5 Kg). The child was emaciated. The skin was dry and wrinkled. The skeletal examination was negative. Crackling rales were heard in the bases of both lungs. Only or only. Roentgen examination confirmed the diagnosis of lobar pneumonia. A blood culture was negative. The sedimentation rate showed 60,000 white cells, with 70 per cent small lymphocytes. Beta hemolytic streptococci were obtained from the

Fifteen grams of sulfathiazole was given on admission and then 2 grams (0.1 Gm) every three hours for thirteen doses. In other words 40 grams (27 Gm) of sulfathiazole was given by mouth over a period of thirty-six hours. The highest level of sulfathiazole in the blood obtained was 4 mg per hundred cubic centimeters. The highest temperature reading was 102 F. There was a variation in the results of studies of the blood. The patient died in a paroxysm of coughing.

*Autopsy* (Dr Arnold Rich)—*Gross Examination* Nothing important was observed except enlarged mediastinal glands, scattered patches of pneumonia and effusion into all the serous cavities.

*Microscopic Examination* Areas of solitary focal necrosis infiltrated with polymorphonuclear cells were encountered in the liver, lungs, spleen and kidneys. As in the other 3 cases, there was no zone of hyperemia surrounding the lesions.

#### SUMMARY

We feel that it would be worth while to summarize these cases with regard to the difference in the type of disease, dose of sulfathiazole, level of sulfathiazole in the blood, occurrence of drug fever and drug rash, tenderness in the costovertebral angle and change in blood chemistry. Our first patient was a 32 year old white woman in the postpartum period with a history of preeclampsia and with an *Esch coli* urinary infection who was given a first course of sulfathiazole consisting of 150 grams (10 Gm) administered during a period of twenty-four hours. After an interval of five days she was given 165 grams (11 Gm) of sulfathiazole within thirty-six hours. After a forty-eight hour interval she

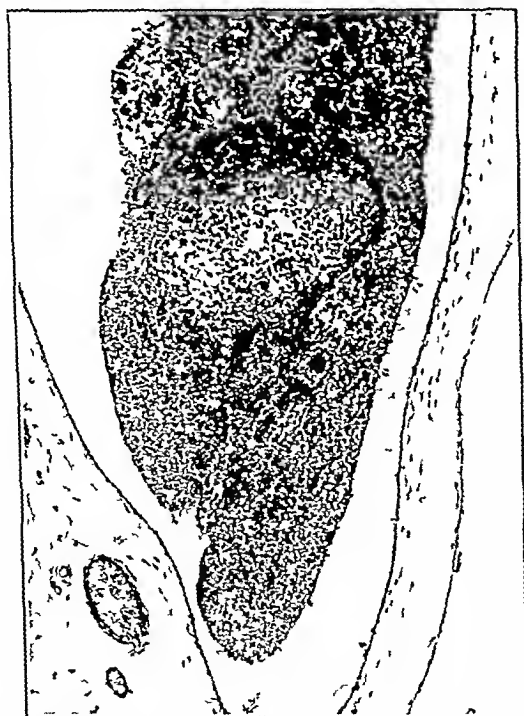


Fig. 12 (case 1)—Thrombus in renal vein containing pools of polymorphonuclear cells.  $\times 100$

was given 90 grams during a period of twenty-four hours. The administration of sulfathiazole was stopped because of a high fever, a cutaneous rash, pain and tenderness in the right costovertebral angle, a respiratory rate of 45, a nonprotein nitrogen content of 83.1 mg per hundred cubic centimeters and a carbon dioxide combining power of 37 volumes per cent. Twelve hours later the patient had a sudden onset of paleness, thready

pulse, extreme drop in blood pressure and unconsciousness. Death occurred about one-half hour afterward.

The second patient was a 73 year old Negro woman with pyelitis associated with a stag horn calculus who was given 645 grams (39 Gm) of sulfathiazole in continuous doses during a period of nine days. Use of the

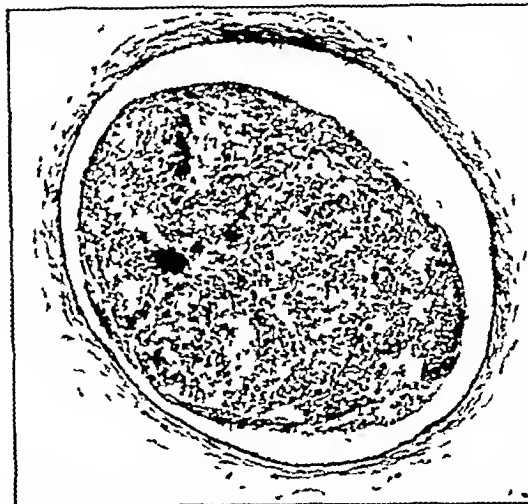


Fig. 13 (case 1)—Meningeal vessels containing an organizing embolic thrombus presenting necrotic areas and nests of polymorphonuclear cells.  $\times 100$

drug was stopped owing to an unexplained elevation of the temperature to 103 F. The patient died two days later. A temperature of 103 to 105 F had persisted during the two days prior to death. The patient was in deep coma for thirty-six hours before death. Further clinical details are not known. The third patient was a 73 year old jaundiced Negro man with carcinoma of the head of the pancreas complicated by aspiration pneumonia who received 720 grams (48 Gm) of sulfathiazole in continuous doses (60 grams [4 Gm] each eight hours intravenously) over a period of four days after which he died. Coma preceded death by about twenty-four hours. There was no added rise in temperature during the period of drug administration. At no time was any cutaneous rash noted.

The fourth patient was an 8 month old Negro boy with pertussis pneumonia who received 40 grams (26 Gm) of sulfathiazole during a period of thirty-six hours. He died during a paroxysm of coughing. There was no additional rise in temperature during the time of drug administration, and no cutaneous rash was noted.

The concentration of sulfathiazole in the blood did not exceed 10 mg per hundred cubic centimeters in any of these cases. The fluid intake and the urine output were known to be adequate in cases 1, 3 and 4. All blood cultures were negative.

*Pathologic Changes*—The pathologic lesions were invariably microscopic in type, grossly they were obscured by the edema and cloudy swelling. The lungs and kidneys were involved in all 4 cases. The spleen, lymph nodes and liver were involved in 2 cases. Bone marrow was obtained in only 2, typical pathologic lesions were encountered in both specimens. The characteristic lesions, as illustrated by the photomicrographs, were discrete and composed of coagulum which might or might not be infiltrated with polymorphonuclear cells. There were no zones of hyperemia surrounding these areas. Bacterial stains revealed no organisms. The lesions were similar to those seen in mice killed by excessive sulfathiazole in the diet.

ossificans traumatica Butler and Wooley<sup>14</sup> reported that a woman aged 68 had a calcified hematoma of the buttock in which a sarcoma developed To these we wish to add 2 cases in which osteogenic sarcoma devel-

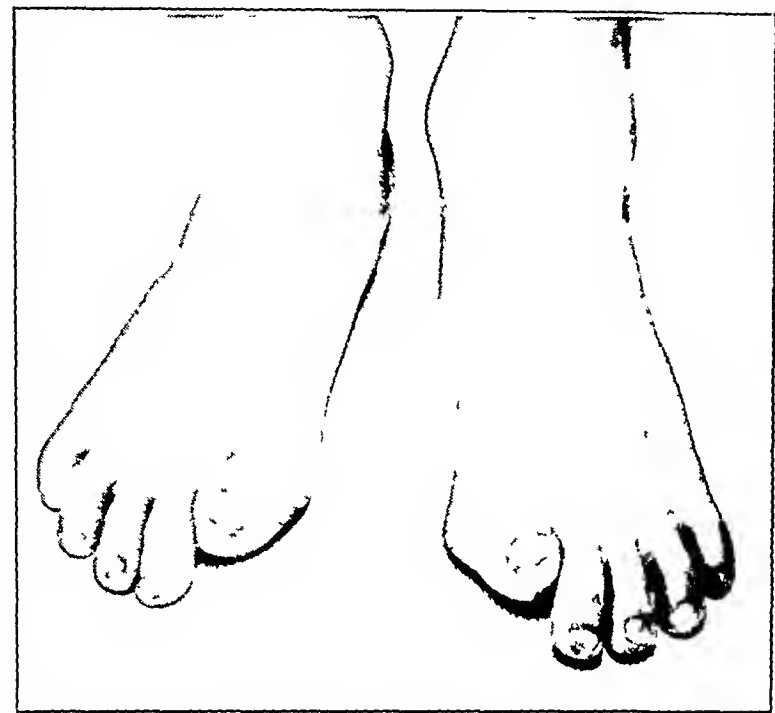


Fig 5 (case 3)—Appearance of feet showing deformity similar to that seen in the hands Roentgenograms revealed the most noticeable deformity to be present in the first metatarsals

oped in preexisting myositis ossificans circumscripta and a third case in which myositis ossificans progressiva was associated with a sarcoma developing in the muscles of the back



Fig 6 (case 3)—Calcified plaques found in the posterior cervical muscles

CASE 1—History—A white man aged 36, a salesman, admitted to the Memorial Hospital Aug 3, 1936, complained of a tumor in the right thigh The familial and past histories were negative

In 1920 while running a cross country race, he injured the muscles of the upper part of his right thigh Following the injury (the so-called charley horse), a firm, painless mass developed in the muscles of the upper medial part of the thigh and remained inactive for sixteen years Two months before admission the upper portion of the mass became larger and was aspirated by his family physician Approximately 4 ounces (120 cc) of serosanguineous fluid was obtained Roentgenograms were made revealing a large, irregular, pedunculated calcareous mass in the soft tissues of the medial aspect of the thigh, apparently attached but not a part of the femur The cortex of the femur was not invaded Three weeks before admission an attempt was made to remove the mass The tumor capsule was ruptured in removal The wound was swabbed with acetone The postoperative course was uneventful The patient was referred to the Memorial Hospital for further treatment

Physical Examination—The patient was well developed and in fairly good general condition The physical findings were



Fig 7 (case 3)—In this view of the lumbar muscles note the plates of ossified tissue just to the left of the midline and extending from the eleventh dorsal to the fifth lumbar vertebra

essentially negative except for the local lesion Over the inner aspect of the right thigh there was a recently healed wound 13 cm long beneath which was an indefinitely large area of thickening of the soft part extending from the inguinal ligament downward about 20 cm A roentgenogram of the thigh was negative for pulmonary metastasis The tumor was diagnosed on microscopic study as spindle cell osteosarcoma

Treatment—Between August 4 and September 2 the patient was treated with the 4 Gm radium element pick 120000 gram hours being given at a 15 cm radium skin distance On September 17 interstitial radon was inserted in the tumor of 53 millicuries destroyed Between November 9 and December 30 he was given twenty sessions of high voltage therapy, 200 roentgens each, through a circular field 10 cm in diameter (factors, 200 kilovolts, 0.5 mm copper filter, target skin distance) On Feb 3, 1937 roentgenogram of the chest showed pulmonary metastases The patient became progressively worse and died in July, thirteen months after the clinical onset of his disease

**CASE 2—History**—A white man aged 27, admitted to the Memorial Hospital Dec 23, 1935, complained of a recurrent tumor of the right thigh. The familial and past histories were negative.

In February 1934 a tumor mass measuring 2 cm in diameter was removed from the right thigh in another institution. A microscopic examination of the specimen was not made. In September a local recurrence of the tumor was noted. This was surgically excised at the same institution, followed by a course of high voltage roentgen therapy (factors unknown) and one course of Coley's toxins. In August 1935 a second recurrence was noted in the original scar and the patient received additional high voltage roentgen therapy before he was referred to the Memorial Hospital.

**Physical Examination**—The patient was well developed and well nourished. The head, neck, chest and abdomen were essentially normal. On the anterior surface of the right thigh, over the trigone, was a healed scar in the midportion of which was a firm nodular circumscribed tumor measuring 2 by 2.5 cm. A second scar and nodular mass measuring 4 cm in diameter was found on the posterior medial surface of the thigh below the apex of the adductor canal. The skin showed evidence of recent irradiation. A roentgenogram of the chest showed a spherical opacity in the center of the right lower lobe typical of metastasis. Examination of the femur and pelvis was negative for bone involvement. The pathologic report on submitted slides from the specimen removed in September 1934 was osteogenic sarcoma, presumably beginning in either a hematoma or myositis ossificans.

**Treatment**—The patient was given twelve treatments of 200 roentgens each through a 7 cm circular port over the tumor in the thigh (factors, 200 kilovolts, 0.5 mm copper filter, 63 cm target-skin distance). The pulmonary metastases were treated palliatively by roentgen rays and the radium element pack. The patient died from cerebral metastases on Dec 23, 1936. Permission for autopsy was not obtained.

**CASE 3—History**—A boy aged 7 years was admitted to the Memorial Hospital complaining of a tumor mass involving the right shoulder. The familial history was irrelevant. The past history revealed that a right inguinal hernia had been repaired in infancy.

Six weeks prior to admission, a tumor was noted over the right scapula. It gradually increased in size. Nodules were removed for biopsy and the patient was referred to the Memorial Hospital for further treatment.

**Physical Examination**—The patient was undernourished. The head was normal except for large tonsils. The neck showed slight limitation of motion. The lungs and heart were normal. The abdomen showed a well healed right inguinal scar. There was microdactylia of both hands and feet, especially noticeable in the thumbs, fifth fingers and first toes.

**Muscular System** In the left posterior cervical region a pencil-like calcification was palpated. Two flat calcified plaques were noted in the spinous muscles, just to the left of the midline in the lower thoracic and upper lumbar regions. These plaques of bone were freely movable in the prone position but became fixed with muscle contraction.

**Local Lesion** A symmetrical, firm tumor was noted overlying the right scapula. It extended medially between the scapula and the spine as an ill defined diffuse tumefaction infiltrating the right trapezius and rhomboid muscles. It also extended upward to the suprascapular fossa, over which was a small scar of a previous biopsy. The entire scapula seemed to be pushed outward by the tumor mass.

Roentgenograms of the chest and shoulder showed no evidence of pulmonary metastasis or bone involvement. Irregular calcified plaques were noted along the right axillary line and the left cervical region above the crest of the right scapula along the upper portion of the humerus and in the paralumbar region on the left side. Additional skeletal roentgenograms showed an exostosis of the medial portion of the head of the right tibia and probably small osteomas with broad bases in the medial and upper portions of both tibial shafts. There was anomalous epiphyseal development of the bases of the second

and fifth metacarpals, and the digits showed bilateral microdactylia. Both feet showed a similar deformity of the first digits.

**Treatment**—On Aug 2 1940 a formal biopsy of the tumor was obtained under anesthesia induced by avertin with amylene hydrate. This was reported as a malignant tumor, probably a myxoliposarcoma. Postoperative irradiation was given through two ports 17 by 7 and 15 by 6 cm, a total dose of 3 000 roentgens being given twice (factors, 250 kilovolts, 1.5 mm copper filter, 50 cm target-skin distance). In October a second course of irradiation totaling 2 800 roentgens was given. On November 7 two enlarged lymph nodes were noted in the left side of the neck. The upper node received 400 roentgens five times through a port measuring 8 by 4 cm (factors, 250 kilovolts, 0.5 mm copper filter, 35 cm target-skin distance). The lower node received 400 roentgens five times through a port measuring 8 by 4 cm (factors, 250 kilovolts, 1.5 mm copper filter, 50 cm target-skin distance). Complete regression of the tumor and the enlarged lymph nodes followed.

He was readmitted March 18, 1941 for the purpose of having a section of the myositis ossificans removed for microscopic study and determination of whether there was any disturbance in his calcium-phosphorus metabolism. On March 28 he was given 0.4 millicurie of radioactive phosphorus ( $P^{32}$ ) and the following day was placed on a known calcium and phosphorus intake. One week later a section of the myositis ossificans in the lumbar region was surgically removed. It grossly simulated fairly normal bone. There was a definite periosteum covering the external surface, a well organized cortical portion and what appeared to be a marrow cavity. Microscopically it resembled dead bone in tendon or aponeurosis.

During the preoperative control period all urine and fecal excretions were carefully assayed by Dr Helen Q Woodard, who reported: 'From March 29 1941 to April 14, 1941 this child took a diet containing approximately 1 Gm of calcium and 1.3 to 1.6 Gm of phosphorus daily. He was in strongly positive calcium and phosphorus balance, excreting an average of 194 mg of calcium and 370 mg of phosphorus daily. The partition of calcium and phosphorus between the urine and the feces showed no gross abnormalities, though the urinary calcium was low. The findings appear to be consistent with the picture of a previously poorly nourished child recently put on a liberal diet, rather than of a child with a generalized abnormality in calcium-phosphorus metabolism.'

'In the mineralized specimen removed on April 5 1941 the phosphatase was of bone type and the activity was greater than that in any normal growing bone that I have examined. The radiophosphorus uptake was also high. Adjacent uninvolved muscle was normal in phosphatase and radioactive phosphorus. The findings indicate that the pathologic mineralization is due to local changes in the affected areas.'

#### SUMMARY

In a brief review of the literature on myositis ossificans reports of 5 cases were found in which the bony tissue of myositis ossificans underwent malignant neoplastic change, i. e., osteogenic sarcoma developed. Our first 2 cases showed this development. In our third case myositis ossificans progressiva was associated with a malignant tumor probably myxoliposarcoma.

York Avenue at Sixth-Eighth Street

**Food Allergy**—The principal cause of food allergy in the United States is wheat. Eggs are second. The third offender is milk. Clearly the agriculturists have a stake in the subject of allergy and in 1936 the U. S. Department of Agriculture established a research laboratory in this field under the direction of Dr Henry Stevens, a chemist. He is interested from the chemical point of view and also through the collaboration of a medical man from the clinical point of view, inasmuch as the effect of agricultural allergens on human beings is after all the supreme consideration.—Gray, George W. *The Advancing Front of Medicine*. New York: McGraw-Hill Book Company, Inc. 1941.



## CONSTITUTIONAL INADEQUACY

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The main trouble with many of the patients I see every day is that they are always weak and tired and full of pains and always getting sick in one way or another. Many have been operated on several times, but still they aren't well and they cannot get about and have fun as other people do. Some of the men cannot earn a living, and many of the women complain that they haven't strength and "pep" enough to be a satisfactory wife or mother. They drag around, they cannot do their housework, and they haven't the energy to go out anywhere with their husband.

THE HOPE OF FINDING ONE CAUSE  
FOR THE TROUBLE

Again and again these patients go to some consultant or medical institution with the idea that this time they will get examined so thoroughly that the cause of all their troubles will be found and perhaps removed. Again and again they get overhauled, and each time the physician finds some little abnormality or physical peculiarity which he views with alarm and treats for a while.

Commonest among the diagnoses made nowadays in the hope of explaining the sufferings of these people are colitis, spastic colon, ptosis, pelvic disease, adhesions, chronic appendicitis, glandular dysfunction, low blood pressure, mild Addison's disease, low blood calcium, brucellosis and chronic nervous exhaustion. That in a given case the diagnoses made in the past were wrong and the local abnormalities found were not sufficient to explain the illness can be seen from one fact alone, and this is that the extensive treatments carried out and the operations performed in an effort to correct the supposed diseases did not put an end to the symptoms.

## THESE PATIENTS ARE GETTING A RAW DEAL

Actually, as I listen daily to the stories these patients tell of their many medical adventures, I gain the disquieting impression that we physicians, in our desperate efforts to find some one bit of diseased tissue on which to place the blame for all their symptoms, are only grasping at straws. Again and again we pounce hopefully on some slight bodily peculiarity and try to correct it, only to realize after a fruitless operation or months of ineffectual treatment that we were on the wrong track. With the best of intentions we are giving these people a raw deal—doing too many things to them and wasting their money.

## HOW TO IMPROVE THE SITUATION

The question then is: How can matters be improved? It seems to me that, to begin with, we physicians must recognize more often and more promptly the constitutional frailness or sickness of these patients and the inherent incurability of their disease. We must stop looking hopefully for some one lesion to explain the disability, the psychoneurosis and the aches and pains everywhere, and we must not let ourselves be led astray by those little variants from normal that we can usually turn up during an examination. And when we do recognize the functional nature of the syndrome we must not rest satisfied with the diagnosis of chronic

nervous exhaustion, as so many of us are now inclined to do, but must go on to apply a label—constitutional inadequacy—which will keep reminding us that we are dealing with an inborn and essentially ineradicable disease.

## HOW TO RECOGNIZE THE PATIENT

The next question is: How are we to recognize these patients? Well, often it is easy. In many cases the nature of the disease can be recognized from a glance at the lengthy request for an appointment that came in the mail, written on two sides of cheap ruled paper. The long rambling tale of woe, with the evident longing for escape from a life of chronic invalidism and frustration into one of good health and happiness, gives a good idea of what is wrong.

Or when the patient walks into the office the diagnosis will be apparent. There, perhaps, will be a frail looking or scrawny woman, whose tissues were evidently made up out of poor materials. Perhaps the hand of the potter slipped a bit so that the body is poorly proportioned and poorly put together. Perhaps it looks as if, during the early years of development, the pituitary gland and the ovaries, which preside over sexual development, failed to do their job properly.

The curse of inadequacy will become even more apparent as soon as the long story is told of many illnesses, many diagnoses, much fatigue, much disability and much strenuous but futile treatment. Surely the minute the physician gets this history he should realize that he isn't going to work any spectacular cure, and he isn't going to make the patient over into a "husky," no matter how many localized diseases he succeeds in finding and removing.

It is more difficult to diagnose inadequacy when the patient is a big, well muscled man or a fine looking woman. Then the physician will have to depend on the characteristic history of repeated illnesses, many complaints and long continued and surprisingly severe disablement after every little infection, accident or operation. As a frail inadequate type of woman once said to me, "Dad may look big and strong, but let him get a pimple on his nose and he'll be laid up for two weeks, just as I would be."

Another way of recognizing the inadequate woman is to watch her as she goes through her tests, a little pain, a little diarrhea, a sleepless night, or some bad news from home, and she will be prostrated and confined to bed for a day or two.

As I have already said, the physical examination may or may not strengthen the impression that the patient is constitutionally inadequate. In a woman the uterus may be found to be infantile in type, the breasts may be poorly developed and nodular, the body hair may have a masculine distribution, the thoracic cage may be unusually long, with a narrow epigastric angle, and the pelvis may be flat and simian in type, but then again none of these physical peculiarities may be present.

SEVERAL TYPES OF THE CONSTITUTIONALLY  
INADEQUATE

There are several types of this disease. One of the simplest is to be found perhaps in the asthenic type, whose outstanding complaint is that he cannot do much work or excitement or loss of rest. Darwin is a beautiful example of an asthenic. For forty years he never could work more than three hours a day, and he couldn't stand the least excitement or departure from the day's routine. A trip to London, a few months

a public gathering or even a quiet evening with friends and he would be knocked out, unable to sleep and shivering and vomiting for several days. The asthenic does not have to be at all psychopathic or inclined to complain; he just cannot stand overwork or strain.

In many inadequate women the main trouble seems to be in the pelvic organs or those glands of internal secretion which regulate menstruation. The woman may have either an infantile or a monotonous uterus, perhaps cystic ovaries and chronic mastitis. She may menstruate with difficulty and she may be sterile. She may be frigid sexually and she may end up before she is 40 with a hysterectomy.

In another type of inadequacy there is poor resistance to infections of all kinds and poor ability to recover from them. In yet another type there is a tendency to aching and soreness in many parts of the body. There will be backaches, headaches and arthritic, myositic, fibrositic and neuritic pains all over the body. A certain number of badly migranous persons are constitutionally inadequate. Curious are the inadequate who become senile early in life. One finds them selling magazines and pop on trains or working as messenger "boys."

The inadequate with a neurocirculatory type of asthenia are likely to have hypertension with an irritable heart and a tendency to cardiac neurosis. They often have cold clammy hands, cyanotic legs and feet, a little albumin in the urine, dizziness on changing position, and a tendency to fainting.

Common is the type of inadequacy in which the patient complains principally of digestive troubles and in whom the symptoms are mainly those of an irritable colon, indigestion, perhaps a sore liver, poor appetite, and difficulty in eating enough to maintain normal weight. Some of the inadequate have what I call a small intestinal laboratory which allows them to digest only small amounts of food at a time. Some of them perhaps have too short a small bowel for adequate absorption. Dr. William J. Mayo used to say that at operation on these persons he often noted a flabby gastrointestinal muscle.

Still more common is the type of inadequacy in whom the symptoms are predominantly those of nervousness, worrisomeness, hypersensitiveness, and a great fear of illness and death which keeps the victim running to doctors all the time. Often he goes not so much because he is ill as because he fears his discomforts are going to turn into something serious. He may go also because he cannot stand much discomfort or pain, he cannot "take it" as many normal people do, and, because of this and his fears, his behavior in the physician's office or the hospital is often peculiar and easily recognizable. It is so characteristic that when I find it in a man or a woman with a finely built body I suspect that I am dealing with an inadequate, and usually my later experience with that patient shows that I was right.

Interestingly, when this peculiar psychopathic makeup is lacking in a frailty built person and he has sufficient energy, fortitude, "guts" and "ability to take it," he never becomes an inadequate, or certainly never behaves like one. As Robert Louis Stevenson remarked after a lifetime of achievement, gained in spite of daily suffering with tuberculosis, a man has good health if he can only do without it uncomplainingly. On the other hand, many a neurotic or psychopathic person is not inadequate and never feels physically ill. Apparently it is only a certain type of neurosis or psychosis that goes with or produces constitutional inadequacy.

#### IS THERE A NEED FOR A SEPARATE LABEL OF CONSTITUTIONAL INADEQUACY?

Some physicians will probably feel like interrupting me at this point to ask if it is true that most of these persons are neurotic or psychopathic, why shouldn't we classify them as such and let it go at that, why bother to give them an extra label? My answer is that often I feel the need for an extra label to tell something important about a patient which other labels used alone will not tell. I find it useful to pick out of the groups of the frail looking, the husky looking, the neurotic and the psychopathic those particular persons who do not stand up well to the strains of life and cannot be made over into strong useful persons, no matter how many localized diseases are found and eradicated.

I feel the need for an extra label also when dealing with those thousands of chronically ailing persons whose symptoms seem to be due partly to a frail body and partly to a poorly functioning brain. For them I like an omnibus term like constitutional inadequacy. Incidentally, some physicians may ask: Why not use the term constitutional or biologic inferiority? and my answer is that this term is likely to be offensive to the patient. Many a person who might object to being called inferior will admit freely that he is inadequate to stand up well to the stresses of life. If I see that a patient is a bit cast down over this idea, I try to cheer him by pointing out my own woful inadequacy to earn a living as a prize fighter. Thus I get him to see that not all of us in this world can be strong enough for every type of work, and some must take the easier jobs.

Certain it is that to recognize early the presence of constitutional inadequacy is to save a patient much futile treatment and perhaps several largely useless operations. For instance, let us consider the problem of a young woman with menstrual pain so severe that she has to keep to her bed for a day or two out of every month. If she is otherwise healthy and strong, a surgeon can go ahead and resect the presacral plexus with much hope of working a cure, but, if after talking to her awhile he concludes that she is an inadequate person, he may well refuse to operate because he will then have little hope of making her over into a strong, healthy woman.

It is helpful also in many cases to apply a label which will show the essential unity of what, at first glance appeared to be a group or a series of unrelated diseases. For instance, let us turn to the record of a frail school-teacher who, years ago, broke down and became tired out and full of misery. At a university clinic to which she went, the gynecologist blamed dysmenorrhea for her troubles, the endocrinologist blamed a pituitary-ovarian dysfunction, the neurologist blamed a severe migraine, the psychiatrist blamed overwork and a poor adjustment to celibacy, the orthopedist blamed a twisted spine, the gastroenterologist blamed a "colitis" and the surgeon blamed the appendix.

Who was right? Well, let us see. During the years that followed, resection of the presacral plexus stopped the menstrual pain, the headaches were relieved by ergotamine tartrate (gynergen), the giving up of the job removed the main cause of fatigue, marriage put a stop to many psychic conflicts, physical therapy helped the back, diet and enemas kept the colon fairly comfortable, and the appendix was removed. But the woman didn't get well! She went on being tired and full of misery, and then gradually it dawned on every one who was taking care of her that, from the beginning, all her troubles had been but manifestations of a constitutional

inadequacy Now, if this basic defect had only been recognized at the start, as I think it could have been, the woman and her husband could have understood better what they were up against, and if in those early years they had acquiesced to the situation they could have saved the thousands of hard earned dollars they spent on several wild goose chases after health.

Another time when I feel the need for an extra label is when I see a patient who has some organic disease, such as duodenal ulcer, but who owes practically all his discomfort and disability to constitutional inadequacy. In such cases I like to recognize the inadequacy early before I waste much time on treatments which, even if they should heal the ulcer, cannot put the patient back to work.

#### COMMON COMPLAINTS OF PATIENTS WITH CONSTITUTIONAL INADEQUACY

Now, what are the common symptoms of inadequacy? As the reader will already have gathered, the symptoms are many. Perhaps the commonest are those of excessive fatigue and a lack of energy and reserve strength. Other common complaints are aches and pains everywhere, nervousness, faintness, dizziness, indigestion, poor appetite, loss of weight, regurgitation, a sensitive colon, constipation, palpitation, clammy hands, cardiac neuroses, defective or painful menstruation, dyspareunia, sterility, poor resistance to infection, slow recovery from any illness or injury, insomnia, "chronic fever," "weak eyes" and an irritable bladder.

#### THE DIAGNOSIS

Inadequacy must always be suspected whenever it is noted, first, that nervous prostration, disabilities of various kinds and feelings of great fatigue have been present for years without bringing disaster. Sometimes the patient will even end up in the fifties looking fat and healthy. Second, that the severity of the symptoms is out of all proportion to whatever slight deviations from normal can be found on a thorough overhauling. The essential point which can and should often be made to a patient is that even if she had the gallstones her home physician feared she had, she wouldn't be anywhere near so ill and prostrated as she is. Third, that the aches and pains are scattered too widely over the body to be explained on the basis of any one lesion. If the woman had the disease in the appendix that she thinks she has, this might account for her indigestion and part of her abdominal distress, but it couldn't account for the rest of her many symptoms. Often I tell a highly nervous woman what I think is a fact, and that is that there is no disease of the abdominal organs which can produce a psychoneurosis. That must arise in the brain.

The diagnosis of inadequacy with hypersensitiveness and neurosis is often made or strengthened as the physician watches the way in which a woman behaves in the office as she submits to the several examinations. She may lie around apathetically, as if too tired to sit up, she may go around in a wheel chair which she could easily do without, she may complain bitterly about procedures which do not bother most patients, she may be prostrated by every little discomfort, and she may be hard to handle.

And when the physician starts treating her, again he is likely to get information of much diagnostic value. At the hospital she may be upset by small discomforts and annoyances, and everything that is done for her may make her worse. Drugs will have unexpected, abnormal and disturbing effects, sedatives will work like

excitants, and a soft diet may cause her more distress than she had on a full diet. In spite of a high caloric intake she may lose weight.

#### THE CAUSE OF THE TROUBLE

Whatever the cause of this protean syndrome is, I am sure it is not to be found in any disease in any one organ, unless it is the brain. Actually, in most cases I feel sure the primary constitutional weakness is in the nervous system. I feel sure of this because (1) I have found constitutional inadequacy sometimes in finely built men and women, and (2) I have found it so often in the relatives of the insane. I believe the severe forms of constitutional inadequacy are commonly equivalent of insanity. Interestingly, it has been shown that most of the soldiers with "disordered action of the heart," who so often end up as inadequate veterans, have near relatives who are insane.

In some cases poor materials seem to have gone into almost every organ of the body. Certainly there must be a tremendous difference between the original physical endowment of one of these frail, always ailing persons and that of a man who, after eighty years of good health, still has his hair, his teeth, his eyesight and plenty of energy.

Although the symptoms of inadequacy may not show up until a woman is over 20, the defective tissues must have been there from birth. Naturally, like the walls of a defective tire they are likely to hold well for some time before they blow out. Some persons with an inheritance that predisposes to inadequacy can remain well for years if they can only be spared adversity, overwork, infections, accidents and operations. It is doubtful that typical inadequacy can ever be produced by suffering and disease if good materials went originally into the construction of the person's body. Certain it is that many persons with a good nervous inheritance will stand years of suffering without showing signs of inadequacy. I remember a merry, dynamic, able woman who kept on running a business for years after she was almost ossified by a painful form of arthritis.

The main defect in the inadequate person seems often to be a lack of that something in the brain that keeps most persons feeling well and unconcerned about health. Perhaps it is this same something that keeps most of us hopeful when we are ill or enables us to accept discomforts and disasters and to carry on cheerfully in spite of them.

I feel sure that many inadequate persons are tired most of the time because they use their brains unwisely and waste so much energy on foolish thinking, silly worrying, conscience searching, jealousies, flare up of temper, conflicts with people, and riots of emotion. We healthy persons would be tired out too if we were to use our brains so uneconomically.

#### THE HEREDITY OF THE DISEASE

As I have already said, constitutional inadequacy is inherited from forebears who suffered either from inadequacy, frailness of body, poor pituitary development, or some form of psychopathy. Here, let us say, is Jones, who all his life is going to suffer from fatigue and lack of energy that he will be unable to earn a living. My impression is that if he had been at his conception all the bad genes that Grandfather Jones had to hand on he would have ended up in an insane asylum with melancholia just as she did. Seeing that the bad genes derived from her were offset by fairly good ones from three other grandparents, Bill got was a bad case of that tired feeling.

of insanity commonly heard of as one takes the history of the patients with severe forms of constitutional inadequacy are shuttleness, eccentricity, vagabondism, solitariness, dipsomania, suicide, stammering, enuresis, pathologic temper and treble-mindedness.

Often I have been impressed by the fact that in certain families constitutional inadequacy, psychopathy or neurosis and abnormalities in the functions of the glands of internal secretion seem to be inherited sometimes together and sometimes sorted out. From this I gain the impression that the genes for these defects are sometimes linked and sometimes separated.

#### TREATMENT

As already pointed out we physicians must become more conscious of the importance of this problem of constitutional inadequacy and we must become more adept at recognizing the victims when they first begin to break down. We must spot them soon after they come into the office. After recognizing them we must spend much time with them trying to get them to understand the situation to acquiesce to it and to stop hunting for a complete cure. When they will permit us to use our judgment as to the tests worth making and the treatments worth trying, we can save them from the wastage of much money.

We must learn the technic of explaining the situation to them so that they will accept our verdict without annoyance or rebellion and will decide to mend their bad psychic ways, to hoard their energies and to live within their limited means of strength. Oftentimes we can make these persons self supporting or at least less of a burden to their relatives than they were before, by encouraging them to find work that they can do without breaking themselves down. Often we can give them hope and encouragement by telling them what is true and that is that some of the best work of the world has been done by frail persons who suffered from poor health all their days. I often point to Darwin, who, by working only a few hours a day, published a long series of papers and books and changed the thought of the world.

Sometimes the constitutionally inadequate man greatly needs the physician's help in getting his family or more important yet, his wife's family, to understand the situation so that they will stop blaming him for his failures to work steadily and to succeed well in life. Women often need similar help so that the husband will understand the situation and will be more sympathetic and helpful.

#### SUMMARY

Many of the chronically ailing patients seen daily by medical consultants are constitutionally inadequate persons, unable to stand up well to the strains of life. They cannot be cured, as they hope to be, by the discovery and eradication of any one local disease.

By grasping desperately at diagnostic straws, by carrying out extensive treatments and performing operations on these persons, we physicians, with the best of intentions, often do them injury, and waste their money and our time.

We must learn to recognize these persons and their symptoms more often and more quickly so as to save them expense and trouble. In many cases the basic weakness is in the nervous system. In bad cases the disease seems to be an equivalent of insanity. In other cases it goes with an inheritance of a frail body and defective glands of internal secretion.

Treatment must consist mainly of keeping the patients from doing foolish things and wasting money. They

must be taught if possible to acquiesce to the situation to stop hunting for a complete cure to hoard their energies and to find a job that can be done without too much fatigue.

In times of war every effort must be made to keep the constitutionally inadequate out of the army. All they do is to break down and go on the pension roll.

## STUDIES ON THE CONTROL OF ACUTE RESPIRATORY INFECTIONS

### I. PRELIMINARY REPORT ON THE ORAL ADMINISTRATION OF SULFADIAZINE AT THE ONSET OF ACUTE RESPIRATORY ILLNESSES

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NEW YORK

The successful treatment of pneumococcic streptococcic and other bacterial infections of the respiratory tract with sulfonamides has led to a consideration of their use in the prevention of these infections and their complications. For this purpose sulfadiazine<sup>1</sup> was chosen because of the early reports on its relatively low clinical toxicity and its high therapeutic effectiveness<sup>2</sup> against different bacterial pathogens of the respiratory tract. This preliminary report deals with the clinical conditions found in patients treated at the onset of symptoms of acute respiratory infections as compared with those who were not treated with sulfadiazine.

#### PLAN OF STUDY

The study has been conducted at Letchworth Village, a New York state institution for mental defectives. It was carried out among the group of children

From the Public Health Research Institute of the City of New York. The sulfadiazine was supplied by Lederle Laboratories, Inc., Pearl River, N. Y.

Aided by a grant from the Metropolitan Life Insurance Company on the recommendation of the Influenza Pneumonia Commission.

The physicians at Letchworth Village, particularly Dr. Harry C. Storrs, superintendent, Dr. Herman Alpert and Dr. Nathaniel Bernstein aided in this work.

1 Roblin R. O. Jr., Williams J. H., Winick P. S. and English J. P. Chemotherapy. Some Sulfanilamide Heterocycles. *J. Am. Chem. Soc.* 62: 2002-2005 (Aug.) 1940.

2 These reports include:

Plummer Norman and Ensworth H. K. Absorption and Excretion of Sulfadiazine. *Proc. Soc. Exper. Biol. & Med.* 45: 734-738 (Nov.) 1940.

Feinstone W. H., Williams R. D., Wolfe R. T., Huntington Evelyn and Crossley M. L. The Toxicity, Absorption and Chemotherapeutic Activity of 2 Sulfanilamidopyrimidine (Sulfadiazine). *Bull. Johns Hopkins Hosp.* 67: 427-452 (Dec.) 1940.

Reinhold J. G., Flippin H. F., Schwartz Leon and Domm A. H. The Absorption, Distribution and Excretion of 2 Sulfanilamidopyrimidine (Sulfapyrimidine Sulfadiazine) in Man. *Am. J. M. Sc.* 201: 106-115 (Jan.) 1941.

Peterson O. L., Strauss Elias, Taylor F. H. L. and Finland Maxwell. Absorption, Excretion and Distribution of Sulfadiazine (2 Sulfanilamidopyrimidine) in Man. *ibid.* 201: 357-367 (March) 1941.

Long P. H. Sulfadiazine the 2 Sulfanilamidopyrimidine Analogue of Sulfanilamide. *J. A. M. A.* 116: 2399-2400 (May 24) 1941.

Finland Maxwell, Strauss Elias and Peterson O. L. Sulfadiazine Therapeutic Evaluation and Toxic Effects on Four Hundred and Forty Six Patients. *ibid.* 116: 2641-2647 (June 14) 1941.

Schwartz Leon, Flippin H. F., Reinhold J. G. and Domm A. H. The Effect of Alkali on Crystalluria from Sulfathiazole and Sulfadiazine. *ibid.* 117: 514-515 (Aug. 16) 1941.

Long P. H. Clinical Use of Sulfanilamide Sulfapyridine Sulfathiazole Sulfaguanidine and Sulfadiazine in Prophylaxis and Treatment of Infections. *Canad. M. A. J.* 44: 217-227 (March) 1941.

Long P. H., Bliss Eleanor A. and Ott E. Studies on Sulfadiazine I. The Chemotherapy of Experimental Hemolytic Streptococcal Pneumococcal and Staphylococcal Infections in Mice. *Bull. Johns Hopkins Hosp.* 69: 297-302 (Oct.) 1941.

Trevett G. I., Nelson R. A. and Long P. H. Studies on Sulfadiazine II. The Clinical Use of Sulfadiazine in the Therapy of Bacterial Infections Other Than Pneumonia. *ibid.* 69: 303-313 (Oct.) 1941.

Billings F. T. and Wood W. B. Jr. Studies on Sulfadiazine III. The Use of Sulfadiazine in the Treatment of Pneumococcal Pneumonia. *ibid.* 69: 314-326 (Oct.) 1941.

Sulfadiazine. Report of the Council on Pharmacy and Chemistry. New and Nonofficial Remedies. *J. A. M. A.* 118: 730-731 (Feb. 28) 1942.



with the lowest mental rating who were highly susceptible to respiratory infections and who usually had an annual pneumonia incidence of more than 10 per cent. These children were confined to two cottages, the boys to cottage Iota and the girls to cottage Y. Each cottage had about 130 inmates varying in age from 2 to 14 years, the average being about 8 years.

In cottage Iota the inmates were allocated to a sulfadiazine treated and a control group in alternate order of admission to the institution. The average number in each group throughout the test period was about 65. The groups were comparable in respect to physical and mental characteristics, age, weight, duration of residence at the institution and incidence of endemic respiratory infections and pneumonia.

In cottage Y definitive test groups were not chosen for the duration of the study. Instead, alternate patients with acute respiratory illnesses were treated with sulfadiazine.

The sick children in each cottage were put to bed in their respective dormitories as soon as any symptoms of infection were recognized. They received the routine type of treatment employed in the cottage. This consisted of bed rest, enemas, fluids, acetylsalicylic acid and local applications as needed. In addition, the group treated with sulfadiazine received the drug from the time of onset of recognizable symptoms of respiratory illness.

Patients requiring hospital care were transferred to the hospital maintained at the institution. Here the type of treatment depended on the nature and severity of the illness and not on the test group to which the patient had been assigned in the cottage.

The dosage of sulfadiazine employed in this study varied with the weight of the affected child and the temperature. For children weighing less than 50 pounds (23 Kg) and having a rectal temperature of less than 102 F at the onset, the initial dose was 1 tablet of 0.5 Gm, followed by two doses each of 0.5 Gm at four hour intervals. After the first day, 1 tablet of 0.5 Gm was given three times a day at 8 a. m., noon and 4 p. m. For children weighing more than 50 pounds or for those having a temperature of 102 F or more at the onset, the initial dose was 1 Gm, followed by three doses each of 0.5 Gm at four hour intervals. Then daily maintenance dose was 4 tablets (2 Gm) given in four doses between 8 a. m. and 8 p. m. The drug was given for at least three or four days or until the rectal temperature had been less than 100 F for twenty-four hours.

#### RESULTS

The test period in cottage Iota began on Dec 14, 1941, and from this date to Jan 17, 1942 79 patients with colds were observed, 8 the first week, 7 the second, 10 the third, 35 the fourth and 19 the fifth.

There were 39 in the sulfadiazine treated group and 40 in the control group.

The number of clinical infections was equally distributed between the test groups. The frequency and severity of the acute respiratory illnesses increased after December 28 and reached epidemic proportions between January 4 and January 17, when about 40 per cent of each group was affected. During this period the predominant symptoms were coryza and cough. Many of the infections of the upper respiratory tract were severe and were associated with a high incidence of acute bronchitis and pneumonia.

Hospitalization was required by 12 (30 per cent) of the control group and 2 (5 per cent) of the sulfadiazine treated group. In 1 case of the treated group the temperature was 105.6 F on the first day of illness when pneumonia was suspected, 99 F on the second day and 103 F on the third day, when a definite diagnosis of pneumococcus type XVIII A (Dougherty)<sup>3</sup> lobar pneumonia was made. In the other case the temperature was 106 F when the illness was first recognized, and the patient was at once transferred to the hospital after having received an initial dose of 1 Gm of sulfadiazine.

Of the 12 control patients who were hospitalized, 6 had pneumonia. Type I pneumococcus pneumonia occurred in 4 of these cases. 2 were recognized within twenty-four hours after the first signs of illness were observed, the third within seventy-two hours after the onset and the fourth case after nineteen days of intermittent fever, nasal discharge and cough. In the remaining 2 cases of pneumonia, signs of consolidation were recognized two and six days, respectively, after the first symptoms of illness were noticed. The latter patient died shortly after admission to the hospital. Of the remaining 6 hospitalized control patients, 3 had acute bronchitis and 3 nasopharyngitis.

Hospitalization was not required in 37 (95 per cent) of the sulfadiazine treated group and 28 (70 per cent) of the control group. A fall in temperature after the first day's treatment with sulfadiazine occurred in 35 (90 per cent) cases, while in 2 (5 per cent) there was a transient exacerbation of fever within seventy-two hours after withdrawal of the drug. After the first day's treatment in the control group there was a fall in temperature in 14 (35 per cent) cases, while an equal number showed a rise in temperature after routine treatment in bed had been instituted.

When the temperature remained below 102 F there was no significant difference in the duration of fever between treated and control groups. However, the difference was considerable among those whose maximum temperature was 102 F or over. In these cases fever persisted for only one to two days in 60 per cent of the treated group as compared with 10 per cent of the controls, for three to five days in about 30 per cent in each group and for more than five days in about 10 per cent of the treated group as compared with 60 per cent of the controls. The average duration<sup>4</sup> of fever after the first day's treatment had been instituted was 1.6 days in the sulfadiazine treated group and 4.2 days among the controls.

In cottage Y, the test period began on Jan 19, 1942 during the latter part of an outbreak of severe acute respiratory infections with a high incidence of pneumonia and acute bronchitis. During a two week period of observation from January 19 to January 31 there were 18 cases, 9 each in the control and sulfadiazine treated groups.

In the sulfadiazine treated group of cottage Y, the temperature of every patient treated for at least one full day dropped within twenty-four hours. On the second day of illness, all but 1 had temperatures below 100 F throughout the day and did not appear toxic. In 1 patient pneumonia was suspected at the onset, and the child was transferred at once to the hospital after an

3 The typing was done by the Pneumonia Division of the Department of Health of New York City.

4 In the calculation of the average duration of fever illnesses of ten days or longer were each considered as ten days to offset the influence of extreme values. This favored the control group which had 6 cases as compared with 1 in the sulfadiazine treated group.



nitral dose of 1 Gm of sulfadiazine had been given. Two patients had secondary rises in temperature for one day on the fourth and sixth days respectively, within twenty-four to forty-eight hours after discontinuation of sulfadiazine.

Of the 9 control patients, only 2 recovered promptly after the first day's observation. The others were quite sick for a few days, they were restless and apathetic and refused to eat. They lost considerable strength and weight during the illness and had a prolonged convalescent period. Two control patients were sent to the hospital 1 on the fourth day of illness with an acute bronchitis of undetermined etiology, the other on the first day of illness with bronchopneumonia attributable to pneumococcus type V. This same type of pneumococcus was responsible for at least 2 other cases of pneumonia in the early part of the outbreak.

On February 21 a second outbreak of respiratory infections occurred which affected 12 inmates within ten days in cottage Y. They all had a nasopharyngitis with considerable coryza, a few also had bronchitis. There were no cases of pneumonia and little evidence of toxicity. Most of the affected children were usually active and playful and maintained good appetites throughout these illnesses.

The dramatic drop in temperature that was observed within twenty-four hours after the use of sulfadiazine during the first outbreak did not occur with the same regularity again. In 2 cases the initial infection did not seem to be modified by the use of sulfadiazine, and the temperature remained high for three days. In one of these cases the sulfadiazine level on the third day was 5.1 mg per hundred cubic centimeters and in the other case it was 3.8 mg per hundred cubic centimeters. At the end of five days the temperature was normal and remained normal. The controls recovered without difficulty except for 2 patients. One had a nasopharyngitis of undetermined etiology while the other had an acute bronchitis attributable to pneumococcus type V. Significant organisms were isolated in only 2 other cases—pneumococcus type XI A (Gorman) in one and *Streptococcus hemolyticus* in the other. Single throat smears in the early acute stage in the remaining 9 cases were negative.

After the first day's treatment, the blood level of free sulfadiazine<sup>5</sup> usually varied from 4 to 6 mg per hundred cubic centimeters during the period in which the drug was employed. The maximum level reached as 12 mg on the fifth day of treatment in a child weighing 47 pounds (21 Kg) and receiving 1.5 Gm daily. With the dosage employed there were no gross ill effects except for a transient rash which developed in 1 case after five days of treatment.

#### COMMENT

Preliminary study on the use of sulfadiazine at onset of symptoms of respiratory illnesses, it was found that most of the patients receiving sulfadiazine improved after twenty-four hours, a few had a secondary rise in temperature within seventy-two hours after premature withdrawal of the drug and no evidence of improvement. At twelve hours after treatment was begun there was no perceptible difference between control cases. Within twenty-four to thirty-six hours, however, there were usually signs of improvement in the treated group. The temperature remained low. The patient appeared less toxic.

<sup>5</sup> Determined through the courtesy of Dr. Jesse G. M. Bullowa at New York.

His appetite returned and he was no longer restless and apathetic but brighter and more cheerful. Signs of infection, such as coryza and cough, still persisted in many cases, but the infection appeared to be subsiding, as if the inflammation had abruptly passed the acute stage. Most patients showed no exacerbation of the infection when the drug was discontinued after four days of treatment. Some children, particularly those who appeared to be seriously sick at the onset or who had persistent discharge and other evidence of infection, required treatment beyond the four day period. Premature withdrawal of sulfadiazine in these cases resulted in a secondary rise in temperature within seventy-two hours, which usually dropped to normal on reintroduction of the drug. On the whole therefore, the infection usually appeared to be checked within twenty-four to forty-eight hours after administration of the drug and usually remained under control.

On the other hand the course in the control group was unpredictable. An occasional patient with high fever at the onset quickly recovered, while other patients who started with low temperatures developed secondary complications. In general, although most of the control children recovered promptly and without complications, some did not, while 1 died. There was usually no way of foretelling the outcome in this group. Those whose temperatures remained below 102 F usually did as well as those in the treated group. However, there was no way of telling who would have a rise in temperature, when it would occur and what the course of infection would be.

In one small outbreak of relatively mild infection of the upper respiratory tract, the course of the initial infection did not appear to be modified by the use of sulfadiazine. A secondary rise in temperature was not noted. It is a reasonable assumption that this outbreak was due to some agent, probably a virus, not susceptible to the action of sulfadiazine.

The favorable results obtained with sulfadiazine are attributable to its effectiveness against many of the pathogenic organisms which are active in acute respiratory infections. The role of these infecting agents in producing respiratory illnesses under various conditions is not thoroughly understood at present. Any measure, however, which is effective against the pathogens at their source should contribute to the control of these infections. The extent to which respiratory infections can be safely controlled by the use of sulfonamides remains to be investigated on an etiologic basis.

#### SUMMARY AND CONCLUSION

Clinical observations on the value of sulfadiazine when administered at the onset of recognizable symptoms of respiratory illness in a highly susceptible group of mentally defective children—the group being divided into 54 children treated with sulfadiazine and 55 control patients observed between Dec 14, 1941 and March 2, 1942—show that usually those treated with sulfadiazine appeared less toxic after twenty-four hours and recovered more promptly than the controls. In some cases, however, the initial infection was not modified by sulfadiazine therapy in the dosage employed.

Judging from these preliminary observations among highly susceptible children, it appears that sulfadiazine can be advantageously employed early in the course of many acute respiratory illnesses. In some cases such a procedure might be an early form of therapy, in others a prophylactic measure.

Foot of East Fifteenth Street.

HEREDITARY DEFORMING  
CHONDRODYSPLASIAB. T. VANZANT, M.D.  
AND  
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Hereditary deforming chondrodysplasia<sup>1</sup> is a distinct clinical entity, easily recognized and presenting an unmistakable clinical morphologic, histologic and roentgen appearance. It is a relatively rare condition.

The first recorded case<sup>1a</sup> appeared in a Guy's Hospital report in 1825, the first in American literature, not until Gibney's<sup>2</sup> report in 1875. Since the publication of two excellent papers by Ehrenfried<sup>3</sup> in 1915 and 1917, the number of reported cases has increased many fold. Most clinicians still fail to recognize this condition. Textbooks of pathology make brief mention, and medical dictionaries confuse it with other conditions.

## NOMENCLATURE

It is our belief that the undeserved slighting of this interesting condition is due largely to the unfortunate habit of each writer's devising a new name for the condition, based on some clinical or pathologic peculiarity or other whim. While it is obviously desirable for names of diseases accurately to describe them, a still more important function is that their names should identify them. In a not too comprehensive survey we found the following appellations for this disease: multiple exostoses, multiple cartilaginous exostoses, multiple cancellous exostoses, multiple congenital osteochondroma, chondral dysplasia, diaphysial enchondrosis, laminated exostoses, ossified diathesis and dyschondroplasia, in addition to the designation used in this paper, hereditary deforming chondrodysplasia. We have arbitrarily accepted this title.

## DESCRIPTION OF THE DISEASE

Ehrenfried calls attention to the three most striking features of the disease by stating that it is "characterized by (1) the occurrence of multiple more or less symmetrical cartilaginous and osteocartilaginous growths within and upon the skeletal system, generally benign, and resulting from a disturbance in the proliferation and ossification of the bone-forming cartilage, (2) the occurrence of certain typical secondary distortions and deformities of the skeleton, and (3) the demonstration of inheritance in a large proportion of the cases." In the light of present knowledge we would amend his definition by saying that the pathologic picture is that of a disturbance in bone development most noticeable in the metaphysial ends of the long bones and leading to expansion of the ends, profound alteration in their architecture and the development of cartilaginous masses within the bone (enchondroma) and projecting from

it (exostoses), and also narrowing and irregularity in the epiphysial cartilages, which tend to unite prematurely.

The most prominent feature is the presence of bony outgrowths. They take the form of cartilaginous knobs, spurs and pedunculated masses, which may attain a large size. Structurally these protuberances are cartilaginous in the beginning, but, as they become larger and older, cancellous bone forms in the center so that they may be designated either as chondroma or osteochondroma, depending on the stage of development. McCallum<sup>4</sup> states that they "appear about epiphyses in young persons and are left along the shafts as the bone grows." Histologically the growths are identical with exostoses due to trauma or infection, but the associated metaphysial disease distinguishes it from the other condition.

The entire metaphysis is expanded, producing a typical trumpet-shaped or boxlike end best developed at the lower end of the femur and the upper end of the tibia. Trabeculation is distorted and irregular and calcification is not uniformly dense. Throughout the substance there may be bubble-like vacuolations resembling bone cysts when seen on the roentgenogram. These are the sites of enchondromas. They are more common in the small bones of the wrist and ankle than in the long bones.

Irregularities in shape and structure are usually present in the epiphysial cartilages. They tend to unite prematurely with the shaft, producing the shortening and dwarfing so often seen in the cases of more severe involvement.

There is a great tendency for bony fusion to occur between the lower ends of the tibia and fibula and of the ulna and radius. Since there is commonly a difference in the degree of arrest of growth in the fused bones, various deformities are brought about, such as changes in direction of the articular surfaces, dislocations and false articulations and bowing and spiral twisting of the shafts. There may be ulnar displacement of the wrist, or "clubhand." Knock knees and valgus deformities of the foot are often striking.

The exostoses produce remarkably little interference with function because of their peculiar tendency to point away from the joint. However, when they are of large size they may be not only inconvenient but actually harmful if they press on nerves, the spinal cord, blood vessels and other structures. They may block the birth canal in parturient women. The tumors themselves are painless but surrounding and overlying tissues may become inflamed and tender because of trauma.

Although the exostoses are the most prominent lesions, and they are usually responsible for the patient's seeking medical advice, the disease is not to be diagnosed on their presence alone but rather on the complex picture of disturbed growth, of which the exostoses are only one evidence. In fact, exostoses are not invariably present, for Blount<sup>5</sup> described what appears to be an authentic case in which they were absent, and Alley<sup>6</sup> found diaphysial changes in the youngest child of an affected family, which he believed constituted a preexostotic stage.

[1] NOTE.—The nomenclature of the disorders discussed in this paper has been studied in connection with the recent revision of the Standard Nomenclature of Disease. The entries in the book do not conform with the recommendations in this paper, e. g., dyschondroplasia is preferred to chondrodysplasia, and multiple osteocartilaginous exostoses is not considered an identical disease.—Ed.]

1a. Guy's Hospital Report, *Lancet* 8 91 (July 23) 1825, cited by Graney, C. M. Hereditary Deforming Chondrodysplasia, *J. A. M. A.* 112: 2026-2030 (May 20) 1939.

2. Gibney, V. P. Multiple Exostoses, *M. Rec.* 10: 300, 1875, *Am. J. M. Sc.* 72: 73, 1876, *M. Rec.* 15: 589, 1879, cited by Graney.

3. Ehrenfried, Albert. Multiple Cartilaginous Exostoses—Hereditary Deforming Chondrodysplasia. A Brief Report on a Little Known Disease, *J. A. M. A.* 64: 1642-1646 (May 15) 1915, Hereditary Deforming Chondrodysplasia—Multiple Cartilaginous Exostoses. A Review of the American Literature and Report of Twelve Cases, *ibid.* 68: 502-508 (Feb. 17) 1917.

4. McCallum quoted by Gorsline, C. S. Familial Deforming Chondrodysplasia. Multiple Exostoses, *Am. J. Roentgenol.* 6: 212 (Aug.) 1930.

5. Blount, W. P. Chondrodysplasia, *Am. J. Dis. Child.* 10: 10 (Aug.) 1930.

6. Alley, Reuben G. Hereditary Deforming Chondrodysplasia, *ibid.* 28: 544-551 1937.

## PROGNOSIS

The disease is distinctly one of growth. Lesions may be present at birth or develop during childhood, but as maturity is attained they become inactive. It is even claimed that some of the lesions regress in later years. Pedunculated tumors however may continue to grow for many years during adult life. Rapid increase in size and the onset of pain suggest that sarcomatous changes are appearing but such changes occur in a very small percentage of cases, probably less than 5 per cent.

## HISTOGENESIS

It was long believed that the lesions were limited to those bones which embryologically arise in cartilage. On the basis of this belief a number of theories of histogenesis have been evolved. Keith<sup>7</sup> pictures the defect as arising from the failure of diaphysation or tubulation which leaves a broad unmolded zone of bony tissue between the growing end and the shaft, from which protuberances grow "as a secondary result of the primary disorder of growth."

Geschickter's<sup>8</sup> view is that there is a defect in the development whereby islets and strands of primitive cartilage persist throughout the metaphysis. Their growth produces masses of cartilage which distort the architecture of the bone and which tend to grow outward and to project through defects in the overlying, limiting periosteum thereby producing exostoses.

Both theories locate the defect at the stage of transition from cartilage to bone. Neither view can be harmonized with the finding of changes in bones which arise directly from primitive membrane without the intermediation of cartilage, yet there are a number of instances of exostoses arising from the skull bones and Mahorner<sup>9</sup> describes a fine mottling of the skull due to irregular calcification in 1 of his cases.

It seems to be more in keeping with the facts to assume that there is an inherited defect in the primitive anlage for both cartilaginous and membranous bone producing disturbances of bone formation which are expressed as growth occurs and hence are most pronounced at the points at which growth is most active, namely at the growing ends of the long bones. The comparative immunity of carpal and tarsal bones, vertebrae and the bones of the skull is due to their slow rate of growth. Similarly, the phalanges are less often and less severely affected than the femur simply for the reason that phalangeal growth is to be measured in millimeters whereas the growth of the femur is measured in centimeters.

The distribution of lesions supports this belief for we find that the most frequent and extensive involvement occurs at the ends of the femur, tibia, fibula, radius, ulna and humerus.

## DIFFERENTIAL DIAGNOSIS

The differential diagnosis of this disease from benign and malignant neoplasms, traumatic exostoses, multiple myeloma, rachitis and tuberculous, syphilitic and chronic infectious osteomyelitis and periostitis presents few problems if the distinctive features of hereditary

deforming chondrodysplasia are recalled: the expanded metaphyses, multiple exostoses, frequent endostoses, the characteristic distribution of the lesions, the shortening, torsion and deformities of the long bones and frequent fusion of the ulna with the radius and the tibia with the fibula and the history of similar deformities in other members of the family.

The disease is more difficult to differentiate from some of those rare bone conditions whose distinguishing features are not clearly defined and descriptions of which are not available in most reference books. We must also include in the list a number of conditions which present no clinical similarities but whose designations are so similar as to require definition. A few of these conditions will be described briefly.

Ollier's disease is considered by many to be a sub-variety of hereditary deforming chondrodysplasia. Differentiating points are the unilateral or asymmetrical distribution, the large number of enchondromas, infrequent exostoses and moderate enlargement of the diaphysal ends. Heredity is not a striking feature.

In Albers-Schonberg disease, variously called osteopetrosis, osteocretosis, osteosclerosis, fragilitas or osteosclerosis with anemia, exostoses occur but are not common, and the metaphyses may be expanded but not so much as in chondrodysplasia. They show stippling with densely opaque deposits. The lesions are not limited to the ends of the bones but involve the shaft as well.

In Voorhoeve's disease there may be metaphysal enlargement and some exostoses. The condition is distinguished by fine longitudinal striations due to incomplete calcification.

Osteodystrophia fibrosa is characterized by precocious puberty, a yellowish pigmentation of the skin and a progressive generalized fibrocystic disease of the skeleton. The clear cystic areas may be confused with the vacuolations due to the enchondromas of chondrodysplasia.

Osteodystrophia fibrosa unilateralis of Freund is characterized by facial dyssymmetry, unilateral distribution and involvement of the whole diaphysis as well as the metaphysis. The roentgen appearance is that of a diffuse cystic change and is due to resorption of bone along the haversian canals. The parathyroid function is normal.

Achondrodysplasia is a disease primarily of the epiphyses which unite prematurely with the diaphyses, producing dwarfs with very short extremities and normal trunks.

Chondrodystrophia, or Morquio's disease, is more closely related to achondrodysplasia than to chondrodysplasia. There is early cessation of growth of the epiphyses and a flattening of the vertebral bodies leading to severe kyphosis and great shortening of both trunk and extremities.

The osteochondritides include a group of dystrophies of the epiphyses. When the process is confined to the head of the femur it is known as Calve-Legg-Perthes disease, when limited to the tibial tubercle it is called Osgood-Schlatter disease, involvement of the scaphoid, tarsal or second metatarsal bones is known as Koehler's disease or Freiberg's infarction, and disorder of the vertebral epiphyses constitutes Scheuermann's disease.

Chondro-osteodystrophy or gargovism is characterized by clouding of the cornea, mental retardation,

7 Keith cited by Campbell H E. Hereditary Deforming Chondrodysplasia. Report of Three Cases. *J Bone & Joint Surg* 7: 982-996 (Oct.) 1925.

8 Geschickter Charles S and Copeland Murray M. Tumors of Bone. ed 2 New York American Journal of Cancer 1936.

9 Mahorner Howard R. Dyschondroplasia. *J Pediat* 10: 126 (Jan.) 1937.

enlarged cranium, great distortion of the facial bones, kyphosis, premature epiphysial union and hepatosplenomegaly

In xanthomatosis, or Schuller-Christian disease, there is absorption of the bones especially of the skull and replacement by lipid deposits. Exophthalmos and diabetes insipidus are usually associated.

Osteogenesis imperfecta, osteopsathyriosis, fragilitas ossium or Lobstein's disease is a myeloplastic malacia which may or may not be hereditary. There is a deficiency in subperiosteal bone production.

Von Recklinghausen's osteitis fibrosa and Paget's osteitis deformans are both diseases of cortical bone with fibro-osteoid changes, malacia hyperostoses and giant cell tumor formation.

Familial generalized osteophytosis with tremendous hyperplastic enlargements of the bones of the hands, forearms, feet and lower legs has been described. It is a disease of periosteal bone growth similar to hypertrophic osteoarthropathy, or Bamberger-Marie disease

in 12 of her relatives for examination. Her death, following the removal of a large pedunculated exostosis of the pelvis, terminated our collaboration before the study was complete.

The family is of Scotch-Irish descent. Healthy members are average or above average in height, while affected members tend to be shorter than normal. The family as a whole is above average in intelligence, and many of the affected members hold responsible political and civil positions. They are sensitive about their abnormality and live in fear lest their children inherit it. This apprehension doubtless accounts for the relative infertility of the fourth generation as compared with those preceding. Note that there were 7 children born to the first generation, 25 to the second, 38 to the third and only 6 to the fourth. Cesarean section has been required repeatedly because of dystocia caused by tumors of the pelvis, but infant mortality has not been exceptional. No child has been born with recognizable lesions. As a rule, the tumors appeared about the tenth

TABLE 1—Showing Distinctive Features of Some Rare Bone Diseases

|   | Distribution   |                 | Site of Involvement |                 |       | Meta<br>physi-<br>al En-<br>large-<br>ment | Exos-<br>toses | En-<br>chon-<br>dromas | Cystic<br>Changes | Changes<br>in<br>Density | Short-<br>ening | Hered-<br>ity | Additional Features                                   |
|---|----------------|-----------------|---------------------|-----------------|-------|--|----------------|------------------------|-------------------|--------------------------|-----------------|---------------|---|
|   | Bilat-<br>eral | Uni-<br>lateral | Epiph-<br>ysis      | Metaph-<br>ysis | Shaft |  |                |                        |                   |                          |                 |               |   |
| Chondrodysplasia                        | +              |                 | +                   | +               |       | ++   | ++             | +                      |                   |                          | +               | +             |   |
| Ollier's disease                        |                | +               | +                   | +               |       | +  | +              | ++                     |                   |                          | +               | ?             |   |
| Osteopetrosis                           | +              |                 |                     | +               | +     | +  |                |                        |                   | +                        |                 |               | Anemia  |
| Voorhoeve's disease                     | +              |                 |                     | +               | +     | +  |                |                        |                   | +                        |                 |               | Longitudinal striation                                |
| Osteodystrophia fibrosa                 | +              |                 |                     | +               | +     |  |                |                        | +                 |                          |                 |               | Precocious puberty                                    |
| Osteodystrophia fibrosa<br>unilateralis |                | +               |                     | +               | +     |  |                |                        | +                 |                          |                 |               | Facial asymmetry                                      |
| Achondrodysplasia                       | +              |                 | -                   |                 |       |  |                |                        |                   |                          | +               | +             | Globular heads, trident hand                          |
| Chondrodystrophia                       | +              |                 | +                   |                 |       |  |                |                        |                   |                          | +               | +             | Kyphosis  |
| Osteochondritis                         |                | +               | -                   |                 |       |  |                |                        |                   |                          |                 |               |   |
| Chondro osteodystrophy                  | +              |                 | +                   |                 |       |  |                |                        |                   |                          | +               | +             | Cloudy cornea, hepatosplenomegaly, mental retardation |
| Xanthomatosis                           | +              |                 |                     |                 |       |  |                |                        | +                 |                          |                 |               | Exophthalmos, diabetes insipidus                      |
| Osteogenesis imperfecta                 | +              |                 |                     | +               | +     |  |                |                        |                   | +                        |                 | +             | Blue sclera, multiple fractures                       |
| Osteitis fibrosa                        | +              |                 |                     |                 | +     |  |                |                        | +                 | +                        |                 |               | Kyphosis, giant cell tumors                           |
| Osteitis deformans                      | +              |                 |                     |                 | +     |  |                |                        | +                 | +                        |                 |               | Kyphosis, giant cell tumors                           |
| Osteophytosis                           | +              |                 |                     | +               | +     |  |                |                        |                   |                          |                 |               | Excessive periosteal growth                           |

The distinctive features of these diseases have been tabulated for convenience in table 1.

REPORT OF CASES

The following report places on record a family in which 36 members are known to have shown the lesions characteristic of this disease. They illustrate most of the salient features with regard to its hereditary nature, its age and sex incidence and the clinical, pathologic and roentgenologic changes and prognosis.

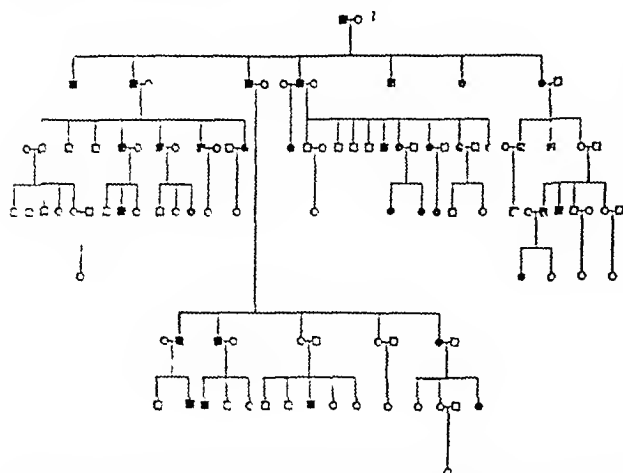
In 1934 an 11 year old boy was brought to the x-ray department of Jefferson Davis Hospital because of a swelling of the upper end of the right humerus. The roentgen examination showed the typical picture of deforming chondrodysplasia. An investigation of other members of the family was instigated. One of the aunts, who proved to be a highly intelligent woman aged 28, became so interested in the condition that she offered to trace its incidence throughout her large, widely scattered family. Her problem was made particularly difficult because members of the family lived in distant localities in Texas and in eleven other states and also because many of the family were sensitive about their abnormalities and sought to conceal them. Eventually she turned over to us the material from which the accompanying genealogy was constructed and brought

year. Since several of the last two generations are still under this age it is possible that the condition may develop in some of them later. In 2 it has done so since this survey was begun, as letters from their distressed mothers informed us.

Seven members have consulted various clinics over the country and have had operations for removal of exostoses, but at none of these clinics was the hereditary nature of the disease recognized—an observation of value in interpreting the statement "negative family history" occurring so often in case reports. In one of these cases the excised tumor was reported to have undergone a sarcomatous change. The woman who aided us in compiling these data had an exostosis which was benign but had caused great inconvenience and had continued to grow even after she had passed her thirtieth birthday.

The general health and longevity of the family were not affected except as has already been mentioned, and there were no other hereditary anomalies or diseases noted. However, cancer was exceptionally frequent in the second generation. Of the 7 persons making up the generation 5 are known to have died of cancer, the sixth lost his life in an accident and the fate of the seventh is not known. The parents of this generation were

first cousins, according to the statement of an aged friend of the family. He claimed further that both were affected with bony tumors but we have been unable to confirm that the mother was affected.



Incidence of hereditary deforming chondrodysplasia in one family. White squares indicate normal males; black squares affected males; white circles normal females; black circles affected females.

It would profit us little to enumerate the details of each case or to describe each lesion since they so closely follow the pattern already described ably and often. Certain factors in the hereditary transmission and sex incidence however, are worthy of special examination.

#### HEREDITARY NATURE

It was early recognized that heredity plays an important part in the etiology of this disease. Ehrenfried found a history of familial involvement in 83 per cent of cases. Physicians however, are apt to be overawed by genetic terms and concepts and are rarely willing to analyze their data. As a result in the English literature one finds hazy references to a strong hereditary or familial tendency but no definite statement as to its character and significance.

In the genealogy presented here the hereditary nature of the disease is strikingly demonstrated. Thirty-six persons in five generations of a family of 78 members are known to have shown the characteristic bony changes, an incidence of 46 per cent.

A careful study of the chart reveals a number of interesting facts:

1 The family springs from a man who is known to have had the disease and who married a cousin who may have been similarly affected.

2 This union resulted in 7 children, all of whom were affected.

3 The next generation produced both normal and affected children.

4 In later generations all the offspring of normal males were normal, but 2 of the 3 normal females gave birth to affected as well as normal children.

5 The affected males and females produced both normal and affected children in approximately equal proportions.

6 In the affected families, the ratio of normal to affected males was 15 to 18 and of females 15 to 17.

The fact that the disease was transmitted to one half or more of the offspring of the affected families suggests that the transmission was by means of a dominant gene. This assumption is strengthened by the fact

that the disease was transmitted to 100 per cent of the offspring of a consanguineous couple of whom the father surely and the mother probably was affected. Further support is found in the failure of normal males to transmit the anomaly to any of their children. The fact that 2 of the normal females did transmit it does not conform to the rule for dominant characters but it does not invalidate this interpretation, since neither of these women was subjected to an actual examination. It is therefore possible that they had bony lesions which they concealed or which were so slightly developed as to have escaped observation. In the literature we find a number of instances of nonaffected women bearing affected children, but in not a single case was the woman actually examined. More convincing evidence is needed.

#### SEX INCIDENCE

It has been repeatedly stated that the disease is more common in males than in females by a ratio of about 3 to 1. To test the validity of the observation we have examined the relative proportion of normal and affected males and normal and affected females in families in which all members have been recorded. Table 2 summarizes these data from a number of sources. In making the counts we considered only the siblings from affected families or subfamilies in which the data were complete and the sex of each member was stated.

There were 455 persons in all, almost exactly one half of whom were affected. Of these, 144 were males and only 86 were females, a ratio of 1.7 to 1. Because there happened to be more males than females in the series, this ratio is a little too high. Since 144 out of

TABLE 2—Summary of Data from Various Sources Showing the Incidence of the Disease in Siblings of Patients with Hereditary Chondrodysplasia \*

| Source of Data                                     | Total Number of Siblings | Normal Siblings |         | Affected Siblings |       |         |
|--|--------------------------|-----------------|---------|-------------------|-------|---------|
|  |                          | Males           | Females | Total             | Males | Females |
| Campbell   | 4                        | 1               | 1       | 2                 | 2     | 2       |
| Gorsalline *                                       | 12                       | 2               | 0       | 7                 | 2     | 3       |
| Black R A and Traisman A S Arch Pediat 42 530 1925 | 8                        |                 |         |                   | 6     | 2       |
| Waynard H A and Scott C R J A M A 76 579 1921      | 27                       | 6               | 5       | 11                | 10    | 6       |
| Graney *   | 26                       | 9               | 12      | 21                | 8     | 7       |
| Scott R B Am J Dis Child 57 1075 1939              | 10                       | 1               | 2       | 3                 | 4     | 3       |
| Maborner *   | 13                       | 2               | 2       | 4                 | 6     | 3       |
| Hale Kelly Ann Surg 92 92 1930                     | 4                        | 1               | 1       | 2                 |       | 2       |
| Langenskiöld F Acta chir Scandinar 58 210 1925     | 150                      | 31              | 36      | 67                | 51    | 37      |
| Percy N M Surg Gynec & Obst 20 619 1915            | 69                       | 14              | 23      | 37                | 19    | 4       |
| Jacobsen Willmot J A M A 113 121 1939              | 61                       | 11              | 30      | 41                | 20    |         |
| Vanzant  | 65                       | 15              | 15      | 30                | 18    | 17      |
| Total  | 455                      | 93              | 132     | 225               | 144   | 86      |

\* Only families in which the data were complete have been included.

237, or 60 per cent, of all the males were affected and only 86 of 218, or approximately 40 per cent, of females, the corrected ratio is 60 to 40, or 1.5 to 1.

While this is much lower than the ratios previously reported, it is puzzling to understand why there should be even this degree of lessened susceptibility of the female as compared to that of the male. It may be that



our data are incorrect, since often they were based on hearsay evidence. Leg of mutton sleeves, voluminous skirts and Victorian modesty of yesteryear may have concealed many feminine secrets. Or it may be that the disease tends to be less severe in women than in men and hence more likely to be overlooked. There are a number of reported instances in which lesions were not suspected until roentgen examination disclosed their presence. On the other hand mere femaleness does not guarantee mildness of the manifestation, for the disease can be extremely severe and widespread in females. Perhaps factors other than inheritance influence the development of the lesions, factors which may be more active in males than in females, such as trauma, infections, hormones and vitamin deficiencies.

#### SOCIOLOGICAL CONSIDERATIONS

The prognosis of the disease is usually favorable for the individual, but what is the prognosis for the race?

Once an abnormality has arisen as a result of a gene mutation, it continues to perpetuate itself indefinitely. In other words, affected members of the family continue to procreate affected children. Since the abnormality is not lethal, there is no biologic reason why it should not be perpetuated through the ages from generation to generation, although natural selection and eugenic birth control may cause the strain to die out. It is also possible that through some mechanism at present not understood the character may lose dominance and so pass on as a recessive character, undetected for generations only to become dominant again at some future time. There is an interesting genealogy cited by Sinnott and Dunn<sup>10</sup> in which the transmission of hereditary rigidity of the fingers was traced in a direct line for more than five hundred years through fourteen generations.

We know that the disease arose originally as a gene mutation, and the question arises: Was there only one such mutation? Have all present affected patients descended from one common ancestor or have there been many such mutations giving multiple foci of origin in different countries and among different races? This question is impossible to answer. We know that while mutations occur continually the chance of a given mutation recurring frequently is not great. On the other hand, shifting of populations and intermarriage allow wide dissemination within a few generations. The family reported here in five generations multiplied from 2 persons to 78, who are now scattered over at least twelve states. In a few more generations an infinite number of untraceable connections will have been made. Although the disease has been reported as occurring among many nationalities, including Jews and Negroes, human pedigrees are poorly documented, and it is not inconceivable that all persons with this disease are descendants of a common ancestor who, long ago, suffered a mutation of one of his genes.

#### SUMMARY

In five generations of a family of 78 members, 36 persons are known to have had hereditary deforming chondrodysplasia. The disease is transmitted as a mendelian dominant.

704 Medical Arts Building

<sup>10</sup> Sinnott, Edmund Ware and Dunn, Leslie. *Principles of Genetics*. New York: McGraw-Hill Book Company, 1925.

## PSEUDO ARIBOFLAVINOSIS

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AND

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Sebiell and Butler<sup>1</sup> in their classic discussion described the criteria for the diagnosis of ariboflavinosis in the human being. Among the signs pointed out by them were certain changes in the mucous membranes of the lips and the skin at the angles of the mouth, which they called a cheilosis. More specifically, there was a maceration in each angle of the mouth, the lips were reddened along the line of closure and the mucosa appeared thin, shiny and denuded. In addition to the lesions on the lips there was also a scaly, greasy desquamation in the nasolabial folds, on the alae nasi in the vestibule of the nose and in a few instances on the ears and eyelids. These lesions disappeared in twenty days or less when the patients were given from 0.025 to 0.075 mg of riboflavin per kilogram of body weight.

In addition to the cheilosis, Kruse, Sydenstricker, Sebrell and Cleckley<sup>2</sup> have described a specific type of glossitis associated with ariboflavinosis. The tongue is clean, the papillae are flattened or mushroom shaped and the color is purplish red or magenta. In addition they described ocular lesions consisting of circumcorneal injection and a vascularizing keratitis involving the limbic plexus. To this array of signs and symptoms can be further added the subjective sense of a burning tongue.

The identification of these obvious lesions seemed a comparatively simple procedure. The recognition of ariboflavinosis and its correction seemed assured. However, we have collected a group of 34 cases of a disorder that apparently conformed to this syndrome but contrary to our expectations did not respond to riboflavin therapy. This led to the supposition that we were dealing with an irreversible stage of the syndrome, that the diagnosis was incorrect or that the patients were not absorbing the medication from the gastrointestinal tract. These patients were therefore subjected to further investigation.

A history of the diet was taken. The consumption of milk and milk products was unusually high in this group because of the fact that 32 of the 34 were edentulous and were using artificial dentures. For the same reason the meat consumption was low, but the protein intake was adequate. Slit lamp studies failed to reveal pathologic corneal vascularization in any of these patients. A vitamin B<sub>1</sub> load test<sup>3</sup> resulted in uniformly normal readings.

Other clues for disturbed metabolism that might be directly or indirectly attributable to avitaminosis were sought. This included determinations of blood count, electrocardiograms and gastric analyses. The results of these examinations were all within normal limits except for a few isolated instances in which the abnormality could be attributed to unrelated factors such as

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<sup>1</sup> Sebrell, W. H. and Butler, R. E. *Riboflavin Deficiency in Man*. *Pub Health Rep* 53: 2282, 1938; 54: 2121, 1939.

<sup>2</sup> Kruse, H. D., Sydenstricker, V. P., Sebrell, W. H. and Cleckley, H. M. *Ocular Manifestations of Ariboflavinosis*. *Pub Health Rep* 55: 157, 1940.

<sup>3</sup> Pollack, Herbert, Ellenberg, Max and Dolger, Henry C. *Studies on Vitamin B<sub>1</sub> Excretion Determined by the Fermentation Method*. *Arch Int Med* 67: 793 (April) 1941.

electrocardiographic changes following acute myocardial infarction. The gastric analyses showed free acid in all but 1 patient who had previously had a gastric resection although many of the patients were over 50 years of age.

A therapeutic trial with orally administered riboflavin was again made in each case. The minimum dose of the riboflavin was 9 mg a day while some patients received as much as 25 mg a day for several months. Such doses are well above those generally accepted as therapeutically adequate. No clinical responses were observed. To preclude the possibility of malabsorption or destruction in the gastrointestinal tract 5 patients were given the drug parenterally, 10 mg of riboflavin<sup>4</sup> three times each week for eight weeks either intravenously or intramuscularly. No objective or subjective improvement in the labial or lingual lesions or burning of the tongue when present was observed. Additional vitamin therapy consisting of large amounts of nicotinic acid liver (by injection) and yeast tablets was then given, but again there was no demonstrable change in the lesion.

In the light of this lack of response to vitamin therapy, the cases and our studies on them were reviewed. The following pertinent facts appeared to explain the failure of therapy:

- 1 Although the lesions superficially resembled those described by Sebrell and Butler closer scrutiny revealed that those at the angles of the mouth were chronic in appearance heaped up deeply fissured and granulomatous, with no involvement of the lips. This contrasted with the superficially fissured, moist, angular stomatitis and associated cheilosis of ariboflavinosis.

- 2 None of these patients had ocular or seborrheic-like lesions.

- 3 These patients were all fairly well advanced in age 33 being over 40 and 28 over 50. Twenty-six of the 34 patients were females.

- 4 The lesions showed definite spontaneous remissions and exacerbations.

- 5 There were no evidences of any other vitamin deficiencies.

- 6 The usual factors that precipitate a vitamin deficiency were absent.

- 7 There was no response to intensive riboflavin therapy.

- 8 Thirty-two of the 34 had upper and lower artificial dentures.

We then sought for local causes of these lesions. The frequency of the presence of dentures appeared to implicate them in the pathogenesis of this syndrome. The presence of impurities in "undercured" vulcanite plates, mechanical factors, such as ill fitting dentures, and specific allergy to the components of the dentures had to be considered.

The impurities in the denture material consist chiefly of unbound sulfur and mercury, as well as an excess of mercury sulfide, resulting from improper vulcanization. Several authors<sup>5-7</sup> have reported cases of

glossodynia and lingual atrophy apparently caused by these impurities. It is our belief that these factors obtain in only a few cases.

More often these lesions which may be classified as perleche, arise as a result of improper oral mechanics, in particular an improper, too short vertical dimension. Thus, if the vertical dimension is too small, overclosure results: the upper lip overlaps the lower and produces creases at the corner of the mouth and sagging. In this way a pocket formation takes place at the angle of the lips. An excellent receptacle for saliva is formed, and the warm moist bed can become a medium for secondary fungus growth. These fungi help produce the cutaneous lesion of perleche. The associated glossodynia probably results from direct contact of the tongue with the overlying structure be it palate or denture. The presence of a plate narrows the available space for free movement of the tongue in an upward direction: this space is further diminished by the decreased vertical dimension, and so one can readily visualize the possibility of direct contact between tongue and denture. If the vertical dimension is sufficiently shortened as a result of malocclusion, then such contact may take place in the absence of dentures. These factors would account for the simultaneous therapeutic response of the perleche and glossodynia. Thus, Costen<sup>6</sup> reported 10 cases of glossodynia associated with malocclusion due to overbite and decreased vertical dimension, the condition in all his cases was cured by treating the underlying defect. Swenson<sup>7</sup> described a case of perleche associated with malocclusion that was cured by increasing the vertical dimension. As further evidence of the presence of deep creases and sagging is the fact that the lesions are not visible with the mouth closed and come into view only as the mouth is opened wide.

It would appear, then, that the perleche, and probably the glossitis as well, are due to mechanical factors rather than to the dentures. Ill fitting dentures result in a mechanical defect. Our 2 patients with perleche who did not have false teeth had mechanical defects to explain the lesions. The first was a woman aged 26 who had malocclusion, the other was a man aged 72 who was completely edentulous except for one tooth in the upper jaw, his upper lip sagged considerably and overlay the lower.

It is more than coincidental that one does not encounter perleche in patients who can afford better made and properly fitted dentures. For the most part the lesions herein described did not usually occur until some time, often several years, after the dentures had been worn. This is due to the associated bone resorption which is known to occur. To combat this influence, denture fitting should be checked from time to time.

It is fully appreciated that not in all cases of perleche is the condition due to mechanical causes. Also patients with dentures and malocclusion may have coincidental ariboflavinosis. Nevertheless, the frequency with which the syndrome we have described occurs makes it important to recognize. Thus unnecessary vitamin therapy may be avoided and the proper mechanical corrections instituted. Once there is awareness of this syndrome, the differential diagnosis between it and true ariboflavinosis is easily made.

<sup>4</sup> Flavavin Niphanoid supplied by Winthrop Chemical Company, Inc.  
<sup>5</sup> Linn E. S. Chemical and Electrolytic Lesions of the Mouth Caused by Artificial Dentures. *Arch. Dermat. & Syph.* 25: 21 (Jan.) 1932. Schraff, Joseph. *Burning Tongue Rev. Gastroenterol.* 2: 347 (Dec.) 1935. Lindsay, H. C. L. Traumatic Glossitis Due to Irritants Contained in Plastic Denture Materials. *Urol. & Cutan. Rev.* 34: 169 (March) 1930. Fox, Howard. *Burning Tongue New York State J. Med.* 35: 881 (Sept. 1) 1935.

<sup>6</sup> Costen, J. B. Glossodynia. *Arch. Otolaryng.* 22: 554 (Nov.) 1935.  
<sup>7</sup> Swenson, M. G. Complete Dentures. *St. Louis C. V. Mosb. Company* 1940.

SUMMARY

A syndrome of perlèche often associated with a smooth, burning tongue and resembling ariboflavinosis was observed  
The lesions do not respond to vitamin therapy  
The underlying cause appears to be a mechanical defect, so that there is a shortened vertical dimension with overclosure  
The mechanical defect most often results from ill fitting dentures  
Correction of the malocclusion is the indicated therapy  
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VISUAL RESULTS IN THE TRACHOMA CLINICS OF SOUTHERN ILLINOIS

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The trachoma clinics of southern Illinois were established "to prevent blindness by the control of trachoma in southern Illinois," and it seems fitting at this time to render an account of accomplishments. Consequently, only visual results will be considered in this article  
Every patient's vision was recorded on admission to the clinics and at regular intervals thereafter, both with and without glasses. The best possible vision is utilized for the statistics of this paper. As far as possible, the method of estimating and of recording the vision was kept uniform in the five clinics, and in consequence there was no necessity of recording the statistics from each clinic separately. All cases here dealt with have been

TABLE 1—Patients Treated with Sulfanilamide Stages 1 and 2 Only

|                           | Vision on Admission to Clinic |                        |                         |                  |    | Per Total centage |
|---------------------------|-------------------------------|------------------------|-------------------------|------------------|----|-------------------|
|                           | 20/20                         | 20/30-20/50 Inclu sive | 20/70-20/100 Inclu sive | Less Than 20/200 |    |                   |
| Number of eyes            | 94                            | 118                    | 51                      | 24               | 41 | 328               |
| Vision remained unchanged | 88                            | 42                     | 7                       | 10               | 14 | 161               |
| Vision improved to        |                               |                        |                         |                  |    |                   |
| 20/20                     |                               | 42                     | 11                      | 3                | 1  | 57                |
| 20/30                     |                               | 21                     | 5                       | 1                | 5  | 32                |
| 20/40                     |                               | 6                      | 9                       | 1                | 1  | 17                |
| 20/50                     |                               |                        | 9                       | 3                | 2  | 14                |
| 20/70                     |                               |                        | 7                       | 5                | 1  | 13                |
| 20/100                    |                               |                        |                         | 1                | 9  | 10                |
| 20/200                    |                               |                        |                         |                  | 8  | 8                 |
| Vision decreased to       |                               |                        |                         |                  |    |                   |
| 20/30                     | 6                             |                        |                         |                  |    | 6                 |
| 20/40                     |                               |                        |                         |                  |    | 0                 |
| 20/50                     |                               |                        |                         |                  |    | 0                 |
| 20/70                     |                               | 3                      |                         |                  |    | 3                 |
| 20/100                    |                               | 2                      |                         |                  |    | 2                 |
| 20/200                    |                               |                        | 3                       |                  |    | 3                 |
| Less than 20/200          |                               | 2                      |                         |                  |    | 2                 |
| End result                |                               |                        |                         |                  |    | 0.6               |
| Vision unchanged          | 88                            | 42                     | 7                       | 10               | 14 | 161 49.1          |
| Vision improved           | 0                             | 69                     | 41                      | 14               | 27 | 151 46.1          |
| Vision decreased          | 6                             | 7                      | 3                       | 0                | 0  | 16 4.8            |

under observation for a minimum of two years, those in table 1 from 1938 to 1940 and those in table 2 from 1936 to 1938. The former group were treated with sulfanilamide exclusively, the latter group received no sulfanilamide but underwent the local treatment that was employed in the clinic (massage with chaulmoogra

oil, expression, silver nitrate, mercuric oxycyanide and all the other means deemed necessary in individual cases). Only stage 1 and stage 2 are included in this study, and consequently this paper deals with the results obtained in the treatment only of acute trachoma

TABLE 2—Patients Treated by Other Means Than Sulfanilamide Stages 1 and 2 Only

|                           | Vision on Admission to Clinic |                        |                         |                  |    | Per Total centage |
|---------------------------|-------------------------------|------------------------|-------------------------|------------------|----|-------------------|
|                           | 20/20                         | 20/30-20/50 Inclu sive | 20/70-20/100 Inclu sive | Less Than 20/200 |    |                   |
| Number of eyes            | 279                           | 142                    | 30                      | 15               | 27 | 493               |
| Vision remained unchanged | 250                           | 43                     | 9                       | 7                | 16 | 325               |
| Vision improved to        |                               |                        |                         |                  |    |                   |
| 20/20                     |                               | 72                     | 3                       | 2                |    | 77                |
| 20/30                     |                               | 8                      | 4                       |                  | 2  | 14                |
| 20/40                     |                               | 1                      | 1                       | 1                | 1  | 4                 |
| 20/50                     |                               |                        | 5                       | 1                | 2  | 8                 |
| 20/70                     |                               |                        | 3                       | 2                |    | 5                 |
| 20/100                    |                               |                        |                         | 2                | 4  | 6                 |
| 20/200                    |                               |                        |                         | 2                | 2  | 2                 |
| Vision decreased to       |                               |                        |                         |                  |    |                   |
| 20/30                     | 21                            |                        |                         |                  |    | 21                |
| 20/40                     | 3                             | 3                      |                         |                  |    | 6                 |
| 20/50                     | 2                             | 4                      |                         |                  |    | 6                 |
| 20/70                     | 2                             | 7                      |                         |                  |    | 9                 |
| 20/100                    |                               | 2                      | 2                       |                  |    | 4                 |
| 20/200                    |                               | 2                      |                         |                  |    | 2                 |
| Less than 20/200          | 1                             |                        | 3                       |                  |    | 4                 |
| End result                |                               |                        |                         |                  |    | 0.5               |
| Vision unchanged          | 250                           | 48                     | 9                       | 7                | 16 | 325 65.9          |
| Vision improved           | 0                             | 81                     | 16                      | 8                | 11 | 116 23.5          |
| Vision decreased          | 20                            | 18                     | 5                       | 0                | 0  | 43 8.6            |

COMMENT

The tables are self explanatory and need but little discussion. Attention should be called to the fact that in group 2 the percentage of patients who showed improvement of vision was only about one half that of group 1 (those treated with sulfanilamide), while the percentage of patients who lost vision was more than double that of group 1. Even more important is the fact that in both groups the number of eyes that became industrially blind (using the American Medical Association's definition of industrial blindness as being vision of less than 20/200) was less than 1 per cent.

SUMMARY

Acute trachoma (stage 1 and stage 2) can be treated so successfully that less than 1 per cent of the eye infected will become industrially blind  
From the final visual standpoint, systemic treatment with sulfanilamide is preferable to purely local treatment because (a) twice as many eyes show definite improvement in vision and (b) less than half as many eyes show positive losses in vision  
58 East Washington Street

Storage of Carbohydrate in the Body—When carbohydrate is absorbed in larger quantity than is required for the body's immediate needs for fuel, the surplus accumulates as glycogen, which is stored in the liver and muscles. The amount of carbohydrate which will be stored in the entire body after rest and liberal feeding is estimated at 300 to 400 grams. Thus the total amount of carbohydrate which can be stored as such in the body is no more than frequently taken in one day's food. When the body has a tendency to increase its store of glycogen the further storage of carbohydrates tends to be converted into fat.  
Henry C. Chemistry of Food and Nutrition New York: Macmillan Company, 1941

The Nurses in the Trachoma Clinics of Southern Illinois performed the tedious work of collecting the statistics here used

## Clinical Notes, Suggestions and New Instruments

### RENAL HEMODYNAMICS IN ORTHOSTATIC HYPOTENSION

#### EFFECTS OF ANGIOTONIN AND HEAD UP BED

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Our purpose in the present report is to describe observations on the effects of postural changes and angiotonin injections on arterial pressure, pulse rate and renal hemodynamics in a patient who suffered from orthostatic hypotension and who was effectively treated by the head-up bed described by MacLean and Allen<sup>1</sup>. Briefly stated before treatment the patient responded to a tilt of 60 degrees by syncope, decreased arterial pressure and renal blood flow. Injection of angiotonin greatly increased the blood pressure and renal blood flow. This effect of angiotonin contrasts sharply with the renal ischemia which accompanies its pressor action in normotensive subjects. After two months treatment with the head up bed a tilt to 60 degrees did not cause syncope and renal blood flow was increased in spite of a transient decrease of arterial pressure. The injection of angiotonin at this time resulted in its characteristic pressor and renal vasoconstrictor effects.

The patient a Negro woman aged 40 developed orthostatic hypotension during prolonged convalescence from pneumonia. Syncope, hypotension and tachycardia developed immediately on her assuming the erect posture. She had therefore been confined to bed and wheelchair for some two months before the first observation (March 15, 1941 A 1 to 7 in the table). She was then directed to sleep in a bed whose head was raised at an angle of about 40 degrees to the floor. During the following weeks the onset of syncope on standing became progressively delayed. At the time of the second observation (May 17, B 1 to 6 in the table) standing with occasional movement, as in light housework, was tolerated without symptoms. Arterial pressure dropped sharply to levels of about 70 mm of mercury systolic and 55 mm diastolic on first standing but was restored to or above the level observed in the prone position within two to four minutes.

#### METHODS

Effective renal blood flow was calculated from plasma diodast clearance and the hematocrit ratio, the glomerular filtration rate from inulin clearance and the filtration fraction from the inulin/diodast clearance ratio. The postural changes were made on a tilt table.

#### RESULTS

**Before Treatment**—Renal blood flow, which was subnormal in the prone position, decreased, as did arterial pressure, when the patient was tilted to 40 and 60 degrees from the horizontal. The intense renal ischemia and hypotension recorded in the table in observation A 4 were associated with pallor and early syncope. Intravenous injection of angiotonin resulted in greatly increased arterial pressure, provoked the complaint of severe pulsation within the head and increased renal blood flow. Some part of this apparent increase of renal flow may possibly arise from a washing out of tubular fluid formed but not excreted during the preceding period of depressed filtration rate and oliguria. Intraglomerular pressure, as expressed in filtration fraction, was increased during the hypotensive phases at a 40 and at a 60 degree tilt. The injection of angiotonin decreased filtration fraction to a level slightly lower than was observed with the patient in the prone position. The pressor effect of the injection receded during eleven minutes. Some residue of protection apparently remained during the ensuing eighteen minutes of observation at a 60 and at a 40 degree tilt.

Miss Ellen Bowers R.N. assisted in making these observations. From the Lilly Laboratory for Clinical Research Indianapolis City Hospital.

J MacLean A.R. and Allen E.V. Orthostatic Hypotension and Orthostatic Tachycardia: Treatment with the Head Up Bed. *J A M A* 115: 2162 (Dec 21) 1940.

**After Treatment**—Tilting to 60 degrees after two months' adaptation to the erect posture by the head up bed resulted in transient drop of blood pressure and lasting increase of renal blood flow, the net renal change being not dissimilar to that observed during the action of angiotonin before treatment. Intravenous administration of angiotonin at this time caused slight precordial oppression, increased arterial pressure and decreased renal blood flow without significant change in filtration fraction over twelve minutes of pressor action. Renal blood flow and diastolic pressure remained somewhat elevated during the following ten minutes at a 60 degree tilt. Both values were restored to control levels when the patient assumed the prone position.

#### COMMENT

Our observations on the effects of treatment of orthostatic hypotension with the head-up bed of MacLean and Allen<sup>1</sup> extend and confirm their conclusions as to its value in restoring toward normal cardiovascular responsiveness to the erect posture. The increase of filtration fraction during tilting before treatment expresses an increase of intraglomerular pressure which is more probably the result of afferent arteriolar vaso-

#### Effect of Posture and Angiotonin on Effective Renal Blood Flow, Filtration Rate, Inulin Clearance, Filtration Fraction, Blood Pressure and Pulse Rate in Orthostatic Hypotension before (A) and after (B) Treatment by the Head-Up Bed

| Ob-<br>ser-<br>va-<br>tion             | Renal<br>Blood<br>Flow<br>Cc per<br>Min | Inulin<br>Clear-<br>ance<br>Cc per<br>Min | Filtra-<br>tion<br>Frac-<br>tion | Blood<br>Pres-<br>sure * | Pulse<br>Rate * | Minutes | Pe-<br>riod † | Pos-<br>ture<br>Degree<br>of<br>Tilt |
|--|---|---|----------------------------------|--------------------------|-----------------|---------|---------------|--------------------------------------|
| A 1                                    | 376                                     | 31.5                                      | 0.218                            | 174/85                   | 98              | 27      | 3             | 0                                    |
| 2                                      | 314                                     | 31.4                                      | 0.20                             | 95/75                    | 120             | 26      | 3             | 40                                   |
| 3                                      | 151                                     | 10.3                                      | 0.205                            | 75/62                    | 170             | 8.75    | 1             | 60                                   |
| 4                                      | 40                                      | 6.5                                       | 0.245                            | 65/53                    | 120             | 10.75   | 1             | 60                                   |
| 2 Cc Angiotonin Injected Intravenously |   |   |                                  |                          |                 |         |               |                                      |
| 5                                      | 651                                     | 57.5                                      | 0.19                             | 177/114                  | 100             | 10.75   | 1             | 60                                   |
| 6                                      | 315                                     | 51  | 0.25                             | 125/87                   | 96              | 9.75    | 1             | 60                                   |
| 7                                      | 275                                     | 42.7                                      | 0.24                             | 111/85                   | 100             | 9.00    | 1             | 40                                   |
| Two Months Treatment with Head Up Bed  |   |   |                                  |                          |                 |         |               |                                      |
| B 1                                    | 475                                     | 55.1                                      | 0.178                            | 124/72                   | 90              | 37.5    | 3             | 0                                    |
| 2                                      | 1060                                    | 144                                       | 0.205                            | 75/60                    | 98              | 4.0     | 1             | 60                                   |
| 3                                      | 757                                     | 81.1                                      | 0.104                            | 124/83                   | 106             | 31.5    | 2             | 60                                   |
| 2 Cc Angiotonin Intravenously          |   |   |                                  |                          |                 |         |               |                                      |
| 4                                      | 495                                     | 55.5                                      | 0.17                             | 169/109                  | 100             | 11.75   | 1             | 60                                   |
| 5                                      | 603                                     | 71.7                                      | 0.18                             | 176/92                   | 100             | 9.5     | 1             | 60                                   |
| 6                                      | 474                                     | 44.6                                      | 0.19                             | 122/80                   | 94              | 17.75   | 2             | 0                                    |

\* The values of blood pressure and pulse are averages of consecutive readings during the time of observation indicated under minutes and do not represent the widest changes observed in any observation.

† By period is indicated the number of collections of urine represented in the corresponding data.

dilatation than of efferent vasoconstriction, since orthostatic hypotension is usually due to decreased vasoconstrictor responsiveness.<sup>2</sup> Such deficiency of normal vasoconstrictor response is suggested by the paradoxical effect of angiotonin in increasing renal blood flow and decreasing filtration fraction. Angiotonin, the effector agent of the renal pressor system,<sup>3</sup> normally excites renal efferent arteriolar vasoconstriction sufficiently to cause renal ischemia and to increase filtration fraction during its pressor action.<sup>4</sup> During the hypotensive phase before and the pressor state after injection of angiotonin, the normal lack of relation between blood pressure and renal blood flow was not maintained. It therefore appears that in this type of orthostatic hypotension normal autonomy of the renal circulation<sup>5</sup> is lost.

2 Jeffers W A, Montgomery H and Burton A C. Types of Orthostatic Hypotension and Their Treatment. *Am J M Sc* 202: 1 1941.

3 Page I H and Helmer O M. A Crystalline Pressor Substance (Angiotonin) Resulting from the Reaction Between Renin and Renin Activator. *J Exper Med* 71: 29 1940.

4 Corcoran A C and Page I H. The Effects of Angiotonin on Renal Blood Flow and Glomerular Filtration. *Am J Physiol* 130: 335 1940. Corcoran A C, Kohlstaedt K G and Page I H. Changes of Arterial Blood Pressure and Renal Hemodynamics by Injection of Angiotonin in Human Beings. *Proc Soc Exper Biol & Med* 46: 244 1941. Herrick J F, Corcoran A C and Essex H E. The Effects of Renin and Angiotonin on the Renal Blood Flow and Blood Pressure of the Dog. *Am J Physiol* 135: 88 1941.

5 Smith H W. Physiology of Renal Circulation. Harvey Lectures Baltimore 1940 1941.

Restoration toward normal of vasoconstrictor responsiveness is indicated in the renal ischemia which followed injection of angiotonin during tilting after treatment, although the absence of change in filtration fraction at this time suggests a residual relative lack of efferent vasoconstriction.

The similarity between the effect of angiotonin before treatment and the response to tilting after treatment suggests that a physiologic function of the renal vasopressor system (renin, renin activator, angiotonin) may be sought in vascular adaptation to the erect posture and its shifts of arterial pressure and that failure of the renal pressor system may participate in some measure in the genesis of orthostatic hypotension. This view is supported by the observation that excessive release of renal pressor substance in experimental hypertension may occur in the absence of renal ischemia<sup>6</sup> as the result of decreased intrarenal pulsation.<sup>7</sup> Such a decrease of intrarenal pulsation may follow the decrease of pulse pressure which occurs on standing.

#### SUMMARY

Effective renal blood flow and arterial pressure decrease during the syncope of orthostatic hypotension. Injection of angiotonin at this time increases renal blood flow and blood pressure and relieves syncope. After treatment with the head-up bed, assumption of the erect posture results in only transient decrease of blood pressure and increased renal blood flow, with restoration of the fall in renal blood flow which normally accompanies the pressor effect of angiotonin.

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT

HOWARD A. CARTER, Secretary

### HEIDBRINK BASSINET, KREISELMAN MODEL 20A (INFANT RESUSCITATOR), ACCEPTABLE

Manufacturer: The Ohio Chemical & Mfg. Company, 1177 Marquette Street, Cleveland

The Heidbrink Bassinet, Kreiselman Model 20A, is designed for treatment of premature infants or all infants requiring administration of continuous flow oxygen. The apparatus provides for resuscitation, inhalation and aspiration. Mounted on a heavy two post stand with large casters, the unit includes an operative head with automat, manometer and flowmeter, two yoke automatic regulator for D or E size gas tanks, electrically warmed bassinet with large drawer, perforated tray adjustable up and down at both ends, mattress, electrically operated aspirator, infant size inhalation inhaler, infant size catheter adapter and intratracheal catheter tubings, handwheel wrench. The motor is of explosion proof design. Shipping weight is 175 pounds. The apparatus operates on alternating current. Only positive pressure is provided. There is no negative pressure developed at the face piece.

Temperature in the bassinet is automatically controlled by a thermostat, a thumb screw adjustment permits manual selection of temperatures ranging from 80 to 110 F. Relative humidity as high as 50 per cent, and higher is obtained by adjusting the valve of the humidifier attached to the under side of the bassinet. According to the firm, an infant may be maintained in the Heidbrink Bassinet under safe and proper conditions of warmth, humidity and oxygen rich atmosphere for indefinite periods of time.

Oxygen flow is regulated by a needle valve and is indicated on a dry float kinetic type flowmeter calibrated up to 16 liters per minute. The humidified oxygen is delivered directly into the head hood suspended over one end of the bassinet. This arrangement is said to confine the oxygen rich atmosphere within a small area and to give the patient immediate benefits

of any change in dosage or humidity. Openings in the top of the head hood provide for the admission of normal air should the oxygen flow be interrupted or the supply exhausted.

For resuscitation, the automat is adjusted to deliver the selected positive pressure considered safe, and the safety escape valve of the water manometer is set. The water manometer is filled by pouring distilled water into the cup of the escape valve until the water rises in the manometer gage glass to the 0 calibration.

When the positive pressure is set according to directions recommended by the firm, the soft latex resuscitation inhaler is placed over the infant's face, the breathing tube extending over the tongue into the pharynx, with the chin held up. The lever on the resuscitation inhaler is depressed and held down for several seconds, or long enough for the lungs to be inflated plus a second or two. The lever is then released and the lungs deflate because of their own elasticity.

When breathing has been established but oxygen is still needed, the resuscitation inhaler with attached airway removed, the continuous flow inhaler is placed over the nose and mouth and the flowmeter is set at 4 liters per minute by adjusting the needle valve marked "Oxygen On-Off."

The aspirator motor switch is located on the side of the bassinet, and vacuum is controlled by the thumbscrew adjacent to the vacuum gage on the pump. The oil cup must be filled with high grade medium heavy (S A E 30) oil. A metal cup attached to the left side of the pump catches any drippings of oil from the pump.

Two switches at the foot end of the bassinet operate the light bulbs used for warming purposes. Each switch controls two bulbs. The mattress in the bassinet may be adjusted to various degrees of Trendelenburg posture.

In the Council's clinical examination of the unit, it was found to give satisfactory clinical service in each of its functions as a resuscitator, aspirator, incubator and for administration of continuous flow oxygen. The delivery room personnel of the hospital where the investigation was conducted made some objection to the apparatus in that it appeared unduly large and cumbersome. However, this objection may be considered unjustified because several necessary pieces of delivery room equipment have been successfully combined in one unit.

The Council voted to accept the Heidbrink Bassinet, Kreiselman Model 20A, for inclusion on its list of accepted devices.

## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AUSTIN F. SMITH, M.D., Acting Secretary

**SULFADIAZINE SODIUM**—The sodium salt of 2-sulfamoyl-4-amino-6-methylpyrimidine— $C_{10}H_9N_4O_2SNa$  (M W 272.26)

**Actions and Uses**—The monohydrate sodium salt of sulfadiazine has the same therapeutic properties as does sulfadiazine. At the present time its use can be recommended only in pneumococcal, streptococcal, meningococcal, *Escherichia coli* and Friedlander's bacillus infections.

Solutions of sulfadiazine sodium in distilled water are slightly alkaline and have a pH ranging from 9 to 10. When a 5 per cent solution of this drug is injected intravenously, the solution is promptly split off, leaving sulfadiazine. Thus, in final analysis, the sodium salt of sulfadiazine represents a method of introducing the poorly soluble sulfadiazine intravenously. The drug, being alkaline, is definitely irritant to the tissues and hence should never be given except by the intrathecal or any other parenteral route, necrosis and sloughing of the tissues may take place.

The administration of 5 per cent solution of sodium by the intravenous route is indicated in the treatment of severe and severe pneumococcal infections in which it is necessary to obtain promptly adequate blood concentration.

<sup>6</sup> Corcoran, A. C., and Page, I. H. Renal Blood Flow in Experimental Renal Hypertension, *Am J Physiol* 135: 361 1941-1942.

<sup>7</sup> Kohlstaedt, K. G., and Page, I. H. The Liberation of Renin by Perfusion of Kidneys Following Reduction of Pulse Pressure, *J Exper Med* 72: 201 (Dec 21) 1940.



in patients who by reason of vomiting are not obtaining proper concentrations of the drug when it is given by mouth in patients in whom the absorption of the drug is poor so that adequate concentrations of sulfadiazine cannot be obtained, and finally in patients who have undergone surgical procedures on the upper gastrointestinal tract and in whom the administration of the drug by mouth is contraindicated. With the exception of patients who are vomiting or in surgical cases it is rarely necessary to use intravenous injections of solutions of sulfadiazine sodium more than once or twice. Frequent and repeated injections of the drug are generally not advisable because such injections tend to produce thrombosis of the veins.

**Dosage.**—The intravenous injection of 0.01 Gm per kilogram of body weight of the sodium salt of sulfadiazine will produce quickly a concentration of approximately 1 mg of sulfadiazine per hundred cubic centimeters of blood. The initial dose of the drug for patients severely ill with pneumococcal infections is based on 0.10 Gm per kilogram of body weight this to be followed immediately and every four hours thereafter by 1 Gm of sulfadiazine by mouth. It does not seem advisable to use oral therapy with sulfadiazine doses based on 0.03 to 0.05 Gm per kilogram of body weight of sodium sulfadiazine may be administered by the intravenous route at twelve hour intervals. Such doses will maintain the concentration of the drug at between 10 and 15 mg per hundred cubic centimeters.

In preparing solutions of sodium sulfadiazine the drug is weighed out and is then dissolved in sufficient sterile distilled water to make a 5 per cent solution. This should not be sterilized by boiling or autoclaving because the sodium salt is unstable under such conditions. The sodium salt of sulfadiazine should not be dissolved in sterile isotonic solutions of sodium chloride, dextrose or any other types of solutions which are used parenterally. Solutions of this drug should be administered only intravenously and at the rate of 5 cc per minute. Solutions of sulfadiazine sodium should always be given separately and in different containers from other parenteral fluids. In other words solutions of the drug should not be poured into containers which have been used for other parenteral solutions. It should never be poured into a transfusion bottle either preceding during or just after a blood transfusion. When the sodium salt of sulfadiazine is being used, frequent determinations of the concentration of the drug in the blood should be made by the method described by Bratton and Marshall (*J Biol Chem* 128 537 [May 1939]).

#### Tests and Standards—

Sulfadiazine sodium is a white odorless powder having a bitter taste. It is very soluble in water, soluble in alcohol and insoluble in ether or chloroform. Aqueous solutions may absorb sufficient carbon dioxide to cause precipitation of sulfadiazine. Sulfadiazine sodium is not hygroscopic at 25 C if the relative humidity does not exceed 50 per cent.

Acidify an aqueous solution of sulfadiazine sodium with acetic acid filter wash the residue with distilled water and dry at 100 C. The dried precipitate meets the tests for identity given under Sulfadiazine N N R.

Sulfadiazine sodium meets the requirements for chloride sulfate heavy metals and moisture content given under Sulfadiazine N N R. Incinerate 0.2 Gm of sulfadiazine sodium with the addition of 0.5 cc of concentrated sulfuric acid. Ignite until the carbon residue has been burned off add 0.5 cc of concentrated sulfuric acid heat gently to drive off the excess acid and ignite to constant weight at 600 C. The sodium content calculated from the weight of sodium sulfate residue is not less than 8.2 nor more than 8.6 per cent. The nitrogen content of dried sulfadiazine sodium is not less than 20.3 nor more than 20.7 per cent.

Dissolve about 0.5 Gm of sulfadiazine sodium in 10 cc of distilled water and 10 cc of concentrated hydrochloric acid contained in a 400 cc beaker dilute to 50 cc cool to 15 C and titrate with tenth molar sodium nitrite solution.

The endpoint is the first immediate blue streak obtained when a glass rod dipped into the solution is drawn across a smear of starch iodide paste on white filter paper (or a clear glass plate). The solution should retain this endpoint for thirty seconds. Each cubic centimeter of tenth molar sodium nitrite corresponds to 0.02723 Gm of anhydrous sulfadiazine sodium. The amount of sulfadiazine sodium found corresponds to not less than 99.0 per cent nor more than 101.0 per cent calculated on the dried basis.

LEDERER LABORATORIES, INC., PEARL RIVER, N Y  
Patent applied for

Sulfadiazine Sodium (Powder) 5 Gm bottle

MENADIONE (See THE JOURNAL Jan 17, 1942 p 226)

The following dosage forms have been accepted

THE LAKESIDE LABORATORIES, INC., MILWAUKEE

Ampules Menadione (in oil) 1 mg and 2 mg 1 cc Each cubic centimeter contains menadione dissolved in sesame oil containing 0.5 per cent chlorobutanol

Capsules Menadione (in corn oil) 2 mg

LACTATE RINGER'S SOLUTION (See THE JOURNAL Jan 17, 1942, p 226)

The following dosage forms have been accepted

ABBOTT LABORATORIES, NORTH CHICAGO, ILL

Lactate Ringer's Solution 500 cc and 1000 cc bottles Each hundred cubic centimeters contains sodium lactate 0.31 Gm, sodium chloride U S P 0.6 Gm, potassium chloride N F 0.03 Gm and calcium chloride U S P 0.02 Gm

THE UPJOHN COMPANY, KALAMAZOO, MICH

Lactate Ringer's Solution in Upjohn Infusion Bottles 500 cc, 1000 cc and 2000 cc Each hundred cubic centimeters contains sodium lactate 0.31 Gm, sodium chloride 0.6 Gm, potassium chloride 0.04 Gm and calcium chloride 0.02 Gm in redistilled water

DEXTROSE (See New and Nonofficial Remedies, 1941 p 179)

The following dosage forms have been accepted

ABBOTT LABORATORIES, NORTH CHICAGO, ILL

Dextrose 10% W/V in Lactate Ringer's Solution 500 cc and 1000 cc bottles Each hundred cubic centimeters contains dextrose U S P 10 Gm, sodium lactate 0.31 Gm, sodium chloride U S P 0.6 Gm, potassium chloride N F 0.03 Gm and calcium chloride U S P 0.02 Gm

DON BAXTER, INC GLENDALE CALIF

Dextrose 5% W/V in Lactate Ringer's Solution 500 cc and 1000 cc Vacoliter containers Each hundred cubic centimeters contains dextrose 5.0 Gm, sodium lactate 0.31 Gm, sodium chloride 0.6 Gm, potassium chloride 0.03 Gm and calcium chloride 0.02 Gm

Dextrose 10% W/V in Lactate Ringer's Solution 500 cc and 1000 cc Vacoliter containers Each hundred cubic centimeters contains dextrose 10.0 Gm, sodium lactate 0.31 Gm, sodium chloride 0.6 Gm, potassium chloride 0.03 Gm and calcium chloride 0.02 Gm

THE UPJOHN COMPANY, KALAMAZOO, MICH

Dextrose 5% W/V in Lactate Ringer's Solution in Upjohn Infusion Bottles 500 cc, 1000 cc and 2,000 cc Each hundred cubic centimeters contains dextrose U S P 5.0 Gm, sodium lactate 0.31 Gm, sodium chloride 0.6 Gm, potassium chloride 0.03 Gm and calcium chloride 0.02 Gm

Dextrose 10% W/V in Lactate Ringer's Solution in Upjohn Infusion Bottles 500 cc, 1000 cc and 2,000 cc Each hundred cubic centimeters contains dextrose U S P 10 Gm, sodium lactate 0.31 Gm, sodium chloride 0.6 Gm, potassium chloride 0.03 Gm and calcium chloride 0.02 Gm

CALCIUM GLUCONATE (See New and Nonofficial Remedies 1941, p 176)

The following dosage form has been accepted

THE LAKESIDE LABORATORIES, INC., MILWAUKEE

Ampul Solution of Calcium Gluconate 10% W/V Stabilized with Calcium d-Saccharate 0.5% W/V 10 cc Each ampul contains a sterile distilled water solution of calcium gluconate U S P 10 Gm, stabilized with calcium d-saccharate 0.05 Gm (For tests and standards of calcium d-saccharate see THE JOURNAL April 4 1942 p 1216)

SERUMS AND VACCINES, DIAGNOSTIC AGENTS (See New and Nonofficial Remedies 1941, p 481)

TRICHINELLA EXTRACT—Trichinella extract is diluted saline extraction of clean Trichinella larvae prepared by artificial digestion of muscles of heavily infested experimental animals. The extract is adjusted to neutrality and sterilized by filtration.

**Actions and Uses.**—Trichinella extract is used for making the intradermal diagnostic skin test in the diagnosis of trichinosis. An immediate or delayed type of positive reaction may result from the intradermal injection of 0.1 cc of the diluted antigen, depending on the duration of the illness.

ELI LILLY & COMPANY, INDIANAPOLIS

Trichinella Extract Marketed in packages of two 1 cc vials one vial of Trichinella Extract 1:10,000 dilution in isotonic solution of sodium chloride, and one control vial of isotonic solution of sodium chloride used as extracting fluid. Both extract and control solution contain Merthiolate (Sodium Ethyl Mercuri Thiosalicylate Lilly) 1:20,000 as a preservative.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JULY 4, 1942

## INTRAPERITONEAL ADMINISTRATION OF SULFANILAMIDE

Animal experiments of Key and Burford, Jensen, Johnsrud and Nelson, Key and Frankel have demonstrated that local application of sulfonamide drugs does not interfere with the healing of bones, muscles, connective tissue, joints, pleura and peritoneum. Introduction of sulfonamide drugs into the normal peritoneal cavity of mice (Throckmorton) caused a gradual increase of mononuclear phagocytes of the type elicited by only the mildest of irritants. Rae found, in his studies on experimental peritonitis in rabbits, that sulfanilamide is most effective in the preperitonitis stage. Rosenberg and Wall concluded from their experiments on rats that sulfanilamide is not irritating to the peritoneum and apparently is not harmful to the human body. Pearl and Ricketts, by intraperitoneal use of sulfathiazole, controlled peritonitis produced in the rat by inoculation of a pure culture of hemolytic *Escherichia coli*. In the experiments of Harbison and Key, local application of sulfanilamide did not appreciably delay the healing or decrease the tensile strength of a wound or tend to cause peritoneal adhesions.

Organisms commonly cultured from the peritoneum in perforative appendicitis are *Escherichia coli*, hemolytic and nonhemolytic streptococci and occasionally *Clostridium perfringens*, against all of which the drugs of the sulfonamide group are effective. Ravdin, Rhoads and Lockwood<sup>1</sup> reduced the mortality rate of 1.5 per cent in a series of 880 consecutive cases of acute appendicitis to that of 0.4 per cent in a series of 257 cases by instituting sulfanilamide therapy of cases in which there was spreading peritonitis. The drug was administered hypodermically in an 0.8 per cent concentration in isotonic solution of sodium chloride.

Dees<sup>2</sup> was probably the first to use sulfanilamide powder intraperitoneally. He treated 25 cases of vary-

ing degrees of peritonitis by pouring 20 Gm of sulfanilamide into the area of infection at the time of operation. Cyanosis and jaundice were observed in a few instances but cleared rapidly. Only one death occurred. Griswold and Antonic<sup>3</sup> treated 111 cases of perforated peptic ulcer. From 5 to 10 Gm of sulfanilamide crystals was sprinkled about the lesions, and 3 to 5 Gm was implanted in the abdominal wall. In this series were twenty fatalities. Thompson, Brabson and Walker<sup>4</sup> treated 59 cases of acute, diffuse appendical peritonitis by placing 8 Gm of sulfanilamide into the peritoneal cavity and 4 Gm in the layers of the abdominal wall. In cases of appendical abscess they considered it safe to use as much as 20 Gm total of the drug. Among these 59 cases some seemed hopeless. From 1935 to 1939 741 cases of acute suppurative appendicitis were treated at the Roosevelt Hospital, New York City, with twenty deaths, a mortality rate of 2.7 per cent. During 1940 with intraperitoneal sulfanilamide therapy there were 204 consecutive cases in which operations were performed without a fatality. The dramatic reduction in mortality rate in 1940, the authors felt, was directly due to sulfanilamide. Kinney<sup>5</sup> operated in 45 cases of generalized peritonitis with only one death. Some of the cases were of the gravest type. Toxic effects were not noted. The improvement in the results, the author felt, was due to the use of sulfanilamide in the peritoneal cavity. A local concentration of from seventy-five to one hundred times higher than systemic concentrations may be obtained by direct application of sulfanilamide at the source of infection, according to Mueller and Thompson<sup>6</sup>. They placed 10 Gm of the drug in the peritoneal cavity and sprinkled 5 Gm in the layers of the abdominal wall. This, they believe, increased the rapidity of wound healing in cases of purulent infection. For young children and infants a dose of 3 to 4 Gm is suggested. The dose may be calculated on the basis of 175 mg per kilogram of body weight. Absorption of the drug from the peritoneal cavity is rapid and reaches its peak in from ten to eighteen hours, averaging 7 mg per hundred cubic centimeters of blood. Samples of peritoneal fluid exhibited levels of from 300 to 800 mg per hundred cubic centimeters for more than forty hours postoperatively. Such a degree of concentration cannot be obtained by any other form of administration of the drug and is probably the chief factor in controlling the infection. Mortality rate in 742 surgical cases of acute appendicitis between 1935

<sup>3</sup> Griswold, R. Arnold, and Antonic. *Perforated Peptic Ulcer*, Ann Surg **113**: 791 (May) 1941.

<sup>4</sup> Thompson, James E. Brabson, John A. and Walker, J. The Intra-Abdominal Application of Sulfanilamide in Acute Appendicitis, Surg., Gynec. & Obst. **72**: 722 (April) 1941.

<sup>5</sup> Kinney, C. A. The Use of Powdered Sulfanilamide in the Peritoneum (Report of 45 Cases), J. South Carolina M. A. **37**: 1 (1941).

<sup>6</sup> Mueller, R. Sterling, and Thompson, James E. The Use of Sulfanilamide in the Treatment of Peritoneal Infection, J. South Carolina M. A. **115**: 189 (Jan. 17) 1942.

<sup>1</sup> Ravdin, I. S., Rhoads, J. E., and Lockwood, J. S. The Use of Sulfanilamide in the Treatment of Peritonitis Associated with Appendicitis, Ann Surg **111**: 53 (Jan.) 1940.

<sup>2</sup> Dees, J. Gordon. A Valuable Adjunct in Perforated Appendicitis, Mississippi Doctor **18**: 215 (Sept.) 1940.

and 1939 at the Roosevelt Hospital amounted to 283 per cent. With sulfanilamide since January 1940 there have been 400 consecutive surgical cases of acute appendicitis at the Roosevelt Hospital without a death. Jackson and Collier<sup>7</sup> emphasize that sulfanilamide applied locally in the peritoneal cavity is most effective in the invasive stage of infection. It is far less effective in the presence of frank suppuration for as Lockwood has demonstrated its action is inhibited by peptones. They therefore feel that its use is particularly indicated when open incisions have been made when there has been accidental soiling of the peritoneum, and when a walled off abscess has been broken into and the remainder of the abdomen exposed to contamination. Absorption of the drug from relatively normal peritoneal cavities was so rapid as to raise a doubt as to the analogy of its action here and in other parts of the body. In man 5 Gm intraperitoneally gave a concentration of almost 10 mg per hundred cubic centimeters in about two hours and at twenty-four hours levels below 2 mg per hundred cubic centimeters were found. However, in the presence of an infection the absorption is much slower. Sixty-two patients received sulfanilamide intraperitoneally and 29 of these were given the drug intravenously or orally for one or more days. There were three fatalities which the authors felt might have been avoided if sulfanilamide had been continued. None of the patients receiving only the intraperitoneal dose of the drug showed any toxic signs. Among the 29 patients who received additional sulfanilamide, jaundice developed in 9. Administration of the drug was stopped and jaundice disappeared. Hepatitis has often been observed in the course of sulfanilamide therapy. The question arose whether the intraperitoneal application of the drug might be more apt to lead to hepatitis than administration by other routes. Jackson and Collier found in experiments on dogs that the concentration of the drug in the portal vein was forty times greater than in the jugular vein. There may be a special affinity of the liver for the drug. The peritoneal administration of the drug offers the fastest method of raising the concentration in the blood to effective levels. To avoid damage to the liver the authors suggest that an interval of eighteen hours or more should elapse before giving sulfanilamide after the initial 5 mg peritoneally. Tashiro and his associates<sup>8</sup> stress the necessity of thorough cleansing and aspiration of pus and infectious material from the abdomen in order to remove the inhibiting substances (peptones). Crystalline sulfanilamide in amounts of 4 to 10 Gm, depending on the patient's age, was implanted at the area of greatest

infection, with 2 or 3 Gm used to coat the wound layers and the surface before closure. Since the adoption of this therapy the authors have closed most of the suppurating cases without drains, securing primary wound healing and a smooth postoperative convalescence. There was no depreciation in leukocytosis and no toxic manifestations. There was no fatality in 18 cases of ruptured appendix with peritonitis treated in this manner. In the experience of Hudson and Smith,<sup>9</sup> intravenous and intramuscular chemotherapy gave disappointing results in many cases of spreading peritonitis, the fatality rate reaching the figure of 55.5 per cent. Since the adoption of intraperitoneal sulfanilamide therapy as a routine procedure in similar cases, the mortality has been reduced to 8.3 per cent. Jaundice was not observed in their series of 125 cases. The consensus is clearly that intraperitoneal sulfanilamide is an extremely valuable weapon in the treatment of potential or established peritonitis.

### INSECT BORNE VACCINE

A new epidemiologic approach is suggested in recent attempts by Hammon and his associates<sup>1</sup> of the Hooper Foundation, University of California, to reproduce the natural mode of infection of horses with St. Louis encephalitis virus. A widespread infection of horses and other animals of the Pacific Coast with St. Louis encephalitis is apparent from numerous serologic surveys. Titrations of 69 horse bloods from western states, for example, showed 49 (70 per cent) of the bloods containing antibodies of sufficiently high titer to neutralize the St. Louis virus *in vitro*. Cox and his co-workers<sup>2</sup> had previously found that horses without such antibodies developed typical encephalomyelitis on intracerebral injection of the St. Louis virus, while antibody containing horses were immune to such injection. Horses convalescent from the experimental intracerebral inoculation invariably developed relatively high titer specific antibodies against the virus. During the terminal phase of experimental disease the virus was occasionally isolated from nasal washings but was never demonstrated in the circulating blood. Contact with nasal secretions therefore was the only method of spread of this disease suggested by the earlier investigators.

A different method of spread, however, was indicated by the repeated isolation<sup>3</sup> of the St. Louis virus from one species of mosquitoes (*Culex tarsalis*) of the Yakima Valley, Washington, all other biting insects of this region being negative. This strongly suggests

7 Jackson, Howard C. and Collier, Frederick A. The Use of Sulfanilamide in the Peritoneum. Experimental and Clinical Observations. *J. A. M. A.* 118: 194 (Jan. 17) 1942.

8 Tashiro, K., Pratt, O. B., Kobayashi, A. and Kawachi, G. K. The Local Implantation of Sulfanilamide in the Peritoneal Cavity and Its Clinical Application in Peritonitis Surgery. 11: 671 (May) 1942.

9 Hudson, Rupert, Vaughan, and Smith, Rodney. Intraperitoneal Sulfanilamide: Its Prophylactic and Therapeutic Value. *Lancet* 1: 437 (April 11) 1942.

1 Hammon, W. M., Carle, B. H. and Izumi, E. M. *Proc. Soc. Exper. Biol. & Med.* 49: 335 (March) 1942.

2 Cox, H. R., Philip, C. B. and Kilpatrick, J. W. *Pub. Health Rep.* 56: 1391 (July 4) 1941.

3 Hammon, W. M., Reeves, W. C., Brookman, B., Izumi, E. M. and Gullin, C. M. *Science* 94: 328 (Oct. 3) 1941.

that culex transmission is the main factor in bringing about the wide dissemination of the virus among wild and domestic animals of western states

To test this possibility a number of wild, unbroken colts were imported from an uninhabited mountainous region of Nevada, an area statistically free from the St. Louis virus. The serums of these horses were free from homologous antibodies at the time of their importation. St. Louis virus isolated from Yakima mosquitoes was used for the inoculation tests and employed in its first and second mouse brain passage. Each brain was emulsified in ten volumes of broth containing 5 per cent of sheep serum. Certain horses were given 3 cc of the resulting virus suspension intranasally. Others were inoculated subcutaneously (very superficially) with 3 cc of a 1:10,000 dilution of the same suspension, the dose being planned to approximate a possible single mosquito inoculation. Control horses were inoculated intracerebrally with the suspension, with a number of uninoculated controls kept in a separate corral.

Bleedings were begun with all horses twelve hours after the inoculation and continued twice daily for fifteen days. Nasal washings were made once daily. Virus was not isolated from the nasal washings of any horse, neither was elevation of temperature or other sign of illness noted in any horse. In a typical case of a horse inoculated subcutaneously, the St. Louis virus was isolated from the circulating blood twenty-six, thirty-six and forty-eight hours after inoculation, after which the blood became sterile. By the end of twenty-two days all inoculated animals had developed high titer antisera. The Hooper Institute bacteriologists believe that their subcutaneous test represents the essential features of the usual method of spread of this disease, a symptomless, "inapparent" or subclinical infection due to an insect carrier, an infective concentration of the virus being present in the blood stream during the first forty-eight hours, permitting infection of other blood sucking insect vectors. In none of their experiments did the mosquito borne virus manifest sufficient neurotropic tendencies to produce clinical symptoms of encephalitis, although it did produce typical encephalitis on intracerebral inoculation into mice.

If this work is adequately confirmed, it would seem reasonable to conclude that the wide dissemination of antibodies in wild and domestic animals of the Pacific Coast is due to an insect borne subneurotropic virus producing a subclinical septicemia. The insect borne virus would then function as a specific vaccine, immunizing the animal population against clinical types of the disease. Whether or not the St. Louis virus is modified in its virulence or specificity by insect passage has not yet been determined.

## Current Comment

### DISTURBANCE OF CARBOHYDRATE METABOLISM AS AN ETIOLOGIC FACTOR IN SCHIZOPHRENIA

Meduna and his associates<sup>1</sup> at Loyola University School of Medicine tested the assumption that one of the accompaniments of schizophrenia may be a disturbance of the carbohydrate metabolism acting antagonistically to the normal carbohydrate metabolism. Investigation of the diabetogenic action of the anterior lobe of the hypophysis has established that there is no change in the hormone concerned with carbohydrate metabolism of the blood serum of schizophrenic patients. In fasting schizophrenic patients the same hypophysial deficiency is apparent as in starving normal persons. The Tannhauser and Pfitzer test when applied to 20 schizophrenic patients indicated a disturbance in the carbohydrate metabolism characterized by a delayed utilization of blood sugar. This delay, the authors believe, is due to overactivity of some product of endocrine origin which inhibits the effect of insulin normally produced. The quantitative relation of this hypothetic substance to 35 Gm of dextrose injected is measured by the prolongation of the period of hyperglycemia. This time is fifteen minutes for normal persons, while for the schizophrenic it increases twofold to eightfold. Blood from normal subjects, when injected intraperitoneally into a rabbit in amounts of 20 cc, did not protect the animal against the effect of injected insulin. The blood sugar curve obtained from rabbits injected with blood from schizophrenic patients and with insulin was distinctly different. This curve differed from the average curve for rabbits which received blood from normal persons in two respects. 1. The greatest loss of blood sugar indicated by the average curve for animals receiving blood from schizophrenic subjects was 52.8 per cent, and that indicated by the curve for animals receiving blood from normal subjects was 67 per cent. 2. The recovery of the curve for animals which received blood from schizophrenic patients began at the second hour and proceeds continuously at an increasing rate. The recovery curve for animals which received blood from normal subjects is sluggish, the difference between the second and the third hour 1.08 per cent, between the third and fourth hour 4.1 per cent, and between the fourth and fifth hour 4.3 per cent, so that in the fifth hour the average loss is still 67 per cent as compared with the 25.6 per cent loss of blood sugar for the group which received blood from schizophrenic patients. The differences in the values for the schizophrenic group are as follows: between the second and third hour 4.9 per cent, between the third and fourth hour 9.5 per cent and between the fourth and fifth hour 12.8 per cent. These experiments seem to indicate that schizophrenic patients generally have more anti-insulin factor in their blood than

1 Meduna, L. J., Gerty, F. J., and Urse, V. G. I. Disturbances in Mental Disorders. I. Anti Insulin Effect of Blood of Schizophrenia. Arch. Neurol. & Psychiat. 17: 34 (July 1947).

normal persons. There appears to be a "characteristic schizophrenic curve." In cross experiments the authors have demonstrated that the same rabbit reacted in a characteristic manner to the injection of blood from a normal and to the injection of blood from a schizophrenic person. The presence of an anti-insulin factor in the blood of the schizophrenic was likewise demonstrated in experiments *in vitro*. The authors found that a schizophrenic pattern in about 60 per cent of their cases was characterized by the presence of the anti-insulin factor while a similar clinical pattern in about 40 per cent of the cases was not accompanied by the presence of an anti-insulin factor. The blood sugar curve of experimental animals might then be used as a diagnostic test for schizophrenia accompanied by the presence of an anti-insulin factor. The presence of this factor which acts antagonistically to normal carbohydrate metabolism may be one of the etiologic factors in schizophrenia. A subdivision of schizophrenia into two pathogenically different forms is thus made possible. Certainly these observations offer opportunity for a scientific approach to several unsolved problems in schizophrenia.

#### AVOIDANCE OF CONSTIPATION THROUGH DRINKING OF WATER

Constipation is a clinical term—loosely used—denoting a state of the bowels in which evacuations are infrequent and difficult or the volume of the stools is insufficient. Evacuation of feces is the function of the left half of the colon. A number of clinical, mechanical and reflex (gastrocolic) factors are recognized as contributing to its proper function. The amount of water ingested daily is probably not a factor of any great importance in the maintenance of this function. Consumed water is absorbed principally in the right half of the colon. Insufficient fluid intake would result in a drier fecal current to the left colon. However, the dry, hard stool of the patient with constipation is due to the long overtime which the feces spend in the colon rather than to insufficient fluid intake. A certain amount of water is of course essential for body needs. From clinical experience it would not be possible to state definitely that insufficient water intake is a factor in constipation, and still less that adequate or excessive amounts have any prophylactic or curative value.

Brown<sup>1</sup> stresses the fact that many people, especially women, will drink only 2 or 3 glasses of water a day. The water intake for a person who suffers from constipation he believes should be about 2 liters. Adson and Barger<sup>2</sup> advise between 2.5 and 3 liters of liquids daily. A search of the literature for experimental studies on the subject reveals a cursory reference by Bastedo<sup>3</sup> in which it is told that a number of "non-digestive" patients were made to drink 1 glass of water every hour for fifteen hours daily (almost a gallon) for one week. This regimen did not increase the bowel

movements and served merely to activate the kidneys. The majority of clinicians recommend from 8 to 10 glasses of water a day for persons with constipation. Laxative amounts may be helpful in some cases. The available data do not justify the opinion that excessive amounts of ingested water may be considered a factor in avoiding constipation. The mode of living, habits, diet and emotional responses are probably the determining factors in the causation of constipation.

#### U S FINDS "FINGER SURGEON" FRAUD IN INCOME TAX

Curtis H. Muncie, a somewhat glorified osteopath who has in the past received much publicity for his deafness "cure," including some items in *THE JOURNAL*, has pleaded guilty to five counts charging income tax fraud. The maximum penalty for each count is five years in prison and \$10,000 fine. Actually he is said to have evaded, from 1932 to 1936, \$159,280 in taxes in connection with a reported income during that period of \$502,681. This information appears in an item in the *New York Times* for June 16, 1942. Muncie's first extensive publicity was obtained because of a trip to Europe supposedly for the purpose of curing a congenital deafness of the second son of the king of Spain. On returning to this country Muncie denied that he had treated this individual, Prince Don Jaime, and declared that he had undertaken the trip to Europe for the purpose of treating another prince and that he had done so successfully. The attention of the public was called to this matter in 1926 in an article in *Hygeia*.<sup>1</sup> Investigation at that time proved that Prince Don Jaime was still deaf and had undergone no such treatment. Previously in the *Journal of the American Osteopathic Association*, Muncie had claimed 100 per cent success in the prevention of deafness and permanent improvement in 100 per cent and cures in 95 per cent of what he called first degree catarrhal deafness. In second degree catarrhal deafness he claimed improvement in 95 per cent and cures in 80 per cent. Muncie referred to his procedure as "operative constructive finger surgery," which he administered under anesthesia and claimed that the patient "comes back from a pleasant sleep with a reconstructed nasal and nasopharyngeal area." According to the *Hygeia* article, the examination charge was \$25 and the operation itself \$200 and up, with postoperative treatments, two a week for six months, at \$10 each. Previously *THE JOURNAL* had called the attention<sup>2</sup> of the medical profession to this alleged miracle man and noted that both osteopaths and chiropractors had claimed him. If the report of Muncie's income in the *New York Times* is accurate and represents returns from his practice, Muncie may well rank among the leading charlatans of our time—Abrams, Baker, Brinkley and Locke. Law making agencies which have clamped down on the promotion of "patent medicines" that are harmful to the public might at the same time find ways to reach the exploiters of pseudomedicine and bizarre techniques.

<sup>1</sup> Brown, P. W. Constipation. *M. Clin. North America* 21: 691 (May) 1937.

<sup>2</sup> Adson, Alfred W. and Barger, J. Arnold. Constipation Attributable to Enlarged Aortic Colon Controlled by Splanchnic and Upper Lumbar Sympathectomy. *Tr. West. S. A.* for 1936, p. 186.

<sup>3</sup> Bastedo, W. E. Chronic Constipation. *M. Clin. North America* 20: 891 (Nov.) 1936.

<sup>1</sup> Crump, Arthur J. Deafness Cure Quackery and Pseudo Medicine. *Hygeia* 4: 21 (Jan.) 1926.

<sup>2</sup> Cunningham, Prince Don Jaime's Deafness Again. *Current Comment J. A. M. A.* 81: 481 (Aug. 11) 1925.



# MEDICINE AND THE WAR

*In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession*

## PROCUREMENT AND ASSIGNMENT SERVICE FOR PHYSICIANS, DENTISTS AND VETERINARIANS

### RESTATEMENT OF DUTIES OF THE VARIOUS UNITS OF THE PROCUREMENT AND ASSIGNMENT SERVICE

The development of the Procurement and Assignment Service program makes a reappraisal of the duties of the units seem desirable at this time

#### DIRECTING BOARD

1 Establishment of policies and procedures for the Procurement and Assignment Service

2 Maintenance of liaison with the appropriate governmental officials and agencies and with the various professional groups

#### CENTRAL OFFICE

1 Maintenance of contacts with federal agencies relative to their needs for physicians, dentists and veterinarians, and consultations with these agencies regarding the possibilities of revision of their requests in consideration of the limited supply of professional men in these fields

2 Preparation of quotas of the minimum medical, dental and veterinarian services which should be retained for the civilian population, including private practice, hospital service, industrial service, public health service and medical education

3 Preparation of quotas for allocating to the states the requests for physicians, dentists and veterinarians needed for war service, these quotas to be determined on the basis of the physician-population ratio in the state, the number of physicians already in service from that state, and so on

4 Maintenance of rosters of physicians, dentists and veterinarians (a) total in the United States, (b) those who have registered with the Procurement and Assignment Service, (c) these rosters to contain physician's age, qualifications, location and the like. From these rosters, which will be maintained by the National Roster, names of physicians, dentists and veterinarians with certain qualifications will be obtained from time to time

5 Secure information for the various governmental agencies in regard to physicians, dentists and veterinarians, as to (a) availability for service other than in their present location, (b) their professional and other qualifications, (c) their willingness to serve in various capacities during the war emergency

6 On the basis of this information, select the names of those physicians who meet the specifications of the requisitioning agency

7 Cooperate with the various governmental agencies in obtaining the applications of those physicians thus selected for service

#### CHICAGO OFFICE

1 Maintain and keep up to date the confidential information concerning all physicians, dentists and veterinarians with respect to character, type of practice, infringements of law and so on, which must be considered by the Army, Navy or other service in deciding whether individuals are qualified for commission

2 Maintain confidential lists of the relative standing of all specialists. These lists have been developed through the facilities of the American Medical Association, the American Specialty Boards, the National Research Council and confidential

advisers representative of the various specialties. This material is to be used by the requisitioning agencies as a basis for assignment of those now on duty and those who are candidates for commission

3 Assistance of a consultative and advisory nature to the directing board and to the various committees of the Procurement and Assignment Service. This includes the utilization of statistical data collected over a period of many years by the medical, dental and veterinary medical associations

#### CORPS AREA COMMITTEES

1 To supervise the work of the state committees in order that they may be reasonably uniform in the manner in which they carry out the policies of the directing board. This will require meetings of the corps area committees with state chairmen and visits by the corps area chairman to the states within his corps area

2 To act as appeal board in cases in which the individual physician, dentist or veterinarian, his community or his employing agency differs with the classification given by the state procurement and assignment committee

#### STATE COMMITTEES

1 To obtain the overall enrolment of the professions in the state. This will require the maintenance of rosters in the state offices of those who have enrolled with the Procurement and Assignment Service and those who have not. The former lists will be obtained from the central office

2 Survey local needs for professional services in conformity with the policies laid down by the directing board. On the basis of these surveys determine how many physicians, dentists or veterinarians are needed in the various communities of the states to care for the civilian needs and how many can be released for service elsewhere

3 Determine which particular individual physicians, dentists or veterinarians can be considered "available" for service elsewhere. In view of the changing circumstances this will require constant reappraisal and obviously can be done only locally

4 Pass on the availability, character and professional qualifications of individual physicians who are being considered for appointment for service elsewhere, e.g. for commission in the Army or Navy

5 Cooperate with the state offices of the Selective Training System in determining whether physicians, dentists and veterinarians who are subject to classification by Schedule D are essential in their local communities

6 Maintenance of lists to be transmitted from the central office of those who have expressed their preference for service in industrial practice, civil practice in other communities and local health departments and institutions. Maintain liaison between these individuals and the industrial corporations, civil practitioners, health departments and institutions desiring the services of these individuals in a temporary capacity for the duration of the war

7 Keeping the directing board informed of conditions in the state and bringing to the attention of it matters which may involve general policies

8 Periodic (weekly) reports to the central office of the names and addresses of those commissioned from the state with information as to which of these have been serving as interns or residents

#### DISTRICT OR COUNTY COMMITTEES

1 To provide information assistance and advice to the state committees in carrying out their functions. Local committees have no authority to make final decisions as to whether positions or individuals are essential or nonessential

By Order of the Directing Board

SAM F SEELY, M.D., Executive Officer

## OPPOSITION TO SEGREGATION OF BLOODS FROM WHITE AND NEGRO DONORS IN BLOOD BANKS

The Committee on Race Relations of the American Association of Physical Anthropologists, which includes

- DR WILLIAM K CREGORY, curator, Department of Comparative Anatomy, American Museum of Natural History and president of the American Association of Physical Anthropologists
- DR HARRY L SHAPIRO, assistant curator, Department of Physical Anthropology, American Museum of Natural History
- DR FRANZ WEINREICH, formerly of Peking Union Medical School, Peiping, China, and now working at the American Museum of Natural History
- DR W W CRELLICH, professor of physical anthropology and anatomy, Western Reserve University Medical School and director of the Brush Foundation, Chairman

is opposed to the segregation of the bloods from white and Negro donors in the blood banks which are being collected under the auspices of the American Red Cross. The committee's reasons for opposing it are the following:

1 There is no evidence that the blood of Negroes differs in any significant respect from that of white persons. The successful transfusion with whole blood from white persons to Negroes or vice versa can be accomplished quite as readily as between members of the same race. The same blood groups occur among both white persons and Negroes and no difference has been demonstrated between white and Negro bloods of the same groups.

In the form of dried serum or plasma in which the blood currently collected is being stored, even differences in blood group between donor and recipient are of no consequence.

2 One objection to the indiscriminate use of Negro blood in the blood bank is the somewhat higher incidence of syphilis among Negroes and the erroneous notion that the disease can be transmitted by means of dried blood of a syphilitic donor to a nonsyphilitic recipient.

(a) Every blood sample received is tested for evidence of syphilis and all samples found to react positively are rejected.

(b) Procedures used in preparing and preserving the dried blood plasma or serum would kill any syphilitic organism in the

blood even if as might conceivably happen the blood of a syphilitic donor was inadvertently included in the blood bank.

3 The segregation of the blood of white persons from the blood of Negroes in the blood bank is therefore not only unscientific but is a grievous affront to the largest minority group in our country. This policy of the American Red Cross appears even more indefensible when one considers the origins of some of the substances which are widely and effectively used in modern medical practice and which are readily accepted by the patient.

(a) The use of materials obtained from the blood of horses, rabbits and other animals for protecting against or combating various diseases, such as diphtheria and pneumonia.

(b) Many of the estrogenic (female sex hormone) and gonadotropic preparations currently used in therapy are obtained from the urine of stallions and from the urine or blood serum of pregnant mares. Their efficacy is in no way impaired by their rather inauspicious origin.

(c) The use of extracts or concentrates of various animal organs in the treatment of certain human diseases has been accepted gratefully and with much benefit by those afflicted with such diseases as pernicious anemia, hypothyroidism, diabetes mellitus and Addison's disease.

In view of these facts it seems highly improbable that any soldier or civilian so seriously wounded as to require a blood or plasma transfusion will insist that it come from a donor whose skin is no darker than his own.

It is interesting in this connection to recall that the practice of using colored women as wetnurses was at least formerly quite widespread among the better circumstanced families in the Southern part of this country. It is quite certain that along with the nutritious elements in the milk of those colored women, the white infants ingested many of the same substances which were circulating in the blood stream of the women who suckled them. It is most unlikely that it did them any harm.

## SOLDIERS MARCH TO SAVE GASOLINE

In the transfer from Camp Lee to Camp Pickett of thousands of medical department soldiers comprising the Medical Replacement Center, the three day movement was made on foot rather than by trucks, according to the *New York Times*, primarily to conserve tires and gasoline, of which it is estimated 300,000 tire miles and 5000 gallons of gasoline were saved. Although authorized to transfer the troops by trucks, Brig Gen William R. Dear, M.C., commanding the Medical Replacement Center, used the opportunity to provide the troops with experience in camp and other phases of field training. The center is now at Camp Pickett in what was described as one of the newest and most modern camps in the country.

## FLIGHT SURGEONS' ASSISTANTS

Six courses for flight surgeons' assistants are conducted annually at the School of Aviation Medicine, Randolph Field, Texas. These men are trained as specialists and assistants to flight surgeons in the selection, care and maintenance of the flier. A class of six-three flight surgeons' assistants completed the six weeks course on June 16. Colonel Eugen G. Reinartz, M.C., U.S. Army, commandant of the school, addressed the class, and the certificates were presented by Major Merrill J. Reeh, M.C.

## INSTRUCTION IN MEDICAL ASPECTS OF CHEMICAL WARFARE

A program is being established to instruct thousands of physicians in New York to diagnose and treat persons suffering from poison gas in case of gas attacks by the enemy. Dr. David D. Rutstein, who has been appointed consultant on the medical aspects of chemical warfare for the medical division for the Office of Civilian Defense, will initiate the program. Dr. Rutstein, who is on leave as chief of the cardiac bureau of the New York State Health Department, completed the course in chemical warfare given at the University of Cincinnati (*THE JOURNAL*, June 27, p. 717) under the sponsorship of the office of Civilian Defense. In April a course was completed also by two faculty members from each of the medical schools in New York, and classes which include the chiefs of local emergency medical service squads throughout New York are now being organized.

The classes at the medical schools, which will be given to about two hundred and forty-five physicians, will comprise a total of six hours instruction. The next phase of the program will be the instruction of four thousand members of emergency medical service squads, then similar instruction will be given to the remaining practicing physicians in the state. It is expected that at least the first aid aspects of the treatment of cases of

gas poisoning will filter on down to the air raid wardens and the auxiliary firemen and policemen

As soon as this program has been set up in New York, Dr Rutstein will establish similar programs of instruction for all physicians on the eastern seaboard and along the gulf coast

### BUNDLES FOR BRITAIN

At a national meeting of Bundles for Britain, Inc., in New York on June 10 the financial statement presented showed a total of \$6,546,153 received between its foundation on Dec 7, 1939 and May 29, 1942. This total included cash received, venues from entertainments and profits from the sale of merchandise donated and from contributed articles. Of this total \$802,696, or 12 per cent, was spent for administrative purposes, benefits, collections, warehousing, promotion, shipping and publicity.

Steps were taken to create an emergency fund by regular contributions from all branches, to be used to answer without delay the frequent cable requests from London for immediate relief funds.

The president of Bundles for Britain, Inc., is Mrs Robert W Bingham, the vice presidents are Mrs Charles Dana Gibson, Mrs Andrew Carnegie, Mrs Eliot Tuckerman and Colonel William Chadbourne, the secretary is Mrs R Alger Sawyer. On the advisory committee are Mrs Marshall Field, Mrs A I du Pont and Alfred E Smith. After the meeting the delegates inspected the warehouses and workrooms and in the evening attended a dinner meeting which was addressed, among others, by the wife of the British ambassador, Viscountess Halifax, and Sir Gerald Campbell, the British minister.

### CIVILIAN DEFENSE

Dr Fred W Rankin, Lexington, Ky., president of the American Medical Association, has retired as a member of the advisory board of the Office of Civilian Defense on being called to active duty in the Surgeon General's Office of the Army and has been succeeded on that board by Dr John T O'Rourke, dean of the University of Louisville School of Dentistry.

Dr Victor H Vogel, passed assistant surgeon of the U S Public Health Service, has joined the staff of the Medical Division of the Office of Civilian Defense. Dr Vogel has been with the U S Public Health Service since 1931 and has served with the Division of Mental Hygiene since 1935.

Dr Dean A Clark, surgeon, U S Public Health Service, reserve, New York City, has been appointed head of a hospital section organized in the Medical Division of the Office of Civilian Defense, and head of a new emergency medical section in the U S Public Health Service, which will administer the program jointly with the Medical Division of the Office of Civilian Defense. Since 1939 Dr Clark has been on the staff of the Division of Public Health Methods, National Institute of Health, of the U S Public Health Service.

Mr Carl E Schwob of Chicago has been appointed sanitary engineer, U S Public Health Service, reserve, and assigned to the Office of Civilian Defense. Mr Schwob graduated in civil engineering from the State University of Iowa and took a master of science degree in sanitary engineering at Harvard Graduate School of Engineering. He was on the staff of the Illinois State Department of Health from 1926 to 1937 and from 1938 to 1941. In 1939 he was lent by the state health department to the State Department of Welfare of Illinois as assistant managing officer at the Manteno State Hospital in charge of typhoid control during and following a serious epidemic at that hospital.

The first showing of the sound slide film on the operation of the Emergency Medical Service of the Office of Civilian Defense was made at the annual meeting of the American Medical Association at Atlantic City, June 8-12 (THE JOURNAL, June 13, p 569).

Dr E Howe Miller has been appointed director of the medical detachment in the civilian defense program of Danville, Va.

Mr H N Hooper, superintendent of the Cincinnati General Hospital, has been granted a leave of absence for the duration of the war to accept a position as hospital administrator in the Office of Civilian Defense.

Dr Gilbert S Osingcup, Orlando, Fla., who has been commissioned in the U S Public Health Service, reserve, has been visiting defense councils in Florida in connection with the Office of Civilian Defense.

Dr Sylvester D Craig, Winston-Salem, has been named director of the North Carolina emergency medical service.

### FIRST AID TRAINING IN GARY STEEL MILLS

At the mills of the Carnegie-Illinois Steel Corporation in Gary, Ind., a round the clock program of first aid training has been set up which already has been completed by nearly seven hundred employees who have taken the twenty-hour standard Red Cross course in first aid. The schedule for the classes at these mills is arranged so that employees of all three shifts may participate. The classes are conducted by twenty instructors who have Red Cross first aid certificates and are under the direction of Dr D E Griffiths, chief medical officer of the emergency defense organization of this plant. One of the instructors was sent to Texas to receive special training in combating the effects of chemical and demolition bombs. The pupils who make the best records in the first aid courses are selected for the stretcher teams, each being assigned to a definite station in the plant in case of emergency and each team composed of a captain and eight assistants. Others who have completed the course will be stationed in case of emergency at the four first aid and two dressing stations in the plant. Among those who have already completed their first aid course are one hundred ten girls, some of whom are expected to continue further training to qualify as nurses' assistants.

### COMMITTEE ON BACTERIOLOGY

The Society of American Bacteriologists has appointed a war committee on bacteriology with Dr Thomas M Rivers, New York, as chairman, other members are Robert E Buchanan, Ph D, Ames, Iowa, Edwin J Cameron, Ph D, Washington, D C, Edwin B Fred, Ph D, Madison, Wis, and Dr N Paul Hudson, Columbus, Ohio, Selman A Waksman, Ph D, New Brunswick, N J, president of the society, and William B Sarles, Ph D, Madison, Wis, secretary-treasurer, are ex officio members. The committee aims to serve as a clearing house for research in the fields of medical, industrial and agricultural bacteriology and general microbiology, to coordinate the activities of various interested groups and to act in an advisory capacity to them. It will aid in the placement of bacteriologists with positions concerned with defense.

### CORNELL HOSPITAL UNIT CALLED TO ACTIVE DUTY

The New York Hospital and Cornell Medical College Hospital unit has been called to active military service. At the 171st charter day meeting of the Society of the New York Hospital, June 18, the acting president, Langdon P Marvin read a message from President Roosevelt, whose great great grandfather Isaac Roosevelt was one of the founders. Among the speakers at the charter day meeting was Major General Frank R McCoy, U S Army retired, president of the Foreign Physicians Association.

### BLOOD BANKS IN WEST VIRGINIA

Since the U S Public Health Service will not make immediately available to establish blood banks in cities more than 300 miles from the coast line, which excludes Huntington and Charleston, the three West Virginia commissioners, Dr Clifton F McClintic announced a plan to establish blood banks on "a voluntary basis" in the state to the Charleston Mail of May 15.

# ORGANIZATION SECTION

## PROCEEDINGS OF THE ATLANTIC CITY SESSION

MINUTES OF THE NINETY THIRD ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, HELD IN ATLANTIC CITY, JUNE 8-12, 1942

### MINUTES OF THE SECTIONS

#### SECTION ON PRACTICE OF MEDICINE

WEDNESDAY, JUNE 10—AFTERNOON

The meeting was called to order at 2:15 by the chairman, Dr. Roy W. Scott, Cleveland.

Drs. Elmer P. Ralli and Saul H. Rubin, New York, presented a paper on 'The Effect of Heat and Heat Frictions on the Fatty Liver of Depreciated and Pancreatic Duct Ligated Dogs.' Discussed by Dr. M. Lawrence Montgomery, San Francisco.

Drs. James A. Greene and G. F. Keohon, Iowa City, presented a paper on 'Insulin Resistance Due to Infection in Diabetes Mellitus in Man.' Discussed by Dr. Howard F. Root, Boston.

Dr. Joseph H. Pratt, Boston, read the Frank Billings Lecture on 'Advances in the Diagnosis and Treatment of Pancreatic Disease.' Dr. Pratt was introduced by the chairman, who gave a brief historical review of the Frank Billings Lecture.

Drs. Joseph T. Beardwood Jr. and George P. Rouse Jr., Philadelphia, presented a paper on 'Effects of Estrogenic Substances in the Treatment of Diabetes.' Discussed by Drs. Herman O. Mosenthal, New York, Charles W. Dunn, Philadelphia, Howard F. Root, Boston, and Carlos A. P. Lamar, Miami, Fla.

Dr. Russell S. Boles, Philadelphia, read a paper entitled 'Observations on the Prevention and Management of Peptic Ulcer.' Discussed by Drs. Sara M. Jordan, Boston, Frank H. Lahey, Boston, and Hyman I. Goldstein, Camden, N. J.

THURSDAY, JUNE 11—AFTERNOON

The following officers were elected: chairman, Dr. Burrell Raulston, Los Angeles; vice chairman, Dr. Charles Wolferth, Philadelphia; secretary, Dr. William D. Stroud, Philadelphia; delegate, Dr. Fred M. Smith, Iowa City; alternate, Dr. Roy W. Scott, Cleveland; executive committee, Dr. Fred M. Smith, Iowa City; Dr. Roy W. Scott, Cleveland; and Dr. Burrell Raulston, Los Angeles, member of the American Board of Internal Medicine; Dr. John Musser, New Orleans.

Drs. Harrison F. Flippin, Leon Schwartz and Albert H. Domm, Philadelphia, presented a paper on 'Modern Treatment of Pneumococcal Pneumonia.' Discussed by Drs. Adolph S. Rumreich, Chicago, and Worth B. Daniels, Fort Bragg, N. C.

Dr. Roy W. Scott, Cleveland, read the chairman's address entitled 'Arterial Hypertension.'

Drs. W. D. Sutcliffe, Milton, Helpner and Gerard P. J. Griffin, New York, presented a paper on 'Sulfonamide Toxicity as a Cause of Death in New York City in 1941.' Discussed by Drs. Perrin H. Long, Baltimore, and Russell L. Cecil, New York.

Dr. Edward Weiss, Philadelphia, read a paper on 'Psychosomatic Aspects of Hypertension.' Discussed by Dr. Roy W. Scott, Cleveland.

Drs. Frank S. Dolley and Lyman A. Brewer, Los Angeles, presented a paper on 'Intrathoracic Tumors: Diagnosis and Treatment.' Discussed by Dr. Roy W. Scott, Cleveland.

FRIDAY, JUNE 12—MORNING

A joint meeting was held with the Section on Experimental Medicine and Therapeutics. The proceedings are reported in the minutes of that section.

#### SECTION ON SURGERY, GENERAL AND ABDOMINAL

WEDNESDAY, JUNE 10—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr. Arthur W. Allen, Boston.

Dr. Edgar J. Poth, Baltimore, read a paper on 'Succinyl Sulfathiazole as an Adjuvant in Surgery of the Large Bowel.' Discussed by Drs. John S. Lockwood, Wynnewood, Pa., H. C. Saltzstein, Detroit, and Edgar J. Poth, Baltimore.

Dr. Frank H. Lahey, Boston, read a paper on 'Lesions of the Right Colon Involving Right Colectomy.'

Dr. Harvey S. Stone and Dr. Samuel McLanahan, Baltimore, presented a paper on 'Resection and Immediate Anastomosis for Carcinoma of the Colon.'

These two papers were discussed by Drs. C. W. Mayo, Rochester, Minn., Henry W. Cave, New York, Arthur W. Allen, Boston, Frank H. Lahey, Boston, and Harvey B. Stone, Baltimore.

Dr. Thomas E. Jones, Cleveland, read a paper on 'Complications of the Combined Abdominoperineal Operation Based on Over Five Hundred Cases.' Discussed by Drs. Frederick A. Collier, Ann Arbor, Mich., E. Parker Hayden, Boston, and Garnet W. Ault, Washington, D. C.

Dr. Charles B. Puestow, Chicago, read a paper on 'Experimental and Clinical Studies of Intestinal Motility and Post-operative Distention.' Discussed by Dr. Robert J. Crawley, Detroit.

Dr. I. S. Ravdin, Philadelphia, read a paper on 'The Prevention of Liver Damage and the Facilitation of Repair in the Liver by Diet.' Discussed by Dr. Walter E. Lee, Philadelphia.

THURSDAY, JUNE 11—MORNING

Dr. J. Ross Veal, Washington, D. C., read a paper on 'The Prevention of Pulmonary Complications Following Thigh Amputations by High Ligation of the Femoral Vein.'

Dr. W. J. Potts, Oak Park, Ill., read a paper on 'Pulmonary Embolism: A Clinical and Experimental Study.'

These two papers were discussed by Drs. Geza de Takats, Chicago, Edgar V. Allen, Rochester, Minn., L. W. Grossman, New York, J. Ross Veal, Washington, D. C., and W. J. Potts, Oak Park, Ill.

Dr. Arthur W. Allen, Boston, read the chairman's address, entitled 'Subtotal Gastrectomy for Stenosing Duodenal Ulcer.'

Drs. Harry E. Mock and Harry E. Mock Jr., Chicago, presented a paper on 'Management of Skull Fractures and Brain Injuries.' Discussed by Drs. Max M. Pect, Ann Arbor, Mich., Fred M. Douglass, Toledo, Ohio, A. S. Leven, Chicago, F. M. Summerville, Oil City, Pa., and Harry E. Mock, Chicago.

Dr. J. D. Martin Jr., Atlanta, Ga., read a paper on 'Pulsating Exophthalmos.' Discussed by Drs. Harry H. Kerr, Washington, D. C., Alton Ochsner, New Orleans, and James Rudolph Jaeger, Denver.

Drs. George M. Curtis and James D. King, Columbus, Ohio, presented a paper on 'Blast Injuries to the Lungs.' Discussed by Drs. Casper F. Hegner, Denver, and George M. Curtis, Columbus, Ohio.

Dr. Harold L. Foss, Danville, Pa., read a paper on 'Total Hysterectomy: A Consideration of a New Operative Technique.' Discussed by Drs. V. S. Counsellor, Rochester, Minn., and Conrad G. Collins, New Orleans.

## FRIDAY, JUNE 12—MORNING

The following officers were elected chairman, Dr Frederick A Collier, Ann Arbor, Mich, vice chairman, Dr Lester R Dragstedt, Chicago, secretary, Dr Alton Ochsner, New Orleans, delegate, Dr Henry W Cave, New York, alternate, Dr Grover C Penberthy, Detroit, executive committee Dr Lloyd Noland, Fairfield Ala, Dr Arthur W Allen, Boston, and Dr Frederick Collier, Ann Arbor, Mich, member of board of governors, American College of Surgeons, Dr Owen H Wangersteen, Minneapolis, representative to the Scientific Exhibit, Dr Grover C Penberthy, Detroit

A motion was made by Dr J B Haskins, Chattanooga, Tenn, seconded by Dr E Payne Palmer, Phoenix, Ariz, and carried, authorizing appointment of a committee to represent the section on the Council on Industrial Health. The chairman, in compliance with the action taken, appointed Drs Lloyd Noland, Fairfield, Ala, chairman, William L Estes Jr, Bethlehem, Pa, Henry Chase Marble, Boston, Thomas M Joyce, Portland, Ore, and S Perry Rogers, Chicago

Dr U V Portmann, Cleveland, read a paper on "Classification of Primary Cases of Cancer of the Breast"

Dr Frank E Adair, New York, read a paper on "The Role of Surgery and Radiation in Cancer of the Breast"

These two papers were discussed by Drs Shields Warren, Boston, C D Haagensen, New York, William C White, New York, E Payne Palmer, Phoenix, Ariz, U V Portmann, Cleveland, and Frank E Adair, New York

Dr Robert Elman, St Louis, read a paper on "Acute Protein Deficiency in Shock, Burns, Intestinal Obstruction and Peritonitis" Discussed by Drs Alexander Bunschwig, Chicago, H N Harkins, Detroit, and Robert Elman, St Louis

Drs Elliott C Cutler and Robert Zollinger, Boston, presented a paper on "Acute Cholecystitis" Discussed by Drs Frank Glenn, New York, Henry F Graham, Brooklyn, D Woolfolk Barrow, Lexington, Ky, Moses Behrend, Philadelphia, and Elliott C Cutler, Boston

Drs F W Gaarde, L E Prickman and H J Raszkowski, Rochester, Minn, presented a paper entitled "Is the Asthmatic Patient a Good Surgical Risk?" Discussed by Drs L N Gay, Baltimore, Geza de Takats, Chicago, and L E Prickman, Rochester, Minn

Dr William Bates, Philadelphia, read a paper on "Intraspinal Administration of Ammonium Sulfate" Discussed by Dr Jacob Goeller, Livingston, N J

## SECTION ON OBSTETRICS AND GYNECOLOGY

## WEDNESDAY, JUNE 10—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr Walter T Dannreuther, New York

Drs A R Abarbanel, Baltimore, and Harry Aranow, New York, presented a paper on "Clinical Evaluation of Stilbestrol in Gynecology and Obstetrics" Discussed by Drs Emil Novak, Baltimore, Robert B Greenblatt, Augusta, Ga, Joseph A Hepp, Pittsburgh, Carlos A P Lamar, Miami, Fla, Karl John Karnaky, Houston, Texas, John M Freiheit, Waterbury, Conn, and A R Abarbanel, Baltimore

Dr Robert B Greenblatt, Augusta, Ga, read a paper on "Implantation of Testosterone Propionate Pellets in Gynecic Disorders" Discussed by Drs Willard M Allen, St Louis, Udall J Salmon, New York, L F Hawkinson, Oakland, Calif, Charles F Geschickter, Baltimore, Carlos A P Lamar, Miami, Fla, and Robert B Greenblatt, Augusta, Ga

Dr Alejandro Lipschutz, Santiago, Chile, read a paper on "Experimental Fibroids and the Antifibromatogenic Action of Steroid Hormones"

Dr H W Mayes, Brooklyn, read a paper on "Vaginal Antisepsis During Labor: Ten Thousand Vaginal Deliveries Without a Death from Puerperal Infection" Discussed by Drs Paul Titus, Pittsburgh, Robert Gordon Douglas, New York, and H W Mayes, Brooklyn

Dr Charles E McLennan, Minneapolis, read a paper on "Conservative Treatment of Inversion of the Uterus" Discussed by Drs W Benson Harer, Philadelphia, W A Coventry, Duluth, Minn, Louis E Phaneuf, Boston, John Huberman, Newark, N J, and Charles E McLennan, Minneapolis

Drs J Milton Singleton and Herbert F Vanorden, Kansas City, Mo, presented a paper on "Vaginal Tampons in Menstrual Hygiene" Discussed by Drs George Gray Ward, New York, Marie P Warner, New York, Robert L Dickinson, New York, and J Milton Singleton, Kansas City, Mo

## THURSDAY, JUNE 11—AFTERNOON

The following officers were elected chairman, Dr Louis E Phaneuf, Boston, vice chairman, Dr Wendell M Long, Oklahoma City, secretary, Dr Philip F Williams, Philadelphia, executive committee Dr Norman F Miller, Ann Arbor, Mich, Dr Walter T Dannreuther, New York, and Dr Louis E Phaneuf, Boston, governors, American College of Surgeons, Dr Emil Novak, Baltimore, Dr Thomas K Brown, St Louis, and Dr Alice Maxwell, San Francisco, delegate, Dr J P Pratt, Detroit, alternate, Dr Harvey B Matthews, Brooklyn, representatives to American Committee on Maternal Welfare, Dr G C Schauffler, Portland, Ore, Dr E D Plass, Iowa City, and Dr R D Mussey, Rochester, Minn, representatives to the American Board of Obstetrics and Gynecology, Dr Francis Bayard Carter, Durham, N C, Dr Louis E Phaneuf, Boston, and Dr Ludwig A Emge, San Francisco

A resolution was passed authorizing appointment of a Committee on Health of Women in Industry in the Section on Obstetrics and Gynecology of the American Medical Association, to cooperate with the Council on Industrial Medicine. A motion was made and passed that the chairman of the Section on Obstetrics and Gynecology should appoint a five man committee for this purpose

Dr Alvin J B Tillman, New York, read a paper on "Classification and Medical Relationships of Hypertensive-Albuminuric Pregnancy"

Dr Howard C Taylor Jr, New York, read a paper on "Endocrinologic Physiology of Hypertensive-Albuminuric Pregnancy"

Dr William J Dieckmann, Chicago, read a paper on "Etiology, Prophylaxis and Treatment of Hypertensive-Albuminuric Pregnancy"

These three papers were discussed by Drs W W Herrick, New York, J Isfred Hofbauer, Cincinnati, A J Rongy, New York, and William J Dieckmann, Chicago

Dr Walter T Dannreuther, New York, read the chairman's address, entitled "Educational Objectives of the American Board of Obstetrics and Gynecology"

## FRIDAY, JUNE 12—MORNING

A joint meeting was held with the Section on Radiology. The proceedings are reported in the minutes of that section

## SECTION ON OPHTHALMOLOGY

## WEDNESDAY, JUNE 10—MORNING

The meeting was called to order at 9:15 by the chairman, Dr Lawrence T Post, St Louis

Dr Lawrence T Post, St Louis, read the chairman's address, entitled "Lifelong Care of the Eyes"

Dr Moacyr E Alvaro, São Paulo, Brazil, read a paper, "The Effects, Other Than Anti-Infectious, of the Sulfonamides on the Eye"

The following papers were read as a symposium, "Geriatrics"

Dr John H Morrissey, New York, "Urologic Geriatrics"

Dr George M Piersol, Philadelphia, "Medical Geriatrics"

Dr Henry W Woltman, Rochester, Minn, "Neurologic Geriatrics"

Dr Conrad Berens, New York, "Ophthalmic Geriatrics"



WEDNESDAY, JUNE 10—EVENING

*Executive Session*

A special executive session was held for the purpose of discussing the matter of optometric relations.

It was voted on motion made by Dr Parker Heath, Detroit seconded by Dr Charles A Bahn New Orleans that the section instruct its delegate to advise the House of Delegates of the American Medical Association that it wished to rescind the resolution of 1941.

THURSDAY, JUNE 11—MORNING

Dr T L Terry Boston read a paper on "Fibroblastic Overgrowth of Persistent Tunica Vasculosa Lentis in Infants Born Prematurely." Discussed by Drs Parker Heath Detroit, Samuel Gifford Chicago, Herman Goldberg Baltimore and T L Terry Boston.

Dr Walter B Lancaster Hanover N H read a paper on "The Nature Scope and Significance of Aniseikonia." Discussed by Dr Ernest A W Sheppard, Washington D C, Eric Liljencrantz, Washington D C, Robert H Peckham Pensacola Fla, and Walter B Lancaster Hanover N H.

Drs Cecil S O'Brien and J H Allen Iowa City, presented a paper on "Ocular Changes in Young Diabetic Patients." Discussed by Drs Glen G Gibson Philadelphia, and J H Allen Iowa City.

Dr Fred H Verhoeff Boston read a paper on "A Simple Quantitative Test for Acuity and Reliability of Binocular Stereopsis." Discussed by Drs Maynard C Wheeler New York, John B Hitz Milwaukee, K W Ascher Cincinnati, Walter B Lancaster Hanover N H, Morris Davidson New York, Robert H Peckham Pensacola, Fla and Fred H Verhoeff Boston.

Dr Jacob Goldsmith New York read a paper on "Experimental Studies on the Dynamics of the Intracapsular Cataract Extraction Suspensory Ligament and Hannover's Canal." Discussed by Drs Manuel U Troncoso New York, Henry J Minsky New York, Fred H Verhoeff Boston, and Jacob Goldsmith, New York.

*Executive Session*

On motion made by Dr Albert C Snell, Rochester N Y, and seconded by Dr H E Glock Fort Wayne Ind, it was voted unanimously that the delegate representing the section not be deprived of the privilege to vote in the House of Delegates.

*Scientific Session*

Drs Joseph Tiffin Lafayette Ind, and Hedwig S Kuhn Hammond, Ind presented a paper on "Color Discrimination in Industry." Discussed by Drs Alfred Cowan, Philadelphia, Peter C Kornfeld Chicago and Joseph Tiffin Lafayette, Ind.

*Demonstration Session*

Dr David F Gillette, Syracuse, N Y demonstrated a new eye shield.

FRIDAY, JUNE 12—MORNING

*Demonstration Session*

Dr Edward Stieren, Pittsburgh demonstrated a protective goggle for industry.

*Executive Session*

Dr Derrick Vail Cincinnati read the report of the Committee on Visual Economics.

Dr Derrick Vail Cincinnati read the report of the Committee on Awarding the Knapp Medal.

Dr Conrad Berens New York read the report of the American Board of Ophthalmology.

Dr Derrick Vail Cincinnati, read the report on the Registry of Ophthalmic Pathology.

Dr Derrick Vail, Cincinnati, read the report of the Committee on Scientific Exhibit.

Dr Derrick Vail Cincinnati read the report of the Committee on the Museum of Ophthalmic History.

Dr George Gunbor, Ottawa Ill, read the report of the Committee on Orthoptics.

Dr William L Benedict Rochester, Minn read the report of the Advisory Committee to the Eye Health Committee of the American Student Health Association.

Dr Derrick Vail Cincinnati, read the report of the Committee on Ophthalmic Literature (Joint).

Dr S Judd Berch Portland Maine reported for the Joint Committee on Optics and Visual Physiology. He stated that Dr Alfred Cowan of the Subcommittee on Visual Standards reported that the distance portion of the American Medical Association rating card in percentages did not correspond to the near part and recommended that the near part be made so that it is consistent with the distant part.

Dr Albert C Snell, Rochester, N Y gave the report of the Committee on Industrial Ophthalmology.

There was no report from the representative to the Council of the Pan American Congress. Dr William L Benedict, Rochester Minn.

Dr Derrick Vail Cincinnati, read the report of the Committee on the Knapp Testimonial Fund.

Dr Arthur J Bedell, Albany N Y, reported as delegate of the section to the House of Delegates.

On motion made by Dr E C Ellett, Memphis Tenn seconded by Dr Fred H Verhoeff Boston a vote of thanks was extended to Dr Bedell for his long and satisfactory service in representing the section in the House of Delegates.

The following committee for awarding the Knapp Medal for 1942 was elected from the floor: Dr John Woolfolk Burke Washington D C, Dr Frank E Burch, St Paul, and Dr E C Ellett, Memphis, Tenn.

On motion made by Dr Conrad Berens, New York seconded by Dr Harry S Gradle Chicago, it was voted to accept all reports that had been presented.

The following officers were elected: chairman, Dr Conrad Berens, New York, vice chairman Dr Robert von der Heydt, Chicago, secretary Dr Derrick Vail, Cincinnati, executive committee Dr Albert C Snell, Rochester N Y, Dr Lawrence T Post St Louis, Dr Conrad Berens New York, delegate Dr Arthur J Bedell, Albany, N Y, alternate, Dr Shaler A Richardson, Jacksonville Fla.

The following committee appointments were recommended by the executive committee and approved:

To fill a vacancy on the American Committee (Joint) on Optics and Visual Physiology, representing the Section on Ophthalmology, the reappointment of Dr Sanford Gifford Chicago, to serve for a term of three years.

The reelection of Dr Conrad Berens, New York to the Committee on American Board of Ophthalmology to serve for a term of four years.

As representative of the section to the College of Surgeons Board of Governors Dr M Hayward Post St Louis, for a term of one year.

The appointment of Dr J V Cassidy, South Bend, Ind, to fill a vacancy on the Committee on Industrial Ophthalmology (Joint).

The appointment of Dr Walter B Lancaster Hanover, N H, to the American Orthoptic Council for a term of three years, to fill a vacancy.

To the Committee on Scientific Exhibit from the section, the appointment of Dr A B Reese, New York.

To continue unchanged the Committee on Visual Economics, the Committee on National Museum of Ophthalmic Pathology, the Committee on Museum of Ophthalmic History, the Advisory Committee of Student Health Association and the Committee on Ophthalmic Literature (Joint).

The Research Medal Award was presented in absentia to Dr Manuel Uribe Troncoso New York.

*Scientific Session*

Dr Edmund B Spaeth, Philadelphia, read a paper on "The Removal of Metallic Foreign Bodies from the Eyeball and the Orbit" Discussed by Drs Edward Stieren, Pittsburgh, Raymond L Pfeiffer, New York, Harvey E Thorpe, Pittsburgh, Oscar Wilkinson, Washington, D C, Elbert S Sherman, Newark, N J, and Edmund B Spaeth, Philadelphia

Dr Lowell S Selling, Detroit, read a paper on "The Ophthalmologist's Place in the Prevention of Traffic Accidents" Discussed by Drs S Judd Beach, Portland, Maine, Albert C Snell, Rochester, N Y, and Lowell S Selling, Detroit

Dr John S McGavic, New York, read a paper on "Lymphomatous Tumors of the Eye and Its Adnexa" Discussed by Drs William L Benedict, Rochester, Minn, Benjamin Rones, Washington, D C, Arthur J Bedell, Albany, N Y, and John S McGavic, New York

Dr James W Smith, New York, read a paper on "Ochrosis of the Sclera and Cornea Complicating Alkaptonuria. Review of the Literature and Report of Four Cases" Discussed by Drs Milton L Berliner, New York, and James W Smith, New York

## SECTION ON LARYNGOLOGY, OTOTOLOGY AND RHINOLOGY

WEDNESDAY, JUNE 10—AFTERNOON

The meeting was called to order at 2 05 by the chairman, Dr Gordon F Harkness, Davenport, Iowa

Dr Herman J Sternstein, Boston, read a paper on "A Quantitative Evaluation of Vasoconstrictor Agents in the Obstructed Nose" Discussed by Drs A C Hilding, Duluth, Minn, Lewis T Buckman, Wilkes-Barre, Pa, John J Shea, Memphis, Tenn, and Herman J Sternstein, Boston

*Executive Session*

Dr Burt R Shurly, Detroit, delegate from the section, reported concerning the resolution proposed in the House of Delegates depriving section delegates of the right to vote

*Scientific Session*

Dr Henry B Orton, Newark, N J, read a paper on "Diagnosis and Treatment of Deep Neck Infections" Discussed by Drs August L Beck, New Rochelle, N Y, Samuel Iglauer, Cincinnati, and Henry B Orton, Newark, N J

Dr Daniel S Cuning, New York, read a paper on "Rhinoscleroma" Discussed by Dr Francis Carter Wood, New York, Fred W Dixon, Cleveland, Joseph I Kemler, Baltimore, and Daniel S Cuning, New York

Dr Leon D Carson, Washington, D C, read a paper on "Otolaryngologic Problems Occurring in Fliers" Discussed by Drs R J Hunter, Philadelphia, A H Andrews Jr, Chicago, Herman J Sternstein, Boston, and Leon D Carson, Washington, D C

Dr Joseph C Donnelly, Philadelphia, read a paper on "Pulmonary Tuberculosis Masquerading as Laryngitis" Discussed by Drs Frank R Spencer, Boulder, Colo, Frederick T Hill, Waterville, Maine, Joseph I Kemler, Baltimore, and Joseph C Donnelly, Philadelphia

*Executive Session*

By unanimous vote, Lieut Col Lee S Fountain, 309 Thelma Drive, San Antonio, Texas, and Harold H Murray, DMD, 710 General Insurance Building, Seattle, were nominated for election to Associate Fellowship in the American Medical Association

THURSDAY, JUNE 11—AFTERNOON

*Executive Session*

The following officers were elected chairman, Dr Claude C Cody Jr, Houston, Texas, vice chairman, Dr William H Johnston, Santa Barbara, Calif, secretary, Dr Louis H Clerf, Philadelphia, executive committee Dr LeRoy A Schall, Bos-

ton, Dr Gordon F Harkness, Davenport, Iowa, and Dr Claude C Cody Jr, Houston, Texas, delegate, Dr Burt R Shurly, Detroit, alternate, Dr Gordon F Harkness, Davenport, Iowa

Dr John J Shea, Memphis, Tenn, reported for the American Board of Otolaryngology that forty-three examinations had been held since 1924 in twenty-four different cities and that a total of 3,467 otolaryngologists had been certificated Dr Shea stated that Dr Joseph C Beck, Chicago, the other member of the section on the board, was ill, and suggested that flowers be sent to him

Dr W E Grove, Milwaukee, read the report of the Consultants' Committee to the Council on Physical Therapy of the American Medical Association and moved its adoption The motion was regularly seconded and carried

The chairman announced that the Council on Industrial Health had requested the appointment of an advisory committee to work with it in the field of otolaryngology, and Dean Lerk, Iowa City, W E Grove, Milwaukee, and Carlton Stewart Nash, Rochester, N Y, were appointed, with the officers of the section as ex officio members and Dr George Shambaugh, Chicago, chairman

The chairman appointed Dr W E Grove, Milwaukee, as a candidate for the board of governors of the American College of Surgeons

*Scientific Session*

Dr Gordon F Harkness, Davenport, Iowa, read the chairman's address, entitled "Postgraduate Education and Delivery Medical Service"

Dr John J Shea, Memphis, Tenn, read a paper on "The Management of Fractures Involving the Paranasal Sinus" Discussed by Drs Claire L Straith, Detroit, Robert H Iv, Philadelphia, C C Coleman, Richmond, Va, M F Arbuckle, St Louis, and John J Shea, Memphis, Tenn

Dr Simon Jesberg, Los Angeles, read a paper on "Laryngeal Stenosis" Discussed by Drs Fletcher D Woodward, Charlottesville, Va, M F Arbuckle, St Louis, and Simon Jesberg, Los Angeles

Dr Edmund P Fowler, New York, read a paper on "A Simple Method for Measuring the Percentage of Capacity for Hearing Speech" Discussed by Drs W E Grove, Milwaukee, and Douglas Macfarlan, Philadelphia

FRIDAY, JUNE 12—MORNING

A joint meeting was held with the Section on Pediatrics The proceedings are reported in the minutes of that section

## SECTION ON PEDIATRICS

WEDNESDAY, JUNE 10—MORNING

The meeting was called to order at 9 20 by the chairman Philip M Stimson, New York

Dr Stanley Nichols, Asbury Park, N J, presented a resolution to be submitted to the House of Delegates urging the creation of a Section on Pediatrics of the American Medical Association and the various governmental agencies concerned (Office of Public Health, Welfare Services, Children's Bureau and Office of Civilian Defense) to work cooperatively for better child health during the war

Dr William A Schonfeld, New York, read a paper on "The Development of Male Pubescence" No discussion

Drs Philip Cohen and Samuel J Scadron, New York, presented a paper on "Placental Transmission of Pertussis Bodies Following Inoculation of the Mother During Pregnancy" Discussed by Drs Samuel J Scadron, New York, and L Bradford, Rochester, N Y

Drs Joseph Stokes Jr and Werner Henle, Philadelphia, presented a paper on "Studies on Methods of Prevention of Epidemic Influenza" Discussed by Drs Albert B Stern, Cincinnati, and E C Rosenow, Rochester, Minn

Drs William F Peterson and Alvin Mayne Chicago presented a paper on 'Cytoplasmic Modification of Genetic Trends as Observed in the Newborn' Discussed by Dr Alvin Mayne Chicago

Drs Abraham M Litvak Irving J Sands and Harry Gibel Brooklyn presented a paper on "Measles Encephalitis Report of Fifty Six Cases with Follow Up Studies in Thirty Cases" Discussed by Drs Murray B Gordon Brooklyn Irving I Sands Brooklyn and Joseph Stokes Jr Philadelphia

Drs Abram Kanof Isidor Leber and Benjamin Kramer Brooklyn, presented a paper on Chemotherapy in Childhood Sepsis Discussed by Drs Reuben Ottenberg New York George J Boines, Wilmington Del and Benjamin Kramer, Brooklyn

#### THURSDAY JUNE 11—MORNING

The secretary, Dr Hugh L Dwyer Kansas City Mo presented a report on the Abraham Jacoby Memorial Fund Dr Albert D Kaiser Rochester N Y presented a motion for the adoption of a resolution proposing that this fund be used as the initial endowment fund for the establishment of a Pediatric Historical Museum to be operated by a joint museum board of the Section on Pediatrics of the American Medical Association the American Academy of Pediatrics and the American Pediatrics Society The motion was seconded by Dr William D Weston Columbia S C and carried unanimously

The following officers were elected chairman Dr Hugh L Dwyer Kansas City Mo vice chairman Dr Francis Scott Smyth San Francisco secretary Dr Gilbert J Levy, Memphis Tenn, delegate, Dr William Weston Columbia S C alternate Dr Julius H Hess, Chicago representative to the Scientific Exhibit Dr Sterling H Ashmun Dayton Ohio representative to the American Board of Pediatrics Dr Edward Shaw San Francisco

Drs Frank C Neff, Kansas City Mo Hugh L Dwyer Kansas City, Mo, and Albert D Kaiser, Rochester, N Y, were elected representatives of the section on the Pediatrics Museum Board

A report of the representatives of the section on the American Board of Pediatrics was presented by Dr Hugh L Dwyer Kansas City Mo

Dr Philip M Stimson, New York read the chairman's address, entitled "A Rationalization of the Sister Kenny Treatment of Poliomyelitis"

Dr George W Caldwell New York, read a paper on "Treatment of Nephrosis with Vitamin A and Unsaturated Fatty Acid Therapy" Discussed by Dr Marshall C Pease Jr, New York

Drs Herman Schwarz Jerome L Kohn and Samuel Weiner New York, presented a paper on 'Observations on Lipoid Nephrosis over a Period of Twenty Years' Discussed by Dr Lee E Farr, Wilmington Del

Drs I Michael Levin Samuel J Hoffman, David S Koransky Irving B Richter and Bernard Gumbiner, Chicago presented a paper on "Congenital and Acquired Syphilis in Infants and Children Treatment with Massive Doses of Arsenic Intravenously" Discussed by Dr Samuel J Hoffman Chicago

Drs H Harris Perlman and A M Dannenberg Philadelphia presented a paper on 'Nicotine Excretion in Breast Milk and Urine from Cigaret Smoking Its Effect on Nursing' Discussed by Dr W B Thompson, Los Angeles

Drs Jesse G M Bullowa and Janet D Alterman New York, presented a paper on 'Pertussis Immunity with Toxin and with Antitoxin' Discussed by Dr Lewis Henry Koplik New York

#### FRIDAY, JUNE 12—MORNING

A joint meeting was held with the Section on Laryngology Otolaryngology and Rhinology

Dr D E Staunton Wishart Toronto Ont read a paper on 'Bronchiectasis and Sinusitis in Children Their Interrelationship and Treatment' Discussed by Dr Louis H Clerf Philadelphia

Drs Adolph G DeSanctis and Vincent deP Larkin New York presented a paper on 'A Survey of Two Thousand Cases of Otitis Media and Mastoiditis in Children' Discussed by Dr Vincent deP Larkin, New York

Dr James Sonnett Greene New York read a paper on "Atypical Laryngeal and Vocal Changes in Adolescence" Discussed by Dr George B Dorff Brooklyn

Dr Myron F Metzger Cleveland read a paper on "Fractures and Dislocations of the Outer and Inner Nasal Framework in Infants and Young Children and Orthopedic Methods for their correction"

Dr James B Costen St Louis read a paper on "Reflex Pain Effects Produced by Abnormal Movement of the Lower Jaw" Discussed by Drs Braswell E Collins Wavcross Ga, and A E Bennett Omaha

### SECTION ON EXPERIMENTAL MEDICINE AND THERAPEUTICS

#### WEDNESDAY JUNE 10—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr Wallace M Yater Washington D C

Drs Robert M Daley and Harry E Ungerleider New York, and Richard S Gubner Brooklyn presented a paper on "Prognosis in Hypertension" Discussed by Dr Benjamin Jablons New York

Dr O P J Falk St Louis read a paper on 'The Causes and Prevention of Sudden Death in Coronary Disease'

Dr Edward L Bortz Philadelphia read a paper on "Therapeutics of Pneumonia on a Statewide Basis" Discussed by Drs Hobart A Reimann Philadelphia and Walter F Donaldson Pittsburgh

Drs Ignacio Chavez and B Sepulveda, Mexico City Mexico presented a paper on "The Functional Value of the Liver in Heart Failure Experimental Study" Discussed by Drs George Herrmann Galveston Texas A P Munsch, St Louis and Ignacio Chavez Mexico City Mexico

Drs Morris T Friedell and C M Shaar Philadelphia, presented a paper on 'Effect of Gastric Resection on Gastric Acidity' Discussed by Drs Waltman Walters, Rochester Minn and C M Shaar Philadelphia

Drs George V Byfield, Stanley E Telser and Robert W Keeton Chicago, presented a paper on "Observations on Renal Blood Flow and Glomerular Filtration Rate as Influenced by Environmental Temperature Changes" Discussed by Dr Benjamin Jablons New York

Dr Samuel S Altshuler Detroit, read a paper on "Clinical Use of Amino Acids for the Maintenance of Nitrogen Equilibrium" Discussed by Drs Melville Sahyun (PhD), Detroit, Harry Koster, Brooklyn and Samuel S Altshuler, Detroit

#### THURSDAY JUNE 11—MORNING

The following officers were elected chairman Tinsley R Harrison, Winston-Salem, N C vice chairman, Edgar V Allen Rochester, Minn secretary, D L Wilbur, San Francisco, delegate, O P J Falk St Louis alternate Garnett Cheney, San Francisco representative to the Scientific Exhibit George Herrmann Galveston Texas, executive committee C M Gruber, Philadelphia Wallace M Yater, Washington D C and Tinsley R Harrison Winston-Salem N C

Dr Wallace M Yater Washington D C read the chairman's address entitled 'What's Wrong with Modern Therapeutics?'

Drs Leon Unger and A Alvin Wolf Chicago presented a paper on 'Treatment of Bronchial Asthma A Survey of the Value of Treatment During Twenty Years' Discussed by Drs Ralph G Mills Decatur Ill George F Harsh San Diego Calif Herbert F Robb Belleville Mich and Leon Unger Chicago

Drs Carl V Moore, St Louis, Richard W Vilter and Tom D Spies, Cincinnati, presented a paper on "Treatment of Anemia Associated with Uncorrected Vitamin Deficiency Beneficial Effects of Iron" Discussed by Drs William Dameshek, Boston, and Carl V Moore, Cincinnati

Drs Janet G Travell, Seymour H Rinzler and Myron Herman, New York, presented a paper on "Treatment of Pain and Disability of Shoulder and Arm by Intramuscular Injection of Procaine Hydrochloride"

Drs R H Kampmeier and H B Henning, Nashville, Tenn, presented a paper on "Treatment of Syphilis with Chlorarsen" Discussed by Drs Walter E Vest, Huntington, W Va, and R H Kampmeier, Nashville, Tenn

Dr R H Freyberg, Ann Arbor, Mich, read a paper on "Treatment of Arthritis with Vitamin and Endocrine Preparations Emphasis of Their Limited Value"

Dr Carl H Greene, New York, read a paper on "The Treatment of Portal Cirrhosis Physiologic Considerations" Discussed by Drs Seymour J Gray, Chicago, Wallace M Yater, Washington, D C, and Carl H Greene, New York

#### FRIDAY, JUNE 12—MORNING

A joint meeting was held with the Section on Practice of Medicine

Drs Irving S Wright and Andrew G Prandoni, New York, presented a paper on "Dicoumarin [3,3'-Methylene-Bis-(4-Hydroxycoumarin)] Its Pharmacologic and Therapeutic Action in Man"

Drs Jesse L Bollman and F W Preston, Rochester, Minn, presented a paper on "Dicoumarin [3,3'-Methylene-Bis-(4-Hydroxycoumarin)] Experimental Studies"

Drs Edgar V Allen, Nelson W Barker and John M Waugh, Rochester, Minn, presented a paper on "Dicoumarin [3,3'-Methylene-Bis-(4-Hydroxycoumarin)] Clinical Studies"

These three papers were discussed by Drs Shepard Shapiro, New York, and K K Chen, Indianapolis

Drs Lester M Morrison, William A Swalm, W Emery Burnett, Frank W Konzelmann and Earle H Spaulding, Philadelphia, presented a paper on "The Response of Experimental and Clinical Gallbladder Infections to Sulfonamide Compounds" Discussed by Dr William A Swalm, Philadelphia

Drs M J Shapiro and Ancel B Keys, Minneapolis, presented a paper on "An Analysis of the Operative Treatment of Patent Ductus Arteriosus" Discussed by Drs John P Hubbard, Boston, Arthur S W Touroff, New York, and M J Shapiro, Minneapolis

Drs Arthur M Master, Bethesda, Md, and Simon Dack and Harry L Jaffe, New York, presented a paper on "Cardiac Efficiency Following Recovery from Acute Coronary Occlusion The Results of Various Functional Tests" Discussed by Drs Cary Eggleston, New York, Howard B Sprague, Newport, R I, and Arthur M Master, Bethesda, Md

Drs Howard B Sprague, Newport, R I, and Harold E B Pardee, New York, presented an unprepared, informal discussion of electrocardiograms

### SECTION ON PATHOLOGY AND PHYSIOLOGY

#### WEDNESDAY, JUNE 10—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr J P Simonds, Chicago

Dr J P Simonds, Chicago, read the chairman's address, entitled "Clinical Interpretation of Renal Pathology in Hypertension and Glomerulonephritis"

Drs George E Wakerlin and C A Johnson, Chicago, presented a paper on "Treatment of Experimental Renal Hypertension with Renin" Discussed by Drs Tinsley R Harrison, Winston-Salem, N C, Benjamin Jablons, New York, and George E Wakerlin, Chicago

Drs Piero Pio Foa, Ward W Woods and Max M Pectin, Ann Arbor, Mich, presented a paper on "Effect of Splanchnic Flow on Renal Blood Flow in Arterial Hypertension" Discussed by Drs Harold Lamport, New York, Hugo A Freund, Detroit, George E Wakerlin, Chicago, and Piero Pio Foa, Ann Arbor, Mich

Dr Alberto Hurtado, Lima, Peru, read a paper on "Chronic Altitude Sickness"

Dr Gail M Dack, Chicago, read a paper on "Characteristics of Food Poisoning Outbreaks of Bacterial Origin" Discussed by Drs George J Bones, Wilmington, Del, and Gail M Dack, Chicago

Dr Israel Davidsohn, Chicago, read a paper on "Irregular Isoagglutinins" Discussed by Drs Philip Levine, New York, N J, Frederic Feldman, Brooklyn, and Israel Davidsohn, Chicago

A nonvoting committee was appointed, consisting of Dr George E Wakerlin, Chicago, Frank W Hartman, Detroit, and Eustice L Benjamin, Evanston, Ill

On motion by Dr Hugo A Freund, Detroit, seconded by Dr J J Moore, Chicago, it was voted to recommend to the House of Delegates of the American Medical Association the election of Milan V Novak, Ph D, M D, Chicago, and Clarence W Muehlberger, Ph D, Lansing, Mich, to Associate Fellowship in the American Medical Association

#### THURSDAY, JUNE 11—AFTERNOON

The chairman appointed Dr George E Wakerlin, Chicago, to serve on the executive committee in the absence of Dr Carl Wiggers, Cleveland

The following officers were elected chairman, Frank Mann, Rochester, Minn, vice chairman, Virgil H Moon, Philadelphia, secretary, J J Moore, Chicago, delegate, Leonard W Larson, Bismarck, N D, alternate, J J Moore, Chicago, executive committee Carl J Wiggers, Cleveland, I I Simonds, Chicago, and Frank C Mann, Rochester, Minn

The chairman appointed Frank W Konzelmann, Philadelphia, as representative to the Scientific Exhibit

Drs Winfield L Butsch, Buffalo, read a paper on "Clinical Experiences with 3,3'-Methylene-Bis-(4-Hydroxycoumarin)" Discussed by Dr Alton Ochsner, New Orleans

Dr David I Macht, Baltimore, read a paper on "Experimental Studies Concerning Heparin" Discussed by Drs J McLean, Columbus, Ohio, Geza de Takats, Chicago, R H Foster, Nutley, N J, N C Gilbert, Chicago, and David I Macht, Baltimore

Dr Albert C Hunter, Washington, D C, read a paper on "The Evaluation of Antiseptics" Discussed by Dr W MacNeal, New York, and Albert C Hunter, Washington, D C

Drs Roy R Kracke, Emory University, Ga, and Flor Townsend, Atlanta, Ga, presented a paper on "The Effect of the Sulfonamide Drugs on the Blood Platelets" Discussed by Drs David I Macht, Baltimore, Harry J Corper, Denver, and Roy R Kracke, Emory University, Ga

Drs Harry J Corper and Maurice L Cohn, Denver, presented a paper on "The Presence of Acidulent Tubercle in Pulmonary Tuberculosis in Man"

Dr Frank W Hartman, Detroit, read a paper on "Relative Value of Pectin Solution in Shock" Discussed by Drs Samuel D Jacobson, Eloise, Mich, Harry J Corper, Detroit, Virgil H Moon, Philadelphia, and Frank W Hartman, Detroit

The delegate, Dr Leonard W Larson, Bismarck, N D, presented a report on the proceedings of the House of Delegates

#### FRIDAY, JUNE 12—MORNING

A joint meeting was held with the Section on Gynecology and Proctology The proceedings are reported in the minutes of that section

## SECTION ON NERVOUS AND MENTAL DISEASES

WEDNESDAY, JUNE 10—MORNING

The meeting was called to order at 9:15 by the vice chairman, Dr. A. R. Vonderahe, Cincinnati.

Drs. Franklin G. Ebaugh and Charles A. Rimer, Denver, presented a paper on "Critical Review of Shock Therapies." Discussed by Drs. A. E. Bennett, Omaha, Walter Freeman, Washington, D. C., and Franklin G. Ebaugh, Denver.

Dr. Louis A. Lurie, Cincinnati, read a paper on "Personality Changes and Behavior Disorders of Children Due to Pertussis: A Report Based on the Study of Five Hundred Problem Children." Discussed by Drs. A. R. Vonderahe, Cincinnati, Charles Bradley, East Providence, R. I., and Louis A. Lurie, Cincinnati.

Drs. Walter L. Voegtlin, Frederick Lemere and Paul F. O'Hollaren, Seattle, presented a paper on "Conditioned Reflex Treatment of Chronic Alcoholism." Discussed by Drs. Joseph Thimann, Boston, James P. King, Radford, Va., Robert V. Seliger, Baltimore, and Frederick Lemere, Seattle.

Dr. A. Earl Walker, Chicago, read a paper on "Mesencephalic Tractotomy: A Method for the Relief of Unilateral Intractable Pain." Discussed by Drs. Francis C. Grant, Philadelphia, Mary M. Peet, Ann Arbor, Mich., Paul C. Bucy, Chicago, and A. Earl Walker, Chicago.

Dr. J. Rudolph Jaeger, Denver, read a paper on "Ligation of the Superior Longitudinal Sinus." Discussed by Drs. James L. Poppen, Boston, J. W. Watts, Washington, D. C., and J. Rudolph Jaeger, Denver.

THURSDAY, JUNE 11—MORNING

The following officers were elected: chairman, J. M. Nielsen, Los Angeles; vice chairman, Theodore A. Watters, New Orleans; secretary, R. P. Mackay, Chicago; executive committee: Tom B. Throckmorton, Des Moines, Iowa; Stanley Cobb, Boston; and J. M. Nielsen, Los Angeles; delegate, Henry R. Viets, Boston; alternate, Joseph P. Evans, Cincinnati; representative to Scientific Exhibit, Frederick P. Moersch, Rochester, Minn.; representative to American Board of Psychiatry and Neurology, Percival Bailey, Chicago; representative to American Board of Neurological Surgery, Paul C. Bucy, Chicago.

Dr. Paul C. Bucy, Chicago, gave a report from the American Board of Neurological Surgery, reporting that the board was planning to hold another examination in Chicago this week, particularly for young men being called into the armed forces. The report was received and placed on file.

The report of the Committee on Industrial Neuropsychiatry was given by Dr. Paul C. Bucy, Chicago, in the absence of Dr. Theodore T. Stone, Chicago. The report was received and placed on file.

Dr. Walter Freeman, Washington, D. C., gave a report from the American Board of Psychiatry and Neurology, reporting one thousand, four hundred and fifty-five diplomates. The report was received and placed on file.

Motion was made, seconded and carried that the secretary send a telegram to Dr. Stanley Cobb, Boston, chairman of the section, who was absent from the meeting.

Drs. Joseph H. Globus, New York, and Milton R. Saperstein, Bellerose, N. Y., presented a paper on "Massive Hemorrhage into Brain Tumor: Its Significance and Probable Relationship to Rapidly Fatal Termination and Antecedent Trauma." Discussed by Drs. Paul C. Bucy, Chicago, and Joseph H. Globus, New York.

Drs. W. McD. Hammon, San Francisco, and Frederik B. Bang, Princeton, N. J., presented a paper on "Epidemiologic Studies of Encephalitis, Eastern and Western Equine and St. Louis Types in Several Western States."

Drs. James P. Leake, Bethesda, Md., J. O. Arnson, Bismarck, N. D., F. I. Darrow, Fargo, N. D., R. E. Dyson, Minot, N. D., A. C. Fortney, Fargo, N. D., F. J. Hill, Bismarck, N. D., O. W. Johnson, Rugby, N. D., and L. W. Larson, Bismarck, N. D., presented a paper on "Epidemic of Encephalitis of 1941."

These two papers were discussed by Drs. Carl TenBroeck, Princeton, N. J., E. C. Rosenow, Rochester, Minn., Irving J. Sands, Brooklyn, Max H. Weinberg, Pittsburgh, Joseph W. Mountain, Washington, D. C., L. W. Larson, Bismarck, N. D., Frederik B. Bang, Princeton, N. J., and James P. Leake, Bethesda, Md.

Dr. Eben J. Carey, Milwaukee, read a paper on "Physiologic and Pathologic Amoeboid Motions of Motor End Plates." Discussed by Drs. Ernest A. Spiegel, Philadelphia, and Eben J. Carey, Milwaukee.

Dr. Michael Scott, Philadelphia, read a paper on "Nontraumatic Effusions (Hygromas) of the Subdural Space as a Cause of Obscure Cerebral Symptoms." Discussed by Drs. Ernest A. Spiegel, Philadelphia, Paul C. Bucy, Chicago, and Michael Scott, Philadelphia.

Dr. Eric Miles Atkinson, New York, read a paper on "Miere's Syndrome and Migraine: Observations on a Common Causal Relationship." Discussed by Drs. Bayard T. Horton, Rochester, Minn., Mary Elizabeth O'Sullivan, New York, Wilbur A. Muchlig, Omaha, and Eric Miles Atkinson, New York.

FRIDAY, JUNE 12—MORNING

A joint meeting was held with the Section on Orthopedic Surgery.

Drs. Ralph K. Ghormley, J. Grafton Love and Henry Herman Young, Rochester, Minn., presented a paper on "The 'Combined Operation' in Low Back and Sciatic Pain." Discussed by Drs. Henry Briggs, East Orange, N. J., A. W. Adson, Rochester, Minn., Lee A. Hadley, Syracuse, N. Y., Edwin W. Ryerson, Chicago, and Ralph K. Ghormley, Rochester, Minn.

Dr. Henry R. Viets, Boston, gave a report as delegate to the House of Delegates.

A Panel Discussion on Poliomyelitis was participated in by Drs. A. R. Vonderahe, Cincinnati, moderator, D. Y. Solandt, Toronto, Ont., Albert B. Sabin, Cincinnati, H. M. Hines, Iowa City, H. R. McCarroll, St. Louis, and Frank R. Ober, Boston.

## SECTION ON DERMATOLOGY AND SYPHILOLOGY

WEDNESDAY, JUNE 10—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr. C. F. Lehmann, San Antonio, Texas.

Dr. Clyde L. Cummer, Cleveland, representative of the section in the House of Delegates, reported on the recommendations of the Judicial Council to the House of Delegates that the Constitution, article 5, section 2, be amended to make delegates elected by the sections of the Scientific Assembly ex officio delegates without the right to vote or because of the number of members of the Association now in government service and, therefore, unlikely to wield influence on their representation in this House of Delegates, that all action be postponed and the reappointment in 1943 be made under the present constitutional provisions.

On motion made by Dr. Cummer, seconded by Dr. J. Gardner Hopkins, New York, and carried, it was voted that the section express itself as opposed to the withdrawal of the vote from its representative to the House of Delegates, the exact wording of the resolution to be left with the executive committee to be presented at the section meeting on Thursday, for use in the final meeting of the House of Delegates in the afternoon.

Dr. Howard Fox, New York, editor of the ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY, read his report.

Dr. C. F. Lehmann, San Antonio, Texas, read the chairman's address, entitled "Dermatology in the Armed Forces."

Drs. V. Pardo Castello and Francisco R. Tiant, Havana, Cuba, presented a paper on "Leprosy: The Correlation of Its Clinical, Immunologic, Pathologic and Bacteriologic Aspects." Discussed by Drs. Howard Fox, New York, Marion B. Sulzberger, New York, Alfred Hollander, Springfield, Mass., Paul Gross, New York, Guy H. Faget, Carville, La., Fred D. Weidman, Philadelphia, and V. Pardo Castello, Havana.



Drs William H Kaufman and Dudley C Smith, Charlottesville, Va, presented a paper on "Cutaneous Changes in the Sprue Syndrome" Discussed by Drs J Lamar Callaway, Durham, N C, Herman Sharlit, New York, Paul Gross, New York, E Myles Standish, Hartford, Conn, Merlin T-R Maynard, San Jose, Calif, and Dudley C Smith, Charlottesville, Va

Dr William H Guy, Pittsburgh, read a paper entitled "Dermatologists for the Army and Navy" Discussed by Drs Marion B Sulzberger, New York, Howard Fox, New York, Donald M Pillsbury, Philadelphia, C Guy Lane, Boston, Dudley C Smith, Charlottesville, Va, Davis W Goldstein, Fort Smith, Ark, and William H Guy, Pittsburgh

Dr Carmen C Thomas, Philadelphia, read a paper on "Sarcoid Disease" Discussed by Drs Cleveland J White, Chicago, George T Harrell, Winston-Salem, N C, J Lamar Callaway, Durham, N C, Francis A Ellis, Baltimore, Paul E Bechet, New York, Fred D Weidman, Philadelphia, Walter C Jones, Birmingham, Ala, Adolph Rostenberg Jr, Washington, D C, Carmen C Thomas, Philadelphia, and George T Harrell, Winston-Salem, N C

Drs Adolph H Conrad, Adolph H Conrad Jr and Richard S Weiss, St Louis presented a paper on "Sesame Oil Tumors" Discussed by Drs Fred D Weidman, Philadelphia, Francis A Ellis, Baltimore, J Lowry Miller, New York, and Adolph H Conrad, St Louis

Dr J Lowry Miller, New York, read a paper on "Primary Relapsing Febrile Nodular Panniculitis" Owing to the lateness of the hour, discussion on the paper was postponed until the meeting of the section on Thursday morning

#### THURSDAY, JUNE 11—MORNING

The paper read by Dr J Lowry Miller, New York, on "Primary Relapsing Febrile Nodular Panniculitis" at the Wednesday morning session was discussed by Drs Loretta Joy Cummins, Boston, William A Rosenberg, Chicago, Fred D Weidman, Philadelphia, Paul E Bechet, New York, and J Lowry Miller, New York

Dr C Guy Lane, Boston, read the report of the American Board of Dermatology and Syphilology

Dr John G Downing, Boston, read the following resolution from the executive committee

WHEREAS, The suggestion has been made by the Judicial Council of the House of Delegates that the Constitution of the American Medical Association be amended to withdraw the right to vote from the delegates from the scientific sections, be it

Resolved By the Section on Dermatology and Syphilology that it express its objections to this proposal for the following reasons

1 The scientific sections are an integral part of the Association and enhance the value of the meeting to the membership at large through their program and their contributions to the scientific exhibits

2 Intimate relationship to the governing body through a voting delegate to act as liaison officer is desirable to interpret the points of view of each group to the other

3 It would be difficult if not impossible, to secure a member to act as a so called ex officio delegate through the sessions of the House when present only as an observer with no right to participate in the deliberations except on matters directly bearing on his specialty

On motion by Dr Clyde L Cummer, Cleveland, seconded by Dr Fred D Weidman, Philadelphia, it was voted that the resolution be adopted

Drs Arthur W Grace, Brooklyn, and Geoffrey W Rake, New Brunswick, N J, presented a paper on "The Complement Fixation Test for Lymphogranuloma Venereum" Discussed by Drs David Bloom, New York, Helen O Curth, New York, Frank C Combes, New York, Harry M Robinson, Baltimore, Marion B Sulzberger, New York, Harry C Saunders, New York, Maurice J Strauss, New Haven, Conn, and Arthur W Grace, Brooklyn

Drs William A Clark and D Truett Gandy, Houston, Texas, presented a paper on "An Improved Method of Reporting Serologic Tests for Syphilis" Discussed by Drs John H Stokes, Philadelphia, Benjamin S Kline, Cleveland, and William A Clark, Houston, Texas

Dr Reuben L Kahn, Ann Arbor, Mich, read a paper on "Detection of Biologic False Positives in Serologic Reaction of

Syphilis" Discussed by Drs Charles R Rein, New York, Benjamin S Kline, Cleveland, J F Mahoney, Washington, D C, and Reuben L Kahn, Ann Arbor, Mich

Drs Herman Beerman and Bertram Shaffer, Philadelphia and Clarence S Livingood, Indiantown Gap, Pa, presented a paper on "Bismarsen in the Treatment of Syphilis Review of Fourteen Years' Experience"

Drs David Kahn and S William Becker, Chicago, presented a paper on "The Use of Bismuth Compounds in Syphilotherapy. II Results of Treatment of Latent Syphilis by Bismuth Compounds Combined in Part with Arsenicals"

Drs George V Kulchar, San Francisco, and William J Reynolds, San Anselmo, Calif, presented a paper on "Bismuth Hepatitis A Survey of 121 Cases"

These three papers were discussed by Drs Frank C Combes, New York, C J Lunsford, Oakland, Calif, Harry C Saunders, New York, John E Dalton, Indianapolis, Bernard Appel Lynn, Mass, Herman Beerman, Philadelphia, S William Becker, Chicago, and George V Kulchar, San Francisco

Dr Girsch D Astrachan and Van Alstyne H Cornell, New York, presented a paper on "Mapharsen in the Treatment of Congenital Syphilis with Especial Consideration for the Intramuscular Method of Administration" Discussed by Dr Norman R Ingraham, Philadelphia, John E Rauschkolb, Cleveland, and Girsch D Astrachan, New York

#### FRIDAY, JUNE 12—MORNING

Dr C Guy Lane, Boston, read the report of the Committee on Industrial Dermatoses as follows

In the Feb 21, 1942 edition of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION there appeared a report of the Committee on Occupational Dermatoses which was read at the meeting of the Council on Industrial Health in Chicago. This report discussed particularly the criteria of occupational dermatoses and reviewed the work of the subcommittee which had been appointed. The Committee on Teaching of Occupational Dermatoses has reviewed the questionnaires which were sent out last year which had been received from some eighty odd medical schools and is formulating a plan of teaching based on the analysis of a large number of compensation cases

The Committee on Primary Skin Irritants and Patch Testing is engaged in determining the threshold of irritation in a large number of primary skin irritants. It has also analyzed the questionnaires on patch testing which were sent out last year. The reports will be published shortly

The Committee on Evaluation of Protective Chemicals and Detergents used in Industry has found it necessary to undertake the setting up of standard techniques for the determination of the relative efficacy of these various applications in industry by laboratory and clinical experiments

The Committee on Industrial Medical Formulary is at work on a list of preparations and procedures to be used in the prevention or medical management of cutaneous exposures in industry

The Committee on Case Reports is formulating procedures for the receiving and filing of reports on new and interesting cases

The work of these committees is of increasing importance in view of the definite increase in occupational dermatoses and war developments. With new workers and new industries, emphasis placed on speed and the production of war material, we must realize that there has been and probably will be a large increase in occupational skin cases. Cases of contact dermatitis will need to be scrutinized more carefully for professional factors, and part time and full time industrial physicians and surgeons will need to be more alertly on the watch for manifestations in the personnel of war industries and occupations. The early detection and adequate treatment for the purpose of keeping workmen on their jobs and preventing men and women who are incapacitated back on their jobs as soon as possible and establishment of proper preventive measures to avoid interference with production will be a very important contribution to the war effort of the country as a whole.

Case reports are to be encouraged, particularly with regard to eruptions produced by new chemical agents, new processes, and every attempt should be made to trace the actual cause back to its original cause as accurately as possible. For all dermatologists who are teaching, the committee believes it is very practical and merited to devote somewhat more time to occupational dermatoses even if the time allotted for dermatology in the classroom is reduced.

The committee considers it advisable to suggest a reduction in the time given to the consideration of rare and uncommon cases and even of cosmetic defects in order to emphasize the effects of trauma and injury to the skin and the industrial and military aspects of various dermatoses.

It is important that postgraduate courses for instruction in occupational aspects of skin disease be established in some of the larger centers for both dermatologists in that region and local physicians who may be participating in part time or full time industrial practice.

In such courses emphasis should be placed on detection, therapy and prevention of most common industrial dermatoses in that particular section of the country. If there were time, consideration could well be given to the dermatitis in burns caused by agents of chemical warfare which will undoubtedly occur in centers where such materials are being produced.

The committee recommends the appointment of Dr. Louis Schwartz Bethesda, Md. of the Office of Dermatoses Investigation Bureau of the Public Health Service to this committee in view of his numerous excellent contributions to this subject and his interest in this field.

The committee wishes to emphasize that more persons with skin disease due to occupational factors are being seen and will be seen in the next few years and that the members of this section can make a distinct contribution to the war effort by adequate, intelligent management of such cases.

On motion made by Dr. Marion B. Sulzberger, New York, seconded by Dr. C. Guy Lane, Boston, Dr. Louis Schwartz, Director of the Bureau of Dermatoses Investigation, U. S. Public Health Service, Bethesda, Md. was elected to the Committee on Industrial Dermatoses.

The following officers were elected: chairman, Dr. Clark W. Finnerud, Chicago; vice chairman, Dr. Frank J. Eichenlaub, Washington, D. C.; secretary, Dr. Nelson Paul Anderson, Los Angeles; delegate, Dr. Clyde L. Cummer, Cleveland; alternate, Dr. C. F. Lehmann, San Antonio, Texas; representative to Scientific Exhibit, Dr. Hamilton Montgomery, Rochester, Minn.; member of the American Board of Dermatology, Dr. Charles C. Dennis, Kansas City, Mo.

Drs. James R. Driver and Donald N. MacVicar, Cleveland read a paper on 'The Treatment of Cutaneous Melanomas.' Discussed by Drs. H. Ford Anderson, Washington, D. C., Eugene F. Traub, New York, Louis A. Brunsting, Rochester, Minn., S. William Becker, Chicago, Alfred Hollander, Springfield, Mass., Francis A. Ellis, Baltimore, and James R. Driver, Cleveland.

Drs. George Miller MacKee, Anthony C. Cipollaro and Arthur Mutscheller, New York, presented a paper on 'Shock Proof X-Ray Apparatus in Dermatology.' Discussed by Drs. C. Guy Lane, Boston, George C. Andrews, New York, Marion B. Sulzberger, New York, Arthur Mutscheller, New York, H. Ford Anderson, Washington, D. C., and Anthony C. Cipollaro, New York.

Dr. Maurice J. Costello, New York, read a paper on 'Microaerophilic Streptococcus Infection Causing Destruction of the Nose.' Discussed by Drs. Frank L. Meleney, New York, Louis A. Brunsting, Rochester, Minn., Morris H. Goodman, Baltimore, and Maurice J. Costello, New York.

Drs. Erich Urbach and Donald M. Pillsbury, Philadelphia, presented a paper on 'Phenomenon of Black Dermographism.' Discussed by Drs. Samuel M. Peck, New York, Nelson Paul Anderson, Los Angeles, Marion B. Sulzberger, New York, Paul E. Bechet, New York, and Erich Urbach, Philadelphia.

Dr. Francis M. Thurmon, Boston, read a paper on 'Hydroa Erythema: A Successful Treatment.' Discussed by Drs. John

H. Lamb, Oklahoma City, Clark W. Finnerud, Chicago, Theodore Cornbleet, Chicago, Wiley M. Samis, Miami, Fla., Erich Urbach, Philadelphia, Louis A. Brunsting, Rochester, Minn., J. Lamar Callaway, Durham, N. C., and Francis M. Thurmon, Boston.

Dr. Merlin T. R. Maynard, San Jose, Calif., read a paper on 'Thrombocyte Deficit.' Discussed by Drs. Theodore Cornbleet, Chicago, and Merlin T. R. Maynard, San Jose, Calif.

The report of Dr. Hamilton Montgomery, Rochester, Minn., the representative to the Scientific Exhibit, was read by the chairman, Dr. C. F. Lehmann.

## SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

WEDNESDAY, JUNE 10—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr. Haven Emerson, New York.

The chairman appointed Dr. C. C. Pierce, New York, secretary pro tem.

The chairman read a letter from Dr. W. A. Sawyer, Rochester, N. Y., secretary of the section relative to his necessary absence owing to his having been sent to England by the National Research Council for a consultation relative to industrial health.

Dr. I. C. Riggan, Richmond, Va., was appointed by the chairman to serve on the executive committee in place of Dr. Harold S. Diehl, Minneapolis, who reported that he was leaving the city.

The members of the executive committee were appointed as the nominating committee.

The chairman read the following resolution which had already been presented to the House of Delegates by the section delegate, Dr. Stanley H. Osborn, Hartford, Conn., as follows:

**WHEREAS** It is well known that there are many individuals with chronic diseases of one type or another who expect to seek medical advice or who have been advised by their physicians to have treatment; and

**WHEREAS** The early symptoms of many diseases are mild in character and many persons postpone treatment recommended by the physician; and

**WHEREAS** Many thousands of physicians have gone into the armed services of the country, and tens or thousands of doctors will soon be commissioned and go to war in the future; therefore be it

**Resolved** That this body recommend that all persons who expect to seek medical opinion or who have had medical or surgical care prescribed for them should seek medical advice or follow such advice while sufficient doctors remain available to the civil population.

Dr. Leopold Braid, New York, moved that the resolution be endorsed and presented to the House of Delegates by the section through its delegate. The motion was seconded by Dr. John A. Ferrell, New York, was put to a vote and was carried.

The chairman read the following resolution:

**WHEREAS** A major inadequacy in the civilian health protection in war as in peace time consequent from the failure of many states and of not less than half the counties in the states to provide even minimum necessary sanitary and other preventive services for health by full time professionally trained medical and auxiliary personnel on a merit system basis supported by adequate tax funds from local and state and where necessary from federal sources; therefore be it

**Resolved** That the Trustees of the American Medical Association be urged to use all appropriate resources and influences of the Association to the end that at the earliest possible date complete coverage of the nation's area and population by local county, district or regional full time modern health services be achieved.

Dr. A. T. McCormack, Louisville, Ky., moved that the section recommend the resolution to the House of Delegates for adoption. The motion was seconded by Dr. John A. Ferrell, New York, and discussed favorably by Drs. John A. Ferrell, New York, A. T. McCormack, Louisville, Ky., Stanley H. Osborn, Hartford, Conn., and Haven Emerson, New York. The motion was put to a vote and was carried.

Drs Donald W Cowan, Harold S Diehl and A B Baker, Minneapolis, presented a paper on "Vitamins for the Prevention of Colds" Discussed by Drs John A Ferrell, New York, Joseph S Lawrence, Albany, N Y, Haven Emerson, New York, Donald W Cowan, Minneapolis, and Harold S Diehl, Minneapolis

Drs Lemuel C McGee, Wilmington, Del, and J Dean Creger, Dublin Va, presented a paper on "Gastrointestinal Disease Among Industrial Workers" Discussed by Drs Frederick H Shillito, New York, Stanley H Osborn, Hartford, Conn, and Lemuel C McGee, Wilmington, Del

Dr Robert T Legge, Berkeley, Calif, read a paper on "Berkeley Plan A Proposed Demonstration for Medical and Nursing Services in Small Plants" Discussed by Drs John R Paul, New Haven, Conn, Haven Emerson, New York, Henry Pleasants Jr, West Chester, Pa, and Robert T Legge, Berkeley, Calif

Dr Walter L Bierring, Des Moines, Iowa, read a paper on "Postgraduate Education in Industrial Health" Discussed by Drs Fred J Wampler, Richmond, Va, Haven Emerson, New York, John A Ferrell, New York, Stanley H Osborn, Hartford, Conn, and Walter L Bierring, Des Moines, Iowa

Dr L G Rowntree, Washington, D C, read a paper on "Rehabilitation and Prehabilitation"

#### THURSDAY, JUNE 11—AFTERNOON

Dr Haven Emerson, New York, read the chairman's address, entitled "Civilian Health in War Time"

Dr Donald K Freedman, Washington, D C, read a paper on "Health Problems in War Housing" Discussed by Drs Joseph W Mountin, Washington, D C, A S Leven, Chicago, H R O'Brien, Hartford, Conn, Gracie R Rowntree, Louisville, Ky, and Donald K Freedman, Washington, D C

Dr A J Aselmeyer, Washington, D C, read a paper on "Civilian Measures for the Control of Venereal Diseases in World War II" Discussed by Drs John H Stokes, Philadelphia, Charles M Carpenter, Rochester, N Y, N O Gunderson, Rockford, Ill, Theodore Rosenthal, New York, Haven Emerson, New York, C Walter Clarke, New York, and A J Aselmeyer, Washington, D C

Drs William W Frye and Alvin E Keller, Nashville, Tenn, presented a paper on "The Hospital and the Syphilis Problem in Prospective Blood Donors" Discussed by Drs Haven Emerson, New York, Joseph W Mountin, Washington, D C, William C Woodward, Washington, D C, H R O'Brien, Hartford, Conn, and William W Frye, Nashville, Tenn

#### FRIDAY, JUNE 12—AFTERNOON

Dr Sidney Franklin, Newberry, Mich, was appointed secretary pro tem, Dr Pierce having been obliged to leave the city

The following officers were elected chairman, Dr Joseph W Mountin, Washington, D C, vice chairman, Dr E L Stebbins, New York, secretary, Dr W A Sawyer, Rochester, N Y, executive committee Dr Clarence D Selby, Detroit, Dr Haven Emerson, New York, and Dr Joseph W Mountin, Washington, D C, delegate, Dr Stanley H Osborn, Hartford, Conn, alternate, Dr L D Bristol, New York, chairman, Committee on Section Exhibit, Dr Paul Arthur Davis, Akron, Ohio

Dr Stanley H Osborn, Hartford, Conn, made the report of the section delegate to the House of Delegates Dr Joseph W Mountin, Washington, D C, moved, and the motion was seconded by Dr Clarence D Selby, Detroit, that it be recorded that it is the belief of the section that the rights and privileges of section delegates should not be abrogated

Dr R S Goodhart, Forest Hills, N Y, read a paper on "Nutrition in Industry" Discussed by Dr Norman H Jolliffe, New York

Dr Paul E Howe, Washington, D C, read a paper on "Nutritional Aspects of Feeding an Army" Discussed by Drs Joseph W Mountin, Washington, D C, J D Leake, Washington, D C, and Paul E Howe, Washington, D C

Dr E W Brown, Washington, D C, read a paper on "Nutritional Aspects of Feeding in the U S Navy" Discussed by Dr Paul E Howe, Washington, D C

Dr Howard W Haggard, New Haven, Conn, read a paper on "Supplementary Feeding in Industry" Discussed by Drs C F Yeager, Bridgeport, Conn, J D Leake, Washington, D C, and Paul E Howe, Washington, D C

#### SECTION ON UROLOGY

#### WEDNESDAY, JUNE 10—AFTERNOON

The meeting was called to order at 2 10 by the chairman, Dr Vincent J O'Connor, Chicago

Dr A E Goldstein, Baltimore, read a paper on "Pathologic Conditions Encountered in Horseshoe Kidney" Discussed by Drs Henry Sangree, Philadelphia, Victor D Lespinasse, Chicago, and A E Goldstein, Baltimore A motion picture was shown by Dr Franklin Farman, Los Angeles

Dr W Calhoun Stirling, Washington, D C, read a paper on "Resection of Kidney" Discussed by Drs George C Prather, Boston, Meredith F Campbell, New York, and W Calhoun Stirling, Washington, D C

Dr Herman L Kretschmer, Chicago, read a paper on "Late After Nephrectomy" Discussed by Drs Monroe E Greninger, New York, Stanley R Woodruff, Jersey City, N J, and Herman L Kretschmer, Chicago

Dr Hugh J Jewett, Baltimore, read a paper on "Does Vitamin A Deficiency Exist in Clinical Urolithiasis? Studies Based on Clinical and Pathologic Material" Discussed by Drs David M Davis, Philadelphia, Rubin Flocks, Iowa City, and Hugh J Jewett, Baltimore

Drs A I Folsom and H A O'Brien, Dallas, Texas, presented a paper on "The Female Obstructing Prostate" Discussed by Drs Nelse F Ockerblad, Kansas City, Mo, Reed M Nesbit, Ann Arbor, Mich, Herman L Kretschmer, Chicago, Vincent J O'Connor, Chicago, and A I Folsom, Dallas, Texas

Dr W E Forsythe Jr, New York, read a paper on "The Urethrogram as an Aid in Diagnosis of Prostatic Abscess" Discussed by Drs Roy B Henline, New York, H C Bumpus Jr, Pasadena, Calif, and W E Forsythe Jr, New York

#### THURSDAY, JUNE 11—AFTERNOON

Dr Vincent J O'Connor, Chicago, read the chairman's address entitled "Indications and Prognosis in Unilateral Nephrectomy"

Dr Jorge Cavellier, Bogota, Colombia, read a paper entitled "Syphilis of the Bladder"

Drs Oswald S Lowsley and Edward M Cannon, New York, presented a paper entitled "Aneurysm of the Renal Artery" Discussed by Drs Herbert H Howard, Boston, O A Nelson, Seattle, Victor D Lespinasse, Chicago, and Oswald S Lowsley, New York

Dr B S Barringer, New York, read a paper on "Five Year Results of Carcinoma of the Bladder Treated by Radical Prostatectomy" Discussed by Drs George G Smith, Brookline, Mass, and B S Barringer, New York

Dr F M Allen, New York, read a paper on "Pathologic Vascular Disorders Experimental and Therapeutic Demonstrations" Discussed by Drs Arthur D Munger, Lincoln, Neb, and F M Allen, New York

#### FRIDAY—JUNE 12

Dr Grayson L Carroll, St Louis, read the report of the American Urology, Inc On motion regularly made and seconded report was received

The following officers were elected chairman, Dr J Thompson, Rochester, Minn, vice chairman, Dr Arthur D Munger, Lincoln, Neb, secretary, Dr Grayson L Carroll, St Louis

The resignation of Dr H C Bumpus Jr, Pasadena, Calif, delegate was accepted and Dr Roy B Henline New York, was elected to fill his unexpired term

The following papers were read as a symposium on "Treatment of Carcinoma of the Prostate Gland"

Dr Gershom J Thompson Rochester, Minn "Transurethral Resection of the Malignant Prostate Gland"

Dr William P Herbst, Washington D C "A Preliminary Report of Biochemical Therapeutics in Carcinoma of the Prostate Gland"

Dr Alexander B Gutman, New York "The Serum Acid Phosphatase in Prostate Gland Carcinoma"

Dr Edwin P Aley, Durham N C "Castration for Carcinoma of the Prostate Gland"

Dr Charles D Creery, Minneapolis "The Diagnosis and Treatment of Carcinoma of the Prostate Gland"

Dr Reed M Nesbit and Robert H Cummings Ann Arbor, Mich "Orchiectomy in Treatment of Prostatic Carcinoma A Report of Seventy-Five Cases Followed Six Months or More After Operation"

These six papers were discussed by Drs Arbor D Munger Lincoln Neb H C Bumpus Jr, Pasadena Calif, Walter M Kearns, Milwaukee, Clyde W Collings Pasadena, Calif, Vincent Vermooten, New Haven Conn William P Herbst Washington D C, Charles D Creery, Minneapolis and Reed M Nesbit Ann Arbor Mich

Dr Elmer Hess, Erie, Pa showed a motion picture of his castration operation

## SECTION ON RADIOLOGY

WEDNESDAY, JUNE 10—MORNING

The meeting was called to order at 9 15 by the chairman Dr Ralph S Bromer, Bryn Mawr, Pa

Dr Israel Steinberg, New York read a paper on "The Value of Contrast Roentgenography of the Cardiovascular Structures in the Differentiation of Mediastinal Tumor and Aneurysm"

Dr O A Nelson, Seattle, read a paper on "Arteriography for Renoabdominal Diagnosis"

Drs Henry K Taylor and Teresa McGovern New York, presented a paper on "Evaluation of Angiocardiography"

These three papers were discussed by Drs M F Steinberg, New York, Merrill C Sossman, Boston O A Nelson, Seattle, and Henry K Taylor, New York

Dr Ralph S Bromer, Bryn Mawr Pa read the chairman's address, entitled "The Role of the Roentgenologist in the Diagnosis of Congenital Cardiac Lesions"

Drs Marc L Sussman and Emanuel Wachtel New York, presented a paper on "Factors Concerned in the Abnormal Distribution of Barium in the Small Bowel"

THURSDAY JUNE 11—MORNING

The following officers were elected chairman, Dr Robert A Arens Chicago vice chairman Dr Edwin C Ernst, St Louis secretary Dr John T Murphy, Toledo, Ohio, executive committee Dr Raymond C Beeler Indianapolis, Dr Ralph S Bromer Bryn Mawr, Pa, and Dr Robert A Arens, Chicago, delegate Dr Edward H Skinner Kansas City, Mo alternate, Dr E P Pendergrass, Philadelphia, delegate to American Board of Radiology, Dr Lyle C Kinney, San Diego Calif

Dr Karl Kornblum Philadelphia, read a paper entitled "A Plea for the Prevention of Bronchiectasis" Discussed by Drs John T Farrell Jr Philadelphia, Louis H Clerf, Philadelphia, and Karl Kornblum, Philadelphia

Drs Geza de Takats, G K Fenn and Edward L Jenkinson Chicago presented a paper on "Bronchial Obstruction in Pulmonary Embolism" Discussed by Drs Louis H Clerf, Philadelphia, and G K Fenn Chicago

Drs Roscoe W Teahan Hoke Wammoth and James L Weatherman, Philadelphia, presented a paper on "Treatment of Carcinoma of the Cervix by Interstitial Radiation" Discussed

by Drs A N Arneson, St Louis, John J Gilbride Philadelphia, Misch Casper, Louisville, Ky, and Roscoe W Teahan, Philadelphia

Dr Milton Friedman New York read a paper on "Insertion of Radium into the Uterus and Vagina" Discussed by Drs Edith H Quimby, New York Charles L Martin, Dallas, Texas, and Milton Friedman, New York

Drs J Dewey Bisgard, Howard B Hunt and Orvis A Neely, Omaha, presented a paper on "Experimental Studies of the Mechanism of Action of Roentgen Therapy on Infection" Discussed by Drs James F Kelly, Omaha John S Lockwood, Philadelphia, and J Dewey Bisgard, Omaha

FRIDAY, JUNE 12—MORNING

A joint meeting was held with the Section on Obstetrics and Gynecology

Dr Willard M Allen St Louis read a paper on "Excessive Menstrual Bleeding in Adolescent Girls"

Dr Ira I Kaplan, New York, read a paper on "Splenic and Pituitary Irradiation for the Control of Puberal Bleeding"

Dr Clarence Cook Little Bar Harbor Maine read a paper on "The Effect of Radiation on Germ Cells"

Dr Conrad G Collins, New Orleans read a paper on "Excessive Bleeding at the Menopause or Associated with Myoma"

In the absence of two members of the executive committee, Dr N W Furey Gaylord Mich, and Dr Joseph England Roberts Jr, Camden, N J, were appointed temporary members

These four papers were discussed by Drs V S Counseller, Rochester, Minn, Lewis C Scheffey Philadelphia Ramsay Spillman New York, George H Gardner Chicago Richard W TeLinde, Baltimore, John T Murphy, Toledo Ohio, Willard M Allen, St Louis Ira I Kaplan, New York Clarence Cook Little, Bar Harbor Maine and Conrad G Collins, New Orleans

## SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

WEDNESDAY, JUNE 10—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr Walter L Palmer, Chicago

Drs A J Atkinson, H F Adler and A C Ivy, Chicago presented a paper on "Motility of the Human Colon The Normal Pattern Dyskinesia and Effect of Drugs" Discussed by Drs Walter C Alvarez, Rochester Minn John P Quigley Cleveland James W Wiltzie, Binghamton N Y and A J Atkinson Chicago

Drs Malcolm R Hill Los Angeles E Harold Shroock, Loma Linda, Calif, and F George ReBell, Los Angeles, presented a paper on "The Role of the Anal Glands in the Pathogenesis of Anorectal Disease" Discussed by Drs Robert A Scarborough San Francisco Claude C Tucker Wichita, Kan, and Malcolm R Hill Los Angeles

Dr Thomas E Smith, Dallas, Texas read a paper on "Primary Lymphoid Tumors of the Rectum Resembling Internal Hemorrhoids" Discussed by Drs Curtice Rosser, Dallas, Texas Simon B Kleiner New Haven, Conn Claude C Tucker, Wichita Kan, and Thomas E Smith, Dallas, Texas

Dr C C Mechling Pittsburgh read a paper on "Anesthesia Used in Proctology" Discussed by Drs Louis J Hirschman, Detroit, John J Corbett, Detroit, Curtice J Rosser, Dallas, Texas, and C C Mechling Pittsburgh

Drs W Wayne Babcock and Harry E Bacon, Philadelphia, presented a paper on "Operative Treatment of Cancer of the Rectum and Sigmoid Without Colostomy" Discussed by Drs Louis J Hirschman Detroit Frank H Laher, Boston and W Wayne Babcock Philadelphia

Dr Joseph Felsen New York, read a paper on "The Infectious Diarrheas, Enteritis and Colitis"

Drs Z Bercovitz and R C Page, New York, presented a paper on "Metabolic and Vitamin Studies in Chronic Ulcerative Colitis"

These two papers were discussed by Drs J A Barga, Rochester, Minn, Manfred Kraemer, Newark, N J, A Trasoff, Philadelphia, Moses Paulson, Baltimore, Joseph Felsen, New York, and Z Bercovitz, New York

Dr E Parker Hayden, Boston, read a paper on "Inflammatory Stenosing Lesions of the Colon"

Dr Raymond J Jackman, Rochester, Minn, read a paper on "Diverticula of the Colon Proctoscopy as an Aid in the Diagnosis and Differential Diagnosis" Discussed by Drs Johannes Pessel, Trenton, N J, John C M Brust, Syracuse, N Y, Louis A Buie, Rochester, Minn, and Raymond J Jackman, Rochester, Minn

#### THURSDAY, JUNE 11—MORNING

Dr A F R Andresen, Brooklyn, reported for the committee appointed in 1940 to cooperate with the American Board of Internal Medicine in the certification of specialists in gastroenterology. He stated that any one interested in being certified in internal medicine and gastroenterology should write to Dr William S Middleton, 1301 University Avenue, Madison, Wis, for information

Dr Andresen read the following resolution and moved its adoption

WHEREAS, At a special meeting of the American Board of Internal Medicine on June 4, 1942 the board, in an effort to avoid the appearance of a monopoly, unanimously agreed to invite the Section on Gastroenterology and Proctology to nominate a panel of five of its members from whom the board might choose one representative of the section on its Advisory Committee on Gastroenterology, therefore be it

Resolved, That the executive committee of the section, acting as a nominating committee, be asked to present five names for such a panel, to be elected by the section at its regular meeting on June 12, 1942

Dr John L Kantor, New York, seconded the motion, which was put to a vote and was carried

Dr Louis A Buie, Rochester, Minn, made a report as the section's delegate to the House of Delegates, reading the Report of the Judicial Council to the members of the House of Delegates at its meeting Monday morning, June 8, 1942 and stating that this report was referred to the Committee on Sections and Section Work, and that thus far that committee had not made a report to the House of Delegates

Dr A H Aaron, Buffalo, moved, and Dr John L Kantor, New York, seconded, that the section approve Dr Buie's report, and that it be recorded as the sense of the section that the present privileges of sectional delegates should not be abrogated. The motion was put to a vote and was carried

The following officers were elected: chairman, Dr Emmett H Terrell, Richmond, Va, vice chairman, Dr J Arnold Barga, Rochester, Minn, secretary, Dr Sara M Jordan, Boston, executive committee: Dr Frank C Yeomans, New York, Dr Walter L Palmer, Chicago, and Dr Emmett H Terrell, Richmond, Va, alternate delegate, Dr Walter A Fansler, Minneapolis, chairman of Scientific Exhibit Committee, Dr Grant H Laing, Chicago, member of Certifying Committee, Board of Proctology, Dr Frank G Runyeon, Reading, Pa, five names to be submitted to the Board of Internal Medicine, from whom one is to be chosen to represent the section on the Certifying Board for Gastroenterology: Dr Anthony Bassler, New York, Dr Reuben Finkelstein, Brooklyn, Dr John H Fitzgibbon, Portland, Ore, Dr Walter L Palmer, Chicago, and Dr Adolph Sachs, Omaha

Dr Walter L Palmer, Chicago, read the chairman's address, entitled "The Stomach and Military Service"

Dr John L Kantor, New York, read a paper on "Digestive Disease and Military Service, with Special Reference to the Medical Department of the United States Army" Discussed by Drs C R Reynolds, Harrisburg, Pa, Donald T Chamberlin, Atlanta, Ga, Henry M Thomas Jr, Fort George G Meade, Maryland, J Edward Berk, Fort Dix, New Jersey, Rudolf

Schindler, Chicago, Hyman I Goldstein, Camden, N J, and John L Kantor, New York

The following papers were read in a Panel Discussion of Ulcer, during which Dr A H Aaron, Buffalo, presided

Dr B R Kirklin, Rochester, Minn "Ulcerating Lesions of the Stomach"

Dr Jacob Earl Thomas, Philadelphia "The Modern Conception of Gastric Secretion"

Drs Samuel Morrison and Maurice Feldman, Baltimore "Psychomatic Correlations of Duodenal Ulcer: A Statistical Study"

Drs Harry Shay, J Gershon-Cohen and Samuel S Feldman, Philadelphia "The Physiologic Basis for the Dietotherapy of Duodenal Ulcer"

Drs Asher Winkelstein, Albert Cornell and Franklin Hollander, New York "An Evaluation of the Continuous Intragastric Drip Therapy"

Dr John M Blackford, Seattle "Fatal Hemorrhage from Peptic Ulcer"

Drs Jacob Meyer and Heinrich Necheles, Chicago "A Critical Evaluation of the Factor of Age in the Conservative and Surgical Treatment of Bleeding Peptic Ulcer"

Dr V C Rowland, Cleveland "Treatment of Obstructive Juxtapyloric Ulcer: Combined Use of Aluminium Hydroxide Drip and Wangenstein Aspirator"

Drs J William Hinton, New York "The Selection of Operation for Patients with Gastric and Duodenal Ulcers"

Dr Everett D Kiefer, Boston "Jejunal Ulcers and Recurrent Hemorrhages After Partial and Subtotal Gastrectomy for Peptic Ulcer"

A question period followed these presentations

#### FRIDAY, JUNE 12—MORNING

A joint meeting was held with the Section on Pathology and Physiology

The following papers were read in a symposium on "Liver" during which Dr J P Simonds, Chicago, presided

Dr Frank C Mann, Rochester, Minn "The Gastrointestinal Tract and the Liver"

Dr John G Mateer, Detroit "Liver Function Tests"

Drs Thomas A Johnson and Henry L Bockus, Philadelphia "The Significance of Mild Hyperbilirubinemia in Gastrointestinal Patients"

Dr Sidney A Portis, Chicago "The Clinical Prevention and Diagnosis of Liver Dysfunction"

Dr Virgil H Moon, Philadelphia "The Histogenesis of Hepatic Cirrhosis"

Drs Dwight L Wilbur, David A Wood and Forrest J Willett, San Francisco "Primary Carcinoma of the Liver"

Dr Charles Gordon Heyd, New York "The Concept of Liver Deaths"

These seven papers were discussed by Drs Chester M Jaffe, Boston, J P Simonds, Chicago, Henry A Rafsky, New York, Moses Paulson, Baltimore, Frank C Mann, Rochester, Minn, John G Mateer, Detroit, Thomas A Johnson, Philadelphia, Sidney A Portis, Chicago, Dwight L Wilbur, San Francisco, and Virgil H Moon, Philadelphia

The following papers were read in a symposium on "Gastritis," during which Dr Walter L Palmer, Chicago, presided

Dr Edward B Benedict, Boston "Correlation of Gross and Pathologic Findings in Gastritis"

Dr Julian M Ruffin, Durham, N C "The Size of Hemorrhagic or Pigment Spots as Observed by Gastric Endoscopy"

Dr C Wilmer Wirts, Philadelphia "The Early Stages of Carcinoma of the Stomach"

Drs I R Jankelson and C W McClure, Boston "The Relation of Atrophic Gastritis to Carcinoma of the Stomach"



Drs J B Carey and R S Ylvisaker Minneapolis "Gastroscopic Observation in Duodenal Ulcer"

These five papers were discussed by Drs Shields Warren Boston Rudolf Schindler, Chicago Leonidas H Berry Chicago Leo L J Hardt, Chicago Henry A Rafsky New York A A Goldsmith Chicago James Patejdl Chicago, Edward B Benedict Boston, Julian M Ruffin Durham N C, I R Jankelson Boston and J B Carey Minneapolis

## SECTION ON ANESTHESIOLOGY

WEDNESDAY, JUNE 10—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr Thomas J Collier Atlanta Ga

Dr Thomas J Collier Atlanta Ga read the chairman's address entitled Crawford W Long 1815 1878

Dr E M Papper New York read a paper on 'Circulatory Changes During Spinal Anesthesia' Discussed by Drs Sidney C Wiggan Boston, Stuart C Cullen Iowa City Henry K Beecher Boston and E M Papper New York

Dr Leo V Hand Boston read a paper on 'Spinal Anesthesia Factors Influencing Its Success' Discussed by Drs Rolland J Whitacre East Cleveland Ohio Virginia Apgar, New York F Elmore Hubbard Montclair N J, George C Moore Boston and Leo V Hand, Boston

Dr Paul M Wood New York read a paper on 'Rectal Anesthesia in Surgical and Obstetric Procedures' Discussed by Drs Wesley Bourne, Westmount Que H Boyd Stewart Tulsa Okla John H Hutton Portland Ore, and Paul M Wood New York

Dr Franklin F Snyder, Chicago, read a paper on "Morphine in Obstetric Analgesia" Discussed by Drs Douglas P Murphy Philadelphia Newlin F Paxon Philadelphia David I Macht, Baltimore and Franklin F Snyder Chicago

THURSDAY, JUNE 11—AFTERNOON

Dr Wesley Bourne Westmount Que read a paper on "Interdependence of Function in Anesthesia" Discussed by Drs Ralph M Waters Madison Wis Ralph M Tovell Hartford, Conn and Wesley Bourne, Westmount Que

Drs H F Bishop, Washington, D C and Fred F Rudder Atlanta Ga, presented a paper on "Intravenous Anesthesia" Discussed by Drs J Roy Fulton, Philadelphia, Robert A Hingson Stapleton Staten Island, N Y Fred F Rudder, Atlanta Ga and H F Bishop Washington D C

Dr Douglas B Kendrick Jr Washington D C read a paper on 'The Prevention and Treatment of Shock During Surgical Procedures' Discussed by Drs Henry K Beecher, Boston and Douglas B Kendrick Washington D C

Dr Stevens J Martin Fort Dix New Jersey read a paper on 'The Teaching of Anesthesiology in the Army' Discussed by Drs Henry S Ruth Merion Station Pa Sidney C Wiggan, Boston and Stevens J Martin Fort Dix New Jersey

Dr K C McCarthy, Toledo Ohio read a paper on 'Casualty Anesthesia in England' Discussed by Drs A L Tynes, Washington D C S LeRoy Sahler, Rochester N Y, and K. C McCarthy Toledo, Ohio

FRIDAY, JUNE 12—AFTERNOON

Dr Henry S Ruth, Merion Station Pa delegate to the House of Delegates presented his report

The Secretary Dr John S Lundy, Rochester Minn, read a communication from the American Board of Anesthesiology containing an amendment to section 2 article III, of the constitution of the board On motion of Dr Ralph M Waters, Madison Wis seconded by Dr Paul M Wood New York the amendment was adopted as read approving the change from three to four representatives on the board

Dr Henry S Ruth, Merion Station Pa and Dr Paul M Wood, New York were elected delegates to the American Board of Anesthesiology for a period of six years

The secretary read a communication from Dr Paul M Wood New York American Board of Anesthesiology, requesting that the Section on Anesthesiology of the American Medical Association urge the inclusion of one or more anesthetists on the Council on Pharmacy and Chemistry of the American Medical Association It was moved by Dr Henry S Ruth, Merion Station Pa seconded by Dr M H Krakow New York, and voted that the section support Dr Wood's suggestion

The following officers were elected chairman Dr Paul M Wood New York, vice chairman Dr William Wilson Hutchinson Los Angeles secretary, Dr John S Lundy, Rochester Minn executive committee Dr Ralph M Waters, Madison Wis Dr Thomas J Collier Atlanta Ga, and Dr Paul M Wood New York delegate Dr Henry S Ruth, Merion Station Pa alternate Dr C F McCuskey Los Angeles

Dr C L Burstein New York read a paper on "Laboratory and Clinical Studies with Paraldehyde" Discussed by Drs Ralph T Knight, Minneapolis and C L Burstein New York

Dr Robert D Dripps Jr Philadelphia read a paper on "The Balance Between Central and Reflex Control of Respiration" Discussed by Drs Carl F Schmidt Philadelphia F Elmore Hubbard Montclair N J, and Robert D Dripps Jr, Philadelphia

Drs Herbert W Schmidt and Lloyd H Mousel Rochester Minn presented a paper on 'Postoperative Bronchoscopy' Discussed by Drs Philip D Woodbridge, New Haven, Conn Alfred Habeeb Fairfield Ala Leo V Hand, Boston and Herbert W Schmidt Rochester, Minn

Dr John Adriani New Orleans, read a paper on 'Effect of Anesthetics on Bronchial Tissues' Discussed by Drs Donald E Brace Woodside, N Y, Douglass H Batten, Brooklyn, and John Adriani, New Orleans

Dr Richard von Foregger Jr Madison, Wis, read a paper on 'Surface Temperature Under Anesthesia'

## SECTION ON MISCELLANEOUS TOPICS

Sessions on General Practice

WEDNESDAY, JUNE 10—MORNING

The first session on General Practice was called to order at 9 05 by the chairman, Dr Lucien Stark, Norfolk Neb

Dr Lucien Stark, Norfolk Neb, read the chairman's address

Dr George M Cook Hammond Ind read a paper on 'Cardiology in General Practice'

Dr Tinsley R Harrison Winston-Salem, N C, read a paper on "Some Puzzling Aspects of Pain in the Chest" Discussed by Drs Ferdinand F Schwartz, Painesville Ohio, Henry M Thomas Jr Fort George G Meade Maryland, Wingate M Johnson Winston-Salem N C, Clark W Day, Indianapolis Emilio Leopold Hergert Brooklyn F M Pottenger Monrovia Calif, Meyer Golob New York and Tinsley R Harrison Winston-Salem N C

Dr H W Rathe Waverly, Iowa, read a paper on "Myocardial Infarction Clinical Features and Prognosis" Discussed by Drs Horace M Kornis Iowa City, and O P J Falk, St Louis

Dr Hugh P Greeley Madison Wis, read a paper on "Blood Pressure After Thirty Years" Discussed by Dr Karl H Doege, Marshfield, Wis

Dr J J Eller New York, read a paper on 'Vitamins in Dermatology, Including Gray Hair Therapy' Discussed by Drs Carroll S Wright, Philadelphia Benjamin F Sieve, Boston, Paul Gross, New York Arthur D Woods State Center Iowa Abraham E Jaffin Jersey City N J and J J Eller New York

## THURSDAY, JUNE 11—MORNING

Dr Arch Walls, Detroit, read a paper on "Menopausal Symptoms and Their Treatment" Discussed by Drs William J Carrington, Atlantic City, N J, A R Abarbanel, Baltimore, and Arch Walls, Detroit

Dr Elliott B Edie, Uniontown, Pa, read a paper on "The Management of Patients with Anxiety" Discussed by Drs Edward Weiss, Philadelphia, Belle E Jacobson, New Rochelle, N Y, and Joseph A Pettit, Portland, Ore

Dr Walter C Alvarez, Rochester, Minn, read a paper on "What Causes Gas?" Discussed by Drs Burrill B Crohn, New York, Edward Weiss, Philadelphia, James M Northington, Charlotte, N C, and Walter C Alvarez, Rochester, Minn

Dr C W McGavran, Columbus, Ohio, read a paper on "The So-Called Mucous Colitis or Spastic Irritable Colon" Discussed by Drs Walter C Alvarez, Rochester, Minn, William Cole Davis, Atlantic City, N J, Myer Solis-Cohen, Philadelphia, and C W McGavran, Columbus, Ohio

Dr M W Thewlis, Wakefield, R I, read a paper on "The Care of the Aged" Discussed by Drs Lucien Stark, Norfolk, Neb, Wingate M Johnson, Winston-Salem, N C, George M Levitas, Westwood, N J, and M W Thewlis, Wakefield, R I

Dr C T Stone, Galveston, Texas, read a paper on "The Modern Treatment of Pneumonia" Discussed by Dr George M Piersol, Philadelphia

## Session on Legal Medicine

## FRIDAY, JUNE 12—MORNING

The meeting was called to order at 9 17 by the chairman, Dr William C Woodward, Washington, D C

Dr Edmund M Morgan, Cambridge, Mass, read a paper on "Privileged Communications Law versus Ethics"

Dr Hubert W Smith, Cambridge, Mass, read a paper on "Legal Responsibility for Negligent Diagnosis"

Dr Raimundo de Castro, Havana, Cuba, read a paper on "Human Postmortem Changes in the Tropics and Their Medico-legal Significance"

Dr Harrison S Martland, Newark, N J, read a paper on "The Importance of Performing Autopsies on the Bodies of Persons Apparently Dead by Suicide" Discussed by Dr Alan R Moritz, Boston

Dr Samuel R Gerber, Cleveland, read a paper on "The Advantage of the Coroner System Over That of the Medical Examiner"

Dr Timothy Leary, Boston, read a paper on "The Advantage of the Medical Examiner System Over That of the Coroner"

These two papers were discussed by Drs Haven Emerson, New York, Theodore J Corphey, Garden City, N Y, L M Snyder, Lansing, Mich, Alfred Angrist, Jamaica, Long Island, N Y, Hubert Winston Smith, Cambridge, Mass, Samuel R Gerber, Cleveland, and Timothy Leary, Boston

## SECTION ON ORTHOPEDIC SURGERY

## WEDNESDAY, JUNE 10—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr James A Dickson, Cleveland

Dr John G Kuhns, Boston, read a paper on "Congenital Flat Foot" Discussed by Drs Paul W Lapidus, New York, Guy A Caldwell, New Orleans, and John G Kuhns, Boston

Dr C Glenn Barber, Cleveland, read a paper on "Osteochondrosis Deformans Tibiae A Type of Developing Non-rachitic Bowlegs in Children" Discussed by Drs Luthero Vargas, Rio de Janeiro, Brazil, Walter P Blount, Milwaukee, H A Swart, Charleston, W Va, I William Nachlas, Baltimore, and C Glenn Barber, Cleveland

Dr Allan D Wallis, Philadelphia, read a paper on "Odor in the Orr Treatment of Osteomyelitis and Its Prevention by Lactose" Discussed by Drs Fritz Teal Jr, Lincoln, Neb, Lenox D Baker, Durham, N C, and Allan D Wallis, Philadelphia

The following nominating committee was appointed chairman, Robert D Schrock, Omaha, Vernon P Thompson, Los Angeles, and John G Kuhns, Boston

Dr Alberto Inclan, Havana, Cuba, read a paper on "Tumoral Calcinosi" Discussed by Drs Robert D Schrock, Omaha, Ralph K Ghormley, Rochester, Minn, and Alberto Inclan, Havana, Cuba

Dr A Bruce Gill, Philadelphia, read a paper on "Suggestions for Improvements in the Program for the Public Care of the Crippled Child" Discussed by Dr Allen F Voshell, Baltimore

Dr Earl D McBride, Oklahoma City, read a paper on "Plated Osteoperiosteal Graft" Discussed by Drs Leo S Lucas, Portland, Ore, Rexford L Diveley, Kansas City, Mo, and Earl D McBride, Oklahoma City

## THURSDAY, JUNE 11—AFTERNOON

The following officers were elected chairman, Guy A Caldwell, New Orleans, vice chairman, Theodore A Will, Cleveland, secretary, Francis M McKeever, Los Angeles, executive committee J Albert Key, St Louis, James A Dickson, Cleveland, and Guy A Caldwell, New Orleans, suggestions to American Board of Orthopedic Surgery (1) Ralph K Ghormley, Rochester, Minn, (2) Robert W Johnson, Baltimore, delegate, James Archer O'Reilly, St Louis, alternate, J E M Thomson, Lincoln, Neb

Dr James Archer O'Reilly, St Louis, gave a report as delegate to the House of Delegates

On motion by Dr Rexford L Diveley, Kansas City, Mo, it was voted that a committee be formed to study and evaluate the Kenny treatment of infantile paralysis, this committee to be composed of six members, two to be appointed by the chairman of the Section on Orthopedic Surgery of the American Medical Association, two members to be appointed by the president of the Academy of Orthopedic Surgeons and two members to be appointed by the president of the American Orthopedic Association, this committee to study and evaluate the Kenny treatment of infantile paralysis, the report to be published either in *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* or the *Journal of Bone and Joint Surgery*, and the respective members to report to their respective organizations as soon as is practical and possible

Dr C E Irwin, Warm Springs, Ga, read a paper on "Genus Recurvatum Following Poliomyelitis A Controlled Method of Operative Correction" Discussed by Drs Harold B Boyd, Memphis, Tenn, A Bruce Gill, Philadelphia, H R McCarroll, St Louis, and C E Irwin, Warm Springs, Ga

Dr James A Dickson, Cleveland, read the chairman's address, entitled "Orthopedic Surgery Between Two Wars"

Dr C Howard Hatcher, Chicago, read a paper on "Localized Fibrous Lesions of the Long Bones" Discussed by Dr Robert D Schrock, Omaha, Henry L Jaffe, New York, and C Howard Hatcher, Chicago

Dr Norman T Kirk, Washington, D C, read a paper on "Amputations in War" Discussed by Drs Vernon P Thompson, Los Angeles, Lyman W Crossman, New York, and W Ryerson, Chicago, and Norman T Kirk, Washington, D C

Dr Perrin H Long, Baltimore, read a paper on "Systemic and Local Sulfonamide Therapy of War Wounds" Discussed by Drs John E Cannaday, Charleston, W Va, Philip Le, Chicago, and Perrin H Long, Baltimore

Dr J A MacFarlane, Toronto, Ont, read a paper on "Management of Wounds of the Extremities in Modern Warfare"

Dr Fowler B Roberts, Akron, Ohio, read a paper on "Operation for Dislocated Hips Especially Useful in Young Children" Discussed by Drs David M Bosworth, New York, and Fowler B Roberts, Akron, Ohio

## FRIDAY, JUNE 12—MORNING

A joint meeting was held with the Section on Nervous and Mental Diseases The proceedings are reported in the report of that section

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS EDUCATION AND PUBLIC HEALTH)

### ALABAMA

**State Medical Election**—Dr Harvey B Searcy, Tuscaloosa, was elected president of the Medical Association of the State of Alabama at its recent annual session succeeding Dr James M Mason Birmingham. Dr James O Morgan, Gadsden, was elected vice president from the northeastern area.

**Society News**—The northwestern division of the state medical association was addressed in Haleyville May 27 by the following: Drs James S McLester, Birmingham "Nutrition and Fighting the War", Courtney W Shropshire, Birmingham "Rapid Treatment of Early Syphilis with Multiple Injections of Mapharsen", John E Garrison, Birmingham, "Delivering Babies at Home", Lieut Col George A O Connell, Fort McClellan Anniston "Hospitals in the Zone of the Interior" and Major Gerald G Woodruff, Fort McClellan, "Need for Doctors in the Medical Corps".

### CALIFORNIA

**Dr Reed Joins Stanford Faculty**—Dr Alfred C Reed since 1928 professor of tropical medicine University of California Medical School San Francisco has resigned to become associate clinical professor of medicine at Stanford University School of Medicine, San Francisco according to *Science*. Dr Reed served on the Stanford faculty from 1916 to 1928. A graduate of New York University College of Medicine New York, class of 1910 he has specialized in tropical medicine for many years. He was president of the American Society for Tropical Medicine in 1938.

**Increase in Births**—The state department of health reports that 125,050 births were registered in 1941 as compared with 111,840 in 1940. All counties of the state contributed to the increase with the exception of Alpine, Amador, Humboldt, Imperial, Madera, Mariposa, Mono, Nevada, Sutter, Tuolumne, Tehama and Yuba. Most of these counties with low birth rates are located in the mountains and in agricultural regions. Increases are conspicuous in areas where the war industries are located. In 1941 the number of white births was 105,634, 84.5 per cent of the total while in 1940 the number of white births was 93,742 or 83.8 per cent of the total. While the number of Mexican births increased last year the percentage of such births to the total represented a decrease from 11.6 per cent in 1940 to 11.1 per cent in 1941. There were 13,849 Mexican births registered in this state last year as compared with 12,983 in 1940. The percentage of Negro and Chinese births remained stationary while Japanese births increased from 1.3 per cent in 1940 to 1.4 per cent in 1941. There were 1,710 Japanese births registered last year.

### CONNECTICUT

**Personal**—Dr John Howard Staub, chief of staff of the Stamford Hospital, Stamford, was guest of honor at a dinner April 9 in recognition of his many years of service to the community. —Dr Lawrence M Tierney has been appointed health officer of West Haven succeeding Dr Eugene N Cozzolino. —Dr Joseph J Smith, Easton, has been named health officer of Easton succeeding Dr William H Coon.

**Crippled Children Clinics**—The new clinic for crippled children was recently opened in Putnam bringing the total of such clinics to seven supervised by the crippled children division of the state department of health. During the four years that the state department has been conducting the crippled children program about two thousand children have been given care at present about a thousand are under active care.

**Court Bans Birth Control**—The Connecticut Supreme Court ruled in a three to two decision on June 2 that it was illegal for a physician to prescribe the use of contraceptives even if he believed a married woman's life might be jeopardized by pregnancy, newspapers reported. It was stated that this is the second time in two years that a court upheld the state's sixty-two year old law making birth control a criminal offense. The case was said to arise from a request for a declaratory judgment by Dr Wilder Tileston, David P Smith, clinical professor of medicine, Yale University School of Medicine, New Haven.

### DISTRICT OF COLUMBIA

**Gibson Award**—Dr Richard W Wilkinson, Washington, was presented with the Frank E Gibson Award at a meeting of the Washington Medical and Surgical Society, May 20 for his "original and outstanding paper on ophthalmology." The prize is given in recognition "of meritorious contributions to medical science" and was established in 1937 in honor of Dr Frank E Gibson, permanent treasurer of the society. Dr Wilkinson graduated at George Washington University School of Medicine in 1928. He is 39 years old.

### GEORGIA

**Personal**—Dr Henry Richmond Slack, La Grange, observed his eightieth birthday May 7. For eight years he was president of the Georgia Pasteur Institute, Atlanta, and once served as secretary and chemist for the state board of pharmacy for twelve years, he served several terms as a member of the Revision Committee of the U S Pharmacopeia. —Dr Wilhel B Trammell, Stratham, has been named health commissioner in the newly established unit in Gwinnett County, with headquarters in Lawrenceville.

**Resolution on Control of Psittacosis**—The Georgia State Board of Health adopted a resolution, April 16, prohibiting the importation, purchase, breeding, giving away, sale or offer of sale of birds of the psittacine family. The resolution further provided that importation and breeding of such birds for scientific research for public zoologic gardens may be permitted subject to the approval of the state health officer. Under the resolution birds of the psittacine family include any parrot, parakeet, lovebird, macaw, cockatoo, lory, lorikeet or any other bird of the parrot or psittacine family not specifically enumerated. Violation of the regulation is a misdemeanor.

### ILLINOIS

**Personal**—Dr Gerry B Dudley, Charleston, has been appointed a member of the board of public health advisers in the state department of public health, succeeding Dr Clifford U Collins, Peoria, chairman who resigned. —S DeWitt Clough, president of Abbott Laboratories, North Chicago, was awarded an honorary degree of doctor of laws by Knox College, Galesburg, May 25. Mr Clough delivered the commencement address on "Research and Readjustment." —Dr Henry W Wood, Sheldon, was presented with an emblem and certificate denoting membership in the fifty year club of the state medical society, June 4 at a meeting of the Iroquois County Medical Society.

**State Board Ruling on Graduates of Foreign Schools**—Graduates of medical colleges in continental Europe and graduates of the extramural colleges of Scotland and Ireland who finished after July 1, 1936 (Switzerland excepted) will not be admitted to Illinois medical examinations according to an announcement from the state department of registration and education. This rule will be in force until a true evaluation of the colleges referred to may be obtained, at which time such nonaccredited foreign colleges will be required to prove to the department that their courses and equipment are in every way equal to American medical colleges accredited by the department of registration and education. Other schools in foreign nations may be recognized under the same terms and conditions as obtained before the rule adopted on Feb 21, 1941. This rule shall supersede all rules heretofore adopted and in conflict therewith but will not be retroactive in the sense that it will affect European graduates who have been issued licenses after examination by the department, even though they graduated after 1936.

**Conference on Exceptional Children**—Governor Green called a conference on exceptional children in Chicago, June 15, under the auspices of the Commission for Handicapped Children. The aims of the conference, the first to be held in the state were to further public understanding of the problems of exceptional children, the resources and facilities available to meet that problem and the needs of such children. Among the speakers on the program were Dr Edward L Compere, Chicago "Services and Facilities Available for the Medical Care and Rehabilitation of Handicapped Children", Mr Rodney H Brandon, Springfield "The Philosophy Underlying the State's Care for Its Exceptional Children", Dr Bert I Beverly, Oak Park "Special Problem of Educable Mentally Handicapped Children," and Irving F Pearson, M S, Springfield, "Current Legislative Proposals for Exceptional Children." At a special meeting during the conference consideration was given to the formation of an Illinois chapter of the International Council for Exceptional Children which has as its purpose the promotion of the education and welfare of exceptional children, the handicapped and the gifted.

## Chicago

**Federal Funds to Fight Venereal Diseases**—The city department of health will receive \$125,000 a year from the federal government to carry on the work against venereal disease.

**City Acts to Curb Venereal Diseases**—The city health department quarantined the Lane Hotel, June 23, in an effort to prevent the spread of syphilis, gonorrhea and other venereal diseases among service men, newspapers reported. The action was the first of its kind in the city since the start of the war. The quarantine sign will be taken down only after department of health officials give the place a clean bill of health, it was stated.

**Immunologist Goes to Institute of Technology**—Dan H. Campbell, Ph.D., assistant professor of immunology, department of bacteriology and parasitology, Division of Biological Sciences, University of Chicago, has accepted an appointment at the California Institute of Technology, Pasadena, as assistant professor of immunochemistry. Dr. Campbell received his degree of doctor of philosophy at the University of Chicago in 1935 and since that time has been a member of the faculty.

## INDIANA

**Personal**—Dr. Raymond M. Borland, Bloomington, has been chosen coroner of Monroe County.—Dr. Homer E. Line, Chubb, has been appointed health officer of Miami County.—Dr. Lyman D. Eaton, Indianapolis, has been named director of the district health unit at Princeton, covering Gibson, Pike, Posey and Warrick counties.

**District Meeting**—The Eleventh Indiana Councilor District Medical Association was addressed in Flora, May 20, by the following: Drs. Lee Palmer, Louisville, Ky., "Progress in Pediatrics", Howard Allison Miller, Marion, "Nonsurgical Treatment of Pelvic Conditions," and James O. Ritchey, Indianapolis, "Nontubercular Lesions of the Chest." Al H. Wynkoop of Lebanon was the banquet speaker.

## IOWA

**Hospital to Sponsor Unit for Kenny Treatment**—Drs. James E. Dyson and Dwight C. Wirtz, Des Moines, are establishing a private hospital pavilion for the treatment of infantile paralysis by the Kenny method under the auspices of the Iowa Lutheran Hospital, Des Moines. The two physicians recently returned from Minneapolis, where they had completed a course on the Kenny system. The local unit will be set up at 714 Parnell Avenue, just east of the Lutheran Hospital.

## LOUISIANA

**Changes in Health Personnel**—Dr. Louis A. Breffell, Marksville, head of the Avoyelles Parish health unit, has been appointed in charge of the Iberia unit with headquarters at New Iberia, succeeding Dr. Christopher L. Mengis, who recently became president of the state board of health.

**Officers of Graduate Assembly**—Dr. Oscar W. Bethea was recently chosen president-elect of the New Orleans Graduate Medical Assembly, and Dr. Henry Theodore Simon was installed as president. Drs. Donovan C. Browne and Beryl I. Burns are vice presidents, Joseph S. D'Antoni, secretary, and William H. Gillentine, treasurer. All are of New Orleans.

## MAINE

**Cancer Program Expanded**—The department of health and welfare under recent legislation was commissioned to make investigations concerning "cancer, the prevention and treatment thereof and the mortality therefrom, and to take such action as it may deem will assist in bringing about a reduction in the mortality thereto." The state medical journal states that the program is now under way in the division of medical services in the bureau of health. Currently the cancer committee of the Maine Medical Association, the Women's Field Army, the tumor clinics in the state and the bureau of health are cooperating in the projection of the plan. At a recent meeting of the cancer committee in the bureau of health, suggestions were formulated for the activities of the various groups participating in the program. Under the new setup the bureau of health will be responsible for compilation of data on cancer incidence. Members of the state cancer committee are Drs. Edward H. Risley, Waterville, Magnus F. Ridlon, Bangor, Bertrand A. Beliveau, Lewiston, Merriwell Tieche Shelton, Augusta, and William Holt, Portland.

## MARYLAND

**Dr. Knox Retires as State Hygienist**—Dr. James Hall Mason Knox Jr., Baltimore, was given a dinner by members of the state department of health May 15 to mark his retirement as chief of the bureau of child hygiene of the department. He has held the position since 1922. Dr. Knox graduated at Johns Hopkins University School of Medicine, Baltimore, in 1898 and has been a member of its faculty since 1909. He has been lecturer in child hygiene at the Johns Hopkins University School of Hygiene and Public Health since 1922. He was president of the American Pediatric Society in 1925, assistant chief, children's bureau, American Red Cross, Paris, France, 1917-1918, and field medical director of the child health activities of the American Red Cross in Europe, 1921-1922. More than one hundred friends, colleagues, nurses and health officers attended the dinner.

## MASSACHUSETTS

**State Society Approves Prepaid Plan for Medical Care**—The Massachusetts Medical Society approved a statewide system of prepaid budgeting for medical care at its meeting in May. Administration of the plan will be through a non-profit corporation called the Massachusetts Medical Service, in whose directorate the lay public, the subscribers and the medical profession will be represented equally, according to the Boston Herald. A state charter was issued on May 27. The plan will first offer a low cost surgical contract designed mainly for the industrial population and the low income group. Besides surgery it will include obstetrics and diagnostic x-ray examination while in the hospital. Later it may be possible to work a complete coverage contract offering medical care in the home, office and hospital. Medical representatives will be Dr. John H. Blaisdell, Boston, James C. McCann, Worcester, Charles E. Mongan, Somerville, Frank R. Ober, Boston, and Samuel A. Robins, Boston.

**Personal**—Dr. Lawrence K. Kelley recently resigned a medical superintendent of the Tewksbury State Hospital and Infirmary, Tewksbury, a position he had held for six years.—Dr. Vlado A. Getting, Boston, has been appointed health commissioner of Worcester.—Dr. Henry D. Chudwick, Waltham, was recently chosen president of the Massachusetts Tuberculosis League.—Dr. Arthur L. Watkins, Boston, was named president of the New England Society of Physical Medicine at its meeting in Arlington, June 3.—Dr. Frederick Fuller Russell, professor of preventive medicine and epidemiology, emeritus, Harvard Medical School, Boston, was awarded the honorary degree of doctor of science by the University of Rochester, Rochester, N. Y., at its annual commencement exercises, May 11.—Dr. Harris Peyton Mosher, Walter Augustus Lecompte professor of otology and professor of laryngology, emeritus, Harvard Medical School, Boston, was awarded the honorary degree of doctor of science on June 5 by Jefferson Medical College of Philadelphia.

## MICHIGAN

**The William J. Mayo Lecture**—The annual William J. Mayo Lecture was delivered in the University Hospital Auditorium, May 22, by Dr. Ralph K. Ghormley, Rochester, Minn. His subject was "A Clinical Pathological Study of Back Pain."

**Personal**—Dr. Stephen S. Skrzycki is the new mayor of Hamtramck.—The staff of Providence Hospital gave a dinner at the Detroit Athletic Club, April 30, to honor Dr. David H. O'Donnell on his completion of fifty years in the practice of medicine.

**Changes in Health Officers**—Dr. Thomas H. Johnston, formerly of Douglas, Ga., has been appointed director of the Ontonagon-Baraga County Health Unit, succeeding Dr. Robert J. Shale, Ontonagon, who has gone to Florida.—Dr. Paul Lindquist, Manistee, has resigned as medical director of the Mason-Manistee-Benzie County Health Unit to accept a position of the new county-city health unit being established in Monroe County.—Dr. Clayton C. Benjamin, Munster, has been appointed in charge of the new county city health unit with headquarters in Ludington.

## MISSOURI

**Health Center and Home of County Society**—A two-story brick building will be constructed at a cost of \$500,000 on the present grounds of the St. Louis County Hospital. Ground breaking ceremonies were held on May 1. New construction is planned to house the administrative and the various divisions of the county health department, a training center. Provision has also been made for the common services and clinics of the health department.



department and for expansion of the hospital outpatient functions. The auditorium wing of the building is planned to provide quarters for the meetings of the St. Louis County Medical Society and the Woman's Auxiliary.

**Dr Hageman Named Director of Laboratories**—The Medical Alumni Quarterly of Washington University announces a series of changes in the laboratories formerly maintained by the school of medicine. Dr. Paul O. Hageman has been appointed director in charge of serology and bacteriology. Dr. Harold A. Bulger of blood chemistry and basal metabolism. Dr. Carl A. Moore of clinical microscopy and Drs. Nathan A. Womack and John E. Hobbs in charge of combined surgical and gynecologic pathology. All are members of the faculty of the school of medicine. This new setup replaces various laboratories on the campus coordinating their activities. On July 1, 1941 Barnes Hospital, St. Louis, assumed the responsibility for the maintenance and direction of the laboratories. Under the new arrangement extensive remodeling of the old service building provides additional accommodations. The entire reorganization will soon be completed.

### MONTANA

**Dr. Armstrong Recovering from Tularemia**—Dr. Charles Armstrong, senior surgeon of the U. S. Public Health Service and director of the Division of Infectious Diseases of the National Institute of Health, Washington, D. C., is convalescing in Hamilton from a severe attack of tularemia, according to the *New York Times*, June 19. He was stricken on May 25 a few hours after his arrival on an official visit to the Rocky Mountain Spotted Fever Laboratory in Hamilton. Since he had not been working on tularemia and was not exposed to it in Hamilton, no one has any idea how he contracted the disease.

### NEW YORK

**Association of Public Health Laboratories**—Dr. Gustavus H. Klinck, Jr., Troy, was chosen president of the New York State Association of Public Health Laboratories at its meeting in Schenectady, May 18. Dr. James S. Taylor, Kingston, was elected vice president and Mary B. Kirkbride, Sc.D., Albany, was reelected secretary-treasurer.

**Personal**—Mrs. Elizabeth M. Finigan, health investigator for institutions, division of communicable diseases, state department of health, retired on May 1 after twenty-nine years' service. Mrs. Finigan was appointed to the department on a part-time basis in 1912, serving in full-time capacity since 1913. One of her achievements during her career as health investigator and lecturer for the state department was a two-year survey of the seven Indiana reservations in the state, which resulted in the establishment of medical and nursing services where the need for them was indicated. —Dr. George P. Berry, professor of bacteriology and assistant dean of the University of Rochester School of Medicine, Rochester, received one of the nine fellowships awarded by the city of Rochester for distinguished service at special ceremonies on May 22.

### New York City

**Private Patients Pavilion at New York Hospital**—The New York Hospital announces the dedication of its pavilion for private patients to take place on September 1, the tenth anniversary of the opening of the present hospital buildings. The unit, comprising six floors and more than a hundred rooms for patients and known as only part of the general hospital, will be named the George F. Baker Pavilion in honor of a late governor of the hospital and his son. The pavilion, with the medical and surgical floors of the New York Hospital, will now form the central unit of the hospital, a part of the Cornell University Medical College Center, becoming one of the six separate services operated by the Society of the New York Hospital. Others in the group are the Lyng-In Hospital, Children's Clinic, Payne Whitney Psychiatric Clinic and the New York Hospital, Westchester division. Mr. Baker and his son made many financial gifts to the hospital.

**Body and Mind Foundation Guilty of Illegal Practice of Medicine**—The Body and Mind Foundation, Inc., was fined \$750 and Rudolph Rebold, research observer in the foundation's clinic, New York, was given a suspended sentence, June 26, after having been found guilty, June 16, of unlawfully practicing medicine according to the *New York Times*. The foundation was found guilty on another of the five original counts in the information—that of illegally displaying a dispensary sign in front of the old garage which is now the home of the foundation. The court also convicted Rebold on the count that he posed as a physician by using 'M.D.' after his name in an

article he wrote in a pamphlet, issued by Dr. Edward S. Cowles, head of the clinic, as well as on Rebold's license plates for several years. The third defendant in the information, Mrs. Eveline Dolm Schulman, tried under the name of Dr. Eveline Dolm, alleged aide to Dr. Cowles in the foundation, was acquitted. During the course of the trial, state witnesses told of paying \$12 or more when being admitted as patients and of Rebold interrogating them on symptoms of illness which they simulated and which he recorded in notes. He admitted on the stand that he passed these notes over to Dr. Cowles when he was about to examine the patient but insisted that he did so merely as a matter of 'professional observations.' Rebold said he was a student for a brief time in a medical school. At one time he was a civilian assistant to the pathologist at Sing Sing prison at necropsies and at another time the biochemist at the Hospital for the Ruptured and Crippled. Dr. Cowles did not appear at the trial but on the day before the trial started, June 5, he appeared for a hearing on disciplinary charges before a subcommittee of the grievance committee of the state education department.

### NORTH CAROLINA

**Dr. Levine Appointed Pathologist**—Dr. Jacob Levine has been appointed head of the pathology department of the city hospital system at Winston-Salem to succeed Dr. Thomas T. Frost, Winston-Salem, who is resigning to go to Indianapolis. The appointment was effective on July 1. Dr. Levine has been pathologist at the Veterans Administration Facility, Aspinwall, Pa., since 1938. He graduated at Syracuse University College of Medicine in 1928.

**District Meeting**—The Tenth District Medical Society met in Asheville on May 27. Included on the program were:

- Dr. Wingle M. Johnson, Winston-Salem: The Nervous Patient.
- Dr. Charles F. Owen, Jr., Canton: Gunshot Wounds of the Abdomen.
- Dr. Charles H. Armentrout, Asheville: Treatment of Congestive Heart Failure.
- Dr. Joseph F. McGowan, Asheville: Internal Diseases of the Eye Seen in General Practice.
- Dr. William A. Hoover, Murphy: Disease Which May Simulate Acute Conditions of the Alder.
- Dr. Allison L. Ormond, Black Mountain: Pleural Shock and Air Embolus in Artificial Pneumothorax.

### OHIO

**Dr. Cummer Receives the Academy Award**—Dr. Clyde L. Cummer, Cleveland, formerly president of the Ohio State Medical Association, has been announced as winner of the 1942 distinguished service award of the Academy of Medicine of Cleveland. Dr. Cummer, who is assistant clinical professor of dermatology and syphilology at Western Reserve University School of Medicine, Cleveland, has been a member of the faculty since 1909. He served as president of the Cleveland Academy in 1923 and is now chairman of the Council on Scientific Assembly of the American Medical Association.

**County Society Observes One Hundredth Anniversary**—The Summit County Medical Society held a dinner dance at the Akron City Club on June 3 to observe the one hundredth anniversary of its founding. An exhibit of records of the society, photographs and war service medals won by members who have been engaged in eleven wars of the United States and foreign countries beginning with the War of 1812, were displayed under the direction of Dr. Alexander S. McCormick, secretary for the last twenty-eight years. The exhibit also included numerous instruments used years ago and some of the instruments invented or designed by members of the society. The Summit County Medical Society was organized in 1842, two years after the establishment of the county, largely through the efforts of Dr. Moses Thompson (1776-1858), who had settled in Hudson and who retired from practice in 1815. The society forced into inactivity during the Civil War, was reorganized in 1866 and again in 1884, 1898 and 1923.

### OKLAHOMA

**Dr. Battenfield to Go to New York**—Dr. John Y. Battenfield, Oklahoma City, director of the division of preventable diseases, Oklahoma Department of Public Health, has been appointed medical associate of the National Society for the Prevention of Blindness. Before joining the headquarters of the society in New York, Dr. Battenfield will serve for several months with a special trachoma project in Oklahoma carried on under the auspices of the national society and the state health department. Dr. Battenfield graduated at the University of Oklahoma School of Medicine, Oklahoma City, in 1937, later receiving the M.P.H. degree at Johns Hopkins University School of Hygiene and Public Health, Baltimore.



## PENNSYLVANIA

**Society News**—Dr Lester Hollander, Pittsburgh, discussed "Afflictions of the Skin and Allied Allergic Conditions" before the Fayette County Medical Society in Uniontown, June 4—Dr Grover C Weil, Pittsburgh, discussed the sulfonamides before the Cambria County Medical Society in Johnstown, June 18

## Philadelphia

**Philadelphia Medicine**—Starting with its June 13 issue, the bulletin of the Philadelphia County Medical Society bears the name of *Philadelphia Medicine*. Known for many years as the *Weekly Roster and Medical Digest*, the bulletin's name last year was changed to *Weekly Roster, Philadelphia Medicine*. Now the name reads *Philadelphia Medicine*.

**New Professor of Anesthesiology**—Dr Philip D Woodbridge, on the staff of the Lahey Clinic, Boston, since 1928, has been appointed professor of anesthesiology at Temple University School of Medicine, effective July 1. Dr Woodbridge graduated at Harvard Medical School, Boston, in 1921. He was president of the New England Society of Anesthesiology in 1934 and 1936 and of the Boston Society of Anesthetists in 1935 and 1937.

**Immunization Campaign**—The Philadelphia Department of Health launched its annual immunization campaign against diphtheria June 1. Temporary stations were opened in eighty-five schools and ten health centers for immunization of children between 9 months and 6 years of age. According to a newspaper report this annual program has reduced deaths from diphtheria in Philadelphia from three hundred and fifteen in 1925 to none in 1940. Three deaths of children who had not been immunized occurred in the city last year.

**Garvan Medal Awarded to Dr Seibert**—Florence B Seibert, Ph D, associate professor of biochemistry, Henry Phipps Institute, has been announced as the winner of the 1942 Francis P Garvan Gold Medal of the American Chemical Society. Presentation will be made at the society's meeting in Buffalo, September 7. Dr Seibert, who isolated the active substances in tuberculin, received her degree in philosophy at Yale University, New Haven, Conn, in 1923. For a time she served on the staff of the University of Chicago, going to the Henry Phipps Institute in 1932. The Garvan Gold Medal is awarded to women in chemistry.

## Pittsburgh

**Personal**—Francis R Holden, Ph D, has been appointed industrial hygienist on the staff of the Industrial Hygiene Foundation at the Mellon Institute, to be in charge of industrial hygiene services of all types. Dr Holden has been specializing in industrial medicine since he received his degree of philosophy at the University of Cincinnati in 1934. For the past year and a half he has been studying natural gas under a fellowship at the institute, according to the *Pittsburgh Medical Bulletin*.

## SOUTH CAROLINA

**State Medical Election**—Dr William Atmar Smith, Charleston, was chosen president-elect of the South Carolina Medical Association at its recent annual meeting and Dr Thomas A Pitts, Columbia, was installed as president. Dr Joseph Warren White, Greenville, was chosen vice president and Dr Julian P Price, Florence, was reelected secretary-treasurer. The next annual meeting will be held in Spartanburg.

## TENNESSEE

**Personal**—Drs John M Lee, Nashville, and William K Vance Jr, Bristol, were chosen members of the state public health council in March, and Dr Webster B Key, Memphis, was reappointed to a three year term—Dr Frank A Moore, Jackson, has resigned as regional health officer of West Tennessee to become a captain in the U S Army Medical Corps—J Frank Taylor, Martin, has been appointed state supervisor of health and physical education, newspapers reported May 7, to carry on the physical education program of the state department of education.

**Federal Law Invoked to Curb Prostitution**—Federal action to help state authorities stamp out prostitution is meeting with general approval in the twenty-seven counties of Tennessee, where the May act was invoked for the first time on May 21, according to an announcement from Dr Ray Lyman Wilbur, Stanford University, Calif, president of the American Social Hygiene Association. The May act was signed by the President on July 11, 1941 and provides that it shall be unlaw-

ful to engage in prostitution or to aid or abet prostitution within such reasonable distance of any military or naval camp or station as the Secretary of War or Navy shall determine to be needful to the efficiency, health and welfare of the Army or Navy. The American Social Hygiene Association is studying the effects of and public reaction to the application of this new federal law. Newspapers have acknowledged favorable public sentiment concerning the project in the Camp Forrest area, which includes several counties.

## UTAH

**Society News**—The Salt Lake County Medical Society devoted its meeting recently to a symposium on coronary occlusion. Drs Fuller B Bailey discussed "The Historical Background, Etiology and Diagnosis of Coronary Occlusion", Louis E Viko, "Diagnosis and Treatment of Coronary Occlusion" and Robert T Jellison, "Industrial Phase of Heart Disease". All are of Salt Lake City.

## VIRGINIA

**State Medical Board Reelected**—Governor Darden recently reappointed the following members of the state board of medical examiners for a term of four years ending March 31, 1946: Drs Robley D Bates Sr, Newtown, Philip St L. Moncure, Norfolk, Hack U Stephenson, Richmond, William B McIlwaine III, Petersburg, Isaac C Harrison Danville, John W Preston, Roanoke, Philip W Boyd, Winchester, Lewis Holladay, Orange, and Francis H Smith, Abingdon.

**Dr Wampler in Charge of Industrial Medicine**—Dr Fred J Wampler, professor of preventive medicine at the Medical College of Virginia, Richmond, since 1928, has been named professor of preventive and industrial medicine, according to the state medical journal. Dr Wampler graduated at Rush Medical College, Chicago, in 1913. He received his certificate in public health at Johns Hopkins University, Baltimore, in 1929. He was field worker in the Mongolian Shantung pneumonia plague epidemic in 1918, director of health and sanitation of American Red Cross China Famine Relief in 1921 and associate director for Shansi China Council on Health Education from 1922 to 1926, becoming health officer of the Accomac-Northampton Health Unit the following year.

## WASHINGTON

**Dr Dewey Goes to San Antonio**—Dr Leonard A Dewey, Seattle, chief of the division of epidemiology and venereal disease control, Washington State Department of Health, is on leave of absence to the U S Army. Dr Dewey has been placed in charge of venereal disease control in the eighth corps area with headquarters in San Antonio.

## WEST VIRGINIA

**State Society Meeting in Huntington**—The West Virginia State Medical Association will hold its seventy-first annual meeting in Huntington, July 13-15, under the presidency of Dr Richard O Rogers, Bluefield, who will tell of "The War and Medical Trends". The program this year is an innovation which was announced some months ago. Instead of scientific papers making up the general program, a section meeting, a series of symposiums, designed for the general practitioner, will be conducted by guest speakers.

Dr Ralph Irving Lloyd, Brooklyn, The Proptosed Eye as a Problem

Dr Meredith F Campbell, New York, Urological Conditions and Hood

Dr George C Griffith, Philadelphia, Precordial Pain

Dr Bayard T Horton, Rochester, Minn, Heredities Recurrent in Treatment

Dr Francis Bayard Carter, Durham, N C, Management of Distressing in the Course of Normal Labor

Dr John Scudder, New York, Management of Surgical Shock

Dr John Grove Kuhns, Boston, Management of Chorea

Drs William Halsey Barker and Edgar J Poth, Baltimore, and Surgical Aspects of Chemotherapy, respectively

Other features of the program are a talk by H. H. Anslinger, commissioner of narcotics, Washington, D C, "Narcotics as They Affect the Physician", the lecture in medicine by Dr William V Wilkerson, Prenter, "Pneumonia", and the oration on surgery by Dr Rufus J Wheeling, on "A Forty Hour Week for Surgeons". The annual banquet Wednesday evening the speaker will be V McNutt, federal security administrator, and D. S. Dafoe, Callander, Ont.

## GENERAL

**Meeting of Agricultural Chemists Canceled**—The Association of Official Agricultural Chemists, Inc., announces that its meeting planned for October 27-29 will not be held on account of the war emergency.

**Government Hygienists Choose Officers**—Marion F. Trice, Raleigh, N. C. was chosen chairman of the National Conference of Industrial Hygienists at its meeting in Washington, D. C. April 10. Dr. Paul A. Brehm, Madison, Wis., was named vice chairman and Mr. J. J. Bloomfield, Bethesda, Md., secretary-treasurer. The next meeting will be held in Washington, the dates to be announced later.

**Surgical Company Warns of Fraudulent Check Passer**—Kav Surgical, Inc., announces that a "Dr. John M. LaTuff," giving his address as 22 W. Indiana Avenue, St. Paul, Minn., called at their store at 246 Madison Avenue, Memphis, Tenn., and purchased a leather bag and other items. His check on the Security State Bank of St. Paul was returned with the notation "no account." The man was of average size, brunet, between the ages of 30 and 35 and wore a mustache, it was said.

**Relief Committee Names Director**—Dr. Marjorie E. Reed, Plymouth, Pa., was appointed director of Woman Physicians of the Medical and Surgical Relief Committee of America by Dr. Joseph Peter Hoguet, New York, national medical director of the committee, at a meeting on June 7. Dr. Reed, who became affiliated with the committee last February, has built up in Luzerne County, Pa. an active group of women physicians who have sent quantities of supplies to the committee headquarters in New York.

**Nutrition Charts**—The Philadelphia Child Health Society has prepared for distribution charts showing the vitamin content of average servings of various vegetables, also protein, calcium, phosphorus and iron content. On the reverse side of each chart is found information as to the exact content in an average serving of each of the vegetables shown in the chart, the recommended daily allowances, and also information concerning other vegetables not shown in the chart. Material of this type is exceedingly useful in the present effort for improvement of nutrition. The complete set of the eight charts is available at 50 cents, and may be secured from the Child Health Society, Room 609, 311 South Juniper Street, Philadelphia, Pa.

**Pamphlet on the Kenny Treatment of Poliomyelitis**—The National Foundation for Infantile Paralysis, Inc., has made available a booklet entitled "The Kenny Method of Treatment for Infantile Paralysis." The manual covering varying aspects of the disease, is written by Drs. Wallace H. Cole, John F. Pohl and Miland E. Knapp, Minneapolis, all of whom have observed and considered the Kenny method during the two years in which the foundation has financed a study of the treatment at the University of Minnesota School of Medicine, Minneapolis. Copies may be obtained by members of the medical nursing or physical therapy professions by writing to the National Foundation for Infantile Paralysis, Inc., 120 Broadway, New York.

**Lewis Carris Wins Leslie Dana Gold Medal**—Lewis H. Carris, LL.D., New York, director emeritus of the National Society for the Prevention of Blindness has been announced as the recipient of the Leslie Dana Gold Medal, awarded annually for outstanding achievements in the prevention of blindness and the conservation of vision. Mr. Carris was chosen for the award by the St. Louis Society for the Blind, through which the medal is offered by Mr. Leslie Dana of St. Louis on the recommendation of the Association for Research in Ophthalmology. Prior to his retirement in 1940 from active service as managing director of the national society, Mr. Carris had been identified with the work of national and allied groups interested in the conservation of the blind. He is now 72 years of age.

**Nominations for the Theobald Smith Award**—The American Association for the Advancement of Science has announced that nominations for the Theobald Smith Award, consisting of \$1,000 and a bronze medal provided by the Eli Lilly Company of Indianapolis, are now being accepted. The nominees for the award must have been not over 35 years of age on January 1 in the year in which the award is made. The purpose of the award is to recognize demonstrated research in the field of medical science, taking into consideration independence of thought and originality. Each nomination must be accompanied by six copies of reprints of each principal paper of which the nominee is the author. Nominations and supporting material should be sent to Malcolm H. Soule, LL.D., secretary of the section on medical sciences (N) Hygiene Laboratory, University of Michigan, Ann Arbor, Mich. Dr. Soule is also secretary of the award committee.

**New Officers of Medical Golfing Association**—Dr. John B. Morgan, Cleveland, was elected president of the American Medical Golfing Association at its twentieth annual tournament at the Seaview Country Club, Atlantic City, N. J., June 8. Vice presidents are Drs. Waltman Walters, Rochester, Minn., and John Pennington, Atlantic City. William J. Burns, Lansing, Mich. was reelected executive secretary of the group to serve his fourteenth term. The next tournament will be at San Francisco in June 1943. Dr. Daniel A. Williams, Kansas City, Mo. won the Will Walter trophy, symbolic of the championship of the tournament, with a score of 154 for thirty-six holes. Dr. Thomas A. Kyner, Kansas City, won the Detroit trophy for thirty-six holes low net with a posted 163 gross against a 14 stroke handicap for each round for a net score of 135. The St. Louis trophy was won by Dr. John Murphy, Detroit, for the second best low gross score and Dr. John H. Harris, New York, took the President's trophy with second best net score.

## CORRECTION

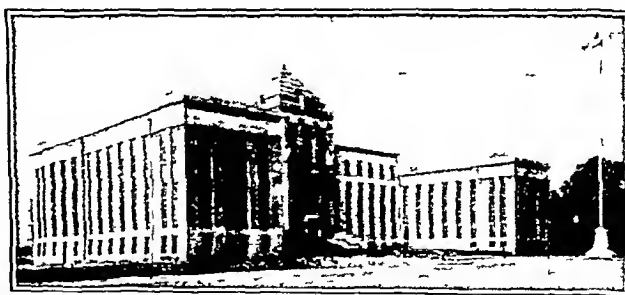
**Mustard Gas Injuries to the Eyes**—The abstract entitled "Mustard Gas Injuries to Eyes" in the Current Medical Literature department of THE JOURNAL, June 13, page 588, contains the statement "1 drop of a 5 per cent isotonic solution may be instilled." This is an error. The line should read "1 drop of a 0.5 per cent isotonic solution."

**The Renaissance of Prostatectomy**—In the article by Dr. Edwin Davis in THE JOURNAL, June 6, the words "prostatic resection" inadvertently appeared toward the end of the third paragraph on page 489, when "prostatectomy" was meant. The sentence should read "By the intelligent, prostatectomy is now regarded as a welcome means of relief rather than *le dernier ressort*."

## Government Services

### New Veterans' Hospital in Illinois

The Veterans' Hospital at Marion, Ill., for general medical and surgical patients has been completed at a cost of \$1,500,000. The new construction consists of a main hospital building to care for 167 patients, dining hall and kitchen facilities, residences for staff officers and nurses attendants' quarters, boiler house laundry and garage. The five story main hospital and administrative building is faced with Indiana limestone and provided with polychrome terra cotta spandrels. The basement of the building is devoted to the physical therapy department, necropsy rooms and morgue and a chapel. The first floor is



Veterans Hospital at Marion Ill

given over to administrative and clinical activity which include units for roentgen therapy, dental, eye, ear, nose and throat, laboratory work and examination. The second and third floors of the building are devoted to ward purposes, each floor being divided into two separate ward units completely equipped and staffed by a doctor and nurse. Operating rooms are located on the fourth floor. The main building can be expanded to accommodate about 400 patients by the construction of a wing at either end of the building. Space has been allowed for the expansion of all buildings in the utility group when this becomes necessary. To the rear of the hospital group will be three 392-bed barrack buildings for the care of domiciliary members. One domiciliary building will be built soon and the remainder at a later date, giving this facility an ultimate capacity of about one thousand five hundred and seventy beds.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 16, 1942

Cross Infection in Hospital Wards

At the Royal Society of Medicine a discussion took place on cross infection in wards. Dr Robert Cruickshank said that the streptococcus was the arch enemy but that staphylococcal infections were becoming common in evacuated infant nurseries, gastroenteritis was a common infection among young children, and diphtheritic cross infection, often symptomless, could give trouble in diphtheria, scarlet fever and measles wards. Dealing with respiratory infections, in which air was the principal vehicle, when a person with an acute infection sneezed he ejected many droplets most of which described a short trajectory to the ground, but a proportion of minute droplets remained suspended in the air for short periods and might be an important factor in air borne infection. Falling on the surface, they might be raised again into the air as infected dust. For the control of infection adequate ventilation, bed spacing and isolation accommodation were necessary. Screens might be an alternative to isolation, but they should reach to the floor. For attendants there should be a freer use of masks. Dust was a major problem in streptococcal and diphtheritic wards. Much could be done by instruction of the nursing staff in the newer ideas as to infection by ward discipline and tackling the problem of dust.

Dr R. H. Dobbs said that the first approach to the problem should be by satisfactory hospital architecture. There should be an admission ward with cubicles in which the child spent the first forty-eight hours. Ward units should consist of six to eight cots, with cubicles in which infectious children could be nursed. But many hospitals had to do their best with twenty or thirty beds in the ward and no admission unit. Here movable glass screens had been of great advantage. In hospitals for infectious diseases there should be 12 feet bed spacing between cot centers. Masks should be worn by physicians and nurses.

Dr N. D. Begg said that in fever hospitals one must guard against secondary infection by different types of the primary infecting organism. In the North-Eastern Hospital, London, the principle of structural separation culminated in single or double bed isolation units in the proportion of 40 per cent of the total. The most difficult problems were the enteric infections of unknown etiology, which included infantile gastroenteritis. In the control of this serious risk to infant life breast feeding was the most important single preventive measure. As to respiratory infections, the hemolytic streptococcus was widespread in its activity in fever hospitals. Cross infection, as indicated by change of infecting type, was frequent in scarlet fever wards.

Mr Wylie McKissock said that there was a regrettable tendency to minimize hospital infection of wounds. He described a hospital with *Streptococcus pyogenes* infection in his department of neurosurgery in cases of clean operation wounds or wounds of the head of varying degrees of severity. Before the adoption of a special system of ward precautions, nursing care and dressing technique the percentage of cases of hospital infection was 15.4. After its adoption the percentage was reduced to 1.1 and later to 0.8. The reservoir of the streptococcus still existed in the wards during the period of control.

Medical Views of the Falling Birth Rate

The serious threat to our population due to the falling birth rate continues to attract attention. Prof. Munro Kerr, president of the Obstetrical and Gynecological Section of the Royal Society of Medicine, has made a medical contribution to the discussion in the form of a communication to the *Times*. The annual birth rate per thousand of population for England and Wales was 32.4 for the decade 1881-1890 (average), 18.3 for the decade 1921-1930 (average), 14.9 for the year 1939 and 14.6 for the year 1940. Up to the present the fall in the birth rate has been offset to a considerable extent by the dramatic fall in the infant death rate in the present century—from 150 to 25 per thousand live births. But this compensation must necessarily diminish. Notwithstanding the general fall of infant mortality there has been little lowering of the stillbirth rate or neonatal (first month) mortality, as these figures show.

Rates per Thousand Live and Stillbirths  
(England and Wales)

| Year | Stillbirths | Neonatal Death Rate<br>(Ages 0-4 Weeks) | Combined<br>Rate |
|------|-------------|---|------------------|
| 1928 | 40.1        | 29.8                                    | 69.9             |
| 1929 | 40.0        | 31.5                                    | 71.5             |
| 1936 | 39.7        | 29.0                                    | 68.7             |
| 1937 | 39.0        | 29.6                                    | 68.6             |

Munro Kerr states that not all these deaths are preventable but something between 30 and 50 per cent could be prevented by improved antepartum, intrapartum and postnatal care. For this purpose he has been advocating for twenty years a national maternity service in which obstetric specialists and the public health service would work in cooperation. He quotes from the brochure *Population and Fertility*, issued by the Population Investigation Committee in 1939 under the editorship of D. V. Glass (statistician) and C. P. Blacker (physician and secretary of the Eugenics Society). "The causes of the decline of fertility are numerous, complex and deep seated. In western European countries they form so intimate a part of the twentieth century view of life that effective countermeasures will not be easy to find. What we should do is not to suppress birth control but to remove as many as possible of the obstacles impeding the free expression of the parental instinct. Conditions should be created in which people would want to have children."

Munro Kerr thinks that there is little prospect that the birth rate can be increased unless the government tackles the problem seriously and introduces radical measures. Unfortunately no political party looks far ahead or has much vision. That is true to small minorities who are called "alarmists." He warns the government, as others have done, that the situation will become desperate in some years, when hurried legislation will be late.

In the *Times* Sir Francis Freemantle (expert on public health and member of parliament) points out that the present birth rate of 14.1 per thousand is matched against the death rate. But the crude death rate of 14 must almost certainly rise. Every infant has now a life expectation of 60 years, which represents a true death rate of 1,000 divided by 60, or 16.6. The Population Investigation Committee made a estimate by the most scientific method—the net reproduction rate—which is defined as the average number of children which will be born to each newborn child if the present birth and death rates continue. To maintain the population the rate must be unity. But the committee found that the rate for the child bearing ages—from 15 to 50 years—was only three fourths of the children required to maintain the numbers. Dr Charles has shown that, if fertility rates remain constant as in 1935, our population of 41,000,000 will be reduced to 20,000,000 in 100 years.

shrink in forty years to 36 000 000 and in one hundred years to 20 000 000, but if fertility and mortality continue to decline as in recent years the figures would shrink to 31,500,000 and 4 500 000 respectively.

### Smoking in Wartime

In normal times many persons smoke tobacco especially cigarettes to excess. During the war the habit seems to be much increased. In the *Times* a physician Sir Maurice Cassidy says in a communication that nobody who travels by road or rail can fail to be impressed by the amount of smoking in the fighting services. Most of the men seem to have an unlimited supply of cigarettes which they never cease to smoke. When he asked if any attempt was made to curb their addiction they told him that it is very difficult not to smoke when everybody is smoking that their officers smoke as much as they do and that a lecture generally begins with the words 'You may smoke,' when everybody automatically lights a cigarette. Now these men are being trained to fight for their lives. Yet were they being trained for a soccer cup tie or a boat race their smoking would be seriously restricted if not stopped. The cigarette impairs the oxygen carrying capacity of the blood by the carbon monoxide inhaled. At the same time it often ruins digestion and diminishes resistance to respiratory infection. We are rationed in meat milk eggs sugar butter and clothing. Surely, says Sir Maurice Cassidy, the time has come to ration tobacco and thereby increase our efficiency.

### Examination of Young Persons for the Detection of Tuberculosis

The National Association for the Prevention of Tuberculosis has issued a memorandum concerned with the health of young persons of school age or about to enter industry, showing the importance of discovering symptomless tuberculosis. Pulmonary tuberculosis begins without the patient's knowledge and, when he comes for treatment is advanced and he has probably infected others hence the importance of early diagnosis in the prevention of the disease. As this can be done, it is said, only by x-ray examination of the chest, the association holds that more x-ray examinations of apparently healthy young persons are needed. In 1941 the trade union congress passed a resolution urging the government to provide for such examination not less than a year after young persons enter industry and its repetition every year until the age of 18. In the opinion of the National Association for the Prevention of Tuberculosis every young person should be radiologically examined on leaving school as well as at intervals during early adult life. Those who enter the fighting services could easily be included in this scheme and also those entering other government and municipal services. Young persons in secondary and technical schools and in colleges and universities are at a period of life when physical and mental strain is great and the incidence of tuberculosis high. The association appeals to physicians responsible for health in these institutions to inaugurate the use of routine radiologic examination.

### New Food Restrictions

The general policy of the government has been as far as possible to insure that every person has a due supply of food and that no one whatever his means, more than that. Up to the present there has not been much control of the food served in hotels and restaurants though the effects of the war are evident in the menus. The government now announces new restrictions. Meals are limited to a maximum of three courses. Provision will be made to prohibit the sale of fish game and poultry in any hotel or restaurant on specified days in order that these articles may be more readily available for domestic consumption. For the remainder of the war the government will discourage other than for public purpose, the holding of

luncheons and dinners attracting large numbers of people. The serving of food after 11 p.m. will be prohibited except to residents at hotels and establishments catering for night workers. The effect of this prohibition will be to stop the sale of food at night clubs and similar places. These decisions were reached by a committee of the cabinet, which examined the whole subject of meals in hotels and restaurants, criticisms of 'luxury feeding' and the effect on public morale. A maximum of three courses may not seem to be a hardship, but at present five—hors d'œuvres, soup, main dish fish, meat or poultry—are fairly common in hotels.

### Changes in the British Pharmacopoeia to Save Alcohol

In a previous letter the restrictions in the prescribing of many drugs brought about by the war was described. Economy in alcohol is essential and it was mentioned that alternatives for preserving surgical instruments from rust were suggested. In the fifth addendum to the British Pharmacopoeia, which is about to be published, many modifications have been made in the preparations for internal use. The principal one is the introduction of eleven concentrated tinctures. The following are four times as strong as before, so that only a fourth of the amount of alcohol consumed in a certain dose of the active ingredient will be necessary: concentrated tincture of orange, lemon, capsicum, quassia, concentrated compound tincture of cardamon, cinchona and gentian, concentrated ethereal tincture of lobelia, and ammoniated tincture of valerian. The new concentrated camphorated tincture of opium is eight times as strong. The liquid extracts of quillaia and of squill of the British Pharmacopoeial Codex and emulsions of chloroform and peppermint are also made official. There is a new concentrated solution of ethyl nitrite about eight times as strong as the spirit of nitrous ether and a new aromatic solution of ammonia equivalent in strength to ammoniated spirit.

### Diphtheria Prophylaxis

The minister of health announces that he is glad that at least one third of the child population under 15 has been immunized against diphtheria. But if the incidence and mortality of diphtheria are to be substantially reduced at least 3 out of every 4 children should be immunized. In view of this as well as the extra risks of wartime conditions and the importance of avoiding all preventable demands on hospital accommodation he urges vigorous efforts to immunize the greatest possible number of children. Diphtheria is now the most fatal disease among children between the ages of 4 and 10 years and the second most fatal between 2 and 5 years. To protect these susceptible age groups it is important to immunize children under school age. The minister suggests that the local health authorities, with the cooperation of the press should institute a campaign to make known to parents the advantage of immunization and the clinics at which it is carried out.

In Scotland the campaign for immunization has been very successful. Among 766 000 children immunized there was only 1 death from diphtheria in 1941 but among the 389 000 not immunized there were 418 deaths.

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## Marriages

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GUNNAR D. QUILSING to Miss Helen Anderson, both of Madison, Wis., at Camp Stewart, Ga., March 29.

EDMUND JAMES BROGAN, Philadelphia, to Miss Miriam Elizabeth Brown of Wynnwood, Pa., March 21.

ERNEST COLE STRODE, Louisville, Ky., to Miss Mary Marjorie Byrne in St. Matthews, April 3.

ROY V. TAYLOR, Lenoir City, Tenn., to Miss Edith Quillen in Philadelphia, Tenn., recently.



## Deaths

**Max Samuel Wien** \* Chicago, Rush Medical College, Chicago, 1920, in 1922 joined the staff of the University of Illinois College of Medicine as an instructor in the department of dermatology, subsequently serving as associate, assistant professor and associate professor, since 1932 professor of dermatology at the Cook County Graduate School of Medicine, associate attending dermatologist at Research and Educational Hospital and a member of the staff of Michael Reese Hospital, at one time served on the staffs of Mount Sinai and Cook County hospitals, member of the American Academy of Dermatology and Syphilology, the Society of Medical History, the Institute of Medicine of Chicago and the Chicago Dermatological Society of which he had once served as president and secretary, a diplomate of the American Board of Dermatology and Syphilology, author and co-author of books concerned with his specialty, aged 46, died, June 23, of cerebral embolism.

**Ernest Harl White** \* Little Rock, Ark., Harvard Medical School, Boston, 1922, instructor in microscopic anatomy and consecutively clinical instructor, assistant professor, associate professor of obstetrics and gynecology and professor of obstetrics at the University of Arkansas School of Medicine, diplomate of the American Board of Obstetrics and Gynecology, member of the Central Association of Obstetricians and Gynecologists, past president and secretary of the Pulaski County Medical Society, president of the Arkansas Society of Obstetrics and Gynecology, formerly consultant in obstetrics for the state board of health, on the staffs of St. Vincent's Infirmary, Baptist State and City hospitals, aged 58, died, April 11.

**Maurice Lewison** \* Chicago, Northwestern University Medical School, Chicago, 1906, professor of medicine and formerly professor of physical diagnosis at the University of Illinois College of Medicine, diplomate of the American Board of Internal Medicine, fellow of the American College of Physicians, attending physician from 1919 to January 1942 and since then senior attending physician, Mount Sinai Hospital, and president of the staff from 1919 to 1929 and honorary president since 1929, on the consultant emeritus staff of the Cook County Hospital, senior author of a book entitled "Manual of Physical Diagnosis", aged 56, died, June 17, in St. Luke's Hospital of brain tumor.

**Lincoln Fleetford Sise** \* Brookline, Mass., Harvard Medical School, Boston, 1901, diplomate of the American Board of Anesthesiology, Inc., member of the American Society of Anesthetists, Inc., clinical assistant in anesthesia at the Harvard Medical School, Courses for Graduates, from Sept. 1, 1916 to Sept. 1, 1927, lecturer on anesthesia at the Tufts College Medical School, Boston, from 1920 to 1923, served during World War I, at one time assistant visiting anesthetists, Boston City Hospital, and visiting anesthetist, Long Island Hospital, Boston, formerly chief anesthetist of the Lahey Clinic, Boston, aged 67, died, April 28, of arteriosclerosis.

**John J. Chandler**, Lutesville, Mo., St. Louis College of Physicians and Surgeons, 1892, member of the Missouri State Medical Association, for many years bank president, member of the Bollinger County Selective Service System, member of the draft board during World War I, formerly county coroner and member of the school board, aged 77, died, May 5, in St. Francis Hospital, Cape Girardeau, of burns received when his clothes became ignited from a flaming wastepaper basket.

**George Bradley McFarland**, Bangkok, Thailand, Western Pennsylvania Medical College, Pittsburgh, 1890, College of Physicians and Surgeons, Baltimore, 1891, also a dentist, for many years a medical missionary, emeritus professor of medicine at the Chulakankarana University Faculty of Medicine, Thailand, formerly known as the Royal Medical College, where he was dean, held many Thailand decorations, aged 75, died, May 3.

**Aloysius Nicholas J. Dolan**, Excelsior Springs, Mo., College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898, member of the Missouri State Medical Association, for many years associated with the U. S. Veterans' Bureau, aged 70, on the staff of the Veterans Administration Facility, where he died, April 5, of arteriosclerotic heart disease with myocarditis and bronchopneumonia.

**Ithimer Maxwell Casebeer**, Clinton, Ind., Rush Medical College, Chicago, 1893, served as a captain in the medical corps of the U. S. Army during World War I and at the time of his death held the rank of lieutenant colonel in the Auxiliary Officers Reserve Corps, aged 72, died, May 4, in the Vermillion County Hospital of embolus during an operation for removal of the left kidney.

**Charles R. Borzilleri**, Buffalo, University of Buffalo School of Medicine, 1895, member of the Medical Society of the State of New York, fellow of the American College of Surgeons, past president of the Medical Society of the County of Erie, a founder and formerly medical director of the Buffalo Columbus Hospital, aged 69, died, May 31, in North Evans, N. Y., of coronary thrombosis.

**Edward Chase Durgin**, Marshfield Hills, Mass., Tufts College Medical School, Boston, 1901, served as a captain with the American Expeditionary Forces during World War I, at one time associated with the U. S. Public Health Service, formerly school physician and medical adviser to the board of health of Marshfield Hills, aged 64, died, April 26.

**Basil Taylor Bennett Sr.**, Trenton, Tenn., University of Nashville (Tenn.) Medical Department, 1893, Vanderbilt University School of Medicine, Nashville, 1893, member of the Tennessee State Medical Association, formerly health officer of Trenton, for many years a member of the school board, aged 70, died, May 3, of metastatic carcinoma.

**Thomas Clyde Emmick**, Mount Vernon, Ind., Medical College of Ohio, Cincinnati, 1897, at various times secretary of the board of health of Mount Vernon, medical director of the county draft board during World War I, aged 69, died, May 14, in the Welborn-Walker Hospital, Evansville, of pneumonia following a cerebral hemorrhage.

**Lambert Henry Weinheimer**, Syracuse, N. Y., Syracuse University College of Medicine, 1909, member of the Medical Society of the State of New York, attending ophthalmologist at St. Joseph Hospital and St. Mary's Maternity Hospital and Infants Asylum, aged 54, died, April 7, of cerebral hemorrhage and cardiorenal vascular disease.

**Charles Ernest Clark**, Gaziantep, Turkey, Asia, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1902, for many years a medical missionary, conducted clinics in isolated villages and was on the staff of the American Hospital, aged 67, died, April 28, of pneumonia and emphysema.

**George Edward Tuers**, Paterson, N. J., Jefferson Medical College of Philadelphia, 1899, member of the American Board of Anesthetists, Inc., past president of the Passaic County Medical Society, chief anesthetist of the General Hospital, aged 64, died, April 20, of chronic myocarditis and arterial sclerosis.

**William Lester Grogan**, Utica, N. Y., Albany Medical College, 1915, served overseas in the U. S. Army during World War I, aged 53, consultant on the staffs of the Utica State Hospital and the Marcy (N. Y.) State Hospital, on the staff of St. Elizabeth Hospital, where he died, May 23.

**George Wilbur Duvall** \* Shelbyville, Ky., Hospital College of Medicine, Louisville, 1906, for many years superintendent of the Central Free Dispensary at Rush Medical College, Chicago, at one time health officer of the Davies County (Ky.) Health Department, aged 61, died, May 1.

**George Frederick Glass**, Cleveland, College of Physicians and Surgeons, Baltimore, 1893, served as a major in the medical corps of the U. S. Army in France during World War I, aged 73, died, April 27, in the Cleveland Clinic Hospital of hypertensive cardiovascular disease.

**Henry Jackson Daily**, Oklahoma City, Southern Homeopathic Medical College and Hospital, Louisville, 1903, member of the Oklahoma State Medical Association, formerly president of the school board and mayor of Louisville, Ky., aged 67, died, April 26.

**Eustace Cameron Butler** \* Caldwell, N. J., University College of Physicians and Surgeons, 1906, fellow of the American College of Surgeons, surgeon, Essex County Hospital, Cedar Grove, N. J., died, May 12.



**Milton Henry Wells** & Watertown, Tenn., University of Nashville Medical Department 1901, formerly member of the city council and board of health, aged 79, was killed, April 1, when the automobile in which he was driving was struck by a train

**Laura H Satterthwaite**, Trenton N J, Woman's Medical College of Pennsylvania Philadelphia 1888 formerly member of the board of trustees of the Jesus Hospital Philadelphia, aged 80, died, April 19, of carcinoma of the ascending colon

**Pasquale Ferrari**, Pittsburgh, Regina Università di Napoli Facoltà di Medicina e Chirurgia Italia 1896, member of the Medical Society of the State of Pennsylvania, aged 70, died April 29, of arteriosclerosis and chronic valvular heart disease

**John Edward Waaser**, East March Chunk Pa Hahnemann Medical College and Hospital of Philadelphia 1893, member of the Medical Society of the State of Pennsylvania, formerly member of the school board, aged 72, died, April 27

**David Edward Froehlich** & Oakland, Calif., Northwestern University Medical School, Chicago 1921, fellow of the American College of Surgeons, member of the staffs of the Alameda County and Providence hospitals, aged 49, died April 21

**Joseph Von Culin Roberts**, Philadelphia, Medico-Chirurgical College of Philadelphia 1900, member of the Medical Society of the State of Pennsylvania, aged 70, died recently in the Presbyterian Hospital of a ruptured aorta

**Frank L Adams**, Elberton Ga Southern Medical College, Atlanta 1890, member of the Medical Association of Georgia represented Elbert County in the General Assembly of Georgia for a number of terms, aged 74, died May 3

**Leo Wolfenstein** & Cleveland University of Wooster Medical Department Cleveland 1906, at one time associated with the U S Public Health Service, formerly on the staff of the Mount Sinai Hospital, aged 68, died April 3

**Norman McLeod Allen** & Detroit, Detroit College of Medicine, 1910, diplomate of the American Board of Surgery, fellow of the American College of Surgeons, aged 59, on the staff of the Harper Hospital, where he died, May 9

**James Joseph Sebastian Walsh** & New York, Columbia University College of Physicians and Surgeons, New York, 1901, veteran of the Spanish-American War and World War I, aged 65, died in April in the Union Hospital

**Leighton Randolph Cornman**, South Pasadena, Calif., Columbia University College of Physicians and Surgeons New York 1903, aged 63, died March 14, in North Hollywood of injuries received when struck by an automobile

**Grafton D P Bailey**, Washington, D C, National University Medical Department Washington, 1896, member of the Medical Society of the District of Columbia, formerly mayor of North Beach, Md, aged 67, died, May 18

**Daniel D Costigan**, Trinidad, Colo., Detroit College of Medicine 1911 member of the Colorado State Medical Society on the staff of Mount San Rafael Hospital, aged 63, died April 22 in Pueblo of cerebral hemorrhage

**Abraham David Eisenberg**, Brooklyn, Columbia University College of Physicians and Surgeons, New York, 1906, member of the Medical Society of the State of New York, aged 60, died May 13 of heart disease

**George A Martin**, Lafayette La, Medical Department of Tulane University of Louisiana New Orleans 1887, formerly mayor, city judge and city physician, at one time member of the school board, aged 81, died, May 6

**Emil Constantine Bernauer** & Brooklyn, University of the City of New York Medical Department, New York, 1891, consulting dermatologist to the Wyckoff Heights and Brooklyn State hospitals, aged 72, died May 25

**Samuel Harvey Corrigan**, Lampman Sask, Canada, Trinity Medical College Toronto Ont 1896 fellow of the American College of Surgeons, aged 71, died, May 1, in Winnipeg of coronary thrombosis

**John W Reed**, Bay City, Texas (licensed in Texas, under the Act of 1907), member of the State Medical Association of Texas, at one time local surgeon for the Aransas Pass Railroad, aged 91, died recently

**Edward Richard Sill**, Oakland Calif., College of Physicians and Surgeons, medical department of Columbia College, New York 1889, formerly member of the county board of health, aged 80, died, April 16

**Charles Francis Stack**, Boston, Harvard Medical School, Boston 1898, member of the Massachusetts Medical Society, aged 71, died, April 3, in the Boston City Hospital of arteriosclerotic heart disease

**Joseph Wilbert Shelar**, Mount Pleasant Pa, Long Island College Hospital, Brooklyn, 1886 on the staff of the Henry Clay Frick Memorial Hospital, aged 82, died, April 18, of cerebral hemorrhage

**Alfred L Suhr** & Milwaukee, Marquette University School of Medicine, Milwaukee, 1927, member of the staff of the Milwaukee County Hospital, Wauwatosa, aged 43, died, April 8, in a local hospital

**Emmett R Giesey**, Harrisburg, Pa (licensed in Ohio in 1896), at one time mayor and member of the school board of Toronto, Ohio, aged 83, died April 26 of cerebral hemorrhage and hypertension

**Robert Lee Wills**, Neosho, Mo, Missouri Medical College, St Louis, 1884, formerly member of the state board of health, aged 79, died, April 29, of chronic myocarditis due to arteriosclerosis

**David Llewellyn Dial**, Concord N H, Western Reserve University School of Medicine Cleveland, 1931, pathologist on the staff of the New Hampshire State Hospital, aged 34, died, April 20

**Minnie Arnold-Huneker**, Browns Mills, N J, Temple University School of Medicine Philadelphia, 1912, member of the Medical Society of the State of Pennsylvania, aged 70, died May 26

**Samuel A Blauner** & New York, Columbia University College of Physicians and Surgeons New York 1904, attending pediatrician on the staff of the Lebanon Hospital, aged 60, died, May 17

**Roy Sumner Wells** & Colville Wash, Rusli Medical College, Chicago 1900 formerly secretary of the Stevens County Medical Society, aged 65, died April 5 of heart disease and arthritis

**Silas Elliott Woods**, San Benito Texas, Marion-Sims College of Medicine St Louis 1894, aged 74, died, April 18, in the Valley Baptist Hospital Harlingen, of coronary thrombosis

**Christian Martz**, Fort Wayne Ind, Hahnemann Medical College and Hospital, Chicago 1882, aged 88, died May 23, in the Lutheran Hospital of cardiorenal disease and pneumonia

**Joseph P Werner**, O'Fallon, Mo, St Louis College of Physicians and Surgeons 1906, aged 64, died April 1 in the Firmin Desloge Hospital St Louis, of carcinoma of the liver

**William Roane Aylett**, Tappahannock, Va University of Virginia Department of Medicine Charlottesville, 1895, member of the Medical Society of Virginia, aged 70, died recently

**Addie Board-Arthur**, Kansas City, Mo, Woman's Medical College Kansas City Mo 1899, aged 71, died, April 30, of hemopericardium following rupture of the heart

**Robert Martin Powers**, New Kensington Pa, Western Pennsylvania Medical College, Pittsburgh, 1890, aged 80, died, April 1, of arteriosclerosis and chronic nephritis

**Samuel Newell Watson**, Santa Barbara Calif, State University of Iowa College of Homeopathic Medicine, Iowa City, 1893, also a clergyman, aged 81, died recently

**Lawrence C Creighton** & Unity Pa College of Physicians and Surgeons Baltimore, 1908, bank president, aged 62, died May 3 of chronic valvular heart disease

**Albert Nelson Oyen** & Chicago, Rush Medical College, Chicago, 1905, on the staff of the Lutheran Deaconess Hospital, aged 63, died April 19, in Orlando Fla

**Walter Everly**, Seattle, Rush Medical College, Chicago 1902, served as a major in the medical corps of the U S Army during World War I, aged 64, died April 8

**Alva M Ashcraft**, Leesville, Ohio Baltimore Medical College, 1903, member of the Ohio State Medical Association, aged 61, died, April 29, of diabetic gangrene

**William H Walker**, Omaha, John A Creighton Medical College, Omaha, 1901, aged 72, died, April 14, in the Nicholas Senn Hospital of hypertensive heart disease

**Charney Cale**, Mobile, Ala., Memphis (Tenn.) Hospital Medical College, 1904, aged 66, died, April 23, in a local hospital of bronchopneumonia and asthma

**Harry Howard Hanna**, Waterloo, Iowa, Rush Medical College, Chicago, 1888, aged 78, died, April 20, in the Presbyterian Hospital of cerebral thrombosis

**Louis Montrose Haight**, Stockton, Calif., Cooper Medical College, San Francisco, 1903, member of the California Medical Association, aged 73, died April 27

**Charles Walter Winne**, Chicago, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois 1903, aged 65, died, April 8

**Ernest B Baker**, Edcouch, Texas, Tulane University of Louisiana School of Medicine, New Orleans, 1896, aged 70, died in April of carcinoma of the colon

**Malcolm Ferguson**, Toronto, Ont., Canada, Trinity Medical College, Toronto, 1892, L R C P, Ireland, and L R C S, Ireland, 1892, aged 79, died, March 2

**Kenneth William Davis**, Green Bay, Wis., University of Wisconsin Medical School, Madison, 1933, aged 33, died, April 24, of accidental paraldehyde poisoning

**LeRoy S Colter**, Glendale, Ohio, Miami Medical College, Cincinnati, 1888, formerly on the staff of the Christ Hospital, Cincinnati, aged 80, died, March 23

**William Western Warren**, Newport, Ohio, Columbus Medical College, 1889, member of the Ohio State Medical Association, aged 73, died, April 4

**Almerin Webster Baer**, Gary, Ind., Rush Medical College, Chicago, 1889, aged 80, died, May 11, in the Methodist Hospital of cerebral hemorrhage

**Clarence Porter Macdonald** Ⓢ Pittsburgh, Western Pennsylvania Medical College, Pittsburgh, 1907, aged 61, died, March 15, in Miami Beach, Fla

**Jesse Linus Stowers**, Clinton, Ind., Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906, aged 77, died, April 26

**Arthur Vincent Payne**, New York, New York University Medical College, New York, 1897, aged 76, died recently at his home in Brooklyn

**Grant Judson Gray**, Oakridge, Ore., Cleveland University of Medicine and Surgery, 1894, served during World War I, aged 87, died, April 27

**Archibald Franklin Malloy**, Saskatoon, Sask., Canada, University of Toronto Faculty of Medicine, Toronto, 1904, aged 63, died, April 20

**Edmund Lee Awtry**, Atlanta, Ga., Southern Medical College, Atlanta, 1896, aged 73, died, May 22, of cerebral hemorrhage and hypertension

**Joseph Malvern Douthett**, Pittsburgh, Bellevue Hospital Medical College, New York, 1890, aged 78, died, April 28, of cerebral hemorrhage

**Otto Clarence Benage**, Conway, Mo., St. Louis College of Physicians and Surgeons, 1901, aged 66, died, April 24, of coronary occlusion

**John Willis Baker**, Enid, Okla., Northwestern Medical College, St. Joseph, Mo., 1893, aged 73, died, April 30, of coronary embolism

**Richard Kershner Loewen** Ⓢ Boyertown, Pa., University of Pennsylvania School of Medicine, Philadelphia, 1919, aged 49, died, May 10

**William Edward Miller**, Ludowici, Ga., College of Physicians and Surgeons, Baltimore, 1898, aged 72, died in April in Walthourville

**Moritz Muldberg**, New York, University of the City of New York Medical Department, New York, 1888, aged 74, died, April 14

**James William Urie**, Kennedyville, Md., Hahnemann Medical College and Hospital of Philadelphia, 1886, aged 78, died, April 14

**J Andrew Harper**, Crawfordville, Fla., Georgia College of Eclectic Medicine and Surgery, Atlanta, 1902, aged 73, died, April 10

**Otto Victor Wille**, Iowa City, State University of Iowa College of Medicine, Iowa City, 1912, aged 58, hanged himself, April 19

**William F Dickinson**, Queen Anne, Md., Geneva (N. Y.) Medical College, 1867, aged 99, died, April 21, of chronic myocarditis

**Isaac Kupperman**, Newark, N. J., Long Island College Hospital, Brooklyn, 1905, aged 67, died, April 28, of coronary thrombosis

**Osborne Lee Moore**, Jefferson City, Mo., University Medical College of Kansas City, Mo., 1891, aged 78, died April 18

**John Percival McKinnon**, Guelph, Ont., Canada, University of Toronto Faculty of Medicine, 1904, aged 70, died recently

**William Henry Smithson**, New Park, Pa., University of Maryland School of Medicine, Baltimore, 1905, aged 64, died April 6

**Wiley Schell Millyard**, Coboconk, Ont., Canada, University of Toronto Faculty of Medicine, 1908, aged 57, died, April 9

**John E Alford**, Okoloma, Ark., Gate City Medical College, Dallas, Texas, 1906, aged 70, died, May 11, of heart disease

**Joseph Bondi**, New York, Medizinische Fakultät der Universität Wien, Austria, 1896, aged 70, died, April 29, of heart disease

**Julia Clayson Eberle**, Indianapolis, Hahnemann Medical College and Hospital, Chicago, 1889, aged 93, died, May 1

**Charles Edmond West**, Salina, Utah, Physio Medical College of Indiana, Indianapolis, 1885, aged 78, died, April 11

**Hampton D Book**, Henderson, Ky., University of Louisville (Ky.) Medical Department, 1884, aged 81, died, April 20

**Edward Melchers** Ⓢ Toledo, Ohio, Medical College of Ohio, Cincinnati, 1878, aged 85, died, May 18, of myocarditis

**Samuel Harvey Keefauver**, Washington, D. C., Miami Medical College, Cincinnati, 1882, aged 81, died, April 23

**Alvin Everett Reed**, Weir, Miss., University of Nashville (Tenn.) Medical Department, 1905, aged 62, died recently

**Oram Alonzo Nincehelter**, Mechanicsburg, Ohio, Miami Medical College, Cincinnati, 1887, aged 84, died, April 6

**Grover C Stover**, Thornburg, Ark. (licensed in Arkansas in 1908), aged 56, died recently of valvular heart disease

**William G Bower**, Myerstown, Pa., Jefferson Medical College of Philadelphia, 1887, aged 82, died in May

**Alonzo Benjamin Davis**, Philadelphia, Medico Chirurgical College of Philadelphia, 1896, aged 68, died recently

**Samuel G Sevier**, Oenaville, Texas, Kentucky School of Medicine, Louisville, 1889, aged 87, died, April 26

**Samuel Perry Gwaltney**, Rockport, Ind., Eclectic Medical Institute, Cincinnati, 1894, aged 77, died, May 7

**Keith Maurice Morris** Ⓢ Saginaw, Mich., Saginaw Medical College, 1903, aged 59, died in April

**S Morton Pleak**, Murfreesboro, Ark., Keokuk (Iowa) Medical College, 1897, aged 71, died, April 6

**Alfred Laffin Buck**, Chicago, Jenner Medical College, Chicago, 1914, aged 57, died suddenly, May 22

**Silas B Post**, Pittsburgh, Jefferson Medical College of Philadelphia, 1882, aged 84, died, April 28

**Edward Louis Fox**, Houston, Texas, Rush Medical College, Chicago, 1892, aged 73, died recently

**Joseph Pierpont Gillen**, Denver, Miami Medical College, Cincinnati, 1885, aged 82, died, April 21

**Louis Richardson**, Jump River, Wis., Oregon Medical College, 1890, aged 80, died, April 19

**Aaron Emmons**, Scotland, Ark. (licensed in Arkansas in 1903), aged 64, died recently

## Bureau of Investigation

### CEASE AND DESIST ORDERS

#### Abstracts of Certain Federal Trade Commission Releases

The work of the Federal Trade Commission, in helping to protect the public against misrepresentation or fraud in the medical as well as other fields has been greatly extended by the provisions of the Wheeler-Lea Amendment to the Federal Trade Commission Act. The Food Drug and Cosmetic Act of 1938 added to the Food and Drug Administration's control of the advertising claims and statements made on the labels or on the carton or in the accompanying leaflet wherever what might be termed collateral advertising that which appears in news papers and magazines and over the air comes more actively under the purview of the Federal Trade Commission by virtue of the Wheeler-Lea Amendment.

THE JOURNAL has at various times commented on the activities of the Federal Trade Commission in this connection even before the Wheeler-Lea Amendment gave it its added rights. In some cases the Commission may accept from the person or concern involved a stipulation that the objectionable practices or claims cited will be discontinued. In other cases the Commission issues what is known as a Cease and Desist Order, in which the individual or company cited is ordered to cease and desist from practices which have been declared objectionable. Abstracts of some orders issued in 1941 and 1942 follow.

**Aspironal**—This is a product of J. D. Jacobs and P. W. Smith who do business as the Aspironal Company, Atlanta, Ga. In December 1941 the Federal Trade Commission ordered them to cease representing that

Aspironal is a cure or remedy for the common cold, contains an effective amount of aspirin or is of any value exceeding that of temporary relief from pain and discomfort. The Commission also ordered these persons to discontinue any advertisements which did not reveal that the product should not be used by persons suffering from nausea, vomiting, abdominal pains or other symptoms of appendicitis. As an alternative, however, Smith and Jacobs were permitted to place on the packages the warning "Caution: Use Only as Directed." Back in 1935 the Commission also had taken action against the Aspironal Laboratories, Inc. of Atlanta (apparently the same concern) as a result of which that firm signed a stipulation promising that it would cease alleging that its Aspironal was a competent treatment or remedy for hay fever, coughs, catarrhal croup or choking and that it would relieve congestion. Still earlier (1920) a specimen of Aspironal put out by the Aspironal Laboratories of Atlanta had been declared in a district federal court to be false and fraudulent representations as to its efficacy in rheumatism, neuralgia, headaches and la grippe among other things. Government chemists reported that the nostrum then consisted essentially of a solution containing odium salicylate, cascara, a small amount of mydrinate, a kaloids (probably from belladonna) and a trace of menthol.

**Davis Formula No. 7895**—That this preparation is a cure or remedy for asthma or has any value in excess of temporary relief from the paroxysms thereof or that it is a cure or remedy for hay fever or offers any benefit in this condition or will prevent attacks of asthma or hay fever or prevent their recurrence were misrepresentations which the Federal Trade Commission in January 1942 ordered E. R. Davis, trading as E. R. Davis Prescription Company, Bellingham, Wash. to discontinue in his advertising. Nearly three years previously (May 1938) Davis had signed another stipulation with the Commission agreeing that in the sale of Davis Formula No. 7895 and Vitamin A Concentrate he would no longer represent that these would cure asthma, prevent hay fever and build up the mucous membrane of the nose and that such products have given relief after all other treatments have failed.

**Kas Mo Salve**—In December 1941 the Federal Trade Commission ordered G. J. Trucco, trading as Kas Mo Remedy Company, Port Arthur, Texas, to discontinue the following misrepresentations in his advertising of this product: that it is a cure or remedy for pimples, boils, carbuncles, external eruptions of the skin, chronic sores or irritations caused by bad blood or insect bites; that it has any therapeutic value in the treatment of rectal irritations in excess of furnishing temporary relief; and that use of the preparation will prevent the spread of infection.

**Larivière's (Dr. J.) Vegetable Compound**—In November 1941 the Federal Trade Commission ordered Ferd T. Hopkins, trading as D. Watson & Company and its Colonnade Advertising Agency, New York, to discontinue the following advertising misrepresentations which the Commission declared false, deceptive and misleading: that this preparation is a competent or effective treatment for painful menstruation; that it will build up resistance to restlessness, nervousness, cramps, headaches or fainting spells; and that restlessness, nervousness or moodiness in young women are symptoms of dangerous periods imperiling health.

**Magnetic Ray**—This is an electrical device put out by one Frank B. Moran of Dallas, Texas, who does business under the names Magnetic Ray Company and Magnetic Ray Clinic. In December 1941 the Federal Trade Commission ordered Moran to discontinue misrepresentations in

his advertising of the Magnetic Ray as follows: that the device stimulates the healthful function of the various organs and glands and causes rapid increase in the oxidation and elimination of accumulated poisons thereby removing the condition of autotoxemia; that the Magnetic Ray exceeds electricity, light, heat, x-rays or radium rays in therapeutic value; that its use stimulates the normal and healthful functioning of the various organs and glands of the body or equalizes the circulation of the human blood, relieving congestion or lack of blood supply in any part of the body; or that its use stimulates rapid increase in the oxidation and elimination of accumulated poisons thereby removing the condition of autotoxemia.

**Middlebrook's Nostrums**—These are put out by a James R. Middlebrook, M.D., who operates the questionable Middlebrook Hospital and Clinic at Del Rio, Texas, an institution that has played up its work in prostatic disorders. Middlebrook has sold a Special Prostate Package for Home Treatment. The latter includes Colomet, Rhubarb and Colocynth Compound, Special Formula No. 17831 and Methenamine (7½ Grams). In December 1941 the Federal Trade Commission ordered Middlebrook to cease representing that any one of these preparations or the combination of them will relieve pain or soothe or heal the affected parts involved in kidney, bladder, prostatic or rectal diseases; that his Methenamine is one of the best urinary antiseptics for cleansing infection or inflammation from the kidney, bladder, prostatic or urethral canal; that the Special Formula No. 17831 medicates or penetrates the prostate gland by absorption through the tissues in sufficient quantities to be effective; and that the price at which the Special Package is offered for sale constitutes a reduced or introductory price whereas the fact is that this is the price which Middlebrook customarily charges. Further, the Commission ordered Middlebrook to discontinue any advertisements which fail to reveal that the Colomet, Rhubarb and Colocynth Compound is a cathartic and should not be used by persons suffering from nausea, vomiting and abdominal pains or other symptoms of appendicitis, provided however that it will be sufficient to insert in the advertisements the warning "Caution: use only as directed" when the labeling itself is sufficiently cautionary about the use of the product in the conditions stated.

**Old Surgeon's Nostrums**—These are put out by Hiram Carter, Inc., Finlhurst, N. Y., and S. Fred Criffin, president and principal owner of the corporation. In January 1942 the Federal Trade Commission ordered them to discontinue the following misrepresentations in their advertising: that Old Surgeon's preparations constitute a cure, remedy or effective treatment for impotence, loss of energy, indigestion, asthenia or neurasthenia; will prevent premature old age or beneficially affect glands, nerves or organs; that they are a cure or remedy for neuritis, arthritis or other forms of rheumatism or will give more than temporary partial relief from the symptoms of pain or that they have any therapeutic value beyond that of a laxative or analgesic in the treatment of any other disorders except in cases of anemia due to iron deficiency or in certain conditions resulting from a deficiency of thiamin chloride, riboflavin or nicotinic acid where such deficiency is adequately supplied by these preparations. The Commission further ordered the promoters to cease representing that their usual prices are special or reduced ones and that their business facilities are greater than is the fact.

**Queen Brand Capsules**—This product also known as Shrader's Queen Brand Capsules is put out by a Charles Shrader who does business under the name Queen Chemical Company, Mount Lebanon, Pittsburgh. The Federal Trade Commission learned that the product contains apiole, ergot, aloin and oils of sassafras and pennyroyal in quantities sufficient to cause irreparable injury to health if taken under the usual conditions or those prescribed in the advertisements. In December 1941 the Commission ordered Shrader to cease representing that these capsules are a safe and effective treatment for delayed, suppressed, irregular, painful and scanty menstruation and other derangements. The Commission also ordered him to discontinue any advertisement which failed to reveal that the use of these capsules may cause gastrointestinal disturbances, pelvic congestion, excessive uterine hemorrhages and in cases of pregnancy may result in infection of the pelvic organs and blood poisoning.

**Sterling Capsules**—This is a product of Nature's Herb Company, San Francisco, which in January 1942 was ordered by the Federal Trade Commission to discontinue certain advertising misrepresentations. Among these were that the product constitutes a cure for or has therapeutic value in the treatment of various forms of rheumatism such as arthritis and sciatica; aside from its mild temporary action as an analgesic and laxative. The order further prohibited advertisements which failed to reveal that use of the product may be injurious unless its dosage is limited to a period of two or three days; that it should not be taken by persons suffering from nausea, vomiting, abdominal pains or other symptoms of appendicitis; provided however that if the directions on the label contain warnings of these potential dangers it would be sufficient for the advertising to include only the warning "Caution: use only as directed."

**Ton-Jon**—This preparation put out by Grant T. Whiteside, trading as Grant Company, Sahana, Ohio, comes in three forms designated as Nos. 1, 2 and 3. In December 1941 the Federal Trade Commission ordered Whiteside to discontinue the following misrepresentations in the sale of his product: that No. 1 is an effective treatment for numerous disorders of the bowels and stomach; that No. 2 is a powerful remedy for ailments of the liver and gallbladder or will bring relief from impurities of the blood and kindred conditions; and that No. 3 is a competent treatment for kidney and prostatic disorders and will give relief from bladder irritation or accomplish better results than any medicine has done before. Whiteside also was ordered to discontinue any advertisements which failed to reveal that either No. 1 or No. 2 may be dangerous when used by persons suffering from nausea, vomiting, abdominal pains and other symptoms of appendicitis unless he substituted a warning to that effect on the labels of these mixtures.

## Correspondence

### ESSENTIAL HYPERTENSION

*To the Editor*—In THE JOURNAL, April 25, page 1525, appears an answer to a query concerning chronic active glomerulonephritis. The author employs the term essential hypertension. Some speak of essential hypertension if they are unable to demonstrate the factors that are producing hypertension. One might just as well call a person who has lost his legs a pedestrian because he has no feet to walk on. A rather loose diction is used when the author states that part of the treatment consists in careful periodic examinations including tests of renal function and study of the sediment of concentrated urine. Correctly, these procedures are classified as diagnostic and not as therapeutic activities. The author evidently does not believe in a differentiation between nephritic and nephrotic conditions. Only on this basis can be explained his statement that the foundation of the treatment of renal edema is a low salt intake. A characteristic feature of nephrotic conditions is the retention of chlorides within the tissues, which accumulation leads to the attraction and retention of water. As a further consequence, this condition influences the chemical constitution of the nephrotic edema, which contains chlorides but no albumin. The nephritic edema contains proteins but no inorganic salts. In nephritic conditions appears a retention of the organic metabolic end products, therefore, reducing the salt intake in a nephritic patient is not only without any physiologic indication but may also be harmful.

The endocrine glands that control the elimination of the organic metabolic end products require a goodly quantity of salts for maintaining their functions. The human body under all conditions will eliminate salts. In nephritic conditions, unlike nephrotic conditions, there are no salt deposits accumulated in the structures to draw on. Therefore, depriving a nephritic patient of his proper salt intake may increase the retention of organic metabolic end products with all its undesirable sequelae. It is also not quite clear how the author executes his advice that reduction of dietary protein is indicated only if the patient is unable to eat. The author states that out of many of the diuretics acid forming salts and the organic mercurials give the best results in the treatment of chronic renal edema. It is true enough that in mild forms of nephrotic conditions mercurial compounds may be used to advantage. But in pronounced lipid nephrosis bad results are reported following the administration of such drugs. In nephritic conditions the administration of mercurial compounds is strictly contraindicated and their use constitutes a grave therapeutic error. The old rule still holds good that rational therapy must be based on a clear understanding of the normal and pathologic physiology of the organs concerned.

GUSTAV KOLISCHER, M.D., Chicago

**NOTE**—The term "essential hypertension" is so clearly understood by most physicians as to require no defense. Its chief value lies in the absence of specific etiologic implications. There is no objection, however, to omitting its use and substituting the term "hypertensive vascular disease." In the vast majority of cases of hypertension in the earlier stages of the disease, causative factors are not demonstrable.

The correspondent's statements concerning the difference between nephrotic and nephritic edemas are erroneous, because every type of edema fluid contains inorganic salts, chiefly sodium chloride. Therefore, restriction of salt in the diet is the mainstay of treatment, regardless of the underlying disease.

True, such restriction may harm a nephritic patient when the serum sodium and chloride have been greatly reduced as a result of vomiting, excessive urinary loss of salt, severe diarrhea, acute infection or other extrarenal conditions. In these instances there is usually little or no edema, and the patient may be treated like other patients with hypochloremia. It is the dehydration rather than the low serum chloride that is harmful to renal function, as has been shown repeatedly in both human and animal experiments.

Use of mercurials in treatment of chronic nephritic edema is well established. It is contraindicated only in the presence of acute hemorrhagic nephritis or considerable renal insufficiency. If one should follow the correspondent's advice and limit the use of mercury to the pure nephrotic type of renal disease, one might as well discard the drug entirely, since practically all cases of chronic renal edema which require treatment are part of a nephritic process. In the absence of cardiac failure, acute nephritis or uremia, the edema in renal disease is always on a nephrotic basis, that is, due to albuminuria and low plasma albumin.—Ed

### MORTALITY FROM GOUT

*To the Editor*—During the last ten years there were 2,416 deaths attributed to gout in England and Wales, of which 1,616 were of men. During the same period, 1930-1939, there were 25 deaths allocated to this cause in the United States of which two thirds were of men. Allowing for the difference in population, this would be about 10 as compared with 24 in England and Wales. Thus the deaths in this country are only about one two-hundredth of the corresponding deaths in England.

I doubt whether such a remarkable contrast could be found for any other cause of death. This is the more noteworthy because such a large part of our population are of British descent and in many respects the two groups are of a similar nature.

It has been suggested that in Great Britain they have attributed a number of deaths to gout which in this country would be included under chronic rheumatism. It has also been suggested that we do not have a leisure class similar to the upper class of Great Britain. However, there are not nearly enough of the latter to cause 200 deaths a year. That would be several hundred thousand persons over a long period of time.

WALTER G. BOWERMAN, Assistant Attorney  
51 Madison Avenue, New York

### REPRINT COURTESY

*To the Editor*—Authors of scientific articles take great pains in sending reprints to their medical friends and to libraries. They are also pleased to receive letters of comment with a request for a reprint. But they all tire sooner or later of sending to the free reprint collector who sends a form postcard with his name stamped on or who scribbles his request on a postcard. Authors spend many weary hours writing an article and getting it into print, they have to pay for reprints, envelopes and stamps unless they are subsidized to carry on under the auspices of some foundation. So it seems elementary courtesy on the part of a medical man to return a reprint to write on his own stationery and to add a return postage stamp. Only a few physicians, despite the increasing economic duress, most authors in the reprint racket have to ignore what has developed into the

RICHARD KOVACS, M.D.

## Council on Medical Education and Hospitals

### REPORT OF MEETINGS OF THE COUNCIL ON MEDICAL EDUCATION AND HOS- PITALS, HELD IN ATLANTIC CITY, N J, JUNE 6 AND 10, 1942

The status of the University of Georgia School of Medicine was unchanged by the Council on Medical Education and Hospitals of the American Medical Association. The action taken in February 1942 in withdrawing approval of the school was taken without prejudice to any students in the college in September 1942. The present status of the school is such that it would not affect the graduates of the school until after September 1945.

The Council voted after reviewing conditions at the University of Texas Medical Branch Galveston to place the school on probation.

The accelerated program adopted by the medical schools of the country as a war measure was presented to the Council. Sixty-one medical schools have adopted the accelerated program of which fifty will admit a class every nine months and eleven although adopting the accelerated curriculum plan will admit only one class each year.

The Council is prepared to cooperate with the Procurement and Assignment Service in any way possible.

Section I, Administration of the Essentials of an Acceptable School for Clinical Laboratory Technicians was amended by addition of the words "approved medical schools" the amended section to read:

1. Acceptable schools for training laboratory technicians may be conducted by approved medical school, general hospitals or state health laboratories affiliated with hospitals where the majority of the student's practical training is received. This arrangement should not discourage affiliation between the hospital and universities, colleges, public health or other hospitals.

The Council at this meeting took action as follows regarding hospitals for intern training and for residencies and fellowships, as well as schools for the training of clinical laboratory and physical therapy technicians:

#### Hospitals Approved for Intern Training

Doctors Hospital Washington, D. C.  
Orange General Hospital Orlando Fla.  
Pensacola Hospital Pensacola Fla.  
St. Elizabeth Hospital Lafayette Ind.  
Rockaway Beach Hospital and Dispensary Rockaway Beach, N. Y.  
North Carolina Baptist Hospital Winston Salem

#### Approved Residencies and Fellowships

*Gynecology*  
Hospital of the Woman's Medical College of Pennsylvania

*Malignant Diseases*  
State Institute for the Study of Malignant Diseases Buffalo

*Medicine*  
Norwood Hospital Birmingham Ala.  
Fitzsimons General Hospital Denver  
George Washington University Hospital Washington, D. C.  
St. Francis Hospital Peoria Ill.  
St. Mary's Hospital Detroit  
Woman's Hospital Detroit  
Blodgett Memorial Hospital Grand Rapids Mich.  
St. Anthony's Hospital St. Louis  
Greenpoint Hospital Brooklyn  
St. Luke's Hospital New York City  
St. Mary's Hospital Rochester N. Y.  
North Carolina Baptist Hospital Winston Salem  
Bryn Mawr Hospital Bryn Mawr Pa.  
Philadelphia General Hospital Philadelphia  
Hermann Hospital Houston Texas  
Southern Pacific Hospital Houston Texas  
Virginia Mason Hospital Seattle

*Mixed*  
South Highlands Infirmary Birmingham Ala.  
Clinic Hospital (Caylor Nickel Clinic) Bluffton Ind.  
St. Mary's Hospital Evansville Ind.

*Acurosurgeons*  
Pravart Memorial Hospital Chicago  
University Hospitals Minneapolis

*Obstetrics*  
Employees Hospital of the Tennessee Coal Iron and Railroad Company Fairfield Ala.  
Henrotin Hospital Chicago  
Methodist Hospital Indianapolis  
Fairview Park Hospital Cleveland

*Obstetrics and Gynecology*  
Women and Children's Hospital Chicago  
St. Mary's Hospital Detroit  
Temple University Hospital Philadelphia  
Hermann Hospital Houston Texas

*Ophthalmology*  
Wesley Memorial Hospital Chicago  
Philadelphia General Hospital Philadelphia

*Otolaryngology*  
Mercy Hospital Pittsburgh  
Vanderbilt University Hospital Nashville Tenn.

*Pathology*  
Santa Barbara Cottage Hospital Santa Barbara Calif.  
Beth Israel Hospital New York  
Welfare Hospital for Chronic Diseases New York  
Samaritan Hospital Troy N. Y.  
City Hospital Akron Ohio  
Emanuel Hospital Portland Ore.  
Tacoma General Hospital Tacoma Wash.  
Corgas Hospital Ancon Canal Zone

*Pediatrics*  
Norwood Hospital Birmingham Ala.  
North Carolina Baptist Hospital Winston Salem  
Jefferson Davis Hospital Houston Texas

*Radiology*  
White Memorial Hospital Los Angeles  
Jackson Memorial Hospital Miami Fla.  
Mount Sinai Hospital Chicago  
St. Margaret's Hospital Hammond Ind.  
Shreveport Charity Hospital Shreveport La.  
North Carolina Baptist Hospital Winston Salem  
Virginia Mason Hospital Seattle

*Surgery*  
Women and Children's Hospital Chicago  
Greenpoint Hospital Brooklyn  
North Carolina Baptist Hospital Winston Salem  
Bryn Mawr Hospital Bryn Mawr Pa.  
Hospital of the Woman's Medical College of Pennsylvania Philadelphia  
Lankenau Hospital Philadelphia

*Thoracic Surgery*  
Triboro Hospital Jamaica N. Y.  
North Carolina Baptist Hospital Winston Salem

*Tuberculosis*  
Underhill Meriden State Tuberculosis Sanatorium Meriden Conn.  
Indianapolis City Hospital Indianapolis  
Nassau County Sanatorium Farmingdale N. Y.  
Triboro Hospital Jamaica N. Y.

#### Schools for Clinical Laboratory Technicians Approved

Hillman Hospital Birmingham Ala.  
St. Margaret's Hospital Montgomery Ala.  
Crawford W. Long Memorial Hospital Atlanta Ga.  
Georgia Baptist Hospital Atlanta Ga.  
St. Elizabeth's Hospital La Fayette Ind.  
Kentucky Baptist Hospital Louisville Ky.  
Charles Godwin Jennings Hospital Detroit  
Mount Carmel Mercy Hospital Detroit  
St. Mary's Hospital Detroit  
Borgess Hospital Kalamazoo Mich.  
Bronson Methodist Hospital Kalamazoo Mich.  
Michigan Department of Health Lansing Mich.  
Wandotte General Hospital Wandotte Mich.  
St. John's Long Island City Hospital New York  
St. Vincent's Hospital Toledo Ohio  
Mercy Hospital Johnstown Pa.  
Medical College of State of South Carolina Charleston

#### Schools for Physical Therapy Technicians Approved

College of Medical Evangelists Los Angeles  
Barnes Hospital St. Louis

H. G. WEISKOTTEN, Secretary



**Medical Examinations and Licensure****COMING EXAMINATIONS AND MEETINGS**

**ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE**  
Chicago, Feb 15 16 1943 Sec, Council on Medical Education and Hospitals, Dr H G Weiskotten, 535 North Dearborn Street, Chicago

**NATIONAL BOARD OF MEDICAL EXAMINERS**  
**EXAMINING BOARDS IN SPECIALTIES**

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in THE JOURNAL, June 27, page 747

**BOARDS OF MEDICAL EXAMINERS**

**ARIZONA** \* Phoenix, July 7 8 Sec, Dr J H Patterson, 826 Security Bldg, Phoenix

**CALIFORNIA** Written Los Angeles July 27 30 Oral examination (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California), Los Angeles, Sept 16 Sec, Dr Charles B Puckham, 1020 N St, Sacramento

**CONNECTICUT** \* Medical, Hartford, July 14 15 Endorsement Hartford July 28 Sec to the Board, Dr Creighton Barker, 258 Church St, New Haven Homeopathic Derby, July 14 15 Sec, Dr Joseph H Evans, 1488 Chapel St, New Haven

**DELAWARE** Dover, July 14 16 Sec Medical Council of Delaware, Dr Joseph S McDaniel 229 S State St, Dover

**DISTRICT OF COLUMBIA** \* Washington Nov 9 10 Sec, Commission on Licensure, Dr George C Ruhland, 6150 East Municipal Bldg Washington

**HAWAII** Honolulu July 13 16 Sec, Dr James A Morgan, 55 Young Bldg, Honolulu

**IDAH0** Boise July 14 Dir, Bureau of Occupational Licenses Mr Walter Curtis, 355 State Capitol Bldg Boise

**ILLINOIS** Chicago Oct 13 15 Superintendent of Registration, Mr Philip M Harman, Department of Registration and Education, Springfield

**MAINE** Augusta, July 7 8 Sec, Dr Adam P Leighton, 192 State St Portland

**MASSACHUSETTS** Boston July 14 17 Sec Dr H Q Gallupe, 413 F State House, Boston

**MONTANA** Helena, Oct 6 Sec, Dr Otto G Klein, First National Bank Bldg Helena

**NEVADA** Reciprocity Carson City Aug 3 Sec, Dr Frederick M Anderson, 215 N Carson St, Carson City

**NEW HAMPSHIRE** Concord Sept 10 11 Sec Board of Registration in Medicine, Dr T P Burroughs State House, Concord

**NEW MEXICO** \* Santa Fe Oct 13 14 Sec, Dr LeGrand Ward 135 Sena Plaza, Santa Fe

**NORTH DAKOTA** Grand Forks, July 7 10 Sec, Dr G M Williamson 4½ S Third St Grand Forks

**OHIO** Endorsement July 7 Sec Dr H M Platter, 21 W Broad St, Columbus

**OREGON** \* Portland July 22 24 Application must be on file not later than July 9 Exec Sec Miss Lorraine M Conlee 608 Filing Bldg Portland

**PENNSYLVANIA** Philadelphia and Pittsburgh July 7 11 Act Sec, Bureau of Professional Licensing Miss Marguerite G Steiner, 358 Education Bldg, Harrisburg

**RHODE ISLAND** \* Providence July 23 Chief, Division of Examiners Mr Thomas B Casey 366 State Office Bldg Providence

**SOUTH DAKOTA** \* Pierre, July 21 22 Dir, Medical Licensure, Dr J F D Cook State Board of Health, Pierre

**WEST VIRGINIA** Charleston July 6 8 Commissioner, Public Health Council, Dr C F McClintic, State Capitol, Charleston

\* Basic Science Certificate required

**BOARDS OF EXAMINERS IN THE BASIC SCIENCES**

**DISTRICT OF COLUMBIA** Washington Oct 19 20 Sec Commission on Licensure, Dr George C Ruhland 6150 East Municipal Bldg, Washington

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**Idaho January Report**

The Idaho State Medical Examining Board reports the written examination for medical licensure held at Boise, Jan 13, 1942. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Three candidates were examined, all of whom passed. The following schools were represented:

| School                                    | PASSED | Year   | Number Passed |
|---|--------|--------|---------------|
| University of Colorado School of Medicine |        | (1937) | 1             |
| Rush Medical College                      |        | (1937) | 1             |
| Tufts College Medical School              |        | (1936) | 1             |

**Bureau of Legal Medicine and Legislation****MEDICOLEGAL ABSTRACTS**

**Hospitals Liability for Pneumonia and Tuberculosis Following Hydrotherapy Treatments**—The plaintiff, suffering from a common cold and entered the defendant sanatorium. She was given hydrotherapy treatments. Subsequent pneumonia and then tuberculosis developed. Attributing the conditions to the negligence of the sanatorium, she brought suit against the institution. The trial court entered judgment against her, whereupon she appealed to the Supreme Court of Colorado.

The plaintiff's complaint alleged that the sanatorium was negligent in giving her "certain hydrotherapy treatments, which treatments consisted of hot baths and hot water treatments and thereafter failing to take reasonable precautions to observe whether or not the plaintiff was thoroughly dried before placing her in an open and extremely cold hospital room." Assuming, said the Supreme Court, that the hydrotherapy treatment was negligently given, followed by a lack of precautionary measures, there remains the question as to whether the negligence was the proximate cause of the pneumonia and tuberculosis. In order to sustain a charge of negligence as a basis for a legal remedy, the court pointed out, the charge must be fortified by reasonable certainties and not left open to conjecture and speculation. Furthermore, where the record is devoid of any evidence showing a probability of proximate cause, the question is one of law for the court, not of fact for the jury. In this case the court could find no evidence from which the jury could properly have found that the hydrotherapy treatment given by the sanatorium attendant, and other acts of carelessness, were the "cause which in natural and continued sequence, unbroken by any efficient intervening cause produced" the pneumonia, and subsequently the tuberculosis. The most that could be said from all the evidence, including that of the medical expert who testified for the plaintiff, was that there was a possibility that the treatment may have been the cause. This was not sufficient. The contention that the undisputed medical evidence to the effect that it was probable for the exposure to have precipitated the pneumonia was equivalent to probable was in the opinion of the court untenable. The judgment in favor of the defendant was therefore affirmed. —O'Connor v Boulder Colorado Sanitarium Ass'n, 111 P 2d 633 (Colo, 1941)

**Criminal Abortion Conviction Under Habitual Criminal Act in Relation to Prior Pardoned Offense**—A defendant, an osteopath, was convicted in California of the crime of embezzlement and after having served his term was pardoned by the governor of that state "in order to restore his citizenship," and when subsequently, in Minnesota convicted of the crime of performing an illegal operation without prior pardon, in the opinion of the Supreme Court of Minnesota, was no bar to the imposition of a double sentence for the habitual criminal act of Minnesota.—State v. N. W. 321 (Minn 1941)

**Society Proceedings****COMING MEETINGS**

Montana, Medical Association of, Missoula July 8 10 D  
Walker, 206 Medical Arts Bldg, Great Falls Secretary  
Utah State Medical Association, Provo Aug 27 29 D  
610 McIntyre Bldg, Salt Lake City Secretary  
Washington State Medical Association Spokane Aug 1  
Spickard 1305 Fourth Ave Seattle Secretary  
West Virginia Medical Association Huntington July 11  
Lively 1031 Quarrier St, Charleston, Executive Secretary  
Wyoming State Medical Society Cheyenne Aug 11 1  
Keith Capitol Bldg Cheyenne Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

#### Alabama State Medical Assn Journal, Montgomery

11 337-376 (April) 1942

- Simplicity in Gynecologic Practice R C Benson Birmingham—p 337
- Hookworm Disease Control Methods in Georgia J Andrews Atlanta—p 342
- Food Factor in Winning the War S Harris Birmingham—p 347
- Integration of Voluntary Agency Personnel in County Public Health Program A J Perley Lafayette—p 351
- Let Them Live First Aid Manual for Motorists H E Conwell Birmingham—p 4

#### American Heart Journal, St Louis

23 441-590 (April) 1942

- \*Effects of Physical Strain and High Altitudes on Heart and Circulation D B Dill Cambridge Mass—p 441
- Normal Heart Anatomy and Physiology of Structural Units Jane Sands Robb and R C Robb Syracuse N Y—p 455
- Syndrome of Rupture of Aortic Aneurysm into Pulmonary Artery W B Porter Richmond Va—p 468
- Simple Indifferent Electrocardiographic Electrode of Zero Potential and Technique of Obtaining Augmented Unipolar Extremity Leads E Goldberger New York—p 483
- Lumbar Sympathectomy in Treatment of Peripheral Arteriosclerotic Disease II Gangrene Following Operation in Improperly Selected Case L N Atlas Cleveland—p 493
- Angina Pectoris Significant Electrocardiographic Changes Following Exercise A Twiss and M Sokolow San Francisco—p 498
- Vasomotor Center Essential in Maintaining Renal Hypertension W Dock F Shidler San Francisco and B Moy New York—p 513
- Normal Duration of QT Interval R Ashman New Orleans—p 522
- Ravnaud's Disease Review of Its Mechanism with Evidence that It Is Primarily a Vascular Disease O R Hyndman and J Wolkin Iowa City—p 535
- Effects of Ingestion of Excessive Amounts of Sodium Chloride and Water on Patients with Heart Disease S Proger E Ginsburg and H Magendanz Boston—p 555

**Physical Strain, High Altitude, Heart and Circulation**—Dill discusses cardiovascular responses to high altitudes to deficient oxygen and to the hazard of cold and the additional hazard of aeroembolism as experienced by the aviator. The responses were studied in men, women and children living on Mount Aucanquilcha in Chile at 17,500 feet who were fully or partially acclimatized to high altitudes and of the aviator who had no opportunity for acclimatization and only a short time for adaptation. Studies of the author and his party at altitudes ranging up to 20,000 feet and of Aucanquilcha workmen revealed the mechanisms of acclimatization which enable man to survive and to live a fairly comfortable life at such an altitude. The resting heart rates of men living at Aucanquilcha were low—usually between 55 and 70. Their blood pressure was within the usual limits. The most striking change was in the alkali reserve which was reduced by more than a third. The hemoglobin was increased by 50 per cent with corresponding increases in erythrocyte counts and hematocrit readings. The blood was so thick that it was difficult to draw through a 20 gage needle. The arterial blood was found to be about 75 per cent saturated. The men were somewhat dusky as in polycythemia vera. None of the party attained as complete acclimatization as the residents. Their hemoglobin increased only 25 per cent and although one to three weeks was spent at 17,500 feet comfort was never complete. Work capacity was greatly reduced. Neither could much of an oxygen debt be accumulated. The symptoms of aeroembolism that may be experienced by air crews are bends, itching, second degree formication, irritation of the throat and headache. The most serious aspect of aeroembolism is the possibility of circulatory

collapse if the cumulative effects become intolerable. At present there is no wholly satisfactory remedy. Much can be done by selecting resistant persons and by preliminary breathing of oxygen to increase one's tolerance, but this is not practical in many situations.

#### American J Digestive Diseases, Fort Wayne, Ind

9 115-146 (April) 1942

- Portal Cirrhosis with Ascites Analysis of 200 Cases with Special Reference to Prognosis and Treatment R G Fleming and A M Snell Rochester Minn—p 115
- Double Gallbladder Two Cases M Golob and J L Kantor New York—p 120
- Self Regulatory Duodenal Mechanism for Gastric Acid Control and Explanation for Pathologic Gastric Physiology in Uncomplicated Duodenal Ulcer H Shry J Cershen Cohen and S S Fels Philadelphia with the technical assistance of H Siple—p 124
- Serum Coagulation Reaction Its Clinical Significance M Kraemer Newark N J—p 129
- \*Use of Concentrated and Purified Antitoxic Bacillus Coli Serum in Treatment of Indeterminate Ulcerative Colitis A Winkelstein and G Schwartzman New York—p 133
- Relationship Between Gastric Motility Muscular Twitching During Sleep and Dreaming H B McGlade Columbus Ohio—p 137
- Proctoscopic Cinematography J F Pessel J M Garner and J F Neelrod Trenton N J—p 140
- Significance of Dosage and Time Factors on Value of Bromsulphalein Test for Liver Function J D Helm and T E Machella Philadelphia—p 141
- Treatment of Anorectal Infections with Suppositories Containing Sulfanilamide and Local Anesthetic Preliminary Report H Laufman and M Diamond Chicago—p 144

**Portal Cirrhosis with Ascites**—Fleming and Snell compared the results of treating decompensated portal cirrhosis by the high carbohydrate diet with various diuretic agents with those following treatment with concentrates of all the vitamins and a high carbohydrate and protein diet with sparing use of the diuretic agents. From January 1930 to January 1940 150 patients were treated at the clinic by the first and 50 by the second method. Of the 150 patients 143 received adequate treatment. Good results, characterized by a gain in strength, diminished ascites and prolongation of the expectancy of life were obtained by 44. 40 obtained fair results and 59 exhibited no favorable response but continued to become worse and died within a short time after treatment was begun. By the time the study of the 150 patients was completed 128 (86 per cent) died within a year; were dead and only 22 were living. Twelve of the 22 surviving patients were in excellent health, did not require medication or paracentesis and were living a normal life, 2 still required ammonium nitrate and mercurial diuretic agents to control the ascites, 7, although in fairly good condition, required abdominal tapping at intervals of two to four weeks, and definite information concerning 1 living patient could not be obtained. Of the 50 treated by the other method 30 were dead within four and one-tenth months and 20 were living. Of the 20 patients who survived, 11 were enjoying extremely good health, ascites had disappeared and it seemed that these patients would recover. 5 reported that they were much better and that the ascites was gradually diminishing and 4 had not improved. In these paracentesis was needed frequently, and the amount of fluid present was not altered.

**Antitoxic Escherichia Coli Serum for Ulcerative Colitis**—Winkelstein and Schwartzman differentiate ulcerative colitis due to amebic infection, that due to chronic bacillary dysentery in which chronic manifestations of the disease are maintained by the original Shigella B dysenteriae alone or in association with some secondary bacterial invaders and the indeterminate group with an unknown etiology in which Escherichia coli may play an important pathogenic role as a secondary invader. Their report deals with the serum therapy of the latter group. Altogether 70, 29 recently, cases were treated with the unconcentrated and concentrated antitoxic serum prepared according to the principles of the Schwartzman phenomenon. The serum gave good results in 75 per cent of the cases. Of the 29 recent cases 20 were greatly benefited in 2 the results were questionable and 7 failed to show improvement. In view of the encouraging results, the intramuscular use of concentrated antitoxic Esch coli horse serum (Schwartzman) is advocated for severe and intractable indeterminate ulcerative colitis.

**American Journal of Diseases of Children, Chicago****63 643-838 (April) 1942**

- Pancreatic Enzymes in Duodenal Juice in Celiac Syndrome Dorothy H Andersen, New York—p 643
- Studies on Colloidal Sulfur Polysulfide Mixture IV Therapeutic Test in Rheumatic Fever H Greengard, H W Elghammer and A C Ivy, Chicago—p 659
- Diabetic Dwarfism R Wagner, Priscilla White and Isabel K Bogan, Boston—p 667
- Amylase Accelerating Action of Gastric Contents W C Davison, Durham, N C—p 728
- Quantitative and Qualitative Platelet Values of Normal Newborn Infants H N Sanford and Irene Shmigelsky, Chicago—p 729
- Osteodystrophia Fibrosa Combined with Precocious Puberty and Exophthalmic Goiter Pathologic Report of Case W H Sternberg and Vera Joseph, New York—p 748

**American Journal of Medical Sciences, Philadelphia****203 469-624 (April) 1942**

- Reduction of Industrial Absenteeism by Preseasonal Immunization Against Catarrhal Illness M R Brady, London, England—p 469
- Infection in Heart Disease C F Garvin, Cleveland—p 473
- Hemoglobin and Plasma Proteins Their Production, Utilization and Interrelation G H Whipple, Rochester, N Y—p 477
- \*Diabetes Mellitus and Tuberculosis M F Mark, H O Mosenthal and Flora Liu, New York—p 490
- Histopathologic Prognosis of Salivary Gland Mixed Tumors J McFarland, Philadelphia—p 502
- Antemortem Diagnosis of Tumors of Heart J C Dorne and R Pressman, Philadelphia—p 520
- \*Conditioned Reflex Therapy of Alcoholic Addiction V Follow Up Report of 1,042 Cases W L Voegtlin, F Lemere, W R Broz and P O'Hollren, Seattle—p 525
- Clinical Studies with Aid of Radiophosphorus II Retention of Radio phosphorus by Tissues of Patients Dead of Leukemia L A Erf, Berkeley, Calif—p 529
- Objective Method of Determining Blood Velocity (Fluorescein Method) D B Fishback, S A Guttman and E B Abramson, Philadelphia—p 535
- Psychoneurotics Five Years Later Constance Friess and Marjory J Nelson, New York—p 539
- \*Treatment of Certain Muscular Atrophies with Vitamin E, with Note on Diagnosis and Electromyograms H R Viets, E H Trowbridge Jr and T E Gundersen, Boston—p 558
- Dermatitis from Topical Application of 2 Methyl 4 Naphthoquinone (Synthetic Vitamin K Analogue) R C Page, Valhalla, N Y, and Z Bercovitz, New York—p 566
- Studies of B Vitamins in Human Subject V Normal Requirement for Thiamine, Some Factors Influencing Its Utilization and Excretion K O Elsom, J G Reinhold, J T L Nicholson and Charlotte Chornock, Philadelphia—p 569
- Comparison of Bacteriostatic Effect of Sulfonamide Drugs on Growth of Twenty Five Strains of Streptococcus Viridans Mary A Poston and E S Orgain, Durham, N C—p 577
- \*Evaluation of Iontophoresis Using Different Vasodilating Drugs for Treatment of Rheumatoid Arthritis C J Smyth and R H Freyberg, Ann Arbor, Mich—p 580

**Diabetes Mellitus and Tuberculosis**—Mark and his associates review data on 349 patients with associated tuberculosis and diabetes who were treated at Sea View Hospital from January 1934 to December 1939. The lesions of only 40, or 11.4 per cent of the 349 patients, were minimal at the time of admission, and of these the lesions of 17 were apparently arrested or arrested at the end of the hospital stay, while the lesions of only 37 of the 107 patients with moderately advanced tuberculosis were either apparently arrested or arrested. In the far advanced group the lesions of only 19 of the 202 patients could be classified as apparently arrested. The respective hospital mortality for the three groups was 7.3, 22.4 and 43.6. The most important factor for the successful control of tuberculosis in the diabetic patient is the effective management of the diabetes. Poorly controlled diabetes predisposes to and causes rapid progression of tuberculosis, whereas the effectively controlled diabetic patient is no more subject to tuberculosis than is a normal person. The clinical course of tuberculosis was much better when protamine zinc insulin was used than when regular or crystalline insulin was employed. Pneumothorax was not as successful as in nondiabetic persons, although complications of pneumothorax were no greater in diabetic than in nondiabetic tuberculous patients. Empyema was more frequent in the diabetic than in the nondiabetic.

**Conditioned Reflex Therapy of Alcoholic Addiction**

Of 1,042 alcohol addicts treated by the conditioned reflex method during a period of five and a half years, Voegtlin and his co-workers state that 58.6 per cent are abstinent and 41.4 per

cent have relapsed. Of 142 patients observed for four or more years following the completion of treatment 44.7 per cent have remained abstinent and 55.3 per cent have relapsed.

**Treatment of Muscular Atrophies with Vitamin E**—Vitamin E in the form of alpha tocopherol acetate was given orally or subcutaneously to 11 patients with amyotrophic lateral sclerosis, 6 with progressive muscular atrophy and 4 with peripheral muscular atrophy of the Charcot-Marie-Tooth type. In general, Viets and his collaborators declare that their results, like those of many others, showed no objectively beneficial results, a few patients were subjectively better.

**Treatment of Rheumatoid Arthritis**—Smyth and Freyberg treated 28 patients who had rheumatoid arthritis with different vasodilating drugs administered by carefully controlled iontophoresis, 79 per cent were partially relieved of their articular symptoms during and for a short time after the treatment. However, few patients had significant objective evidence of improvement attributable to iontophoresis. The results in vasodilating drugs administered by iontophoresis when compared with those following other local measures of physical therapy held no advantage. Iontophoresis is a reliable way of producing localized temporary increase in circulation, but it appears to have no important advantage over the less expensive and more accessible commonly employed methods of physical therapy.

**American J Obstetrics and Gynecology, St Louis****43 547-732 (April) 1942**

- \*Treatment of Tetany in Pregnancy, with Brief Review of Literature G W Anderson, Buffalo, and L Musselman, Boston—p 547
- \*Renal Function Studies in Normal Pregnancy and in Toxemia Based on Clearances of Inulin, Phenol Red and Diodrast H C Taylor, I Wellen and Catherine A Welsh, New York—p 567
- Granulosa Cell Tumor of Ovary and Coincident Carcinoma of Uterus Grete Stohr, New York—p 586
- Röntgenography of Obstetric Pelvis Combined Isometric and Scleroscopic Technique K B Steele and C T Javert, New York—p 610
- X-Ray Localization of Placenta B H Buxton, R R Hunt and C Potter, Providence, R I—p 610
- \*Observations on Hemolytic Streptococcus Infections Following Delayed and Abortive Since the Advent of Sulfanilamide W E Studdert, New York—p 619
- Comparative Study of Tubal Insufflation and Lipiodol Injection Sterility D Feiner, Brooklyn—p 639
- Intracervical Survival of Spermatozoa W W Williams, Springfield, Mass., and F A Simmons, Boston—p 652
- Effect of Progesterone on Uterine Contractions W Bickers, Richmond, Va—p 663
- Extragenital Effects of Diethylstilbestrol N R Kretschmar and A C Barnes, Ann Arbor, Mich—p 668
- Causes and Treatment of Secondary Dyspareunia E Henrikson, Paula Horn, Los Angeles—p 671
- Infectious Lesions About External Genitals, with Special Emphasis on Diagnosis M D Speiser, New York—p 681
- End Results of the Simpson Operation in Sixty One Patients Delivered at Term, with Remarks on Treatment of Retroflexion of the Childbearing Woman B M Ansbach and J B Montgomery, Philadelphia—p 690
- Stricture Forming Lesions of Female Genitals and Rectum Study of Cases in the District of Columbia C K Fraser, H Kane and J Parks, Washington, D C—p 698
- Study of 569 Cases of Endometriosis G B Haydon, Cincinnati—p 704
- Parathyroid Extract in Preeclamptic Toxemia J C Brown, New Haven, Conn.—p 710
- Primary Breech Birth Experiences in 20,000 Deliveries E G V Jersey City, N J—p 715
- Chondrolytic Dwarfism in Pregnancy Report of Two Cases C Spalding, Richmond, Va—p 720

**Treatment of Tetany in Pregnancy**—Three cases of hypoparathyroidism associated with pregnancy are reported. Some of the altered clinical features encountered are described by Anderson and Musselman. In the previous literature cases have been presented. The early literature stressed the relationship of the female sex organs and pregnancy to the development of tetany. Other specific factors are mentioned: lactation, blood loss at delivery, hyperventilation and lack of intake. In previous years therapeutic abortion because of high fetal mortality and the tendency of tetany to recur in newborn infants, was considered. During the last few years the prognosis for the pregnant mother and her baby has been much better. A carefully regulated combination of intravenous calcium, solution of parathyrin and tachysterol have yielded successful results in 12 cases (including the authors' 3). Preeclamptic toxemia is

in the unsuccessful case and premature induction of labor was necessary. In their 3 cases preeclampsia occurred twice. Therefore they feel that concurrent toxemia must be watched for. Labor or delivery was not abnormal. With the therapy available today therapeutic abortion is rarely indicated.

**Renal Function in Pregnancy and Toxemia.** Taylor and his co-workers present the results of study of antepartum and postpartum renal function as determined by renal clearance using diodrast and inulin in 20 normally pregnant and 13 preeclamptic women. The renal function of the 20 normal women was not altered by pregnancy or by parturition. Placental hormones in the concentrations found in normal pregnancy are evidently not capable of affecting filtration rate (inulin clearance), effective renal blood flow (diodrast clearance) or the amount of functioning tubular tissue (diodrast Tm). Six of the 13 patients with toxemia continued to have hypertension after delivery. The antepartum clearance for certain of these patients was within the normal range but when the average antepartum figure is compared with accepted values for normal women or when the antepartum figures of individual patients are compared with their own postpartum values the trend is characteristic of toxemia. These consist in a slightly reduced filtration rate, an effective slightly raised or normal renal blood flow and a normal or slightly reduced filtration fraction. After delivery the filtration rate rose and the renal blood flow fell nearly one third resulting in a high filtration fraction. These postpartum observations are characteristic of those of essential hypertension. The other 7 patients whose pregnancies were complicated by toxemia did not have hypertension after delivery. The antepartum observations were identical with those of the preceding group. The high effective renal blood flow associated with the increased arterial blood pressure of the acute phase of toxemia is evidence against the view that renal ischemia is the primary cause of hypertension.

**Hemolytic Streptococcus Infections.**—Since the winter of 1938 Studdiford has encountered and treated with sulfanilamide 13 patients suffering from a severe but uncommon localized or spreading hemolytic streptococcus infection following abortion or delivery. All the cases occurred between early November and late May, the season when such infection is common elsewhere in the human body. Eleven of the infections occurred after abortion and two after delivery. The circumstantial evidence bears out strongly the present belief that such organisms are conveyed to the parturient genital tract from some extragenital septic focus. At first, relatively small doses of sulfanilamide were administered but beginning in 1939 the drug was given in gradually increasing quantities. During 1940 and for 1 patient in 1941 12 Gm a day has been given the dose being gradually diminished after forty-eight to seventy-two hours. Serious toxic effects did not occur. The occasional idiosyncrasy shown to the drug particularly by patients with septicemia, whose mortality if untreated is 88½ per cent, can be disregarded. Many patients have had unpleasant side reactions: cyanosis, mental confusion and nausea, which were limited to the period of treatment. One patient had a pronounced leukopenia. Most patients had an anemia, which may have been due to the infection or to the drug. Both factors probably played a part. The anemia was successfully combated by transfusion repeated as often as indicated. The uterus could be safely evacuated after forty-eight hours of adequate chemotherapy. It appears that chemotherapy might be stopped when cultures from the cervix are negative. Evidence of a bacteriologic cure is a much more efficient gauge for the length of treatment than the disappearance of fever. There were 2 deaths, a mortality of 15.4 per cent. However, if only the 8 patients with septicemia and/or general peritonitis are considered, the mortality was 25 per cent. This group is comparable to the 12 patients seen prior to June 1936, when chemotherapy was not available. 10 of whom died, a mortality of 83½ per cent. It must be borne in mind that chemotherapy may so alter the course of the disease as to produce a recurring localized peritoneal exudate which requires surgical drainage. This was the experience of 1 of the author's patients.

## American Journal of Pathology, Ann Arbor, Mich.

18 169-362 (March) 1942

- Muscular Dystrophy in Mice on Vitamin E Deficient Diet. A. M. Pappenheimer. New York—p. 169.  
Glomus Tumor. Investigation of Its Distribution and Behavior and Identity of Its Epithelioid Cell. Margaret R. Murray and A. P. Stout. New York—p. 183.  
Nonosteogenic Fibroma of Bone. H. L. Jaffe and L. Lichtenstein. New York—p. 205.  
Breuer Tumor of Ovary. Case Reports, Discussion and Bibliography. R. A. Fox. New York—p. 223.  
Studies on Ameloid Motion of Motor Nerve Plates. II. Pathologic Effects of Carbon Dioxide and Electricity on Explosive Ameloid Motion in Motor Nerve Plates in Intercostal Muscle. E. J. Carey. Milwaukee—p. 217.  
Influence of Colchicine During Methylcholanthrene Epidermal Carcinogenesis in Mice. F. A. Palella and E. V. Cowdry. St. Louis—p. 291.  
Sclerosis of Systemic Distribution. K. M. Lynch. Charleston, S. C.—p. 313.  
Experimental Allergic Focal Necrosis of Liver. G. Hartley Jr. and C. C. Tushnet. Chicago—p. 323.  
Proteolytic Digestion of Red and White Blood Corpuscles in Spleen. S. P. Hicks and E. I. Opic. New York—p. 333.  
Subaortic Stenosis. D. G. Mason. San Francisco and W. C. Hunter. Portland, Ore.—p. 343.  
Microfilarial Granulomas of Spleen. R. G. Dhavagude and B. M. Amin. Patel. Bombay, India—p. 351.

## American Review of Tuberculosis, New York

45 357-462 (April) 1942

- Collapse Therapy in Pulmonary Tuberculosis. Comparative Value of Different Procedures. L. W. Thompson and R. M. Janes. Toronto, Canada—p. 357.  
Pneumothorax versus Apical Thoracoplasty. S. J. Shipman. San Francisco—p. 364.  
Bronchoscopic Suction. Aid in Closure of Cavities in Pneumothorax Cases. H. Meyersburg, H. Gruber and C. W. Lupo. Brooklyn—p. 368.  
Paradoxical Abdominal Motion in Hemidiaphragmatic Paralysis. Test for Unilateral Phrenic Paralysis. W. J. Haebech. Mount Vernon, Ohio—p. 373.  
Vitamin K in Tuberculosis with Special Reference to Pulmonary Hemorrhage. S. Levy. Mount Wilson, Md.—p. 377.  
Vocational Therapy. Program at Municipal Sanatorium. E. B. Porter. New York—p. 392.  
Vocational Therapy in Sanatorium. Medical and Administrative Phases. I. D. Bobrowitz. Ouisville, N. Y.—p. 400.  
Anorectal Surgery in Tuberculosis. J. Goorwitch. Olive View, Calif.—p. 410.  
Tuberculosis of Ear and Mastoid in Adults. S. S. Cohen and G. W. Koepcke. Minneapolis—p. 427.  
Putrid Lung Abscess Treated with Continuous Transthoracic Aspiration (Mondal Method). R. Rosenbloom and A. Guggenheim. Denver—p. 437.  
Retention of Tubercle Bacilli by Kidney of Rabbit. Study II. D. Yegian and J. M. Kurung. Ray Brook, N. Y.—p. 442.  
Dermatopulmonary Reaction. IV. Effect of Tuberculin Reaction on Lung. S. Puder. Pestszenterzsebet, Hungary—p. 446.

**Collapse Therapy in Pulmonary Tuberculosis.**—Statistics presented by Thompson and Janes show that different types of collapse therapy and proper selection of patients are important in reducing the period of treatment and enhancing the number of permanent cures. Collapse therapy, especially for patients with cavities, offers a much better prognosis than bed rest alone. Artificial pneumothorax is the treatment of choice, but if inefficient it is more of a liability than an asset. If an efficient pneumothorax cannot be established, another form of collapse thoracoplasty, should be instituted. Extrapleural pneumothorax is indicated for acute or chronic thin walled cavities surrounded by comparatively healthy lung and for adolescents with minimal lesions that progress or are stationary under bed rest alone. Extrapleural pneumothorax is often the treatment of choice when thoracoplasty is difficult or dangerous to perform. It is of little or no value in acute caseous pneumonic phthisis. Thoracoplasty is best for cavities larger than 3 cm in diameter and surrounded by caseous disease.

**Bronchoscopic Suction.**—Meyersburg and his co-workers report the influence of bronchoscopic suction on the closure of cavities of 3 patients who had had pneumothorax for six to ten months. Thoracoscopy with severance of adhesions and/or phrenic crush was previously attempted without success. Within four to eight weeks following bronchoscopic suction the unsatisfactory collapse of the 3 patients was converted to a therapeutically and anatomically satisfactory one. Clinical improvement



as shown by diminished cough, reduction in the amount of sputum, slowing of the sedimentation rate and increase in weight, was also observed. The authors found that the best time to perform suction is when the lung is not more than 50 per cent collapsed. Secretion was obtained from each patient. The procedure was also attempted on 2 patients with poorly collapsed lung in which the lobe with the cavity was adherent to the thoracic wall, the bronchoscopic aspiration here had no effect. The 3 patients are still receiving pneumothorax refills, all have a negative sputum and gastric lavage has likewise been negative. Definite conclusions cannot be made. The report should stimulate others to investigate the value of bronchoscopic suction as a therapeutic procedure in selected cases in which pneumothorax has not been entirely effective.

**Vitamin K in Tuberculosis**—Levy determined the bleeding time, the coagulation time, the prothrombin time and the hepatic function in 60 cases of pulmonary tuberculosis and in 15 control subjects in order to determine whether vitamin K had any effect on pulmonary hemorrhage. The bleeding time was not unusually high, highest values occurred in cases in which recent pulmonary hemorrhages had occurred. The average bleeding time of patients was at least 50 per cent higher than that of control subjects. The range between the highest and lowest coagulation time (four to eight minutes) of the patients was greater than that of the control group, with values between four and five minutes. The results of the prothrombin "bed-side" test of Smith and the Quick test corresponded almost 100 per cent. The "clotting power" or prothrombin time of 3 patients was below 70 per cent, of 16 between 70 and 85 per cent, of 22 between 85 and 99 per cent and of 19 100 per cent or more. About one third of the patients with pulmonary tuberculosis had a more or less definite hypoprothrombinemia. The clotting power of 11 control subjects was between 85 and 99 per cent and of 4 was 100 per cent or more. Low clotting power was most pronounced in patients with a long history of tuberculosis. The hippuric acid hepatic function test clearly demonstrated that patients with long histories of tuberculosis have a definite degree of hepatic damage. This may be secondary to toxic myocarditis or amyloidosis, both of which are not uncommon in chronic tuberculosis. More than four fifths of patients had a more or less definite degree of parenchymal damage. Although only 31.6 per cent of patients showed a definite hypoprothrombinemia, vitamin K was administered and the bleeding time, the clotting power and the coagulation time have improved as the result. The hemorrhage of the 14 patients given vitamin K during bleeding ceased immediately after one injection. None of the patients exhibited massive hemoptysis. Morphine and soluble pentobarbital had no influence on the bleeding time, while calcium and Koagamin (a sterile solution having oxalic acid as its active agent) improved the bleeding time by 7 and 18 per cent, respectively. The coagulation time was prolonged by soluble pentobarbital, slightly improved by morphine and still more improved by calcium and Koagamin. Sodium pentobarbital reduced the clotting power, and morphine, calcium and Koagamin improved it but the improvement did not equal that of vitamin K.

**Putrid Pulmonary Abscess**—Rosenbloom and Guggenheim report the results of treating a patient with putrid pulmonary abscess, complicated by a bronchopleural fistula, putrid empyema and bronchiectasis by continuous transthoracic aspiration of the abscess cavity. The method was resorted to because any more extensive surgical procedure represented too great a risk. The technic employed was that used in continuous aspiration (Monaldi method) of tuberculous cavities. The result was surprisingly satisfactory. The patient's condition improved rapidly. The empyema cavity became smaller and the bronchopleural fistula was no longer demonstrable. A small tube is maintained in the pleural cavity but discharge has ceased. The pus and sputum have been consistently negative. The identity of the aerobic and anaerobic organisms cultured from the sputum and pleural pus could not be established. Their nonpathogenicity was proved by animal inoculation. At present the patient is in excellent health, he has gained 40 pounds (18 Kg.) in weight.

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\*Recent Advances in Diagnosis and Treatment of Ruptured Intervertebral Disks W E Dandy, Baltimore—p 514  
\*Gastric Ulcer, Carcinomatous Ulcer or Ulcerating Carcinoma? W Walters, Rochester, Minn—p 521  
\*Gastric Resection for Duodenal Ulcer Follow Up Studies A W Allen and C E Welch, Boston—p 530  
Extension of Borderline of Operability in Cancer of Rectum A David and R K Gilchrist, Chicago—p 566  
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**Ruptured Intervertebral Disks**—Dandy points out that there can be few more excellent results than those that accrue from intelligent surgical intervention for ruptured intervertebral disks. It accounts for an overwhelming percentage of the heretofore incurable and untreatable low back pains and sciatic mis-called sacroiliac strains, arthritis of the spine and the like. At first the lesion was localized by injecting iodized oil into the spinal canal. However, the most important advance was attained through a statistical study of the lesions. It was found by Love and by Spurling that 96 per cent of all spinal rupture disks were situated at the fourth and fifth lumbar vertebrae. This entirely eliminated the need of spinal contrast mediums for localization, but it did not alter the need for a means of diagnosing the lesion. Semmes, emphasizing the characteristic clinical picture, suggested that no spinal injections were necessary. He reported 16 consecutive operations performed on without contrast mediums or other tests in which ruptured disks were found. Three important advances have improved and greatly simplified the operative treatment. Originally a bilateral laminectomy was performed and the disk was removed intradurally. Mixter and Barr removed the disks extradurally by the bilateral approach. Semmes and also Love in 1939 reported their removal by hemilaminectomy and by removing only a notch of bone in a lumbar and Love in 1940 removed a high percentage of ruptured disks through the interlaminar space without removing any bone. Love's procedure is the acme of perfection but can be accomplished only when the variable space between the laminae is of sufficient size. A variation of this lesion, a "concealed disk" was disclosed by the author. Symptomatically there is no difference in the manifestations, but at operation the detection of the lesion is more difficult. The end results of treatment are the same. A concealed disk is one that protrudes so slightly that it can hardly be found at operation unless the subdural space is explored with great care. Furthermore, the most important reason for avoiding spinal contrast mediums is that a "concealed disk" does not show a filling defect and concealed disks make up more than 25 per cent of the total cases. The use of contrast mediums has been eliminated the author made the diagnosis sixty-three times by clinical examination alone without a single mistaken diagnosis.

**Benign or Malignant Gastric Ulcer**—The treatment of a gastric ulcer should depend on the pathologic nature of the lesion, it should be remembered that roentgenography can distinguish 10 to 20 per cent of carcinomatous ulcers from benign gastric ulcers and that there is no definite complex pathognomonic of benign gastric ulcer. Experience has shown that medical treatment during which the ulcer disappears, symptoms subside and blood disappears cannot be relied on to exclude the possibility of malignancy or that the benign ulceration will recur when the patient returns to his usual habits of life. In the last few years operation has been performed in 60 to 64 per cent of the cases of gastric ulcer and the mortality has been no greater, sometimes even less than that of ulcer. During the same period the incidence of gastric ulcer operation has been performed for duodenal ulcer.



from 15 to 18 per cent. The results of subtotal gastrectomy for benign gastric ulcer are almost perfect and superior to similar operations for duodenal ulcer. To date Walters has not seen a case of recurrent benign gastric ulcer when half or more of the stomach was removed with the ulcer. Although subtotal gastric resection is the operation of choice for almost all cases of gastric ulcer, excision of the ulcer and/or gastroenterostomy has a place. Ulceration has recurred rarely in some cases in which excision and gastroenterostomy have been performed but more frequently when excision of the ulcer only was performed.

**Gastrectomy for Duodenal Ulcer**—Surgical intervention is required by about 20 per cent of patients with duodenal ulcer. Subtotal gastrectomy according to Allen and Welch is the procedure indicated. Acute perforation accounts for about one fourth, cicatricial obstruction for one third and intractability and massive hemorrhage for the remaining operations. In this last group the palliative operations (gastroenterostomy, pyloroplasty, gastroduodenostomy, local excision and transection or gastric resection for exclusion) without removing the antral mucosa are attended with a high percentage of persistent symptoms and anastomotic jejunal ulcer. Two thirds of 67 patients had jejunal ulcer within two years after a palliative procedure for duodenal ulcer. Seventy one of 76 patients having subtotal resection survived, and jejunal ulcer has not developed thus far. Not less than half the stomach together with the pylorus should be removed when feasible. The poorest results were obtained in cases with resection for exclusion without removing the antral mucosa.

**Thymic Tumor**—The removal of a malignant thymic tumor in a case of myasthenia gravis is recorded by Poer who believes that this is the only case of the type that has been diagnosed during life. The definite improvement that has resulted adds to the growing evidence that the thymus is partly if not entirely responsible for the disease. The author's experience and that of Blalock and his collaborators would indicate that every patient suffering with myasthenia gravis should be offered the possible benefits of thymectomy regardless of the presence of a definite tumor. This is further borne out by the fact that in a total of 129 necropsies and operations performed on patients with myasthenia gravis a thymic persistent or enlarged lesion was present in 30 and a definite tumor in 41. Such a consistent observation indicates some intimate connection between the thymic lesion and the disease.

### Archives of Pathology, Chicago

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- Production of Mammary Carcinoma in Mice by Estrogens C. D. Haagenensen and H. T. Randall New York—p. 411  
Histogenesis of Ovarian Mesonephroma W. Schiller Chicago—p. 443  
Presence of Histamine in Inflammatory Lesions L. Zon, E. T. Ceder and Catherine Crigler Baltimore—p. 452  
Serum Phosphatase Activity in Disease of Liver: Correlation of Serum Enzyme Activity and Hepatic Histologic Changes J. G. Sharnoff, J. R. Lisa and P. A. Riedel New York—p. 460  
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Histologic Studies of Tissues of Rats Fed a Diet Extremely Low in Sodium R. H. Folliis Jr., Elsa Orent Keles and E. V. McCollum Baltimore—p. 504  
\*Uremia Following Blood Transfusion: Nature and Significance of Renal Changes G. D. Ayer, Fort Devens, Mass. and A. G. Gauld, Jacksonville, Fla.—p. 513  
Changes in Oxygen Saturation of Arterial Blood Incident to Death from Sudden Cardiac Failure or Asphyxia: Experimental Investigation A. F. Goggio Boston—p. 543  
Alveolar Cell Tumor of Human Lung K. T. Neuburger and E. F. Geever Denver—p. 551

**Uremia Following Blood Transfusion**—Ayer and Gauld present 7 cases of uremia following transfusion which demonstrate the similarity of the renal changes in persons dying of post-transfusion renal insufficiency to the changes observed in deeply jaundiced infants without renal insufficiency. The only progressive renal changes were necrosis of the distal convoluted

tubules and collecting ducts and infiltration and edema of the interstitial tissue about these tubule segments. The epithelial necrosis is the determining factor in the final morphologic picture. The presence of this necrosis determines the location of the cellular infiltration of the interstitial tissue. The earliest evidence of this process is the appearance of the brick red material in epithelial cells, which is regarded as a morphologic manifestation of cell injury. The cause of the localized epithelial necrosis remains undetermined. The progressive changes and the intratubular varicose casts are duplicated in the kidneys of jaundiced infants who during life had no oliguria or renal insufficiency. Therefore it is unlikely that the morphologic renal changes following a delayed reaction to transfusion are responsible for the renal failure.

### Archives of Surgery, Chicago

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- Tumors of Palate (Benign and Malignant) H. Martin New York—p. 599  
\*Malignant Lesions of Stomach W. Walters Rochester, Minn.—p. 636  
Superficial Spreading Type of Carcinoma of Stomach A. P. Stout, New York—p. 651  
Pathogenesis of Cholecystitis N. A. Womack and E. M. Bricker St. Louis—p. 658  
\*Gangrene and Perforation of Wall of Gallbladder: Sequela of Acute Cholecystitis F. Glenn and S. W. Moore New York—p. 677  
Dupuytren's Contracture: Consideration of Anatomy of Fibrous Structures of Hand in Relation to This Condition with Interpretation of Histology T. Horwitz Philadelphia—p. 687  
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Carcinoma of Female Breast: Analysis of End Results After Five Years in 192 Cases with Special Consideration of Preoperative Irradiation L. C. Cohn Baltimore—p. 715  
\*Sarcoma of Breast R. P. Hill and A. P. Stout New York—p. 723  
Echinococcosis of Breast: Report of Case J. A. Taiana Boston and C. J. Starace Buenos Aires, Argentina—p. 760  
Morbidity and Response of Great Omentum I. Fluoroscopic Observations on Omental Activity of Dogs R. E. Rothenberg and P. Roenblatt Brooklyn—p. 764  
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**Malignant Lesions of Stomach**—At the Mayo Clinic gastric cancer, Walters points out, is encountered three and a half times more often in males than in females. Their youngest patient was 18 years old and the oldest 88. The surgical treatment of gastric cancer presents a hopeful aspect, as 28.9 per cent (31.9 per cent when the figure is adjusted for the normal death rate) of such patients, irrespective of the grade of the cancer or involvement of the regional lymph nodes, have lived five or more years after operation. Computed on the basis of the malignant grade of the cancer, the five year survival rate ranged from 86.2 per cent for grade 1 to 23.3 per cent for grade 4. The five year survival rate and the rate of resectability among patients less than 40 years of age were high in comparison to the general average. In all age groups the rate of resectability was higher and the operative risk less in females than in males. The incidence of ulcer-like dyspepsia and the temporary effective relief of pain to a nonsurgical regimen was high among patients with gastric cancer. This indicates the danger of a differential diagnosis between benign and malignant lesions on the basis of symptoms alone. Although the roentgenologist was able to demonstrate the presence of a lesion in the stomach in 98 to 99 per cent of patients, in only 75.3 per cent was he able to designate the lesion as cancer. In 10 per cent of the patients he returned a report of gastric ulcer. About 20 per cent of the patients operated on for gastric cancer had a free hydrochloric acid content of more than 30 degrees. Precancerous lesions, chronic gastric ulcer and benign polyps should be resected. The preferable procedure for cancer of the stomach is partial gastrectomy by indirect Polya or Polya-Balfour anastomosis. Billroth I anastomosis was associated with a lower mortality rate than the Polya operation.

**Gangrene and Perforation of Gallbladder**—The high incidence of gangrene of the wall of the gallbladder which results in perforation in patients with acute cholecystitis has led Glenn and Moore to review their material in search of the mechanism involved. Defects in the supportive structure of the

intestinal tract in the presence of increased pressure, they believe, plays a part in the mechanism of perforation. The early manifestations of diverticula of the wall of the gallbladder were recognized by Rokitsky. Aschoff also considered these diverticula in the same light. These Rokitsky-Aschoff sinuses were demonstrated in 101 of 300 gallbladders removed at operation, and the gallbladders of 97 per cent of them contained stones. The association of the Rokitsky-Aschoff sinus with long-standing infection and calculi in the gallbladder and the rarity with which perforation of the wall of a gangrenous gallbladder occurs without previous infection and calculi indicates that such a mechanism may frequently be involved. Such a mechanism could account for the occasional multiple perforations of the gallbladder. Gangrene of the gallbladder is not unusual and occurs far more frequently than it is generally supposed. In eight years 84 patients with a diagnosis of gangrene of the wall of the gallbladder were encountered at the New York Hospital. During this period 350 patients were subjected to surgical treatment for acute cholecystitis. Of the 84 patients 44 were women and 40 were men, and in 59 there were symptoms of gangrene without evidence of perforation, in 22 patients there was perforation with localized peritonitis or localized abscess and there were 3 patients with free perforation into the peritoneal cavity. Two of the 3 latter patients died, whereas only 3 of the remaining 81 died. The results emphasize the advisability of the surgical treatment of a patient with acute cholecystitis. It is advisable to remove the gallbladder, provided the patient's general condition and local complications do not contraindicate the procedure. Of the 84 patients 77 were subjected to cholecystectomy, 6 to cholecystostomy and 1 was not operated on. As the differential diagnosis between biliary colic, acute cholecystitis and other acute conditions in the right upper quadrant of the abdomen is most difficult, it is probably less important than an attitude which leads to surgical intervention.

**Sarcoma of Breast**—Hill and Stout state that in the past mammary sarcoma has been divided rather arbitrarily into adenosarcoma and pure sarcoma. The latter group can be separated into specific types: adenofibrosarcoma (cystosarcoma phyllodes), fibrosarcoma, lymphoblastoma, malignant hemangioendothelioma, liposarcoma, myosarcoma and mixed tumor. Between 1911 and 1940 inclusive 15 cases of adenosarcoma, 5 of fibrosarcoma, 2 of lymphosarcoma, 2 of leukemic tumor, 2 of carcinosarcoma (?) and 2 of malignant hemangioendothelioma of the mammary gland have been recorded in the Surgical Pathology Laboratory of Columbia University College of Physicians and Surgeons. During the same period there were 1,990 cases of carcinoma. Thus sarcoma represents 1.2 per cent of all malignant mammary tumors exclusive of the leukemias. If adenosarcoma is eliminated from the malignant class, true sarcoma forms only 0.4 per cent of malignant mammary growths. All the mammary tumors appeared in females. Adenofibrosarcoma is usually clinically benign, but true fibrosarcoma arising from the ordinary connective tissue of the breast has the same malignant potentialities as similar tumors in other regions.

### Cancer Research, Baltimore

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### Delaware State Medical Journal, Wilmington

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- Treatment of Compound Fractures A. A. Walking, Philadelphia—p. 37

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What to Do About Poison Gas H. L. Arnold, Honolulu—p. 179

**Gas Gangrene and Tetanus**—Halford states that there were only 11 proved cases of gas bacillus infection at Tripler General Hospital among the casualties of December 7, although the number and type of casualties treated would have led one to expect not less than four or five times this many. Thorough debridement of wounds and dressing without primary suture largely accounted for the low incidence, perhaps the generous local and oral use of sulfanilamide also played a part. The 11 instances occurred in cases in which primary suture of the wound was performed. Almost every casualty treated at Tripler Hospital had previously had prophylactic injections of tetanus toxoid and was given a "booster" injection on or soon after the initial attack on December 7. This may account for the fact that no case of tetanus was observed. Tetanus antitoxin was given the few patients who were not definitely known to have had the toxoid.

### Indiana State Medical Assn. Journal, Indianapolis

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### Iowa State Medical Society Journal, Des Moines

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- Studies on Purification of Poliomyelitis Virus I Yields and Activity of Preparations Obtained by Differential Centrifugation H S Loring and C E Schwerdt San Francisco—p 395
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- Opsonins of Normal and Immune Serums I Methods Comparison of Effects of Normal and Immune Opsonins on Staphylococcus Aureus E E Ecker A S Weisberger and L Pillemer Cleveland—p 227
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- \*Toxoids in Active Immunization Against Gas Gangrene J A Kolmer with the technical assistance of Anna M Rule Philadelphia—p 289

**Toxoids in Active Immunization Against Gas Gangrene**—Kolmer studied the immunizing capacity in guinea pigs of perfringens toxoid Clostridium septicum and Clostridium oedematiens. The degree of acquired immunity was much less than that produced by immunization with tetanus toxoid against the toxin of Clostridium tetani. Immunization with the toxoid of Clostridium oedematiens was negative. Improved methods for producing and concentrating more potent toxins of the clostridia of gas gangrene for conversion into toxoids by formaldehyde may eventually make simultaneous communitization of human beings against tetanus and gangrene possible.

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- Man of the Future in Tuberculosis Control A A Pleyte and H Holand Milwaukee—p 112
- \*Control of Tuberculosis Among Medical Students with Additional Reference to Interns and Student Nurses E R Weinerman and F O Coe Washington D C—p 115
- Tuberculosis Occurring in High Schools Kathleen B Jordan Granite Falls Minn—p 121
- Eleventh Annual Report of the Tuberculosis Committee American Student Health Association for Academic Year 1940 to 1941 C E Lyght Northfield Minn—p 125
- \*Advantages of Tuberculin Testing Surveys Over X-Raying of Entire Groups Without First Tuberculin Testing L L Collins Ottawa Ill—p 134
- Tuberculosis of Trachea and Bronchi J A Perez Cordoba Argentina—p 138
- Some Problems of College Health Service in a Nation at War Ruth E Boynton Minneapolis—p 146

**Control of Tuberculosis Among Medical Students**—Weinerman and Coe point out that the average tuberculosis rate of 7 per cent in all medical schools reported by the Association of Medical Students Committee on Student Health is significantly above that for the same age group of the general population. The figures of many schools at which control efforts have been made are more reassuring. Hahn reports only a 0.2 per cent incidence at Cornell Flood cites a 0.4 per cent case rate at Columbia and equally low incidences obtained at Stanford Wisconsin, Yale and other schools with well estab-

lished health programs. Almost every nurse and student of medicine is exposed to the tubercle bacillus, as shown by tuberculin reaction statistics. Contact with tuberculous patients, lowered resistance because of poor living habits and laboratory bacilli—in the order named—are the main causative factors in student tuberculosis. An adequate control program must consist in a student health service with easily obtainable medical aid for all students, admission health certificates and physical examinations, compulsory tuberculin tests for all new students with semiannual retests, careful management of all new reactors, roentgen semiannual study of all positive reactors, prompt and complete treatment of all students with significant lesions, adequate housing, eating and recreational facilities for all students, special care in necropsy and laboratory rooms, proper precautions for sputum disposal, rigid isolation technique on tuberculosis floors, the education of the patient, nurse and medical student as to the proper control precautions and the elimination of tuberculous patients from general wards by the routine roentgen study of all hospital admissions.

**Advantages of Tuberculin Testing Surveys**—The small expense of diagnosing tuberculosis in a community or large group of persons by using the miniature film has influenced many workers to discard the tuberculin test as a screen, but Collins believes this to be a mistake, as roentgen study alone does not afford sufficient evidence for a correct diagnosis. Education is the most powerful weapon for combating tuberculosis. The tuberculin test is the best means of taking this education into the home. Total roentgen surveys sacrifice this education. A person who discovers through the tuberculin test that he is infected is much more likely to discover earlier any clinical tuberculosis that may develop subsequently than he would if the reaction were not known. The nonreactors understand that they may some day be reactors and should therefore have the test repeated each year. Often a member of a household with a history of tuberculosis discovers that he has not yet been infected, and thus unwarranted worry is dispelled. The test eliminates the serious danger of diagnosing tuberculosis in uninfected persons only by roentgen inspection thus some persons are spared a grave injustice.

**Journal of Nutrition, Philadelphia**

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- Effect of Level of Fat in Diet on Utilization of Vitamin A Kathleen Dietrich Mueller and Eunice Kelly East Lansing Mich—p 335
- Respiratory Quotient of Protein of Dalmatian Dog T M Carpenter and H C Trimble Boston—p 345
- Vitamin A Requirements in Rat Relation of Vitamin A Intake to Growth and to Concentration of Vitamin A in Blood Plasma Liver and Retina J M Lewis O Bodansky K G Falk and G McGuire New York—p 351
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- Influence of Dietary Fat on Lactation Performance in Rats L A Maynard and Edith Rasmussen Ithaca N Y—p 385
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- Studies of Liberal Citrus Intakes I Caroline Sherman Lanford New York—p 409
- Distribution of Nicotinic Acid in Foods L J Tepl F. M. Strong and C A Elvehjem Madison Wis—p 417

**Congenital Malformations in Rats**—Skeletal abnormalities, Warkany and Nelson point out, occurred in about one third of the offspring of female rats reared and bred on a rachitogenic diet supplemented with viosterol. Similar skeletal defects were not found in the offspring of females of the same strain reared and bred on a stock diet or when the females were reared and bred on a diet which contained 2 per cent of dried pig liver and 1 per cent of calcium carbonate or only 2 per cent of pig liver. By alternately breeding the same female on different diets, abnormal and normal litters were obtained. Apparently a nutritional factor that is present in liver in large amounts is necessary for the normal intrauterine development of the rat.

## Journal of Pediatrics, St Louis

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- \*Primary Virus Pneumonitis Comparative Study of Two Epidemics J M Adams, R G Green, C A Evans and N Bereh, Minneapolis—p 405
- Use of Sulfonamides in Treatment of Syphilitic Keratitis J M Arena, Durham, N C—p 421
- Studies of Physical Characteristics of Children in Marseilles France in 1941 H C Stuart, Boston, and D Kuhlmann, Marseilles, France—p 424
- Further Studies on Urinary Excretion of Thiamine in Children R A Benson, L B Slobod, C M Witzberger and L Lewis New York—p 454
- \*Intracutaneous Immunization Against Scarlet Fever L Jacobs New York, and H Orris, Hillside, N J—p 466
- Resistance to Infection as Affected by Variations in Proportions of Protein Fat and Carbohydrate in Diet Experimental Study W S Sako, New Orleans—p 475
- Culsoy Soybean Substitute for Milk B F Feingold, Los Angeles—p 484
- Sarcoidosis Case Report I Posner Detroit—p 486
- Epidermoid Carcinoma in First Decade of Life Report of Case Rita M Carey, Pittsburgh—p 496
- Influenzal Meningitis Report of Case with Recovery E P Scott and J W Bruce, Louisville, Ky—p 499
- Orthodontic Problems H J Noves, Chicago—p 503

**Primary Virus Pneumonitis**—Adams and his associates compared the acute primary virus pneumonitis that occurred in 74 infants in two epidemics and found a constant symptom pattern characterized by cough, dyspnea, cyanosis and low grade fever. The mortality was 20 per cent. The pathologic features—cytoplasmic inclusion bodies in the epithelial cells sloughing and proliferation of bronchial epithelium, accumulation of mononuclear exudate and patchy atelectasis—found in the lungs in fatal cases were uniform. These features were not seen in 20 control cases of pneumonia in infants caused by the usual bacteria. Eighty-five per cent of the throat smears from infants with pneumonitis were positive for inclusion bodies, whereas less than 10 per cent of infants and adults in five control groups showed inclusion bodies. Fairly extensive biologic studies on the virus of pneumonitis have failed to isolate the agent. The prematurely born infant is the most susceptible host. The susceptibility of all postnatal infants contraindicates further institutional care of well babies whenever the disease is prevalent. No specific therapy has as yet been developed, but oxygen, postural drainage, aspiration of exudate, blood transfusion and the sulfonamide drugs (to combat secondary bacterial infection) have appeared to be efficacious in some cases. Whole adult blood may have prophylactic value, especially for the premature infant.

**Scarlet Fever Immunization**—Jacobs and Orris used scarlet fever streptococcus toxin in vials in graduated doses (500, 2,000, 8,000, 25,000 and 80,000 to 100,000 skin test doses) to immunize infants and children with positive Dick tests attending their clinic. The toxin, 0.1 cc, was given intracutaneously into the skin over the thigh. Alternate thighs were used for the injections, which were of a stronger dilution. The intervals between injections were two, three and four weeks. The patients were immunized to the point of a negative skin test and were then periodically tested for as long as four years. Of 250 infants and children immunized, 187 were followed for a sufficient time to obtain accurate records of the course of their immunity. After the last injection 144 of the 187 children returned within three months for their first Dick retest and the remaining 43 within three to eighteen months. There were 100 (69.4 per cent) negative reactors at the end of three months. Of 33 retested after three to six months 26 (78.8 per cent) reacted negatively. The 24 who on the first retest had positive Dick reactions were given an additional injection of 9,000 skin test doses, and 6 of the 7 retested three months later reacted negatively. All the 37 children Dick tested two to four years after the last injection reacted negatively, as did 13 of the 14 who were given an additional injection of 9,000 skin test doses. Eight hundred and seventy-five injections were administered, and of these 730, or 83.4 per cent, were not followed by a reaction. Five of the 53 children who had reactions had nine severe reactions, 12 had fourteen moderate reactions and 36 had one hundred and twenty-two mild reactions. In this last group the vague complaints of irritability and restlessness the night of the injection, or itching, soreness or pain at the site of injection followed each injection.

## Journal of Urology, Baltimore

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- Wilms' Tumor in Sixty Four Year Old Male Report of Case F C Hamm, Brooklyn—p 403
- Adenocarcinoma and Fibrosarcoma in Same Kidney Report of Two Cases W Weisel and M B Dockerty, Rochester Minn—p 410
- \*Unilateral Renal Ischemia Associated with Hypertension Case Report C L Wilson and C T Chamberlain, Fort Smith, Ark—p 471
- \*Peripheral Ligations in Relation to Blood Pressure F M Allen New York—p 431
- Submucous Extension of Squamous Cell Epithelioma of Urinary Bladder J F Conway and A C Broders Rochester Minn—p 461
- Contracted Bladder Report of Method of Treatment M M Paré Port of Spain, Trinidad—p 472
- Mycomatous Tumors of Epididymis H H Friedman and D V Gryzel, Brooklyn—p 475
- \*Study of Malignant Testicular Tumors Including Case Reports of Chorionepithelioma Accompanied by Hypertension and Teratomas Testis with Single Tridermal Metastasis J E Adams Baltimore—p 491
- Pathogenicity of Staphylococci Isolated from Urine M Levine C D Cressy Minneapolis—p 515
- Studies on Interference of Certain Substances of Biologic Importance with Action of Sulfanilamide Justina H Hill and Edna F Malt Baltimore—p 522
- Semen Studies in Four Hundred Sterile Marriages O J Pollak and C A Joel—p 531

**Unilateral Renal Ischemia and Hypertension**—Wilson and Chamberlain report the occurrence of atrophic pyelonephritis with hypertension in a girl of 12 who complained of frequent right temporal and occipital headaches and partial blindness for one year and whose blood pressure on admission was 230 systolic and 170 diastolic in the right and 210 systolic and 160 diastolic in the left arm. For ten days following admission the patient was kept at bed rest and given phenobarbital at regular intervals. During this time the lowest blood pressure obtained was 190 systolic and 130 diastolic. Several vasopressor tests failed to influence the blood pressure. Nephrectomy was performed. The pathologic changes in the specimen were similar to those seen in experimentally induced hypertension in dogs. The microscopic renal changes, especially the arteriolar changes, were in complete accord with the experimental observations of Goldblatt. The retinal changes also closely approximated the pathologic changes in the retina of the hypertensive dog. The severity of the vascular damage was demonstrated not only by the changes in the fundus of the eyes but also by the fact that a cerebral accident occurred some months before, as indicated by the history and by residual weakness of the facial muscles. Sclerotic changes involved large arteries and arterioles, as evidenced by thickening of the radial arteries. It seems safe to assume that arterial changes were widespread throughout the body. The involvement of the large arteries lends support to the theory that hypertension itself will produce secondary vascular changes if present for a long time and that renal ischemia is associated with sustained hypertension. During the last twelve months it has been obvious in this case that although the improvement in the retinal vessels has been striking, definite residua will be permanent. The remaining arteriolar changes represent irreversible pathologic changes. In all probability similar irreversible changes are present in the remaining kidney. The authors feel that this explains the remaining blood pressure of 120 systolic and 80 diastolic. The case emphasizes the fact that this particular patient would have had more benefit from earlier surgery.

**Peripheral Ligations in Relation to Blood Pressure**—According to the experiments performed by Allen on the dog it appears that this animal is apparently subject to a higher degree of psychic or nervous hypertension than man. The degree of ligations of various parts of the body, duplicated in the previously obtained with the kidney, confirm the interpretation that the phenomenon is not humoral or specific to the kidney but is purely nervous in character. A strong psychological component is obvious in all the experiments with ligation or clamping of the kidneys, testes, legs, tail and ears, but the occurrence of an elevated pressure under mild anesthetic conditions and psychic quietness indicates an additional nervous component. The experiments show that the rise of pressure after prolonged ligation of an organ may sometimes be matched by ligation of the tail.

in which case it is evidently a nervous response to the painful local inflammation. As acute hypertension from ligation of organs or from simple excitement occurs in epinephrectomized animals, the adrenals are apparently not concerned in the process.

**Malignant Testicular Tumors**—Pathologic material was available for study from 21 of the 26 patients with malignant neoplasms of the testis seen at the Peter Bent Brigham Hospital from 1913 to 1939. The series was representative of all the commonly recognized tumors arising in this location as well as teratoma testis with single tridermal metastasis and a chorion epithelioma with associated hypertension. According to Adams data from the study lend support to the theory that these tumors including seminomas and chorionepitheliomas probably are of common origin. It is held that they arise from a spermatogenic cell or cells. Such cells may be pleuripotential and give rise to tridermal metastasis. A case with single tridermal metastasis, each containing derivatives of all three germ layers is cited as evidence for such an occurrence. It is suggested that trophoblastic tissue is present in teratoma testis more often than is commonly supposed and that its presence accounts for the large amount of gonadotropic substance in the urine of a patient with such a tumor.

### Kansas Medical Society Journal, Topeka

43 89-132 (March) 1942

- Significance of Vomiting and Diarrhea Among Infants and Children R L J Kennedy Rochester Minn.—p 89  
Benign Tumors of Me-intery W M Mills Topeka—p 91  
Incidence of Syphilis in Private Practice H E Reitz and H A Thien Wichita—p 96  
Salicylate Therapy in Acute Rheumatic Pericarditis with Effusion Report of Case H T Gros Columbus Ohio—p 98  
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### Military Surgeon, Washington, D C

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- Simple Effective Method for Treatment of Meningococcal Meningitis P S Strong—p 373  
Next Great Plague to Go Being Short History of Syphilis R A Eilduffe—p 374  
War Neuroses A Q Brill—p 390  
Method for Relief of Pyloric Obstruction D T Chamberlin—p 407  
\*Acute Appendicitis Sequela of Typhoid Inoculation W F Bowers and L Shupe—p 413  
\*Thirteen Cases of Meningitis Treated with Serum and Sulfonamides at Station Hospital Fort Dix N J M Kasich and B Shulman—p 419  
Early Treatment of Fractures of Mandible A J Hemmerger—p 424  
Significance of Psoriasis in Its Relationship to Systemic Disease D Mosher—p 428  
\*Treatment of Trichophyton Foot Infections in the Field C J Rademacher—p 431  
Sulfur and Soap as Effective Prophylaxis Against Chiggers (Red Bugs) in Arms Z J Romeo—p 437  
Soap and Water as Venereal Disease Prophylactic W A Angwin—p 439

**Acute Appendicitis and Typhoid Inoculation**—Immediately after each new increment of troops was inoculated against typhoid at Fort Leonard Wood, Mo. Bowers and Shupe noticed that there was an influx of patients with acute appendicitis. While most of the cases subsided spontaneously under conservative management, 8 patients have come to appendectomy. The time relationship between the inoculation and the development of acute appendicitis was so striking that they investigated the situation and concluded that acute appendicitis on the basis of luminal obstruction by swollen lymphoid tissues was not a rare sequela of typhoid inoculation. They urge that all patients who complain of abdominal pain after such an inoculation be watched and that those in whom the pain accompanied by rebound tenderness becomes localized to the lower right quadrant be subjected to appendectomy. It is to be understood that the value of typhoid inoculation outweighs the danger of appendicitis.

**Meningitis Treated with Serum and Sulfonamides**—Kasich and Shulman state that 6 of 13 patients with meningitis admitted to the Station Hospital Fort Dix, N J, between Dec 29, 1940 and July 14, 1941 were treated with serum intrathecally or intravenously and with chemotherapy. At the daily spinal puncture 40 cc of fluid was removed and 15 to 30 cc of

antimeningococcus serum was injected by gravity into the spinal canal. This was continued until the cell count and the sugar content of the spinal fluid returned to normal. Sulfanilamide was given concurrently, 2 Gm for the first dose and then 1 Gm every four hours for seven days after treatment with serum was stopped. The patients who received intravenous treatment were given 90 cc of serum twice a day diluted in 200 cc of isotonic solution of sodium chloride. Serum reactions caused this method to be discontinued after a few injections and to continue with the sulfonamide medication alone. Of the 7 patients who received only chemotherapy, 6 received sulfanilamide, 2 Gm for the first dose and 1 Gm every four hours thereafter. When the temperature and the spinal fluid became normal chemotherapy was continued, 1 Gm every eight hours for five days. Spinal taps were done for diagnosis only. One patient was treated with sulfapyridine, 4 Gm for the first dose and 1 Gm every four hours thereafter. After the temperature was normal for four days a maintenance dose of 1 Gm was administered every eight hours for seven days. All the patients recovered, 3 had complications and 2 sequelae—1 partial left ear deafness and 1 weakness and loss of power of the left shoulder caused by a peripheral neuritis. The patients who were given chemotherapy alone had fewer unfavorable reactions and complications. In 11 of the 13 the diagnosis was definitely established on admission by finding gram negative intracellular diplococci in the spinal fluid and confirmed by culture and in 2 the spinal fluid under increased pressure, was turbid and contained a large number of cells, 100 per cent of which were neutrophils.

**Treatment of Trichophyton Foot Infection**—Rademacher commander of the Ninth Army Corps suggested treatment of trichophyton infection with sodium sulfathiazole. In a battalion of 570, there were found 75 cases of trichophytosis ranging from a mere scaling with slight fissures to macerated swollen feet with large fissures and crusting. Half of the group were treated with pure sodium sulfathiazole crystals dusted on the lesions daily and half with 50 per cent sulfathiazole in talc. The condition of practically all the patients was definitely improved within forty-eight hours. Thereafter half of the patients were treated with 50 per cent and the other half with 25 per cent sulfathiazole in talc. The results in the two series were equally good. Smaller percentages (5 to 10 per cent) of sulfathiazole would probably be equally effective. There is available a commercial product of 5 per cent sulfathiazole in a bland ointment that is satisfactory. Treatment must be controlled for if left to the patient it is not thorough and regular. All infected areas must be covered with a film of the powder. Criteria of cure were healing of all lesions and disappearance of all adherent cutaneous debris. Of the 75 patients 22 were cured within ten days, 9 were lost to follow-up from causes beyond control and 44 after being treated for a short time and obtaining much improvement responded no further. These patients were further treated with 10 per cent of powdered sulfathiazole in a 2 per cent salicylic acid ointment. The length of treatment varied from two weeks to a month. Five were lost to follow-up, 33 were cured and 6 are still resistant. If the 14 patients lost to follow-up are not considered, 55 or 90 per cent of the 61 remaining patients, were cured.

### Minnesota Medicine, St Paul

25 241-320 (April) 1942

- Medical Causes of Rejection in Selective Service Registrants C A McKinlay Minneapolis—p 255  
Injuries of Nose C W Waldron Minneapolis—p 258  
\*Transfusion Reactions and Erythroblastosis Fetalis Caused by Rh Factor G N Aagaard Minneapolis—p 267  
\*Simple Method for Removal of Iodized Oil from Spinal Subarachnoid Space E H Juers Red Wing and H O Peterson St Paul—p 270  
Removal of Iodized Oil (Lipiodol) from Spinal Canal After Roentgen Diagnosis G R Kamman and J P Medelman St Paul—p 273  
Boiled Liver Extract in Treatment of Acne Vulgaris C A Boreen Minneapolis—p 276

**Transfusion Reaction and Erythroblastosis Fetalis**—Aagaard reports 2 transfusion reactions which were probably due to the Rh factors in the transfused blood. To prevent such reactions, special studies (the agglutination test of Wiener



and Peters and the biologic test for blood compatibility) are indicated when any medical, surgical or partial or postpartal patient with blood dyscrasias, chronic blood loss or a history of obstetric complication requires repeated transfusions. A list of Rh negative donors should be available in every obstetric service.

**Removal of Iodized Oil from Spinal Subarachnoid Space**—The Kubic and Hampton method of aspirating iodized oil from the spinal subarachnoid space was used successfully by Jueis and Peterson in 13 of 17 cases. The method consists in aspirating the oil through the same spinal puncture needle through which it was injected. Although the procedure is basically simple, attention to the following points are essential for a successful aspiration: 1. The site for the puncture is best determined fluoroscopically. 2. The needle must enter the dural sac as close to the midline as possible. This position should be checked fluoroscopically before the oil is injected. 3. Multiple punctures must be avoided. 4. Suction with a small syringe (2 to 5 cc) must be extremely gentle if sucking a nerve root or a piece of membrane into the needle is to be avoided.

### Missouri State Medical Assn Journal, St. Louis

39 95-130 (April) 1942

- Cesarean Section S. D. Soule St. Louis—p. 95  
Tetanus Following Criminal Abortion with Recovery R. R. Wilson, J. B. Keeler and P. F. Stookey Kansas City—p. 96  
Eclampsia Some Thoughts on Therapy C. R. Wegner, St. Louis—p. 98  
Use of Intravenous Diol Urethane in Obstetrics Analysis of 2,000 Cases D. T. Van Del Kansas City—p. 100  
Postpartum Genitourinary Infections J. L. Johnston, Springfield—p. 102  
Erythroblastosis Fetalis in Dizygotic Twins A. B. Buhler, C. W. Seel and C. McCormick Jr. Kansas City—p. 106

**Erythroblastosis Fetalis**—Buhler and his associates report the occurrence in dizygotic twins of the triad icterus neonatorum, hydrops fetalis and congenital anemia, heretofore considered as separate entities but now as fetal erythroblastosis. The theory of the Rh factor as the cause of the disease was confirmed by a study of the blood of the mother, the father and the twins. The father's blood was Rh positive, the mother's Rh negative and the infants' blood Rh positive with both guinea pig immune serum and human serum. The diagnosis at necropsy on both infants was fetal erythroblastosis. Of the mother's seven previous pregnancies (the first, one of the second and the fifth) only 3 children are living. 1 of these is one of twins. The other of these twins died two hours after birth. The third pregnancy resulted in a stillborn fetus with petechial hemorrhages of the pleura and epicardium, visceral congestion and extensive post-mortem autolysis. Erythroblastosis was suspected. Two years later a spontaneous abortion of a 3 month fetus occurred, at the sixth pregnancy two years later a 10 inch macerated fetus (following this delivery the mother was in severe shock and a transfusion of the husband's blood was attempted but after a few cubic centimeters were given chills, urticaria and purpuric lesions developed, she recovered on emergency treatment) was delivered and a year later she had an incomplete abortion, followed by dilation and curettage at eight weeks.

### New England Journal of Medicine, Boston

226 469-512 (March 19) 1942

- Vitamin C and Wound Healing I. Experimental Wounds in Guinea Pigs M. K. Bartlett, C. M. Jones and Anna E. Ryan Boston—p. 469  
Id. II. Ascorbic Acid Content and Tensile Strength of Healing Wounds in Human Beings M. K. Bartlett, C. M. Jones and Anna E. Ryan, Boston—p. 474  
So Called "Coagulation Defect" in Menstrual Blood E. L. Lozner, Z. Eileen Taylor and F. H. L. Taylor, with the technical assistance of M. A. Adams and Harriet MacDonald Boston—p. 481  
Bile Duct Reconstruction with Vitallium Tubes Report of Case H. M. Clute, Boston—p. 484  
Trichinosis and Enterobiasis Their Importance in New England D. L. Augustine, Boston—p. 488

226 513-546 (March 26) 1942

- Present Day Surgery of Pancreas A. O. Whipple New York—p. 515  
Fractures of Femur G. W. Van Gorder Boston—p. 526  
Mumps C. Wesselhoeft Boston—p. 530

### New Jersey Medical Society Journal, Trenton

39 129-182 (March) 1942

- Gastroscopy and the General Practitioner First Year Review at Mount Sinai Hospital T. S. Heineken Bloomfield—p. 138  
Traumatic Rupture of Hydrocele Report of Case H. F. Cool and G. F. Hewson, Newark—p. 142  
Circulation Time and Venous Pressure E. C. Klem Jr., Newark—p. 144  
Placement of Cardiovascular Cases in Industry M. Greenberg, Linden—p. 147  
Radiology in Obstetrics Maternal Welfare Article Number Sixty Eight H. J. Perlberg Jersey City—p. 152  
Modern Trend Toward Better Organized Medical Services L. A. Wilkes, Trenton—p. 155

### New Orleans Medical and Surgical Journal

94 461-518 (April) 1942

- The Place of Medicine Today F. H. Lahey Boston—p. 461  
\*Ten Years' Experience Treating Malaria by Short Course Method J. P. Sanders, Shreveport La.—p. 465  
Treatment of Malaria O. W. Bethia, New Orleans—p. 469  
\*Renal Damage Following Use of Sulfathiazole G. E. Burch and T. Winsor, New Orleans—p. 474  
Arsenical Encephalitis During Pregnancy Report of Two Fatal Cases R. E. Arnell and W. F. Guerriero, New Orleans—p. 482  
Indications and Contraindications for Versions and Extractions and Extractions in Breech Presentations E. L. Zander, New Orleans—p. 487  
Modern Concepts in Treatment of Bronchial Asthma H. D. Ogden New Orleans—p. 490  
Fortifying White Bread with Vitamins and Minerals S. Blis New Orleans—p. 497

**Treating Malaria by Short Course Method**—Sanders discusses his experience with quinine and quinidine in the treatment of malaria from 1930 to 1940 inclusive. By 1935 he had treated 1,047 cases of malaria with quinidine alone. Until July 1933 the treatment consisted of four single daily doses of 10 grains (0.65 Gm). Then it was increased to five days with two doses (10 grains) the first two days. A statistical study disclosed 74 per cent one, 78 per cent two, 68 per cent three and 86 per cent four year cures, or a combined rate of 75 per cent. Eighty-one patients were treated with quinine, 7 with hydroquinine, 48 with cinchonine and cinchonidine, 7 with hydrocinchonine and hydrocinchonidine and 56 with atabrine. Of the patients treated with atabrine 37 per cent relapsed, this is comparable to that of quinine and quinidine. The other cinchona alkaloids, although only a few patients were treated with each, confirmed previous reports of their efficacy. During 1937, with the cooperation of thirty-two physicians, a comparison of quinine and quinidine in the treatment of 1,138 cases was made. From 10 to 20 grains (0.65 to 1.3 Gm) of quinine daily was as effective as 30 to 40 or 60 to 90 grains (2 to 2.6 or 4 to 5.8 Gm). The five day course of quinine was as effective as the longer course, that is, fourteen days with 10 grains two nights a week for the rest of the season. The relapse rate of quinidine was 15 per cent in benign tertian and 13 per cent in estivo autumnal malaria, while with quinine it was 20 and 30 per cent respectively. The author believes the short course of therapy is preferable to the long, as it allows a few parasites to remain in the body and immunizing substances to develop. Idiosyncrasy is about as common with quinidine as with quinine, 6 instances occurred among the 2,215 patients. This observation bears out the ratio ordinarily expected with quinine, 1:300 to 1:500. No patient has been sensitive to both quinine and quinidine. Women in all stages of pregnancy tolerate quinidine well. Quinidine probably does not cause amblyopia as quinine sometimes does. Patients in whom hematuria was caused by quinine have tolerated quinidine with no recurrence of the hemorrhage. Seven patients have been treated with sulfanilamide and sulfapyridine, 2 did not respond readily and were put on quinidine. Of the thirty or more cinchona alkaloids, most of them have antimalarial value. Treatment with atabrine should not be repeated in less than two months. There is a strange similarity between all the antimalarial drugs in that they "cure" 65 to 75 per cent or better. The acute cerebral or comatose type of malaria is probably best treated with quinine hydrochloride (15 to 30 grains) given as an infusion, and repeated if necessary. Frequently the patient with hemorrhagic malaria or blackwater fever, another difficult type to treat, has taken some quinine and it is advisable to switch to the other drug—quinine to quinidine or vice versa.

In no instance in a change from one drug to the other has the blood not been freed from parasites. For chronic malaria the author has found it best to give short courses (three) of treatment with ten to fifteen days of rest in between. Complications of pregnancy or deafness are better treated with quinine.

**Renal Damage Following Use of Sulfathiazole**—Burch and Winsor report 2 cases in which renal complications developed following the use of sulfathiazole. This brings the total to 31 cases but they do not believe that this represents the total number of patients who have sustained renal damage from its use. The diagnosis of renal damage from sulfathiazole is not difficult if the patient has been properly studied before and during treatment. Hematuria, oliguria, backache, renal colic, tenderness over one or both kidneys, progressive nephromegaly, decreasing renal function and azotemia in a patient receiving sulfathiazole should make one suspect renal damage. The presence of one of the changes alone or any combination of them is sufficient for a tentative diagnosis. If renal function is determined daily renal damage can be detected early. The prevention of injury to the kidneys by sulfathiazole is not difficult if certain rules are followed: the determination of previous treatment with any one of the sulfonamide drugs, evaluation of the patient's renal function and the nature of the urine being excreted before therapy, the determination of the patient's fluid balance before therapy and the correction of dehydration if such exists, the administration of alkalis, the maintenance of an alkaline urine and the determination of idiosyncrasy to any one of the sulfonamides. The drug should be stopped immediately once the slightest evidence of renal injury is discovered. Fluids should be administered in large quantities. The pelvis should be catheterized and the catheters should remain in place until a normal urinary flow has been reestablished. Irrigation will relieve ureteropelvic obstruction but will have no effect on tubular obstruction. The latter should be treated by an intense diuretic regimen.

### New York State Journal of Medicine, New York

42 577-736 (April 1) 1942

- Aurotherapy in Lupus Erythematosus. Study Based on Further Experience of Fourteen Years. P. E. Bechet. New York.—p. 609.  
Injuries to Cervical Vertebrae. Barbara B. Stimson. New York.—p. 615.  
Experimental Acute Gastric Ulcer Produced in Animals by Exposure to Sulfur Dioxide Gas. F. R. Weedon. Jamestown, N. Y.—p. 620.  
Non-chizophrenic Catatonic States. M. Herman, Dorothy Harpham and M. Rosenblum. New York.—p. 624.

### Ohio State Medical Journal, Columbus

38 305-416 (April) 1942

- Mediterranean Anemia in Adult. Family History Analysis. M. L. Goldhamer. Cleveland.—p. 321.  
Leukocytosis in Cerebrospinal Fluid in Cerebral Hemorrhage. W. E. Molle. Cincinnati.—p. 325.  
\*Infectious Syndrome Resembling Influenza. S. R. Salzman. Toledo.—p. 328.  
Atypical Thromboses of Peripheral Veins. L. N. Atlas. Cleveland.—p. 331.  
Treatment of Ringworm of Feet. R. L. Kile. Cincinnati.—p. 333.  
Sulfaguanidine in Diarrheas of Infants and Children. I. A. Sison, S. Wise and E. H. Baxter. Columbus.—p. 336.  
Heparin Therapy in Thrombosis of Central Vein of Retina. L. A. Levison and J. L. Roberts. Toledo.—p. 338.  
Phrenic Nerve Surgery in Collapse Therapy of Pulmonary Tuberculosis. E. K. Johnson. Columbus.—p. 340.  
Sulfanilamide and Surgery for Acute Gonorrheal Prostatitis. L. A. Sweatt. Auburn, Maine, and S. Levy. Cincinnati.—p. 342.  
Acquired Stenosis of Pulmonary Valve. Case Report. Death Caused by Staphylococcus Aureus Septicemia and Acute Bacterial Endocarditis. R. G. Lehman. San Diego, Calif.—p. 345.  
United States Army Medical Milestones. E. B. Pedlow. Lima.—p. 347.  
Dissecting Aneurysm of Aorta. Case Report Presenting Clinical Problems. H. Landt and R. H. Fuller. Cincinnati.—p. 352.

**Infectious Syndrome Resembling Influenza**—Since the spring of 1940 Salzman has seen an infectious disease, both endemic and epidemic, probably due to a virus which resembles influenza but with certain definite characteristics that allow it to be differentiated from influenza. In addition to the picture of a general systemic infection, pulmonary and neurologic involvements may occur. The diagnostic characteristics are the leukocyte count, which shows a definite elevation during all stages of the disease. The count varies from 13,000 to 27,000 even in afebrile cases. Three types of the disease may be recognized:

the influenzal, the pulmonary and the neurologic. The influenzal type is most frequent. The onset is usually sudden, frequently without cough and sometimes with a slight sore throat. Nasopharyngitis is common. The temperature is rarely above 100 F. in the sporadic case, but in the epidemic case it is usually 102 to 103 F. The symptoms of generalized infection—malaise, exhaustion, backache and generalized aching—are frequent. Occasional soreness and localized edema of some group muscles, especially of the forearms and legs is not rare. After the acute phase of the infection subsides the patient may have no pains, but he complains of persistent and intense fatigue. The pulmonary type is similar to the influenzal group except that the lungs are involved. The neurologic type may be difficult to diagnose and, in occasional instances, may lead to abdominal intervention. Patients complain of severe lancinating but temporary pains in various parts of the body. The skin over the involved area is always hyperesthetic. These patients usually give the typical history of the acute phase of the infection some weeks before seeking medical advice. The onset of the neuritic pains (which occur in about a third of patients) can be traced back to a week or ten days after the onset of infection. Despite the fact that the sulfonamide drugs have thus far not been found to be of value in virus diseases, they have been almost specific for this group of patients. Sulfadiazine and sulfathiazole 1 Gm. repeated in one hour then 1 Gm. every four hours for twenty-four hours, then 1 Gm. every six hours for forty-eight hours, have been equally satisfactory. Thiamine hydrochloride, 10 to 15 mg. hypodermically every day was of considerable value for relieving the neuritic and neuromuscular pains. There was no mortality or serious pulmonary complication among 30 patients seen in the last eighteen months. A few were seen during the summer and early fall when influenza was not present.

### Public Health Reports, Washington, D. C.

57 445-484 (March 27) 1942

- \*Immunization with Inactive Virus of Influenza B. Comparison of Antibody Response with That Produced by Infection. M. D. Eaton and W. P. Martin.—p. 445.  
Observations on Experimental Malaria Control Drainage Ditch Linings. J. L. Robertson, Jr., J. A. Le Prince, H. A. Johnson and W. V. Parker.—p. 451.

57 485-520 (April 3) 1942

- Appraisal Technique for Urban Problem Areas as Basis for Housing Policy of Local Governments. Subcommittee on Appraisal of Residential Areas.—p. 485.  
Histogenesis and Repair of Hepatic Cirrhosis in Rats Produced on Low Protein Diets and Preventable with Choline. R. D. Lillie, L. L. Ashburn, W. H. Sebrell, F. S. Daft and J. V. Lowry.—p. 502.

**Immunization with Inactive Virus of Influenza B**—Human volunteers from 20 to 30 years of age were given subcutaneous injections in the left arm of 1 cc. of influenza B vaccine and in the right arm of 1 cc. of the complex influenza A distemper vaccine of Horsfall and Lennette. The neutralizing antibody titers of acute and convalescent serum specimens obtained about two weeks apart from 70 influenza patients were compared by Eaton and Martin with prevaccination and postvaccination serum specimens from 63 persons receiving the influenza B vaccine. The influenza patients showed greater increases in antibodies than did the vaccinated persons. This effect was related to the differences in initial antibody titers of the vaccinated and infected persons. The antibody levels two weeks after infection or vaccination roughly indicate that, as far as circulating antibodies are concerned, the response resulting from vaccination with influenza B virus treated with formaldehyde is similar to that resulting from infection. The increase in complement fixing antibodies after vaccination was less definite than the response to infection. The prevaccination and postvaccination antibody titers against influenza A and B show that some individuals showed a decided increase to influenza A but little or none to influenza B, while the reverse was true of others. Because of the present uncertainty as to the role of circulating antibodies in immunity to viruses, claims for effectiveness of any vaccine should not be based on considerations of antibody response. The results indicate that allantoic fluid preparations of the virus of influenza B treated with formaldehyde have a relatively high antigenicity as judged by the production of neutralizing antibodies.

**Rocky Mountain Medical Journal, Denver**

39 245-316 (April) 1942

- Treatment of Patients with Protruded Intervertebral Disks J Raaf, Portland, Ore —p 263  
 Chemical Review and Clinical Evaluation of Stilbestrol L W Mason, Denver —p 266  
 Human Plasma Review of Its Preparations and Indications in Military and Civil Practice J Henderson, Philadelphia —p 271  
 Early Infiltrative Tuberculous Lesion Its Significance, Behavior and Treatment E Meyer, New York —p 278  
 Acute Intestinal Obstruction G B Kent and K C Sawyer, Denver —p 283

**Virginia Medical Monthly, Richmond**

69 175-234 (April) 1942

- Psychology of Isolationism F Kennedy, New York —p 176  
 \*Infectious Mononucleosis Unusual Manifestations B S Leavell and J O McNeel, Charlottesville —p 180  
 Hepatomegaly C M Carayati, Richmond —p 187  
 Lesson Learned from Nature in Control and Arrest of Pulmonary Tuberculosis S E Hughes, Danville —p 195  
 Carcinoma of Cervix Time Lost Before Treatment R H Hoge, Richmond —p 200  
 Roentgenologic Diagnosis of Gastrointestinal Hemorrhage A Barker, C H Peterson and C D Smith, Roanoke —p 203  
 Method for Eradicating Congenital Sinuses by Electrocoagulation and Stern with Special Reference to Pilonidal Sinuses P Jacobson, Petersburg —p 206  
 Sickle Cell Anemia J P Baker Richmond —p 208

**Infectious Mononucleosis**—Atypical and protean symptoms of infectious mononucleosis or glandular fever are not unusual and are frequently confused with some other more serious condition. Leavell and McNeel present 8 of 57 cases in which unusual manifestations were encountered. Diagnosis often cannot be established for a few days, the difficulty usually being due to the fact that infectious mononucleosis is not considered. If the disease is suspected, the characteristic blood picture and positive heterophil agglutination, which are generally present when the patient first consults the physician, are clearly diagnostic. Infectious mononucleosis should be considered in all patients with unexplained fever, Vincent's angina, atypical influenza, any glandular enlargement and unusual forms of encephalitis and lymphocytic meningitis. It should also be considered in patients with unexplained lymphocytosis, false positive Wassermann reactions, jaundice and unexplained abdominal pain.

**War Medicine, Chicago**

2 193-380 (March) 1942

- Anesthesia in War Surgery J W Pender and J S Lundy, Rochester, Minn —p 193  
 \*Mumps as Military Disease and Its Control C Wesselhoeft, Boston, and C F Walcott Cambridge, Mass —p 213  
 Care of Face and Jaw Casualties in United States Army L C Fairbank, Washington D C —p 223  
 Medical Implications of British National Fitness Campaign F A Hellebrandt, Madison, Wis —p 230  
 Protection of Workers in Government Defense Industries from Venereal Diseases E W Brown, Washington, D C —p 246  
 \*Relation Between Electroencephalogram and Flying Ability M Thorner, Randolph Field, Texas, F A Gibbs and Erna L Gibbs, Boston —p 255  
 Gastroenterology in the Army Methods of Examination and Disposition of Cases R Schindler, Chicago —p 263  
 Utility of Marrow Cavity of Sternum for Parenteral Fluid Therapy E M Papper and E A Rovenstine, New York —p 277  
 Treatment of Pneumococcal Pneumonia with Sulfadiazine and Sodium Sulfadiazine H F Flippin, S B Rose, L Schwartz and A H Donum, Philadelphia —p 284

**Mumps as Military Disease and Its Control**—Wesselhoeft and Walcott recommend four steps to be carried out when a case of mumps occurs in any military establishment. 1 The patient should be closely questioned as to when and where he might have acquired the disease, it being borne in mind that the average incubation period is eighteen days. If others in the command were simultaneously exposed they should be immediately placed under observation in separate detention. 2 The patient should be isolated. His equipment should be thoroughly aired in the sunlight or handled as facilities permit. 3 Arrangement should be made for the isolation of the unit. Contacts need not be detained separately until twelve days after the diagnosis of the original case. It is desirable to keep each

contact on separate detention for ten days, that is from the twelfth to the twenty-first day after exposure. This prevents further spread. 4 Convalescent serum, 20 cc into the gluteus muscle, should be given as soon as possible to those with negative histories and, if the supply is sufficient, to those with questionable histories. The early eradication of mumps in a unit of a large command is of utmost importance, because once an epidemic gains headway control is difficult, for example, in the last war the epidemic at Camp Wheeler comprised 5,756 cases. The medical officer in the hospital receiving patients with mumps should collect blood on the day of the patient's discharge for convalescent serum.

**Electroencephalogram and Flying**—In comparing the flying ability of 55 student fliers and 54 pilots with the electroencephalographic observations, Thorner and the Gibbss find that flying ability can be correlated with (1) the distribution of energy in the right occipital spectrum, (2) the dominant frequency and character of the control electroencephalogram (ink record) and (3) the amount of slowing that occurs with over ventilation. The data suggest that if correct criteria are used it may be possible to select a superior group of candidates for flying instruction, with a resultant reduction in the proportion of failures and an increase in the proportion of superior fliers.

**West Virginia Medical Journal, Charleston**

38 49-96 (Feb) 1942

- Rheumatic Fever S Gibson, Chicago —p 49  
 \*"Acute Rheumatic" Heart Disease Apparently Cured by Sulfanilamide H C Davis, Bluefield —p 58  
 Some Remarks on Preoperative and Postoperative Care of Patients M R Reid Cincinnati —p 64  
 Rectal Examinations R H Walker and T P Mantz, Charleston —p 69  
 The Doctor Advises the Wife A P Hudgins, Charleston —p 72

38 97-130 (March) 1942

- Management of Hypertensive Toxemia of Pregnancy T J Williams, University, Va —p 97  
 Problems of Biliary Tract Surgery J S Ravdin, Philadelphia —p 107  
 Shock Therapy in Mental Disease A L Wanner, Wheeling —p 107  
 Effect of Senescence on Gastric Emptying E J Van Liere, Morgantown —p 114  
 End Results of Industrial Injuries C L Heberlin, Charleston —p 118

**Sulfanilamide for Acute Rheumatic Heart Disease**—Davis states that the cardinal signs and symptoms in 7 cases of acute rheumatic carditis disappeared early and rapidly and remained so when sulfanilamide was administered early and repeatedly. The rheumatic manifestations did not seem to be intensified when sulfanilamide was given at the beginning of the carditis. The articular involvement in 1 case cleared completely. Sulfanilamide started early may have prevented the state of sensitization or counteracted the formation of toxins. The author agrees with Hedley that rheumatic carditis should be regarded as the chief manifestation and not as a complication of rheumatic fever, and that acute rheumatic fever is a systemic disease with articular involvement a secondary toxic reaction.

38 131-166 (April) 1942

- Tuberculosis in General Practice H E Kleinschmidt, New York —p 131  
 Value of Rest and Collapse in Pulmonary Tuberculosis D Salkin and A V Cadden, Hopewell —p 134  
 Renal Tuberculosis G G Irwin, Charleston —p 140  
 \*Tuberculous Stricture of Bronchus, Recovery Following Roentgen Therapy Report of Case H A Durkin, Peoria, Ill and P P Vinson, Richmond, Va —p 144  
 Maxillary Sinusitis of Dental Fracture Origin Sobusca S Hall and H V Thomas Clarksburg —p 146  
 Nutrition in World Crisis Mrs Welch England, Parkersburg —p 156

**Tuberculous Stricture of Bronchus**—Durkin and Vinson report the favorable outcome of a tuberculous bronchial stricture treated by high voltage roentgen therapy. When the patient, a woman of 30, was examined almost five years later she was completely free from pulmonary symptoms and had gained 35 pounds (16 Kg). Physical and roentgen studies revealed a small amount of fibrosis in the upper lobe of the left lung without evidence of bronchial occlusion. Bronchoscopy was not recommended.

FOREIGN

An asterisk ( \* ) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Experimental Pathology, London

23 1 60 (Feb) 1942

- Molecular Action of Sulfanilamide II Antisulfanilamide and Other Antibacterial Factors in Bacterial Extracts II N. Green and F. Bielchowsky — p. 1  
 Id. III Relation of Chemical Structure to Bacteriostatic Action of Aromatic Sulfur, Selenium and Tellurium Compounds II N. Green and F. Bielchowsky — p. 13  
 Inactivation of Vaccinia Virus by Radiations D. E. Ier and M. H. Salzman — p. 27  
 Angler Reaction Breakdown of Lipoprotein Complexes by Bacterial Toxins L. M. Crook — p. 36  
 Erythrocyte Sedimentation Experiments with Constant Volumes of Cell R. B. Whittington and A. K. Miller — p. 56

British Journal of Radiology, London

15 97 128 (April) 1942

- Wounds of Diaphragm P. Kerley — p. 97  
 Faculty of Radiologists Discussion on Constitutional Effects of Radiation with Special Reference to Volume Dose W. M. Leitch — p. 99  
 Absorption of Primary Beta Radiation from Radium in Lead and Platinum and Specific Gamma Ray Dose Rate at Filtration of 0.5 Mm. of Platinum C. I. Neary — p. 104  
 Photoelectric Instrument Measuring Quality and Quantity of X Rays for Radiographic Purpose R. H. Herz — p. 110  
 Pelvimetry Simplified W. H. Hastings — p. 114  
 Plummer-Vinon Syndrome with Radiologically Demonstrable Peptic Ulcer of Esophagus C. A. Elkele — p. 122  
 Effect of X Rays on Single Colonies of Pandorina L. Halberstaedter and A. Beck — p. 124

British Medical Journal, London

1 281 314 (Feb 28) 1942

- War Neurology Year in Neuropathic Hospital J. A. Hadfield — p. 281  
 Intravenous Serum in Treatment of Peripheral Vascular Disease G. W. Hayward — p. 285  
 Selective Bacteriostatic Action of Gentian Violet L. P. Carrod — p. 290  
 Tuberculin and X Ray Survey of Group of Adolescent Boys with Special Reference to Miniature Radiography J. C. Gilchrist, S. H. Graham and T. W. Davie — p. 291  
 Orbital Cellulitis from Gram Producing Organisms I. S. McGregor — p. 292

1 315-348 (March 7) 1942

- \*Immunization Against Diphtheria with Alum Precipitated Toxoid F. Fulton, B. Moore, Joan Taylor, A. Q. Wells and C. S. Wilson — p. 315  
 War Neurology Year in Neuropathic Hospital J. A. Hadfield — p. 320  
 \*Sulfapyridine in Ophthalmia Neonatorum A. Sorsby, Elizabeth L. Hoffa and E. W. Smellie — p. 323  
 Sulfapyridine as Aid to Postoperative Treatment of Laryngeal Diphtheria Associated with Membranes D. F. Johnstone — p. 325  
 Case of Congenital Osteopetrosis with Genealogical Tree of the Family F. A. Henley — p. 326

1 349-376 (March 14) 1942

- \*Immunization Against Diphtheria with Alum Precipitated Toxoid F. Fulton, B. Moore, Joan Taylor, A. Q. Wells and C. S. Wilson — p. 349  
 Mustard Gas Lesions of Eyes Ida Mann — p. 353  
 Strangulated Hernia Consideration of Some Factors Affecting Mortality D. M. Douglas — p. 354  
 \*Allergy, Enuresis and Stammering I. Gordon — p. 357

**Immunization Against Diphtheria**—Fulton and his colleagues discuss the immunity judged by the Schick conversion rate produced in children inoculated with 0.1 and 0.3 cc of alum precipitated toxoid at intervals of four to six weeks. They have inoculated approximately 30,000 school children against diphtheria during the last two years. A proportion of the children were Schick tested before and after inoculation of 2,751 boys 74.5 per cent and of 2,150 girls 83.1 per cent reacted positively. The intensity of the Schick reactions did not appear to be affected by the age of the child. Pseudoreactions were observed in only 1.2 per cent of subjects. Approximately half of the children inspected for local tissue reaction showed some degree of reaction after inoculation. Local reactions were more common among Schick negative than in Schick positive reactors. Constitutional reactions following inoculation could not be observed. To determine whether the immunity conferred by the 0.1 and 0.3 cc doses was lasting the children

of two schools that had been Schick tested before and after inoculation were retested thirteen months after the second dose of alum precipitated toxoid 97.7 per cent of them were Schick negative. Further tests on the children of seven schools who had never been Schick tested showed that of 966 children Schick tested twelve months after their second inoculation 91.3 per cent were Schick negative. Two thirds of the positive reactions were trivial; many would probably have been regarded negative by less exacting observers. There was no diphtheria in any of these schools after inoculation and practically none in the whole town. Provided only preparations of alum precipitated toxoid of guaranteed potency are issued, inoculations of 0.2 cc and then 0.3 or 0.5 cc at an interval of not less than four weeks should provide an adequate degree of immunity against diphtheria without weakening the success of the immunization campaign by the occurrence of unduly severe tissue reactions. The optional increase of the second dose to 0.5 cc is suggested mainly to widen the margin of safety if the alum precipitated toxoid has not been stored in the refrigerator or is nearing its expiration date. For routine purposes children should be immunized with two doses at the age of 1 year, and then a single dose of 0.3 to 0.5 cc to stimulate their waning immunity on entering school at 5 years, and again at the age of 10. Preimmunization Schick tests are rarely called for, but Schick tests two to four months after inoculation serve as a useful control to the efficiency of the method employed.

**Sulfapyridine in Ophthalmia Neonatorum**—From September 1939 to January 1942 322 cases of neonatal ophthalmia were treated by Sorsby and his co-workers. Of the total 273 were treated with sulfapyridine by mouth and 49 by local medication. Sulfapyridine was used irrespective of the causal organism, and clinically there appeared to be no obvious specially selective action on gonococci. The contrast shown by the results obtained with sulfapyridine is striking: 61.9 per cent of patients were cured clinically within eight days by sulfapyridine as against 15.2 per cent by local methods and respectively 5.9 per cent required prolonged treatment of more than thirty days as against 26.1 per cent. Surprisingly there were as many rapid recoveries of nongonococcal as of gonococcal infections with sulfapyridine. Sulfapyridine is regarded as a specific against the gonococcus and feebly active against the staphylococcus and most of the other common organisms of ophthalmia neonatorum.

**Allergy, Enuresis and Stammering**—A history of allergy in the child or his family was obtained by Gordon in 85 (65 per cent) out of 128 bed wetters as compared to 28 per cent in 200 control children. Likewise there were 70 children who stammered, and of these 46 or 66 per cent had a personal or family history of allergy. The control figure for the 200 children was again 28 per cent. It is suggested that, among the manifestations of allergy, migraine is largely associated with enuresis and stammering and that headaches of various types may be a factor in the etiology. This being the case, and the fact that nightmares are common among allergic children, enuresis and stammering are not themselves direct allergic manifestations but result from the abnormal psychologic traits common to allergic persons.

Journal of Royal Naval Medical Service, London

28 1-74 (Jan) 1942

- War Burns Survey of Treatment and Results in 100 Cases A. I. L. Matland — p. 3  
 \*Chronic Meningococcal Bacteremia Review of Literature Together with Clinical Account of Five Cases Met with in Hospital Ship C. A. Clarke — p. 17  
 Angina Pectoris H. L. Hoffman — p. 28  
 Treatment of Some Common Dermatoses H. R. Vickers — p. 36  
 Psychiatry An Advertisement G. C. Tooth — p. 42  
 Novocain Injections for Myalgia T. A. Best — p. 47

**Chronic Meningococcal Bacteremia**—The clinical symptoms and physical signs of the 5 cases of chronic meningococcal bacteremia that occurred in a hospital ship between January 1940 and July 1941 Clarke points out, agreed well with the descriptions in the literature reporting cases occurring in the present war. Pain, fever, cutaneous spots and a palpable spleen were present. Signs of meningeal involvement were not



observed, but the pressure of the cerebrospinal fluid in 1 case was increased, although it was normal cytologically. The diagnosis in 2 cases with a positive blood culture was simple, the clinical picture and response to treatment in 1 case of tertian fever were so characteristic that no doubt was entertained, 1 patient was under observation for so short a time that dogmatic statements were not possible (he was admitted within three weeks from the same station as the patient with the tertian fever and all evidence points to the diagnosis being correct) and in 1 case subacute rheumatism was considered in the differential diagnosis but the length of the illness, the absence of articular swelling and cardiac signs and failure to respond to salicylates militated against a diagnosis of rheumatism. Sulfapyridine produced dramatic results in 2 cases, definite improvement occurred in 1 and in 1 the symptoms returned when the dose of the drug was reduced, but recovery ultimately occurred.

### Lancet, London

1 249-280 (Feb 28) 1942

- Treatment of Intracapsular Fractures of Femoral Neck A S B Brinkart—p 249  
 \*Physiologic Effects of Blast P L Krohn, D Whitteridge and S Zuckerman—p 252  
 \*Incidence of Perforated Peptic Ulcer Effect of Heavy Air Raids D N Stewart and D M de R Winsor—p 259  
 Diphtheritic Diaphragmatic Paralysis Treated in Box Respirator J M Todesco—p 261

**Physiologic Effects of Blast**—The mode in which blast lesions occur and the effect that blast has on the cardiovascular system, on the respiratory mechanism and on cortical activity in rabbits are discussed by Krohn and his colleagues. In the experiments the trunks of the rabbits were protected while their heads were directly exposed to high blast pressures. The changes observed confirm earlier observations that thoracic and abdominal lesions which result from blast are due to the wave acting on the surface of the body and not to the pressure or the suction components of the wave acting through the nose and mouth. The thoracic and abdominal lesions are primarily due to the impact of the pressure component on the wall of the body. The lesions can occur when the suction component is excluded. Electrocardiographic records show that the heart beat in blasted animals is coordinate. The electrocardiograms of animals which survive high blast pressures may show a transitory anoxemia. Animals exposed to blast show an immediate fall in arterial blood pressure related to the peak of the pressure anoxemia. Animals exposed to blast show an immediate fall in arterial blood pressure related to the peak of the pressure experienced. There is a slight maintained fall in venous pressure. These "shock" symptoms are not due to vagal inhibition. The falls in pressure can be regarded as a "shock" effect of pulmonary or extrapulmonary trauma, but the changes in the systemic blood pressure can be explained as secondary to changes in the pulmonary blood flow. The reserve of the capillary bed is reduced, and the danger of a rise in the pulmonary arterial pressure and of pulmonary edema as a result of increased venous return is greater. The respiratory rate of rabbits which survive exposure to blast is prolonged and increased. When the lung is so severely damaged that whole lobes are consolidated, respiration is extremely labored because of changes in the elastic recoil of the lungs. Animals exposed to high blast pressures are not concussed. Immediate death unassociated with external trauma appears to be due to "shock" following internal injury, sometimes it is associated with occlusion of the larger air passages by blood clot. Delayed death is generally due to pulmonary edema but sometimes to intraperitoneal hemorrhage. Treatment should avoid overtaxing an already diminished pulmonary capillary reserve. Oxygen, morphine and venesection may be beneficial, while transfusion, general anesthesia and exertion are contraindicated.

**Perforated Peptic Ulcer**—Stewart and de R Winsor obtained figures for 1937-1940 from sixteen London hospitals and discovered a statistically significant increase in perforated peptic ulcer during the first heavy air raids of September and October 1940. The probable cause for the increase was anxiety. Of the perforations for the four years, 93 per cent were in men.

The ratio of gastric to duodenal perforation was 16:1. The peak incidence was in those aged from 50 to 60, this is in contrast to the peak between 20 and 40 in the September and October 1940 series. There was no significant change in age, sex or site among perforations in the air raid period. The monthly average for the four years was 25, excluding September and October 1940 it is 23, whereas in these two months it was 64.

### Practitioner, London

148 193-256 (April) 1942

- Sex Hormones in General Practice E C Dodds—p 193  
 Therapeutic Use of Thyroid in General Practice D M Dunlop—p 198  
 Adrenal Hormones in General Practice L Cole—p 204  
 Therapy of Anterior Pituitary Glands S L Simpson—p 210  
 Pain in Endocrine Disorders V C Medvei—p 214  
 Management of the Septic Hand H Dodd—p 219  
 Cancer Recurrences Their Prediction, Treatment and Prevention J H D Webster—p 226  
 Laryngeal Tuberculosis B T Mann—p 231  
 Traumatic Myalgias M Good—p 236  
 Whooping Cough Preventive Inoculation W P Phillips and C W Anderson—p 241  
 Minor Surgery IX Nose and Throat E D Davis—p 244

### Quarterly Journal of Medicine, Oxford

11 1-76 (Jan) 1942

- Results of X Ray Therapy in Thyrotoxicosis L Martin—p 1  
 \*Effect of Liver Therapy on Erythropoiesis as Observed by Serial Sternal Punctures in Twelve Cases of Pernicious Anemia L S P Davidson, L J Davis and J Innes—p 19  
 Methyl Chloride Poisoning A M Jones—p 29  
 Pregnancy and Diabetes R D Lawrence and W Oakley—p 45

**Effect of Liver Therapy on Erythropoiesis**—The changes that Davidson and his colleagues observed in films prepared from sternal marrow obtained from patients with pernicious anemia before and at various short intervals after liver therapy was instituted are presented. Within six to ten hours of the initial injection of liver extract the mean size of the nucleated erythrocytes is reduced, the nucleus stains deeper and the chromatin strands appear irregular and lumpy. The frequency of cell type II increases at the expense of type I. The predominant cell of this type has a basophilic cytoplasm, the principal feature that distinguishes it from type I is the nuclear change. This change is not accompanied by any increase in the percentage of mitotic figures that is commensurate with the decided change in the appearance of the bone marrow picture. No definite evidence of amitotic division was observed. After thirty-two to seventy-two hours type I cells become relatively infrequent and the picture is dominated by small type III cells, usually with a polychromatic cytoplasm and a small, relatively dense nucleus, the megaloblastic picture has by now become normoblastic. Again no significant increase in mitotic figures is seen. The low incidence of mitotic figures and the definite cellular changes would seem to support the theory that the maturation is a direct physicochemical process due to the action of the liver extract rather than the result of cellular mitosis. There is no proof of the existence of such a process. It is also possible that the frequency of cells seen in mitosis is due to the rapidity of the cytologic changes, so that only a small number may be recognizable at any given moment. This contention is supported by the finding of only a small percentage of cells in division in the bone marrow five to six days after liver therapy was begun, when many reticulocytes were present in the peripheral blood, indicating a decided activity of the bone marrow. The rapidity of the change in the bone marrow from a megaloblastic to a normoblastic picture supports the view that normoblasts can be derived directly from megaloblasts. Differential counts of erythroblasts on sternal marrow films obtained from patients with severe untreated nutritional deficiency anemia and hemolytic anemia give figures comparable to those obtained in cases of pernicious anemia three days after the institution of liver therapy. Under conditions of prolonged and severe strain a reversion of the normoblastic to a megaloblastic blood picture may occur. If this is correct it supports the thesis that megaloblasts and normoblasts belong to one developmental series of cells.



**Schweizerische medizinische Wochenschrift, Basel****72 1-28 (Jan 3) 1942 Partial Index**

- Experiences in Treatment with Ovarian Hormones (Estrin Producing Hormones and Corpus Luteum Hormone) T Koller and K Anderes—p 1
- \*Fundamental Problems in Clinical Evaluation of Chemotherapeutics W Löffler and K Hegglin—p 7
- Focal Infection and Allergy O Meyer—p 10
- Etiology of Torsion Fracture of Leg During Skiing F Jakob—p 12
- \*Gonococcal Arthritis Treatment and Cure by Sulfathiazole U Thiry—p 13

**Clinical Evaluation of New Chemotherapeutics**—Löffler and Hegglin point out that the new chemotherapeutics is being further investigated because so far no preparation has been found which is entirely free from undesirable secondary effects and because certain pathogenic micro organisms are inadequately influenced by the available drugs. In view of the excellent results obtained so far the introduction of new ones will be justified only if they surpass or at least equal the ones now available. New compounds will be expected to produce the same therapeutic effect with less undesirable secondary effects and with greater therapeutic action. The action and the secondary effects of the available chemotherapeutic agents must be thoroughly understood if new ones are to be properly evaluated. The authors present a comparative evaluation of sulfapyridine and sulfathiazole on the basis of 511 cases of pneumonia. These two preparations have reduced the mortality rate of pneumonia to such an extent that further improvement can hardly be expected. While sulfapyridine is somewhat more effective in the reduction of fever sulfathiazole has the advantage that its effect on the blood system is less harmful. The authors describe their observations with N-dimethylacrylsulfanilamide which is known also under the term *organon*. They used this new preparation in 10 cases of acute pneumonia and found that its clinical effect is inferior to that of sulfathiazole whereas its undesirable secondary effects particularly on the blood system are greater.

**Sulfathiazole in Gonococcal Arthritis**—Thiry reports the history of a dancer aged 24 who twelve days before hospitalization had become ill with sore throat and a feeling of stiffness throughout the body, particularly of the neck. A tuberculous or gonococcal spondylitis was suspected. A strongly positive gonococcal reaction established the diagnosis. Treatment with sulfathiazole was instituted and proved successful. Inquiry revealed that the patient's occupation played a part in the localization of the lesion because eight days before the dancer became ill forced extension of the right leg on the back had been done in the course of training. The author thinks that slight traumas may favor the localization of the gonococcus in the hip joint of a dancer. Roentgenograms taken at various stages showed the extent of regression of osseous lesions.

**Archivos Argentinos de Pediatría, Buenos Aires****17 113-216 (Feb) 1942 Partial Index**

- Progressive Hypertrophic Neuritis of Dejerine-Sottas J P Garrahan J Diez and A M A Caprile—p 113
- Bradyrhythmia and Syncope Crisis by Congenital Auriculoventricular Block with Concomitant Interventricular Communication A Casabon R Kreutzer and L M Cucullu—p 124
- Syndrome of Guillain Barre of Tuberculous Etiology A Gareiso P O Sagreras and J E Mosquera—p 138
- \*Hutchinson's Teeth Sara de Alzaga and R R Sundblad—p 149
- Purulent Meningococcal Meningitis A A Bonduel and J M Albores—p 160
- Erythroblastic Icterus Two New Cases C M Pintos V O Visillae and R A Celle—p 165
- \*Intestinal Obstruction in a Prematurely Born Infant Caused by Mucous Plug J M Ucha—p 175

**Hutchinson's Teeth**—De Alzaga and Sundblad studied dental anomalies in children with congenital syphilis. They gained the impression that not all of the characteristics of Hutchinson's teeth need necessarily be combined. Bilaterality may be absent as is indicated in one of Hutchinson's own reports. The defects are not necessarily limited to the permanent teeth. While the majority of authors who have studied Hutchinson's teeth deny their occurrence in the first dentition, there are some, including the authors themselves who have observed them in the deciduous teeth. The frequency of Hutchinson's teeth in hereditary syphilis varies according to different investigators. The authors encountered dental anomalies in 51.21 per cent of 125 children in whom heredosyphilis

was certain or highly probable, though only 6 had typical Hutchinson's teeth. It is necessary to differentiate Hutchinson's teeth from the lesion that is characterized by the physiologic corrosion of the enamel on the free edge or from Fourner's dental vulnerability. While some regard Hutchinson's teeth as pathognomonic of a syphilitic infection, others deny that syphilis is the only etiologic factor, pointing out that rickets, deficient alimentation and endocrine disturbances may be important. The authors themselves encountered Hutchinson's teeth only in connection with hereditary syphilis. Two theories are most widely accepted about their pathogenesis in heredosyphilis: one assumes a direct specific action by *Spirochaeta pallida* while another assumes an indirect action of this organism by way of the endocrine glands. The authors report 6 cases in which they observed Hutchinson's teeth. In 3 the defect was in the permanent, in 3 in the deciduous teeth. All presented positive syphilitic reactions, but only 2 showed other clinical manifestations of heredosyphilis.

**Intestinal Obstruction in a Prematurely Born Infant**

—Ucha reports the history of an infant born prematurely during the eighth month of gestation. Since the infant did not expel meconium during the hours following birth, anorectal atresia was diagnosed. Rectal introduction of a Nelaton No 18 catheter indicated intestinal obstruction. Roentgenologic examinations were made without and with contrast medium. Tapid saline solution was administered rectally with pressure and induced the expulsion of a cylindric plug 10 cm in length, the examination of which disclosed meconium and small fragments of intestinal mucosa. The infant died on the fifth day, and necropsy corroborated the diagnosis.

**Boletín de la Soc Chilena de Obst y Ginec, Santiago****6 371-428 (Oct) 1941 Partial Index**

- \*Therapeutic Conduct in Convulsive Eclampsia L Matus—p 377

**Therapy of Eclampsia**—Matus injects into a vein 20, 30 or 40 cc of a 20 per cent magnesium sulfate solution or 60 cc of the solution intramuscularly, as well as hypertonic dextrose solution in large doses. The patient is isolated and put to rest. The injection is repeated within thirty minutes if the nervous excitement persists. Otherwise, intramuscular injections of 30 or 40 cc of magnesium sulfate solution is administered at intervals of four hours. As many as four or five injections are given. Intravenous injection of hypertonic dextrose solution is administered at the beginning of the treatment and is repeated in twelve hours. If the convulsions are not controlled by the first two or three injections, 20 cc of a 50 per cent sodium bromide solution and 40 cc of hypertonic dextrose solution is injected. The injections of magnesium sulfate are discontinued for the day. In grave cases 4 Gm of chloral is administered by rectum as supplemental therapy. With the onset of labor and dilatation of the cervix the membranes are ruptured. Otherwise pregnancy is not interrupted. The author warns against ouabain injections and preparations of the posterior part of the hypophysis in the course of labor in preeclamptic or eclamptic women. The former seem to have a harmful synergy with magnesium sulfate. Hypophysial preparations cause vascular spasm through which the convulsions are stimulated. Once the convulsions are under control the patient is given a daily intramuscular injection of 30 cc of a 20 per cent magnesium sulfate solution and a daily intramuscular injection of 40 or 60 cc of hypertonic dextrose solution. The treatment is discontinued when blood pressure, diuresis and urine are normal in puerperal women, and near normal in pregnant women. In the latter the treatment is reinstituted or intensified when labor approaches. At the beginning of the treatment the patients are put on the thirst and hunger diet for two or three days. The changes of diet from 0.5 liter or 1 liter of milk a day to a dry diet without salt to a diet with carbohydrates and later to a normal diet, depend on the course of the disease, the arterial blood pressure, diuresis and the urine. Vitamins in large doses are administered in the course of the dry diet and of the carbohydrate diet. The author treated 103 patients from 1937 to 1941. In 75 the convulsions were controlled by the aforementioned therapy alone. In 28 the convulsions diminished in frequency and intensity and the therapy was successfully supplemented or replaced by sodium bromide or chloral.

**Boletín de la Sociedad Cubana de Pediatría, Havana****14 49-112 (Feb) 1942 Partial Index****\*Hemorrhagic Purpura from Quinine Poisoning** R Pino Varas—p 49

**Hemorrhagic Purpura from Quinine Poisoning**—Pino Varas reports the case of a child 4 years of age who suffered from malaria and was given a total of 16.5 Gm of quinine in the course of treatment. There was no family history of hemorrhagic diathesis. The patient exhibited signs and symptoms of hemorrhagic purpura. The blood changes were of a toxic rather than a septic type. Purpura was controlled within one month by a therapy which consisted of liver extract, vitamin K and a diet abundant in milk and fruit juices.

**Lisboa Médica, Lisbon, Portugal****18 691-756 (Dec) 1941 Partial Index****\*Cardiovascular Changes in Typhoid** Electrocardiographic Study P Madeira Pinto—p 703

**Cardiovascular Changes in Typhoid**—Madeira Pinto made electrocardiographic studies in 20 cases of typhoid. Alterations of the auriculoventricular conduction of various types and of different intensity were observed in 6. They varied from simple increase of the conduction time to changes which indicated a complete block. Deformation and lowering of the S-T segment of the electrocardiogram with inversion or diphysism of the T wave and variations of the voltage of the T wave were observed in 12 cases. Extrasystolic arrhythmia was observed in 2. The electrocardiograms became normal in the first few days after disappearance of fever. However, the changes reappeared in 10 cases within twelve days when post-typhoid manifestations of cardiovascular character appeared. The electrocardiographic changes of convalescent patients lasted from two weeks to four months. The electrocardiographic alterations are, in the author's opinion, due to toxic irritation of the sympathetic nerves, to the metabolic disorders of the myocardium and to anatomic lesions of the myocardium. There is no relationship between the electrocardiographic alterations and the course of typhoid. Electrocardiograms are of no prognostic significance in typhoid.

**Revista Argentina de Reumatología, Buenos Aires****6 251-268 (Feb) 1942****Multiple Etiology of Acute Articular Rheumatism** G Costa Bertani—p 251**\*Mitral Stenosis in Children** Frequency and Diagnosis B Delgado Correa and Otilia Maccio—p 259

**Mitral Stenosis in Children**—The increasing frequency of cardiac localization of rheumatic disease in children induced Delgado Correa and Maccio to give particular attention to the early symptoms. Careful examination with the aid of electrocardiography, roentgenoscopy and at times with phonocardiography and phlebography, and the prolonged observation of the heart even in apparently pure articular forms led to the detection of a large number with mitral stenosis alone or associated with mitral or aortic insufficiency. Among 775 children with rheumatic disease 605, or 78 per cent, were found to have cardiac localization. Of these 317 had mitral insufficiency, 81 had mitral insufficiency and stenosis, 40 had pure mitral stenosis and others had aortic insufficiency and/or aortic stenosis alone or in combination with mitral, tricuspid and/or other cardiac lesions. The authors pay particular attention to the pure form of mitral stenosis, reviewing the 40 cases and an additional 34 cases in which there were no evident rheumatic antecedents. The 74 children varied in age between 4 and 15 years. Contrary to other investigators, who regard its occurrence as rare before the age of 14 or 15, the authors found that it is frequent even below the age of 10 years, 31 of 74 being of that age group. It was most frequent at the age of 11. Rheumatism is of greatest etiologic significance. The diagnosis of mitral stenosis is generally easy in children. Percussion often reveals an enlarged cardiac area. A thrill should be carefully searched for. Auscultation gives decisive information. The first sound may be accentuated, muffled or split. Occasionally auscultation discloses a slight systolic apical murmur. The mitral murmur is most plainly detected at the level of the second left inter-

costal space. Diastolic duplication and presystolic murmur are heard frequently in cases with rapid evolution. At the beginning of the diastole, mitral stenosis exhibits in place of the isolated sound, which is the second physiologic tone of the heart, two sounds, approximating the "ta-ta" of Durozier's murmur. Together with the first sound it produces a special murmur designated by Bouillaud "bruit de rappel." The detection of this murmur is of great importance for the diagnosis. Roentgenologic studies reveal prominence of the median arch, enlarged cardiac area and prominence of the left or of the right auricle. The electrocardiographic records disclose modifications of the P and T waves, alterations of the rhythm, preponderance of the right or left ventricles and the like.

**Revista Médica de Chile, Santiago****70 101-162 (Feb) 1942 Partial Index****Early Diagnosis and Treatment of Rheumatic Disease** E Cienfuegos—p 103**Some Aspects of Rheumatic Disease During Childhood** J Symon O and G Duffrau O—p 107**Early Diagnosis, Treatment and Prevention of Rheumatic Cardiopathies** Medicosocial Problem of Rheumatism in Children A Ariztia and O Illanes—p 117**Treatment of Medical and Surgical Disorders of Spleen** R Vargas Molinare—p 130**\*Timely Diagnosis of Gastric Cancer** H Alessandri R, F de Amesti, J Lerner M and M Ossandon—p 135

**Timely Diagnosis of Gastric Cancer**—Alessandri R and his associates stress the fact that early diagnosis of gastric cancer is not always a timely diagnosis. By timely diagnosis is meant that the cancer is still resectable and that there is no invasion of regional or distant lymph nodes. The degree of malignancy differs greatly in gastric cancers, in view of the extreme malignancy of some, early diagnosis is not necessarily a timely one. In cases of relatively slight malignancy the diagnosis may still be timely even though it is no longer an early diagnosis. Borrmann's classification is most suitable for practical purposes. Cancers of groups 3 and 4 of this classification are extremely malignant, their prognosis is unfavorable even if diagnosed early. Unfortunately, 80 per cent of all gastric carcinomas belong to this group. In the remaining 20 per cent, which belong to groups 1 and 2, the likelihood of timely diagnosis is considerable, because the neoplasms here are of a slow evolution and display little tendency to metastatization. The authors stress the importance of close cooperation between the radiologist and the gastroscopist in the timely diagnosis of gastric cancer.

**Archiv für klinische Chirurgie, Berlin****201 1-108 (Feb 26) 1941 Partial Index****\*Cause of Death in Venous Air Embolism, Experimental Study of Circulation and Respiration** H Bierhaus and H E Hintze—p 1**Problems in Vasography, with Special Reference to Arteriography** K Haszler—p 27**Complete Obstruction of Anastomosis Within First Few Days Following Gastric Resection** Anastomosis Phlegmon M Matyas—p 41**\*Effect of Intravenous Injection of Prostigmine, Sodium Chloride and Dextrose Solutions on Intestinal Motility** Experimental Study F Hamaguchi—p 50**Tumors of Region of Sella Turcica** H Kosie—p 89

**Cause of Death in Venous Air Embolism**—Bierhaus and Hintze produced venous air embolism in rabbits and studied the circulation and the respiration before, during and after the experiment. Air embolism produced a mechanical obstruction in the pulmonary circulation by blocking the arteries and capillaries of the lung with blood which contained air. Increased pressure in the pulmonary arteries elicits by reflex action a constriction of the right coronary vessels. Since, however, the right side of the heart requires more blood as the result of increased cardiac activity and this requirement is inadequately met, a heart death is easily explained. This death is not entirely due to reflex action, a number of other factors being involved. Unilateral or bilateral section of the vagus and administration of atropine do not alter the course of events in the pulmonary circulation following air embolism. The authors conclude that a vagus reflex cannot be the cause of death in air embolism. They believe that death is caused chiefly by mechanical factors involving the pulmonary circulation, although other components may constitute a factor.

**Influence of Prostigmine and of Solutions of Sodium Chloride and Dextrose on Intestinal Motility**—Hama-guchi describes animal experiments on the influence of prostigmine, of solutions of sodium chloride and of dextrose on the peristalsis of the small intestine. His studies were made on urethanized rabbits and revealed that hypertonic solution of sodium chloride produces a brief but noticeable increase in the tonus and the pendulum movements. Isotonic solution of sodium chloride exerts no influence on the motility. Hypertonic solution of dextrose reduces the tonus and causes disappearance of the motility. Isotonic solution of dextrose reduces the activity of the intestine but its effect is much less intense than that of the hypertonic solution. Not the simple existence of but the rapid increase in hyperchloremia or hyperglycemia is responsible for the effects of these two substances. Their effects are almost unchanged after exclusion of the vagi and the splanchnics. Prostigmine induces an intense and lasting stimulating effect on the tonus and the pendulum movements. Hypertonic solution of sodium chloride exerts a favorable effect on peritonitic intestinal paralysis by stimulating motility. In the presence of venous stasis hypertonic solution of sodium chloride temporarily suppresses the tonus of the intestine but the amplitude of the intestinal motility is increased.

### Monatsschrift für Kinderheilkunde, Berlin

86 1:9 272 (April 18) 1941 Partial Index

- \*Open Pulmonary Tuberculosis in Children Under 10 Years Maria Birkenfeld—p. 139  
Pathogenesis and Therapy of Alimentary Intoxication of Infants J. Dieckhoff—p. 223  
Course of Second Attack of Diphtheria and Its Bacterial Allergy in Animal Experiments K. Fejes and Z. Tevel—p. 238  
\*New Method for Treatment of Allergic Diseases K. Stolte—p. 244  
Roentgenologic Diagnosis of Congenital Heart Disease on Basis of Six Cases Verified by Necropsy K. Gefferth—p. 250

**Open Pulmonary Tuberculosis in Children Under 10 Years**—Birkenfeld presents observations on 60 children with open tuberculosis. She defines as open cases in which the customary staining methods disclose tubercle bacilli in the sputum. Young children have no special types of open pulmonary tuberculosis but types closely associated with the primary infection are especially frequent. The hematogenous types of open pulmonary tuberculosis particularly lesions of the upper part of the lung with apical foci deserve particular attention. The mode of infection was familial in 32 cases extrafamilial in 6 and unknown in the others. In tuberculous lesions of the upper lobe with apical foci the infection was nearly always familial among 17 cases with open primary infiltrations there were 10 in which the source of infection was unknown. The clinical manifestation as well as the duration of the development varied greatly in children with open tuberculosis. Some relationship could be discovered between the quantity of the bacilli and the type of the lesion. The presence of a large number of bacilli usually indicates a cavity. In lymph node perforations atelectasis and foci with caseous softening, bacilli are often eliminated in small numbers and only for a short time. The open tuberculous lesion generally does not inhibit the physical development of the child. Psychic effects are likewise generally absent. While intercurrent disease plays an unimportant part in the development of open tuberculosis in young children tuberculous complications are comparatively frequent. Exudative pleurisy, cutaneous, abdominal, osseous, laryngeal and renal tuberculosis, spontaneous pneumothorax and empyema are some of the complications. The treatment presents no unusual problems. General treatment is of primary importance. The various forms of collapse therapy are employed when the general condition and the pulmonary lesions make an intervention seem promising. Caution is advised with regard to extensive methods of collapse. The prospects of cure are not favorable in the young child with open tuberculosis. A definite evaluation is possible only after ten years of observation and after puberty has been completed without exacerbation of the tuberculous process. The prognosis is not entirely unfavorable.

**Pathogenesis and Therapy of Alimentary Intoxication of Infants**—Biogenic amines particularly histamine and choline may play an important part in the pathogenesis of alimentary intoxication in infants. There is a similarity in the

manifestations of alimentary intoxication and experimental histamine shock. Dieckhoff studied the histamine and choline contents of the blood of infants with dyspepsia and alimentary intoxication. He found that the blood of infants without intestinal disorders contains from 20 to 40 micrograms of histamine per liter. During dyspepsia this amount is not greatly increased, but in the course of alimentary intoxications it amounts to from three to four times the normal quantity. The choline content of the blood of healthy infants fluctuates between 0.22 and 0.36 mg per hundred cubic centimeters. In dyspepsia there is no essential increase, but during alimentary intoxication it reaches from four to five times the normal quantity. A substance which contains histamine and other ferment-like substances and which had been used successfully in the treatment of alimentary intoxication was tested for its destructive action on histamine by *in vitro* tests and it was found that it inactivates the increased histamine content of the blood of intoxicated infants. The circulating volume of blood is reduced during alimentary intoxication, this reduction is caused chiefly by the loss of plasma which in turn is brought on by the increased permeability of the vascular wall. It is important to increase the circulating quantity of blood. This can be done by mobilizing the blood in the depots by means of beta-(*p*-oxyphenyl) isopropyl-methylamine which is isomeric with ephedrine and known also under the term veritol.

**Treatment of Allergic Diseases**—In order to avoid an inadequate diet in a boy who proved to be allergic to many essential foods, Stolte decided to neutralize the allergens, which presumably were proteins, by precipitating them with tannin. It was assumed that they could be absorbed after they had been decomposed so that they could no longer act as allergens. Earlier tests had proved that the boy was extremely allergic to eggs, milk, cheese, beans and peas. It was decided to make a cautious attempt with eggs. On the first day the boy was given a teaspoon of an egg that had been beaten into red wine. No reaction followed. On the following day he was given half of an egg and on the third day a whole egg, each time in wine, again there were no reactions. For the precipitation of the allergens in other foods, a powdered tannin preparation was sprinkled on like salt. The child was now able to eat beans, peas and other foods against which he had been allergic. When the tannin was omitted the reactions recurred, but they subsided again when the red wine and tannin therapy was resumed. The treatment was tried in many other cases with frequently equally favorable results. A report by Hansen states that while some white wines may give rise to urticaria, red wine never does probably because the tannic acid in it precipitates highly molecular substances.

### 88 1-144 (May 23) 1941 Partial Index

- \*Idiopathic Progressive Brown Pulmonary Induration During Childhood with Hereditary Hemoptysis Intermittent Secondary Anemia Eosinophilia and Embolic Focal Nephritis E. Glanzmann and B. Walthard—p. 1  
Takata Reaction (Modification Oefelein) in Comparison with Erythrocyte Sedimentation Speed as Indicator of Activity of Pulmonary Tuberculosis L. Weingartner—p. 46  
\*Pectin in Treatment of Early Stage of Poliomyelitis E. Brunthaler—p. 53  
Problem of Anaphylactic Genesis of Certain Forms of Purpura Minssen Li—p. 63  
Proteus Infection in Acute Intestinal and Nutritional Disturbances in Infants Ruth Marie Konsek—p. 69  
\*Plasma Therapy J. W. Camerer—p. 101

**Idiopathic Progressive Brown Pulmonary Infiltration with Hemoptysis, Anemia, Eosinophilia and Nephritis**—Glanzmann and Walthard describe a new clinically well defined disease entity. The patient, a girl aged 11½ years had periodic attacks of hemoptysis. At the age of 6 years the child had had scarlet fever. On the basis of a scarlet fever nephritis a probably embolic focal nephritis developed which led to chronic hematuria. The recurrent loss of blood produced anemia with leukopenia and periodic blood eosinophilia. Although some thrombopenia could be ascertained there were no indications of a general hemorrhagic diathesis. Roentgenograms of the lungs revealed spotted shadows particularly in the two lower lobes. The case represents a peculiar hereditary familial pulmonary defect in which probably as the result of inherited

weakness and defective formation of elastic fibers, circulatory disturbances develop in the pulmonary capillaries. The capillaries are given insufficient support by the elastic fibers, they swell into the alveolar lumen, and during the phase of expiration they are inadequately pressed out by the elastic fibers, so that, in the absence of cardiac defects, stasis and hemorrhages take place into the pulmonary alveoli. The alveoli become filled with cells. A progressive brown pulmonary induration develops with extraordinary hemosiderosis of the lungs and complete iron incrustation of the collagenic and particularly of the elastic fibers. Changes in the framework may cause circulatory disturbances, because the veins which course in it are kept gaping, as is the capillary system. The prognosis of the disorder is unfavorable. Death ensues after two or three years.

**Pectin in Early Stage of Poliomyelitis**—Brunthaler calls attention to the fact that a considerable number of patients with poliomyelitis have diarrhea in the early stage. Having used the apple diet in the treatment of enteric diarrheas, he resorted to this treatment in cases of diarrhea in which poliomyelitis was suspected. The impression was gained that not only the intestinal disturbance but also the suspected basic disease was favorably influenced. In 13 children of ages between 5 weeks and 5 years with symptoms suggestive of poliomyelitis he administered at once 20 cc of a 3 per cent of pure pectin solution into the gluteal region. The cerebrospinal fluid could not be examined in all cases, because permission was not granted. In some of the cases in which the fluid was examined negative results were obtained, in 4 cases results were positive. Observations on a large clinical material will be necessary to decide the effect of pectin in poliomyelitis.

**Plasma Therapy in Infants**—Camerer employed plasma transfusions to combat dehydration, particularly in cases of manifest intoxication. Improvement in the treatment was imperative not only because the number of intoxications in infants had more than doubled in two years but also because the mortality was extremely high (66 per cent). He administered 50 cc of plasma per kilogram of body weight, as suggested by Bessau, but later reduced the amount to 25 and even to 20 cc per kilogram of body weight. Administration of plasma produced rapid improvement in the general state of the patient, disappearance of toxic symptoms, improvement of the turgor, increase in weight and improvement in appetite. The mortality rate of intoxications without plasma therapy in 58 cases and with plasma therapy in 46 is compared. The total mortality was reduced to nearly one half under the influence of plasma therapy, and when the fatalities of the first twenty-four hour period are deducted the rate is only about a third of what it had been before plasma therapy was instituted. Plasma therapy was used also in 61 cases with severe, frequently pre-toxic dyspepsia and in 6 without dyspepsia in which vomiting had caused severe dehydration. Plasma therapy presents a distinct advance in the treatment of acute dehydration.

## Zeitschrift für das experimentelle Medizin, Berlin

108 427-530 (Dec 28) 1940 Partial Index

\*Action of Desoxycorticosterone on Salt and Water Economy F. Heni —p 427

\*Influence of Chloroform on Serum Colloids as Basis of Serum Reaction F. Knüchel —p 440

Action of Vagal Substance Carbaminoylecholine on Vegetative Nervous System, Particularly of Patient with Tuberculosis E. Wegemer and E. Rödiger —p 461

Dependence of Circulatory Action of Synephrin on Initial Tonus of Vegetative Nervous System E. Rödiger and E. Wegemer —p 472

Chromatophore Hormone Content of Pituitary Preparations G. Kabeitz —p 484

Mechanism of Action of Some Hemostatic Substances H. Dyckerhoff and R. Marx —p 490

Local Hemostasis in Intestinal Hemorrhages of Typhoid Patients by Means of Vegetable Substances of the Tragacanth Type J. Kretz —p 495

Metabolism of Amino Acids, J. Horejsi and L. Hloucal —p 509

\*Action of Short Waves on Flow of Bile R. Leskovar —p 523

**Action of Desoxycorticosterone on Salt and Water Economy**—Adrenalectomized animals and patients with Addison's disease exhibit disturbances in the water and salt metabolism, as well as disorders in the carbohydrate, fat and protein

metabolism. Some investigators place the stress on the salt and water economy, others emphasize the carbohydrate metabolism and still others assume that the cortical hormone has a much more general and fundamental function in the cellular metabolism. Heni reports a case of Addison's disease in which 10 mg of desoxycorticosterone acetate was administered together with 10 Gm of sodium chloride and 5 Gm of sodium citrate. There has been a gain of 9 Kg in fourteen days. Records of water intake and elimination disclosed that this increase in weight was entirely due to water retention, which was manifested as edema. After the desoxycorticosterone was discontinued, the retained water and sodium chloride were eliminated and the weight decreased to normal values. A repetition of the desoxycorticosterone medication again resulted in water retention. Similar observations were made by American investigators. Heni administered desoxycorticosterone to 13 persons without adrenal defects. All of them exhibited a noticeable decrease in the elimination of urine and of sodium chloride. Reduction of the hematocrit value, the hemoglobin, the erythrocytes and the total protein content indicated a considerable dilution of the blood. The water retention which caused a gradual increase in weight could be intensified by the simultaneous administration of sodium chloride. The question as to where in the salt water economy the desoxycorticosterone has its point of attack could not be solved in the described experiments. The chief indication for the use of desoxycorticosterone is true adrenal insufficiency. To avoid harmful effects it is best to begin with small doses. In view of the effect on the sodium chloride and water economy, desoxycorticosterone can be given also in hypochloremic uremia, in severe postdiarrheal dehydration and in serious nutritional disturbances and alimentary intoxications. The favorable effect in severe burns is probably a result of modification of the water economy. In toxic circulatory weakness of diphtheria and other infectious diseases desoxycorticosterone should be given in large doses together with considerable amounts of sodium chloride.

**Influence of Chloroform on Serum Colloids as Basis of a Serum Reaction**—Knüchel points out that in extraction of blood serum or plasma with fat soluble substances such as chloroform, ether and petroleum ether a turbidity appears. Serum of healthy subjects or of those without infectious disease always showed a high degree of turbidity, whereas serum from patients with acute or chronic infections had a comparatively low degree of turbidity. The author investigated the physical or the physicochemical conditions that cause this turbidity or are responsible for its absence. The studies included the measurement of the dynamic surface tension and ultramicroscopic observation of the turbid fluids. It was found that the body which causes the turbidity is a protein cholesterol compound of the globulin fraction. Clinical observations and animal experiments suggest that the degree of turbidity reflects to a certain degree the state of immunity. The turbidity test promises to furnish information on the existence and the course of infectious diseases or with regard to the state of immunity. It could replace the more complicated determinations of the cholesterol content.

**Action of Short Waves on Flow of Bile**—Leskovar shows that with the application of short waves to the gallbladder two effects can be expected: (1) action on the hepatic parenchyma, (2) action on the smooth musculature of the extrahepatic biliary system. The author is concerned chiefly with the effect on the hepatic parenchyma. Experiments on 6 rabbits and 5 dogs demonstrated that a mild choleeresis is induced when short waves (6 meters) are applied for from fifteen to thirty minutes to the upper part of the abdomen. The choleeresis action of the short waves is not as great as that of a mineral water with a considerable magnesium content. Short wave treatment does not influence the biliary secretion elicited by the food stimulus. Determination of the dry residue of the bile indicated that short wave treatment does not produce contractions of the gallbladder that lead to the expulsion of bladder bile. Examination of the liver bile in 2 dogs disclosed that short wave treatment increased its water content in 1 case and decreased it in the other.



## Book Notices

**Unconsciousness** By James Crier Miller Cloth Price \$3 Pp 329  
New York John Wiley & Sons Inc London Chapman & Hall  
Limited 1942

This book represents a serious attempt to clarify the meaning of the term unconscious. The author states in the preface "The enigma of unconsciousness has been approached from many angles from the neurological at the one extreme to the philosophical at the other. It has been the subject of careful experimentation on the one hand and of soaring theorizing on the other. The problem has embraced such different phenomena as fainting, hypnosis, inattention, creativity, repression and instinctual behavior. Some who have interested themselves in these questions have seen that all these sorts of unconsciousness cannot be identical, and they have often insisted that they do not even have similar characteristics. Therefore various terms have been invented, compounds of the word conscious, in order to distinguish and explain these different phenomena. Such words are subconscious, preconscious, foreconscious, superconscious, coconscious and so forth. The results of this neologizing however has not been increased clarity but greater confusion. Moreover, many dissimilar sorts of behavior are still called unconscious, without any efforts being made to define the various senses of this wide term. The author attempts to distinguish the various meanings of the word unconscious and to differentiate and demonstrate variations in human behavior which have been classified as unconscious. To do this the author presents sixteen different meanings or definitions that may be classified as pertaining to unconsciousness: 1 Inanimate or subhuman incapable of discriminating or behaving. 2 Absent minded day dreaming anesthetized—unresponsive to stimulation. 3 Not mental. 4 Undiscriminating (applied to the individual or to his actions). 5 Conditioned acting sheerly on the basis of conditioning (applied to an individual), conditioned merely conditioned responses (applied to his actions emotions). 6 Unsensing (applied to an individual) unsensed (applied to his actions, emotions, needs, drives). 7 Unnoticing or unattending (applied to an individual) unnoticed or unattended (applied to his actions ideas emotions needs drives). 8 Insightless, lacking insight in the sense used by the gestalt school of psychologists (applied to an individual) not involving insight (applied to his actions, ideas). 9 Unremembering (applied to an individual), unremembered (applied to his actions emotions, needs drives). 10 Acting instinctively, behaving on an unlearned basis (applied to an individual) unlearned or inherited (applied to his actions, ideas emotions, needs, drives). 11 Unrecognizing (applied to an individual), unrecognized (applied to his emotions needs, drives). 12 Acting involuntarily (applied to an individual), involuntary (applied to his actions ideas, emotions). 13 Unable to communicate (applied to an individual), incommunicable (applied to his actions, ideas, emotions needs drives). 14 Ignoring (applied to an individual) ignored (applied to his actions ideas needs emotions). 15 Unconscious has come to have a specific psychoanalytic meaning. Originally unconscious processes were to Freud those unavailable to consciousness, which he likened to an "organ of perception." Concerning unconscious processes in this basic sense Freud made several propositions, and these are all represented by the particular freudian meaning of unconscious which in German he abbreviated UBW and which in English is abbreviated UCS. These propositions concerning unconscious processes are (a) that they are dynamically repressed away from consciousness the "organ of perception," (b) that they can be made available to consciousness only by special techniques such as hypnosis and psychoanalysis and (c) that they are not under voluntary control. 16 Unaware of discrimination (applied to an individual) unavailable to awareness (applied to his actions, ideas emotions, needs drives).

Although the author approaches the subject from the standpoint of the experimental and laboratory psychologist he has demonstrated his definitions with clinical material. The book is well written and the bibliography is exhaustive but it would seem that the author writes about psychoanalytic concepts particularly the unconscious, without much real understanding of

the subject. He quotes Freud's basic writings freely but makes little or no reference to the many excellent observations made by other students of psychoanalysis since Freud's original contributions. However, this does not seriously detract from the value of the book with reference to its main theme.

**Functional Neuroanatomy** By Wendell J S Krieg Ph.D Assistant Professor of Anatomy College of Medicine New York University New York Cloth Price \$6.50 Pp 553 with 274 illustrations plus section atlas by the author Philadelphia Blakiston Company 1942

Not many books are throughout so expressive of a personality that one feels certain that the author wrote because he enjoyed doing it—because like a true artist something within him cried out for expression. This is such a book. Not only is it well written and extremely well illustrated but it brings to the teaching of neuroanatomy a new and an interesting approach. The teaching of neuroanatomy needs a new approach. Probably no other subject is generally more poorly taught and more thoroughly disliked by the students than this. Hardly more than one out of fifty of them acquires sufficient from his course in neuroanatomy to make it worth his while. Here is a method, a book and in large measure the material whereby neuroanatomy can become one of the most intriguing of medical subjects. Every teacher who will take the time to become thoroughly familiar with Krieg's book and his method can, if he has a drop of the real teacher's blood in his veins, revise his course for the better.

With the exception of Rasmussen's valuable but much briefer and more diagrammatic book on pathways in the central nervous system the present book is unique in neuroanatomy. Krieg has presented the nervous system not as uninteresting cold, functionless slides of neural tissue but as an active dynamic mechanism. He is concerned here with how it is constructed, how the various parts are integrated, with how they operate and with what they do. In his presentation he has grouped those structures which form one system together and has discussed them as parts of a mechanism. Thus one finds the auditory system (the ear, cochlear nerve, cochlear nuclei, trapezoid body, lateral lemniscus and medial geniculate body) presented together. The same is true of the visual system, the somesthetic system, the pyramidal and the extrapyramidal motor systems, and others.

Not the least important part of this textbook are the illustrations all but twenty-nine of which have been drawn by the author himself for this book. Many of them are three dimensional so that the course of the neural pathway or the location of the nucleus under consideration is clearly demonstrated. All are well conceived and with but few exceptions (notably figures 30, 150 and 151) are unusually well drawn.

Like all other books, this one has its faults. However, they are neither numerous nor important. The majority of them seem to arise because the author is presumably neither a physiologist nor a clinical neurologist. Thus, on page 36 muscular contracture usually arises from overaction of unopposed intact muscles rather than from shrinkage of connective tissue in the paralyzed muscle. Nor is it necessary to keep paralyzed muscles "alive by direct electrical stimulation" in order to insure their recovery. On page 40, all modern neurophysiologists would disagree with the statement that the afferent end organ concerned in the knee jerk is located in the tendon. On page 71 the statements that destruction of the spinal accessory nerve results in an inability to turn the head to the opposite side and to shrug the shoulder are incorrect. Few clinicians would agree with the statement on page 178 that homonymous hemianopsia commonly arises as a result of the accumulation of fluid in the temporal horn of the lateral ventricle, which stretches the fibers of the visual radiation. Few would agree with the generalization made on page 185 to the effect that loss of the pupillary reflex on accommodation while the pupillary reaction to light is retained, is due to severing the neuron running from the calcarine cortex to the accommodation center. The old 'onion skin' distribution of sensation of the face presumed to result from the distribution of the sensory fibers in the brain stem, shown in figure 134 b is not in accord with recent clinical observations. The statements on page 213 that the motor division is of necessity sacrificed in the operation of retrogasserian neurectomy and that even when this division is sacrificed this



"seriously handicaps mastication" are inaccurate. The statement on page 264 that sections above the midbrain do not give rise to any abnormality of tonus results from attempting to carry over physiologic experiments on lower forms to the sub-human primates and man and is not true for the latter, as the author clearly shows in his discussion of the extrapyramidal cortical system. Furthermore, the discussion of the spasticity resulting from cortical lesions (p 337) is not accurate. The author attempts (pp 336 to 340) to divide Brodmann's area 6 into a premotor and an extrapyramidal area. This is not in accord with the ideas of other workers in this field and only serves to confuse the student. The statement (p 399) that with right sided cerebellar lesions "the right arm is held stiffly away from the body" is incorrect. There are certain annoying colloquialisms throughout the book, such as "nigra" for substantia nigra, "oblongata" for medulla oblongata, "gray" for gray matter and "dura" for dura mater. At times grammatical construction is poor. This is particularly true in the use of words of reference. For example, on page 171, fourth paragraph, what does "them" in the sixth line refer to, and does "they" in the tenth line refer to the optic tracts or to the cerebral peduncles? On page 178, second paragraph, first line, to what does "such cases" refer? On page 336, line 13, does "it" refer to area 6a, which is the subject of the preceding sentence, or to the strip region, which is the subject of the paragraph? There are but few typographic errors. Among the most obvious are the following: on page 63, line 16, figure 30 probably should read figure 33. The same is true on page 65, line 25. In the legend to figure 218, page 356, "Intercranial" should be Intracranial, and in the legend to figure 224, page 362, "fourth ventricle" should read "temporal horn of the lateral ventricle."

Again it should be emphasized that these faults are few and do not detract materially from the value of this book. The book is designed for and will prove most useful to those who wish to learn the structure of the nervous system. For that purpose it is probably the best book that has ever been written. It will not prove as useful, however, as a reference book.

The atlas at the end of the book which correlates the appearance of sections stained by the Weigert method, which are the chief laboratory material of students of neuroanatomy, and a three dimensional diagram of the important nuclei and tracts will prove most useful and has been beautifully drawn.

There is a useful index but no bibliography, although a few source books with useful bibliographies have been cited.

*The Eclipse of a Mind* By Alonzo Graves. Cloth. Price \$5. Pp 722. New York: Medical Journal Press, 1942.

This is the story of a gifted but psychopathic newspaper reporter who suffered two mild illnesses in his late teens which are not adequately described but which were colored by depression. At 30 he had a borderline episode the precise nature of which was not recognized and which did not require hospitalization. Subsequently he had five hospitalizations, at 37, 40, 41, 42 and 45. These illnesses presented certain unusual clinical features. They were florid paranoid schizophrenic states marked by a wide variety of delusions and hallucinations but occurring always in a setting of manic excitement with some elation. Each time, as the hyperergastic state subsided, the delusional and hallucinatory material gradually dropped out of the picture and the patient was able to return to a more or less normal life. Large portions of the hospital record of each admission are included in the text and it is dismaying to find that in spite of long discussions of the abundant paranoid schizophrenic material the case was persistently diagnosed "manic-depressive psychosis" merely because the powerful emotional tides caused such extreme fluctuations in the intensity of the underlying delusional process. This is not calculated to increase confidence in state hospital statistics. In no place was the pertinent question raised why it is that some patients manifest their paranoia in a setting of depression and others in a setting of overactivity and elation.

On the occasion of the patient's fourth hospitalization Dr. Parkman, the compiler of the volume, set the patient to work typing out his own history, his reminiscences of his early life, his comments on his various strange experiences, on his delu-

sions, on his hallucinatory experiences, and on the hospital notes themselves. The work was begun in 1933 while the patient was still quite ill and continued over several months as he improved. Consequently comments on his original comments frequently had to be added in footnotes as he gathered additional insight. At places the hospital notes and the patient's more or less relevant comments are printed in parallel columns.

This strange autobiography is interspersed with many essays on a wide array of topics: police reporting, prostitution, white slavery, hypnotism, political and economic problems, the boom years and the depression, and thumbnail sketches of many of his companions in the hospital. In chapter 65 there is a moving, challenging and skilful description of life in a state hospital, which he calls "a worm's eye view of a mental hospital." There are further chapters on his sex life, his dream life and the meaning of his emotional fluctuations to himself. The method by which the material was gathered is described on pages 540-544. The naïveté of the editor in accepting as conclusive the patient's own explanations of many things is exemplified in many places, as for instance on page 541, where he accepts the patient's rationalizations of his impotence as an adequate explanation.

Gradually the patient evolved a masochistic reaction to his whole experience. He left for Russia in September 1934, and no data seem to be available on his condition since 1935.

At best one might say that the book contains the raw material on which a scientific study might be made. Unfortunately, to the reviewer it seems doubtful whether an analytic dissection and synthesis of the text would repay the effort without having the patient there to investigate directly and to fill in the many essential gaps which exist despite the mass of material offered. It is characteristic of the book's defects that the first adequate clinical history of the illness is found on pages 502-504, when it becomes evident that the patient suffered from masked semi-psychotic states even in childhood. The relation of this fact to the development of a psychopathic personality is nowhere considered.

So much labor has gone into compiling the volume that one regrets not being able to find in it more that is of value.

*Mental Hygiene for Community Nursing* By Eric Kent Clarke, M.D. F.A.P.A. Professor of Psychiatry and Pediatrics, University of Minnesota Medical School, Minneapolis. Cloth. Price, \$3.50. Pp 267. Minneapolis: University of Minnesota Press, 1942.

This is an excellent book designed to aid nurses in public health and school services, or in industry, in an understanding of problems of mental health and disease. The community nurse is in a particularly favorable position to have early contact with disturbed or potentially disturbed children and adults. If she is sufficiently informed to see that these cases are referred early for proper diagnosis and treatment, much subsequent mental illness or social disability may be prevented. The problems of physical health which the nurse must deal with are often complicated or caused by emotional difficulties, early recognition of which may greatly facilitate treatment.

The author systematically discusses the mental health problems of childhood, adolescence and adult life. His approach is that of the psychiatrist experienced in modern child guidance methods and points of view. The material is well organized and many case discussions are included. In many instances the case discussions are purposefully oversimplified in that many obvious dynamic causative or contributing factors in a given case may be overlooked or omitted. This permits a pointing up of factors the author is particularly interested to bring to the attention of nurses.

Dr. Clarke points out the particular obligation of the community nurse to understand and utilize the community resources for study and treatment of emotionally or socially disturbed children and adults. He places wise limitations on her responsibility, which is not that of the psychiatrist or of the social worker. He points out particular fields of useful activity, especially in dealing with mothers and their children in which the psychiatrically oriented nurse can offer wise guidance and counsel. He concludes with a chapter on the mental hygiene of the community nurse herself.

This is an excellent book which can be profitably read by nurses as a useful review of mental health problems.

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

### PROTECTIVE CLOTHING AND OINTMENTS FOR WORKERS EXPOSED TO CHROMATES IN TANNERIES

*To the Editor*—A number of men working in a leather tanning factory have been getting a dermatitis of their forearms and occasionally their arms and lower abdomen. There is a moderate amount of pruritus with this eruption. The tanning solution that they come in contact with is made from potassium bichromate, glucose and sulfuric acid. The resulting solution is known as a chrome tanning solution. The hides are hung in vats filled with water and a certain percentage of chrome tanning solution is added. After these hides are taken out, other hides are added and more of the chrome tanning solution is added, also some sodium bicarbonate to reduce the acid content. The men affected are those who carry the poils of the chrome tanning solution and those hanging and removing the hides from the vats. Usually there is no dermatitis until they have been working at this from three to six months. Removing to other work and the use of a soothing ointment completely cures this condition. My diagnosis is a sensitivity dermatitis, but my problem is one of protection against the dermatitis. I would appreciate any information you can give me as to the protection of these men against the dermatitis.

Philip L. Wolgin, M.D., Elizabeth N. J.

*ANSWER*—Dermatitis is of frequent occurrence among workers in tanneries. Chromate tanning solutions are among the principal causes. Concentrated solutions of the alkaline bichromates will cause chronic ulcers called 'chrome holes,' especially if they enter into abrasions of the skin. Such ulcers are fairly common among workers in tanneries. Exposure to chromic acid and the chromates may in time also cause allergic eczematoid dermatitis. These patients seem to have the allergic type of chrome dermatitis, as shown by the fact that they became sensitized after three to six months' exposure. The treatment outlined is the correct one, as their complete recovery proves.

Effective preventive measures used in most modern tanneries against this type of dermatitis consist in the wearing of impervious sleeves, aprons and gloves. These could formerly be obtained from rubber manufacturing concerns, but since rubber is now difficult to obtain on account of the war priorities, the sleeves and aprons may be made from oilcloth or any of the water impervious synthetic resins such as phlofil, koroseal, vinylite, cellulose acetate or waterproof cellophane. Sleeves should be worn over the rubber gloves and fastened at the wrist. No information has been found on manufacturers of such protective clothing and the workers usually must make them for themselves.

Protective ointments offer less protection than garments such as described, but if protective ointments are used they should be of the water insoluble type, such as mixtures of hydrous wool fat 70 per cent and castor oil 30 per cent. To this may be added 2 per cent of a wetting agent such as duponol to facilitate its removal after work.

There are several types of protective ointments on the market which are similar in composition to the foregoing formula. Some of these are:

West No. 33 West Disinfecting Company, 4216 West Street, Long Island City, N. Y.

Phy 6 Milburn Company, 908 Henry Street, Detroit.

Sav Skin, Doak Company, 2132 East Ninth Street, Cleveland.

Chrome Ointment, Wambaugh Chemical Company, Goshen, Ind.

Tecto, Duke Laboratories, Inc., Stamford, Conn.

Practi-Kreme, Prack Laboratories, Inc., 42 West Fifteenth Street, New York.

Daily change to clean work clothes and cleansing showers immediately after work are of great value in preventing dermatitis among tannery workers.

For further reference:

Schwartz, Louis and Tulipan, Louis. *A Textbook of Occupational Diseases of the Skin*. Philadelphia: Lea & Febiger, 1939. pp. 163, 168 and 310, 323.

Schwartz, Louis, Warren, L. H. and Goldman, F. H. *Clothing for Protection Against Occupational Skin Irritants*. *Pub. Health Rep.* 55: 1158 (June 28), 1940.

### CHRONIC CUTANEOUS LESION OF FINGERS

*To the Editor*—May I have your advice concerning the treatment of a long standing eczema of the fingers which has not responded to roentgen or other local treatment by a dermatologist? The patient, a man of 32, says the condition started at the age of 12 when he was accustomed to bite his nails. There is a family history of allergy but no incriminating agent has been uncovered. The lesion is worse in winter when the patient has been accustomed to wear wool gloves, but cutaneous tests to wool antigen have been negative. So have other cutaneous tests to common foods and common environmental allergens. However, a cutaneous test with trichophytin did give a strong local reaction. Oidiomycin was negative. There is no evidence of epidermophytosis of the toes at present, although the patient has had this condition in the past. I am told that desensitization with trichophytin may produce a constitutional reaction unless great care is used and that the treatment would probably be ineffective, particularly in a case of such long standing.

Clifford Kuh, M.D., New Haven, Conn.

*ANSWER*—From the meager description given, any attempt at a diagnosis is not justified, but from the expression "eczema of the fingers" it seems likely that a superficial dermatitis involving all or most of the fingers is present. Four of the diseases commonly involving the fingers and coming under this head are (1) contact dermatitis, (2) fungous infection, (3) neurodermatitis and (4) pompholyx.

The first is the result of sensitization to any one or several of the substances with which the hands come in contact in work or at other times. After a long persistence of the disease the sensitization is always multiple. Study of the patient's habits at work and during his leisure, especially study of acute exacerbations if such occur, may lead to discovery of the offending substances. The cutaneous tests cited in the query with wool antigen, foods and other allergens were apparently scratch or intradermal tests which do not apply to contact dermatitis. Patch tests made on normal skin of the forearms may be of value in detecting the causal substances. Soap is one of the commonest offenders, and such dermatitis is always worse in winter when the dry air adds to the drying effect of soap. Wool gloves, even though there is no sensitization to wool, would irritate the inflamed skin. Cotton gloves should be worn under them. Avoidance of all irritants, the use of oil or one of the sulfonated oil detergents for cleansing and soothing local applications, such as calamine powder 4 parts, zinc oxide 4 parts, starch 7 parts and sufficient rose water ointment to make 30 parts, applied thinly night and morning after cleansing gently with oil. A light bandage or thin cotton gloves may be worn over it. Soft ointments do not succeed as well with contact dermatitis as do drying applications. One per cent phenol or a somewhat larger proportion of menthol may be added.

In the diagnosis of the second possibility, infection with a fungus, the trichophytin local reaction cited is no proof that the patient is now suffering from a fungous infection. It shows only that at some time in the past he has had such an infection. Fungous disease of the fingers may sometimes be diagnosed directly from the cutaneous lesions but usually requires proof of cultures or discovery of the fungus by direct microscopic examination of the scales or roofs of vesicles. Local treatment is usually successful in clearing a fungous infection but difficulties are encountered, especially in cases of long duration. If the dermatitis is a dry one, painting daily with 20 to 50 per cent of tincture of iodine in alcohol, or the application once a day of weak Whitfield ointment 2 to 4 per cent salicylic acid with twice as much benzoic acid in rose water ointment, will often succeed. If the infection is resistant, 0.5 per cent thymol may be added to the ointment or an ointment or chloroform paint of chrysarobin 2 to 5 per cent, may be necessary. The patient must be warned of the great danger of carrying the latter to his eyes. The hands should be kept covered. The advice with regard to desensitization with trichophytin is correct. Attempts to accomplish this are attended with considerable risk of unpleasant reactions and even the possibility of increased sensitivity.

The mention of a family history of allergy and the fact that the patient in childhood was a nail biter with the information that the disease is always worse in winter, suggest that the dermatitis of twenty years' duration may be on a nervous basis. The negative scratch or intradermal tests (if the conjecture regarding these is correct) do not favor this diagnosis but do not disprove it. The patient's neurocirculatory and mental reactions should be studied and he should be quizzed on the habit of rubbing or picking his fingers. Involvement of the flexures at the elbow and knees, the eyelids, the nape or the external surfaces of the extremities should be looked for. If this is determined to be the correct diagnosis, rubbing, scratching or picking should be strictly interdicted and the zinc paste with phenol or menthol should be given him with instructions to use it in place of scratching when the paroxysms of itching come on. Cool wet dressings of saturated boric acid solution are of value in allaying the itching, the lotion being dabbed dry after

an application of from fifteen minutes to an hour and the zinc paste applied. In this case, as in the case of contact dermatitis, soap and water should be avoided and wool should not be worn next the skin. The cause of the trouble should be explained to the patient and his cooperation required, by the avoidance of scratch mechanical irritation. Rest should be insisted on, best by change or a vacation of some length. The discussion of this subject by Becker and Obermayer (Modern Dermatology and Syphilology, Philadelphia, Montreal and London, J B Lippincott Company, 1940) is an excellent one.

The fourth possibility considered is frequently recurring attacks of pompholyx, a disease on a constitutional basis which resembles ringworm infection clinically but is related to neurodermatitis in its etiology. Vesicles on the sides of the fingers are typical of this condition, deeper than the vesicles of contact dermatitis, in fact, on the palms and soles they are quite deep. They occur in groups, and itching is quite severe. For a vesicular eruption, use cool wet dressings or baths of aluminum subacetate solution, 1 part to 16 of water, kept on for an hour at a time, then apply the cuticolar lotion of Fantus and Dymewicz (Cuticolar Preparations, *J Am Pharm A* 27 878 [Oct] 1938), an addition of a skin color powder to bentonite suspension. This is dabbed on and allowed to dry. The more severe the attack the longer should the wet applications be used and the shorter the interval of cuticolar lotion. A solution of potassium permanganate in water may be used as wet dressings or baths in place of the aluminum solution.

When the vesicles have dried up, the zinc paste may be applied thinly. To prevent recurrences the same general treatment as that used for neurodermatitis is indicated.

#### HEBERDEN'S NODES

To the Editor—I should like to obtain the latest information on the prognosis and treatment of Heberden's nodes

M D, Virginia

ANSWER—These "little hard knobs frequently seen on the fingers" were first described by Heberden in 1802, but his description of them was so meager (only fifty-three Latin words, translated into seventy-nine English words) that many diverse clinical, pathologic and roentgenographic definitions of the condition have since arisen. Certain physicians of the last century regarded Heberden's nodes as manifestations of gout, but current opinion is that they have nothing to do with gout but are an expression of primary (idiopathic) osteoarthritis. When primary osteoarthritis affects fingers it most commonly affects terminal phalangeal joints, sometimes midphalangeal joints (later affected) and the "thumb base" also, but metacarpophalangeal joints are rarely if ever affected. Although osteoarthritic midphalangeal joints may become somewhat nodular, and although Heberden himself did not specifically confine his digitorum nodi to the terminal phalangeal joints, it is the terminal phalangeal joints which exhibit the most nodular osteoarthritic processes, hence current definitions generally restrict the term "Heberden's nodes" to the involvement of the distal phalangeal joints of fingers. No analogous changes affect the toes.

Osteoarthritis of terminal phalangeal joints may arise (1) from acute trauma (traumatic Heberden nodes) as a result, for example, of baseball injury (baseball finger) or of catching a finger in a door or window, or (2) spontaneously, without a history of any specific injury (true Heberden nodes, the idiopathic type which Heberden described). The first or traumatic type is characterized by degenerative cartilaginous and hypertrophic bony changes indistinguishable from those which occur in the idiopathic type. But the clinical history of the traumatic type is readily distinguishable from that of true, or idiopathic, Heberden nodes: there is a definite history of acute injury followed at once by pain and swelling of periarticular soft tissues, in the course of several weeks or months hypertrophic osseous changes affect the injured joint, in a relatively short time the articular enlargement becomes painless and remains unchanged through life.

In contrast, the true, or idiopathic, Heberden nodes make their appearance insidiously, occasionally in young or middle aged persons but generally in persons aged 45 or more. The first symptoms may be numbness and tingling of the affected finger, with mild transient aching and tenderness on pressure, in this early stage the finger may be objectively and roentgenographically normal. As the disease progresses, tenderness and aching become more chronic and periarticular thickening and inflammation appear, roentgenograms may now show beginning thinning of the interosseous space, indicative of cartilaginous destruction. Slight marginalipping introduces the osseous reaction. The bony node slowly increases in size, although the periarticular reaction may begin to subside. Roentgenograms may then reveal

cartilaginous destruction and irregular destruction and hypertrophy of marginal and subchondral bone. This destruction often leads to lateral or mesial displacement of terminal phalanx. Finally, nodes lose their tenderness, the swollen and thickened periarticular soft tissues contract over the persistent bony knobs, and thereafter the Heberden node remains as a relatively painless but rather unsightly nuisance. The pathologic histologic structure of these nodes has been described in detail by Brogster (*Verhandl d deutsch Gesellsch f inn Med* 40 640, 1928).

An occasional complication is the appearance of synovial cysts, cystic nodules on the dorsal aspects of the fingers at, near or between the terminal and midphalangeal joints. These small gelatinous cysts, attached to tendon sheaths, occasionally become inflamed and sometimes are opened and evacuated surgically. Thereafter the walls collapse and the nodule recedes, but it may reform. Usually the cysts need not be opened, because often they will slowly recede spontaneously. Similar lesions may affect persons without Heberden's nodes, their pathologic reactions have been described (Weber, E P, and Freudenthal, W, *Proc Roy Soc Med* 31 345 [Feb] 1938).

The cause of true, or idiopathic, Heberden nodes is not known but is doubtless the same as that of primary osteoarthritis, of which it is an expression. Age certainly is an important predisposing or conditioning factor, for the incidence of Heberden's nodes is notably related to age. Stecher in his recent study (*New England J Med* 222 300 [Feb 22] 1940) reported their increasing incidence in white persons and Negroes of advancing years. Their incidence among persons less than 50 is small, but after this age it increases rapidly, so that the nodes appear in about 6 to 20 per cent of elderly white men and 15 to 30 per cent of elderly white women. They are about twice as common among white women as among white men and about as common among Negro men as among white men, they are more common among Negro men than among Negro women but much less common (about a third as common) among Negro women than among white women of similar ages. Attritional changes due to "aging" of cartilage have been held responsible by some workers, but this cause seems dubious when it is recalled that premature idiopathic Heberden nodes can affect persons in their teens, this occurred, for instance, in a girl aged 15 studied by Burt (*Rheumat Dis* 1 52 [Jan] 1939). As stated, sex seems to be an influencing factor in Monroe's series Heberden's nodes affected nine times as many women as men (Monroe Oxford Loose-Leaf Medicine, chapter XV, 1939, p 367), and in 93 per cent of Burt's 40 consecutive cases of Heberden's nodes the persons affected were females. Many patients who have Heberden's nodes remark on an apparent familial tendency to the condition. But these nodes occur so frequently that it is common to find that a parent of a patient was similarly affected. Inflammatory or degenerative changes affecting the nutrient vessels of cartilage have been considered by some investigators to be the cause of the degenerative changes in cartilage which initiate Heberden's nodes, thus Kovacs reported a decrease in the number of capillaries near Heberden's nodes (*THE JOURNAL*, Dec 8, 1934, p 1803). But other workers have found no consistent evidence of related vascular abnormalities. Heberden's nodes frequently occur among persons who use the hands excessively but seem to be as common, or even more common, among "dowagers" and other persons of the leisure classes who certainly do not traumatize the fingers much. It must be concluded that the basic cause of Heberden's nodes is not age or trauma, vascular deficiency or "hereditary articular inadequacy" but some other as yet unknown factor.

Cartilage has little or no capacity for repair, hence little can be done to replace what has been destroyed or to "cure" Heberden's nodes. But measures can be adopted which will lessen the patient's worry and pain. The patient should first be assured that he does not have a progressive, deforming disease like rheumatoid arthritis but does have a common condition which probably will be more painful to his pride than to his joints. Although trauma may not be a basic cause it is a sure aggravating factor, and the more the affected fingers are traumatized the more annoying are symptoms likely to be. Daily use of various types of physical therapy (contrast baths, paraffin packs, hot soaks and dry heat from an electric "heater") is helpful in relieving pain. Results of roentgen therapy in the main have been disappointing. Theelin recently was advised for the relief of painful swollen Heberden nodes (*St Louis K K Northwest Med* 39 452 [Dec] 1940), but its value has not been confirmed or the rationale for its use explained. Also unsubstantiated by other investigators is the claim of Elliott that the nodes can be reduced in size by the use of adhesive plaster bandages or metallic bands intermittently (*M J & Rec* 136 509 [Dec 21] 1932).

## PAINFUL NODULES OF LEGS

To the Editor—A Jewish housewife aged 46, amenorrheic for the past two years, became ill in June 1941 with pain and swelling of both legs up to the knees. This confined her to bed and the swelling subsided spontaneously. When first seen in October she had had since June pain in the left calf which became worse at night and inability to walk on the left leg. Examination revealed that the left calf was tender with a sensation of a lump in that area and that the left leg was slightly swollen. The rest of the examination gave normal results. The blood Wassermann reaction was negative; there was moderate secondary anemia and no lesions were apparent in roentgenograms of the long bones. There was a history of colitis in 1935 and of several peculiar small hard nodules on the skin, one of which after biopsy in a reputable dermatologic clinic in 1933 was diagnosed as atypical fibrosarcoma. Three such nodules were present on the left shin. The patient's brother had what was diagnosed as neurofibromatosis. Treatment with large doses of iron and injections of thiamine hydrochloride and the vitamin B complex gave no relief. Biopsy of one of the cutaneous nodules in 1941 rendered a diagnosis of benign angiofibroma. The left leg is now normal but a similar condition has developed in the calf of the right leg in which tender cordlike masses can be palpated. Edema is not present. There has been no substantial weight loss throughout the course. The patient is bedridden and unable to walk and complains of pain in the right leg.

M D New York

ANSWER—It would be more helpful toward making a correct diagnosis if more information was given as to the character of the lesions themselves and their sequelae. Was only the subcutaneous tissue involved? Was the skin freely movable? Was it discolored? Were scars or atrophy found after healing?

The nodules which were present before the attacks of pain and swelling of the legs and which were diagnosed as fibrosarcoma undoubtedly have no relation to the later events. These probably were a relatively common type of benign fibrotic tumor occurring most often on the lower extremities and known under several different names such as fibroma durum, nodular subepidermal fibrosis and histiocytoma. Tumors of this type average 1 cm in size, are firm and may be reddish brownish or purplish. They are set in the dermis and sometimes rise a little above the skin level or are flush with it. Once they attain their maximum size there is little tendency to change for long periods. They may be excised or destroyed by the cautery or by surgical diathermy. The entire tumor must be removed or destroyed otherwise it recurs.

The deeper painful swellings of the calf suggest two disorders. The first, a type of erythema induratum which appears in women of middle age with poor peripheral circulation, is particularly painful and disabling and more destructive. In the treatment of this condition one seeks to improve the circulation by appropriate measures depending on the factor impeding it. Arsenic, as in the Asiatic pill or in solution of potassium arsenite, is effectively used. Roentgen therapy is helpful.

The second disease which comes to mind is the Weber-Christian syndrome, called relapsing febrile nodular nonpurpurative panniculitis. In this the subcutaneous fat tissue is involved and the lesions are irregular or rounded bluish or erythematous nodules 0.5 to 10 cm in diameter. They appear at irregular intervals of weeks or months and are accompanied by fever and malaise. Their common site is the thighs but they may appear anywhere on the trunk and the extremities. They finally involute to leave atrophic slightly depressed scars. Women are the usual subjects. The essential tissue changes are edema and necrosis of the fatty tissue with focal inflammation. The disease has been thought by various observers to be due to iodide or bromide intolerance to infection with the tubercle bacillus or streptococci or to focal infection. Such conditions should be sought and eliminated if found and appropriate therapy employed. If none of these are found in the background it may be useful to try cautiously therapy with the sulfonamide derivatives and with roentgen rays. Otherwise rest and supportive treatment are indicated. Most of the patients recover, though there may be exacerbations for a number of years.

## SULFONAMIDES AND ROENTGEN THERAPY

To the Editor—There was a statement in the literature two years ago to the effect that patients receiving sulfonamide derivatives should not be subjected to any irradiation. Nothing has been heard to my knowledge about this issue since. If for instance these drugs have not had sufficient effect in a case of erysipelas, how long is one supposed to wait after the last dose before starting irradiation? I consider this issue important in practice and would deeply appreciate your opinion.

M D Massachusetts

ANSWER—Kelly and Dowell (*Radiology* 32:675 [June] 1939) in 1938 observed a number of patients in whom cyanosis developed after the administration of large doses of sulfanilamide. They concluded that such large doses were definitely inhibitory to any beneficial effect the roentgen rays might produce and they questioned whether anemia or other changes in the blood of the sulfanilamide cyanosed patient might prevent any such beneficial effect. Kelly and Dowell further found that sulfa-

thiazole is less objectionable, and they said that the combination of roentgen rays and sulfathiazole is still on trial.

Epstein (*J. Invest. Dermatol.* 2:43 [April] 1939), experimenting on 5 volunteers and himself, claimed to have demonstrated that sulfonamide derivatives caused definite symptoms of photosensitivity after exposure to erythema doses of ultraviolet rays. Sensitization to chemotherapy as a sequel to exposure to strong sunlight and to ultraviolet rays has been discussed by several other investigators. M. B. Marks (*J. Pediat.* 16:503 [April] 1940) reported 2 cases of cervical adenitis in which the local and general symptoms became much worse after treatment with 75 to 100 roentgens, while sulfonamide therapy was being administered and he implied that roentgen treatment and sulfonamide derivatives should not be used together. He also stated that after this sensitization has taken place a photoallergic state may exist for a considerable period. He concluded that the use of roentgen rays concurrently or shortly after sulfonamide derivatives was contraindicated, as the combination may lead to unpleasant and serious side effects.

Reimann (*Arch. Int. Med.* 68:325 [Aug.] 1941), in a review of the significant publications of 1940-1941, did not mention roentgen therapy at all. Long (*Canad. W. A. J.* 44:217 [March] 1941), in discussing the care of patients receiving sulfanilamide, stressed the importance of keeping such patients out of the direct rays of the sun and away from sources of ultraviolet rays, because a certain number who acquire a cutaneous rash in the course of therapy with sulfonamide derivatives do so because of photosensitization. He further stated that any patient receiving these drugs should stay out of the sun until three days after withdrawal of the drug. Flocks, Fellowes and Kerr (*Am. J. Roentgenol.* 44:115 [July] 1940) studied the combined action of roentgen rays and sulfanilamide on *Staphylococcus aureus*. In vivo experiments were conducted on mice in groups of 20 with an untreated control group. The combined action of the drug and the roentgen rays allowed fewer survivors than either the drug or the roentgen rays alone, and the authors concluded that they had not demonstrated a synergistic action of sulfanilamide and roentgen rays. In a case of erysipelas cited by Marks in which sulfanilamide might have caused a reaction, sulfapyridine was substituted with excellent results.

Radiologists in general apparently have not become aware of any contraindication to the use of sulfonamide medication in connection with roentgen therapy, but it would seem important that some further studies be made.

At present the opinion of Kelly and Dowell may be accepted that the combined use of roentgen rays and the sulfonamide derivatives is to be avoided. Apparently this simultaneous use causes an unexplained reaction detrimental to many patients. Sulfanilamide and the early sulfonamide derivatives are definitely incompatible with roentgen therapy. Nothing is known about the compatibility of the later derivatives at present, but roentgen therapy is not to be employed when the drugs are used. If the drugs must be administered, they should be given alone until more observations have been completed.

EFFECT OF ADMINISTRATIVE WORK ON  
MEDICAL SKILLS

To the Editor—In the past two years many army physicians with extensive clinical training and ability both regular and reserve officers have been placed in administrative positions. Often after a year or two in such positions they are returned to active clinical or surgical work. Isn't it true that they are likely to lose clinical and surgical skill by failure to practice for periods of years or months at a time?

M D Illinois

ANSWER—It is impossible to give a positive general answer to this question. It can perhaps be considered from two angles: first, sensory and tactile skill, e. g. diagnostic acumen and operating dexterity; and, second, the ability of the administrative medical officer to keep up with current advances in medical or surgical practice. Neither of these questions can be answered precisely. It would seem, however, that the finer skills of diagnosis or treatment, either medical or surgical, would become blunted by lack of practice over a period of months and it might take a variable length of time to reestablish them, depending on their nature. With regard to the second question, although it is theoretically possible for an administrative medical officer to keep up with the current literature in his field, it is doubted whether in practice this frequently occurs. On return to medical or surgical practice in the armed forces or elsewhere, therefore, a man who had been in administrative work would probably be faced with considerable extra work along both lines before he could be considered to have recaptured his original skill and mastery of current advances. This entire question deserves more adequate evaluation and might well be reviewed by the policy making officers in the Surgeon Generals' offices.



RELATION OF EXCRETION OF ARSENIC IN URINE  
TO ARSENIC POISONING

*To the Editor*—In conducting a series of examinations on men working in a chemical plant processing reftort ash, which contains insoluble compounds of lead, arsenic and cadmium, it was discovered that these men were excreting from 0.08 to 0.19 mg of arsenic per hundred cubic centimeters of urine. Other men in no way exposed to arsenic showed from 0.005 to 0.008 mg per hundred cubic centimeters, this being assumed to be normal or due to traces of arsenic in the reagents used for testing. One man, who showed local irritation of the conjunctivas, the nasal mucosa and the skin and complained of miosis, was found to be excreting 0.1 mg per hundred cubic centimeters of urine, but this amount dropped to 0.006 mg on his leaving the department. I am unable to find any statistics on the excretion of arsenic with reference to what threshold constitutes a danger signal. Suggestions will be appreciated.

M D, Ohio

*ANSWER*—No fixed amount of arsenic as detected in the urine may be accepted as the point of demarcation between arsenic absorption and clinical arsenic poisoning. A number of important factors necessitate this statement, such as arsenic tolerance and the duration of the period in which arsenic appears in the urine. In connection with recent investigations on experimental arsenic intake in human beings, as much as 23 mg of arsenic has been found in the daily output of urine without apparent arsenic poisoning. Approximately the same output continued for several days. Conversely, in known clinical arsenic poisoning as little as 1.36 mg of arsenic represented the maximum urinary content per liter during the period of subacute poisoning. Some arsenic may be found in the urine of all persons. This represents a portion of the trivial intake with ordinary food, drink and in some instances tobacco. In Washington, D. C., men and children without known exposure to arsenic presented a urinary content of 0.06 and 0.065 mg of arsenic per liter, respectively. Male consumers of apples sprayed with a spray containing some arsenic seldom show a urinary content of the poison per liter greater than 0.3 mg, although occasionally one has presented a level of a maximum of 0.7 mg. None of these consumers exhibited provable arsenic poisoning. The arsenic content of the urine of orchardists who handled arsenic sprays at the peak of exposure averaged only 0.22 mg per liter. In general it appears tenable that any value of arsenic in urine to a peak near 0.7 mg per liter may be regarded as within normal limits, although possible exception may be taken to this statement. Higher values, up to about 3 mg, may be regarded as representing an intake of arsenic unusual and undesirable except in connection with arsenical therapy. Persistent output on this order probably is of clinical significance. In the present instance the detection of 0.19 mg of arsenic per hundred cubic centimeters of urine is likely to be associated with evidence of intoxication, although single tests are of limited value. When exposure has persisted over a long time, examination of the arsenic content of the hair may be of greater diagnostic value. With due regard for the rate of growth of hair, samples may be collected at different lengths of the hair growth, which procedure may yield values for different time periods.

## References

- Neal, Paul A., and others. A Study of the Effect of Lead Arsenate Exposure on Orchardists and Consumers of Sprayed Fruit. *Public Health Bull.* 267. Division of Industrial Hygiene. National Institute of Health, Washington, D. C., 1941.
- Webster, S. H. Lead and Arsenic Ingestion and Excretion in Man, *Pub Health Rep.* 56: 1359 (July 4) 1941.
- Fairhall, L. T., and Neal, P. A. The Absorption and Excretion of Lead Arsenate in Man. *ibid.* 53: 1231 (July 22) 1938.
- Althausen, T. L., and Gunther, Lewis. Acute Arsenic Poisoning, *THE JOURNAL* June 15 1929, p. 2002.

## CARE OF CHILD WITH BIRTH PALSY

*To the Editor*—Kindly advise me if there are books or pamphlets available on the care of the child with mild spastic (birth palsy) paralysis in the home by the parents.

F H Hodges, M D, Pikeville, Ky

*ANSWER*—"Born That Way," by Dr. Earl R. Carlson (New York, John Day Company, 1941), embodies the experience of a patient who is a doctor. He states that the purpose is to "hearten and help every person suffering from a handicap, whether physical or mental." Dr. Carlson has spastic paralysis himself and is an authority in this field.

Another book for the lay person used by nonmedical workers with spastic paralysis is "New Pathways in the Treatment of Children with Spastic Palsy," by Gladys Gage Rogers and Leah C. Thomas (New York, Macmillan Company, 1935).

Another book that may prove of some value is "A Primer on the Prevention of Deformity in Childhood," by Richard B. Raney, M.D., published by the National Society for Crippled Children in the United States of America, Inc., Elyria, Ohio. The instruction given is written up in the simplest manner, so that this handbook can be used by other than medical men.

## TOXIC POSSIBILITIES OF SULFUR PURIFICATION

*To the Editor*—Kindly send me information concerning the toxic or poisoning symptoms which may occur to one who fires a crucible in the process of sulfur purification. How may these symptoms be avoided?

M D, New Jersey

*ANSWER*—In the smelting and purification of sulfur there are so many special procedures possible that this reply deals only with the simple procedure of sulfur purification by settling and skimming in the molten state. Sulfur from Sicily and possibly other Mediterranean sources is admixed with gypsum, punice and marl. On heating, this gangue, depending on its weight, either settles out or reaches the surface as a slag. Some sulfurs contain arsenic, and this impurity is not necessarily removed in the manner described. Sulfur from the Louisiana-Texas area of this country usually is much purer and as mined may consist of more than 99 per cent of the pure element. Subsequent heat treatment may not be so much for the purposes of purification as for the preparation of rolled sulfur or flowers of sulfur. In all of these simple operations the chief offending material is sulfur dioxide, although under some circumstances hydrogen sulfide may be evolved. Under some circumstances where the cost of fuel is high the sulfur itself is burned in order to procure the molten state for purification. In this manner as much as one third of the sulfur may be lost, and in this country such a step is wasteful. In the absence of exhaust systems some 6 per cent of sulfur dioxide may contaminate the atmosphere. Primarily, sulfur dioxide is a respiratory tract irritant. As little as 0.001 per cent may produce coughing, and slightly higher concentrations may produce conjunctivitis, pharyngitis, bronchitis and the like. Prevention centers about the nonproduction of sulfur dioxide, or, if this is inevitable, the collection and removal of the gas to non-dangerous areas. It is possible to conduct this operation in closed systems, although this may not be necessary since exhaust facilities for open systems may prove efficacious. The tolerable limit being near 10 parts per million, efforts should be made to maintain working conditions approximating this level. Under some circumstances it may be necessary to rule out the presence of arsenic and hydrogen sulfide. If present in harmful quantities, additional measures as indicated should be introduced to eliminate these unwanted exposures.

## HYPERTENSION AND VITAMIN A

*To the Editor*—After seeing a report on the treatment of hypertension by high concentration of vitamin A, I decided to try it in 1 case. Can you give me any information as to the toxic effects of overdosage of vitamin A and whether or not 200,000 units could be given indefinitely? I shall appreciate any information or references.

H F Binswanger, M D, Chicago

*ANSWER*—From a practical point of view the toxicity of vitamin A is negligible. There is no important reason save cost why 200,000 units might not be given orally daily for an indefinite period. Whether or not this will have therapeutic value remains to be demonstrated.

## ANTISERUM FOR DRUG ADDICTION

*To the Editor*—In *Queries and Minor Notes* in *The Journal*, Sept. 27, 1941, page 1141, there was published an answer concerning antiserum for drug addiction in which a paper by Leo Hirschlof was mentioned. May I add that J. Morgenroth (Berl. klin. Wchnschr. 40: 471, 1903) was able to refute incontestably the production of an "antitoxic serum" as pretended by Hirschlof as well as by Volenti (Arch. di farmacol. sper. 17: 248, 1914, Arch. f. exper. Poth u. Pharmacol. 75: 437, 1914). Also Pellini (1914, Arch. f. exper. Poth u. Pharmacol. 75: 437, 1914). Also Pellini and Greenfield (Narcotic Drug Addiction. I. Formation of Protective Substances Against Morphine, Arch. Int. Med. 26: 279 (Sept. 1920) as well as Hoefer and Herzfeld (Arch. f. exper. Poth u. Pharmacol. 99: 383, 1923) could not obtain an increase in the resistance after the injection of serum or casein. It must be said that there are no scientific principles on which the lessons of immunology can be in any way applied to the treatment of alkaloid addicts, and every action described as having been obtained with serotherapy is the typical action of plain serum. In such cases, the treatment therefore is merely the so-called protein therapy.

P O Wolff, M D, Buenos Aires, Argentina

## POSSIBLE DEATH FROM "ETHER CONVULSIONS"

*To the Editor*—In reference to the answer to the question on possible death from "ether convulsions" in *The Journal*, March 14, 1942, page 935, I call it to your attention that the intravenous injection of ether is regarded by many anesthetists as a specific treatment for this condition. There is also considerable evidence that a mask or other breathing apparatus beyond the lips should be removed (in order to prevent building up of carbon dioxide, thought to be one potent precipitating factor of convulsions under anesthesia) and that addition of oxygen to the inhaled atmosphere, as by a nasopharyngeal catheter, may be of benefit.

Philip Dudley Woodbridge, M D, Philadelphia, Pa.



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## TRAUMA OF THE HEART DUE TO NONPENETRATING CHEST INJURIES

REPORT OF CASES WITH RECOVERY  
OR LONG SURVIVAL

LOUIS H SIGLER M.D.

BROOKLYN

Trauma of the heart and adjoining structures caused by nonpenetrating injuries to the chest and other parts of the body is often overlooked because of the prevailing idea that the chest wall and the cushion effect of the lungs prevent such trauma. This paper attempts to discard this idea and help establish criteria by which the condition may be recognized.

The heart and adjoining structures are affected much more frequently in the course of bodily injury than the literature would indicate because only the most serious injuries or cases of fatal involvement appear to attract attention and are recorded. Thus of 197 cases collected from the literature by Warburg<sup>1</sup> up to 1938 there were only 9 survivals for one and one-quarter years or more and in the rest death occurred either immediately or a short time after the accident. Of 168 cases collected from the literature by Bright and Beck<sup>2</sup> there were only 12 survivals and recoveries. In the remaining cases death occurred soon after the accident. Cases are not reported in which the cardiac injury was mild because such cases do not yield sufficient clinical signs to attract the attention of the average physician who is not trained to recognize damage to the cardiovascular system.

It stands to reason that reports such as these are not satisfactory for determining the incidence of cardiac damage in bodily injuries.

### EXPERIMENTAL PRODUCTION OF HEART INJURY

Before I discuss the clinical features of traumatic injury to the heart it is of interest to review in brief some of the available experimental studies. Of these the work of Schlomka,<sup>3</sup> Kulbs and Straus,<sup>4</sup> Bright and Beck,<sup>2</sup> and Kissane, Fidler and Koons<sup>5</sup> are the outstanding contributions.

From the Cardiac Service Department of Medicine Coney Island Hospital.

Dr. George Webb gave the author the privilege of observing patient 3 who was in his surgical service at the Coney Island Hospital. Dr. Hans Gottlieb reviewed some of the foreign literature used as reference.

<sup>1</sup> Warburg, Erik. *Subacute and Chronic Pericardial and Myocardial Lesions Due to Nonpenetrating Traumatic Injuries*. London: Levin & Munksgaard, 1938.

<sup>2</sup> Bright, E. F. and Beck, C. S. *Nonpenetrating Wounds of the Heart*. *Am Heart J* 10:293, 1935.

<sup>3</sup> Schlomka, G. *Commotio cordis*. *Klin Wchnschr* 12:1677, 1933. *Influence of Blunt Injuries on Heart in Sensitized Animals*. *Experimental Studies*. *Ztschr f d ges exper Med* 92:522, 1934.

<sup>4</sup> Kulbs, F. and Straus, L. H. *Heart and Trauma*. *Experimental Investigation*. *Klin Wchnschr* 11:1572-1574, 1932.

<sup>5</sup> Kissane, R. W., Fidler, R. S. and Koons, R. A. *Electrocardiographic Change Following Injury to Dog*. *Ann Int Med* 11:907, 1937.

Schlomka applied blows to the chests of rabbits and cats by a small wooden mallet and studied their effects on the cardiovascular system. Some of the animals died during the process from ventricular fibrillation, severe conduction disturbances or failure of the right side of the heart. Most animals survived and showed various electrocardiographic abnormalities as ectopic contractions, conduction disturbances, changes in the electrical axis and in the R-T segment and T wave, the last two of which resembled those of coronary occlusion. There was a drop in the arterial blood pressure and a rise in venous pressure. Acute cardiac dilatation, mainly right ventricular, was observed in many animals soon after the injury and in some later after the regression of symptoms. Cutting off all nerve connections with the heart before the experiment did not alter the effects of the blow.

The most interesting observation was that postmortem studies of the heart revealed no structural damage in 90 per cent of cases, even in animals that died during the experiment. Only 10 per cent showed some abnormalities such as small hemorrhages in the myocardium or in the conduction system.

Schlomka concluded that the cardiac manifestations of trauma are due to coronary spasm producing myocardial ischemia. The spasm is caused by the direct effect of the vibratory force on the coronary vessels and not by reflex action.

In other experiments the same author showed that animals sensitized with heterogen serum were more subject to cardiac injury by blows to the chest than were normal animals and the damage was greater. Coronary spasm evidently is more easily induced under such a state and is more prolonged.

Kulbs and Straus observed that injury to the heart induced by trauma is more apt to occur in animals under the effect of digitalis, thyroxin and epinephrine, which increase the sensitivity of the heart.

Bright and Beck applied direct strokes with a metal dilator to the exposed hearts of 25 dogs. Three died during the experiment—1 of rupture of the heart and 2 of ventricular fibrillation. The rest survived the experiment and showed an increase in the heart rate, a drop in the arterial and a rise in the venous pressure, faint and distant cardiac sounds of the "tick-tack" type and swelling, discoloration and extravasation of blood in the myocardium. Half of the dogs showed evidence of blood stained pericardial effusion. Various arrhythmias were observed and the electrocardiogram showed slurring and notching of the QRS complex, with a high R-T take-off and negative T wave, all of which returned to normal in a few weeks.

At autopsy two or three months after injury the hearts showed scarring of the myocardium in 14 instances. The rest of the hearts showed no trace of injury.

Kissane, Fidler and Koons did electrocardiographic studies on 15 dogs traumatized by blows on the chest. The most frequent manifestations were changes in the QRS-T segment and in the T wave, which appeared a few minutes to a few hours after the injury. Various arrhythmias were observed and ventricular fibrillation occurred.

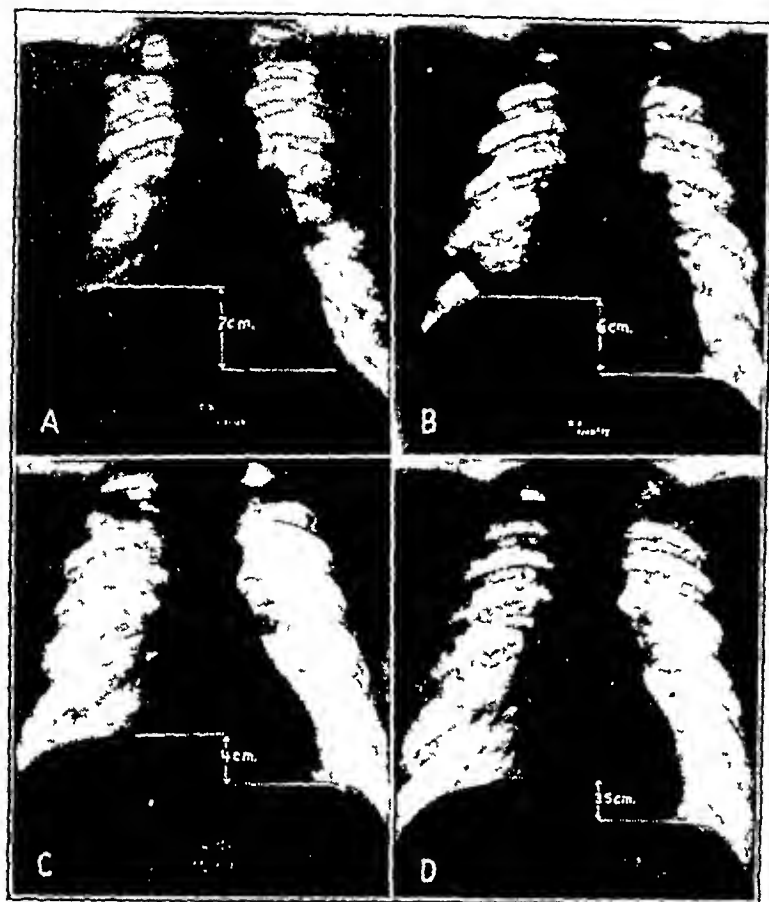


Fig 1 (case 1)—Chest, (A) one week, (B) one month, (C) four months and (D) one year after the accident. The distance between the right and the left diaphragmatic dome is shown in centimeters.

#### TYPES OF IMPACTS PRODUCING CARDIAC INJURY IN MAN

The types of blow or impact that may result in cardiac injury in man are (1) direct blow to the chest, especially if applied to the precordial region, (2) compression of the chest in the anteroposterior position by two solid objects, (3) sudden extreme increase in intra-abdominal pressure by external violence, (4) lifting of an extremely heavy object or other severe strain thrown on the body, (5) disturbance of the vagosympathetic system to the heart produced either by direct injury or reflexly.

It must be stressed that it is not the latent force but the velocity of travel of the force when it strikes the body which produces the injury.

Factors which help increase or diminish the effects of the striking force on the heart are

1 The flexibility and resilience of the thoracic cage. In youth the chest is much more resilient than in advancing age, hence a striking force is more apt to damage the heart in a young than in an old person.

2 The presence of coronary disease in advanced age is a sensitizing factor for the production of cardiac disturbances, if not actual cardiac damage, by comparatively little force.

3 A definite psychoneurotic tendency or vagosympathetic imbalance is a factor that lends itself to greater cardiac disturbances produced by an injury.

#### STRUCTURAL CARDIOVASCULAR DAMAGE CAUSED BY INJURY

Damage may occur in the pericardium, myocardium, coronary vessels, valves, the great vessels springing from the heart and the adjoining organs, as the lungs and pleurae. In many cases more than one of these structures may be involved. It is interesting to find that, as in experimental animals, some patients who die of cardiac injury show no organic changes on postmortem examination, for example, the instance reported by Deutsch<sup>6</sup> in which a boxer aged 26 died soon after he received a blow to the chest. The autopsy revealed no structural damage of the heart or other organs, death being due, according to the author, to ventricular fibrillation.

Pericardial damage may consist of pericarditis with or without effusion, or of pericardial rupture or of hemopericardium. The last is illustrated by Moullin's case.<sup>7</sup> A man aged 20 was hit over the sternum with a football. A massive hemopericardium developed requiring many aspirations. He made a complete recovery.

Late sequelae of pericardial involvement may be massive constrictive pericarditis, as in the case reported by Glenn.<sup>8</sup> A salesman aged 46 injured his chest in an automobile accident. He was well enough to go to work two months later. Two years after the accident nausea, persistent precordial pain with radiation to the left shoulder, a paradoxical pulse, orthopnea and abnormalities in the electrocardiogram gradually developed. He died a year later. The autopsy revealed a densely adherent pericardium with massive adhesions of the right lung and the diaphragm and narrowing of the lumen of the inferior vena cava. The heart and valves were normal.

Myocardial injuries may be in the form of contusions, lacerations and temporary or prolonged ischemia with infarction due to transient or permanent involvement of the coronary system respectively.

Myocardial contusions, according to Bright and Beck,<sup>2</sup> may occur frequently. In many cases the damage is overlooked. In some it may result in death, as in the case recently reported by Barber and Osborn.<sup>9</sup> A sailor

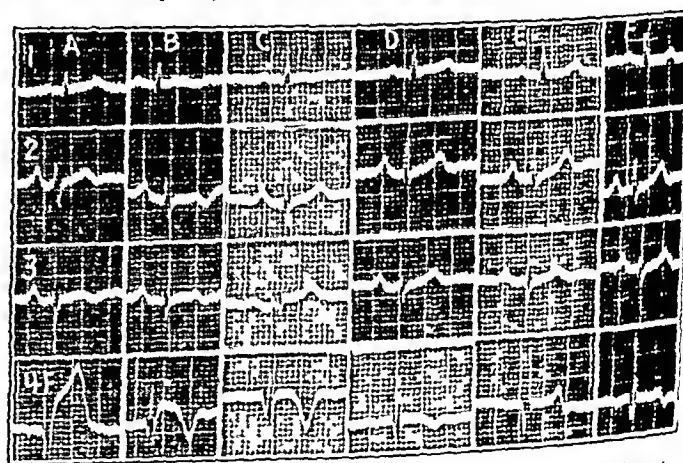


Fig 2 (case 1)—Tracings taken over a period of more than 1 year. For description see the text.

aged 22 was found in an unconscious state and died of pulmonary edema four hours later. It was learned that a wheel of a loaded 5 ton trailer passed over the front of the thorax. Autopsy showed acute edema of the

6 Deutsch, Wien Arch f inn Med 20: 279-286, 1930.  
7 Moullin, C. W. M. Tr Clin Soc London 30: 217, 1911.  
8 Glenn, E. E. Traumatic Constrictive Pericarditis. J. A. M. A. 37: 7, 1940.  
9 Barber, H., and Osborn, G. R. Brit Heart J 3: 127, 1941.

lung and severe contusion of the left ventricle and many small groups of heart muscle fibers were ruptured. There was no enlargement of the heart and the pericardium was normal.

Lacerations of the myocardium may be partial—not involving the entire thickness of the muscle wall—or complete—the rupture penetrating the entire thickness of the wall. It may involve any of the four chambers. The majority of reported cardiac injuries which result in death consist of rupture of the heart.

In most cases rupture occurs during the accident and death follows soon after. In some cases rupture may occur later as in the case reported by Gunewardene.<sup>10</sup> A boy aged 9 years had his chest compressed against a wall by a cart. He showed no external injuries, felt well and attended school the following day. Ten days later while playing he suddenly experienced pain and died instantly. Autopsy showed rupture of the left ventricle.

Rupture of the heart may occur not only from direct violence to the chest but also from a fall from some height, as in the case reported by Howat<sup>11</sup> or from striking other parts of the body as the pelvis in the case reported by Saphir.<sup>12</sup> The rupture may occasionally involve the interventricular septum as in the case reported by Wischegordzewa<sup>13</sup> and in case 3 of this paper.

Trauma to the coronary vessels resulting in myocardial damage appears to occur frequently, judging from the reported cases in recent literature. In many cases the myocardial damage is presumably due to prolonged coronary angiospasm as in animal experimentation, since no pathologic changes in the coronary vessels may be found on postmortem examination. The case reports of Fischer<sup>14</sup> and Schwach<sup>15</sup> are examples. In some cases there may be clinical and electrocardiographic evidence of myocardial infarction due to coronary occlusion as in cases 1 and 4, and in those reported by Kampmann<sup>16</sup>, Kienle<sup>17</sup> and Schmincke.<sup>18</sup> The causes of coronary occlusion may be direct trauma of a coronary vessel with intravascular thrombosis or compression of a coronary artery by hemorrhage adjacent to the vessel wall or capillary rupture and intimal hemorrhage in the artery resulting in the thrombosis as shown by Paterson.<sup>19</sup> The last is more apt to occur in cases of coronary sclerosis, in which a rich capillary network has been observed by Winternitz and his co-workers.<sup>20</sup> It is possible that in some cases showing clinical and electrocardiographic evidence of coronary occlusion the findings are due to localized contusion of the heart muscle rather than to intarction caused by occlusion.

Rupture of valves occurs infrequently. Muller<sup>21</sup> found no such injury in 21 cases of cardiac damage

that came to autopsy. Adam,<sup>22</sup> however, collected 14 such cases from the literature. Other cases were reported by Reinhold,<sup>23</sup> Agostoni,<sup>24</sup> Elkin,<sup>25</sup> Barber and Osborn<sup>26</sup> and others. Case 5 in this paper is an example.

Injury to the great vessels may rarely occur and lead to thrombosis. A case of pulmonary artery throm-

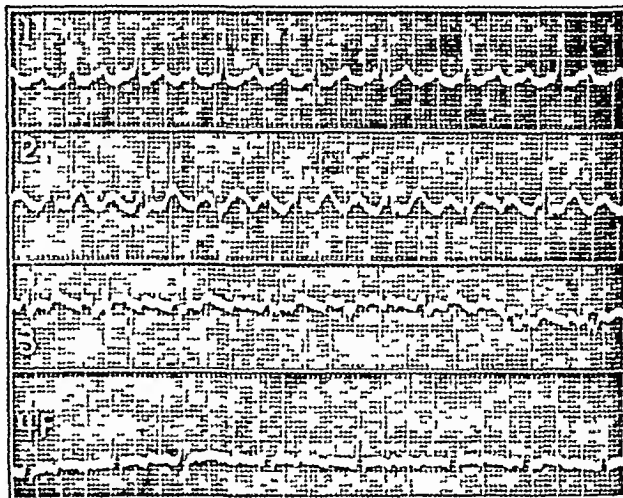


Fig. 3 (case 2)—Auricular flutter, auricular rate about 246, ventricular rate 90 to 110 with a 2:1 and 3:1 ratio.

bosis following a thoracic injury is cited by Hart<sup>27</sup> and one of superior vena cava thrombosis by Ochsner and Dixon.<sup>28</sup>

Late effects of cardiac injury that may be observed many months or years after an accident are ventricular aneurysm and calcification of the heart, pericardium and adjoining structures. An example is case 2. Others are reported by Soleil,<sup>29</sup> Joachim and Mays<sup>30</sup> and Mille.<sup>31</sup>

#### CLINICAL MANIFESTATIONS OF CARDIAC INJURY

Injury to the heart may occur without any subjective or objective manifestations. This is especially true if the injury is not severe. If carefully followed, however, even the mild grades of injury may show manifestations by which the injury can be recognized.

The first manifestation, especially if the injury is severe, may be a dazed feeling, dizziness or complete loss of consciousness. This occurs immediately after the injury or later and usually lasts a short time unless the accident is fatal in which event the patient may never be aroused. This may be followed by mild, vague or dull epigastric or precordial discomfort or pain. Several hours or days later after a "latent period," the typical anginal syndrome may develop, coming on after excitement or exertion. In some it is preceded by a severe spontaneous attack lasting many hours due most

- 10 Gunewardene H. O. Brit. M. J. 2, 942, 1934.
- 11 Howat R. A. Traumatic Rupture of Heart. Lancet 1, 1513, 1920.
- 12 Saphir Otto. Rupture of Heart by Indirect Trauma in 4 Year Old Boy. Am. J. M. Sc. 173, 353-357, 1927.
- 13 Wischegordzewa Ztschr. f. Kreislaufforsch. 21, 649, 1929.
- 14 Fischer W. Indirect Heart Injuries from Gunshot Wound in Attempted Suicide. Ztschr. f. Kreislaufforsch. 24, 401, 1932.
- 15 Schwach W. Angina Pectoris and Coronary Infarction Following Blunt Injury of Thoracic Wall. Med. Welt 12, 992, 1938.
- 16 Kampmann N. Ein Fall von isolierter Verletzung des Herzscheidungsapparates. Munchen med. Wchschr. 82, 129, 1935.
- 17 Kienle F. Klinische und elektrokardiographische Beobachtungen bei traumatischem Hinterwandinfarkt. Ztschr. f. Kreislaufforsch. 30, 674, 1938.
- 18 Schmincke A. Beitrage zur traumatischen Aetiologie. I. Arteriosclerose. Deutsches Arch. f. klin. Med. 149, 145, 1925.
- 19 Paterson J. C. Capillary Rupture with Internal Hemorrhage as a Causative Factor in Coronary Thrombosis. Arch. Path. 23, 474 (April), 1938.
- 20 Winternitz M. C. Thomas R. M. and Le Compte P. M. The Biology of Arteriosclerosis. Springfield, Ill., Charles C. Thomas Publisher, 1938.
- 21 Muller M. Lesions of the Cardiovascular System from Direct Closed Trauma. Echo med. du nord 37, 181, 1933.

- 22 Adam A. Traumatic Changes of Heart Valves. Ztschr. f. Kreislaufforsch. 19, 313, 1927.
- 23 Reinhold P. Rupture of Aortic Valve from Muscular Effort. Rev. med. de la Suisse Rom. 38, 229, 1918.
- 24 Agostoni G. Aortic Insufficiency of Traumatic Origin. Bollettino 13, 158, 1939.
- 25 Elkin D. C. Traumatic Lesions with Three Cases of Cardiac Contusion. South. M. J. 25, 4, 1935.
- 26 Barber Hugh and Osborn B. R. Mitral Stenosis Result of Trauma (Case). Guy's Hosp. Rep. 87, 510, 1937.
- 27 Hart D. Traumatic Injuries of Thorax. J. South Carolina M. A. 34, 175, 1938.
- 28 Ochsner Alton and Dixon J. L. Superior Vena Cava Thrombosis. J. Thoracic Surg. 5, 641, 1936.
- 29 Soleil B. Pleurocardiac Calcification of Traumatic Origin. Bull. et mem. Soc. de radiol. med. de France 24, 421, 1936.
- 30 Joachim H. and Mays A. T. Case of Cardiac Aneurysm Probably of Traumatic Origin. Am. Heart J. 2, 682-686, 1927.
- 31 Mille Joel. Intrapulmonary Calcification Resembling Cluster of Grapes Twenty-Five Years After Serious Trauma. Acta radiol. 18, 552, 1937.

likely to an occlusive process or to infarction caused by persistent angiospasm. In addition to or instead of pain there may be substernal oppression, choking sensation or extreme weakness, associated with cold, clammy perspiration. The anginal syndrome may recur thereafter for many months or years, as in case 4.

Kohn<sup>32</sup> was the first to call attention to so-called traumatic angina pectoris, although other writers before him reported cases which conform to the description. Recently several cases were reported by Barber,<sup>33</sup> Campbell<sup>34</sup> and Boas.<sup>35</sup>

Next to the anginal syndrome, dyspnea is the most frequent symptom. This usually occurs only on exertion if the damage to the heart is not severe. If damage is severe or if massive pericardial effusion is present, dyspnea may occur even at rest.

Other complaints may be cough, palpitation, a "fluttering" feeling, weakness, nausea and even vomiting. These are more apt to occur if any type of tachycardia or arrhythmia develops.

appear with recovery, or they may persist in greater or less degree, especially if valvular damage has occurred.

Of the various arrhythmias, the ectopic contractions, auricular fibrillation, auricular flutter and those caused by heart block have been reported and have also been observed by me. These arrhythmias may occur at times in the absence of demonstrable cardiac damage and may be induced by injuries which could not conceivably produce such damage. Thus auricular fibrillation was observed by Sigler and Schneider<sup>36</sup> and by Hay and Jones<sup>37</sup> after such a remote cardiac insult as that caused by electric shock. The various arrhythmias may develop immediately or a long time after the accident.

The electrocardiographic changes observed are similar to those seen in experimental animals previously discussed. Besides the various arrhythmias, and various degrees of auriculoventricular block, abnormalities in the QRS complex, in the QRS-T segment and in the T wave may occur. The changes are usually progressive and may be exactly like those seen in infarcts.



Fig. 4 (case 2)—A, anteroposterior view, B, left lateral view, and C, right oblique view. Areas of calcification are shown by the white patches and streaks in the heart shadow. There is a moderate cardiac enlargement, mainly to the left.

The objective manifestations that may appear a short time after the accident are circulatory collapse, characterized by a rapid and thready pulse, a drop in blood pressure, pallor, and cold, clammy perspiration. A rise in temperature and an increase in the leukocyte count and in the rate of sedimentation of the blood cells may also occur in the cases of severe involvement within a day or two after the accident or later.

The area of cardiac dulness and its shadow on the roentgenogram may remain perfectly normal throughout the period of damage. This is true especially if pericardial effusion is not present. In some cases this area becomes enlarged, owing to pericardial effusion or to cardiac dilatation. The first sound may be shortened, muffled, weakened or greatly diminished in intensity and at times hardly audible. A gallop rhythm, as well as a pericardial friction rub, may appear and persist at times many days. Endocardial murmurs may develop which vary in intensity, quality, location and radiation, depending on the site of structural damage. These may dis-

appear in the anterior or posterior wall of the left ventricle, which they may indeed represent. Examples are shown in figures 2, 5 and 7 and in the reports of Kampmann,<sup>17</sup> Kienle<sup>17</sup> and others.

The diagnosis of trauma of the heart should not be difficult to make if one bears the condition in mind and if each case of bodily injury is submitted to repeated search for active signs and symptoms of cardiac disease and electrocardiographic changes. Heart disease due to other causes must be ruled out in every case.

#### REPORT OF CASES

**CASE 1**—A white man aged 47, an electrician, was beaten up by gangsters to the point of unconsciousness. When he regained consciousness he complained of slight pain in the chest and various parts of the body. Two days later the pain suddenly became severe and was associated with pallor, cold clammy perspiration and a drop in blood pressure. The following day there was an elevation in temperature to 102 F, a moderate leukocytosis and an increase of the blood cell sedimentation rate. His family and his past personal history were negative. He had never had heart disease before nor any condition which would predispose to such disease.

32 Kohn, H. Angina Pectoris und Unfall, *Klin. Wchnschr.* 8:795 and 843, 1929.

33 Barber, Hugh. Trauma of the Heart, *Brit. M. J.* 1:433, 1938.

34 Campbell, M. Angina Pectoris Following a Crushing Accident, *Brit. Heart J.* 1:177, 1939.

35 Boas, E. P. Angina Pectoris and Cardiac Infarction from Trauma or Unusual Effort, *J. A. M. A.* 112:1187, 1939.

36 Sigler, L. H., and Schneider, J. J. Electrocardiogram in a Case of Electric Shock, *Am. Heart J.* 11:236, 1936.

37 Hay, J., and Jones, H. W. *Brit. M. J.* 1:559, 1927.



I saw him in consultation with his family physician, Dr Eli Eisenberg, about one week after the accident. At that time he showed no evidence of injury to the chest wall or other superficial evidence except for slight ecchymosis of the lids. The rate was 77 beats a minute and the rhythm regular. The first sound was somewhat muffled and the pulmonary second sound greatly accentuated. Murmurs were not heard. The lungs showed absent breath sounds and flatness from about the sixth rib downward posteriorly and at a corresponding level anteriorly and laterally, and there was diminished mobility of the chest wall in that region during respiration. The abdomen, pelvis and extremities were normal.

My impression was that he had sustained an injury to the heart and in view of the pulmonary findings I considered in addition the presence of pulmonary atelectasis of the lower lobe of the right lung caused by bronchial occlusion due to hemorrhage.

His symptoms gradually subsided and there was a progressive increase in the expansion of the lower lobe of the right lung and improvement in the character of the first heart sounds. A slight cough with very slight bloody expectoration continued for about three months at the end of which time expansion of the lung had definitely increased. At the end of one year he had completely recovered.

The electrocardiographic tracings speak for progressive changes due to myocardial infarction, involving mainly the anterior wall of the left ventricle but also partly the posterior wall.

**CASE 2**—A white man aged 44, a plasterer, fell off a scaffold and hit the left precordial region against his right fist, which was pinned between his chest and the ground. He was unconscious for about five minutes. When aroused, he complained of extreme weakness and some precordial pain but managed to finish his day's work.

Toward evening the pain became severe and the weakness more pronounced. He was treated by a physician for about six months for a supposed injury to the chest wall and left shoulder the physician not realizing that there was damage to the heart. Gradually the pain and weakness greatly subsided but would appear when the patient walked two or three blocks or up one flight of stairs. This persisted for about three and one-half years, when one day a spontaneous attack of extreme weakness and severe palpitation suddenly developed. He was removed to a hospital at which he stayed thirty-one days.

The report submitted to me from that hospital was that repeated readings (electrocardiogram) consistently show auricular flutter, auricular rate at 250, ventricular rate from 55 to 136. The hospital diagnosis was coronary thrombosis which

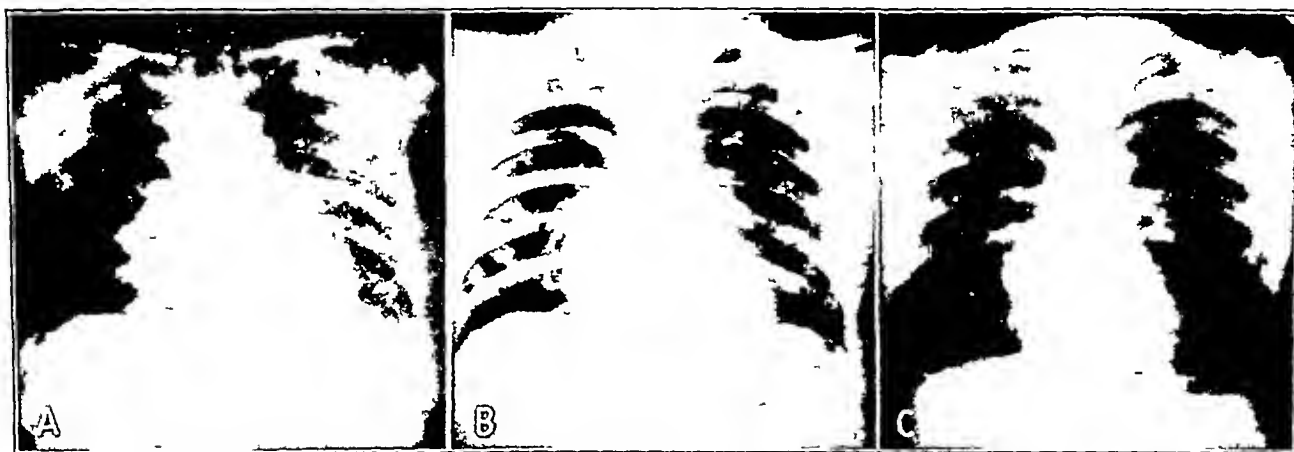


Fig 5 (case 3)—Chest (A) two weeks (B) five weeks and (C) three and one-half months after the accident.

Figure 1 shows four roentgen views obtained one week, one month, four months and one year respectively after the accident. None show any increase in the size of the heart. The right dome of the diaphragm is definitely higher than the left in A and in a somewhat less degree in B where a triangular area of opacity is seen representing atelectasis of the right middle lobe which is apparently beginning to expand. In view C the right dome of the diaphragm is much lower and the area of opacity is not seen. In view D the right diaphragmatic dome is at approximately a normal level. Figure 2 shows six electrocardiographic tracings obtained between one week and twenty-six months after the accident. In A, obtained one week after the accident, the QRS complex is of low voltage in all standard leads and the T wave is diphasic in the second lead and negative in the third. The precordial lead 4 shows a negative QRS deflection, with the absence of an R wave and there is a high QRS-T take-off. In B, obtained one month later, the T wave is negative in the first, second and fourth leads and there are some changes in the QRS complex, with elevation and coving of the QRS-T segment in the fourth lead. In C, obtained two months later, the T wave in the first lead is slightly positive while in the fourth it is still definitely negative but the QRS-T segment in the latter now approaches the isoelectric level. In D, obtained about six months after C, the T wave in the standard leads is normal while in the fourth lead it is still slightly negative. The QRS complex in all leads has increased in voltage. In E and F, obtained about ten and seventeen months respectively after D, the T wave in the fourth lead is somewhat diphasic.

was most likely based on the symptoms, for no mention was made in the report of other clinical or electrocardiographic changes that would substantiate this diagnosis.

Following his discharge from the hospital the symptoms persisted and he had an occasional fainting sensation. The dyspnea and palpitation became more severe from time to time. On one occasion he was admitted to the Coney Island Hospital, where he stayed several weeks during which time repeated electrocardiograms showed auricular flutter with a variable 2:1 and 3:1 ratio as in figure 3.

Teleroentgenograms in the anteroposterior, right oblique and left lateral positions are shown in figure 4, all views of which show areas of calcification in the heart muscle and pericardium. I had seen the patient in consultation on and off for a period of about thirteen months since the onset of auricular flutter, and each time flutter persisted. More than two years later I was told that he was in a veterans hospital, that the flutter still persisted and that he presented significant myocardial failure.

There was no history of heart disease previous to the accident or of any other illness which might have predisposed to such disease. The only sickness that he had had was pneumonia, fourteen years before the accident, from which he had fully recovered with no sequelae. He always worked hard before the accident and never had any complaints.

Not at any time after the accident was there clinical or roentgen evidence of fracture of any of the bones of the chest or any other injury to the chest wall.



This case, then, may be considered one of contusion of the heart and pericardium resulting in the anginal syndrome. Gradual calcification of the myocardium and pericardium occurred and resulted in the onset of auricular flutter about three and one-half years after the accident, when calcification reached a degree sufficient to produce irritation of the auricles. The subse-

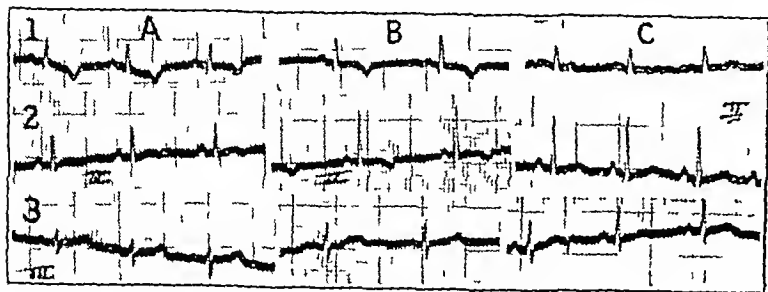


Fig. 6 (case 3)—A, one month after the accident. The T wave is negative in the first and second lead. B, two weeks after A. The T wave is more negative in the second lead and the QRS voltage is somewhat higher in all leads. C, four months after the accident. The T waves in the first and second lead are positive but the voltage is low in the former. The tracing is approaching the normal.

quent downward course was due to persistent auricular flutter, which lasted about two years and at this writing is still continuing.

**CASE 3**—A youth aged 21, a salesman, while driving his automobile collided with a street stanchion and was thrown against the steering wheel and the windshield. He was momentarily unconscious and when aroused complained of pain in the sternal region. He was admitted to the service of Dr. George Webb at the Coney Island Hospital.

His family and his previous personal history were negative. He had had no heart disease before nor any other condition that would produce heart disease.

On admission he was fairly well oriented. His heart rate was 120 a minute, the pulse was of poor quality and his blood pressure was 82 systolic and 64 diastolic. Several teeth were broken and there was bleeding from the lips.

The following day the shock became more severe, the pulse was very weak, the blood pressure was unobtainable and the heart sounds were inaudible. Neurologically he showed horizontal nystagmus, definite engorgement of the retinal vessels, nuchal rigidity, a moderate Kernig sign, absence of abdominal reflexes and bilateral Oppenheim reflexes. All deep reflexes were depressed. He showed extreme confusion and disorientation. A diagnosis of multiple cerebral hemorrhage was made, but the spinal fluid was under normal pressure and showed no abnormal conditions.

His cerebral symptoms gradually improved. The precordial pain, however, persisted. Examination six days after admission revealed the heart to be of normal size, the rate 115 a minute and the rhythm regular. The first sound at the apex was accentuated, as was the second sound at the base. There was a short presystolic gallop rhythm and a long soft systolic murmur heard between the third left costosternal junction and the apex.

The temperature reached a maximum of 103 F about ten days later. Dyspnea became severe. The heart progressively increased in size. A pericardial friction rub developed about fourteen days after admission and lasted three weeks, its maximum intensity being over the midsternum. The signs and symptoms gradually began to subside and complete clinical recovery occurred about four months after the accident. His heart remained slightly enlarged to the right, as shown in figure 5C, but the sounds were of good quality, and a short soft systolic murmur was heard over the left sternal border in the third interspace.

Electrocardiograms obtained one month, six weeks and four months after the accident are shown in A, B and C respectively of figure 6. The T wave was negative in the second and third leads in A and B and returned to nearly normal in C.

Roentgenograms of the chest obtained about two weeks, five weeks and three and one-half months after the accident are shown in figure 5A, B and C, respectively. The heart shadow is definitely enlarged in A, with a suggestion of the presence of pericardial effusion. In B, the shadow has greatly receded but considerable enlargement is still present to the right. In C, the transverse shadow of the heart bears a normal relationship to the transverse diameter of the chest, but there is some bulging of the right border.

I was informed four years after the accident that the patient's health was good and that he had no complaints.

This is a case, then, of severe myocardial contusion, pericarditis with effusion and possible rupture of the intraventricular septum, following an accident, without injury to the chest wall.

**CASE 4**—A man aged 52, a theater manager, while walking to the moving picture operator's booth in a dark corridor tripped against a stack of reels and fell to the floor. He was unconscious for some time, and when consciousness returned he complained of severe pain in the left shoulder and in the right ankle. He was removed to a hospital in severe shock, and there a fracture of the right fibula was found. An electrocardiogram taken later showed myocardial infarction.

Since then he has been subject to recurring attacks of retrosternal pain radiating to the left arm and epigastrium, which appears on the slightest exertion.

The heart is of normal size and shape, and rhythm is always regular. The first heart sound is diminished in intensity. The lungs show no abnormality.

Repeated electrocardiograms taken over a period of eighteen months, three of which are shown in figure 7, reveal evidence of infarction in the posterior basal wall of the left ventricle which is evidently organized and permanent. There is a persistence of the QsTs type of waves of almost the same appearance, except for slight variation in the voltage of the T wave.

There was nothing in the past history that would predispose to heart disease. He had always worked hard and never had any complaints before the accident. He has some peripheral

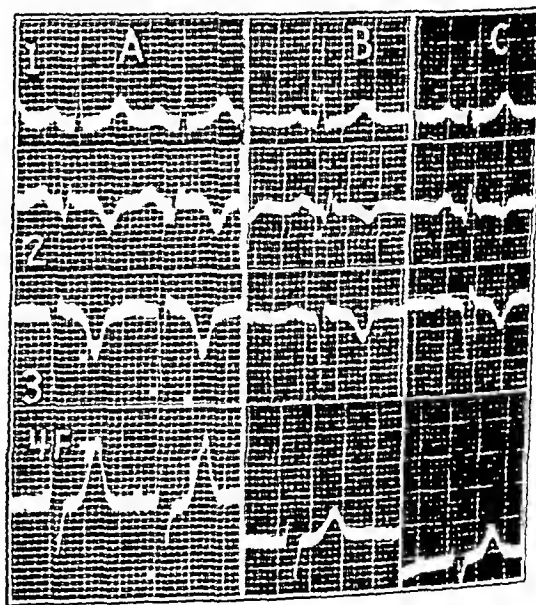


Fig. 7 (case 4)—A, about four weeks after the accident. The QsTs type of complex. The R T segment in the second and third leads is slightly elevated. B, about seven months after the accident. The T wave is less negative in the second and third leads and the fourth lead which would indicate some improvement in the condition. C, about twenty months after the accident. The tracings are practically identical with those of B except for the T wave in the second lead which is slightly less negative.

arteriosclerosis, and it is likely that he had antecedent coronary sclerosis, although he had never had the anginal syndrome before.

At the present writing, about nineteen months after the accident, he is still subject to the anginal syndrome.

The case then is one of infarction of the posterior wall of the left ventricle caused by injury to the heart. The infarction was undoubtedly due to coronary artery thrombosis which was precipitated by the injury.

CASE 5—A man aged 39, while carrying a ladder with another person through a passageway, was thrown against an iron fence when a heavy gate was unhinged and fell on the patient the full weight of the gate pressing on his back. Sharp precordial pain soon developed which radiated to the back, and he was obliged to quit work. Since then the pain would come on after comparatively slight exertion and would be associated at times with palpitation.

I had seen him about five months after the accident, when there was a soft diastolic murmur at the third left interspace close to the sternum which radiated to the apex and to the second right interspace. There was some left ventricular enlargement and the ascending aorta showed a slight bulge fluoroscopically.

There was no history of syphilis and the blood serologic reaction was negative. There was no history of rheumatic fever or any other disease that might predispose to the aortic insufficiency which the findings indicated. His age would rule out arteriosclerosis as a possible etiologic factor, and there was no evidence of arteriosclerotic changes in the palpable vessels and in the visible vessels in the retina. Just before the accident he had passed an examination for life insurance.

An interesting feature observed the first time that I examined him was that his blood pressure was normal being 118 systolic and 70 diastolic with a pulse pressure of 48. This is a very unusual finding in aortic insufficiency. About one year later, however, his blood pressure was 150 systolic and 68 diastolic, with a pulse pressure of 82 which is commonly seen in this condition. The ascending part of the aorta on this examination showed greater dilatation and a systolic murmur was heard in addition to the diastolic murmur previously found. The size of the left ventricle likewise has increased.

The rapid progression of signs further substantiated the diagnosis of traumatic damage to the aortic valve with the onset of aortic insufficiency. Early some of the characteristic features were absent and it was only after the persistence of the condition for about one and one-half years that all features developed.

#### SUMMARY

Trauma of the heart and the adjoining structures caused by blows to the chest or to distant parts of the body occurs much more often than the literature would indicate. This paper describes briefly the results of the available experimental work on the subject, the types of force that may produce cardiac injury in man and the resulting forms of injury. The symptom complex and electrocardiographic manifestations of cardiac injury are briefly described. Emphasis is placed on the importance of bearing in mind the possibility that trauma of the heart may occur in any bodily injury and such patients be subjected to frequent cardiac examinations including repeated electrocardiographic studies.

255 Eastern Parkway

**An Intellectual Challenge**—There are supposed to be 635,013,559,600 possible bridge hands that any one person might have dealt to him. And even if he should in a lifetime of bridge playing, hold the same hand twice the other three hands would be different and anyway he wouldn't remember the first time. Hence every bridge hand and every bridge situation is different and absolutely new, whereas in chess or checkers, for example each game starts with the identical situation. It is this inexhaustible newness of situations which provides bridge with one of its chief appeals—an intellectual challenge.—Knight, Robert P. Contract Bridge *Bull. Menninger Clin.* 6:68 (May) 1942.

## HEAD INJURIES

### A NEW TREATMENT FOR POSTCONCUSSIONAL HEADACHES AND DIZZINESS, PRELIMINARY REPORT

J. Y. MALONE, M.D.

MILWAUKEE

The postconcussional syndrome is being recognized more and more frequently as an oft occurring sequela of a concussion of the brain. It is usually characterized by a triad of symptoms which includes headache, dizziness and emotional disturbances. To gain a clear conception of this common condition it is first necessary to define concussion. One of the better definitions of concussion was presented by Strauss and Savitsky<sup>1</sup> as "a series of events resulting from a blow to the head severe enough to cause disruption of intracranial equilibrium." This statement is broad enough to allow for many of the theories of its pathophysiology.<sup>2</sup>

A general discussion of this disorder and its treatment seems timely, since undoubtedly there will soon be many more patients with this condition owing to the increased frequency of concussion resulting from war injuries. Unfortunately a great number of these patients are labeled neurotic. This is because psychogenic factors very frequently complicate the clinical picture if social or economic factors persist too long. Therefore any treatment which speeds recovery tends to eliminate the development of psychogenic factors.

#### PATHOLOGY

Neurosurgeons<sup>3</sup> have repeatedly reported that during an operation with the patient under local anesthesia no pain is felt except when certain well defined areas are touched. McNaughton<sup>4</sup> proved this to be the case. He found that some of the arteries, especially the middle meningeal, carry with them a plexus of nerves which when stimulated gives rise to the sensation of pain. The dura mater is insensitive to pressure, traction, heat and electrical stimulation except in a few small areas. The dural sinuses and cerebral arteries are similarly constituted, and the brain tissue is devoid of sensation.

The pathologic changes involved in this syndrome are not very clear. A number of investigators believe the disorder is primarily on an organic basis, whereas equally competent observers advance indisputable evidence of its being a pathophysiologic derangement. Penfield<sup>5</sup> has hypothesized that the development of dural adhesions is the basic cause of the symptoms. He has actually demonstrated in a number of cases thin adhesions in the subdural space overlying the cerebral hemisphere. Histologically these lesions are composed of a thin layer of blood undergoing the process of organization and adherent to the arachnoid as well as to the dura. When pressure was applied by means of a curved instrument on the under surface of the dura during the course of an operation under

1 Strauss J and Savitsky A. Head Injuries. *Arch. Neurol.* 31: 893, 1934.

2 Denny Brown D and Russell W R. Experimental Cerebral Concussion. *J. Physiol.* 99: 153, 1940.

3 Penfield Wilder. Chronic Meningeal (Post Traumatic) Headache and Its Specific Treatment by Lumbar Air Insufflation. *Surg. Gynec. & Obst.* 45: 727, 1927.

4 McNaughton F L. The Innervation of the Intracranial Blood Vessels and Dural Sinuses. *Proc. A. Res. Nerv. & Ment. Dis.* 18: 178, 1937.

5 Penfield Wilder and Norcross A C. Subdural Traction and Posttraumatic Headache. Study of Pathology and Therapeutics. *Arch. Neurol. & Psychiat.* 36: 75 (July) 1936.

This case, then, may be considered one of contusion of the heart and pericardium resulting in the anginal syndrome. Gradual calcification of the myocardium and pericardium occurred and resulted in the onset of auricular flutter about three and one-half years after the accident, when calcification reached a degree sufficient to produce irritation of the auricles. The subse-

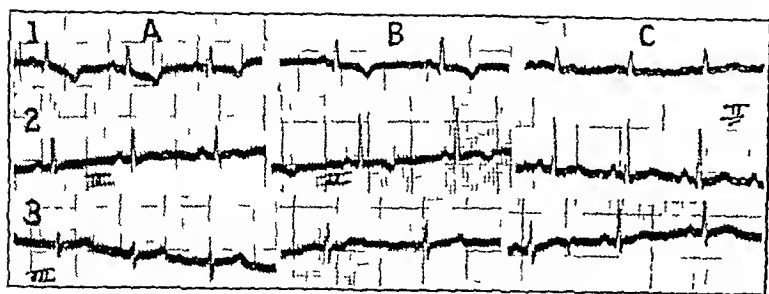


Fig. 6 (case 3)—A, one month after the accident. The T wave is negative in the first and second lead. B, two weeks after A. The T wave is more negative in the second lead and the QRS voltage is somewhat higher in all leads. C, four months after the accident. The T waves in the first and second lead are positive but the voltage is low in the former. The tracing is approaching the normal.

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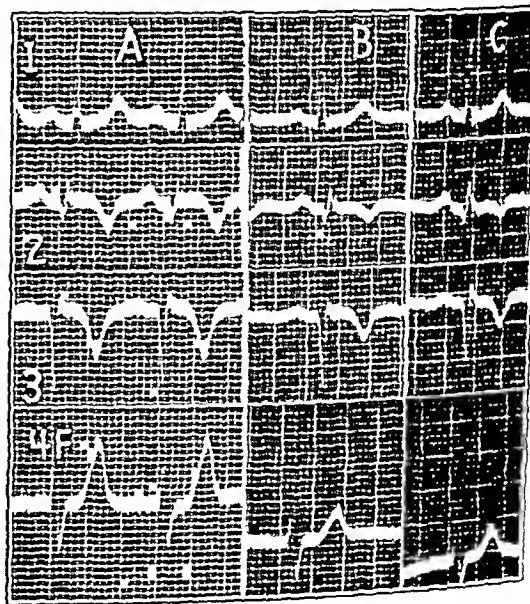


Fig. 7 (case 4)—A, about four weeks after the accident.  $QsT_s$  type of complex. The RT segment in the second and third lead is slightly elevated. B, about seven months after the accident. The T wave is less negative in the second and third leads and leads 1 and 2, the fourth lead which would indicate some improvement in the condition. C, about twenty months after the accident. The tracings are practically identical with those of B, except for the T wave in the second lead which is slightly less negative.

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still is employed by a number of clinicians. The purpose is to have the air 'break up' the subdural adhesions.<sup>10</sup> In a certain percentage of cases in which the disorder is particularly obstinate Penfield advised bilateral trephination with mechanical disruption of the offending membranes.

Brahdy<sup>11</sup> recently presented a series of 6 cases in which he tried the effect of ergotamine tartrate without help.

It may thus readily be seen that there is a definite place for any preparation which can be simply administered and yet relieve the distressing symptoms of this common disorder. Neurosurgical therapy, which has heretofore offered the best means of alleviation of pain, is not always readily available and even if it were, could not be successfully adapted in every case. With these shortcomings in mind, I proceeded to search for a simpler but efficient method. Knowing the vaso-dilating effect of prostigmine and believing that in many of these cases the disorder was on the basis of a disturbed vascular physiologic change, I decided to treat a number of suitable cases with this synthetic autonomic drug. Two of the more typical cases are here-with described, and the summaries of the other cases are presented in outline form in the accompanying table.

In the course of the examination of the patients under discussion the following objective signs were relied on in evaluating the amount of labyrinthine vertigo present in any particular case: (1) spontaneous nystagmus with the patient's head extended backward, to the right and to the left, (2) nystagmus after quick movements of the head, (3) caloric tests,<sup>12</sup> and (4) ophthalmic examination.

#### REPORT OF CASES

**CASE 1**—Peter S. aged 40 first seen on April 20, 1940, gave a history of having sustained a head injury two years before. Although he did not complain of any severe form of headache the dizzy spells which he suffered were often severe enough to necessitate bed rest for two or three days. Potassium iodide and histamine did not alleviate the symptoms, nor did insufflation of the eustachian tubes periodically for one year.

Examination revealed a normal ophthalmic state with clear fundi, normal visual fields and normal extraocular movements. Clockwise rotary nystagmus to the right and counterclockwise rotary to the left were noted as was lateral nystagmus ahead in the three primary positions. The caloric action was much prolonged, with accompanying past pointing to the right. One degree nerve deafness on the right was elicited.

Therapy consisted of 1 cc of solution of prostigmine methylsulfate 1:2000 intramuscularly twice weekly and a 15 mg tablet of prostigmine bromide three times daily by mouth. The following observations were made during the next six months:

- May 1 No bad spells to date
- May 13 No bad spells. Dizziness much less. Nystagmus almost absent. Patient is working again.
- June 3 No nystagmus and very little dizziness.

10 Boyd Douglas. Post Traumatic Headache Treated by Spinal Insufflation of Air. *Arch Surg* 15: 1626 (April) 1929. Drayton William Jr. Pneumocranium in Treatment of Traumatic Headache, Dizziness and Changes in Character. *Arch Neurol & Psychiat* 32: 1302 (Dec.) 1934. Jensen H. Treatment of Traumatic Headache by Insufflation of Air. *Acta psychiat et neurol* 8: 71 1933. Reichert F. Specific Treatment of Post Traumatic Localized Headache by Subarachnoid Pneumotherapy. *S. Clin North America* 11: 1123 1931. Skinner H. Headache (Post Traumatic) Relieved by Lumbar Air Insufflation. *Am J Surg* 8: 842 1930.

11 Brahdy L. Ergotamine Tartrate in the Treating of Postconcussion Headache. *Indust Med* 6: 409 1937.

12 Barany R. Untersuchungen über den vom Vestibularapparat der Ohren reflektorisch ausgelösten rhythmischen Nystagmus und seine Begleiterscheinungen (Ein Beitrag zur Physiologie und Pathologie des Bögenkanalapparates). Berlin C. Coblentz 1906.

June 5 Very dizzy and nystagmus very active. Drank several bottles of beer last night.

June 12 On restricted fluids during past week. Symptoms and signs as of June 5.

July 1 Told to force fluids and return in twenty-four hours.

July 2 Symptoms and signs very prominent again.

August 5 Forced fluids during past twenty-four hours. Symptoms and signs not as bad as on July 2.

October 4 Forced fluids during past twenty-four hours, with only occasional dizziness. Poorly sustained lateral nystagmus to the right.

October 5 No symptoms or signs.

November 25 Forced fluids during past twenty-four hours without any symptoms or signs. Treatment stopped.

**CASE 2**—S. F. a housewife aged 59, sustained a head injury on Jan 31, 1940. Since that time she had suffered from frontal and occipital headaches, photophobia, almost constant dizziness and occasional diplopia especially when looking to the left.

Examination on February 3 revealed blurring of the disk margins and enlarged retinal veins. Spontaneous clockwise rotary nystagmus was noted when the patient looked to the left and counterclockwise to the right both types being present in all primary positions. Caloric tests elicited a prolonged response with past pointing. On February 22, after having been in bed since the time of the accident the patient showed no change in symptomatology. The dizziness was severe enough to enforce complete bed rest.

Therapy consisted of 1 cc of solution of prostigmine methylsulfate 1:2000 intramuscularly twice weekly and a 15 mg tablet of prostigmine bromide three times daily by mouth.

On March 3 she was out of bed and moving about. There was no nystagmus, and the results of caloric tests were normal. Therapy was discontinued.

The patient was seen on September 11 and there had been no recurrence of symptoms.

It is notable that this patient experienced no improvement whatever with twenty-three days of continuous rest in bed. Yet when prostigmine therapy was initiated considerable improvement was noted within one week, and complete recovery occurred in twenty-eight days.

#### COMMENT

The results obtained through the use of prostigmine for the relief of the distressing symptoms of the so-called postconcussional syndrome tend to throw a new light on the etiology of this disorder. It is not intended to discount entirely the evidence accumulated by Penfield and some of the other investigators in this field but rather to contribute additional proof that the syndrome, in part or in some cases at least, has as its etiologic basis an altered vasomotor activity.

Prostigmine is a synthetic autonomic preparation having an action similar to that of physostigmine but lacking many of the disadvantages of the latter drug. Chemically it is the dimethylcarbamate ester of 3-hydroxyphenyl-trimethyl-ammonium methylsulfate or bromide. Its mode of action has not as yet been definitely demonstrated, but it is believed that Ammon's<sup>13</sup> conception is the correct one. This investigator has shown that prostigmine inhibits the action of cholinesterase on acetylcholine, which is liberated at the myoneural junction and which is believed to act as the transmitting agent for the nervous impulse as it passes from the nerve fibers to the effector organ. It would be expected therefore that prostigmine would act as a potentiator of any acetylcholine effects which might occur in vivo. It is a well known fact that acetylcholine is a powerful vasodilator, and, similarly, the administration of prostigmine to the intact organism results in a vasodilat-



ing phenomenon Perlow<sup>14</sup> has found this dilatation to be primarily arterial rather than arteriolar or capillary

It seems not irrational to hypothesize that, in the relief of symptoms due to the postconcussional syndrome, prostigmine acts on the labyrinthine and cranial blood vessels. Many investigators have shown that spasm of a blood vessel is often pain producing, as may be noted by the conception of many that the excruciating pain of angina pectoris is due primarily to a transient spasm of the coronary vessels.

Helfand<sup>15</sup> found in a series of 22 cases of the syndrome that many of the findings were of a functional (reversible) nature and postulated that they were primarily vasomotor in origin. Wolf<sup>16</sup> concluded recently that the best evidence of the cause of intracranial pain at present is that it is an alteration in the tonus of the involved arteries and the meningeal arteries in particular. This fits in very well with the results obtained with prostigmine.

Zacks,<sup>6</sup> as previously mentioned has described degenerative changes in the nuclei of the cochlear and vestibular nerves, as well as an altered irritability of the vasodilators and vasoconstrictors, with resultant areas of localized altered circulation.

It will be noted that in 4 of the cases the forcing of fluids<sup>17</sup> after apparent recovery resulted in a severe exacerbation of symptoms, but as recovery was more complete forcing fluids did not cause recurrence of symptoms. Thus, forcing fluids may be used to determine when recovery is complete.

Dederding<sup>18</sup> observed in cases of Meniere's syndrome that more frequent and severe attacks occurred when there was evidence of retention of body water. He consistently noted improvement when the patients were relatively dehydrated by restriction of the fluid intake and the use of pilocarpine or mercurial diuretics. Furstenberg,<sup>19</sup> working with the same type of patient, concluded that, if ammonium chloride was substituted for sodium chloride, no distressing symptoms arose when the water intake was increased. Thus it is evident that the labyrinth and cranial contents are functionally disturbed by whatever factors lead to a retention of an excess of fluids. It is probable that the improvement of such symptoms afforded through the use of prostigmine is due mainly to the increase of circulatory efficiency allowing the electrolytic balance to return to normal. It is possible that during the process of vasodilatation organic changes, such as adhesions, are mechanically broken up.

In conclusion it seems logical to state that in this series of cases the symptoms were basically of a pathophysiologic nature and, more specifically, organic changes producing an alteration of the involved vasomotor tonus. The value of prostigmine in alleviating and eventually abolishing the symptoms is striking, and it is suggested that this drug be employed in all cases

of the postconcussional syndrome in which the symptoms are distressing enough to require therapeutic intervention. As adjunctive therapy it may be advisable to replace sodium salts with ammonium and to restrict excess fluid intake until the "force fluid" test shows that recovery is complete. If, after a fair trial with prostigmine, there is little or no relief of symptoms, more complicated surgical intervention may be necessary.

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## INVOLVEMENT OF THE BRAIN STEM IN THE PRESENCE OF SUB- DURAL HEMATOMA

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One of the most striking characteristics of subdural hematoma is its capacity for producing complex and variable symptomatology. From the time of its emergence as a disease entity out of the group of pachymeningitis hemorrhagica interna, the effective therapy for this condition has remained essentially unchanged and the problem has been posed as one of diagnosis. Accordingly, the study of subdural hematoma has been concerned largely with the clinical appearance of the disease as a syndrome requiring early and forthright recognition for its successful treatment.

Even from the earliest reports, the impression is gained of the diverse and shifting character of the presenting picture. In the clinical study of Trotter<sup>1</sup> in 1914 the main characteristics of the condition were already described. Trauma, often slight, was considered the invariable cause, a latent interval of hours to days was noted, followed by the prodromal symptoms of headache and generalized retardation. The period of severe symptoms which followed was characterized by a variable state of consciousness and relatively few neurologic signs, chief among them being hemiparesis, occasional swelling of the optic disks, pupillary changes and oculomotor weakness. Trotter concluded that "the variable and apparently capricious clinical course of such chronic hemorrhages, far from rendering the diagnosis exceptionally difficult, constitutes a clinical type at once well marked and characteristic." And he advised early operation with bilateral trephination.

In 1925 Putnam and Cushing<sup>2</sup> reviewed the problem and listed the syndrome as including (a) the general effects of increased intracranial pressure, such as headache, vomiting, somnolence, bradycardia and papilledema, (b) the signs of meningeal irritation such as the positive Kernig sign and neck rigidity, and (c) the evidence of local pressure, such as paralyses, spasticity, aphasia, occasional sensory disturbances and, rarely, convulsions. Mention was made of oculomotor abnormalities, but these were not discussed.

Kaplan in 1931<sup>3</sup> reported 8 cases in which he called attention to the presence of pupillary dilatation on the side of the lesion and indicated its importance as a

<sup>14</sup> Perlow, Samuel. Prostigmine in the Treatment of Peripheral Circulatory Disturbances, *J. A. M. A.* **114**: 1991 (May 18) 1940.

<sup>15</sup> Helfand, M. Cerebral Lesions Due to Vasomotor Disturbances Following Brain Trauma, *J. Nerv. & Ment. Dis.* **90**: 157 (Aug.) 1939. Changes in the Vascular Patterns of the Brain in Experimental Trauma, *Psychiatric Quart.* **15**: 33 (Jan.) 1941.

<sup>16</sup> Wolf, H. G. Headache and Cranial Arteries, *Tr. A. Am. Physicians* **53**: 193, 1938.

<sup>17</sup> Pilcher, Cobb. Experimental Cerebral Trauma. The Fluid Content of the Brain After Trauma to the Head, *Arch. Surg.* **35**: 512 (Sept.) 1937.

<sup>18</sup> Dederding, D. Clinical and Experimental Examinations in Patients Suffering from Mb. (Morbus) Meniere Including Study of Problem of Bone Conduction, *Acta otolaryng.* **1**, 1929, supp. X.

<sup>19</sup> Furstenberg, A. C., Lashmet, F. H., and Lathrop, F. Meniere's Symptom Complex. Medical Treatment, *Ann. Otol., Rhin. & Laryng.* **43**: 1035, 1934.

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<sup>1</sup> Trotter, W. Chronic Subdural Hemorrhage of Trauma and Its Relation to Pachymeningitis Interna Hemorrhagica, *Proc. J. C.* **2**: 271, 1914.

<sup>2</sup> Putnam, T. J., and Cushing, Harvey. Chronic Subdural Hematoma, *Arch. Surg.* **11**: 329 (Sept.) 1925.

<sup>3</sup> Kaplan, A. Chronic Subdural Hematoma. A Study of 100 Cases with Special Reference to the State of the Pupil, *ibid.* **31**: 1931.



lateralizing sign. However this was contrary to the experience of Munro<sup>4</sup> who found no such correlation. Others, including Laudig, Browder and Watson<sup>5</sup> and Voris<sup>6</sup> have studied this problem further with inconclusive results. Gardner<sup>7</sup> emphasized the latent period and adduced evidence in support of the theory of slow osmotic enlargement of the clot. Fleming and Jones<sup>8</sup> recalled attention to the frequent bilateral occurrence of the hematomas and discussed the bearing of this fact on the clinical picture. Significant contributions in other respects were made by Leary,<sup>9</sup> Munro<sup>10</sup> and Kunkel and Dandy.<sup>11</sup> And yet despite these and other advances in the knowledge of subdural hematoma, the presenting syndrome is often so elusive that Carmody in 1941<sup>12</sup> was able to write in substantial agreement with most other authors: 'It is being increasingly recognized that subdural hematoma can simulate almost any brain lesion—and operative exploration is the one way of ruling it out.' And there is evident a tendency toward the more frequent use of trephination in an exploratory manner whenever the presence of subdural hematoma is even suspected.

The present report concerns a group of cases in which the clinical appearance is such that the diagnosis of subdural hematoma is generally not even considered and the patient therefore not given the benefit of operative exploration. There have recently come under our care 6 such cases, in which the clinical symptomatology has simulated indigenous lesions of the brain stem. The failure to recognize the cause resulted in the adoption of a conservative policy with regard to therapy. In 2 cases this terminated in death and the discovery of subdural hematoma on autopsy. In 1 other, after some delay, trephination was performed for ventricular puncture and the hematoma discovered in the course of this procedure. And in the 3 remaining cases the appropriate diagnosis was made only after a delay during which the signs had progressed. In all these cases attention had been directed to the brain stem by the presence of ocular signs which relate to the function of the midbrain and pontine nuclei.

Certain ocular signs which are not attributable to the brain stem are known to occur in subdural hematoma. Putnam<sup>2</sup> remarked on the appearance of pupillary changes, conjugate deviation, ptosis and strabismus and accorded them a diagnostic but no localizing significance. Kaplan's study<sup>3</sup> of pupillary dilatation as a lateralizing sign of subdural hematoma has already been referred to. Jelsma,<sup>13</sup> in an analysis of 42 cases collected from the literature, found disturbance of the ciliary part of the third nerve, extraocular muscle weakness or simple abducens paralysis in more than one fourth of the cases. A review of 48 cases in the neuro-

logic service from 1932 to 1940 revealed (in the order of incidence) anisocoria, impaired pupillary reaction, ptosis and paralytic strabismus, with ocular palsies not uncommon. With the exception of pupillary changes (the causation of which is not clear in this connection) all these signs may be ascribed to involvement of the third, fourth or sixth cranial nerves in their peripheral course along the base of the skull—presumably by pressure or traction.

However, in the group of cases of subdural hematoma under present discussion, the oculomotor signs were paralysis of gaze and of convergence, nystagmus and even, at times, disorganization of gaze.<sup>14</sup> These signs cannot be satisfactorily explained by involvement of the nerves in their peripheral course at the base of the brain. They represent damage to the brain stem proper and are referable to impairment of function of the oculomotor nuclei, the region of the quadrigeminal plate, the abducens nuclei, the para-abducens region and the posterior longitudinal bundles—all being structures within the substance of the midbrain and pons. It was as a consequence of this symptomatology that the observers chose a conservative course rather than the surgical procedure so urgently required.

A survey of the literature of subdural hematoma reveals the sporadic occurrence of similar cases with signs of brain stem disease.<sup>15</sup> Though in individual instances these have been striking, attention has never previously been directed to them as a group. One case, which was carefully studied by Lord,<sup>16</sup> is deserving of special mention in that it exemplifies our problem most clearly.

A man aged 43 entered the hospital with the complaint of occipital headaches for the previous six weeks together with weakness, unsteadiness, somnolence and occasional nausea. There was no history of trauma.

The patient was poorly attentive. The cranial nerves were normal. The neck was stiff. There were slight right finger to nose ataxia and the suggestion of a Romberg sign.

Under observation the left pupil became widely dilated, and it reacted sluggishly to light. Subsequently there appeared paralysis of upward gaze with weakness of convergence. The right lower extremity showed increased knee jerk and Babinski and Gordon signs. The spinal fluid was tinged with blood and was xanthochromic. The findings were assigned mainly to lesions of the left cerebral peduncle and the quadrigeminal plate and the diagnosis was made of hemorrhage (or tumor with hemorrhage) into the midbrain.

Surgical intervention was not advised. The course was downhill to death on the nineteenth hospital day. Autopsy revealed bilateral frontoparietal subdural hematomas, and careful section of the midbrain showed no pathologic changes.

#### REPORT OF CASES

Six cases which have come under our own observation are now described.

**CASE 1—History.**—M. C., a woman aged 50, was admitted on March 4, 1940 in a somnolent condition with a complaint of intermittent drowsiness of one week's duration. She was

4 Munro Donald. The Diagnosis and Treatment of Subdural Hematoma. *New England J Med* 210: 1145, 1934.

5 Laudig G. H., Browder E. J. and Watson R. A. Subdural Hematoma. *Ann Surg* 113: 170, 1941.

6 Voris H. C. The Diagnosis and Treatment of Subdural Hematoma. *Surgery* 10: 447, 1941.

7 Gardner W. J. Traumatic Subdural Hematoma. *Arch Neurol & Psychiat* 27: 847 (April), 1932.

8 Fleming H. W. and Jones O. W. Jr. Chronic Subdural Hematoma. *Surg Gynec & Obst* 54: 81 (Jan), 1932.

9 Leary Timothy. Subdural Hematoma. *J A M A* 103: 897 (Sept 22), 1934.

10 Munro Donald. *Cranio-cerebral Injuries*. New York: Oxford University Press, 1938.

11 Kunkel P. A. and Dandy W. E. Subdural Hematoma. *Arch Surg* 38: 24 (Jan), 1939.

12 Carmody J. T. B. An Unusual Case of Subdural Hematoma. *New England J Med* 224: 541, 1941.

13 Jelsma Franklin. Chronic Subdural Hematoma. *Arch Surg* 21: 128 (July), 1930.

14 The phrase disorganization of gaze as used by the neurologic examiners who observed these cases was intended to denote the dissociation of conjugate movement in such fashion that the harmony normally obtaining between the two eyes is disturbed though there is no individual muscle weakness. One type of such dissociation of gaze has been described by L. Hermitte under the title ophthalmoplegia internuclearis anterior and attributed to lesions of the internuclear pathway of the posterior longitudinal bundle.

15 Putnam and Cushing—case 8. Kunkel and Dandy—case 30.  
16 Lord F. T. A Case of Spontaneous Subdural Hematoma in Which the Diagnosis Was Missed During Life. *M Clin of North America* 10: 1119, 1927.

a known alcoholic addict, and it was subsequently learned (in the course of investigation at the conclusion of the case) that she had been struck on the head in the course of an argument one week before.

*Physical Examination*—The patient was obese, somnolent and moderately dehydrated. Her temperature and respirations were normal, but the pulse rate was 62 and the blood pressure 180 systolic and 110 diastolic. There was no evidence of trauma of the head or stiffness of the neck. The right pupil was greater than the left, both reacted sluggishly to light. Both horizontal and vertical nystagmus were present. There was slight right facial weakness of central type, with weakness of the right arm and both legs. The reflexes were overactive, more so on the right, with bilateral Babinski signs. The remainder of the examination disclosed a hard nodule in the thyroid, some medium moist rales at the left base and a heart of normal size, with forceful sounds and a systolic murmur at the base, with the aortic second sound louder than the pulmonic.

A lumbar puncture revealed xanthochromic fluid with initial pressure of 70 mm of water. Other findings were normal in the spinal fluid, blood and urine.

*Course*—The following day the patient was seen by the neurologic consultant, who found her drowsy but still able to give her name and fairly cooperative. The pupils were dilated and fixed to light, there was ptosis of the right upper lid. Paralysis of right lateral and upward gaze were present (and there was mention of paralysis of the right abductor at the same time). The weakness and spasticity of the limbs and bilateral hyperreflexia, more on the right, were as noted previously, and, in addition, deep sensation was impaired on the right. There were no sucking or grasping reflexes present.

The diagnosis of pontine and midbrain hemorrhage was made. The course was steadily downhill, and the patient died on the fourth hospital day.

*Autopsy*—There were moderate left ventricular hypertrophy and sclerosis of the aorta. The lungs showed confluent lobular pneumonia, and examination of the liver disclosed some degree of fatty change. The main findings related to the head. The scalp showed no evidence of injury. Removal of the calvarium disclosed a subdural hemorrhage which appeared in the form of a blood clot limited to the right side of the vault and base of the skull. The blood clot when removed weighed 70 Gm, and there was some adherence of the clot to the dura on the vault of the skull. At the base of the skull there was also a slight subdural hemorrhage in the anterior fossa on the left side. On the surface of the brain, over the right parietal lobe and near the longitudinal fissure, there was visible a ruptured pial vein from which a small clot protruded conspicuously. The brain showed considerable molding of the right cerebral hemisphere and flattening of the left hemisphere. On section, the brain, including the midbrain and pons, showed no lesions on careful gross inspection.

This patient presented outstandingly horizontal and vertical nystagmus, followed by the appearance of dilatation, with fixation of both pupils, ptosis of the right lid and paralysis of upward and of right lateral gaze. There were further, bilateral pyramidal signs, more on the right, and impairment of deep sensation of that side. Ptosis of the lid is, as has been noted, commonly found in cases of subdural hematoma and has been attributed to pressure or traction on components of the third cranial nerve. However, the presence of pupillary dilatation and gaze paralyzes directed attention to the midbrain and pons leading, in this case, to a diagnosis of midbrain hemorrhage with consequent conservatism in therapy. On autopsy the patient was found to have a subdural hematoma with no lesion in the brain stem on careful gross inspection.

*CASE 2—History*—M L, a white man aged 54, was admitted to the neurologic service on July 11, 1940 with the complaint of occipitoparietal headaches for nine weeks, becoming progressively worse. More recently there had been dizziness, with nausea, transient amnesia and drowsiness. In the few days before entry the family had remarked that the patient was at times disoriented and confused. There was no past history of alcoholism, but the patient had suffered a moderate blow on the head about three weeks before the onset of symptoms.

*Physical Examination*—The patient was drowsy, with incessant yawning and dozing. Though responding to simple commands, he was disoriented for time, place and person, and there were gross recent memory defects and compensatory confabulation. His blood pressure was 150 systolic and 100 diastolic and his pulse rate was 76. There was no external evidence of injury. The fundi were normal. The pupils were small and irregular and reacted to light and near fixation. Gaze was normal, and there was no nystagmus. Other cranial nerves were normal. There was moderate hypertonus, more on the left, with bilaterally equivocal plantar reflexes. Sensation was intact within testable limits. The provisional diagnosis was of an expanding intracranial lesion but with no localization possible.

On lumbar puncture the spinal fluid was bloody because of the traumatic insertion of the needle but was not otherwise abnormal. The serologic reactions were negative.

*Course*—Under observation the patient became more stuporous, though with intermittent periods of alertness. On the third day there appeared a left lower facial paresis, pyramidal signs on the left and ocular signs, consisting in bilateral lid ptosis, definite isolated paralysis of the left internal rectus and weakness of the left external rectus movements, without gaze paresis or nystagmus. The impression was that of a rapidly developing midbrain and pontine lesion, though subdural hematoma was considered. Ventriculography was advised.

On the fifth hospital day, bilateral trephines were made over the occipital regions. An old dark subdural hematoma was found on the right, and 75 cc of dark red blood with clot was evacuated. There was immediate improvement and, though the postoperative course was unsettled, with recurrent stupor, occasional disorientation and persistent diplopia, this improvement continued. On the thirteenth postoperative day there was still present isolated paralysis of the left internal rectus. On the thirty-seventh postoperative day the patient was discharged with residual diplopia and occasional headaches but otherwise well. On reexamination some months later there was moderate paresis of movement of the left internal rectus but no other abnormality.

This patient presented the general signs of drowsiness, disorientation and confusion together with left sided pyramidal signs and bilateral lid ptosis. The associated paralysis of the left internal rectus movement was considered a manifestation of involvement of the oculomotor nucleus—part of a brain stem lesion. Trephination, however, revealed a subdural hematoma and after its removal there was incomplete but progressive clearing of the signs. The appearance of paralysis of the left internal rectus long after the initial injury and during the period of expansion of the hematoma indicates that the midbrain lesion resulted from pressure transmitted from above. Apparently this pressure was great enough to cause actual damage in the oculomotor nucleus—anatomic damage which was not completely reversible.

*CASE 3—History*—H F, a white man aged 40, unmarried, was admitted to the neurologic service on July 24, 1940 with a complaint of increasing weakness. The patient was a chronic alcoholic addict with epileptic seizures occurring 2 or 3

since the age of 18 years. More recently the seizures had become more frequent and more severe following drinking. In the three years before the present entry there had been four hospital admissions for postalcoholic convulsions and on two of these occasions there had been evidence of fractured skull. On the last of these previous admissions in March 1940 there had been noted essentially a right pupil slightly larger than the left, a suggestive left central facial weakness and left sided pyramidal signs. The possibility of subdural hematoma was then entertained but the patient refused treatment and left the hospital. Since that time, however, the left arm and leg showed increasing weakness accompanied by drooping of the left eyelid together with right frontal headaches.

*Physical Examination*—The patient was somnolent but easily roused and quite cooperative. His pulse rate was 60 and his blood pressure 125 systolic and 80 diastolic. There was an old scar with deformity over the occiput. The fundi showed slight blurring of the disks more on the left. There was some ptosis of the left lid, the pupils reacted poorly to light and the left pupil was smaller than the right. Ocular movements were outstandingly impaired with almost complete paralysis of upward gaze and vertical nystagmus on the attempt and there were definite weakness of downward gaze and absence of convergence. There was some weakness of right eye adduction but other movements were normal and no disorganization of gaze was noted. There were further left lower facial weakness, paresis of the left arm and leg and bilaterally overactive reflexes, with impaired abdominal and bilateral Babinski reflexes. Sensation was intact.

Lumbar puncture revealed initial pressure of 180 mm of water with entirely normal spinal fluid and negative serologic reactions.

*Course*—The impression was of subdural hematoma. During the night the patient became more stuporous and the following morning bilateral temporal trephines were made. On the right the dura was normal. On the left was found a chronic subdural hematoma under pressure and 100 cc of dark clotted blood was evacuated. The response was immediate and dramatic with clearing of the sensorium and remission of the physical signs. Five hours postoperatively, but for a residual anisocoria the ocular signs had cleared completely. After an uneventful convalescence the patient was discharged improved on the twenty-seventh postoperative day.

In this case the previous history, the course of the illness and the physical signs all supported the finding of subdural hematoma. The ptosis and anisocoria are, of course, often found in such cases. The remaining ocular signs, however, were considered most unusual for this condition. The almost complete paralysis of the upward gaze, with vertical nystagmus, the weakness of the downward gaze and the failure of convergence all indicate involvement of the midbrain proper in the region of the oculomotor nuclei and the quadrigeminal plate. Though the precise cause of this involvement is not clear the almost immediate disappearance of the oculomotor signs postoperatively stands against an intrinsic lesion of the brain stem and favors an effect from the hematoma itself—presumably transmitted pressure.

*CASE 4*—J. T., a man aged 46, white, married, a brick layer, was admitted to the neurologic service on Dec. 9, 1939, with increasing stupor. Three days before entry he had been found semiconscious in the street but without evidence of injury at that time. He was taken home and while under home care showed persistent stupor, incontinence, right sided weakness and inability to speak clearly.

*Physical Examination*—The patient though conscious was lethargic and inattentive and did not respond to questions. There were pitting edema over the scalp, with depression at the

vertex, and several old scars supraorbitally and over the occiput. The pupils were irregular but equal and reactive. The patient could not converge. There was ptosis of the left lid, but no other ocular abnormalities were noted. Right facial weakness of central type was present as were paralysis of the right arm and to a lesser degree of the leg. Further, the right abdominal reflex was easily exhaustible, and there was a right Babinski sign.

A lumbar puncture revealed an initial pressure of 240 mm of water. The fluid was pinkish, with 4,200 red blood cells per cubic millimeter and 40 mg of protein per hundred cubic centimeters. A Pandy test and serologic tests were negative.

*Course*—Roentgen examination showed a lineostellate fracture at the vertex without evidence of depression. The impression at this time was of craniocerebral injury with cerebral laceration. The patient was kept under observation. On the following day he became more responsive, answering questions and being able to move the right arm. At this time, however, there appeared ptosis of the left upper lid (previously noted), double external rectus weakness, failure of convergence and disorganization of both horizontal and vertical gaze (one observer noted in addition weakness of lateral gaze to the right). The impression was of contrecoup hemorrhages of the brain stem and a conservative policy was advised. Under further observation for ten days the patient continued to be intermittently disoriented but on the whole improved.

However, on the twelfth day after entry there were a recurrence of stupor and an increase in right sided paresis. A diagnosis of subdural hematoma was then entertained, and bilateral frontoparietal trephines were made. On the left, a large subdural hematoma was found from which was evacuated 200 cc of brownish liquid and clotted blood. There was immediate return of consciousness. The postoperative course except for intermittent stupor showed steady improvement with clearing of the pyramidal and ocular signs in about one week. The patient was discharged well on the twenty-third postoperative day.

While this patient was under observation for fractured skull and right sided pyramidal signs, there appeared ocular signs which indicated involvement of the midbrain and pons and dictated conservatism in approach. Subsequent recurrence of stupor and right sided paresis led to trephination and the finding of left subdural hematoma, the removal of which was followed by the rapid clearing of all signs.

*CASE 5—History*—M. D., a woman aged 49, a housewife, was admitted to the psychiatric division of Bellevue Hospital with the complaint of increasing weakness of the left side. The patient was a known chronic alcoholic addict who gave a vague history of having bumped her head about a week before entry. This was followed by headaches, intermittent disorientation (according to the daughter) and left sided convulsive seizures on successive days.

*Physical Examination*—The patient was apathetic, moderately confused and disoriented and in a postalcoholic state. Her blood pressure was 100 systolic and 70 diastolic and her pulse rate 100. Tenderness of the skull with contusions over the right frontal area was observed. The optic disks were normal. There was an incomplete left homonymous hemianopia to gross testing. The left pupil was greater than the right both reacting sluggishly to light. The eyes tended to turn to the right with nystagmus in that direction. There were further, left lower facial weakness, hemiparesis on the left (increasing to hemiplegia after her left sided seizures) and a left hemianesthesia.

Lumbar puncture showed initial pressure of 220 mm of water. The fluid was faintly xanthochromic. The Pandy test was suggestively positive. A few red blood cells and white blood cells were noted.

*Course*—Under observation the patient had an irregular course. The following day there were noted, in addition to the left sided pyramidal signs previously found, a paresis of left lateral gaze, with nystagmus on gazing to the right. And two days later there appeared increased drowsiness, complete paralysis of left lateral gaze and much impairment of upward gaze. The impression at this time was of midbrain and pontine involvement in addition to hemorrhage in the right cerebral hemisphere. Conservative measures were advised.

However, the pulse rate fell to 70, the patient became more drowsy, the left sided paresis progressed to hemiplegia and there was nystagmus in all directions. The diagnosis of subdural hematoma was entertained, and on the fourth hospital day bilateral parietal trephines were made. On the right was found a large subdural hematoma containing dark red liquid and clotted blood. The postoperative course showed steady improvement, the ocular signs cleared completely, but the hemiparesis and hemihypesthesia remained in some degree. On the twenty-ninth postoperative day the patient was discharged as improved.

*Readmission*—Approximately three months later the patient was readmitted to the hospital with a persistence of jacksonian seizures. At this time there were found a spastic left hemiparesis, together with left sided impairment of superficial and deep sensation, including vibration and stereognosis. There were, however, no ocular abnormalities. Encephalography revealed definite dilatation of the right ventricle. The diagnosis was of gliosis and atrophy following the initial cerebral injury. The patient was discharged and given phenobarbital therapy.

*Comment*—This patient gave evidence of lesions in the right cerebral hemisphere. The ocular signs were anisocoria and deviation of gaze to the right. While under observation, there appeared paralysis of left lateral gaze and impairment of upward gaze, which signs led to the diagnosis of midbrain and pontine hemorrhage in addition to the lesions in the right cerebral hemisphere. Subsequently, after the progression of signs, trephination was done, and there was disclosed a right subdural hematoma. After its evacuation the oculomotor abnormalities disappeared, though the right cerebral hemisphere remained irreversibly damaged.

*CASE 6—History*—J. T., a Negro aged 28, was admitted to Bellevue Hospital, psychiatric division, in an intoxicated condition and unable to give any history.

*Physical Examination*—The patient was stuporous and uncommunicative. There was no evidence of injury about the head. The pupils were equal and reactive to light and convergence. The other cranial nerves were normal. There were, further, bilaterally overactive reflexes with absent abdominal but normal plantar reflexes.

Lumbar puncture showed normal pressure. The fluid was crystal clear and colorless.

*Course*—The patient remained dull and somewhat confused with increasing restlessness and incontinence and, on the fourth day, increasing diffuse headache. At this time the pupils were miotic and fixed to light, and there was impairment of convergence and upward gaze but no nystagmus. There were, further, bilateral pyramidal signs, more on the left, with questionable hemihypesthesia on that side. The right upper extremity displayed a rhythmic tremor described as parkinsonian. The patient was transferred to the neurologic service.

During the following days the pupils became dilated and fixed to light, with disorganization of gaze and a tendency toward bilateral ptosis. The impression was that of alcoholic polioencephalitis superior. The patient became drowsier, passed into a coma and died on the eighth hospital day.

*Autopsy* (confined to the head)—There was hemorrhage in the temporal muscle. The calvarium was normal and without fracture, as was the base. On removal of the dura, a large

subdural hematoma was found over the left cerebral hemisphere covering the vertex and also extending into the base. This hemorrhage was about 6 ounces (180 cc) in amount and was composed of dark reddish brown clotted blood. No membrane formation was seen. The convolutions over the left hemisphere were molded, but there was no lesion of the brain tissue. Over one of the convolutions in the posterior part of the frontal lobe, just anterior to the junction between the Rolandic and Sylvian fissures, was a small, torn pial vein. Convolutions of the right hemisphere showed distinct flattening, with obliteration of the sulci, and there was considerable flattening at the base of the brain. The basal ganglions were intact, and the midbrain, pons and cerebellum were normal on careful gross inspection. The vessels at the base were normal.

This patient presented the following ocular signs: miotic and fixed pupils, which then became dilated and fixed, and impairment of convergence and of upward gaze, followed by dissociation of gaze. Further there were bilateral pyramidal signs more on the left, a parkinsonian tremor of the left arm and suggestive left hemihypesthesia. Under observation the patient had a downhill course and died. On autopsy, a subdural hematoma was found, but the brain stem was entirely normal except for flattening.

#### GENERAL COMMENT

The pathogenesis in general of those ocular signs in subdural hematoma which are referable to lesions of the brain stem is probably manifold, with differing mechanisms coming into play in different cases. Not infrequently a subdural hemorrhage in the usual location is accompanied by hemorrhage elsewhere. Even a brief review of autopsy material in the cases of subdural hematoma (other than those just described) from the Bellevue neurologic service has disclosed the occurrence of contrecoup lesions with associated hemorrhage around the cerebellum or within the brain stem. Though these occur most commonly in the more acute injuries, their appearance with chronic subdural hematomas is not unknown. In one case of long duration autopsy revealed, besides a left subdural clot, hemorrhage within the fourth ventricle and under the surface of the cerebellum. In this patient the ocular signs were pinpoint size pupils which were fixed to light and right internal and left external rectus paresis.

In other cases a subdural hematoma in the usual parasagittal or parietal location, being large, extends down under the brain into the basilar fossae and may reach to the brain stem. In yet other instances the hematoma may itself occur in an unusual place. Hematomas have been reported by Dandy<sup>17</sup> over the lateral surface of the temporal lobe and also under that lobe in the middle fossa. The same author has found the lesion also at the sella turcica. The subtentorial location of subdural clots in relation to the cerebellar hemispheres has been described by a number of authors, among them Munro,<sup>18</sup> Peet<sup>19</sup> and Schreiber.<sup>20</sup> Aring and Evans,<sup>20</sup> in their report on this type of lesion, summarized the findings of others and added a case in which there was a clot in the superior longitudinal

17 Dandy, W. E. The Brain. Subdural Hematoma in *Textbook of Practice of Surgery*, Hagerstown Md. W. F. Prior & Co. vol. 1, p. 17.  
18 Peet, M. M. Subdural Hematoma in Brock, Samuel, Jr., *The Skull, Brain and Spinal Cord*, Baltimore, Williams & Wilkins Co., 1940, chapter 7, p. 133.  
19 Schreiber, F. Chronic Subdural Subtentorial Hematoma. *Am. J. Biol. & Med.* 11: 469, 1939.  
20 Aring, C. D., and Evans, J. P. Aberrant Intracranial Hematomas, *Arch. Neurol. & Psychiat.* 41: 1296 (Dec.) 1941.

fissure between the cerebral hemispheres. In certain cases therefore, subdural hematoma either by virtue of its own aberrant location or through associated brain stem or basilar hemorrhage can cause the signs of brain stem disease.

*Notes on Pathogenesis*—However, in the cases under present discussion none of these mechanisms could have been operative. Rather, there must have been transmission of pressure from the expanding supratentorial lesion to structures at the base of the brain. In cases 1 and 6 the 2 cases in which autopsy was performed the brain stem revealed no lesions beyond the flattening already noted. In case 3 the ocular signs cleared almost immediately after operation thereby indicating that there was no intrinsic brain stem damage but rather a disturbance of function caused by pressure from above and relieved with the removal of that pressure. In the remaining cases, 2, 4 and 5 the signs of brain stem involvement appeared several days to weeks after the initial injury and during the period in which the signs of an expanding intracranial mass were increasing. After operation in these cases the ocular signs cleared slowly over a period of weeks to months in 1 patient with residual defect. Here one may postulate that transmitted pressure was sufficiently severe or of such duration as to bring about secondary hemorrhage into or softening of brain stem structures. That such secondary hemorrhage can occur into the midbrain as a result of extrinsic pressure has been showed by Van Gehuchten<sup>21</sup> and by Moore and Stern.<sup>22</sup>

The precise mode of the transmission of pressure from the supratentorial space to the brain stem is possibly through the formation of a temporal pressure cone.<sup>23</sup> Unfortunately in the 2 cases in this group which came to autopsy, the question was not specifically considered at the postmortem examination, and therefore judgment on this point cannot be made. Nevertheless, this mechanism offers a plausible explanation for the findings and merits consideration. Schwarz and Rosner<sup>24</sup> in a recent thorough study of the subject have found the herniation of the hippocampal gyrus through the incisura of the tentorium to occur in 83 per cent of the patients with expanding supratentorial lesions coming to autopsy. The tumors, in their cases occurred at almost any point over the cerebral hemispheres, with perhaps a predilection for the areas surrounding the sylvian fissure. That subdural hematoma in its character of an expanding lesion, is at times a cause of such tentorial herniation has been recognized. In 1 case in the series of Schwarz and Rosner there was a subdural hematoma and Aring and Evans, in their article to which I have already referred described 2 others. In a report of some years previously, Spatz and Stroescu<sup>25</sup> described a case in which bilateral subdural hematoma was the cause of herniation through the tentorium and

they showed how such herniation could press on the diencephalon and brain stem.

The clinical picture of the temporal pressure cone has been studied by a number of authors.<sup>26</sup> Jefferson in 1938<sup>27</sup> emphasized the secondary effects of tentorial herniation in its production of pressure on the midbrain and described cases in which the clinical picture featured fixation and dilatation of the pupils together with decerebrate states. Schwarz and Rosner, in their study previously referred to found disturbance of oculomotor function among the most prevalent of all signs of tentorial herniation and they mentioned 4 cases in which there was limitation of upward gaze. There is little doubt then that herniation of the medial part of the temporal lobe through the tentorium may be caused by subdural hematoma and that such herniation may press on the brain stem, causing functional impairment or structural damage according to the severity of the pressure. Though there is no proof that this mechanism was operative in the cases described, I advance it as a hypothesis requiring further study and confirmation.

*Clinical Syndrome*—It will be recalled that the diagnoses originally entertained in some of these cases were of lesions of the midbrain of one type or another. Wernicke's alcoholic psoencephalitis superior was diagnosed in 2 cases, tumor in another and hemorrhage into the brain stem—due either to hypertension or to contrecoup injury—in the rest. It would be interesting to see whether these cases present a consistent and recognizable clinical picture in such fashion that the true diagnosis might have been made more frequently and in time to permit more effective surgical treatment.

In all but 1 of the cases there was a history of trauma of the head and in most of the patients (including the one from whom no history of injury was obtainable) there was a background of alcoholism. The duration of the symptoms was from two to four months in 2 of these cases and from days to weeks in the others, this is in contrast to the much slower course of tumors of the brain stem, which generally develop over a period of months or years. On the other hand, the onset of signs in these cases was slower and more insidious than in cases of hemorrhage, the symptoms of which occur dramatically and, in the case of contrecoup damage to the brain stem, might be expected to date from the time of the initial injury. Furthermore, though the clinical picture was on the whole progressive, in most of these cases there was a fluctuating course with regard both to the state of consciousness and to the ocular signs themselves. Although a patient with tumor of the brain stem may show shifting states of consciousness, a pronounced fluctuation of signs is rather characteristic of subdural hematoma as against the more steady progression that is usually associated with tumor.

Finally the distribution and degree of the brain stem signs deserve notice. In indigenous disease of the brain stem the local signs might be expected to be outstanding, and they are often found to involve chiefly the

21 Van Gehuchten P. Le mecanisme de la mort dans certaines cas de tumeur cerebrale. *Encephale* 32: 113, 1937.

22 Moore M. T. and Stern K. Vascular Lesions in the Brain Stem and Occipital Lobe Occurring in Association with Brain Tumors. *Brain* 61: 70, 1938.

23 Meyer Adolf. Herniation of the Brain. *Arch Neurol & Psychiat* 4: 387 (July), 1920.

24 Schwarz G. A. and Rosner A. A. Displacement and Herniation of the Hippocampal Gyrus Through Incisura Tentorii. *Arch Neurol & Psychiat* 46: 297 (Aug.), 1941.

25 Spatz H. and Stroescu G. J. Zur Anatomie und Pathologie der ausseren Liquorraume des Gehirns (Die Zisternenverquellung beim Hirn tumor. *Nervenarzt* 7: 841, 1934.

26 Van Gehuchten M. P. Le mecanisme de la mort dans certaines cas de tumeur cerebrale. *Rev. neurol* 65: 702, 1936. Vincent C. David M. and Thiebaut J. Le cone de pression temporal. *Rev. neurol* 65: 536, 1936. Ried W. L. and Cone W. V. The Mechanism of Fixed Dilatation of the Pupil Resulting from Ipsilateral Cerebral Compression. *J. A. M. A.* 112: 2030 (May 20), 1939.

27 Jefferson Geoffrey. The Tentorial Pressure Cone. *Arch Neurol & Psychiat.* 40: 657 (Nov.) 1938.



hindbrain or else the entire brain stem in scattered fashion bilaterally. In these cases the signs were generally slight or moderate compared with the rest of the picture, and they related chiefly to the midbrain without evidence of involvement of the cranial nerve nuclei below the abducens.

Alcoholic polyencephalitis superior may be distinguished from these cases by its character as a deficiency disease—the alcoholism is outstanding, and there are signs of general malnutrition. Changes in the skin and mucous membranes bear witness to lack of specific vitamins. The mental picture is characterized by restlessness or somnolence and often with disorientation. Lastly, apart from the oculomotor disorders and ataxia, localizing neurologic signs are not prominent.

To summarize, the condition in the cases reported was characterized by a history of trauma of the head, a background of alcoholism (predisposing to trauma of the head), the development of signs over a period of days to a few months and a variable and fluctuating course. All together, these features go to make up a clinical picture consistent with subdural hematoma and certainly warranting the suspicion of that condition. And, when that diagnosis is even suspected, the presence of signs of disease of the brain stem should not be considered to contraindicate exploratory trephination.

*Notes on Paralysis of Gaze*—A word of caution is in order with regard to the diagnostic significance of oculomotor signs. It is not sufficiently recognized that these signs are not entirely specific and that impairment is sometimes manifest as the result of generalized depression of the sensorium. Kestenbaum<sup>28</sup> has pointed out that any gaze movement involves various levels of activity. Hence in stupor there often occur nonspecific disturbances of these functions. Upward gaze is the first to suffer, followed by convergence, and in deep coma no gaze movements whatever may be elicited. In the review, already referred to, of 48 cases in the Bellevue neurologic service between 1932 and 1940, there was a fairly high incidence of all kinds of oculomotor disturbances in stuporous and semicomatose patients, and a similar incidence obtains with respect to a number of published series. I have tried to select only those cases in which the level of cooperation was such as to warrant the analysis of eye movements.

CONCLUSIONS

In cases of chronic subdural hematoma there occasionally appear signs referable to disease of the brain stem. Because radically different approaches to therapy depend on the appropriate diagnosis in such cases, and particularly because timely surgical intervention is of such dramatic benefit in subdural hematoma, it is important that this fact be kept in mind and that indications for exploratory operation be considered accordingly.

When the other clinical findings warrant the suspicion of subdural hematoma, the presence of signs of involvement of the brain stem should not stand in the way of operative exploration.

99 St. Marks Place

INCIDENCE OF LEAD POISONING IN THE CITY OF BALTIMORE

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Since 1935 the Bureau of Laboratories of the Baltimore City Health Department has provided a routine laboratory service for the quantitative estimation of lead in blood and other body fluids as an index of abnormal lead absorption in cases of suspected lead poisoning.<sup>1</sup> The cooperation of those physicians and hospitals who made use of this service was solicited in order to make available the clinical histories of the persons whose bloods were examined for lead. In this way considerable information was obtained about the local occurrence of both industrial and nonindustrial lead poisoning.

A summary of the incidence of lead poisoning in the city of Baltimore during the period 1931-1940 is shown in table 1. These data were obtained from the follow-

TABLE 1—Lead Poisoning in Baltimore, 1931-1940

| Year  | Total Cases | Fatal Cases |       | Nonfatal Cases |       |
|-------|-------------|-------------|-------|----------------|-------|
|       |             | Adult       | Child | Adult          | Child |
| Total | 228         | 7           | 49    | 86             | 86    |
| 1931  | 3           | 1           | 2     |                |       |
| 1932  | 51          |             | 2     | 12             | 37    |
| 1933  | 5           | 1           | 2     | 2              |       |
| 1934  | 10          |             | 6     |                | 4     |
| 1935  | 22          |             | 10    | 5              | 7     |
| 1936  | 35          | 1           | 8     | 10             | 11    |
| 1937  | 26          |             | 2     | 16             | 8     |
| 1938  | 19          | 2           | 6     | 4              | 7     |
| 1939  | 23          | 1           | 4     | 11             | 1     |
| 1940  | 34          | 1           | 7     | 21             | 5     |

ing sources: (1) reports of occupational lead poisoning, (2) reports of deaths from lead poisoning and (3) cases ascertained in a follow-up of the blood lead laboratory service.

All the fatal cases were reported to the Bureau of Vital Statistics. However, there is little tendency to report nonfatal lead poisoning. Lead poisoning in children is not a reportable disease in Maryland. Since 1934 at least 117 cases of nonfatal lead poisoning have occurred in all ages, yet 89 per cent of these cases were ascertained only as a result of a follow-up study of the blood lead laboratory service. The table includes 40 cases of nonfatal lead poisoning which occurred in 1932 as a result of the use of discarded storage battery casings for fuel.<sup>2</sup> Fatal lead poisoning was a far more frequent happening in children than in adults. Eighty-six per cent of the deaths recorded in table 1 were those of children, the primary cause of death in practically all being either lead poisoning or lead encephalitis. On the other hand, in 5 of the 7 adult deaths lead poisoning was reported merely as a contributory cause.

The high frequency of fatal lead poisoning in children reported from Baltimore as compared with other areas

1 Kaplan, Emanuel, and McDonald, J. M. Blood Lead Determinations as a Health Department Laboratory Service. *Am J Pub Health* 32:481 (May) 1942.

2 Williams, Huntington, Schulze, W. H., Rothchild, H. I., et al. A. S., and Smith, F. R., Jr. Lead Poisoning from the Use of Discarded Storage Battery Casings. *J A M A* 100:1485 (May 13) 1933.

28 Kestenbaum, A. Blickbewegungen und Blickstörungen. *Confinia Neurologica* 2:9, 1939.

is evident in table 2 compiled from information furnished by the United States Bureau of Census. Of the 202 deaths from lead poisoning in persons under 15 years of age which were reported in the entire United States registration area (1936 population about 128,052,000), 49 deaths or 24.3 per cent of the total, were from the city of Baltimore (1936 population about

TABLE 2—Number of Reported Deaths from Lead Poisoning by Age Groups in Selected States and in the United States, 1931-1940

|  | All Ages | Under 15 Years | 15 Years and Over |
|--|----------|----------------|-------------------|
| Total United States registration area        | 1,000    | 202            | 803               |
| California                                   | 51       | 2              | 49                |
| Illinois                                     | 70       | 6              | 64                |
| Maryland                                     | 10       | 4              | 11                |
| City of Baltimore                            | 49       | 49             | 7                 |
| Massachusetts                                | 61       | 11             | 50                |
| Michigan                                     | 0        | 1              | 27                |
| Missouri                                     | 0        | 1              | 22                |
| New Jersey                                   | 16       | 10             | 46                |
| New York                                     | 142      | 76             | 106               |
| Ohio   | 81       | 5              | 76                |
| Pennsylvania                                 | 8        | 18             | 60                |
| Remainder of United States registration area | 750      | 41             | 344               |

The population of the city of Baltimore is about 47 per cent of the total population of the state of Maryland.

838,700), which constitutes only 0.65 per cent of the population of the United States registration area. Based on cases reported in children during the ten year period 1931-1940, the death rate from lead poisoning in Baltimore would seem to have been about fifty times as high as in the remainder of the general population of the United States. That this situation was not generally appreciated is evident from the following statement which appeared in a statistical report<sup>3</sup> on lead poisoning:

A tabulation of deaths from lead poisoning in eighteen American cities in which lead-using industries are more or less concentrated gives the following results. In the aggregate there were 179 deaths during the period 1929-36 of which 30 occurred in New York City, 29 in Baltimore, 28 in Philadelphia, 22 in Boston, 16 in Chicago, 15 in Cleveland and 10 in Providence.

This statement implied that the relatively large number of deaths from lead poisoning in Baltimore had occurred as a result of industrial exposures. However, the implication was not in accordance with the known

TABLE 3—Lead Poisoning in Children in Baltimore 1931-1940

| Age Years | Total | White |        | Colored |        |
|-----------|-------|-------|--------|---------|--------|
|           |       | Male  | Female | Male    | Female |
| Total     | 135   | 25    | 19     | 46      | 40     |
| Under 1   | 1     | 6     | 7      | 1       | 5      |
| 1         | 26    | 15    | 7      | 10      | 13     |
| 2         | 45    | 3     | 1      | 2       | 4      |
| 3         | 13    | 1     | 1      | 15      | 10     |
| 4         | 10    | 1     | 1      | 6       | 7      |
| 5-9       | 27    |       |        |         |        |
| 10-14     | 13    |       |        |         |        |

facts. Actually 36 cases of fatal lead poisoning were reported in Baltimore during the period 1929-1936. Only 4 of these deaths occurred in adults. On the other hand 32 deaths or 89 per cent of the total, were due to nonindustrial lead poisoning, that is to say, they were deaths of children mostly resulting from the chewing of objects painted with lead-containing paint.

3 Hoffman F. L. Lead Poisoning in 1936 and in Earlier Years. Monthly Labor Review. Bureau of Labor Statistics. U. S. Department of Labor. February 1938. Serial No. R 669.

These facts again demonstrate the general lack of adequate statistical information on mortality and morbidity from lead poisoning, a condition which has been repeatedly mentioned in the literature.<sup>4</sup>

During the period 1931-1940 a total of 135 cases of lead poisoning occurred in children in Baltimore City. The age, sex, and color distribution of these children is shown in table 3, which includes both fatal and non-fatal cases. The average age in this group is 4 years. However, the group includes 37 colored children of an average age of 7½ years who were concerned in the 1932 outbreak of lead poisoning associated with the use of storage battery casings for fuel.<sup>2</sup> The average age of the remaining 99 children is 2½ years. Practically all had a history of pica associated with the chewing of objects painted with lead-containing paints. The age specific morbidity rate for lead poisoning during the ten years 1931-1940 based on this group of 99 children is more than five times as high among the colored population (137 per hundred thousand) as it is among the white population (25 per hundred thousand). The colored group constitutes approximately 19 per cent of the total population.

During the same time 93 cases of lead poisoning occurred among adults. Colored persons were involved

TABLE 4—Occupational Distribution of Persons with Lead Poisoning in Baltimore 1931-1940

| Occupation                | Number of Cases |       |         |
|---------------------------|-----------------|-------|---------|
|                           | Total           | White | Colored |
| Total                     | 228             | 123   | 105     |
| Painter                   | 24              | 22    | 2       |
| Lead arsenate worker      | 13              | 13    |         |
| Acetylene burner          | 12              | 11    | 1       |
| Enamel worker             | 10              | 10    |         |
| Paint maker               | 8               | 5     | 3       |
| Gasoline tank cleaner     | 8               | 8     |         |
| Junk metal worker         | 5               | 1     | 4       |
| Solder grinder            | 3               | 3     |         |
| Printer                   | 1               | 1     |         |
| Miscellaneous occupations | 5               | 4     | 1       |
| Nonoccupational adult     | 4               | 1     | 3       |
| Nonoccupational children  | 135             | 44    | 91      |

in 14 of these cases. The age specific morbidity rate among colored adults over the ten year period (12 per hundred thousand) is less than the rate among the white persons (16 per hundred thousand). For the five years 1936-1941, which reflect the increase in our knowledge of the occurrence of lead poisoning (table 1), the corresponding morbidity rates in adults are somewhat higher (15 per hundred thousand in the colored group and 25 per hundred thousand in the white group).

An occupational distribution of persons with lead poisoning is shown in table 4. The largest single group includes painters. It must be pointed out, however, that a number of painters in this series had relatively mild lead intoxication. Nine of the 13 lead arsenate workers were white women employed in packing operations. One of the enamel workers was a white woman engaged in spraying enamel frit. There were no other cases of lead poisoning of occupational origin among women. The junk metal workers operated furnaces for reclaiming scrap lead in junk yards. The acetylene burners employed torches in shipbreaking. The printer

4. Lanza A. J. Epidemiology of Lead Poisoning. J. A. M. A. 104: 85 (Jan. 12) 1935. Hamilton Alice. The Prevalence of Industrial Lead Poisoning in the United States. Chapter XX in Lead Poisoning by J. C. Aub. L. T. Fairhall A. S. Minor and Paul Reznikoff. Medical Monographs vol. 7. Baltimore: Williams & Wilkins Company 1926. McCord C. P. and others. Lead Poisoning in the United States. Am. J. Pub. Health 19: 631 (June) 1929.

spent a portion of his daily time remelting type and skimming and sifting dross from the remelt pot. The list includes one nonoccupational case, that of an adult who was given lead and opium pills in the treatment of tuberculous enteritis.<sup>5</sup>

#### SUMMARY

1 Largely as a result of studies associated with a follow-up of a blood lead laboratory service, it has been possible for the Baltimore City Health Department to acquire relatively accurate information concerning the incidence of lead poisoning in the community in recent years.

2 In the ten year period 1931-1940 at least 228 cases of lead poisoning are known to have occurred in Baltimore. Of these, 93 cases, or 41 per cent, involved adults, and 135 cases, or 59 per cent, occurred in children. There were 7 fatalities among the adults, as compared with 49 fatalities among the children.

3 Lead poisoning was of more frequent occurrence among colored children than among white children. Adult lead poisoning of occupational origin was more common among the white population than among the colored.

## ECLAMPSIA AT THE UNIVERSITY HOSPITAL

1926 TO 1941

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During the sixteen years between Jan. 1, 1926 and Dec. 31, 1941, 80 eclamptic patients were observed and treated at the University Hospital. Thirty-seven women were admitted in the convulsive stage, and 43 suffered the seizures after admission, all but 13 of the latter were admitted because of toxemia. Throughout the series, eclampsia was viewed as a medical condition and treatment followed a fairly consistent pattern. This communication deals with the results obtained and involves a discussion of the lessons learned by the experience.

#### TREATMENT EMPLOYED

The essence of therapy revolves around the clinical observation that eclamptics generally do not have convulsions when the respirations are less than 14 to 16 per minute and the deduction therefrom that there is some relationship between the respiratory exchange and the appearance of the convulsive episodes. Heavy sedation was therefore employed, and the dosage was regulated solely by the effect on the respiratory rate, which was reduced to 12 per minute as quickly as possible. The most commonly employed drug was morphine, which was administered in all but 6 very mild cases in amounts varying from  $\frac{1}{4}$  grain (0.016 Gm.) to  $\frac{6}{16}$  grains (0.44 Gm.), with the average approximating  $1\frac{1}{4}$  to  $1\frac{1}{2}$  grains (0.08 to 0.1 Gm.). Chloral hydrate (53 cases), magnesium sulfate parenterally (28 cases) and various barbiturates (15 cases) were employed to complement the morphine, these drugs are all respiratory depressants.

Other forms of therapy employed included venesection in 18 cases, mostly in the earlier years, spinal tap in 2, oxygen in 11 (7 during 1941), concentrated dextrose solutions intravenously in 49 and concentrated

sucrose solutions in 10, mostly since 1932. Scopolamine hydrobromide, atropine, theophylline with ethylene diamine and mercurous iodine were each given to 1 to 3 patients on special indication. Transfusions were employed twice in the presence of shock and hemorrhage, but both patients died.

#### MATERNAL DEATHS

The total maternal deaths numbered 7, a fatality rate of 8.75 per cent. Six of the 7 women who died had antepartum (4) or intrapartum eclampsia (2) before admission, while the other was a 45 year old primigravida who was delivered spontaneously, had a single convulsion one hour and twenty minutes later and died from uncontrollable uterine hemorrhage and shock (fibroid uterus) four hours after the seizure. Autopsy was permitted for 3 of the other 6 patients and showed the deaths to be due to (1) infection (*Escherichia coli* septicemia) after vaginal hysterotomy, (2) bilateral pneumonia with infarction of the anterior lobe of the hypophysis (normal liver) and (3) cardiac dilatation, pulmonary edema and eclamptic liver. Two of the patients for whom necropsy was not permitted died of shock (they had been brought 30 and 150 miles respectively to the hospital while having frequent convulsions), while the third had clinical failure of the left side of the heart and pulmonary edema unrelied by venesection.

#### FETAL SURVIVAL

The survival rate among the 84 infants (4 sets of twins) was 53.6 per cent (45 lived), with the salvage according to birth weights as indicated in the accompanying table.

Exclusion of the 18 "previable" children, weighing less than 1,500 Gm., among whom there was only 1 survivor, leaves 66 with a reasonable chance of survival. The actual salvage was 44, or 66.7 per cent. Three of the other 22 children died during the first day, while 19 were stillborn, including 9 that were macerated. The toxemia appears, therefore, to have been the direct cause of the high fetal death rate either by inducing or necessitating premature delivery or by producing intrauterine fetal death.

#### INCIDENCE

During the interval under consideration there were 15,327 deliveries, and the incidence of eclampsia was 1 in 191. The yearly incidence varied from 1 in 57 deliveries in 1927 to 1 in 956 in 1940, for no determinable reason. The greatest numbers of cases occurred in May (11) and June (10) and the smallest in August (2). There were 52 in the first six months as against 28 in the second half of the calendar years. This distribution supports the old clinical observation that the late spring months show an increased eclamptic incidence. Three of the fatalities occurred in the first six months (3 in 52, or 1.17%), while there were 4 in the second six months (4 in 28, or 1.7%). This suggests that eclampsia may be less severe when it is more frequent.

#### PARITY

Primigravidity is recognized as predisposing to eclampsia, and 59 women (73.7 per cent) of this series had not previously been pregnant. Greater interest, however, attaches to the 21 multigravidas in whom convulsions developed. The number of previous pregnancies varied from one to twelve, and 13 women had had three or more. According to the histories, 12 had had toxemia previously, although the majority had had

<sup>5</sup> Geraghty, W. R. Encephalopathy from the Therapeutic Use of Lead and Opium Pills, *J. A. M. A.* 110:208 (Jan. 15) 1938.  
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no antepartum case and minor grades of toxemia may have passed unnoticed while 5 had had nonconvulsive toxemia and 4 eclampsia.

The mortality rate among the multigravidas was considerably greater (14.3 per cent) than in the primigravidas (8.5 per cent) as is consistent with the observation that most of the former group suffered from chronic hypertensive vascular disease which was aggravated by the pregnancy and were older. The more severe character of the disease in multigravidas is likewise indicated by the lower infant survival rate, 50 per cent, and the fact that the convulsions tended to develop before the beginning of the last trimester of pregnancy, 8 of the 22 infants weighed less than 1,500 Gm. at birth.

#### AGE

Eclampsia is a disease of young women and it is not surprising to find that 33 of the 80 patients were less than 20 years of age. Moreover, in these young women the disease is ordinarily not complicated by preexisting cardiovascular or renal disease, and the prognosis is therefore more favorable. There were no deaths in the age group under 20 years. In the third decade of life (20 to 29 years) there were 28 cases of eclampsia with 3 deaths, 10.7 per cent; in the fourth, 14 cases with 2 deaths, 14.3 per cent; and in the fifth, 5 cases with 2 deaths, 40 per cent.

#### ONSET OF CONVULSIONS IN RELATION TO LABOR

The chief concern with an eclamptic patient actually in labor is to insure a relatively safe and rapid vaginal delivery after complete dilatation. Labor began spontaneously in 16 of the 43 cases of antepartum eclampsia and was induced contrary to clinic policy, in 2 of the remaining 27. Among the 25 cases of "intercurrent eclampsia" the interval between the final convulsion and the onset of labor varied from two to seventy-two days but was more commonly two to four days. The actual delivery was spontaneous in 15 women with vertex and in 3 with breech presentations, with low forceps in 6 and with vaginal hysterotomy in 1 (birth weight 365 Gm.).

In the 43 cases in which the convulsions appeared before the onset of labor there were 4 deaths (9.3 per cent), as against 2 deaths (11.8 per cent) in 17 cases of intrapartum eclampsia and 1 death in 20 cases of postpartum eclampsia (5 per cent). Evidence to substantiate the belief that the higher mortality in antepartum and intrapartum eclampsia is attributable to the effect of labor is afforded by a considerable experience with cases of intercurrent eclampsia, in which delivery occurred two or more days after control of the convulsions and disappearance of the coma. There were 25 such cases with 1 death (4 per cent), while in the remaining 18 cases of antepartum eclampsia in which labor began during or shortly after the seizures there were 3 deaths (16.7 per cent). Moreover, the 1 death in the group with intercurrent eclampsia occurred from infection nine days after vaginal hysterotomy for removal of a fetus weighing 365 Gm. The operation was performed eight days after admission to the hospital which had occurred shortly after two typical eclamptic convulsions with clinical evidence of hypertensive vascular disease. Experience of this character leads inevitably to the conclusion that labor should not be induced during the convulsive stage of eclampsia and that radical methods of delivery should not be employed.

Intercurrent eclampsia naturally carries a high fetal death rate; there were only 6 surviving children (24

per cent) in the 25 cases. Eleven patients with this form of eclampsia went into labor spontaneously or after induction more than seven days after the last convulsion (the longest intervals were forty-three and seventy-two days), but only 2 children (18.2 per cent) survived. In no instance was there a recurrence of the convulsive attacks, and in several instances, including the patient who expelled a 350 Gm. dead fetus after an interval of seventy-two days, the signs of toxemia largely disappeared before delivery occurred. In the usual case this can possibly be explained by death of the fetus, but such an explanation cannot hold for the 2 women who were delivered of living and surviving children seven and nine days respectively after one and eight convulsions.

Obviously the only reason for permitting an eclamptic patient to remain undelivered for more than a day or two after the convulsions and coma have disappeared concerns the possible survival of the fetus. This chance has been shown to be remote and can scarcely balance the risk that continuance of the pregnancy, even when the toxic manifestations are minimal, may produce or aggravate chronic vascular or renal damage. Considerable experience with cases of intercurrent eclampsia

*Infant Survival According to Birth Weight*

| Birth Weight       | Total | Died | Survived |          |
|--------------------|-------|------|----------|----------|
|                    |       |      | Number   | Per Cent |
| Under 1,000 Gm.    | 8     | 8    | 0        | 0.0      |
| 1,000 to 1,499 Gm. | 10    | 9    | 1        | 10.0     |
| 1,500 to 1,999 Gm. | 11    | 8    | 3        | 27.3     |
| 2,000 to 2,499 Gm. | 14    | 5    | 9        | 64.3     |
| 2,500 to 3,499 Gm. | 21    | 8    | 13       | 61.9     |
| 3,500 Gm. and over | 5     | 1    | 4        | 80.0     |
| Total              | 54    | 39   | 15       | 53.6     |

dictates the belief that there is no acceptable reason for delaying the induction of labor after the patient is prepared to face delivery with relative safety.

#### NUMBER OF CONVULSIONS

The number of convulsions ranged from one to eighteen, with the majority of patients (48) having no more than three. Among these 48 women there were 4 deaths (one, two, two and three convulsions respectively), or 8.3 per cent, while among the 32 women with four to eighteen convulsions there were 3 deaths, 9.4 per cent, after six, nine and eighteen convulsions respectively.

The fetal survival rate, however, was adversely affected by more than three convulsions, so that only 14 of 33 children (one set of twins) survived (42.4 per cent), as against 31 survivors out of 51 infants (three sets of twins) among the women who had no more than three seizures (60.8 per cent). This is consistent with the common observation that the number of convulsions is generally an index of the severity of eclampsia. The fact that the maternal mortality was not significantly increased by the greater number of convulsions may be correlated with the higher stillbirth rate in the latter group, fetal death is known to have a favorable influence on the course of eclampsia.

#### FEVER AND SHOCK

It is well recognized that the appearance of fever or the development of shock in eclamptic patients adversely affects the prognosis. In this series, 5 of 18 women with temperature elevations above 100 F° died and 4 of 15 exhibiting shock, manifested by

tachycardia and low blood pressure, succumbed. In 3 of the fatal cases both fever and shock appeared, while only 1 fatality showed neither sign at the time of the convulsions, in this instance death occurred several days later from infection.

## COMMENT

The preceding data have established the relatively low maternal mortality rate in a consecutive series of 80 eclamptic patients treated by a routine technic which aims at controlling the convulsive seizures without purposely interfering with the pregnancy. Study of these 80 patients during the eclamptic seizures and later review of their written histories have brought forth certain ideas which appear pertinent.

It is probably significant that only 1 patient died among the 43 whose convulsions developed after admission to the hospital. Five patients died soon after admission either from the toxemia or from some direct sequel. These patients were transported from 30 to 150 miles to the hospital after the onset of convulsions and were admitted in coma. Moreover, 3 of the 5 were in severe shock on admission, while another had early bronchopneumonia. It is difficult to escape the conclusion that the long journey contributed to the unfavorable clinical condition on admission and therefore to the fatal issue. It may even be argued that intensive medical therapy at home or in a nearby small hospital would have been preferable to the longer journey to the larger institution.

In view of the dramatic character of eclampsia, it is easy to understand the tendency toward overtreatment. There is an urge to do everything possible, and consequently therapy becomes so extensive as to be confusing or even dangerous. The primary objectives of medical therapy in eclampsia are to provide adequate sedation and to encourage urinary output. It is also essential that these objectives be attained with as little disturbance to the patient as possible, annoying subsidiary forms of treatment should be avoided unless they seem absolutely necessary, which is rarely the case. The induction of labor and delivery by surgical means fall definitely into the latter category, and the poorer results obtained when they are employed can be adequately explained by the fact that they place additional burdens on an organism which is already strained to handle the underlying metabolic or toxic disturbance.

Morphine is a reliable, powerful and available sedative, and little, if anything, is to be gained by supplementing its effect with other drugs, which have no specifically different action and probably are not synergistic in the true sense of that term. A personal preference for any other sedative does not alter the argument, provided the dosage is sufficient to produce the desired result—reduction of the respiratory rate to the neighborhood of 12 per minute.

Hypertonic sugar solutions are effective diuretic agents and rarely fail to promote urinary secretion. Dextrose is probably to be preferred over sucrose, in spite of the more potent action of the latter, and 25 per cent solutions are adequate. Occasionally venesection is valuable, but its use should be limited to patients with full, bounding pulses, and circulatory collapse must be kept in mind.

## SUMMARY AND CONCLUSIONS

In a consecutive series of 80 eclamptic patients treated medically there were 7 deaths, 8.75 per cent. Increasing age and parity influenced the prognosis unfavorably.

The uncorrected fetal mortality rate was 46.3 per cent. Exclusion of all "previable" children, weighing less than 1,500 Gm., reduced the fetal and infant fatality rate to 33.3 per cent.

The maternal deaths attributable to the toxemia (5 in number) occurred exclusively in women with antepartum or intrapartum convulsions, who were transported considerable distances to the hospital and who arrived in shock or on the verge of circulatory collapse.

Eclampsia is a medical problem which is best combated by sedation and by attempts to produce diuresis.

The eclamptic patient should be disturbed as little as possible.

Treatment at or near home is preferable to a long trip to a hospital, which too frequently induces circulatory collapse.

University Hospitals

## RADIUM THERAPY FOR VULVAR CONDYLOMAS

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AND

H. CLOSE HESSELTINE, M.D.

CHICAGO

The total removal of condylomata acuminata of the vulva and vagina and the complete protection against a recurrence is a problem which occasionally confronts the gynecologist and obstetrician. The prevalent therapy by excision, cauterization and the like with the hazard of serious loss of blood, excessive scarring and temporary incapacitation has not proved satisfactory. Disagreement on treatment is fostered by the views of various authorities as to the most satisfactory method. The subject is discussed only briefly in standard works on dermatology and on gynecology and in the literature very rarely. To evaluate the use of radium on condylomata acuminata 11 cases have been observed frequently and over a prolonged period. The procedure was not only successful but also convenient, safe and simple and with minimal inconvenience for the patient. This report comes forth not because it is new but because detailed description in the literature to guide the therapist was not found.

It is acknowledged generally that condylomata acuminata of any extent increase the chance of abnormal blood loss or puerperal infection in association with delivery. Therefore, if these increased hazards can be eliminated or reduced in the removal of the condylomas, treatment during pregnancy is important and frequently urgent. Such therapy should be free from danger to the fetus and to the patient.

## LITERATURE

Ormsby<sup>1</sup> states that the disease is automuculable and contagious, although the causative organism has not yet been identified. It has been suggested that this condition may be caused by a virus. Until recently condyloma acuminatum or venereum had been looked on as probable evidence of a present or prior gonococcal gonorrheal infection and hence the lay name of venereal warts. Nowadays it is acknowledged that any chronic or persistent vulvovaginal discharge (venereal or non-

Dr. Gordon T. Burns made the photographic records.  
From the Department of Obstetrics and Gynecology, the University of Chicago and the Chicago Lying-in Hospital.  
<sup>1</sup> Ormsby, O. S. Diseases of the Skin, Philadelphia, Lea & Feb. 1937.



venereal) may precede or be concomitant with these warts, which is in perfect accord with the observation of this report.

Various methods of treatment have been described. Surgical excision seems to be the most popular. It may, however, be associated with excessive and even serious



Fig 1—Wide distribution of condylomas six days after delivery of a woman aged 20 at time of first radium therapy

loss of blood, especially if the lesions are multiple and extensive, in addition to the aforementioned inconvenience to the patient. The Crossens<sup>2</sup> emphasize the potential hazard of excessive loss of blood and also the possible development of a hematoma even in spite of good surgical technic. According to them, anal condylomas are not satisfactorily treated by radiation. Recurrences are frequent after surgical removal. Treatment with keratolytic agents, such as salicylic acid and resorcinol, and with chemical caustics and acids has also been advised. Results with these agents are not only hazardous but also unpredictable and do not safeguard against recurrence. Ormsby suggests that roentgen therapy is valuable but does not elaborate further. Curtis<sup>3</sup> states that radium and roentgen rays have been employed but states further that not enough cases have been recorded to justify conclusions. Schmitz<sup>4</sup> records a series of 13 cases in which roentgen therapy was used with recoveries in 11. In this series an average dose of 450 roentgens was used. The Suttons<sup>5</sup> suggest a dose of 1,200 roentgens to individual warts. The shifting attitude by Andrews<sup>6</sup> is evidenced by his advice to use an acid or a cautery for small lesions and

subsequent treatment by "subintensive" doses of roentgen rays. For the extensive lesions he suggests from 50 to 100 millicuric minutes for each square centimeter, or a total of 500 to 1,000 roentgens filtered through 3 mm of aluminum.

Korbler<sup>7</sup> reports an extensive formation of condylomas on the penis which was almost completely removed in 1 instance by radium.

According to Adair,<sup>8</sup> the first therapy should be directed toward removing the predisposing cause and subsequent excision or coagulation of the warts. He suggests that irradiation may be used and intimates that this therapy may become the one of choice.

It should be borne in mind that condylomas which develop during pregnancy vanish spontaneously at times after parturition.

#### PROCEDURE AND RESULTS

In a series of 11 cases, 6 obstetric and 5 gynecologic, topical application of radium was the sole means of treatment. The series is small because these lesions are seldom seen in our clinic. A few of the patients were referred to us by the Municipal Social Hygiene Clinic (Chicago) for the purpose of making this study.

While none of the lesions were extensive in the strict sense, they caused the patients enough distress to seek relief. Six of the patients had had a chronic vaginal discharge and tests established the diagnosis of vaginal trichomoniasis. One had a history of gonorrhea pre-

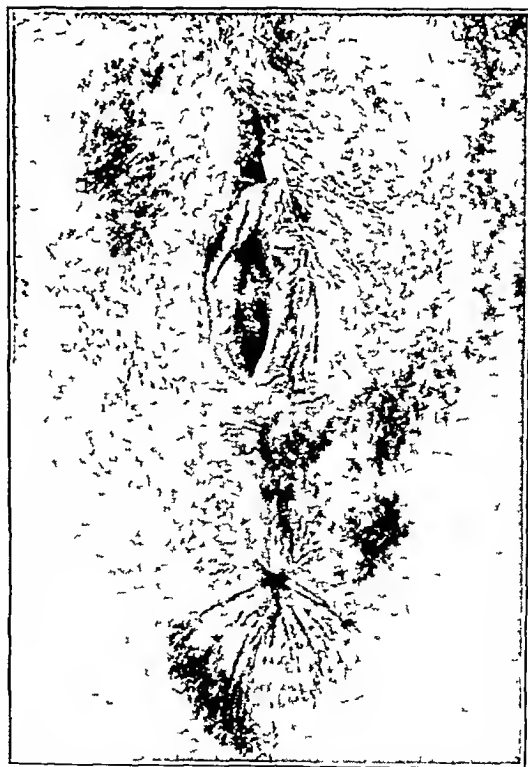


Fig 2—Same patient as in figure 1 fifteen weeks later. A total of 225 milligram hours of radium was given. 150 milligram hours of radium at first application and 75 milligram hours of radium nine weeks later. No recurrence to date.

<sup>2</sup> Crossen, H. S. and Crossen, R. J. *Diseases of Women*. St. Louis: C. V. Mosby Company, 1935.

<sup>3</sup> Curtis, A. H. *Obstetrics and Gynecology*. Philadelphia: W. B. Saunders Company, 1933.

<sup>4</sup> Schmitz, Henry. In *Gynecology and Obstetrics*, edited by C. H. Davis, Hagerstown, Md.: W. F. Prior Company, Inc., 1934, vol. 3, chapter 20, p. 138.

<sup>5</sup> Sutton, R. L. and Sutton, R. L., Jr. *Diseases of the Skin*. St. Louis: C. V. Mosby Company, 1939.

<sup>6</sup> Andrews, G. C. *Diseases of the Skin*. Philadelphia: W. B. Saunders Company, 1938.

viously, while the remaining 4 had negative histories and showed normal clinical and laboratory conditions on examination. The ages ranged between 15 and 40.

<sup>7</sup> Korbler, J. *Radiumtherapie der spitzen Kondyloma*. Strahlen therapie 61: 137-139, 1938.

<sup>8</sup> Adair, F. L. *Obstetrics and Gynecology*. Philadelphia: Lea & Febiger, 1940.

and the patients, with 1 exception, were either nulligravidas or primigravidas. The presence of the lesions had been known to the patients from one month to two years.

The actual procedure was extremely simple. The dosage had to be worked out by the trial and error

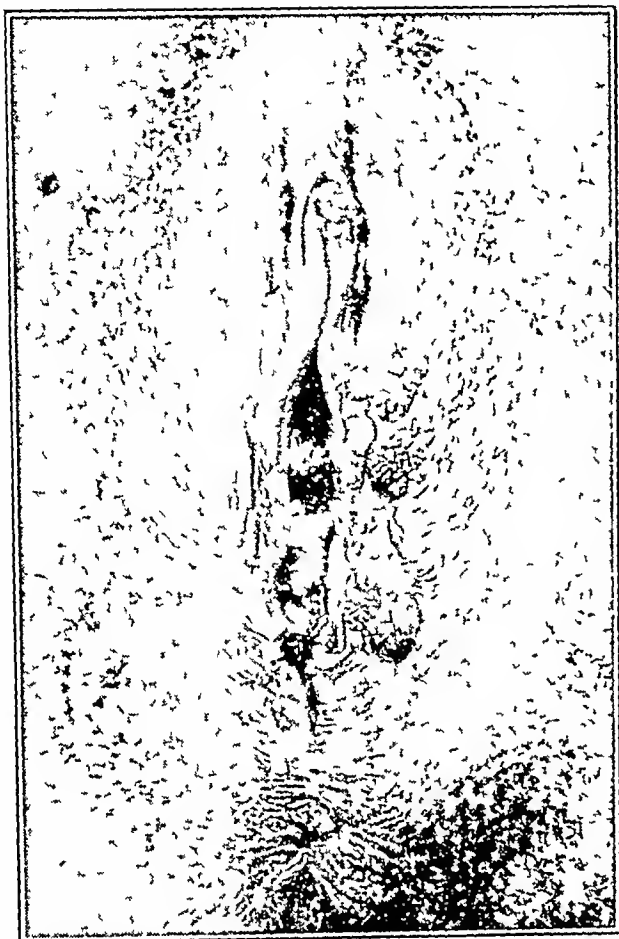


Fig 3—Condylomas principally on left labium majus of woman aged 40 four days after delivery at time of radium therapy

method, we started out with small dosages and repeated the applications when necessary until it was learned how large a dose was necessary to eliminate the lesions entirely. The radium at our disposal was in two capsules of 50 mg each. The radium was contained in 0.5 mm platinum capsules and was filtered through 1 mm of aluminum. The object in using a large amount of radium was to reduce the time of application. A few patients had treatments in the hospital during the puerperal period, but most of them were treated in the out-clinic. With the patient on a table or cot, the radium in its container was placed directly over the portions of the vulva affected and held in place with strips of adhesive and a perineal pad. The patient rested quietly in the supine position with the legs and thighs extended. It was unnecessary to remove the pubic or genital hair. When the radium was not sufficiently close to all the condylomas it was moved from one site to another for the estimated dose. Periodic inspections were made to be sure that the radium had not become displaced. Each patient spent from one to two and one-half hours in the clinic for the first treatment. Repeated applications were made in those instances in which the first treatment was insufficient.

In 1 instance in which the lesions were confined to a small area only 75 mg hours of radium was necessary to produce complete retrogression. In another case with extensive involvement 450 mg hours had to be used. The latter was divided into two applications one month apart. The optimal dose seems to be about 100

mg hours to an area of about 4 sq cm. The adjacent picture and the footnotes should give some relative idea on dosage and response in these respective instances.

For two to three weeks after the treatment a few of the patients showed a mild localized erythema of the vulva which was entirely asymptomatic. Aside from the dermal reactions, undesirable side effects were not noticed. There was no obvious change in the growth of hair.

Six patients made their return visits from fifteen to fifty-two weeks after treatment. It was only through persistence that they were persuaded to return for an examination. With their complete relief it was believed by them that other visits were unnecessary. In view of the early loss of symptoms in those under close observation, the retrogression or disappearance should occur gradually and within a few weeks at most. If this should not occur, more radiation is indicated. Most of the members of this group have been followed after complete involution of the condition for several months to over a year and in not 1 has there been a recurrence.

From the data studied it is definite that the period of symptoms and perhaps the age of the condylomas are unrelated to the response after exposure to radium. By comparison it seems equally evident that the variation in response is more directly related to the extent of the lesions, that is, the greater the area or extent of involvement, the slower and less yielding to a given dosage of radium.

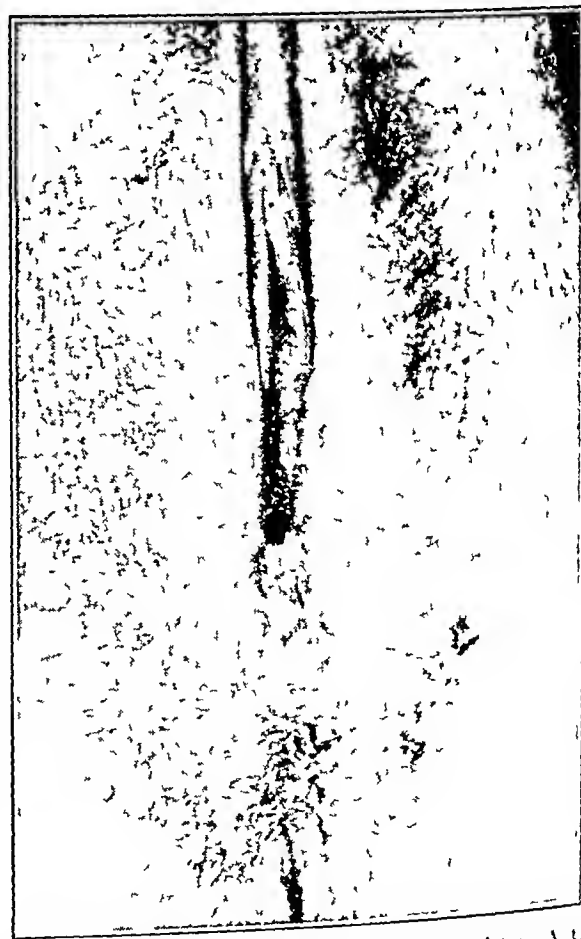


Fig 4—Same patient as in figure 3 eight weeks later. A total of 200 milligram hours of radium, all in one application. No recurrence.

The dosage is important and the radium should be properly screened to avoid an undesirable cutaneous reaction. Repeated application at three or four week intervals seems justified when the regression is progressing sufficiently well.

2 Beyer George E. Urticating and Poisonous Caterpillars. Quart.  
Bull. Louisiana State Board of Health 13: 161 (Sept.) 1922

## TREATMENT

Patient 1 was given 10 minims (0.6 cc) of epinephrine hydrochloride solution with relief of pain. It was necessary to repeat the dose later.

Patient 2 was given  $\frac{1}{20}$  grain (0.003 Gm) of morphine sulfate, after which she went to sleep.

Patient 3 took 20 grains (1.3 Gm) of acetylsalicylic acid without relief.

Patient 4 applied calamine lotion locally and took calcium tablets without relief, later aromatic spirit of ammonia was applied locally with partial relief, but codeine was required for relief of pain and for rest.

It appears that relief of symptoms must be obtained by means of a drug having a generalized effect, such as epinephrine, morphine or codeine. Much remains to be learned concerning the proper handling of the patients for the most effective alleviation of their symptoms.

## CONCLUSIONS

1. Megalopyge opercularis larva is capable of producing poisoning.

2. It is widely distributed in the Southeastern states and is possibly spreading to neighboring areas.

3. It may be found on a wide variety of plant life.

4. June through September are the months during which it is most likely to cause trouble.

5. Both local and general symptoms may be produced. The local symptoms are burning pain, itching and the appearance of whitish and reddish papules and vesicles. The general symptoms are nervousness, restlessness, headache, muscle cramps, tachycardia and generalized itching.

6. The local application of drugs is of slight or questionable value.

7. Drugs having a general or systemic effect are required, epinephrine, codeine and morphine are the most effective drugs used thus far.

## THE MORPHOLOGY OF SPIROCHAETA PALLIDA IN THE ELECTRON MICROSCOPE

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The demonstration of *Spirochaeta pallida* in the electron microscope can be accomplished only after the organisms have been completely immobilized, centrifuged and subjected to repeated washing. Centrifugation and washing are necessary to free the organisms as far as possible from organic material, crystals and other foreign minutiae which interfere with the clear observation of the organism.

The extreme fragility of *Spirochaeta pallida* and its rapid immobilization and disintegration under conditions of desiccation, would therefore seem to make its demonstration in the electron microscope a procedure of great technical difficulty.

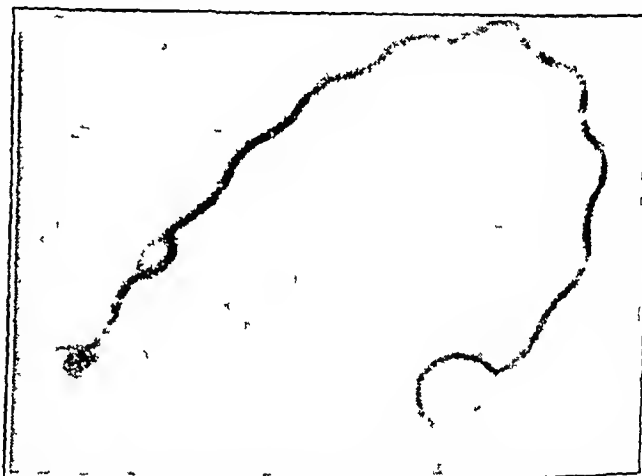


Fig. 1.—View showing continuous envelope or membrane also end knob.

We have, however, succeeded in demonstrating these organisms in every case examined even under the adverse conditions mentioned. The cases from which specimens have been secured have all been fresh untreated cases of syphilis. Material has been examined from both chancres and secondary lesions. In each case the syphilitic lesion has been repeatedly washed with isotonic solution of sodium chloride. The specimens, as free from blood as possible, were drawn from the lesions by applying a suction cup and gently with drawing serum from the cleansed surfaces. In order to diminish the number of surface organisms, the first specimens thus aspirated were discarded. The serum thus obtained from the deeper portions of the lesion was first examined in the dark field and only those specimens in which spirochetes alone occurred were subjected to examination in the electron microscope.

## PREPARATION OF SPECIMENS FOR EXAMINATION

The serum from the surface of the aspirated lesion was drawn up into a capillary pipet and immediately placed in from 0.5 to 1 cc. of isotonic solution of sodium chloride. Where macroscopic evidence of blood or other particles of tissue were seen, the specimen was sub-

**The Humane Application of Medical Knowledge —**  
The science of medicine, like all science, is a body of knowledge and a technic of intellectual inquiry. The art of medicine, in contrast, is the humane application of this knowledge to the alleviation of human suffering and the promotion of human welfare. It is concerned with human individuals, human hopes and fears. The importance of this fact can hardly be exaggerated. It is one of the tragedies of medicine that the complexities of modern science and of medical techniques tend so powerfully to accentuate the impersonality of medical treatment. The great laboratories and gigantic hospitals, the complicated routines of consultation and diagnosis, the need for discipline and the impersonal objectivity which necessarily characterizes all truly scientific inquiry encourage a factory-like routine and a neglect of the human factor. But the patient craves not merely your scientific skill but your human understanding and sympathy. He is in trouble and afraid, afraid to hear your verdict, afraid to face whatever suffering may be in store for him. He wants to know the truth, however grim, yet fears the truth. He turns to you not only for your skill but also for friendliness and courage, sympathy and understanding. Can you remember this in the busy days and nights that lie ahead? Can you imaginatively identify yourselves with the patients and despite all routine and all weariness, respond to their human needs? Yours is a unique opportunity, as doctors and as nurses, to help your fellow men in times of suffering and loneliness, anxiety and fear.—Greene, Theodore, M. *Medicine in Peace and War*, *Virginia M. Monthly*, August 1941.

jected to centrifugation at low speed for ten minutes. Both the sediment and the supernatant fluid were examined in the dark field, organisms being found in both but to a greater extent in the supernatant fluid. The isotonic salt suspension was then centrifugated at 1,630 revolutions per minute for thirty minutes. The supernatant fluid was discarded, and the sediment resus-

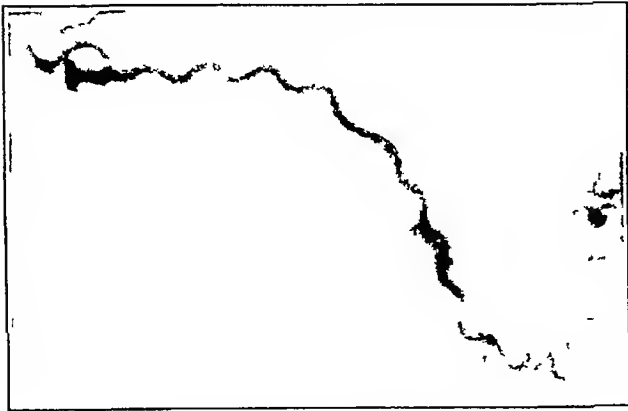


Fig. 2—Appearance of end knob

pended in distilled water. After a second centrifugation at the same speed and time, the sediment was finally suspended in 2 to 3 drops of distilled water, from which suspension specimens for final examination were made.

A small drop of suspension was then placed on a collodion film, supported on a 200 mesh, stainless steel, woven screen. The collodion film is prepared from 1 per cent collodion in amyl acetate. After drying, the wire screen is placed in a specimen holder and inserted into the electron microscope<sup>1</sup> and examined. Each screen is a disk  $\frac{1}{8}$  inch in diameter and each mesh is about  $\frac{1}{300}$  inch square. Approximately twelve squares can be examined in each screen.

As mentioned before, every specimen in which spirochetes were demonstrated in abundance by the dark field yielded a few organisms which survived centrifugation, washing and examination in vacuo necessary to their demonstration in the electron microscope.

As might well be expected, the majority of organisms were fragmented. We were fortunate, however, in being able to study many organisms which were still completely intact. In every case, however, considerable distortion occurred. The most characteristic change

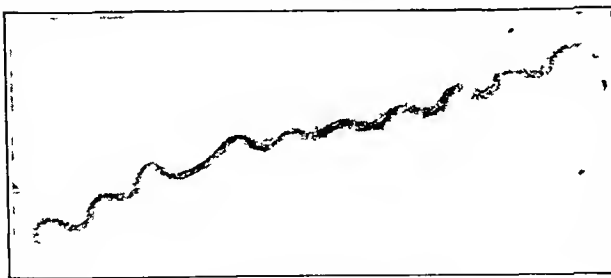


Fig. 3—Outline of membrane

which might obviously have been expected was a flattening out of the coils so that the shape of the organism no longer conformed to the tight coiled spring shape of the organism as seen in the living specimen.

The specimens were photographed at a magnification of 8,000 diameters and some details not noticeable by

direct examination were brought out by the photographs. Our most interesting finding, which may be seen in figure 1, is what would appear to be a continuous envelope completely covering the organism. This, however, was not a uniform finding, although it was faintly seen in a few specimens and apparently absent in many others.

It is not entirely certain that this appearance is actually due to a membrane. A second possibility is that the appearance is the result of an artefact due to the deposition of material from the suspended fluid which might form around the organism by evaporation. The uniformity of the membrane-like structure, however, as seen in figure 1, together with the lack of debris in this field, makes it seem likely that the appearance is not due to an artefact.

The frequency with which spirochetes appear to be attached to one another at some distance from their apparent ends in the dark field has led to the suggestion that they may be provided with flagella. Our specimens under the high magnification fail thus far to demonstrate the existence of flagella. However, in many specimens a curious knoblike structure was seen at the end of many organisms. Their almost uniform shape and density suggest that these are not extraneous particles of the preparation but a part of the organism itself.

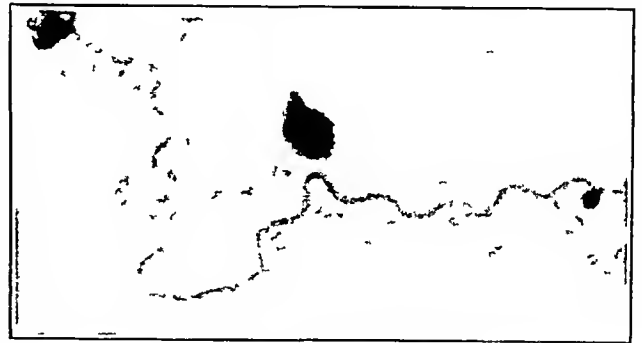


Fig. 4—Another view of end knob

#### COMMENT

Notwithstanding the technical difficulties necessary to demonstrate *Spirochaeta pallida* in the electron microscope, which necessitate complete immobilization and desiccation, this organism can be successfully examined at very high magnification. As seen in the electron microscope a distortion, lengthening and flattening of the coils ascribable to the technic of preparation occurs.

A complete and continuous membrane-like structure around the organism was demonstrated, the exact nature of which is still somewhat in doubt.

Flagella could not be demonstrated at the end of the organisms, but curious knoblike structures of fairly uniform density seemed to be integrated with the body of the organism. Further studies are being undertaken in the attempt to reduce the distortion by a simplification of the technic of preparation.

While the technic of demonstration is attended with considerable difficulty, the material after implantation on the collodion film can be successfully examined over a period of several days and may be successfully reexamined after exposure to the beam.<sup>2</sup>

<sup>2</sup> Since this manuscript was prepared we have successfully demonstrated the existence of flagella-like processes in several instances by enlarging our magnifications to the point of 75,000 to 80,000 diameters. With this very high magnification flagella similar to those seen in other bacteria are readily demonstrable. These occur at various points along the course of the organism and not at the two ends. A separate report concerning their occurrence is under preparation.

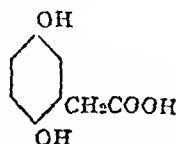


## Clinical Notes, Suggestions and New Instruments

### THE INSTANTANEOUS DIAGNOSIS OF ALKAPTONURIA ON A SINGLE DROP OF URINE

ELLA H. FISHBERG, M.D., NEW YORK

Alkaptonuria is a rare metabolic anomaly characterized by the tendency of the urine to turn dark on exposure to air, owing to the fact that the urine contains homogentisic acid. The constitution of this compound, which is chemically 1,4-dihydroxyphenylacetic acid



shows that it may be regarded as a derivative of hydroquinone and points the way to its instant detection in urine.

The urine is made strongly alkaline with sodium or potassium hydroxide and dropped on regulation sensitized photographic paper. Wherever a drop of the urine touches the paper the latter turns coal black instantly, a process exactly similar to that used in everyday photography. This may be done in full daylight.

We have found no other substance present in urine, either normally or pathologically, which is capable of reducing the photographic paper in this manner. Diabetic urine, no matter how high the concentration of reducing sugar, remains without effect. Also, the higher concentrations of vitamin C present in urine after metabolic experiments do not act in this manner.

Since alkaptonuria is either total or absent and the substance is excreted in quantities as high as 16 Gm. a day, usually however about 3 to 5 Gm., the reaction is unlikely to be negative in an alkaptonuric patient at any time.

Specimens of alkaptonuric urine from 3 patients referred to me by Drs. Stanley Benedict and Henry Jaffe were all consistently positive with this test, and my associates and I have been unable to find any other specimen of urine in this hospital over a period of eight years which was positive. Homogentisic acid isolated from one of the positive urines itself gave a strongly positive reaction.

Stuyvesant Park East

### HEMOTHORAX COMPLICATING HEPARIN THERAPY

JOHN W. KEYES, M.D., AND CARL F. SHAFFER, M.D.,  
DETROIT

Heparin has been used as an anticoagulant in the treatment of various conditions involving thrombosis and embolism.

One of the most frequent uses of heparin has been in preventing postoperative embolism with pulmonary infarction. The following report is of a complication resulting from the use of this substance for this condition. That such a complication has not been reported previously is rather surprising when one considers the physiologic changes of coagulation and the pathologic changes of pulmonary infarction.

#### REPORT OF CASE

M. G., a Negress aged 30, was admitted to the hospital with a diagnosis of uterine fibromyomas. A supravaginal hysterectomy was done with the patient under ethylene and ether anesthesia. After the fifth postoperative day she continued to have daily elevations in temperature, her temperature ranging from 100 to 101 F. There was a proportionate increase in the pulse rate but no leukocytosis. She was asymptomatic, and there were no physical signs of pathologic changes in the lungs.

On the tenth day the patient complained of sharp pain in the lower part of the chest on the right side aggravated by respiration. Physical examination revealed slight relative impairment of percussion and decreased breath sounds in this

area. Five days later the patient had a similar type of pain in the lower part of the chest on the left side with physical evidence of another small pulmonary infarction.

During the ensuing two weeks the convalescence was uneventful. At the end of this time, one month after the operation, a third and larger pulmonary infarction occurred in the lower lobe of the left lung. There was impairment of the percussion note and the breath sounds were of bronchial character. No friction rub was heard. The temperature gradually rose to 104 F. and the pulse rate to 120 a minute.

General heparinization was begun three days later. The method of administration used at the Henry Ford Hospital has been previously discussed by Lam.<sup>1</sup> One hundred mg. of the crystalline salt is added to 500 cc. of isotonic solution of sodium chloride and given by the intravenous route. The clotting time is measured by the capillary tube method, and determinations are made at least three times a day. The amount of heparin required to elevate the clotting time to the optimum level of approximately fifteen minutes varies with each patient. In our patient by the proper regulation of dosage this level was maintained after twenty-four hours.

Symptomatic treatment was continued. There was no significant clinical improvement during the next five days. A moderately high temperature and rapid pulse were associated with increasing dyspnea. On the fourth day after heparin therapy was started there was fluid in the left pleural cavity, and twenty-four hours later a thoracentesis was performed. One liter of fluid resembling venous blood in appearance was removed. The erythrocyte count of this fluid was 1,500,000 per cubic millimeter and that of the circulating blood 2,500,000. There was instant relief from dyspnea and tachycardia.

The administration of heparin was discontinued. The patient was given a transfusion of 500 cc. of whole blood and placed in an oxygen tent. Two mg. of menadione and 200 mg. of calcium were given intravenously with the transfusion. At the end of twelve hours the clotting time had returned to six minutes.

Two days later 750 cc. of bloody fluid was removed, and the concentration of erythrocytes was 2,000,000 per cubic millimeter. The prothrombin value of the blood of the circulation was 50 per cent. A second transfusion with added vitamin K was given. Forty-eight hours later a final thoracentesis yielded an additional 250 cc. of bloody fluid. The circulating erythrocytes had increased to over 4,000,000 per cubic millimeter and the prothrombin value to 75 per cent. There was a corresponding improvement in the clinical picture with a gradual fall in temperature and pulse and respiratory rates.

Cultures of the pleural fluid and blood were negative. There was no evidence of bleeding elsewhere as the result of heparinization. A total of 2 liters of bloody fluid was removed from the left pleural cavity.

#### COMMENT

Since this case report has been completed another similar instance has occurred. A patient recovering from an open reduction of a fractured femur had his first pulmonary infarct in the lower lobe of the right lung. Heparin administration was begun but was discontinued on the third day because of recurring chills and fever. Severe secondary anemia required transfusions at this time. A second pulmonary infarction occurred in the right side of the chest ten days after the first and a third one eight days after the second. Roentgen examination showed bilateral pulmonary infarction. Evidence of pleural fluid was followed up by thoracentesis on the nineteenth day and removal of 600 cc. of bloody fluid resembling venous blood. A second tap yielded another 600 cc. of similar material four days after the first. The red blood cells in this fluid were 1,280,000 per cubic millimeter. This fluid was practically identical to that in the preceding case. The circulating blood prothrombin was 80 per cent. It is quite possible that the hemothorax was present but to a less degree even at the time heparin was being given.

A series of 60 patients have received heparin at the Henry Ford Hospital, three fourths of whom had pulmonary infarction.

From the biochemical laboratory of the Beth Israel Hospital, New York.  
From the Department of Medicine, Henry Ford Hospital, Detroit.

<sup>1</sup> Lam, C. R. Heparin Administration. *Ann Surg* 114: 233 (A), 1941.

The 2 we have described are the first in whom hemorrhage into the pleural cavity has occurred in association with this form of therapy. Priestley and his co-workers<sup>2</sup> have had no serious hemorrhage in their case.

The value of heparin as a prophylactic agent in postoperative pulmonary embolism and thrombosis has already been established. The occurrence of complications as contained in this report does not outweigh this value and should not deter one from its use.

## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONTRIBUTING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AFRICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

ALVIN F. SMITH, M.D., Acting Secretary

**ACETYL-BETA-METHYLCHOLINE** (See Revised Supplement to New and Nonofficial Remedies, 1941, p. 3)

The following product has been accepted:

**MECHOLYL BROMIDE**—Acetyl beta methylcholine bromide—Trimethyl beta acetoxy-propyl ammonium bromide—The acetyl ester of beta methylcholine bromide.

**Actions and Uses**—The actions of mecholyl bromide are the same as for mecholyl chloride but because it is less hygroscopic than the latter salt it is suitable for oral use in tablet form for the treatment of those conditions in which this route of administration of the drug is recognized. See the article, Mecholyl Chloride, N. N. R. 1941 Revised Supplement, page 4. Claims for the use of mecholyl bromide other than by oral administration are not permissible and it should be kept in mind that for those skilled in the technique of ion transfer (iontophoresis) is generally to be preferred in the treatment of chronic ulcers, scleroderma, Raynaud's disease and other vasospastic conditions of the extremities, except possibly the management of vascular spasm from exposure to moderate cold.

**Dosage**—Mecholyl bromide is administered in doses of 0.2 to 0.6 Gm (one to three tablets) two or three times daily, 0.05 to 0.1 Gm ( $\frac{1}{4}$  to  $\frac{1}{2}$  tablet) may be sufficient to overcome vascular spasm due to moderate exposure to cold but in chronic ulcers, scleroderma and Raynaud's disease the larger doses are required. With patients in whom a total daily dose of 2 Gm (10 tablets) of the drug is not effective the oral method of treatment should be abandoned in favor of the use of mecholyl chloride by subcutaneous administration or local application by the method of ion transfer (iontophoresis).

#### Tests and Standards—

Mecholyl bromide occurs as a white crystalline very hygroscopic powder possessing a slight fishy odor readily soluble in water and alcohol insoluble in benzene and ether. The aqueous solution is neutral to litmus. Mecholyl bromide melts at 147-149°C.

Dissolve about 1 Gm of mecholyl bromide in 10 cc of water to a 1 cc portion add 1 cc of alcohol and 1 cc of sulfuric acid and heat in a steam bath the odor of ethyl acetate becomes perceptible to another 5 cc portion add 2.5 Gm of potassium hydroxide and heat (odor of trimethylamine is noticed) to the remaining portion add an excess of silver nitrate solution (a white curdy precipitate soluble in ammonia water results). Add 3 cc of a 20 per cent aqueous solution of sodium perchlorate to 2 cc of a 10 per cent solution of mecholyl bromide shake thoroughly and cool in ice water no precipitate is formed (acetylcholine). Moisten about 0.1 Gm of mecholyl bromide with a 5 per cent solution of platinum chloride small rhomboid plates are formed (distinction from acetylcholine chloride which forms needles and choline chloride which forms no crystals). Dissolve 0.2 Gm of mecholyl bromide in 2 cc of sulfuric acid the solution is colorless (readily carbonizable substances).

Dry about 0.5 Gm of mecholyl bromide accurately weighed to constant weight at 110°C the loss in weight does not exceed 1.5 per cent. Incinerate about 0.5 Gm of mecholyl bromide accurately weighed in a platinum crucible the residue does not exceed 0.1 per cent. Transfer about 0.5 Gm of mecholyl bromide previously dried at 105°C to 110°C to a 500 cc Kjeldahl flask and determine the nitrogen content according to the official method described in Methods of Analysis of the Association of Official Agricultural Chemists the percentage of nitrogen is not less than 5.6 nor more than 5.9.

Dissolve about 0.4 Gm of mecholyl bromide previously dried at 105°C to 110°C and accurately weighed in 15 cc of water in an

Erlenmeyer flask add 40 cc of tenth normal sodium hydroxide solution and heat on the steam bath for forty five minutes stopper and allow to cool titrate the excess of sodium hydroxide with tenth normal hydrochloric acid using phenolphthalein as an indicator the amount of acetyl ( $\text{CH}_3\text{CO}-$ ) is not less than 17.5 per cent nor more than 18.3 per cent.

Transfer about 0.4 Gm of mecholyl bromide previously dried at 105°C to 110°C and accurately weighed to a 100 cc volumetric flask dissolve in 50 cc of water with agitation add 0 cc of tenth normal silver nitrate solution add 5 cc of nitric acid and finally add water to final volume and mix thoroughly. Filter through a dry filter into a dry flask rejecting the first filterful titrate 50 cc of the filtrate with tenth normal ammonium thiocyanate solution using ferric alum as an indicator the amount of bromine is not less than 92.9 per cent nor more than 95.5 per cent.

MERRICK & CO. INC., RICHMOND, N. J.

Mecholyl Bromide (Powder) bulk

U. S. patent 2,040,146 (May 12, 1936 expires 1955) U. S. trademark 318,783

Tablets Mecholyl Bromide 0.25 Gm (3 grains)

**OVARIES** (See New and Nonofficial Remedies, 1941, p. 372)

The following estrogen has been accepted:

SMITH-DORSEY COMPANY, LINCOLN, NEBR.

**Ampul Solution of Estrogenic Substances (in Oil)**

1 cc Each cubic centimeter contains the equivalent of 2,000 international units of estrone and 0.5 per cent chlorobutanol as a preservative in peanut oil.

**Ampul Solution of Estrogenic Substances (in Oil)**

1 cc Each cubic centimeter contains the equivalent of 5,000 international units of estrone and 0.5 per cent chlorobutanol as a preservative in peanut oil.

**Ampul Solution of Estrogenic Substances (in Oil)**

1 cc Each cubic centimeter contains the equivalent of 10,000 international units of estrone and 0.5 per cent chlorobutanol as a preservative in peanut oil.

**Ampul-Vial Solution of Estrogenic Substances (in Oil)** 10 cc Each cubic centimeter contains the equivalent of 5,000 international units of estrone and 0.5 per cent chlorobutanol as a preservative in peanut oil.

**Ampul-Vial Solution of Estrogenic Substances (in Oil)** 10 cc Each cubic centimeter contains the equivalent of 10,000 international units of estrone and 0.5 per cent chlorobutanol as a preservative in peanut oil.

**Ampul-Vial Solution of Estrogenic Substances (in Oil)** 10 cc Each cubic centimeter contains the equivalent of 20,000 international units of estrone and 0.5 per cent chlorobutanol as a preservative in peanut oil.

**SODIUM ASCORBATE**—The sodium salt of ascorbic acid  $\text{C}_6\text{H}_7\text{O}_6\text{Na}$ .

**Actions and Uses**—Sodium ascorbate possesses the activity of ascorbic acid and is preferred when parenteral therapy is indicated.

**Dosage**—Same as for ascorbic acid.

#### Tests and Standards—

A solution of sodium ascorbate may be prepared by neutralizing a solution of ascorbic acid with sodium hydroxide. The pH of sodium ascorbate solution is between 5.5 and 5.9. The ascorbic acid used in the preparation of Council accepted solutions of sodium ascorbate conforms to the tests and standards for ascorbic acid U. S. P.

GEORGE A. BREON & COMPANY, INC., KANSAS CITY, MO.

**Ampul Solution Sodium Ascorbate** 2 cc Each 2 cc contains sodium ascorbate equivalent to 100 mg (2,000 international units) ascorbic acid in sterile aqueous solution.

**POLLEN EXTRACTS—MULFORD** (See New and Nonofficial Remedies 1941 p. 44)

The following additional pollen extracts-Mulford have been accepted:

SHARP & DOHME, INC., PHILADELPHIA

Acacia Annual Salt Bush Canada Blue Grass Koeler's Grass and Scotch Broom Grass

**PROCAINE HYDROCHLORIDE** (See New and Nonofficial Remedies 1941 p. 84)

The following additional dosage form has been accepted:

E. R. SQUIBB & SONS, NEW YORK

Ampules Procaine Hydrochloride (Crystals) 500 mg

**THIAMINE HYDROCHLORIDE** (See New and Nonofficial Remedies, 1941 p. 551)

The following additional dosage form has been accepted:

JOHN WIEETH & BROTHER, INC., PHILADELPHIA PA.

Tablets Thiamine Hydrochloride 10 mg

2 Cross bleeding and hemorrhage into the pleural cavity in association with pulmonary infarction has not been previously observed in this hospital. Blood stained fluid however is frequently encountered.

3 Priestley, J. T., Essex, H. E., and Barker, N. W. The Use of Heparin in the Prevention and Treatment of Postoperative Thrombosis and Embolism. Proc. Staff Meet. Mayo Clin. 16:60-64 (Jan. 22) 1941.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JULY 11, 1942

## FASTING AND IMMUNITY

Well nourished persons have long been believed more resistant to infections than those who are undernourished or wasted. This belief, however, has been challenged repeatedly. Thus, even as long ago as the American Revolutionary period Underwood<sup>1</sup> pointed out that infantile paralysis most often attacks the best nourished—"finest"—children. Rous<sup>2</sup> in 1911 showed that undernourished fowl are relatively immune to sarcoma virus, while more recently Rivers<sup>3</sup> has suggested a theory to explain "malnutritional immunity" based on the assumption that undernourished cells are lacking in biotin or other stored food materials necessary for the proliferation of viruses. This is a modernized restatement of the historic exhaustion theory of acquired immunity, discarded fifty years ago on the discovery of diphtheria antitoxin.

Recently Sprunt<sup>4</sup> reported that prolonged fasting may cause a tenfold increase in the normal antiviral resistance of rabbits, provided the animals have free access to drinking water during the fasting period. In his investigations of the mechanism of this starvation immunity, Sprunt made careful quantitative studies on the susceptibility of rabbits to intradermal inoculation with vaccinia virus. Several groups of animals were deprived of food but given free access to drinking water for ten days before the test and for forty-eight hours afterward. Control groups were kept throughout the experiment on routine stock diets. Tests of dermal susceptibility were made on each rabbit with seven fourfold serial dilutions of the virus, each animal receiving seven inoculations of each dilution, or forty-nine inoculations in all. The "50 per cent point"<sup>5</sup> was determined for

each group, i. e. the viral dilution with which 50 per cent of the injections produced positive lesions. In a typical experiment the 50 per cent point for well nourished control rabbits was a viral dilution of 1/7,080,000. In the fasted animals the dosage had to be increased 93-fold (i. e. to 1/759,000) in order to produce the same 50 per cent of takes. The fasted animals, therefore, may be spoken of as being 93 times more resistant to vaccinia virus than well nourished controls. This factor varied from seven to twelve in different groups, with an average of about a tenfold increase in normal resistance for all groups.

Such data might be construed as proof that a reduction in the amount of local nutritional reserves in dermal tissues prevented viral proliferation. That other factors are also operative, however, is indicated from the observation that blebs raised by the intradermal injection of the viral suspensions subside much more slowly in the fasted animals than in well nourished controls. Parallel injections with dilute India ink showed that the spread of particulate matter is much more rapid and extensive in well nourished controls and that the decreased spread or "functional encapsulation" in fasted animals is in all cases parallel with the observed decreased infectivity.

Olitsky and Schlesinger<sup>6</sup> showed that the rate of intradermal spread of virus varies inversely with the amount of interstitial water. Increased amounts of interstitial fluid reduce the rate and area of spread, partial dehydration increases the rate and area. Sprunt believes, therefore, that the failure of virus to spread normally in starved animals is due to increased amounts of interstitial fluid, since fasting animals tend to increase the amount of their interstitial fluids if allowed free access to drinking water. This increase can be prevented by depriving the animals of water during the fasting period or by intraperitoneal injection of hypertonic salt solution. Sprunt applied both these methods and found that the rate of disappearance of the viral blebs could be increased to normal by either method. In all cases this restoration of the normal rate of spread is accompanied by an almost complete loss of the observed starvation increase in virus resistance. Depriving rabbits of food alone thus increases their resistance to vaccinia virus, largely because such fasting is associated with increased amounts of interstitial fluid.

Assuming that virus particles are autonomous biologic entities, depletion of tissue biotin<sup>7</sup> and other nutritional factors might possibly contribute to the localization of the virus. It is noteworthy, however,

<sup>1</sup> Underwood, Michael. A Treatise on the Diseases of Children, with General Directions for the Management of Infants from the Birth, a new edition, London, J. Mathews 1789.

<sup>2</sup> Rous, Peyton J. *Exper Med* 13: 397, 1911.

<sup>3</sup> Rivers, T. M. *Infantile Paralysis*, New York: National Foundation for Infantile Paralysis 1941, p. 58.

<sup>4</sup> Sprunt, D. H. *J. Exper Med* 75: 297 (March) 1942.

<sup>5</sup> Reed, L. J., and Muench, Hugo. *Am J Hyg* 27: 493 (May) 1938.

<sup>6</sup> Olitsky, P. K., and Schlesinger, R. W. *Science* 93: 411 (1941).

<sup>7</sup> Hargland, C. L., Ward, S. M., Smadel, J. E., and Reed, T. *Proc Soc Exper Biol & Med* 45: 669 (Nov.) 1940.

that the whole phenomenon of malnutritional immunity can be explained without recourse to the conventional theories of sessile receptors and humoral antibodies

The evidence now available that prolonged fasting may be immunologically beneficial in certain virus infections if not accompanied by water deprivation is of particular practical importance under war conditions. The results of additional studies now in progress on the immunologic effect of altered water balance in other infectious processes will be awaited with great interest

### ESTROGENIC PRODUCTION OF MAMMARY CANCER

Lacassagne,<sup>1</sup> utilizing a strain of mice whose females developed breast carcinoma in high proportion, transplanted ovaries into previously castrated males on the supposition that mammary cancer did not develop in the males of the strain because of excessive atrophy of the mammary elements. Of 12 animals thus treated, none developed breast carcinoma at the end of one year. The same failure to produce cancer in this manner attended the experiments of Loeb of Cori and of Murray. Lacassagne injected weekly into mice 10 to 18 days old 0.05 cc of a solution in oil of 0.6 mg of crystalline estrone benzoate. All of the 3 males and 1 of the 2 females thus treated exhibited a typical mammary adenocarcinoma in from four to five months. This was apparently the first experimental production of mammary cancer in mice. Workers in this field were now confronted with the problem of determining whether the mechanism of estrogenic production of mammary carcinoma in mice was of a chemical nature or whether it simply furnished an anatomic substratum for animals of a strain with a hereditary predisposition to cancer. Lacassagne<sup>2</sup> submits the following evidence in favor of the cancerigenic mode of action of the hormones: (a) Cook and Dodds demonstrated estrogenic properties of certain carcinogenic hydrocarbons of molecular structure more or less related to that of the female hormone, (b) the normal rate of cancerization has been increased by estrogen injection to 60 per cent in both sexes, (c) cancers other than mammary have been observed and (d) Geschickter and Byrnes were able to obtain in a rat, in which mammary cancer is as rare as it is frequent in the mouse, by the action of estrogenic substances, a considerable number of mammary adenocarcinomas both in male and female rats of a selected strain in which, since 1934, no spontaneous cancer had been registered in a colony of 2,000 animals. Against the cancerigenic action of estrogenic substance, it was argued that (a) cutaneous epithelioma was never

produced by the repeated application of estrogenic substance, (b) it has been impossible to produce adenocarcinoma of mice in strains not subject to mammary carcinoma by estrogen injection and (c) certain synthetic estrogens such as diethylstilbestrol, while capable of producing carcinoma, only remotely resemble the sterols. Lacassagne concludes that cancer can occur only in a mammary gland which has undergone a certain degree of development and that the development of a mammary gland is dependent on the estrogenic and pituitary hormones, but whether these stimulating factors play a direct role in the cancerization process or produce the anatomic development of the mammary gland only sufficient to allow the cancer process to manifest itself is still undetermined.

Geschickter and Byrnes<sup>3</sup> report the occurrence of mammary cancers in 202 of 555 rats of an albino strain which were treated with estrogens. These animals have been maintained on a standard diet and inbred for seven years. Under these conditions spontaneous mammary cancer has not been observed in a colony of more than 5,000 animals. The essential feature of the estrogenic production of mammary carcinoma, according to these authors, is the acceleration or the prolongation of the ripening and maturity in the mammary gland beyond physiologic limits. If this condition is satisfied, carcinoma appears in the breasts of rats which are otherwise immune to the disease, whether these animals are young or old, males or females, castrates or noncastrates. Mammary carcinoma results in rats within a period of one hundred and twenty days when the amount of estradiol benzoate administered daily is from ten to fifteen times the physiologic dose. Geschickter and Byrnes advance two arguments in favor of the physiologic action of the estrogenic production of cancer. One is that carcinoma does not occur at the site of injection but appears instead in the organ which the hormone influences physiologically. The second is that the periods of time required to produce cancer with estrogens of varying chemical compositions are proportional to the physiologic potencies and independent of chemical formulas. Therefore, estrogens cannot be considered primarily from the point of view of chemical character as cancerigenic agents. The most potent estrogen will produce carcinoma in the shortest time. The total amount of estrogen necessary to produce carcinoma may be decreased to one half or to one third if the agent is implanted in the form of pellets rather than injected in oil.

These authors also found that if epithelial regeneration below the cancer producing level has been previously stimulated in the mammary gland it should be possible at some later date to produce cancer more

1 Lacassagne A. Apparition de cancers de la mamelle chez la souris male soumise a des injections de folliculine. *Comptes rend Acad d sc* 15: 630 (Oct 10) 1952.

2 Lacassagne A. Relationship of Hormones and Mammary Adenocarcinoma in the Mouse. *Am J Cancer* 37: 414 (Nov) 1939.

3 Geschickter Charles F and Byrnes Elizabeth W. Factors Influencing the Development and Time of Appearance of Mammary Cancer in the Rat in Response to Estrogen. *Arch Path* 33: 334 (March) 1942.

readily. In experiments in which preexisting changes in the breast resulting from previous estrogenic stimulation are combined with the effects of a final period of intense estrogenic stimulation, conditions found in the human breast with carcinoma are most closely approximated. These experiments, the author points out, suggest that human mammary cancer may result from one or from a combination of the following factors: (1) abnormally intense estrogenic stimulation during the adolescent period of mammary development or during a previous pregnancy, (2) ovarian dysfunction in cyclic women resulting in relative hyperestrogenism over a period of years prior to the menopause (most of these have the characteristic changes of adenosis or of Schimmelbusch's disease) and (3) intense or continuous estrogenic stimulation at the time of the menopause (superimposed on factors 1 and 2).

Estrogenic stimulation influences also other endocrine glands. The most striking changes were found in the pituitary gland and in the thymus. Hypophysectomy prevents the physiologic effects of estrogen on the mammary gland, and cancer does not develop. Geschickter and Byrnes point out the importance of species differences. They have not been able to produce breast carcinoma in monkeys and in rabbits. They found that administration of testosterone or progesterone simultaneously with or in sequence to estrogenic stimulation does not prevent the appearance of mammary cancer. The growth of estrogenic cancer, however, is inhibited by anterior pituitary extract. They conclude that the most important observation with respect to the estrogens is the production of mammary cancer by prolonged administration. This toxicologic property, they warn, must be considered when compounds of high potency with prolonged activity are administered.

### THE NATIONAL LEPROSARIUM

The origin of leprosy, which for centuries has been one of the most dreaded diseases, is lost in antiquity. Leprophobia is unjustified. While the disease is infectious it is not as contagious as tuberculosis, and the danger of exposure to leprosy is not great. A recent report by Faget<sup>1</sup> of the United States Public Health Service provides arresting information on leprosy as it exists in this country.

Constructive measures were first taken against leprosy in Louisiana in 1894, when a home on an old plantation was provided for 8 patients. The old slave shacks which were used to house the first patients were eventually abandoned and replaced with new buildings. In 1920 the federal government, cognizant of the occurrence of leprosy in many of the states of the Union

and recognizing the need for a home where all persons suffering with the disease might be cared for and treated, negotiated to take over the Louisiana Leper Home. At present the National Leprosarium (U. S. Marine Hospital) at Carville, La., is one of the most modern in the world. It is situated on a reservation of 350 acres and is actually a self-sustaining community. The presence of churches, a dairy, a power plant, a water treatment plant, a sewerage system, garbage disposal facilities, a fire department and laundries makes it indeed comparable to a small town. Any person afflicted with leprosy may present himself for care. Also admitted are lepers consigned to the hospital by the proper health authorities and persons apprehended under the authority of the United States quarantine acts. The majority of the patients are ambulatory and live in two story concrete buildings.

Occupational therapy has been found helpful, it has a good moral effect and prevents the brooding of a patient on his malady. Ample recreational facilities are also available. Many of the afflicted are employed by the government on a small salary basis, but the government provides all patients with food and clothing, together with books and sports equipment. The medical staff of the Leprosarium specializes in leprosy, and the medical library is adequate in this field. Besides general institutional care the patients are given any special treatment which may be thought beneficial to their condition. Practically all the patients take some form of treatment, and chaulmoogra oil products are extensively used.

Food plays a direct part in the fight against the disease. New experimental treatments have been investigated with selected patients, and the sulfonamides have proved effective in clearing up secondary infections and in healing chronic disabling ulcers. Whether or not some of the newer sulfonamide derivatives have any therapeutic action on leprosy, however, remains to be demonstrated. Large doses of thiamine have been found efficacious in relieving painful leprosy neuritis. In the laboratories of the Leprosarium research bearing on leprosy is carried out, and the institution also serves as a postgraduate instructional center for leprosy.

Since 1894 the Carville Hospital has cared for 1,371 patients, of whom 593 died at the hospital, 53 have been deported to foreign countries and 309 have been discharged with the disease arrested. Fifty-eight of the latter, however, have relapsed and returned to the hospital for further treatment. Of the total admissions about 400 were foreign born. Among the states from which patients were admitted Louisiana leads with 570, California follows with 194, Texas is third with 192 and New York is fourth with 118. Patients have been received from forty states.

<sup>1</sup> Faget, G. H. The Story of the National Leprosarium (U. S. Marine Hospital), Carville, Louisiana, Pub. Health Rep. 57: 641 (May 1) 1942.



## Current Comment

### FEDERAL AID FOR MEDICAL STUDENTS PURSUING ACCELERATED COURSES

The Congress has completed action on the proposal to provide federal financial aid to students pursuing accelerated courses in certain technical and professional fields considered essential in the national defense. The sum of \$5 000 000 has been made available for this purpose. Assistance will be given to students in such numbers as the chairman of the War Manpower Commission shall determine, to participate in accelerated programs in degree-granting colleges and universities in engineering physics chemistry medicine (including veterinary) dentistry and pharmacy whose technical or professional education can be completed within two years. Loans will be made to students who attain and continue to maintain satisfactory standards of scholarship who are in need of assistance who agree in writing to participate until otherwise directed, in the accelerated programs of study and who agree in writing to engage for the duration of the wars in which the United States is now engaged in such employment or service as may be assigned by officers or agencies designated by the chairman of the War Manpower Commission. Such loans are to be made by colleges or universities or public or college connected agencies from funds paid to them out of the federal appropriation. Loans will be made in amounts not exceeding tuition and fees plus \$25 a month and not exceeding a total of \$500 to any one student during any twelve month period. Indebtedness of students who, before completing their courses, are ordered into military service during the present wars under the Selective Training and Service Act of 1940, or who suffer total and permanent disability or death, will be canceled. The loan program will be administered in accordance with regulations promulgated by the Commissioner of Education with the approval of the chairman of the War Manpower Commission.

### NEW STANDARD NOMENCLATURE OF DISEASE AND OPERATIONS

In 1937 the headquarters of the American Medical Association undertook to edit and publish the Standard Classified Nomenclature of Disease. The third edition of this book is now available combined with a new Standard Nomenclature of Operations. Dr Edwin P. Jordan, one of the assistant editors of THE JOURNAL, has supervised the project. This edition of the Standard Nomenclature of Disease has been extensively revised under the direction of qualified specialists. Although the arrangement has not been changed substantially, about thirty-five hundred additions, deletions and corrections have been made in individual diagnostic entries, necessitating a new index designed to facilitate identification of preferred diagnostic terms. A special table of eponymic diseases has been added. More changes have been necessary in the fields in which research during the last few years has been most extensive, for example endocrinology and the vitamin deficiency diseases. The new Standard Nomenclature

of Operations which has been added under the same binding, has been prepared by a special committee consisting of Drs H. Perry Jenkins, T. R. Ponton and Bronson S. Ray, each of whom had compiled previous operative terminologies. The arrangement is similar to that followed by the Standard Nomenclature of Disease—it utilizes the same topographic designations and employs a simple and logical method of expressing the operative procedures. It is liberally indexed. Since the maintenance of hospital and institutional records is difficult because of the war, the adoption of this modern method of classification will help to stabilize this work. The desirability of introducing this up to date system in all government hospitals is especially apparent. No doubt the assistance of qualified and experienced medical record librarians could be obtained by government agencies to facilitate such action.

### SAFEGUARDING NARCOTIC DRUGS FROM THEFT

As a result of the foresight of the Federal Bureau of Narcotics in building up adequate reserves, immediate danger of a shortage in narcotic drugs does not threaten as far as legitimate use is concerned. The supply on hand, however, must be protected and conserved. None of the raw materials from which such drugs are produced are grown in the United States, sources of supply from overseas have either been cut off altogether by the war or are becoming more and more unproductive. The supply of smuggled narcotic drugs available to the illicit traffic has been practically eliminated by a gradual improvement in law enforcement. The trafficker who formerly distributed smuggled narcotics must now look elsewhere for his supply, and he is with accelerating frequency turning to the medicinal stocks. Legitimate holders of such stocks are being robbed and otherwise victimized to such an extent as to cause serious concern. Frequently thefts of narcotic drugs give evidence of having been perpetrated by gangs of professional thieves. For years the Bureau of Narcotics has been urging that stocks of such drugs be adequately protected from theft. Now it reemphasizes its previous appeals in this language:

The theft hazards to which such drugs are now subjected by reason of the marked shortage of smuggled drugs in the illicit traffic, the necessity for their conservation as critical and strategic war materials and the uncertainties of foreign shipping which may interfere with the procuring of replacement supplies all combine to make their proper safeguarding a matter of extreme importance. We have some reserve but not enough to be wasteful or careless. Every theft of narcotics, which must be replaced from this reserve, reduces by that amount the quantity of drugs available, not only for civilian medical needs, but also for the relief of pain in our armed forces and those of our allies.

Physicians, hospitals, druggists and other legitimate possessors of these drugs can minimize the danger by redoubling safeguards. Physicians should provide secure storage for their office supply of narcotics, they should lock their automobiles securely when narcotics are temporarily left in them. Thefts should be promptly reported to the narcotic district supervisor having jurisdiction.

# MEDICINE AND THE WAR

*In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession*

## PROCUREMENT AND ASSIGNMENT SERVICE FOR PHYSICIANS, DENTISTS AND VETERINARIANS

### QUESTIONS AND ANSWERS ON PROCUREMENT AND ASSIGNMENT SERVICE

Q Will the Procurement and Assignment Service protect a doctor from the draft?

A The Procurement and Assignment Service was not established to protect anybody from anything. Its function is to enroll physicians, dentists and veterinarians and assign them to the positions in which their services will be of greatest value to the nation in the war emergency. This function obviously parallels the responsibilities of Selective Service, but the officials of the Selective Service have welcomed the cooperation of the Procurement and Assignment Service in dealing with these professional groups. To implement this cooperation, General Hershey issued a memorandum to Selective Service boards asking them to secure through the state director of Selective Service the recommendations of the Procurement and Assignment Service wherever they are considering the classification of a physician, dentist or veterinarian. Hence, if a doctor has enrolled with the Procurement and Assignment Service, his Selective Service board will be so advised and a recommendation for his deferment, until his services are needed in a professional capacity, will be made.

Q Will men under 45 be called before men over that age will be considered?

A The Army will consider applications for commission from men up to the age of 55 and the Navy up to the age of 50. The greatest need, however, is for younger men. Hence, the first call by the Procurement and Assignment Service will be for men under 36 and then men between 36 and 45 years of age.

Q If a physician is physically disqualified for a commission, is he still subject to the draft?

A The physical requirements for officers are higher than they are for enlisted men, but under the modified requirements for "limited service" in the Medical Corps most, if not all, physicians who meet the requirements for enlisted men will be eligible for commissions. If not, the physician concerned should consult the chairman of his State Procurement and Assignment Service Committee relative to service in a war industry or some other essential civilian service.

Q How much consideration will be given to the choices of service listed on the enrolment form of the Procurement and Assignment Service?

A So far as possible, the choices of service listed on the enrolment form will be given consideration. However, if the needs of the armed forces demand it, it may at times be necessary to ignore personal preferences.

Q Do physicians in shipbuilding and airplane factories receive any special consideration?

A Essential medical service in vital war industries must be maintained. To do this, certain medical positions must be declared essential. Individual physicians who are of military age and physically fit for service should be declared essential in such positions only if it is impossible to replace them or have the necessary service provided by men not otherwise available for service with the armed forces.

Q In determining the number of physicians needed to care for the civilian population, are rural communities considered on the same basis as larger cities?

A A special committee is now working on the determination of minimum quotas of physicians for civilian medical care. In their studies consideration will be given to the density of the population, the ease of transportation, the availability of hospital service and other factors.

Q Will doctors in draft age be called by the Procurement and Assignment Service on the basis of availability regardless of their Selective Service numbers?

A In asking physicians to accept assignments, the Procurement and Assignment Service will select names by chance from alphabetical lists of the names of the physicians in the age group desired. Officials of national headquarters of Selective Service report that it is impossible to use Selective Service order numbers for this purpose. The first lists to be given assignments with the Army or Navy will be those who have indicated these services as their first choice.

Q How many people in a community can be served by one man?

A Studies are in progress by a special committee of the Procurement and Assignment Service to serve as a basis for the determination of minimum quotas of medical service which should be retained for the civilian population. Until these studies are completed it has been agreed that, for general medical service, approximately one "effective" doctor to fifteen hundred population is the minimum coverage that should be provided. Limited specialists are not included in this basic figure.

Q Is it true that unless an intern for 1942-1943 has a commission in the Army or Navy he may be withdrawn at any time?

A National headquarters of Selective Service has advised local boards that medical students and interns who wish deferment and are physically enabled should apply for the commissions which are available to them. In view of this, interns who are physically fit and do not hold commissions may be subject to induction.

Q What percentage of a man's time devoted to medical teaching is necessary to make him essential?

A The determination as to whether an individual is an essential teacher cannot be put on a percentage basis. Some teachers on a full time basis cannot justifiably be considered essential, while others giving a much smaller proportion of time might be essential. In general, however, very special circumstances should exist to justify designating a physician of military age as an essential teacher unless he is devoting at least half time to teaching.

Q Is the local draft board or the Procurement and Assignment Service to determine whether a doctor is necessary to the local community?

A The legal responsibility for deciding whether an individual who is registered with Selective Service shall be given a deferment rests with his local Selective Service board. However, General Hershey has directed local boards, when considering the classification of physicians, dentists or veterinarians,

to secure the advice of the state committee of the Procurement and Assignment Service as to whether the individual under consideration is essential for the care of the civilian population in his community or whether he can be considered available for service elsewhere.

Q How many physicians are there in the United States under 35 years of age? Under 45?

A Of the 152,923 physicians in private practice in the continental United States,

75.3 or 24.7 per cent are under 35 years of age, 24.0 or 23.0 per cent are 35 to 44 years of age, 26.573 or 17.4 per cent are 45 to 54 years of age, 26.076 or 17.1 per cent are 55 to 64 years of age, 11.91 or 7.8 per cent are 65 to 74 years of age, 8.112 or 5.3 per cent are 75 to 84 years of age, and 7.2 or 4.7 per cent are 85 and over.

Q Do you expect the needs of the armed forces to be filled by voluntary enlistment? If not, what is to be the procedure?

A It is the firm conviction of the directing board of the Procurement and Assignment Service that the physicians of this country will willingly accept the assignments requested of them in meeting the medical needs of the nation during the war emergency. The executive order of the President establishing the Procurement and Assignment Service states that Mr. McNutt may instruct the Agency to draft legislation, which may be necessary to submit to the Congress providing for the involuntary recruitment of medical, dental and veterinary personnel, in the event the exigencies of the national emergency appear to require it. The directing board, however, has given no thought to such legislation because it is convinced that it will not be necessary.

Q In what grade may a doctor expect to receive a commission?

A The policy which is being followed by the Office of the Surgeon General of the Army in making recommendations for commission is as follows:

1 All appointments must be limited to the quotas provided for medical personnel of various ranks in relation to the total over-all size of the Army.

2 All appointments in tactical units will be at minimum grades of first lieutenant, as no experience in civilian life qualifies a doctor for service in this capacity.

3 Appointments above the minimum grade will be made only on the basis of vacancies, special qualifications and there being no one qualified to fill the position by a promotion.

*First Lieutenant*—All appointments under 37 will be in this rank except for individuals who possess special qualifications for a particular vacancy which exists. Certification by specialty board will be considered evidence of such special qualifications. Applicants who previously held appointments in the Medical Reserve Corps in the rank of captain may apply for reappointment at the same rank.

*Captain*—Initial appointees at the age of 37-45 may apply for this rank. Likewise, men under 37 with special qualifications.

*Major*—Age 37-55. Eligible applicants must have the special qualifications required for appointments as captain and in addition experience and training which qualifies the individual as chief of a service or section or executive of a large hospital.

*Lieutenant Colonel and Colonel*—New appointments will be made in these ranks only for special assignments which cannot be filled by promotion.

Signed for the Board,  
PROCUREMENT AND ASSIGNMENT SERVICE,  
FRANK H. LAHEY, M.D., Chairman

## HOW TO PROTECT ONESELF AGAINST GAS

This operations letter of June 9 of the Office of Civilian Defense, Washington, D.C., James M. Landis, director, deals with personal protection against gas. If people will remember a few simple facts, they will have no unreasonable fear of this agent.

War gases stay close to the ground, for they are heavier than air. To get out of a gassed area, simply walk against the wind or go upstairs.

Gas is irritating to the eyes, nose, lungs or the skin, but it is usually harmless if one does not become panicky but promptly leaves the gas area and cleanses oneself. A soldier must put on a mask where it is necessary to remain in the contaminated area, but a civilian can go up on the second or third floor and ignore it if the windows are kept closed.

If the gas should get on the skin, one can prevent it from doing much harm by sponging it off as quickly as possible with a piece of clothing such as a handkerchief and applying some neutralizing substance, followed by a thorough bath, preferably a shower, with common laundry soap and water.

If one is indoors, stay there with doors and windows closed, and go to the second or third story. Stay out of basements. Turn off the air conditioning, and stop up fireplaces and any other large openings.

Some gases are spread as oily droplets which blister and burn the skin and eyes. If one is outside when gas is used, do not look up. Use clothing or a handkerchief to blot drops of liquid from the skin and throw the contaminated cloth away. Do not rub as rubbing will spread the liquid. Then go to the nearest place where one can wash immediately with soap and water and cleanse oneself in the following manner:

Remove all outer clothing outside the house, since gas can be transmitted to others from contaminated clothing. Put it preferably in a covered garbage pail.

Apply one of the following effective household remedies to the part of the skin that has been contaminated: chlorox or similar household bleach (for mustard); hydrogen peroxide (for lewisite); paste or solution of baking soda if no peroxide or bleach is available. If one does not know the gas, use both peroxide and bleach. Keep bleach and peroxide out of the eyes. Do not waste time looking for these remedies; bathe immediately if they are not at hand.

After entering the house, wash the bleach or peroxide from the hands with laundry soap and water and then wash the face. Remove the underclothing, place it in a covered garbage pail and enter the bathroom.

Irrigate the eyes with large amounts of lukewarm 2 per cent solution of baking soda (1 tablespoon to a quart of water) or else with plain water. Use an ordinary irrigating douche bag or an eye irrigator. If one does not have these, let plain warm water pour into the eyes from the shower, washing them thoroughly. Do not press or rub the eyes.

Lastly, take a shower using laundry soap and hot water.

If the nose and throat feel irritated, wash them out also with baking soda solution.

If the chest feels heavy and oppressed, if one has any trouble breathing or if cigaret smoke becomes distasteful, lie down and stay perfectly still until a doctor comes.

If blisters develop, do not break them, and call a doctor.

Remember

Soldiers require gas masks because they must remain in the contaminated area. Civilians can get out of the gassed area or get above the level of the gas, where they do not need gas masks or protective clothing.

Injured persons who are gassed require decontamination before they can be admitted to hospitals. All other civilians can best prevent any serious injury by promptly helping themselves in the manner outlined, using a kitchen or bathroom, laundry soap and water, and a few materials found in every household.

## HANDBOOK FOR PHYSICIANS ON INDUSTRIAL HEALTH AND MEDICINE IN WAR INDUSTRIES

On the recommendation of the Committee on Industrial Medicine of the National Research Council, the Division of Industrial Hygiene, National Institute of Health, is preparing a manual on Industrial Hygiene and Medical Service in the War Industries. The publication is intended for wide distribution among industrial physicians and the general medical profession. The recommendation of the National Research Council was endorsed by the Health and Medical Committee and has been approved by Federal Security Administrator Paul V. McNutt and Surgeon General Thomas Parran of the U.S. Public Health Service.

The resolution submitted by the Committee on Industrial Medicine, Division of Medical Sciences, National Research Council, follows

The change over of industry to the manufacture of war materials is resulting in modifications of occupational health hazards, the introduction of new occupational disease exposures and certain variations in the industrial medical procedures. The following are illustrative

1 There is increased usage of cutting oils, compounds and chemicals, many of which are capable of causing the industrial dermatoses

2 Grinding operations have multiplied, and these entail exposures to aluminum oxide, silicon carbide and other grinding materials. While the dusts from grinding operations have not been regarded as harmful to health, disabilities occurring in workers so exposed are coming to be regarded as compensable

3 Shot blast operations are being replaced by sand blasting, and new installations of this nature are consistently using sand

4 In an effort to speed up pickling operations, there is a tendency to increase the concentrations of acids in the pickling tanks, with consequently more contamination of the air with fine droplets of the acids

5 Solvents are being more widely used, and certain of the newer ones are purported to be nontoxic. As most of them are in the chlorinated hydrocarbon group of chemicals, they can be assumed to be more or less toxic

6 Paint spraying operations are being modified, requiring radical readjustments in ventilation procedures

7 There is a tendency toward longer working hours and, consequently, longer hours of exposure to harmful materials and shorter periods of recuperation

8 It is becoming more and more necessary to employ women, older men and young men who are not eligible for military service, many of whom require selective placement, which is a function of the plant medical service

9 It is necessary that the medical service in the war industries be integrated with the emergency medical service of civilian defense. Details necessary to this objective are not understood by the industrial physicians as yet

In order that industrial physicians and the general medical profession, when called on by industry, may be more adequately prepared to protect the health of the workers in the war industries, be it therefore

*Resolved* That the Committee on Industrial Medicine of the National Research Council recommends the preparation of a brochure or special article on "Industrial Hygiene and Medical Service in the War Industries" for wide distribution among the medical profession, and that this brochure be prepared by the Division of Industrial Hygiene, National Institute of Health of the U. S. Public Health Service

The brochure will be prepared by the full time and consultant professional staff of the Division of Industrial Hygiene under the general editorship of Dr. William M. Gafafer, chief of the statistical unit of the division. Important subjects for discussion include toxicity and potential dangers of organic and inorganic substances in the war industries, occupational skin diseases in war industries, engineering control, industrial medical service, nursing in industry, dental services, fatigue, women in industry, medical control of respiratory diseases, nutrition in war industries, available governmental industrial hygiene services and integration of plant and community emergency medical services. The brochure will probably cover about three hundred pages

### ILLINOIS CONFERENCE ON NUTRITION FOR DEFENSE

The Illinois Nutrition Committee and the Nutrition Division of the Illinois Defense Council sponsored a conference on nutrition, which was held at Springfield June 19-20. Lydia J. Roberts, Ph.D., chairman of the Illinois Nutrition Committee and of the Department of Home Economics of the University of Chicago, presided at the opening session and gave an address entitled "How Is Illinois Equipped and Organized to Meet Its Nutrition Problems?" Dr. Roberts is a member of the Council on Foods and Nutrition of the American Medical Association.

Dr. Clifford Grulce, head of the pediatrics department of Rush Medical College, and Dr. M. H. Kronenberg of the Illinois Department of Public Health, among others, took part in a symposium on "What Is Our Nutrition Problem in Illinois?"

Helen Walsh, regional nutritionist of the Office of Civilian Defense, Health and Welfare Services, Washington, D. C., discussed "Highlights from the National Nutrition Program." Dr. Frank G. Boudreau, director of the Milbank Memorial Fund and chairman of the Food and Nutrition Board of the National Research Council, discussed "Nutritional Problems in Wartime, with Special Consideration of the Nutritional Problems of Industrial Workers."

Symposiums were participated in by numerous authorities in the fields of nutrition and home economics, the general subject being "Ways and Means of Carrying on Nutrition Activities at the State and Local Levels."

"Nutrition movies" were shown. A collection of materials helpful in developing nutritional programs was exhibited.

### SPECIAL CLASS FOR STUDENT NURSES

A special class of nursing students organized in the schools of nursing of the Department of Hospitals of New York City, comprising one hundred pre-nursing students of the department of hospitals, was admitted to Brooklyn College on June 29. These students will have two months' preclinical science work at the college and then be admitted to Bellevue, Harlem, Kings County and Metropolitan hospitals in September to continue the nursing program. This arrangement is made possible by a grant under the federal security agency appropriation act of 1942, which provides funds for the expansion of the approved schools of nursing throughout the country. Brooklyn College has cooperated by assigning teachers and laboratories for the teaching of these students during the summer months. Although the basic course in nursing is three years, the opportunity to serve begins almost at once. As the student nurse learns to care for the patients, this helps relieve the time of graduate nurses for duties requiring greater experience. Hundreds of the most experienced graduate nurses are being called to serve with the military forces, thus causing a shortage of nurses for civilian work.

### AMBULANCES PRESENTED TO BROOKLYN CHAPTER OF THE RED CROSS

At a ceremony attended by thousands of persons at the Brooklyn Borough Hall, June 19, several ambulances and four mobile canteens were presented to the Brooklyn chapter of the American Red Cross. The ambulances were presented by the Kings County Medical Society, the Brooklyn Boys' High School, Abraham Lincoln High School, Midwood High School, Franklin K. Lane High School, Samuel J. Tilden High School and the Brooklyn Heights Association. The mobile canteens were the gifts of the Masons of Greater New York, the Bush Terminal Merchants' Association, the Loyal League and the Brooklyn Girls' High School. The Borough President, John Cashmore, the acting secretary of the department of health, Dr. Frank A. Calderone, and others gave addresses. Eighteen sailors of the U. S. S. *Marblehead*, which recently returned to the United States after having been disabled in the battle of the Java Sea, received an ovation.

### MEDICAL AND SAFETY DIRECTORS' CONFERENCE

Physicians and engineers in ordnance plants will meet in a series of special conferences to discuss and clarify industrial hygiene problems of common concern in government establishments. The first conference is scheduled for July 17-18 in St. Louis and will be attended by personnel from plants within a 300 mile radius of that city. The conferences are sponsored by the Office of the Chief of Ordnance, War Department, in cooperation with the Division of Industrial Hygiene, National Institute of Health, and the Surgeon General's Office of the Army. Three papers will be presented at each of six sessions, allowing time for full discussion. The speakers will include representatives of the aforementioned agencies and of the Office of the Surgeon General, War Department, the E. I. du Pont de Nemours Company, the General Motors Corporation and the U. S. Bureau of Mines, Department of the Interior.

### OFFICERS OF THE ARMY

An officer of the Army of the United States must be at the time of appointment a citizen of the United States or the Philippine Islands, or an alien of a co-belligerent or friendly country who otherwise possesses the same qualifications as a citizen of the United States, and between the ages of 18 and 60 years, according to War Department Circular No. 147, section 6a, dated May 16, 1942.

# ORGANIZATION SECTION

## OFFICIAL NOTES

### ABSTRACTS OF MINUTES OF MEETINGS OF BOARD OF TRUSTEES HELD IN ATLANTIC CITY N J, JUNE 7-11, 1942

A full day meeting of the Board was held on Sunday, June 7, and meetings of shorter duration were held on other days during the week of the annual session.

#### EMPLOYMENT OF INVESTMENT COUNSEL

The Board approved the employment by the Finance Committee of investment counsel to advise regarding the investment of the funds of the Association.

#### OMISSIONS FROM AMERICAN MEDICAL DIRECTORY

It was decided that beginning with the edition now in press, the American Medical Directory shall include only the names of those who are graduates of medical schools with the degree of Doctor of Medicine or its equivalent and of those who are holders of license under the provision of years of practice of medicine or of those not otherwise specified whose names have appeared in previous editions of the Directory, and that the subtitle of the Directory so indicate.

#### WAR MEDICINE

Authorization was given for the reconstitution of the Editorial Board of *War Medicine*. Beginning with the July issue the Board will be constituted as follows: Drs. Morris Fishbein, Chief Editor; Eugene F. Du Bois, Perrin H. Long, W. W. Palmer, Clarence D. Selby, O. H. Perry, Pepper Winfred Overholser, Walter B. Cannon, Frederick A. Collier and Milton C. Winternitz in cooperation with C. C. Hillman, Brigadier General, U. S. Army Medical Corps, Charles S. Stephenson, Captain, U. S. Navy Medical Corps, and R. R. Spencer, U. S. Public Health Service. The statement that the periodical is published under the auspices of the American Medical Association and the Committee on Information, Division of Medical Sciences, National Research Council, with the names of the members of that committee will be continued.

#### APPOINTMENTS

Dr. C. S. Keefer, Boston, was elected to succeed Dr. Soma Weiss on the Council on Pharmacy and Chemistry.

The Board approved the appointment of Dr. Paul A. O'Leary to represent the American Medical Association at the meeting of the Canadian Medical Association at Jasper National Park, June 15 to 19, 1942.

#### MEDICOPHARMACEUTICAL RELATIONSHIPS

Authorization was given for continuation of negotiations between the Council on Pharmacy and Chemistry and the American Pharmaceutical Association with a view to holding another conference on medicopharmaceutical relationships when the time appears propitious.

#### ASSOCIATION BROADCAST

Continuation in the fall of the Association's broadcasting program under the title *Doctors at War*, was authorized by the Board provided conditions are as favorable at that time as they have been during the season just completed.

The Board approved a resolution expressing appreciation to the National Broadcasting Company, the Columbia Broadcasting System, the Blue Network and numerous individual radio stations which have from time to time during the past year participated with the American Medical Association or, on request of the Association, with related medical and health agencies in health education broadcasting, and referred the resolution to the House of Delegates.

#### SERVICES OF COMMITTEE ON AMERICAN HEALTH RESORTS OFFERED TO GOVERNMENT

A resolution received from the Committee on American Health Resorts offering its services as a whole or as individual, to the Surgeon General of the Army, the Navy and the Public Health Service, to the Health and Medical Welfare Division of the Federal Security Agency and to the Director of the Veterans' Bureau to assist in every possible way in effecting a plan whereby the facilities of the American Health Resorts of the United States can be utilized for the care and treatment of properly selected patients who would benefit from such service was approved by the Board.

#### HYGIEA

Approval was given for certain changes in the format for *Hygiea*, which necessitate the employment of a new art editor.

#### NATIONWIDE EXCHANGE OF INFORMATION ON PROGRESS IN MEDICAL SCIENCE

Authorization was given to Dr. Morris Fishbein, Editor, to prepare a biweekly letter on the advancement of medical science, which will be sent, through the Department of State, to the allied nations with a view to keeping them informed of the progress being made in the United States.

#### APPOINTMENT OF OFFICERS AND COMMITTEES

Dr. Roger I. Lee was elected Chairman of the Board for the ensuing year. Dr. R. L. Sensenich, Vice Chairman, and Dr. E. E. Irons, Secretary.

Drs. James R. Bloss (Chairman), R. L. Sensenich and E. E. Irons were elected to act as the Executive Committee and the Finance Committee.

#### MISCELLANEOUS

Numerous other matters were considered by the Board at its several meetings, some of which will be reported on later.

## MEDICAL LEGISLATION

### MEDICAL BILLS IN CONGRESS

*Changes in Status*—H. R. 7181 has been approved by the President, making appropriations for the Department of Labor, the Federal Security Agency and related independent agencies for the fiscal year ending June 30, 1943. The bill includes an appropriation of \$5,000,000 to assist students in such numbers as the chairman of the War Manpower Commission shall determine who participate in accelerated programs in degree-granting colleges and universities in engineering, physics, chemistry, medicine (including veterinary), dentistry and pharmacy and whose technical or professional education can be completed

within two years. This loan program will be administered through the Office of Education. H. R. 7242 has passed the House providing that in time of war or national emergency any officer of the Medical Administrative Corps commissioned in the Army of the United States or any component thereof may be appointed by the President to higher temporary grade not above the grade of colonel without vacating any appointment held by him at the time of such temporary appointment. The House Committee on the Judiciary has ordered favorably reported the Tolson bill H. R. 1052 to authorize chiropractors to treat the beneficiaries of the United States Employees Compensation Act.



## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH)

### ARIZONA

**State Medical Election**—Dr Otto E Utzinger, Ray, was unanimously chosen president-elect of the Arizona State Medical Association at its annual meeting in Prescott, May 25-29. Dr E Payne Palmer, Phoenix, was installed as president. Dr Virgil G Pierson, Tucson, was chosen vice president, Dr Clarence E Yount, Prescott, reelected treasurer and Dr William Warner Watkins, Phoenix, reelected secretary. The 1943 meeting will be in Tucson.

**Encephalitis Survey in Pinal County**—A field investigation of encephalitis is being conducted in Pinal County by Dr William McD Hammon of the George Williams Hooper Foundation, University of California, San Francisco, and Dr Gordon Meiklejohn and Mr Bernard Brookman, entomologist, both of the University of California at Berkeley. The state department of health and the Agricultural Welfare Association are cooperating with the hospital in Casa Grande, where the field headquarters has been established. According to *Public Health News* there were at least 18 cases of human encephalitis in Pinal County last year. The St Louis type predominated. Dr Hammon and associates have been studying outbreaks of encephalitis in man and horses in some western states for the past two years and found what appears to be a vast reservoir for infection of mosquitoes in barnyard animals. In the Arizona study material taken from mosquitoes and other insects, domestic animals and some wild animals will be sent to the Hooper Foundation laboratories in San Francisco to determine the presence of virus.

### ARKANSAS

**District Meetings**—The Ninth Councilor District Medical Society met at the Hotel Seville, Harrison, June 3. The speakers included Drs Rufus B Robins, Camden, "Human Element in Medicine", Silas C Fulmer, Little Rock, "Clinical Syndrome in Coronary Diseases", Joseph F Shuffield, Little Rock, "Fractures of the Ankle", Grady W Reagan, Little Rock, "Diagnosis and Treatment of Urinary Calculus," and William R Brooksher, Fort Smith, secretary of the state medical society. The Arkansas State Pediatric Society was addressed recently in Hot Springs National Park by Drs Gilbert J Levy, Memphis, on "Use of Sulfonamides in the Treatment of Gonorrheal Conjunctivitis", Paul L Mahoney and Alan G Cazort, Little Rock, "The Relationship Between the Pediatrician, the Otolaryngologist and the Allergist" and William V Newman, Little Rock, "The Orthopedic Treatment of Poliomyelitis". The Fourth Councilor District Medical Society meeting in McGehee, May 19, was addressed, among others, by Dr Rufus B Robins, Camden, on "The Acute Conditions of the Abdomen".

### CALIFORNIA

**Anatomists Honored**—Charles H Danforth, Ph D, professor of anatomy at Stanford University, has been elected president of the Western Society of Naturalists, and Frank M MacFarland, Ph D, emeritus professor of histology at Stanford, has become the president of the California Academy of Sciences.

**Dr Magan Retires as President of Medical College**—Dr Percy T Magan, since 1928 president and professor of medical ethics at the College of Medical Evangelists, Los Angeles, was guest of honor at a reception in Los Angeles, May 13, held by students, alumni and friends to mark his retirement as president of the college. Dr Magan, who graduated at the University of Tennessee College of Medicine, Memphis, in 1914, was dean and professor of medicine at the College of Medical Evangelists from 1913 to 1928. He is a former vice president of the California Medical Association. Dr Walter E Macpherson, Los Angeles, professor of internal medicine and physiology at the College of Medical Evangelists, has been named president to succeed Dr Magan.

### FLORIDA

**Personal**—Dr Rolla J Shale, Ontonagon, director of the Ontonagon-Baraga district health department in the state of Michigan, has been appointed director of the Hillsborough County health unit with headquarters in Tampa.

**Special Society Election**—Dr Shaler A Richardson, Jacksonville, was chosen president of the Florida Society of Ophthalmology and Otolaryngology at its recent annual meeting in Hollywood. Other officers are Drs Robert E Repass, Miami Beach, vice president, and Carl E Dunaway, Miami, secretary.

**Annual Tuberculosis Conference**—The Florida Tuberculosis and Health Association held its annual tuberculosis conference in Tampa, May 18-19. Among the speakers were Dr Esmond R Long, Philadelphia, Dr Alexandre Bruno, Paris, France, former director of the Rockefeller Foundation Commission in France, Dr Warren W Quillian, Coral Gables, and Mr Frank Kiernan, director of the New York City Tuberculosis and Health Association.

### IDAHO

**Personal**—Dr Paul R Ensign, Boise, has been named director of the health unit in Boise, succeeding Dr Gustavus D Bock, who resigned to join the U S Naval Medical Corps.

**Society News**—The Pocatello Medical Society was addressed recently by Dr Paul M Ellis, Wallace, president of the state medical association. At a meeting of the South Side Medical Society on May 13 in Twin Falls the speakers were Drs Fern M Cole, Caldwell, on "Procurement and Supply", James L S Stewart, Boise, "Gastric Surgery," and Sydney E Sinclair, San Francisco, who is touring the state under the auspices of the state health department.

### ILLINOIS

**Election of Bacteriologists**—Dr Josiah J Moore, Chicago, was elected president of the Society of Illinois Bacteriologists at its spring meeting on May 8 in Chicago and Dr Henry Close Hesseltine, Chicago, vice president. Mrs Harry B Harding, Chicago, was reelected secretary-treasurer. The next meeting will be held in the fall of 1947.

**New Deputy Health Commissioner**—Dr Hugo V Hullerman, Springfield, chief of the division of local health administration, state department of public health, has resigned to become deputy commissioner of health and director of maternal child health of the Peoria State Department of Health, effective July 1. He succeeds Dr John A Carswell, formerly of Milwaukee, who has held the position since February 1 and is resigning on account of ill health. Dr Carswell has accepted a position as health officer of Santa Barbara County in California. Dr Hullerman has held his position in the state health department for the past three years.

### LOUISIANA

**Special Society Elections**—Dr Earl Conway Smith, New Orleans, was elected president of the Louisiana Gynecological and Obstetrical Society at its recent annual meeting, Dr Clifford R Mays, Shreveport, vice president, and Dr Eugene H Countiss, New Orleans, secretary. Dr Chester A Stewart, New Orleans, was named president-elect of the Louisiana State Pediatric Society at its recent annual meeting, and Dr Stanley George Wolfe, Shreveport, was installed as president. Dr William C Rivenbark, New Orleans, is secretary. New officers of the Association of Louisiana Pathologists, chosen at its recent annual session, are Drs Maurice J Couret, president, Albert E Casey, vice president, and Samuel H Colvin Jr, secretary-treasurer, all are of New Orleans. The Louisiana Coroners' Association recently elected the following officers: Drs Charles J Barker, Thibodaux, president, Robert F De Rouen, New Iberia, and Marvin M Odom, Grambling, presidents, and Luther L Ricks, Independence, secretary-treasurer.

### MAINE

**Fifty Year Medals Awarded**—The Maine Medical Association presented fifty year medals to the following during its recent annual meeting in Poland Spring:

Dr James P Blake Harrison  
Dr Edward F Robinson Falmouth  
Dr Owen Smith, Portland  
Dr Frederick E Wheat Westboro  
Dr Verdel O White E Dixfield

Dr Luther G Bunker W  
Dr Clayton H Bayard  
Dr Ralph H Marsh  
Dr Eugene L Stevens

**Society News**—At a recent meeting of the Portland Medical Club, Drs Elton R Blaisdell and Langdon T Thaxter, Portland spoke on "Acute Low Substernal and High Epigastric Pain (Possible Errors in Differential Diagnosis)". The Penobscot County Medical Association held a meeting on April 21 at Bangor. The subject for the evening was "Medical Aspects of War Services". A joint meeting of the Somerset Franklin and Kennebec county medical societies, April 23, Waterville was addressed by Drs Richard P Lane, Skowhegan in "Meningococci Menstritis", Thomas Dennis Pratt, Brookline Mass., "Cerebellar Tumor in a Child of Twelve Years", George L Pratt Farmington, "Ulcerative Colitis," and Delmer Allan Crug, Bangor.

#### MICHIGAN

**Medical Coordinator in Wayne County**—Dr Roland M Athas, Detroit, was appointed medical coordinator for the Wayne County Department of Social Welfare on May 26. Dr Athas graduated at Northwestern University Medical School in 1915 and entered the practice of medicine in Detroit in 1919. He has been active in the Wayne County Medical Society.

**Practice of Medicine in Total War**—The Michigan State Medical Society will present an institute on the "Practice of Medicine in Total War" during its annual meeting in Grand Rapids in September. The following subjects will be covered: How England Retorted to a War Brought Home, Nutritional Problems in Wartime Civilian Morale in Time of War, the Modern Treatment of Civilian Injuries Incident to Warfare and the Infectious Disease Problem in Wartime.

**Industrial Hygiene Survey**—The bureau of industrial hygiene of the Michigan Department of Health recently completed a study of industrial plants in Hillsdale County to determine industrial growth. In Hillsdale County which is typical of the state counties which are not predominantly industrial but which are experiencing an increase of industry devoted to war needs, the study showed that plant employment had increased over 60 per cent during the last year at an estimated 2300 plus. A 25 per cent gain in the number of industries has been recorded during the last three years. Activities of the bureau of industrial hygiene are directed at controlling the environmental influences which affect the physical and mental health of the worker, the placing of workers at tasks for which they are physically equipped, the maintaining of physical and mental fitness of workers after they are placed in jobs and the reducing of the amount of productive time and wages lost because of sickness or accident, whether due to occupational or to nonoccupational causes. A release from the state department of health stated that 65 per cent of Michigan's industrial workers and 63 per cent of the state's industrial plants are located outside Detroit.

#### MINNESOTA

**Lecture on Genetics**—The first lecture under the auspices of the newly organized Charles Fremont Dight Institute for the Promotion of Human Genetics now in operation on the University of Minnesota campus, Minneapolis, was delivered recently by Dr Philip Levine Newark, N J, on "Serological Differentiations of Human Blood".

**Ophthalmologists Elect Officers**—Dr Louis A Nelson, St Paul, was recently elected president of the Minnesota Academy of Ophthalmology and Otolaryngology. Other officers include Drs Charles Wilbur Rucker, Rochester, and Edward D Risser, Winona, vice presidents, and William A Kennedy, St Paul, secretary-treasurer.

#### MISSISSIPPI

**Dr Hickerson Goes to Cincinnati**—Dr William D Hickerson Sanatorium has resigned as supervisor of the field tuberculosis diagnostic unit for the Mississippi State Board of Health, effective June 1, to become superintendent of the Cincinnati Sanatorium Cincinnati. His wife Dr Virginia B P Hickerson, a member of the staff of the Mississippi State Tuberculosis Sanatorium Sanatorium also resigned to accept a position as resident physician at the Cincinnati Sanatorium.

#### NEW HAMPSHIRE

**Memorial Mayo Lecture at Dartmouth**—The annual W J and C H Mayo Memorial Lectureship in the field of medicine and surgery has been established at Dartmouth College Hanover by Dr and Mrs Waltham Walters Rochester Minn. Dr Walters a Dartmouth graduate of 1917 gave the administration of the lectureship to the Dartmouth Medical School. The memorial was established there as a stimulating factor in interesting men in medicine and surgery, particularly to call attention to the accomplishments of Drs W J and C H Mayo in these fields.

#### NEW JERSEY

**Physician Accused of Altering Fingerprints of Fugitive**—The Newark *News* reported on June 9 that Dr Leopold W A Brandenburg, Union City, was arrested by F B I agents for operating on a fugitive from justice to destroy his fingerprints and conceal his identity. Others arrested in connection with the case, according to the *News*, are Dr Howard A Weleher, North Bergen, president of the Union City General Hospital Association, Henry Manick, houseman and chauffeur for Dr Brandenburg, Union City, Cyrus La Zerdura, Harrington Park, and Robert Everette, Surf City. The arrests were announced simultaneously by J Edgar Hoover, director of the Federal Bureau of Investigation, Washington, and E E Conroy, acting assistant director in Newark. Dr Brandenburg is charged with misprision (guilty knowledge) of a felony, but Mr Conroy is said to have announced that he would be prosecuted for the operation, it was reported. Roscoe J Pitts, Charlotte, N C, who has a long prison record, was the subject of the operation in which Dr Brandenburg was alleged to have grafted flesh from Pitts's side on his fingertips. The *News* stated that Dr Brandenburg was fined in 1933 for illegal sale of narcotics and convicted in 1934 of complicity in a \$100,000 mail robbery in North Carolina. That conviction was later reversed. He has been arrested under state law for illegal operations but has never been convicted, the *News* reported.

#### NEW YORK

**Typhoid Carriers Decrease**—In 1941 for the first time since the practice of requiring release cultures for cases of typhoid was initiated by the state department of health, an actual decrease in the number of typhoid carriers was reported as compared with the total for the previous year. According to *Health News* a total of 431 carriers, exclusive of those in state institutions, was under supervision in upstate New York at the close of 1941. Thirty-two new carriers were added to and 33 were removed from the register during the year. Twenty-three were discovered as a result of epidemiologic investigation of sporadic cases of typhoid, 1 by means of release cultures, 1 on the basis of information furnished by the New York City Department of Health, and 5 were discovered accidentally—1 at the time of cholecystectomy, 2 through drainage of the gallbladder, 1 because of drainage of an abscess in the region of the gallbladder and 1 through hospitalization for observation. Two previously discovered carriers, who had been living temporarily out of the state, were added to the register. Of the 35 carriers whose names were removed from the register, 23 died. Five carriers were released from restrictions, 4 following cholecystectomy with subsequent submissions of the required number of negative fecal and duodenal specimens. The remaining 7 carriers were removed because of change of residence to a community outside the jurisdiction of the department.

#### New York City

**Grant for Work on Fluorescein**—The John and Mary R Markle Foundation has given a grant of \$3400 to New York Medical College, Flower and Fifth Avenue hospitals for further research in the use of fluorescein as a means of measuring the adequacy of blood supply in various parts of the body and will make possible further research in the speed of circulation in various types of heart disease.

**Friday Afternoon Lectures**—"The Care of the Civilian Population in War Time" will be the theme of the fall series of Friday afternoon lectures under the auspices of the Medical Society of the County of Kings. Tentatively, individual topics have been selected as follows: Burns, Shock and Hemorrhage, Emergency Treatment and Transportation of Fractures, Emergency Care of Pregnant Women, Cardiac Emergencies During War Time, Pediatric Emergencies, War Neuroses, War Nutrition, Emergency Therapeutics and Intracranial Emergencies.

**Dr Healy Receives Janeway Medal**—Dr William P Healy was presented with the Janeway Medal of the American Radium Society during its annual meeting in Atlantic City, June 8. He had delivered the Janeway Lecture on "The Role of the Gynecologist in the Field of Cancer" and was given the prize for outstanding contributions in the field of radium therapy. Dr Healy graduated at Johns Hopkins University School of Medicine Baltimore in 1900 and is a member of the American Gynecological Society, American College of Radiology and the American Radium Society.

**The Care of Children with Heart Disease**—In a report recently issued by the city board of education, the creation of a medical advisory committee to direct the medical supervisory and educational aspects of the care of cardiac children is recommended. The report indicates that existing facilities and accommodations are inadequate. Results were based on a limited study of sixty-eight cardiac classes; supplementary data furnished by forty-four principals of schools having these classes and information on cardiac children in nineteen schools without cardiac classes. The report points out that no evidence has been produced to justify present classes in the city but recommends their continuance until some working program has been developed to afford proper medical supervision of cardiac children. Of an estimated group of 7,000 cardiac children, only about 2,000 are in specially segregated classes. The report recommends that when rheumatic fever is found in a child examinations of siblings of the parents should be made, that daily examinations of cardiac children be made at school to determine whether they are in good health and free from infection of the upper respiratory tract before entering classes, subsequent care to be determined on their condition, that two medical examinations a year be given to these children, that home teachers be provided for those children whose cardiac condition prevents them from attending regular classes, that teachers with acute infections of the upper respiratory tract should not, during the first three days of their illness, come in contact with cardiac children and that a register be kept of all children with rheumatic fever, chorea and rheumatic heart disease.

### OHIO

**Health Commissioner Joins the Navy**—Dr John L. Lavan, health commissioner of Toledo, has been granted a leave of absence to accept active duty as commander in the medical corps of the U S Navy. Dr Lavan is stationed along the east coast.

**Assistant Professor Goes to Searle & Company**—Walter E. Hanbourger, Ph.D., assistant professor of pharmacology at Western Reserve University School of Medicine, Cleveland, has been appointed pharmacologist for G. D. Searle & Company, Skokie, Ill. Dr Hanbourger received his degree of doctor of philosophy at Western Reserve in 1931. He served as an instructor in pharmacology and toxicology at Yale University from 1932 to 1936, when he returned to Western Reserve.

**Public Health Officers**—Dr James F. Wilson, Washington, C. H., was named president-elect of the Ohio Federation of Public Health Officials at its annual meeting in Columbus, May 20, and Dr John J. Sutter, Wooster, was installed as president. Dr Willoughby D. Bishop, Greenville, was reelected secretary-treasurer. Dr Henry Kennon Dunham, Cincinnati, president, and all other officers of the Ohio Public Health Association were reelected at the annual meeting of the group on May 21 in Columbus.

### PENNSYLVANIA

**Third and Twelfth Districts in Joint Meeting**—A joint meeting of the Third and Twelfth councilor districts of the state medical society was held in Sayre on June 24. The program opened with a surgical clinic at the Robert Packer Hospital, Sayre, conducted by Dr Donald Guthrie, Sayre, and associates. Among the speakers on the program were:

- Dr Paul H. Harmon, Fresno, Calif., Surgical Treatment of Osteoarthritis of Hip Joint
- Dr Frederic W. Bineroft, New York, Treatment of Acute Dermatitis
- Dr Abraham H. Aaron, Buffalo, Important Medical Measures in the Management of Gastrointestinal Diseases
- Dr William L. Estes, Bethlehem, Present Problems of Procurement and Assignment
- Major Gerald N. Fluegel, M. C., U S Army, Philadelphia, The Physician in War Time
- Dr Lewis T. Buckman, Wilkes Barre, Round Up of State Society Activities
- Dr Robert L. Anderson, Pittsburgh, Postgraduate Opportunities
- Dr Chauncey L. Palmer, Pittsburgh, Health Legislative Problems

Following a luncheon, fifty year testimonial certificates were presented to Drs William E. Keller, Scranton, David H. Ludlow, Easton, Walter M. Reedy, Dalton, and John G. Wilson, Factoryville.

### Philadelphia

**Chief Physician of Harvard Unit in England**—Dr Alexander J. Steigman, member of the staff of the University of Pennsylvania School of Medicine, has been appointed chief physician to the American Red Cross Harvard Field Hospital Unit in England. He was also given a concurrent appointment of instructor in pediatrics and preventive medicine in the Harvard Medical School, Boston. Dr Steigman graduated at

Temple University School of Medicine in 1938. In May 1941 he went to England as a member of the Red Cross Harvard Hospital Unit, where he has been working in the prevention and control of infectious diseases, operating a mobile team from the one hundred and twenty-five bed hospital base somewhere in England.

**Faculty Changes at Jefferson**—Included among the recent changes at Jefferson Medical College of Philadelphia are:

- Dr Robert A. Reimann, appointed acting head of the department of experimental medicine
- Dr Baldwin L. Keyes, professor of psychiatry
- Dr Martin E. Rehfuss, Sutherland M. Prevost, lecturer in therapeutics in the department of medicine
- Dr Clifford B. Lull, clinical professor of medicine
- Dr Garfield G. Duncan, clinical professor of medicine
- Dr William J. Harrison, associate professor of ophthalmology
- Dr David R. Morgan, associate professor of pathology
- Dr Robert A. Matthews, associate professor of psychiatry
- Dr William H. Schmidt, associate professor of physical therapy
- Dr Mario A. Castallo, assistant professor of obstetrics
- Dr Arthur First, assistant professor of obstetrics
- Dr Robert A. Groff, assistant professor of neurosurgery
- Dr Reynold S. Griffith, assistant professor of medicine

### RHODE ISLAND

**State Medical Election**—Dr Charles F. Gornly, Providence, was elected president of the Rhode Island Medical Society at its annual meeting, May 21. Drs Murray S. Dunforth, Providence, and Elihu S. Wing, Providence, are vice presidents and Dr William P. Buffum, Providence, was reelected secretary. The next annual session will be held at Providence, June 2-3, 1943.

**Meeting of Pathologists**—The Rhode Island Society of Pathologists held its annual meeting of the current season at the Memorial Hospital, Pawtucket, June 19, to hear the following program: Drs John F. Kenney, Pawtucket, "How a Tumor Clinic Should Function", George Raymond Fox, East Providence, "Indications for Treatment with Radium", and Emanuel W. Benjamin, Providence, "Indications for Treatment with X-Ray Therapy". Drs Benjamin Earl Clarke, Providence, and Louis Goodman, Harvard, were reelected president and secretary, respectively.

### TEXAS

**Gifts to State Society's Library**—Dr and Mrs Neil D. Bure, Marlin, recently established a fund in their name for the Texas Memorial Medical Library Association with a gift of a \$1,000 war defense bond. Dr Preston Hunt, Texarkana, has increased the Hattie Preston Fund, established by him last year in memory of Mrs. Hunt, from \$600 to \$1,000. This fund is also used for library activities.

**State Medical Election**—Dr Charles S. Venable, San Antonio, was chosen president-elect of the State Medical Association of Texas during its recent annual meeting in Houston and Dr Judson L. Taylor, Houston, was installed as president. Vice presidents are Drs Robert B. Homan Jr., El Paso, William Howard Wells, Waco, and Hubert H. Cartwright, Breckenridge. Dr Holman Taylor, Fort Worth, was reelected secretary. San Antonio was chosen as the place for the 1943 meeting.

**Changes in Health Officers**—Dr Elbert Goolsby was recently appointed health officer of Paris. Dr Fred W. Sutton was placed in charge of the health department of Beaumont, succeeding Dr Charles Hugh Todd Jr., Beaumont, resigned. Dr William G. Carnathan, Henderson, has been appointed health officer of Rusk County, succeeding Dr Jesse E. Ross, Henderson, who has accepted a commission in the U S Navy. Dr Robert L. Cherry, Austin, has resigned as field director of local health services with the state department of health to become director of the Harris County Health Department.

### WISCONSIN

**Changes in Health Officers**—Dr Garret J. Ihmanen, Kaukauna, has been appointed city health officer to succeed Dr Charles D. Boyd. Dr Herman M. Lynch is health officer of West Bend, filling the vacancy that occurred when Dr Willibald J. Wehle resigned. At a meeting of the Cudahy Board of Health on April 27 Dr Sarkis H. Kashanian named health commissioner.

**Dr Ziegler Succeeds Dr Sleyster at Wauwatosa**—Dr Lloyd H. Ziegler, associate director of the Milwaukee Sanitarium, Wauwatosa, has been appointed medical director of the sanitarium to succeed the late Dr Rock Sleyster. Dr Ziegler graduated at the University of Minnesota Medical School at Minneapolis, and in 1931 was professor of neuropsychiatry at Albany Medical College, New York.

## GENERAL

**Examinations in Obstetrics and Gynecology**—The American Board of Obstetrics and Gynecology announces that the next written examination and review of case histories (part I) for all candidates will be held in various cities of the United States and Canada on Feb 13 1943. Candidates who successfully complete the part I examination proceed automatically to the part II examination held later in the year. Effective this year there will be only one general classification of candidates all now being required to have been out of medical school not less than eight years having in that time completed an approved one year general rotating internship and at least three years or approved special formal training or its equivalent in the seven years following the intern year. All candidates must be citizens of the United States or Canada before being eligible for admission to examination. All candidates will be required to take the part I examination, which consists of a written examination and the submission of 25 case history abstracts and the part II examination (oral-clinical and pathology examination). The part I examination will be arranged so that the candidate may take it at or near his place of residence while the part II examination will be held late in May 1943 in that city nearest to the largest group of applicants. Time and place of the latter will be announced later. Further information may be obtained from Dr Paul Titus, secretary, 105 Highland Building, Pittsburgh.

**Special Society Elections**—Dr Clyde L. Denning, New Haven Conn., was chosen president-elect of the American Urological Association at its annual executive session on June 3 in New York and Dr Cyrus E. Burford, St. Louis was installed as president. Drs Thomas D. Moore, Memphis Tenn., and Herbert H. Howard, Boston, are secretary and treasurer, respectively. Dr Wilder G. Penfield, Montreal Que., was elected president of the American Branch of the International League Against Epilepsy in Boston May 18. Dr Charles D. Aving, Cincinnati, vice president and Dr Frederic A. Gibbs, Boston, secretary-treasurer. Dr Ernest Sachs, St. Louis, was elected president of the American Neurological Association at its annual meeting in Chicago, June 6, and Dr Henry A. Riley, New York, was reelected secretary. Dr Arthur Bruce Gill, Philadelphia, was chosen president-elect of the American Orthopaedic Association at its annual meeting in Baltimore, June 6, and Dr Frank R. Ober, Boston, was installed as president. Dr Charles W. Peabody, Detroit, was reelected secretary. At the annual meeting of the American Otolaryngological Society in Atlantic City May 29, Dr Wesley C. Bowers, New York, was chosen president and Dr Isadore Friesner, New York, was reelected secretary. Dr Walter E. Vest, Huntington W. Va., was elected president of the American Therapeutic Society at its annual meeting, June 6 and Dr Oscar B. Hunter, Washington D. C. was reelected secretary. Dr Eugene M. Landis, Charlottesville Va., was elected president of the American Society for Clinical Investigation during its meeting in Atlantic City N. J. May 4. Dr Frank L. Horsfall Jr., New York, was named vice president, Dr Wesley W. Spink, Minneapolis, secretary, and Dr Charles A. Janeway, Boston, treasurer.

**Life Expectancy Reaches All Time High in 1941**—The *Statistical Bulletin* of the Metropolitan Life Insurance Company reports that the average length of life as computed on the basis of mortality among the company's industrial policyholders in 1941 was 63.42. This establishes an all time high for the sixty years for which the company has been recording this information. The estimated life expectancy for the period 1879-1889 was about 34 years. The report points out that one aspect of the improvement is that the average industrial policyholder at age 35 today still has as many years of life before him as the child in the wage earning family of 1879-1889 had at the time of its birth. Through the entire period the expectation of the life of white persons has always exceeded that of Negroes by a considerable margin. The current figures (1941) at age of 5 are 60.33 years for white males and 55.63 years for Negroes. For females the corresponding figures are 64.99 for the white and 57.71 for Negroes. For Negro males ages 15 to 33 the mortality rates are more than twice those for white males. In the case of females the ratio of Negro to white mortality is more than two to one at each age from 12 to 49 years, in fact at ages 15 to 24 the ratio is more than three to one. Children in wage earning families experienced exceptionally low mortality rates in 1941. For example mortality rates of less than 1 per thousand were experienced by white females at ages from 8 to 13 by white females at ages from 5 to 18 and by Negro females at ages 8 to 11. The lowest mortality rate experienced by Negro males was at

age 9 namely, 1.13 per thousand. In the case of white persons, mortality among men is greater than among women at each age of life, but among Negroes the rate for females is higher than that for males at ages from 15 to 24 years. This situation arises mainly from the much greater incidence of disorders of pregnancy and childbirth among Negro women as compared with white women.

**Providence Medical Association to Help Members in Military Service**—In a special issue devoted to military medical matters, *Medical News*, published by the Providence Medical Association outlines a plan whereby the accounts left behind by doctors who go into active military service will be looked after at a minimum expense of collection. By this plan the doctor called into military service would submit his collectable personal medical accounts to the office of the Providence Medical Association which will analyze them before the doctor leaves for service and in most cases would restrict the accounts to those not more than six months due. A special letter signed by the doctor would be sent to each patient stating that the doctor has entered the military service and requesting that payments on account be made through the executive office of the Providence Medical Association. Later a statement would be mailed from the association on a billhead bearing the doctor's name to indicate the balance due and to urge prompt payment as an expression of the patient's appreciation of the doctor's patriotic response to his country's call. Thereafter for a specific period statements will be mailed monthly, and accounts failing to respond would be turned back to the doctor for his personal disposition. The association would also make payments monthly to the person designated by the doctor. The executive office of the Providence Medical Association extends this service on a cost basis to its members in good standing who are in active military service. The service charges will cover only the cost of mailing the statements and that of secretarial work. This special issue of *Medical News* contains brief statements by the governor of Rhode Island, the mayor of Providence, the president of the Rhode Island Medical Society, the president of the Providence Medical Association and high ranking officers of the army and navy expressing appreciation of the patriotism of the doctors from Providence who have already entered the military service and pointing out to those who have not yet done so that the need for additional doctors for the armed forces is especially urgent at this particular time.

**Tire Rationing Regulations**—So serious is the situation as regards rubber available for tires that the Office of Price Administration has made new regulations regarding the rationing of tires for motor cars of persons in the medical and religious professions. The regulations follow.

## OFFICE OF PRICE ADMINISTRATION

An amendment to the tire rationing regulations which tightens requirements in some respects and extends eligibility for tires to certain automobile users heretofore not provided for has been issued by the Office of Price Administration. The amendment:

1. Requires that a vehicle operated by a physician, surgeon, farm, veterinary or practicing minister to be eligible for tires and tubes must be used exclusively for professional services or religious duties instead of principally as heretofore.

2. Makes licensed chiropractors and osteopaths eligible under the same conditions as apply to doctors of medicine.

3. Extends the eligibility of ministers to any religious practitioner qualified to administer to the religious needs of the members of a congregation.

4. Changes the designation of nurses eligible for tires from visiting nurse to public health nurse.

5. Extends eligibility for recapped or obsolete new tires to public school officials and teachers for necessary transportation between schools.

The eligibility standards for doctors and ministers have been changed to require that applicants must show that the vehicle on which a tire or tube is to be mounted is necessary because there is no other practicable means of transportation. Heretofore the requirement was a showing that the car was needed and used in making professional calls. Even under the new standards however if it is necessary for the applicant to answer emergency calls as a part of his professional practice he may have issued a certificate to enable him to use his car between his home, his office and hospitals.

In making osteopaths and chiropractors eligible under the same conditions as apply to physicians the OPA recognized that there are substantial numbers of people who rely solely on the treatments of such practitioners.

The term public health nurse instead of visiting nurse was adopted to define more accurately the type of nursing service that makes an applicant eligible. Eligibility is not extended to any group not covered heretofore. The new term includes school nurses employed by boards of education for work with school children, visiting nurses employed by groups such as public health nursing associations, health department nurses, county nurses and industrial nurses all of whom are employed for the purpose of making nursing or inspection calls for such agencies.



By the change in the section dealing with ministers, eligibility is extended to qualified practitioners of religious groups, such as the Christian Science Church, under the same requirements as apply to other ministers.

Public school officials and teachers are given eligibility for recapped tires or obsolete new tires only when they need automobiles to get them from one school to another in areas where there is no other practicable means of transportation. The vehicles must be used principally for this purpose or other eligible purposes. Certificates will not be issued to any teacher or official whose duties are performed wholly at one school, as the purpose of the amendment is to make tires available to teachers who conduct classes in several schools, and to supervisors who cannot meet the requirements of their positions without them.

Amendment 17, which makes the revisions, becomes effective July 1 (Document 1614)

## TITLE 32—NATIONAL DEFENSE

### CHAPTER XI—OFFICE OF PRICE ADMINISTRATION

Part 1315—Rubber and Products and Material of Which Rubber is a Component

Amendment No. 17 to Revised Tire Rationing Regulations (7 F R 1027, 1089, 2106, 2107, 2541, 2633)—Tires and Tubes, Retreading and Recapping of Tires, and Camelback

Section 1315 405 (a) and (b) are amended to read as follows and a new subparagraph (9) is added to section 1315 504 (a), as set forth below

#### Tires and Tubes for Vehicles Eligible Under List A

##### Section 1315 405 Eligibility classifications List A

(a) (1) A vehicle operated by a physician, surgeon, osteopath, chiropractor, farm veterinarian or public health nurse, which is necessary for the performance of professional duties and is used exclusively for such purpose

(i) The board may issue certificates under this paragraph only to physicians, surgeons, osteopaths, chiropractors or farm veterinarians who are licensed by the appropriate governmental agency or to public health nurses, if the use of a motor vehicle is necessary for the performance of their professional duties because of the nature of such duties and the absence of other practicable means of transportation

(ii) No certificate shall be issued under this paragraph unless the applicant shows that the motor vehicle on which the tire or tube is to be mounted is used exclusively for his professional duties. If the applicant's professional practice requires his answering emergency calls, the board may issue certificates to enable the applicant to use his vehicle for transportation between his home and his office or a hospital, even though other practicable means of transportation are available

(iii) For the purpose of this paragraph, "public health nurse" shall mean a nurse who is employed by a clinic, hospital, government agency or similar organization, or by an industrial concern, to make nursing or inspection calls for such agencies. The term "public health nurse" does not include private nurses

(b) (1) A vehicle operated by a regularly practicing minister of any religious faith who serves a congregation or any religious practitioner qualified to administer to the religious needs of the members of a congregation, if such vehicle is necessary for the performance of his religious duties because of the absence of other practicable means of transportation and is exclusively used for such purpose

(i) No certificate shall be issued under this subparagraph unless a motor vehicle is necessary to enable the applicant to perform the religious duties required under the beliefs of his church because of the absence of other practicable means of transportation and is used exclusively for such purpose

LEON HENDERSON,  
Administrator

## Government Services

### Dr Bolten in Charge of Quarantine Activities at Puerto Rico

Dr Joseph S Bolten, medical director, U S Public Health Service, has been relieved at Boston and assigned to San Juan, P R, to assume charge of quarantine and relief activities there and to serve as director of Public Health Service District No 6. He will also serve as liaison officer between the Puerto Rican Health Department, U S Army, Public Health Service and Insular Health Departments

### Changes in Department of Agriculture

Stanley B Fracker, Ph D, chief of the division of plant disease control of the Bureau of Entomology and Plant Quarantine, U S Department of Agriculture, has been appointed research coordinator on the staff of Eugene C Auchter, Ph D, agricultural research administrator. Dr Fracker will coordinate research dealing with plant diseases and insects affecting plants and animals and review plant pest control programs. He will be succeeded in the division of plant control by James F Martin, Ph D. All are of Washington, D C

### Entomologist Retires

Lon A Hawkins, Ph D, Washington, D C, is retiring as head of the division of control investigations in the bureau of entomology and plant quarantine, the U S Department of Agriculture announces. Curtis P Clausen, M S, Washington, D C, head of the division of foreign insect parasite introduction, will take over the work of the division of control investigations in addition to his parasite work until permanent arrangement are made for administration of this activity. Dr Hawkins has been with the department of agriculture for thirty-five years

### New Section on Foreign Health Relations

The Surgeon General of the U S Army has established a section on foreign health relations in the division of foreign and insular quarantine, placing Medical Director Charles V Akim, Washington, D C, in charge. According to the *Military Surgeon*, the new section aims to establish and maintain liaison with the department of state, Pan American Sanitary Bureau, offices of the surgeon general of the army and of the navy and other agencies for the proper collection and routing of information on foreign health and medical problems, including information on bacteriologic warfare

### Dr Armstrong Joins Public Health Service

Dr Donald B Armstrong, third vice president of the Metropolitan Life Insurance Company in charge of health and welfare work of policyholders, New York, has been appointed a senior surgeon in the reserve corps of the U S Public Health Service. Dr Armstrong's appointment to the public health service reserve is on a basis of inactive status, without compensation, barring major emergencies calling for additional aid of physicians with public health training. For the time being, he is assigned to his present task in connection with the public health, nursing, educational and medical research activities of the Metropolitan's welfare division

### Industrial Hygiene for Federal Employees

At the request of the Federal Council of Personnel Administration, the Division of Industrial Hygiene has completed a survey of the dispensaries and hygiene services in federal departments located in Washington, D C. These dispensaries for the most part are established and administered by the departments and bureaus concerned. It was found that of eighty-five dispensaries employing one hundred and fifty-five nurses, not more than twenty were under the supervision of a physician. Functions, activities, number of personnel and physical equipment varied widely. In no government agency was there found a comprehensive program of environmental and personal hygiene and preventive medicine such as is recommended for private industry.

These findings, with recommendations for establishment of a modern employees' health program in federal agencies, were forwarded by the Surgeon General of the U S Public Health Service to the Council of Personnel Administration on June 2. The over-all recommendations called for improvement in organization, personnel, utilization of space and equipment in the dispensaries with the provision that all should be operated under medical supervision. Specific recommendations for the program included

- 1 A good preplacement examination, including a chest roentgenogram as a serodagnostic test for syphilis, urinalysis and other laboratory studies as indicated
- 2 Treatment of minor medical emergencies including dental services and referral of serious cases to private physicians
- 3 Psychiatric consultation in cases of minor emotional disturbance and of serious mental illnesses
- 4 Nutrition consultant services both for government employees and for consultation on special individual problems, such as obesity, underweight and diabetes
- 5 Elimination or control of environmental hazards such as poor lighting, gross overcrowding and defective ventilation, including vision of air conditioning
- 6 Systematic reporting and recording of absenteeism, including comparison of absenteeism in the several agencies
- 7 Promotion of health education

It was further recommended that the Public Health Service be given the responsibility for organizing and supervising a program in order to secure uniform services of high quality for the two hundred and fifty thousand federal employees around Washington. The special consultant services will be provided by the Public Health Service



## Foreign Letters

### LONDON

(From Our Regular Correspondent)

MAY 23, 1942

#### Army Convalescent Depots

Army convalescent depots are maintained for the reception of soldiers who require no further active treatment and are likely to become fit for duty within a short period. The aim is to hasten convalescence and harden by graduated exercises under medical supervision. Much experience was gained in running these depots in the last war. The establishment then was for 2,000 patients per depot. In summer they can be accommodated in tents and marquees, but huts or buildings have to be used in winter. The men go through a graded training so as to fit them for duty on discharge. If a patient relapses, he is returned to the hospital. One who cannot be made fit to return to full duty may be brought before a medical board to decide whether to discharge him from the army or lower his medical category so that he can be employed on duties for which he is capable.

In this war the cases dealt with have been among men convalescing from sickness, convalescing from operations performed to make them fit for service or convalescing from the French and Norwegian campaigns and a considerable number of French, Polish, Czech, Dutch and Belgian soldiers evacuated to this country. The treatment includes physical training to inculcate rhythm, balance and mental alertness as well as to exercise the muscles, organized games with instructors, intellectual amusement, talks and lectures. Classes in mathematics and languages are established. Psychiatrists deal with neuroses.

#### Civilian Protection Against Poison Gas

Every civilian is provided with a respirator for protection against poison gas and special ones have been provided for infants. At the time of the air raids respirators were regularly carried, but with their almost complete cessation masks are seldom seen in the streets. However, after the statement that an attack with poison gas on the Russians is projected, people are warned by the government to test their respirators and see that they are in order. A steady overhaul of anti-gas precautions has taken place in the last few months. Local authorities and civil defense workers have been busy checking and examining respirators issued to civilians. Great importance is attached to the injunction to practice wearing masks for a short time each day. It has been found that some masks have become faulty, mainly because the owners screwed them into containers they were never intended to fit. The warning is given again 'Always carry your gas mask.' Some concern has been expressed as to the possible discovery and use by the enemy of some new and more deadly gas. But an official of the Ministry of Home Security has stated that there is no gas known to scientists as a possible war gas against which the civilian respirators are not a protection.

#### Medical Women Demand Equality with Men in the Fighting Services

This war is remarkable for the extent to which women's services are used, though not except perhaps in Russia in the actual fighting. Women physicians are being employed, but their old demand for equality with men is giving rise to some trouble. In a letter to the medical press the president of the Medical Women's Federation, Dr Clara Stewart, states that they are most anxious that women should respond to the appeal for doctors in the fighting forces, but the federation is profoundly disturbed that the established principle of complete equality with men is infringed. When a medical man receives a commission in the fighting services it is argued that he is a

soldier as well as a doctor, that he may be asked to carry out combatant duties, and he is given general disciplinary powers. A medical woman is offered a commission in the women's forces for service with the medical corps. It is argued that there is no authority for offering her a commission in the medical services, that she cannot have disciplinary powers and combatant duties.

The president says that her letter is not the place to enter into the validity of these arguments and admits that women doctors are in complete equality with men as regards pay and allowances and have "relative rank", also that as a rule they work happily under their commanding officers and receive fair and just treatment. But the federation holds that they suffer a definite handicap. They are not members of any service and have no settled status. Regulations peculiar to them may be made at any time. The federation is strongly of the opinion that to grant women commissions in the medical service would promote greater efficiency and stability. This would insure a recognized status and the protection of a professional body having defined conditions and established precedents. The present inequality is a retrograde step contrary to the principles accepted as fundamental by the British Medical Association. The federation therefore advises medical women to accept "relative rank" for the time being, but not to accept commissions in the women's forces, which would permanently put them in a separate category from their male colleagues.

#### Closing of Medical Posts in London's Air Raid Shelters

During the period of air raids on London two hundred and three medical air raid posts, attended by physicians and three hundred and ninety nurses, were maintained by the Ministry of Health. The main object of this medical service, which has been in existence since the winter of 1940, was to prevent the spread of infectious disease. Now that the most dangerous season for epidemics has passed and with the cessation of air raids on London for nearly a year the number of persons who regularly sleep in air raid shelters has fallen to eight thousand six hundred, an average of forty-three per medical aid post. The Ministry of Health has therefore closed nearly all these posts. Those in shelters regularly used by more than five hundred persons will remain open.

#### Avascular Necrosis in Fractures and Other Lesions of Bone

At the Section of Radiology of the Royal Society of Medicine Mr. Watson-Jones opened a discussion on avascular necrosis in fractures, dislocations, Perthes disease, congenital necrosis and monarticular osteoarthritis of the hip. The femoral head derived its blood mainly from the capsular vessels. Rupture or thrombosis of these arteries producing avascular necrosis was the pathologic condition found in degenerative arthritis after fracture of the neck of the femur, traumatic dislocation and epiphyseal displacement. It was also the condition found in Legg-Perthes disease and probably in many cases of unexplained monarticular arthritis of the hip. In nailed fractures of the femoral neck there were five radiographic signs of avascular necrosis. 1 Within a few weeks the head appeared relatively dense because it did not participate in disuse decalcification. But this sign was masked by early junctional activity, which minimized the effect of disuse. Films should therefore be taken at the sixth, eighth and tenth weeks. In one film showed a dense head, the blood supply was impaired and necrosis would supervene. 2 Within a few months the nail showed increasing penetration of the head, especially in weight bearing was permitted. 3 After several months the nail ploughed upward and forward through the head, necrosis was more complete and the nail must be removed and bisection osteotomy performed. 4 After six to twelve months union of

the fracture was incomplete despite successful and accurate nailing. If the nail had been inadvisedly removed and displacement had recurred, renailing was not indicated, a bifurcation osteotomy was better. 5 After several years, degenerative arthritis proved that the head was avascular, even if earlier signs had been overlooked.

Avascular necrosis developed in about 30 per cent of fractures of the femoral neck treated with operative reduction which damaged capsular vessels and in about 15 per cent of fractures treated by extra-articular nailing. The nail itself played no part, necrosis was no less frequent and no less severe when it was not used. Necrosis occurred in over 30 per cent of recent dislocations and in nearly 100 per cent of overlooked dislocations where operative reduction and capsular dissection were necessary. Legg-Perthes disease was an avascular necrosis of the upper femoral epiphysis, which might be due to fracture of the neck in children, traumatic dislocation of the hip with rupture of the capsule in children, operative reduction of a congenital dislocation with dissection of the capsule, any operation on the hip which involved capsular injury, or any thrombosis or embolism of capsular vessels. Treatment by immobilization in plaster was worthless. Coxa plana could be avoided and a normal contour of the head preserved by traction and recumbence for one or two years. But the regenerated articular cartilage was likely to be imperfect and a late arthritis might supervene. The frequency of osteoarthritis of the hip joint was due to the precarious blood supply of the femoral head, the vulnerability of the capsular vessels and their lack of anastomosis with other vessels. Osteoarthritis of the hip joint was the adult form of Legg-Perthes disease.

#### Czechoslovak Medical Journal Published in London

The historic role of England as a refuge from persecution on the continent of Europe has never been so great as it is today. We have now colonies of the inhabitants of almost every European nation, refugees from German barbarity. In large numbers they have joined our fighting forces, and their uniforms are a common sight in the streets. These nations have their own clubs and other organizations here. As reported previously in *THE JOURNAL*, a Polish university has been formed within the confines of Edinburgh University, and the Royal College of Surgeons has examined Czech students for their diplomas. The Czechs are now publishing a medical journal in London, the *Bulletin of the Czechoslovak Medical Association in Great Britain*. In the first number, which is entirely in English, there is a foreword by Lord Horder, who says that medicine knows no racial distinctions and recognizes no geographic boundaries. The paralysis of its advance is one of the most serious effects of Germany's crime committed against civilization. But the pages of this journal show that the spirit of colleagues who in this country keep the flame of learning and healing alight cannot be killed.

Dr Karel Machacek, director of the department of public health of the Czechoslovak Ministry of Social Welfare, describes its work in Britain. Shortly after the Czechoslovak government was formed in London a department of public health was set up under this ministry. The temporary separation from their territory ruled out many branches of their activities, but the members of the department were able to acquire much knowledge of the public health system of a great country, which will be valuable for the restoration in free Czechoslovakia. The hardships of the refugees, the sudden change of climate, different food and social conditions and anxiety produced a morbidity among civilians as high as 25 per cent. Medical care is carried out in cooperation with the Czechoslovak Red Cross, which has a well equipped clinic with social workers. Soldiers invalided out of the Czechoslovak army form a separate group. In addition to allowances and medical attention they are supplied

with artificial limbs. Hospital accommodation has been provided through the generous cooperation of the English hospitals. The department has helped in obtaining employment for the two hundred and fifty Czechoslovak physicians in Britain. As Czechoslovakia will be in need of physicians after the war and all its universities have been closed, it is important that Czechoslovak undergraduates living here should complete their studies. Thanks to the British medical schools, many are now completing their interrupted studies. Efforts are also being made to train the greatest possible number of nurses, who will also be required when they go home.

Dr Oscar Khinger, medical director of the Czechoslovak Red Cross in London, describes the work in Britain. It now maintains an extensive clinic with special departments for diseases of the eye, ear, nose and throat and of the skin. Dr F Horowitz describes the welfare work of the Refugee Fund. The work of the Czechoslovak physicians in Britain is outlined. Soon after arriving, application was made by them for leave to settle here. The majority of those in Britain are now employed. The demand for Czech physicians in the merchant navy now exceeds the supply. The number concludes with an account of health services and social insurance in the Czechoslovak republic.

#### Age and the Council of the Royal College of Surgeons

In a joint letter which has appeared in the medical press a number of the younger surgeons, in view of the forthcoming election to the council of the Royal College, call attention to the fact the average age of its members is over 62 years and three are septuagenarians. In their view the council needs reinforcement with younger surgeons to help to shape its policy in these anxious times. A fellow is elected to the council for a first term of eight years, and it is the custom that he should serve a second, making sixteen years in all. Of late there has been an increasing tendency for members of the council to seek a third term. The signatories regard this as harmful, as it increases the number of septuagenarians and delays the successful candidature of men of the right type and age, so that they either abandon their hopes or have to apply when already too old. In the present election two members of the council are offering themselves for a third term, while other candidates are of such an age that the end of the first term will bring them near 65. The trend of affairs shows that the profession must face complex problems in the reorganization of the whole structure of our professional lives and our relation to the state. Those who have to live and work in the new world should help to fashion it. Hence the need for younger men on the council.

There is force in these arguments, but something can be said on the other side. The government of the college is and always has been excellent under the present system. The elders of the council are some of the most eminent men in the profession and are fully competent for their duties. It is well known that in eminent men the mental faculties are often well preserved late in life.

#### Marriages

GABEL G HIMMELWRIGHT JR, Newport News, Va., to Miss Margaret Elizabeth Hodges of Washington, N. C., in April.

CHARLES J DONALD JR, Fairfield, Ala., to Miss Maude Medler of Seattle in Rochester, Minn., April 12.

CHARLES H POOLE JR to Miss Nancy Cleveland, b. at Spartanburg, S. C., April 6.

EDWARD G SCHOTT to Miss Barbara Allman, both of Springfield, Wis., March 28.

FLOYD THOMAS BOUDREAU to Miss Margie Sellers, both of Mobile, Ala., recently.

## Deaths

Marcus Ward Lyon Jr. ♂ South Bend, Ind. Columbian University Medical Department, Washington D. C. 1902, instructor of bacteriology at the North Carolina Medical College Davidson 1897-1898, assistant professor of physiology, 1903-1904 and from 1907 to 1909 and professor of bacteriology from 1909 to 1915 Howard University, Washington, D. C. professor of bacteriology and pathology from 1915 to 1917 and professor of veterinary zoology and parasitology, 1917-1918 George Washington University, Washington, certified by the American Board of Pathology, Inc. member of the American Association of Pathologists and Bacteriologists, Society of American Bacteriologists, American Society of Clinical Pathologists, American Society of Parasitologists, American Ornithologists Union, Washington Academy of Sciences and the American Society of Tropical Medicine, past president of St. Joseph County (Ind.) Medical Society, secretary of the Biological Society of Washington from 1915 to 1919, past president of the American Society of Mammalogists, past president and treasurer of the Indiana Academy of Science, aide, later assistant curator division of mammals U. S. National Museum, Washington, from 1898 to 1912, served during World War I pathologist Walter Reed General Hospital Washington, from 1917 to 1919 pathologist South Bend Clinic author of 'Mammals of Indiana', aged 67, was found dead, May 19, of coronary disease.

Henry Dwight Chapin ♂ Bronxville, N. Y., College of Physicians and Surgeons medical department of Columbia College New York 1881 chairman of the Section on Diseases of Children, American Medical Association 1912-1913, emeritus professor of pediatrics at the New York Post-Graduate Medical School and Hospital founder of the Speedwell Society charter member and in 1910 president of the American Pediatric Society in 1933 received a medal from Columbia University for outstanding contributions to problems relating to the care of children and as a pioneer in hospital social service, formerly member of the board of directors of the New York Post-Graduate Medical School and Hospital and chairman of its social service committee formerly supervising physician of the children's department, New York Post-Graduate Hospital attending physician at the Willard Parker and Riverside hospitals consulting physician to the Randall's Island Hospital St. Agnes Hospital at White Plains Convalescent Home for Children at Sea Cliff and the Hackensack (N. J.) Hospital co-author with Dr. L. T. Royster of 'Pediatrics' and with Dr. G. R. Pisek of 'Diseases of Children' author of 'Theory and Practice of Infant Feeding' and 'Heredit and Child Culture' aged 85 died, June 27.

Maximilian John Hubeny ♂ Chicago Hahnemann Medical College and Hospital Chicago 1906 College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois 1909 certified by the American Board of Radiology secretary of the Section on Radiology of the American Medical Association from 1923 to 1926, member of the American Roentgen Ray Society member and past president of the Radiological Society of North America Chicago Roentgen Society and the American College of Radiology fellow of the American College of Physicians professor of roentgenology and chairman of the department Cook County Graduate School of Medicine chief of the x-ray department Cook County Hospital formerly roentgenologist Henrotin Hospital and the Municipal Tuberculosis Sanitarium, formerly editor of *Radiology* and associate editor of the *American Journal of Cancer* *Italian Journal of Radiology* and the *Cuban Journal of Radiology* in 1931 was awarded a gold medal by the Radiological Society of North America for research aged 61 died July 2.

Roy Knight Flannagan, Richmond Va. University of Virginia Department of Medicine Charlottesville, 1894, formerly health officer of Charlottesville director of inspection state health department in 1910 in 1915 assistant state health commissioner health commissioner of Richmond 1917-1918 appointed director of the rural health work venereal disease control and tuberculosis outpatient service, state health department in 1919 since 1932 assistant commissioner of health on detail duty in connection with medical service in local prisons with the title of medical adviser state department of public welfare past president of the State Conference of Charities and Corrections and formerly secretary of the Virginia Tuberculosis Association member of the Medical Society of Virginia Richmond Academy of Medicine Southern Medical Association American Association for the Advancement of Science American Public Health Association, American Geographic Society and the American Prison Association aged 71 died, June 17.

Edson Brady Fowler ♂ Evanston, Ill., Northwestern University Medical School Chicago 1896, instructor in clinical medicine at his alma mater from 1898 to 1911, member of the Clinical Orthopaedic Society and the American Academy of Orthopaedic Surgeons, fellow of the American College of Surgeons and the Institute of Traumatic Surgery president of the Evanston Branch of the Chicago Medical Society, 1927-1928 major in the medical corps of the U. S. Army during World War I, during which time he was chief orthopedic surgeon at Camp Shelby, Miss. and Fort Sheridan, Ill. formerly president of the staff and for many years chief of the department of fractures and orthopedic surgery at St. Francis Hospital where in 1940 he was placed on the emeritus staff, aged 77, died June 22, of cerebral hemorrhage.

Charles Howard Evans Sr., Waddington, N. Y., Syracuse University College of Medicine 1909 health officer of the town of Waddington, formerly member of the health department of Syracuse, served during World War I, at one time on the staffs of the Crouse Irving and Psychopathic hospitals at Syracuse Lewis County Hospital at Lowville and the House of the Good Samaritan at Watertown aged 59, died, May 10 in the A. Barton Hepburn Hospital Odensburg of a cellulitis of the neck and mediastinum caused by hemolytic *Staphylococcus aureus*.

Irwin Hoffman Neff ♂ Detroit, University of Maryland School of Medicine, Baltimore, 1889, member of the American Psychiatric Association, formerly assistant physician at the Kalamazoo (Mich.) State Hospital and on the staff of the Pontiac (Mich.) State Hospital, at one time superintendent of the Foxboro (Mass.) State Hospital, on the staff of the Grace Hospital served as major in the medical corps of the U. S. Army during World War I, aged 73, died, May 11 in St. Joseph's Mercy Hospital.

Saul Joseph Selkin, New York Albany Medical College 1910 member of the Medical Society of the State of New York, certified by the American Board of Otolaryngology formerly instructor and associate in otolaryngology at the New York Post-Graduate Medical School and Hospital assistant attending otolaryngologist to the New York Post-Graduate Hospital and Dispensary, aged 58 died April 20, in Tucson Ariz. of hemorrhage from erosion of right internal carotid artery.

August Edward Gerhardt ♂ Wenatchee, Wash., Northwestern University Medical School Chicago 1909 member of the Pacific Coast Surgical Association fellow of the American College of Surgeons certified by the American Board of Surgery served as a major during World War I, lieutenant colonel in the medical officers reserve corps assistant division surgeon Great Northern Railroad, on the staff of the Central Washington Deaconess Hospital aged 59, died, May 3.

George Arthur Reed ♂ Erie Pa. University of Pennsylvania Department of Medicine Philadelphia 1895, for many years president of the Erie County Health and Tuberculosis Association, member of the board of health of Erie formerly member of the board of trustees of the Warren (Pa.) State Hospital member of the advisory board of the Erie County Tuberculosis Hospital on the staff of St. Vincent's Hospital, aged 73 died May 12.

Minnie Celia Tucker Love, Denver Howard University College of Medicine, Washington D. C., 1887, member of the Colorado State Medical Society formerly member of the state board of health, at one time member of the state house of representatives formerly member of the city board of education served on the staff of the Florence Crittenton Home aged 86 died May 12, in the Presbyterian Hospital.

Glenn Grieve, Big Rapids, Mich. University of Michigan Medical School Ann Arbor 1918 member of the Michigan State Medical Society, at one time secretary of the Mecosta County Medical Society, formerly member of the school board until recently chairman of the county draft board on the staff of the Community Hospital aged 62 died, May 3.

James Beaty Griffith ♂ Washington D. C. University of Tennessee College of Medicine Memphis 1918, member of the American Academy of Ophthalmology and Otolaryngology certified by the American Board of Ophthalmology staff surgeon of the Episcopal Eye, Ear and Throat Hospital, aged 51, died, May 6 of a self-inflicted bullet wound.

James Patrick Glynn, Brooklyn College of Physicians and Surgeons medical department of Columbia College New York 1894 fellow of the American College of Surgeons consulting obstetrician and gynecologist St. Mary's Hospital consulting gynecologist Williamsburgh Hospital Rockaway Beach (N. Y.) Hospital, aged 72 died May 8.

**Julia Clark Strawn** ☉ Chicago, Hahnemann Medical College and Hospital, Chicago, 1897, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903, fellow of the American College of Surgeons, on the staff of the Chicago Memorial Hospital, aged 73, died, May 31, at New Salem, Ill

**Carl Helmuth Mueller Jr**, Brooklyn, Cornell University Medical College, New York, 1911, member of the Medical Society of the State of New York, fellow of the American College of Surgeons, aged 52, on the staffs of the Bethany Deaconess Hospital and the Wyckoff Heights Hospital, where he died, May 21

**Iver Ferdinand Selleseth** ☉ Minneapolis, University of Minnesota Medical School, Minneapolis, 1916, member of the Clinical Orthopaedic Society, served as a captain in the medical corps of the U S Army during World War I, on the staff of the Lutheran Deaconess Home and Hospital, aged 52, died, May 12

**Alfred Stephen Doyle** ☉ Philadelphia, Medico-Chirurgical College of Philadelphia, 1914, member of the American Roentgen Ray Society, at one time associated with the U S Public Health Service, formerly president of the staff of St Agnes Hospital, on the staff of St Vincent's Hospital, aged 66, died, May 1

**George McIntyre** ☉ Long Beach, Calif, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1887, an Affiliate Fellow of the American Medical Association, member of the Minnesota State Medical Association, at one time health officer of Mayville, N D, aged 81, died, May 3

**William Cumback Lathrop** ☉ Norton, Kan, Chicago Homeopathic Medical College, 1902, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1909, member of the state board of health, on the staff of the Norton Hospital, aged 65, died, April 27

**Cornelius Joseph O'Leary**, Boston, Tufts College Medical School, Boston, 1933, member of the Massachusetts Medical Society, associate medical examiner of the Northern district of Suffolk County, formerly member of the city board of health, aged 39, died, May 21, of heart disease

**Thompson Tyler Sweeny**, New York, Kentucky University Medical Department, Louisville, 1897, formerly assistant professor of gynecology at the New York Post-Graduate Medical School, Columbia University, aged 67, died, May 4, while on a fishing trip near San Bernardino, Calif

**Harry Newton Moser** ☉ Terra Alta, W Va, George Washington University School of Medicine, Washington, D C, 1915, past president and secretary of the Preston County Medical Society, aged 69, died, April 14, in the Kercheval Memorial Clinic, Kingwood, of cerebral thrombosis

**John Charles McMillan**, New Berlin, Ill, Missouri Medical College, St Louis, 1898, member of the Illinois State Medical Society, for many years president of the high school board of education, aged 68, died, May 15, in Rochester, Minn, of arteriosclerotic cardiovascular disease

**Barney Weeks Phillips**, Milford, N Y, New York Homeopathic Medical College and Flower Hospital, New York, 1919, member of the Medical Society of the State of New York, for many years served the consolidated health district of Milford, aged 49, died, May 4

**Murison Dunn** ☉ Richmond, Ky, University of Louisville Medical Department, 1894, past president and secretary of the Madison County Medical Society, formerly county health officer, at one time acting assistant surgeon, U S Public Health Service, aged 70, died, May 16

**Gladstone Edwin Francisco**, Miami, Fla, Hahnemann Medical College and Hospital of Philadelphia, 1934, member of the Florida Medical Association, aged 34, on the staff of the Jackson Memorial Hospital, where he died, May 2, of an accidental overdose of narcotics

**Frank Frederick Celce**, Holyoke, Mass, University of Pennsylvania Department of Medicine, Philadelphia, 1893, member of the Massachusetts Medical Society, formerly on the staff of the Holyoke Hospital and the Providence Hospital, aged 74, died, April 28

**Jay Maitland Schaffer**, Tremonton, Utah, Fordham University School of Medicine, New York, 1918, member of the Utah State Medical Association, past president of the Box Elder County Medical Society, served during World War I, aged 45, died, May 7

**James Thomas Reid** ☉ Iola, Kan, Medico-Chirurgical College of Kansas City, Mo, 1901, member of the state board of health, served as a captain in the medical corps of the U S

Army during World War I, on the staff of St John's Hospital, aged 62, died, May 14

**Agnes Mella Edmonds**, Los Angeles, Northwestern University Woman's Medical School, Chicago, 1900, formerly a medical missionary in Chungking, West China, where she was superintendent of the William Gamble Memorial Hospital, aged 71, died recently

**William Hearst McBain** ☉ Malden, Mass, Harvard Medical School, Boston, 1901, member of the New England Obstetrical and Gynecological Society, at one time city bacteriologist, formerly on the staff of the Malden Hospital, aged 68, died, May 9

**Joseph Edward Stephan**, Mount Healthy, Ohio, Medical College of Ohio, Cincinnati, 1892, served during World War I, formerly on the staffs of the Veterans Administration facilities in Togus, Maine, and Marion, Ind, aged 73, died, May 20

**Algernon R Fike** ☉ Spartanburg, S C, Medical College of the State of South Carolina, Charleston, 1892, formerly member of the city board of health, aged 72, died, May 13, in a hospital at Tarpon Springs, Fla, of cerebral hemorrhage

**Joseph Theodore McAndrew**, La Plata, Md, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1929, member of the Medical and Chirurgical Faculty of Maryland, aged 37, died in May

**Fred R Gobbel**, English, Ind, Kentucky School of Medicine, Louisville, 1901, for many years bank president, aged 84, died, May 17, in the Kentucky Baptist Hospital, Louisville, of shock due to a fractured hip received in a fall

**Franklin A Gray**, Batesville, Ark, Memphis (Tenn) Hospital Medical College, 1905, member of the Arkansas Medical Society, medical director and owner of a hospital bearing his name, aged 64, died, May 18

**Arthur Ludwig Herman** ☉ Minneapolis, University of Minnesota Medical School, Minneapolis, 1923, fellow of the American College of Surgeons, on the staffs of the Eitel and Asbury hospitals, aged 41, died, April 24

**Hattie Ashleigh Galentin Schwendener**, Benton Harbor, Mich, University of Wooster Medical Department, Cleveland, 1879, formerly on the staff of the Mercy Hospital, aged 84, died, May 10, of cerebral hemorrhage

**Samuel J Park**, Chicago, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906, for many years physician for the police department, aged 60, died, May 15

**Frank S Merwin**, Youngstown, Ohio, Western Reserve University Medical Department, Cleveland, 1893, member of the Ohio State Medical Association, aged 73, died, May 10, of chronic myocarditis

**Charles Allen De Voe**, Berlin, Wis, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900, aged 69, died, May 1, of coronary thrombosis and arteriosclerosis

**Clarence Edward Quaife** ☉ Galesburg, Ill, Louisville (Ky) and Hospital Medical College, 1908, aged 66, on the staff of the Galesburg Cottage Hospital, where he died, May 2, of diabetes mellitus

**John Karl Endress**, St Paul, University of Minnesota College of Medicine and Surgery, Minneapolis, 1899, aged 83, died, May 14, in the West Side General Hospital of lymphatic leukemia

**Lucius Orange Gibson**, Ann Arbor, Mich, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1891, aged 81, died, May 8, of coronary thrombosis

**Edward L Bower** ☉ Guthrie Center, Iowa, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1886, aged 77, died, May 5, of myocarditis

**Charles E Stadler**, Lima, Ohio, Eclectic Medical Institute, Cincinnati, 1896, aged 78, died, May 20, in St Rita's Hospital of arteriosclerosis and heart disease

**Charlotte Frances Hammond**, Paris, Maine, Boston University School of Medicine, 1887, aged 87, died, April 1, of cerebral hemorrhage

**Albert G Lueders**, Fort Wayne, Ind, Homeopathic Medical College of Missouri, St Louis, 1898, aged 66, died, May 18, of heart disease

**Omer Felix Perdue**, St Louis, Meharry Medical College, Nashville, Tenn, 1916, aged 58, died in May of pneumonia

**Franklin Pierce Hoy**, Watsonville, Calif, Hahnemann Medical College of Philadelphia, 1879, aged 83, died, May 12

**Thomas Shields Collins**, Los Angeles, Hospital College of Medicine, Louisville, Ky, 1886, aged 76, died, April 9



## Bureau of Investigation

### MISBRANDED PRODUCTS

#### Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE—These Notices of Judgment are issued under the Food, Drug and Cosmetic Act and in cases in which they refer to drugs and devices they are designated D D N J and foods, F N J. The abstracts that follow are given in the briefest possible form (1) the name of the product, (2) the name of the manufacturer, shipper or consigner, (3) the composition, (4) the type of nostrum, (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which is considerably later than the date of the seizure of the product and somewhat later than the conclusion of the case by the Food and Drug Administration.]

**American Electric Vaporizer**—American Sundries Company, Inc. Brooklyn. A device consisting of a jar equipped with two electrodes and intended to produce vapors. Falsely represented on label to be efficacious in the treatment of bronchitis, asthma, whooping cough and other respiratory disorders and in purifying the air in household and public rooms by vaporizing a few drops of pine needle oil.—[D D N J F D C 185 April 1941]

**Bromo Citra**—Dr. E. L. Company, Elgin, Ill. Composition principal ingredient acetanilid although product was represented to be derived from sodium bromide and hence misbranded. Further misbranded because falsely represented as a proper treatment for discomfort due to simple headache, neuralgia and overindulgence in food, drink or tobacco.—[D D N J F D C 141 April 1941]

**Bromoforbia (Bromophorbia)**—Pharmaceutical Products Company, Easton, Md. Composition 8½ grains of sodium iodide per fluidounce whereas label represented the amount as 16 grains, hence adulterated and misbranded. Use not stated.—[D D N J F D C 168 April 1941]

**Cactus Compound Tablets**—Pharmaceutical Products Company, Easton, Md. Misbranded because it contained active ingredients other than cactus and because nitroglycerin content per tablet was only 1/200 grain whereas 1/100 grain was claimed on the label. Use not stated.—[D D N J F D C 168 April 1941]

**Doctorheat Table Model Infra Red Lamp**—F. C. Herman Company, Chicago. The device was a metal goose-neck table model reflector lamp fitted with a heating unit. Misbranded because falsely represented as to its value in treating arthritis, asthma, hoarseness, bronchitis, painful menstruation, pneumonia and some other conditions.—[D D N J F D C 192 April 1941]

**Domino Brand Antiseptic Rubbing Compound**—Halitosine Company, St. Louis. Composition not reported. Misbranded because falsely represented as an antiseptic rubbing compound consisting of rubbing alcohol or an equivalent.—[D D N J F D C 177 April 1941]

**Dr. Burnham's San Yak K L B Pills**—Lee Chemical Company, Birmingham, Mich. Composition chiefly plant extracts including cinchona alkaloids, sandalwood and emodin, hearing drugs with magnesium, calcium and iron salts. Misbranded because labels represented it as a remedy for blood, kidney, liver and bladder disorders, hemorrhoids and pains in the back or joints. Further misbranded because label failed to declare active ingredients.—[D D N J F D C 175 April 1941 and D D N J F D C 368 March 1942]

**Dr. Stover's Golden Oil**—Planet Products Company, Orlando, Fla. Composition essentially mineral oil and oils of turpentine and mustard with chloroform (0.88 min. per fluidounce) and a coloring material. Misbranded because represented on label as a remedy for pains, colds, swellings, asthma, hay fever and sinus trouble and because label did not bear the common name of each active ingredient or the quantity of chloroform present.—[D D N J F D C 176 April 1941]

**Hills Nose Drops**—Anacin Company (Wyeth Chemical Company distributors), Jersey City, N. J. Composition not stated. Misbranded because falsely represented as efficacious for the quick relief of simple or nasal catarrh and tightness of the throat.—[D D N J F D C 178 April 1941]

**Holford's Famous Inhaler**—Holford Company, Minneapolis. Composition a mixture of plant material including eucalyptus leaves and lavender flowers saturated with essential oils such as mustard, eucalyptus and camphor. Misbranded because falsely represented on label as an efficacious treatment for catarrh, headaches, asthma, hay fever and some other disorders.—[D D N J F D C 179 April 1941]

**IVC A B D G Capsules**—International Vitamin Corporation, Brooklyn. Adulterated because it contained not more than 25 international units of vitamin B<sub>1</sub>, 800 international units of vitamin D and less than 10,000 international units of vitamin A per capsule instead of respectively 50, 945 and 10,000 as represented.—[D D N J F D C 173 April 1941]

**Jiffy Vaporizer**—Spielman & Company, New York. An electrically heated device to produce steam. Falsely represented as to its efficacy in relieving bronchitis, asthma, hay fever, whooping cough, laryngitis and catarrh and for purifying the air.—[D D N J F D C 183 April 1941]

**Kaz For Colds**—Kaz Manufacturing Company, New York. Composition essentially a mixture of oils of eucalyptus, peppermint, wintergreen and lavender with menthol and camphor in a mineral oil base used in an electric heating device for producing steam. Label falsely represented it as an effective treatment of throat, lung and nasal congestions including croup, whooping cough, asthma, chest colds and similar complaints.—[D D N J F D C 184 April 1941]

**Laxatonic Cold Tablets**—Pharmaceutical Products Company, Easton, Md. Composition 0.42 grain of quinine sulfate per tablet. Hence adulterated and misbranded because claimed to contain ½ grain of quinine sulfate per tablet. Also misbranded because not a laxative tonic as name represented.—[D D N J F D C 168 April 1941]

**Mastercraft Infra Red Therapeutic Lamps Type No. 62**—Northern Electric Company, Chicago. A table model reflector lamp fitted with an incandescent bulb. Label falsely represented that the device would counteract aches and pains with nature's soothing healing rays from the sun which penetrate deeply into the flesh, stimulate the nerves, rebuild diseased tissues, promote bodily health and vitality and prove effective in the treatment of bladder trouble, bronchitis, eczema, rheumatism, menstrual pains, sciatica and many other disorders.—[D D N J F D C 191 April 1941]

**Medovapo Inhaler**—Med O Vapo Company, Minneapolis. Composition alcohol (57.8 per cent), benzoic acid (19 grains per fluidounce), menthol, camphor, thymol, pine oil and water. Falsely represented as a modern inhaling treatment of hay fever, sinus pains, catarrhal congestion and bronchitis.—[D D N J F D C 182 April 1941]

**Nazeno Drops for Nose and Throat**—Brunswick Drug Company, Los Angeles. Composition small amounts of ephedrine, chlorbutanol, menthol and cinnamic aldehyde in a mineral oil base. Misbranded because falsely represented on label as a treatment for superficial inflammatory conditions of the nose and throat.—[D D N J F D C 180 April 1941]

**No. 1119 Modern Infra Red Ray Lamp**—Knapp Monarch Company, St. Louis. A table model lamp fitted with a heating element. Falsely represented on label to penetrate deeply under the skin, forming heat units which would cause an excess accumulation of blood and produce beneficial chemical changes, increase nutrition and cause the white corpuscles to destroy any microbes which might be present and to benefit abscesses, boils, heart diseases, gangrene and many other disorders.—[D D N J F D C 193 April 1941]

**Praktal Electric Vaporizer**—Practical Products Company, New York. A kettle shaped electric vaporizing device. Misbranded because represented on label as a practical road to health and a remedy for asthma, bronchitis, laryngitis and whooping cough.—[D D N J F D C 186 April 1941]

**Premo Halibut Liver Oil Capsules Plain**—Gelatin Products Company, Detroit. Adulterated and misbranded because another fish liver oil had been substituted wholly or in part for plain halibut liver oil. Further misbranded because offered for sale under the name of another drug.—[D D N J F D C 174 April 1941]

**Premo Nasal Drops**—Premo Pharmaceutical Laboratories, New York. Composition not given. Misbranded because falsely represented as a relief of mucous inflammation and nasal catarrh.—[D D N J F D C 181 April 1941]

**Rodale Therapeutic Lamp**—Rodale Manufacturing Company, Emmaus, Pa. An incandescent bulb fitted into a reflector attached to a wooden handle. The label falsely represented that this was an effective treatment for colds, headaches, backaches, chest inflammation, rheumatism, lumbago and neuralgia and would do wonders for the health and invigorate the tissue.—[D D N J F D C 190 April 1941]

**Rogers Electric Vaporizer**—Rogers Electric Laboratories, Inc., Cleveland. An electric device for producing vapor which passes over cotton saturated with some medicinal agent. Falsely represented as an effective treatment of bronchitis, pneumonia, influenza and asthma.—[D D N J F D C 187 April 1941]

**Relievo Therapeutic Lamps**—Kas-Kel Electric Company, Inc., New York. A table model lamp equipped with an incandescent heating element. Misbranded because represented on label to relieve rheumatism, deep seated pains, mental and physical fatigue, congestion and some other things.—[D D N J F D C 194 April 1941]

**Slumber Ointment**—Nolan Company, Greenville, Pa. Composition mercuric nitrate (7.96 per cent), calcium and magnesium compounds, turpentine, soap and water in a fatty acid base. Adulterated and misbranded because it contained more than the 7 per cent of mercuric nitrate represented on the label. Further misbranded because falsely represented as a remedy for eczema, salt rheum, grease or rubber poisoning, boils, dandruff, varicose ulcers, warts and other skin disorders.—[D D N J F D C 171 April 1941]

**Sterno Vaporizer**—S. Sternau & Company, Inc., New York. A device to vaporize water and other liquids. Falsely represented as an effective treatment of coughs, sore throat, bronchitis, hay fever, whooping cough, catarrh, asthma and allied conditions.—[D D N J F D C 188 April 1941]



## Medical Examinations and Licensure

### COMING EXAMINATIONS AND MEETINGS

#### BOARDS OF MEDICAL EXAMINERS

##### BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in *THE JOURNAL*, July 4, page 830

#### NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS *Part I* Various centers, Sept 14 16 Exec Sec, Mr Everett S Elwood, 225 S 15th St, Philadelphia

#### EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY *Written Part I* Various centers, Feb 4 Final date for filing application is Nov 6 Sec, Dr Paul M Wood, 745 Fifth Ave, New York

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY *Oral Groups A and B* Cleveland, Jan 14 15, 1943 Final date for filing application is Dec 7 *Written* Various centers, Nov 16 Final date for filing application is Oct 5 Sec, Dr C Guy Lane, 416 Marlboro St, Boston

AMERICAN BOARD OF INTERNAL MEDICINE *Written* Oct 19 Final date for filing application is Sept 1 Sec, Dr William S Middleton, 1301 University Ave, Madison, Wis

AMERICAN BOARD OF OBSTETRICS AND GYNCOLOGY *Written Part I* Various centers Feb 13 *Oral Part II* May 1943 Sec, Dr Paul Titus, 1015 Highland Bldg, Pittsburgh

AMERICAN BOARD OF OPHTHALMOLOGY *Oral All Groups* Chicago, Oct 8 10 Sec, Dr John Green 6830 Waterman Ave, St Louis

AMERICAN BOARD OF ORTHOPAEDIC SURGERY *Oral and Written* Chicago, Jan 9 10 Final date for filing application is Nov 1 Sec, Dr Guy A Caldwell, 3503 Pryor St, New Orleans

AMERICAN BOARD OF PATHOLOGY *Oral and Written* Richmond, Va, Nov 9 10 Final date for filing application is Sept 1 Sec, Dr F W Hartman, Henry Ford Hospital, Detroit

AMERICAN BOARD OF PEDIATRICS *Written* Locally, Sept 18 *Oral* New York, Dec 5 6 Final date for filing application is Aug 1 Sec, Dr C A Aldrich, 707 Fullerton Ave, Chicago

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY New York, December Final date for filing application is Oct 1 Sec, Dr Walter Freeman, 1028 Connecticut Ave NW, Washington, D C

AMERICAN BOARD OF SURGERY *Part I* Oct 7 Final date for filing application is Aug 22 Sec, Dr J Stewart Rodman, 225 S Fifteenth St, Philadelphia

AMERICAN BOARD OF UROLOGY February 1943 (tentative) Sec, Dr Gilbert J Thomas, 1409 Willow St, Minneapolis

### Wisconsin January Report

The Wisconsin State Board of Medical Examiners reports the written examination for medical licensure held at Madison, Jan 13-15, 1942 The examination covered 20 subjects and included 100 questions An average of 75 per cent was required to pass Twenty-six candidates were examined, all of whom passed Twelve physicians were licensed to practice medicine by reciprocity The following schools were represented

| School   | PASSED | Year Grad         | Number Passed |
|--|--------|-------------------|---------------|
| Loyola University School of Medicine                   |        | (1941)            | 1             |
| Northwestern University Medical School                 |        | (1926), (1941, 2) | 3             |
| University of Chicago, The School of Medicine          |        | (1939)            | 1             |
| University of Illinois College of Medicine             |        | (1941, 2)         | 2             |
| Indiana University School of Medicine                  |        | (1940)            | 1             |
| Johns Hopkins University School of Medicine            |        | (1940)            | 1             |
| Harvard Medical School                                 |        | (1940, 2)         | 2             |
| University of Minnesota Medical School                 |        | (1931), (1937)    | 2             |
| Columbia University College of Physicians and Surgeons |        | (1940)            | 1             |
| University of Oregon Medical School                    |        | (1940, 2)         | 2             |
| University of Pennsylvania School of Medicine          |        | (1938)            | 1             |
| Woman's Medical College of Pennsylvania                |        | (1937)            | 1             |
| Medical College of the State of South Carolina         |        | (1940)            | 1             |
| Marquette University School of Medicine                |        | (1941, 2)         | 2             |
| University of Wisconsin Medical School                 |        | (1938) (1940, 4)  | 5             |

| School  | LICENSED BY RECIPROCITY | Year Grad     | Reciprocity with |
|---|-------------------------|---------------|------------------|
| University of Arkansas School of Medicine                         |                         | (1930 2)      | Arkansas         |
| Loyola University School of Medicine                              |                         | (1936)        | Missouri         |
| Northwestern University Medical School                            |                         | (1931) (1933) | Penna            |
| (1937) Michigan, (1939) Illinois                                  |                         |               |                  |
| Rush Medical College  |                         | (1937)        | Minnesota        |
| The School of Medicine of the Division of the Biological Sciences |                         | (1938)        | New York         |
| Johns Hopkins University School of Medicine                       |                         | (1933)        | Maryland         |
| Ohio State University College of Medicine                         |                         | (1935)        | Ohio             |
| University of Wisconsin Medical School                            |                         | (1939)        | New York         |

### Illinois January Report

The Illinois Department of Registration and Education reports the written examination (graduates of foreign schools given also a practical test) Jan 20-22, 1942 The examination covered 10 subjects and included 100 questions An average of 75 per cent was required to pass Seventy-five candidates were examined, 55 of whom passed and 20 failed The following schools were represented

| School  | PASSED | Year Grad          | Number Passed |
|---|--------|--------------------|---------------|
| Howard University College of Medicine                                       |        | (1940)             | 1             |
| Chicago Medical School  |        | (1942, 6)*         | 6             |
| Loyola University School of Medicine  |        | (1942 2)           | 4             |
| Northwestern University Medical School                                      |        | (1940), (1941, 12) | 13            |
| Rush Medical College  |        | (1940, 4)          | 4             |
| University of Chicago, The School of Medicine                               |        | (1940, 3)          | 3             |
| University of Illinois College of Medicine                                  |        | (1941, 8)          | 8             |
| State University of Iowa College of Medicine                                |        | (1940 2)           | 2             |
| Louisiana State University School of Medicine                               |        | (1940)             | 1             |
| Harvard Medical School  |        | (1938)             | 1             |
| University of Michigan Medical School                                       |        | (1935)             | 1             |
| Columbia University College of Physicians and Surgeons                      |        | (1939)             | 1             |
| Syracuse University College of Medicine                                     |        | (1920)             | 1             |
| Jefferson Medical College of Philadelphia                                   |        | (1938)             | 1             |
| University of Toronto Faculty of Medicine                                   |        | (1938)†            | 1             |
| Medizinische Fakultät der Universität Wien                                  |        | (1919)             | 1             |
| Deutsche Universität Medizinische Fakultät, Prag                            |        | (1928)             | 1             |
| Univerzita Komenského Fakultät Lekárska, Bratislava                         |        | (1938)             | 1             |
| Johann Wolfgang Goethe Universität Medizinische Fakultät, Frankfurt am Main |        | (1920)             | 1             |
| Universität Rostock Medizinische Fakultät, Rostock                          |        | (1911)             | 1             |
| Magyar Királyi Erzsébet Tudományegyetem Orvostudomány, Pecs                 |        | (1934)             | 1             |
| Regia Università degli Studi di Bologna Facoltà di Medicina e Chirurgia     |        | (1915)             | 1             |

| School  | FAILED | Year Grad         | Number Failed |
|---|--------|-------------------|---------------|
| Loyola University School of Medicine  |        | (1942)            | 1             |
| Medical College of Ohio, Cincinnati   |        | (1901)            | 1             |
| Medizinische Fakultät der Universität Wien                                  |        | (1922, 2), (1933) | 3             |
| Deutsche Universität Medizinische Fakultät Prag                             |        | (1918)            | 1             |
| Univerzita Karlova Fakulta Lekarska, Praha                                  |        | (1927)            | 1             |
| Université de Paris Faculté de Médecine                                     |        | (1937)            | 1             |
| Friedrich Wilhelms Universität Medizinische Fakultät, Berlin                |        | (1923)            | 1             |
| Georg August Universität Medizinische Fakultät, Göttingen                   |        | (1905)            | 1             |
| Johann Wolfgang Goethe Universität Medizinische Fakultät, Frankfurt am Main |        | (1921)            | 1             |
| Philipps Universität Medizinische Fakultät, Marburg                         |        | (1923)            | 1             |
| Rheinische Friedrich Wilhelms Universität Medizinische Fakultät, Bonn       |        | (1923) (1935)     | 2             |
| Schlesische Friedrich Wilhelms Universität Medizinische Fakultät, Breslau   |        | (1924)            | 1             |
| Regia Università degli Studi di Padova Facoltà di Medicina e Chirurgia      |        | (1929)            | 1             |
| Regia Università di Napoli Facoltà di Medicina e Chirurgia                  |        | (1929)            | 1             |
| Universität Basel Medizinische Fakultät                                     |        | (1939)            | 1             |
| Universität Bern Medizinische Fakultät                                      |        | (1938)            | 1             |
| Université de Genève Faculté de Médecine                                    |        | (1938)            | 1             |

Twenty-five physicians were successful in the practical test for reciprocity and endorsement applicants held in Chicago, January 22 The following schools were represented

| School  | PASSED | Year Grad           | Reciprocity with |
|---|--------|---------------------|------------------|
| University of Arkansas School of Medicine                         |        | (1930)              | Arkansas         |
| Stanford University School of Medicine                            |        | (1940)              | California       |
| Loyola University School of Medicine                              |        | (1917)              | Wisconsin        |
| Northwestern University Medical School                            |        | (1930) Mississippi  |                  |
| (1935)† Minnesota (1937)† Ohio                                    |        |                     |                  |
| Rush Medical College  |        | (1938)†             | Texas            |
| The School of Medicine of the Division of the Biological Sciences |        | (1938) California   |                  |
| Harvard Medical School  |        | (1939)†             | Michigan         |
| University of Michigan Medical School                             |        | (1921)†             | Michigan         |
| University of Minnesota Medical School                            |        | (1930)†             | Michigan         |
| St Louis University School of Medicine                            |        | (1940)†             | Michigan         |
| Washington University School of Medicine                          |        | (1938)†             | Ohio             |
| Ohio State University College of Medicine                         |        | (1934)†             | Minnesota        |
| Jefferson Medical College of Philadelphia                         |        | (1935) Pennsylvania |                  |
| Woman's Medical College of Pennsylvania                           |        | (1928) (1941)†      |                  |
| (1937) Pennsylvania   |        |                     |                  |
| Meharry Medical College   |        | (1935)†             | Texas            |
| Baylor University College of Medicine                             |        | (1939)†             | Texas            |
| Marquette University School of Medicine                           |        | (1941)†             | Virginia         |

School PASSED  
Albany Medical College (1936)† (1938)† (1939)† (1941)† (1942)†  
\* These applicants received the M B degree and will receive the M D degree on completion of internship  
† Licenses have not been issued

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Dinitrophenol Blindness Attributed to Use of Drug —** The plaintiff's husband and wife filed a complaint against the Stanford University School of Medicine, Stanford University Hospital Lane Hospital, Board of Trustees of Leland Stanford Junior University and several individuals for damages for loss of the plaintiff wife's eyesight purportedly due to the negligence of the defendants. From a judgment sustaining the defendants' demurrers to the plaintiffs' complaint, the plaintiffs appealed to the district court of appeals, first district, division 1, California.

The complaint was predicated on fraud. It alleged that the defendants were in the business of manufacturing and distributing drugs designed and purporting to cure and relieve human sickness. By means of statements and articles caused by defendants to be printed in newspapers, pamphlets, circulars and medical journals the complaint continued, the defendants falsely stated and represented in effect that a certain chemical compound, commonly known as dinitrophenol, was a harmless drug which could be taken internally by human beings for the relief and cure of many illnesses and afflictions of the human body, and in particular that it would reduce excessive weight and alleviate obesity without causing physical illness or harm. It was then alleged that, as a matter of fact, the defendants well knew that such drug was dangerous, detrimental, poisonous and deleterious to the human body, was inherently dangerous to human life and limb and was liable to cause blindness. Large quantities of this drug, continued the plaintiffs, were manufactured by the defendants and distributed and dispensed throughout the state of California through the medium of wholesale and retail druggists and physicians. The complaint then alleged that the plaintiff wife having heard, read and believed the various statements said to have been published by the defendants, and relying on such statements and being ignorant of their falsity, purchased and took internally amounts of dinitrophenol for the purpose of reducing overweight and obesity, that she commenced to use the drug on about the 9th of March 1934 and continued taking it internally each and every day until and including the 30th of December 1934, and that by reason of the taking of the drug she became blind.

The defendants contended generally that the complaint did not set forth sufficient facts to entitle the plaintiffs to relief on the ground of fraud. Fraud is never presumed said the court; it must always be pleaded and established. Furthermore, the complaint should substantially show the representation of a material fact. The falsity thereof, the knowledge of such falsity or the making of a representation without sufficient knowledge, the intent to deceive or induce one to enter into a transaction, the participation of the defendant or defendants accused of the fraud, the belief in the truth of the representations, the reliance thereon and the consequent damages to the party or parties injured are essentials necessary to be specifically alleged or necessarily implied from the facts pleaded.

The court held that the present complaint was insufficient for a number of reasons. It did not allege whether the plaintiff wife took the drug on prescription, on directions, if any, given on the container or on any direction at all. These circumstances, said the court, should be alleged to apprise the defendants of the nature of the charge and to permit them to prepare a defense. The allegation that defendants were the manufacturers of the drug and gave directions for its use may be matters peculiarly within the knowledge of the defendants but whether plaintiff wife followed such directions is a subject on which the

defendants are entitled to be informed. It is material for them to know whether plaintiffs predicate the complaint for damages on the quantity, the dosage or the continuous use of the drug. Furthermore, the court continued, the complaint failed to allege how plaintiff wife, relying on the alleged published false statements and representations of the defendants that the drug was harmless, was induced to use or take the drug when it was alleged in the complaint that "the precise names and titles and exact contents and tenor of said publications" are "now unknown to plaintiff, and" are "now well known to defendants." The complaint failed to disclose whether or not the dinitrophenol advertised was the dinitrophenol manufactured by the defendants, whether or not the advertised dinitrophenol was the "certain chemical compound" which the plaintiff took internally for the purpose of reducing overweight and obesity or whether or not the dinitrophenol used by the plaintiff wife had been manufactured, sold, dispensed or distributed by the defendants. Neither was it clear whether the charge against the defendants was merely that they disseminated in printed matter false statements that the drug dinitrophenol was harmless when they knew it to be dangerous, or whether defendants were also charged with having manufactured and distributed the particular quantities or portions of the drug which the plaintiff wife took.

In conclusion, the court said that the defendants were entitled either to a direct allegation that the dinitrophenol manufactured, sold, dispensed and distributed by them was the particular dinitrophenol taken or allegations from which such fact may be definitely and reasonably ascertained. In the absence of sufficient allegations of causation between the alleged manufacture and distribution of the drug by the defendants and its use, the court of appeals held that no cause of action was stated. Accordingly, the judgment of the trial court sustaining the defendants' demurrers was affirmed. —*Wennerholm v Stanford University School of Medicine* 113 P (2d) 736 (Calif., 1941).

### Osteopathy Right of Blind Osteopath to Obtain License to Practice Minor Surgery and to Use Drugs —

The petitioner was licensed to practice osteopathy in the state of New York in 1919. He was then blind and he has remained blind ever since. His license authorized him to employ osteopathic procedures only, such as manipulation of the bones, manual manipulation, massage and passive exercises. In 1939 an amendment to the New York law was enacted under which an osteopath may obtain the right to use instruments for minor surgical procedures and to use anesthetics, antiseptics, narcotics and biologic products, if he satisfies the board of regents that he has received sufficient instruction and training to entitle him to the additional rights. Petitioner applied to the board for a certificate authorizing him to extend the scope of his practice as provided in the 1939 amendment. The board apparently permitted the petitioner to take an examination but refused to issue the certificate on the ground that the osteopath was blind and could not exercise the additional rights he sought. The supreme court, special term, ordered the board of regents to issue the certificate and the board appealed to the supreme court, appellate division third department.

The evidence showed that the written examination which the petitioner was permitted to take after applying for the certificate embraced the theory of narcotics, serology and endocrinology. No practical test in these subjects was given nor was any theoretical test given concerning minor surgical procedures. While the petitioner indicated by the examination which he took that he had adequate theoretical knowledge in the subjects in which he was examined, there is a great deal of difference said the court, between possession of theoretical knowledge and the use of this knowledge by actually performing surgery and injecting medical products into the human system. The court pointed out that medical students before being permitted to practice medicine in New York must spend at least four years

in a medical college. During that time they observe many operations performed, thus gaining much knowledge and information from the ability to observe how things are done. This the petitioner could not do because of his blindness.

Anesthetics, the court continued, consist in the administration of such compounds as ether, nitrous oxide and cyclopropane, which are highly inflammable and dangerous in character. Many substances are administered as local anesthetics, usually hypodermically, and the appropriate site in the patient's anatomy must be selected by the person administering them. Furthermore the anesthetist must continuously observe the condition of the patient, since too much anesthesia may be fatal and too little may be ineffective. A blind man, concluded the court, cannot safely administer anesthetics. Regarding antiseptics, the court said that it was familiar with the effects of the overuse of iodine on some skins, the susceptibility of the epidermis of certain human beings to a particular antiseptic. Whether a particular antiseptic may be safely used on a patient depends on the ocular observation of the person administering it.

Under the law the board of regents had discretionary authority, the court said, not to grant the certificate. The law uses the word "may," indicating that even though the applicant passes the examination and meets the other statutory requirements the regents may still exercise a discretion as to whether a certificate should be issued. In this case, the court thought there was no abuse of discretion. The refusal of the board to issue the certificate was therefore affirmed—*Application of Marks*, 27 N Y S (2d) 739 (N Y, 1941).

**Malpractice Liability of Dentist for Injury to Patient Under Influence of Nitrous Oxide**—A patient went to the office of the defendant dentist to have two teeth extracted. Nitrous oxide was administered for several seconds and then procaine was injected. While waiting for the procaine to take effect, the defendant attended a patient in an adjoining room. Returning he gave the plaintiff patient another injection of procaine and again left the room, this time for about twenty minutes. When he returned the second time, he extracted the two teeth after administering more nitrous oxide. After the extraction, the defendant again left the room, the patient still being under the influence of the nitrous oxide. Shortly thereafter, and before the defendant returned, the patient fell through a window to the sidewalk 25 feet below and sustained such serious injuries that he did not regain consciousness until about three weeks later. In subsequent suits by the patient and his father the trial court directed verdicts for the defendant, and the plaintiffs appealed to the Supreme Judicial Court of Massachusetts.

Certain evidence that was offered by the plaintiffs through a practicing dentist to show the effect on a patient of the inhalation of nitrous oxide and the difference between its effect and the effects caused by ethyl chloride, which the witness had used for twenty-five years because the latter was in his opinion safer, was excluded by the trial court. The witness, who had not used nitrous oxide for twenty-five years, was not permitted to testify as an expert witness on the ground that he did not have the necessary qualifications. The Supreme Judicial Court did not think the trial court erred in refusing to admit this testimony. Except in rare instances where, as a matter of law, the exclusion of proffered testimony would be unwarranted, the preliminary question of the qualification of a witness called as an expert rests with the trial court. In view of the fact that the proffered witness had not used nitrous oxide for over twenty-five years, the court pointed out, it could not be said that in refusing to admit the testimony there was any abuse of discretion.

The defendant dentist testified at length with respect to the use of nitrous oxide in the extraction of teeth and the effects of its inhalation by patients. He testified in substance that he intended to administer only enough nitrous oxide to bring about a state of analgesia, that he knew if he administered more than was needed to produce such state the patient's reflexes and his

nerves would be in such a condition that he would have no control over them and that a dentist must guard against the unexpected conduct of persons coming out of this condition, referred to by the dentist as a "quick drunk." He testified further that there was a nurse at all times in the room with the patient who had been employed in the dental office for about a year. This nurse, however, the dentist testified, did not have any special training and had never attended any school to qualify her as a dental assistant. In the opinion of the appellate court had the case been submitted to the jury, it could have found that the defendant left the office in which the patient was operated on, after extracting the teeth, and did not return before the patient fell or leaped through the window. The jury could also have found that the patient was in fact rendered unconscious or semiconscious by the nitrous oxide and that he was in that state when the defendant left the room after extracting the teeth. In the opinion of the court, the jury was competent to pass on the question of whether the defendant was negligent in leaving the unconscious or semiconscious patient in the care of a nurse who was without special training. Whether or not the defendant was negligent and whether his negligence bore a causal relation to the patient's injuries presented issues that should have been submitted to the jury. The court, therefore, held in effect that the trial court erred in directing the verdicts for the defendant—*Langis v Danforth* (two cases), 33 N E (2d) 287 (Mass, 1941).

**Workmen's Compensation Acts Death from Overdose of Narcotics Following Industrial Injury**—On Dec 6, 1939 the deceased received serious injuries as the result of an accident arising out of and in the course of his employment with the defendant. He was disabled and suffered intense pain from then until December 21, when he was found dead in his bed. Subsequently the claimant filed a petition for compensation on account of the death and obtained an award in her favor from the Florida industrial commission. This award was affirmed by the circuit court, and the defendant and its insurance carrier appealed to the Supreme Court of Florida, Division A.

The record showed that the deceased suffered such pain in the abdominal region that the physician furnished by the employer prescribed a narcotic to alleviate the pain and that the death may have resulted from an overdose of the narcotic. It is clear, said the Supreme Court, that there was a direct causal connection between the injury and the death, even if death followed as the immediate result of taking the narcotic. The taking of the narcotic was not an independent intervening cause but was the result of the injury, and the employer and insurance carrier are liable under the workmen's compensation act. Aside from this, said the Supreme Court, we are not convinced from the record that death was not the direct result of the injury without being superinduced by the taking of the narcotic. There was ample evidence, in the opinion of the court, to cause reasonable men to reach the conclusion that the deceased received more serious internal injuries than had been identified and that in all probability, death was the direct result of the injury. The order of the industrial commission was accordingly affirmed—*City of Lakeland v Burton*, 2 So (2d) 731 (Fla, 1941).

## Society Proceedings

### COMING MEETINGS

National Medical Association, Cleveland, Aug 17-21, Dr J. J. T. Givens, 1108 Church St., Norfolk, Va., General Secretary  
Utah State Medical Association, Provo, Aug 27-29, Dr D. G. E. 1, 610 McIntyre Bldg., Salt Lake City, Secretary  
Washington State Medical Association, Spokane, Aug 17-19, Dr V. V. Spickard, 1305 Fourth Ave., Seattle, Secretary  
West Virginia Medical Association, Huntington, July 13-15, Dr C. E. 1, Lively, 1031 Quarrier St., Charleston, Executive Secretary  
Wyoming State Medical Society, Cheyenne, Aug 16-18, Dr W. A. 1, Keith, Capitol Bldg., Cheyenne, Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

#### American Journal of Public Health, New York

32 235-344 (March) 1942

- Occurrence and Recovery of Virus of Infantile Paralysis from Sewage J R Paul and J D Trask New Haven Conn.—p 235  
Opsonocytaphag Reaction to Whooping Cough Vaccination with Particular Reference to Effect of Age on Response A E Keller J C Peterson and P M Densen Nashville Tenn.—p 240  
Errors in Clinical Statements of Causes of Death K Pohlen Battle Creek Mich and H Emerson New York—p 251  
Relative Toxicity of Certain Antiseptics Containing Soap and Alcohol with Special Reference to Mouth Washes H Welch Washington D C and C M Brewer Beltsville Md.—p 261  
Improved Nonvirulent Rabies Vaccine L T Webster and J Casals New York—p 268  
Public Health Engineer in Small County Health Unit H H Hasson Battle Creek Mich.—p 271  
Carriers and Abortive Cases in Rural Poliomyelitis Outbreak A D Langmuir Peckskill N Y.—p 275  
New Methods of Hookworm Disease Investigation and Control J Andrews Atlanta Ga.—p 282  
Methods of Production and Control of Normal Human Plasma and Serum M V Velde Bethesda Md.—p 289  
Statistical Work in Health Department F E Linder Washington D C.—p 295  
Chorioallantoic Membrane Infection as Diagnostic Test for Smallpox S W Bohls and J V Irons Austin Texas.—p 300  
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#### Archives of Otolaryngology, Chicago

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- Therapy of Nerve Deafness and Tinnitus Aurium Use of Large Doses of Thiamine Hydrochloride and Evaluation of Results with Source of Possible Error in Interpretation of Improvement G E Shambaugh Jr Chicago and M L Jennes Waterbury Conn.—p 513  
\*Chemotherapy in Acute Nondiphtheritic Laryngotracheobronchitis H Graebner New York—p 523  
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\*Fusospirochetal Organisms and Tonsillitis Bismuth Therapy of Tonsillitis J F Lewis Fayetteville Ark.—p 587  
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Tonsils and Adenoids J D Singleton Dallas Texas—p 653

**Laryngotracheobronchitis**—During 1939 and up to July 1940 241 patients, 16 (6.5 per cent) of whom died were admitted to the croup wards of the Willard Parker Hospital. For some patients with a severe type of disease sulphyridine or sodium sulphyridine was used in addition to the general procedure followed in treating 217 similar patients during 1937 and 1938. Of the 17 patients for whom intubation was indicated and chemotherapy was used 3 died. The 43 patients who underwent tracheotomy were given chemotherapy as a routine measure. The chemotherapeutic agent seemed to have been least effective in these cases as the mortality was 25.8 per cent. Complicating pneumonia developed in 29 cases with 7

deaths, a mortality of 24 per cent. During 1937 and 1938 when the 217 patients were treated by palliative measures there were 23 deaths, or a mortality of 10.5 per cent. Among the 34 for whom intubation was necessary there were 12 deaths, a mortality of 35.8 per cent. Tracheotomy was necessary for 28, of whom 7 died, a mortality of 25 per cent. Twenty-nine contracted either bronchopneumonia or lobar pneumonia, and of these 12 or 41.3 per cent, died. An analysis of the observations on the patients who died, Graebner concludes, indicates that chemotherapy is of value in suitable cases in which the predominating organism is amenable to the drugs and the physical resistance of the patient has not been too greatly exhausted.

**Bismuth Therapy of Tonsillitis**—Bacterial smears of mucopurulent material aspirated from diseased tonsils frequently, Lewis points out, show many fusospirochetal organisms, while smears made from swabs of the same tonsils reveal only a few organisms. He believes that the usual textbook picture of Vincent's angina calling for many organisms in smears from ulcerated and membranous tonsils is too exclusive, as he has encountered many cases of follicular tonsillitis in which the presence of the fusospirochetal organism seemed to be more important than ulceration and membrane formation. Vincent's organisms, able to thrive under anaerobic conditions, are found in considerable numbers in chronically inflamed gingival pockets. They are predominant in smears of aspirated material in many cases of chronic tonsillitis in children. This suggests that these organisms produce chronic inflammation and hypertrophy of the tonsils. Thus the Vincent organism in crypts may produce chronic inflammation and swelling which closes off the mouths of the crypts and creates anaerobic pockets favorable to its growth. The organism can become invasive, especially when a locus minoris resistentiae is presented by trauma, mercury or bismuth intoxication, malnutrition, abnormal dental conditions or primary invasion by some other organism. Gingivitis and tonsillitis are frequently concurrent in children undergoing second dentition, when the element of trauma is at its highest. Fusiform bacilli and spirochetes play an important role in acute, as well as in chronic, tonsillitis. The author frequently encountered cases of acute tonsillitis with more or less evidence of active fusospirochetal infection in the winters of 1938-1939 and 1939-1940, and less frequently in 1940-1941. Forty patients with acute tonsillitis with evidence of tonsillar fusospirochetal infection usually showed prompt improvement when arsenicals or bismuth injections were given. Bismuth was more effective and whether its effectiveness was due to its streptococcicidal and/or fusospirocheticidal activity bismuth is highly effective for most types of acute tonsillitis. It was ineffective for pneumococcal nasopharyngitis.

#### Canadian Medical Association Journal, Montreal

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\*Genitofemoral Causalgia New Syndrome R K Magee Peterborough Ont.—p 326  
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Treatment of Early Syphilis A Marin Montreal—p 334  
\*Massive Arsenotherapy in Early Syphilis by Continuous Intravenous Drip Method B Usber and A E Hill Montreal—p 342  
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\*Poisonous Complications in Military Hospital S M Campbell and R A Gordon—p 347  
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Acute Empyema J R Nugent St John N B.—p 357  
Shoulder Pain H F Moseley Montreal—p 361  
Role of the Pathologist W J Deadman Hamilton Ont.—p 365  
Circoid Aneurysm Affecting Auditory Auricle A A Kila's Winnipeg Man.—p 370

**Genitofemoral Causalgia**—Magee describes a heretofore unrecognized syndrome characterized by pain and paresthesia of the genitofemoral nerve. The pain which usually follows appendectomy, is aggravated by walking and by hyperextension



of the hip. Two of his 7 patients referred the pain to other pathologic processes. In the year since the first case was seen, 7 have been recognized. In 5 cases the nerve was resected and a complete cure was obtained. The author believes that the condition is common and that it is often misdiagnosed as neurosis or malingering.

**Arsenotherapy in Early Syphilis**—Thirty-six patients with primary or early secondary syphilis, i. e., within four or five months of the inception of the disease, were treated by Usher and Hill with the continuous intravenous drip of mapharsen. One woman was treated again because of a persistent positive Wassermann reaction at four months and 1 man was treated again for a reinfection. Almost all the patients suffered from nausea, vomiting and pain up the arm, 27 had fever toward the end of the first day and a few a low grade fever which persisted throughout the course of the treatment. Five patients had toxic erythema, 3 had paresthesias of the hands and feet, 1 had purpura of the extremities and 1 encephalopathy associated with convulsions and disorientation. There were no instances of exfoliative dermatitis, renal, hepatic or other parenchymal damage, nitritoid crisis or blood dyscrasias. Many of the patients were transients or members of the merchant marine, 7 followed for a minimum of three months have a negative blood Wassermann reaction, 3 have been lost from observation and the status of the others is uncertain. Those who were negative remained negative, while those who were positive became negative within two months. Eight or ten months may elapse before a complete reversal of the serologic state in those with secondary syphilis takes place.

**Postanesthetic Complications**—An analysis by Campbell and Gordon of the anesthetics of 2,094 patients during one year in all the services of a military hospital disclosed that the incidence of pulmonary complications was definitely increased by an active or recent respiratory infection, no matter what anesthetic agent was used. Pulmonary complications following operation on the upper part of the abdomen were decidedly higher than after other types of operation with the same anesthetic agent. Likewise the incidence was higher among patients who had endotracheal intubation than among those who did not. Postanesthetic complications following spinal anesthesia and cyclopropane for the repair of inguinal hernia were not significantly different in the presence of active or recent respiratory infection. In patients with no such history the complication for cyclopropane anesthesia was much less than that for the spinal anesthetic agents. The addition of a supplemental inhalation agent to spinal anesthesia increased the incidence of postanesthetic pulmonary complications.

### Illinois Medical Journal, Chicago

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- \*Kenny Treatment of Infantile Paralysis During Acute Stage P Lewin, Chicago—p 281
- Recent Advances in Diagnosis and Treatment of Abnormal Blood Conditions L R Limarzi, Chicago—p 296
- Basis for Therapy in Intestinal Obstruction M E Lichtenstein, Chicago—p 309
- Carcinoma of Rectum J P Nesselrod, J M Garner F Christopher and W K Jennings, Evanston—p 316
- Perineal Prostatectomy H C Rolnick, Chicago—p 322
- Use of Oxytocic Drugs During Puerperium A E Kanter R K Hausmann and A H Klawns, Chicago—p 324
- Squint and Amblyopia Plea for Their Early Treatment H Beard, Chicago—p 326
- Treatment of Extensive Burns M C Todd, Chicago—p 329

**Kenny Treatment**—Lewin states that the Kenny treatment for poliomyelitis is one of the most noteworthy advances in orthopedic surgery. Careful observation of Miss Kenny or her trained personnel in treating patients with infantile paralysis suggests that continuous rigid splinting is not only "on its way out" but that it is "out." According to Miss Kenny there probably is no such entity as paralysis of an individual muscle. If her theory of intercostal muscle spasm is accepted, the use of the respirator in the disease may be harmful. After nearly two years of follow-up study on 54 cases treated in the Minnesota hospitals by Kenny or by her trained assistants, the medical observers state that they have observed complete recovery of the muscles of the trunk, abdomen, back and neck. The

frequent residual deformities have not been observed in a definite proportion of cases as they have been in cases treated by other methods. The marvelous aspect of the Kenny treatment is the fact that a child with infantile paralysis can be given the treatment in a farm house—especially during the first seventy-two hours of the illness when the hot fomentations afford their greatest relief from pain and stiffness. Miss Kenny has jarred the medical and allied professions out of their complacency into an immediate offensive attack on the local condition which she has proved exists.

### Journal of Bone and Joint Surgery, Boston

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- Fractures of Lateral Condyle of Lower End of Humerus with Complications Simple Technique for Closed Reduction of Capitellar Fracture M G Kini, Madras, South India—p 270
- \*Histoplasmosis of Knee J A Key and A M Large, St Louis—p 281
- Extension Deformities of Cervical Spine L T Brown and J G Kuhns, Boston—p 329
- Tuberculosis of Flat Bones of Vault of Skull Study of Forty Cases C M Meng and Y K Wu, Peiping, China—p 341
- \*Osteochondritis Juvenilis of Acetabulum P R Lipscomb, Rochester Minn., and C C Chatterton, St Paul—p 372
- \*Prognosis in Bone and Joint Tuberculosis Analysis of Results of Treatment and Consideration of Factors Which Influence End Result R I Harris and H S Coulthard Toronto, Canada—p 382
- Hip Joint Involvement in Gaucher's Disease A J Schein and A M Arkin, New York—p 396
- \*Tocopherols (Vitamin E) in Treatment of Primary Fibrositis C L Steinberg, Rochester, N Y—p 411
- Surgical Treatment of Painful Hips of Adults R K Ghormley and M B Coventry, Rochester, Minn—p 424
- Severe Osteoporosis (or Osteomalacia) Associated with Long Continued Low Grade Steatorrhea G Miyakawa and Genevieve Stearns, Iowa City—p 429
- Röntgenographic Study of Acute Osteomyelitis of Femur Treated Conservatively R R Goldenberg, Paterson, N J—p 447
- "Strain" Thrombosis of Axillary Vein H H Cohen, New York—p 452
- Rubber Surface Skin Traction H I Barnard, Denver—p 467

**Histoplasmosis of Knee**—As far as Key and Large could determine, none of the cases of histoplasmosis reported in the literature involved joints or muscles as it did in their case, in which sections from the specimen of the knee joint showed the typical *Histoplasma capsulatum* of Darling. The case closely resembled tuberculosis of the knee joint and was so diagnosed until it was found that the guinea pig inoculation and the tuberculin test were negative. It was then thought to be a low grade infection of unknown origin. The limb was amputated, the sutures were removed on the seventh postoperative day, two days later the patient became stuporous and cyanotic, the neck became rigid, ankle clonus developed, a diagnosis of pneumonia of the right lower lobe complicated by right heart failure and meningismus was made and the patient was placed in an oxygen tent and given sodium sulfathiazole intravenously, but he died the following day. Necropsy was refused, and the true diagnosis was not suspected until the microscopic sections of the synovial tissues of the knee were examined. The authors report their case because they feel that, if Meloney's predictions come true other cases will appear and that other clinicians may make similar mistakes.

**Osteochondritis Juvenilis of Acetabulum**—Lipscomb and Chatterton report what they believe to be the second presentation in the literature of juvenile osteochondritis of the acetabulum. They believe that the acetabulum is involved much more often than is generally recognized, either with the head of the femur or alone. To substantiate this view they report 3 cases in which the acetabular structure was involved without obvious involvement of the neighboring head of the femur and 2 cases in which the acetabulum was involved in conjunction with the femoral head and other centers of ossification. Treatment is conservative and should relieve the strain which results in weight bearing. Healing without deformity took place in 2 cases.

**Bone and Joint Tuberculosis**—Harris and Coulthard attempt to determine the present status of the 307 patients with bone and joint tuberculosis treated in the Toronto Hospital between January 1931 and December 1940 and the influence the prognosis. It was possible to follow up 200 cases.



for one to ten years. These 296 patients had three hundred and fifty six lesions of bones, joints and associated structures. When the results obtained are analyzed irrespective of the therapeutic measures adopted, it becomes apparent that several factors influence the prognosis adversely: the presence of multiple tuberculous foci and the presence of organisms other than tubercle bacilli in any of these foci. More than one third of the patients had only one tuberculous focus. The percentage of arrested disease and the ability to return to work of these patients was high, especially those with tuberculosis of the spine (80 per cent) and of the knee (100 per cent). The mortality rate was 13 per cent and was usually due to secondary osseous infection or to nontuberculous disease. A fourth of the patients had additional tuberculosis in other bones and/or in the genito-urinary system but not in the lungs. Treatment has to arrest tuberculosis throughout the body, and often more than one operation is required. The incidence of these patients' return to work was much reduced and the mortality rate rose to about 20 per cent because of the appearance of meningitis and of Addison's disease in addition to chronic suppuration and nontuberculous disease. More than 40 per cent of the patients also had pulmonary tuberculosis, the most serious complication. When combined with other skeletal and renal foci the prognosis is much worse than when pulmonary tuberculosis is the only complication, the incidence of arrested disease and of return to work among the latter patients was between 40 and 50 per cent and between 12 and 20 per cent for the former, and the respective mortality rates were 38 and 44 to 80 per cent. The principal causes were miliary tuberculosis, meningitis and pulmonary tuberculosis. Tuberculosis of the spine was arrested in 88 per cent of the patients treated by spine bone graft, but in 26 per cent arrest of the systemic disease was delayed or prevented by tuberculosis elsewhere in the body. The best results were obtained by rest and the control of other tuberculous foci and then by operation to secure bony ankylosis of the affected joint.

**Tocopherols in Treatment of Primary Fibrositis.**—Various chemical combinations, physical forms and routes of administration of the tocopherols were tried by Steinberg for the treatment of patients with primary fibrositis. From 120 to 240 mg of a molecular distillate of tocopherol was given daily to 20 patients with primary fibrositis. Definite improvement was observed by all. Forty other similar patients were given 300 mg of the preparation for one week and then 150 mg. Most of these patients improved after one week of treatment, and all but 5 were completely relieved of their fibrositic symptoms. These 5 patients were relieved from pain, but not completely from generalized stiffness. Nine patients with primary fibrositis were given 334 mg of mixed tocopherols intramuscularly at weekly intervals for three weeks, all had severe local reactions, 2 had systemic reactions, but all were definitely relieved of their fibrositic symptoms and the fibrositic nodules of 1 patient disappeared. All of 12 patients given 200 mg of synthetic alpha tocopherol in corn oil intramuscularly at weekly intervals and observed for two to four months were also definitely relieved. The injection route was tried in 4, 0.3 cc of 40 per cent solution of the molecular distillate was rubbed into the skin daily. These patients were observed for two months, they objected to the odor of the drug, and the results were poor. Two salts of the tocopherols were given 22 patients with various muscle disorders. The fibrositis was completely relieved of 9 of 12 patients who received 0.065 Gm of alpha tocopherol succinate in capsules by mouth three times daily. 1 with secondary fibrositis obtained no relief nor did 2 with psychosomatic rheumatism. Of 10 others with fibrositis receiving 0.065 Gm of gamma tocopherol palmitate three times daily by mouth 6 were completely relieved and 2 had some relief, 1 with combined sclerosis complicating pernicious anemia and 1 with osteitis deformans had no relief. The results indicate that either the oral or the parenteral route is equally efficacious. The striking similarity between the pathologic changes of primary fibrositis and nutritional muscular dystrophy plus the clinical improvement obtained in both conditions with tocopherols indicate that primary fibrositis is a metabolic disorder concerned with the deprivation of vitamin E.

## Journal of Lab and Clinical Medicine, St Louis

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Experimentally Induced Hematopoiesis in Anemic Rabbits H Gordon C H Crudden and A K Lampton Louisville Ky—p 890  
Clinical and Laboratory Investigations on Extract of European Mountain Ash Berry with Particular Reference to Its Antihemorrhagic Activity G Y Shinowara, C J Delor and J W Means Columbus Ohio—p 897  
Lesions in Superior Mediastinum Which Interfere with Venous Circulation H C Hinshaw and D I Rutledge, Rochester Minn—p 908  
Androgenic and Estrogenic Substances in Urine of Eunuchoid and Castrate Men Changes Following Administration of Testosterone Propionate J B Hamilton R I Dorfman and G R Hubert New Haven Conn—p 917

## Kentucky Medical Journal, Bowling Green

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## Maine Medical Association Journal, Portland

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## Nebraska State Medical Journal, Lincoln

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Medical Care of Premature Infants A V Stoesser, Minneapolis and R H Loder Lincoln—p 124  
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Treatment of Cancer of Bowel J D Bisgard Omaha—p 137  
Bilateral Rupture of Biceps Brachii Lower Limb W R Hamsa Omaha—p 140

## New England Journal of Medicine, Boston

226 547-588 (April 2) 1942

- \*Optimal Dosage and Reciprocal Relation of Desoxycorticosterone Acetate and Sodium in Addison's Disease T H McGavack New York—p 547  
Important Etiologic Factor in So-Called Foot Strain R B Osgood Boston—p 552  
Toxic Effects from Intraperitoneal Use of Sulfanilamide Report of Two Cases M F Lesses and A Starr Boston—p 558  
\*Treatment of Trichomonal Vaginitis with Acetate one Tampons J V Meigs Boston—p 562  
Nutritional Deficiencies in Relation to Digestive Tract C M Jones Boston—p 563

**Desoxycorticosterone Acetate and Sodium for Addison's Disease.**—During the last two and a half years McGavack treated 6 cases of Addison's disease with desoxycorticosterone acetate, together with regulating the sodium and potassium intake. He concludes that the patient with Addison's disease can be satisfactorily maintained in good health with desoxycorticosterone acetate and the simultaneous regulation of the intake of sodium and potassium and that within certain limits a reciprocal relation exists between the amount of sodium

to be ingested and the dose of desoxycorticosterone acetate necessary to maintain the subject in a state of well being, a slow, steady gain in weight or the maintenance of an attained normal weight, a return and stabilization of a normal blood pressure and the maintenance of normal values for sodium and potassium in the blood and urine and improved dextrose tolerance curves. Patients felt best and showed most nearly normal carbohydrate utilization on 10 to 20 mg of desoxycorticosterone and sodium daily. Patients receiving less than 5 mg of desoxycorticosterone daily and more than 9 mg of sodium daily did not "feel fit," despite the maintenance of normal weight, blood pressure and serum electrolytes.

**Acetarsons Tampons for Trichomonas Vaginitis**—Meigs used tampons infiltrated with acetarsone to treat 39 cases of *Trichomonas vaginitis*. The tampons are made by dusting each with  $1\frac{1}{2}$  grains (0.1 Gm) of acetarsone, in addition a tablet containing  $\frac{1}{2}$  grain (0.032 Gm) of acetarsone, 2 grains (0.13 Gm) each of dextrose, lactose and boric acid,  $\frac{1}{2}$  grain of starch,  $\frac{1}{4}$  grain (0.016 Gm) of sodium bicarbonate and  $\frac{1}{10}$  grain (0.025 Gm) of tartaric acid is placed on top of each. The pH of the solution of this tablet is approximately 3. Acetarsons powder is first insufflated and then the medicated tampons are used at home every night for the first week and removed in the morning. At the end of a week a warm douche of sodium perborate (1 tablespoon to a quart of warm water) is taken. During the next week the tampons are inserted every other day, and during the following week they are used every third day, the weekly douches are repeated. This is continued until the next menstrual period. The medicated tampons are used throughout the period, but after it the treatment is omitted for a few days and a smear is taken, and if it is positive treatment is repeated. If the smear is negative the patient uses a tampon twice a week, with a sodium perborate douche at the end of the week. If after the next menstruation the vagina is still free from organisms, treatment is stopped. Of the 39 patients treated 19 were permanently cured, 7 were symptomatically relieved, 7 were not sure whether the treatment was beneficial and 6 thought it was not.

226 589-628 (April 9) 1942

- Regional Enteritis Report of Forty Three Cases R Warren and R H Miller, Boston —p 589  
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\*Pharmacodynamics of Sulfadiazine in Man H D Ratish, N H Shackman and J G M Bullowa, New York —p 596  
Ununited Hip Fractures O J Hermann, Boston —p 601  
Surgery of Autonomic Nervous System Method of Study, with Particular Reference to Interpretation of Clinical Results R H Smithwick, Boston —p 605

**Pharmacodynamics of Sulfadiazine in Man**—The pharmacodynamics of sulfadiazine were studied in 98 men who had infection of the upper part of the respiratory tract or who were convalescing from pneumonia. Ratish and his associates gave the drug orally, intravenously, subcutaneously, intramuscularly and rectally and determined the fate of single oral doses of 2, 3 and 5 Gm and of repeated doses of 1 Gm every four to six hours. Sulfadiazine was readily absorbed from the gastrointestinal tract and with it a generally higher concentration was obtained in the blood than with similar doses of sulfapyridine and sulfathiazole. Sulfadiazine disappeared from the blood more slowly than either of the other two drugs. The amount conjugated in the blood was less than that with sulfapyridine or sulfathiazole. The conjugated fraction in blood and urine did not increase with continued administration. About a third of the dose given was conjugated in the urine, although in exceptional cases a much larger proportion may be so excreted. Its rapid urinary excretion may account for the small quantity conjugated in the blood. When both rapid attainment and maintenance of high blood levels are desirable and oral administration is not feasible, the intravenous infusion of sodium sulfadiazine is practical. Sulfadiazine was widely and readily distributed in body fluids. It penetrated well into the pleural and peritoneal cavities. Its concentration in the spinal fluid was usually about two thirds of that in the blood. With initial doses of 2, 3, 4 and 5 Gm followed by 1 Gm every six hours the levels obtained were similar to those reached when the drug was given every four hours. The concentration in the blood

was independent of the total and the per kilogram of body weight dose. The incidence of toxic reactions was less with sulfadiazine than with sulfapyridine and sulfathiazole. When they did occur they were mild.

## Northwest Medicine, Seattle

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## Oklahoma State Medical Assn. Jour., Oklahoma City

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- Fever Therapy P S Nagle, Oklahoma City —p 139  
Laboratory Findings in Pneumonia and Bronchitis Report on 100 Cases W H Bailey, Fort Sill —p 142  
Obstetric Shock B D Faris, Oklahoma City —p 144  
Anuria Following Administration of Sulfadiazine and Sulfapyridine Case Reports W T Bynum, F T Joyce and O S Pyle, Chickasha —p 145  
Unusual Case History for Diagnosis D J Underwood, Tulsa —p 148

## Physiological Reviews, Baltimore

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- Blood Brain Barrier U Friedemann, Brooklyn —p 125  
Cytologic Aspects of Synaptic Function D Bodian, Cleveland —p 146  
Organic Chemical Industrial Hazards to Health W F von Oettingen, Bethesda, Md —p 170  
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## Surgery, Gynecology and Obstetrics, Chicago

74 777-904 (April) 1942

- Vascular Tumors of Bone Pathologic and Clinical Study of Twenty Seven Cases A Thomas, Denver —p 777  
\*Suppurative Joint Disease and Its Relation to Pyogenic Osteomyelitis Review of End Results of Sixty Seven Involved Joints in Fifty Seven Patients, Modern Chemotherapy J Blaisdell and P H Harmon, Sayre, Pa —p 796  
Supplementary and Synergistic Action of Stimulating Drugs on Motility of Human Colon H F Adler, A J Atkinson and A C Ivy, Chicago —p 809  
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External Biliary Fistulas Study of Twenty Three Cases N F Hicken, L B White and Q B Coray, Salt Lake City —p 828  
\*Testicular Biopsy Further Studies in Male Infertility C W Charny and D R Meranze, Philadelphia —p 836  
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\*Nine Years' Clinical Experience with Steel Wire as Suture Material G H Pratt, New York —p 845  
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Fracture of Patella Treated by Removal of Loose Fragments and Plaster Repair of Tendon Study of 554 Cases J E M Thomson, Lincoln, Neb —p 860  
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Volvulus of Cecum Anatomic Factors in Its Etiology Report of Case J A Wolfer, L E Beaton and B J Anson, Chicago —p 872  
Hazards of Fire and Explosion of Anesthetic Agents III In Particular of Diathermy B A Greene, Brooklyn —p 895  
**Joint Suppuration, Pyogenic Osteomyelitis**—The data on 57 patients with sixty-seven suppurative joints encountered in two hospitals during a period of eight years analyzed by Blaisdell and Harmon emphasize the need for early and precise bacteriologic diagnosis by joint aspiration so that specific chemotherapy

therapy may be instituted immediately. Prolonged application of traction to the involved extremity to minimize ankylosis and the value of specific chemotherapy during the acute stage are stressed. Of the 57 patients 7 died, 25 had chronic osteomyelitis and/or ankylosed joints with draining sinuses 5 were improved (the wound healed, but occasional discomfort remained) and 20 were cured (2 by amputation). These results are poorer than would be obtained under modern chemotherapy, since it aids in controlling suppuration, allowing elective and reconstructive operations and sterilizing the blood stream if involved. In the acute cases deformity was prevented by fixation in the positions of maximal function. Many patients were not seen until long after the acute onset. These patients, for the most part had retained deformities which under proper supervision could have been minimized or prevented.

**Testicular Biopsy to Determine Fertility**—Charny and Meranze performed ninety-five testicular biopsies to determine the nature of the intrinsic lesion causing reduced fertility. The series includes instances of testicular underdevelopment resulting from a congenital endocrine imbalance and testicular degeneration of a normally developed testis brought about by inflammation, toxic processes or postpubertal endocrine disturbances. These two lesions can be differentiated by the data obtained from testicular biopsy. The differentiation determines the prognosis and type of treatment. The ninety-five biopsies revealed two pathologic changes varying considerably in degree: intratubular, in which the degenerative or developmental lesion was confined to the seminiferous tubules, and peritubular, in which peritubular fibrosis either inflammatory or replacement was seen in addition to the intratubular lesion. Sixteen of the biopsies showed normal spermatogenesis, fifty-one showed moderate to severe peritubular fibrosis and twenty-eight showed a normal amount of peritubular connective tissue despite damage to the tubular epithelium. The pathologic changes confined to the tubules varied from simple desquamation of the innermost layer of cells the spermatids, to more severe degenerative changes in which both the spermatocytes and spermatogonia were involved or, finally, to a stage in which the tubule consisted of merely a single layer of undifferentiated cells apparently incapable of growth and division. The peritubular fibrosis was indicative of either the end stage of an inflammatory process or of a severe degenerative process which produced, in addition to epithelial damage, an infolding and thickening of the membrana propria, a shrinkage of the tubules and subsequent replacement fibrosis. The presence or absence of peritubular fibrosis was a most valuable differentiating finding: fibrosis was not observed in any clinical entity associated with underdeveloped testes. Such testes showed tubules smaller in size than normal and lined by incompletely developed or undifferentiated epithelial elements. On the other hand, the acquired degenerative lesion almost invariably showed some degree of peritubular fibrosis. Exceptions apparently occurred in mild cases of tubular degeneration and in extremely acute instances which did not represent end stages such as injury from diethylstilbestrol. Such cases illustrate the regenerative potentialities of the testes when the toxic agent is removed or a stimulating remedy is introduced. Testosterone propionate produced degeneration of the seminiferous tubules in a hypogonad in whom androgen therapy was indicated according to the present concepts. Most men with reduced fertility who are almost routinely treated with some endocrine product present no clinical evidence of endocrine disturbance or endocrinopathy when studied by the available laboratory procedures. Therefore there is no justification for concluding that there is an isolated endocrine dysfunction of the seminiferous tubules. Most of these testicular lesions are degenerative and are usually due to local or distant inflammatory or toxic processes. Since no endocrine imbalance exists, the lesion cannot be expected to respond to endocrine therapy.

**Steel Wire as Suture Material**—Pratt implanted some seven hundred and fifty sutures of different materials (no 1 catgut, chromic no 1 catgut, silkworm gut, alloy steel wire, silver wire, dermal and various types of fishline) in surgically prepared areas in 125 cases to learn the reaction to these

materials. Microscopic, bacteriologic and at times pathologic observations were made at intervals of five, seven, ten and fourteen days. Steel wire sutures showed the least tissue reaction. For the last eight years the author has used steel wire exclusively for retention and cutaneous sutures with success in all abdominal and other wounds. It has been buried in the closure of fascia in inguinal and all ventral or incisional hernias. It has been particularly successful in the presence of sepsis and its efficiency has permitted primary closures in appendicitis with peritonitis, in colostomies after the first stage of the Mikulicz operation and in fistulas. It has replaced all other sutures in plastic operations.

**Complications of Radiotherapy in Cancer of Cervix**—Cutler divides complications of cervical radium and roentgen therapy for cancer into the avoidable, which result from incorrect irradiation, and unavoidable, which occur in spite of apparently correct irradiation. To eliminate avoidable complications the basic principles of radiation therapy must be understood. An exactly similar treatment is not suitable for all cases, but certain generalizations can be applied to certain groups of cases. The radiation treatment of cervical cancer is intracavitary and extracavitary. As a rule the two procedures are combined, or one or the other method may be used exclusively. Occlusion of the cervical canal by cancer renders intracavitary irradiation difficult and sometimes impossible. The danger of perforation in an effort to locate the cervical canal can be avoided by initiating treatment with external and vaginal radiation which will cause the lesion to regress and will diminish or eliminate infection—the most important of all complications. Other complications, most of which are avoidable, are early injury to the cutaneous and subcutaneous tissue and edema. Epidermite can be avoided by protracting the total treatment to five or six weeks. Edema indicates that the normal tissue cannot tolerate the intensity of the radiation administered. Difficulties can be eliminated by avoiding the single massive dose. Injury to the bladder is uncommon if treatment is not faulty. The proximity of the rectum to the radium foci placed against the cervical lesion exposes it to possible radiation injuries. The first and mildest reaction of the rectal mucosa to irradiation consists of a watery diarrhea without abdominal pain. It indicates that the level of tolerance has been reached. This reaction requires that the size of the skin port be reduced. If the reaction becomes more severe, irradiation is too intense and the daily dose must be reduced, the size of the field diminished or treatment discontinued for several days or longer. Late sclerosis of the pelvic tissue may occur years after intensive irradiation. Pyometra with peritubal edema and diffuse parametrial inflammation may simulate a local recurrence. Mild palliative irradiation was given several patients for suspected late parametrial recurrence and the patients were discharged with an apparently hopeless prognosis, but several years later information was received that these patients were alive and well. There can be little doubt that these were examples of pelvic sclerosis. For postirradiation intestinal obstruction, a rare but important result of benign stricture of the intestine, laparotomy is warranted. Activation of latent hemolytic streptococci is a real danger and is associated with 1 to 2 per cent mortality. Since the advent of the sulfonamides, reports have appeared in the literature indicating that they are valuable in treating infections.

### Tennessee State Medical Assn Journal, Nashville 35 123-168 (April) 1942

- Present Day Management of Pneumonia C P Wofford, Johnson City —p 123
- Conduct of Normal Labor and Routine Employment of Episiotomy and Prophylactic Low Forceps in Primipara R C Webb Bemis —p 127
- Tennessee Pneumonia Control Program Report for Fiscal Year 1940 to 1941 W C Williams C B Tucker and Ruth R Puffer Nashville —p 133
- Regional Enteritis C C Trabue Nashville —p 136
- Unusual Case of Intestinal Obstruction E L Rippey Nashville —p 140
- Investigation of Psychologic Effects of Sodium Bromide L S Trowbridge M Moore and M G Gray Boston —p 142
- Total versus Subtotal Hysterectomy in Benign Conditions of Uterus J C Morris Knoxville —p 146
- Acute Inversion of Uterus with Prolapse Case Report J P Long Jr Memphis —p 150

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## Archives of Disease in Childhood, London

17 1-64 (March) 1942

- Anemia in Nephritis P MacArthur—p 1  
Further Investigation of Breast Feeding Study of 1,000 Mothers Margaret Robinson—p 23  
Infantile Muscular Atrophy of Spinal Origin Report of Two Cases J G Macleod and R M MacDonald—p 30  
Growth of Lung in Healthy and Sick Infants S Engel—p 41  
\*Fourth Type of Erythroblastosis Fetalis Showing Hepatic Cirrhosis in Macerated Fetus Report of Three Cases J L Henderson—p 49

**Fourth Type of Erythroblastosis Fetalis**—Three cases of a fourth type of erythroblastosis fetalis, not described previously, in which hydramnios is common and intrauterine death occurs some time before delivery, are reported by Henderson. Fetuses of this type show little or no edema, are severely macerated and have a diffuse hepatic cirrhosis and splenomegaly. The pale pink placenta is greatly enlarged. The pronounced hepatic cirrhosis proves that erythroblastosis may have a long intrauterine course. This type of the disease bears a close superficial resemblance to congenital syphilis, but close examination of the fetus and placenta renders differentiation easy. Fetal and neonatal erythroblastosis is not generally recognized. The more severe types are still usually regarded as congenital syphilis, and the unfortunate mothers are condemned as syphilitic in spite of negative serologic reactions. The relative frequency of this type of erythroblastosis is difficult to determine, as the affected fetuses are often not examined. It may be more common than either hydrops fetalis or anemia hemolytica.

## Journal of Hygiene, London

42 1-102 (Jan) 1942

- \*Administration of Vitamin C in a Large Institution and Its Effect on General Health and Resistance to Infection A J Glazebrook and S Thomson—p 1  
\*Sulfonamide Compounds and Acute Rheumatism A J Glazebrook and S Thomson—p 20  
Ecology and Significance of Different Types of Coliform Bacteria Found in Water Review of Literature C B Taylor—p 23  
Further Studies of Incubation at 44 C as Test for "Fecal Coli" H P Sherwood and L F L Clegg—p 45  
Eijkman Test for Fecal Coli in Bacteriologic Examination of Water Supplies Survey and Discussion of Experimental Work from 1929 to Present Day with Study of 104 Water Samples and 602 Cultures C G Batty Smith—p 55  
Small Outbreak of Diarrhea Associated with Paracolon Bacillus A J Rhodes—p 99

**Effect of Vitamin C on Health**—Glazebrook and Thomson discovered a pronounced difference between the degree of vitamin C saturation of students 15 to 20 years of age in a large training school and the teaching staff. The students were given a high calory diet subjected to prolonged heating, which resulted in a reduction of the total daily vitamin C intake to a level of 10 to 15 mg per person. A daily addition of 50 mg of ascorbic acid per person was required to maintain an optimal excretion level. Better distribution and cooking of the food might have achieved the result. The daily potato ration alone, allowing for normal cooking losses, should have supplied at least 25 mg of vitamin C. Some vitamin loss is unavoidable when food is cooked in a central kitchen for large groups of persons. Normally this can be easily counteracted by supplying uncooked fresh or canned food. The dietary of the teaching staff included the supply of fresh fruit at each of the main meals. It was prepared in separate kitchens and escaped overcooking. Nevertheless, 25 per cent of the staff were "deficient" in vitamin C, in spite of their adequate intake. Approximately 4,000 mg of vitamin C was required to produce tissue saturation in the youths. A record of the incidence of infectious diseases revealed that the incidence of the common cold and of tonsillitis was the same among the general group and a group given vitamin C, that the average duration of illness due to the common cold was the same in the two groups and that rheumatic fever and pneumonia occurred among the general students but not among the special group given vitamin C.

**Sulfonamide Compounds and Acute Rheumatism**—In an institution for boys during an epidemic of tonsillitis (2,000 cases) and acute rheumatism (115 cases), every fourth patient admitted to the wards with tonsillitis was treated by Glazebrook and Thomson with 15 to 20 Gm of sulfanilamide over a period of four or five days. Of 16 cases of acute rheumatism observed for six months, 4 occurred in the group whose preceding tonsillitis had been treated with the drug and 12 occurred in the group whose preceding attack was not so treated. Four of the patients in the control group gave a history of a previous attack of acute rheumatism. Many hemolytic streptococci were cultured from throat swabs of 4 patients of the test group and from 6 of the control group during the attack of tonsillitis. Two cases of otitis media and 1 of streptococcal pneumonia developed. The drug was not in the controlled experiment but sulfonamide therapy was administered. Rheumatism developed in these 3 patients as a complication.

## Lancet, London

1 281-312 (March 7) 1942

- Continuous Method of Drying Plasma and Serum J F Wilkinson, K Bullock and W Coven—p 281  
\*Mental Reactions to Air Raids H Wilson—p 284  
Neurogenic Bladder Combined Tidal Irrigator and Cystometer O W Stewart—p 287  
Sulfonamide Compounds in Feces F Hawking—p 290  
\*Meningococcal Endocarditis J G Cutts, G Kraft and P H Walker—p 292  
Hereditary Tendency to Hernia P Evans—p 293

**Mental Reactions to Air Raids**—Psychiatric casualties following aerial bombardment have been less than expected. Wilson reports that of 697 civilian patients brought to the first aid post 134 were suffering from acute emotional disturbance, hysterical paraplegia and stupor due to fright and anxiety. All left the hospital within twenty-four hours and only 6 returned. They were all told that their reaction was due to fear, which is shared by all persons, and that it was important that they should return to their normal work and resist the temptation to exaggerate the experiences through which they had passed. The psychopathic traits of 63 patients suffering from psychiatric symptoms due to air raid stress were two and a half times as frequent as those of 102 nonservice normal patients taken at random from the surgical outpatient department of the same emergency medical service hospital. The controls were far more conscious of the fear excited by aerial bombardment than the psychiatric patients. Shelter phobia was present in 15 of the 102 controls. The admission and acceptance of fear is a safeguard against breakdown under acute stress. Total denial of fear is a poor prognostic sign. The anxiety that requires attention at the first aid post may be aided by dispelling fear by reassuring the outpatients that their reaction is natural. For conversion symptoms—dyspepsias, inframammary pain and head aches—it is probably important to convince these patients at the first session of the obvious connection between the symptom and the acute danger or terror. When any service must recruit persons with anxieties, reasonable timidity and anxiety should be allowed if it is associated with those opportunities of corporate responsibility and wholesome competition which strengthen individual morale. To prevent hysteria, civilian defense workers must have the capacity for arduous work.

**Meningococcal Endocarditis**—A case of meningococcal endocarditis that responded to treatment with the sulfonamides is reported by Cutts and his collaborators. In the nine months that the patient was ill he received 90 Gm of sulfanilamide, 130 Gm of sulfapyridine and 560 Gm of sulfathiazole. The drug controlled the daily intermittent fever, which rose to 101 F. Each time the sulfonamides were withdrawn it again rose. The recurrences indicate the lethal effect of the drug on the circulating organisms and their failure to overcome the defense of origin on the heart valves. The sulfonamides were given with some anxiety lest renal complications ensue. Sulfapyridine had the most depressing effect on the patient but sulfanilamide did not upset him and he took this drug continuously for two weeks without a complaint.



## 1 313-342 (March 14) 1942

- Cardiac Ischemia J W Reid—p 313  
Phogenic Poisoning Report of Two Cases J P Steel—p 316  
Hypoprotbrombinemia Produced by Methylene Bis (Hydroxycoumarin)  
Its Use in Thrombosis J Lehmann—p 318  
\*Digestibility of National Wheatmeal H A Krebs and K Mellanby  
—p 319  
Tellurite Medium in Diagnosis of Dysentery J C S Thomas and  
W A Hulme—p 321  
\*Gastric Disorders in the Army J M Smellie—p 322

**Digestibility of National Wheatmeal**—Krebs and Mellanby determined the digestibility of the national wheatmeal or white flour of 75 per cent extraction in 6 adult male volunteers who consumed 480 to 700 Gm of bread made from these flours. The dry weight and nitrogen content of the feces were determined. On the average 94 per cent of the dry matter and 97 per cent of the nitrogen of national wheatmeal were digested. In the case of white flour of 75 per cent extraction approx 97 per cent of dry matter and 91 per cent of the nitrogen were digested. The views put forward by Wright against raising the extraction of wheat to 85 per cent are not substantiated by the new data. The difference in the digestibility of the two flours is much smaller than Wright assumed.

**Gastric Disorders in the Army**—According to Smellie from Nov 1, 1940 to Oct 31, 1941 1,686 cases were admitted to the medical division, and indigestion was the leading complaint of 247 131 of whom had definite organic gastric or duodenal disease and were invalided from the service as permanently unfit. The remaining 116, after investigation and a short course of treatment were returned to duty. Thus organic dyspepsia was present in 77 per cent of the total medical cases. When a diagnosis of ulcer has been established in a soldier he should be invalided from the army and immediately returned to civilian life where rest, diet and tranquillity of mind are possible. Before enlistment these patients were leading useful lives in the service of their country and should be returned to such service. In the army they remain a burden to themselves and to others. So far as possible they should be investigated as outpatients. The segregation of soldiers suffering from dyspepsia is detrimental to their interests, for such advantages as accrue from organized management far outweigh the adverse reactions on the individual. Segregation makes symptoms spread and the return of the soldier with a mild, simple and functional disorder to duty much more difficult, they think they are being victimized.

## Medical Journal of Australia, Sydney

1 185-214 (Feb 14) 1942

- \*Value of Hippuric Acid Test and Takata-Ara Reaction in Investigation of Hepatic Deficiency Margaret Henderson and B Splatt—p 185  
Investigation of Hepatic Function in Thyrotoxicosis F H Mills—p 195

1 215-244 (Feb 21) 1942

- Ancillary Sciences and Neurosurgery H R Dew—p 215  
Measurement of Cardiac Output Investigation into Acetylene Method M Morrissey—p 221  
Antileukocytic Sheep Serum as Sensitizing Agent in Chronic Myeloid Leukemia Refractory to Deep X-Ray Therapy J B Thiersch—p 225

**Tests of Hepatic Deficiency**—The effectiveness of the hippuric acid excretion as a test of hepatic function was determined by Henderson and Splatt on 89 patients with hepatic disease, 86 with various other disorders and 25 normal adults or patients convalescent from minor surgical conditions. The results were compared with the Takata-Ara reaction in 143 patients with disease of the biliary tract and in 50 normal subjects. In no case was there any grave discrepancy between the results of the hippuric acid excretion test and the operative observations or the necropsy. The test is not reliable when the kidneys fail to excrete nitrogenous metabolites, but this difficulty seldom arises in practice, and furthermore in doubtful cases the estimation of the blood urea content and of the urea clearance or concentration would detect such errors. Besides lowered function of hepatic disease and congestive heart failure the test revealed impaired function in certain conditions in which toxic changes are widespread, as in pulmonary tuberculosis, pernicious anemia and rheumatoid arthritis. As with the hippuric acid test the liver is called on to make an effort

well beyond the normal physiologic requirements, the test is comparable to the urea clearance and concentration tests. The hippuric acid excretion test is purely a test of function, and any diagnostic aid that it gives is incidental. As an aid to treatment and prognosis the test should find its widest application. A comparison of the Takata-Ara and hippuric acid tests shows that the Takata-Ara test in 8 of 29 patients with hepatic disease was strongly positive, in 7 it was moderately positive and in 14 it was weakly positive or absent. The discrepancy between the results of this test and that of the hepatic function was even more apparent in patients with disease of the gallbladder and ducts in which only one out of fourteen tests produced a significant reaction, even in the presence of a considerably diminished hepatic function. The Takata-Ara test was not specific for cirrhosis of the liver or parenchymatous hepatic disease. The reaction was frequently not obtained in early cases. The test was useful in differentiating parenchymatous and obstructive jaundice. In 15 of 20 cases of parenchymatous disease strong or moderate reactions were obtained, whereas in only 2 of 14 cases of obstructive jaundice were moderate reactions obtained. Therefore it appears that the Takata-Ara test alone is unreliable as a test of hepatic function or as diagnostic of hepatic disease.

## 1 245-274 (Feb 28) 1942

- \*Some Pharmacologic Properties of Serum with Special Reference to Its Use as Blood Substitute G Reid and Marjorie Bick—p 245  
Traumatic Shock and Concussion J W Tomb—p 250  
Tuberculous Lesions Found at 1 500 Australian Autopsies J B Cleland—p 256

**Pharmacologic Properties of Serum**—Reid and Bick investigated the origin of the pharmacologic properties present in serum, the means of determining their presence and the method of preparing serum which would contain a minimal amount of them. The presence of a smooth muscle stimulating and vasoconstrictor substance (or substances) in serum prepared by the clotting of whole blood was regularly demonstrable. Plasma or whole blood did not possess these properties. The activity of serum depended on the number of platelets present in the plasma at the time of clotting. For instance, serum prepared from plasma centrifuged at high speed was devoid or almost devoid of activity, whereas that prepared from plasma prepared by the gravity method was nearly as active as that from whole blood. That the platelets are the source of the muscle stimulating substance was further confirmed by the preparation of platelet extracts whose activity was quantitatively equal to or greater than that of serum made from the original platelet-containing plasma. Evidently the active substance is preformed in the platelets and its liberation is incidental to the clotting process. Serum which had been boiled still retained its muscle stimulating and vasoconstrictor action. Serum could be freed of the substance by dialysis against distilled water through cellophane membranes. Thus the active substance is not protein in nature. Serum stored at room temperature or in a refrigerator at 0 to 2 C retained its muscle stimulating and vasoconstrictor action without appreciable reduction in activity for at least three months. The drying of serum by the method of Flosdorf and Mudd was without effect on the activity. The importance of the pharmacologic properties of serum must be determined clinically. So pronounced sometimes was the reaction in cats after even small doses of serum that if man behaved in an analogous fashion the intravenous use of human serum would certainly be contraindicated. However, there is no evidence that man does react in such a manner. It is difficult to assess the inferiority of serum to other blood substitutes in relation to the pharmacologically active substance that it may contain, because many reports do not state how the serum was prepared and that pyrogens were excluded. It is perhaps significant that the reactions following its use have been mainly febrile and do not differ from those that sometimes occur with plasma or whole fresh or stored blood. It is difficult to see how the muscle stimulating substance can be responsible for such reactions. There is no evidence that these pharmacologic properties are responsible for serum reactions, though it is theoretically possible that they may be important in producing circulatory reactions when a large dose is given to a susceptible subject.



## Cardiologia, Basel

5 189-332 (Nos 4/5) 1941

Investigation on Comparative Anatomy and Experimental Pathology of Upper Connections of Bundle of His Tawara I Mahmud and M R Winston—p 189

Electrocardiogram in the Bronchial Asthma Paroxysm F Münzer and M Krause—p 261

\*Contribution to Study of Arterial Hypertension in Its Relations to Hypothalamohypophyseal System A van Bogaert and Fr van Baarle—p 275

Does the Heart Work Like a Pressure Pump or Like a Hydraulic Ram? P Hahn—p 308

Some Types of Electrocardiograms That Apparently Are Related to Paroxysmal Tachycardia R F Ohnell—p 321

\*Aspects of Paroxysmal Tachycardia Two Families in Which Tendency to "Heart Attacks" and to Certain Electrocardiographic Changes Are Frequent R F Ohnell—p 326

**Arterial Hypertension, Hypothalamic and Hypophyseal Systems**—Van Bogaert and van Baarle point out that in some cases of essential hypertension there exist diverse sympathetic signs which resemble those produced by experimental stimulation of the hypothalamus in dogs. The authors explored the possible role of hypophyseal hyperactivity or of normal hypophyseal secretion on the stimulation of the hypothalamic centers and tracts. As a result of a critical study of signs of hypophyseal hyperactivity in a case of essential hypertension, the authors have arrived at the following conclusions. Liberation of the encephalobulbar sympathetic pressure centers causes, on the one hand, arterial hypertension and, on the other, excessive secretion of the hypophyseal hormones. Numerous animal experiments enabled the authors to prove this hypothesis. The presence of hypophyseal hormones in larger than normal quantities in the body fluids does not permit the conclusion that a causal connection exists between this hypophyseal secretion and the increased blood pressure, since both are independent sequels of an excitation of the sympathetic encephalobulbar centers, among them those of the hypothalamus.

**Paroxysmal Tachycardia Familial Occurrence**—Ohnell reports observations on two families in which there existed a tendency to heart attacks. In the first family 6 siblings varying in ages between 2 and 16 have histories of heart attacks. These were characterized by changes in frequency and in rhythm, by sensory symptoms in the cardiac area and by short periods in which consciousness is almost lost. Electrocardiograms of the father and of 1 of the children presented knotting at the end of the QRS complex. The father had attacks of tachycardia and of bradycardia. These were frequently followed by polyuria. Of his 11 siblings 5 had had heart attacks for several years. His mother, grandmother, 2 cousins and 1 nephew likewise had attacks of heart symptoms. The second family comprised 12 siblings of the ages between 30 and 49, of whom 2 had died early. The oldest had the Wolff-Parkinson-White syndrome, 2 had attacks of paroxysmal tachycardia and 1 of these had auricular extrasystoles, 1 showed knotting in the first lead and a flat termination of the QRS complex in the chest lead, 1 had heart attacks of changing character—pains, frequency changes, polyuria and occasionally nearly fainting, the electrocardiogram showed in leads 2 and 3 knotting or flat decline in QRS, another 1 had since childhood attacks of paroxysmal tachycardia. A familial predisposition to cardiac symptoms is apparent. The question arises whether the concurrence is accidental or whether it is a hereditary polymorphic disease entity. The author considers the latter possibility as most probable and concludes that paroxysmal tachycardia apparently may be hereditary.

## Arch d Hosp de Niños R del Rio, Santiago de Chile

10 81-148 (June-Sept) 1941 Partial Index

\*Three Cases of Stenosis of Splenic Vein L Cid Rojas and A Wiederhold—p 83

Nodal Proxystic Tachycardia G Duffau O—p 114

Amebic Rectitis Secondary Anemia V de la Maza S—p 133

Cured Pneumococcal Meningitis C Carrasco H—p 137

**Stenosis of Splenic Vein**—According to Cid Rojas and Wiederhold, stenosis of the splenic vein involves differentiation from the splenomegalies of infancy. It is a typical clinical entity which is characterized by splenomegaly, gastrointestinal hemorrhages and secondary anemia. These symptoms can be explained in the following manner. The obstruction in the splenic vein

causes a venous stasis in the spleen with considerable tumefaction of this organ, a collateral circulation develops in the anastomosis with the gastric veins and in the veins of the splenic capsule and those running to the diaphragm. These anastomoses dilate more and more and in turn they become thrombosed. The result is esophageal and gastric varices which rupture and give rise to hematemesis. The authors mention some of the terms applied to this disorder in the literature: splenoportal thrombosis, thrombosis of the splenic vein, portal splenic thrombosis and thrombophlebitis, thrombophlebitic splenic tumor, splenic phlebostenosis, splenic pylestenosis or splenic pylephlebostenosis. The authors regard the last term as the most suitable. They report 3 cases of stenosis of the splenic vein. Among general causes of the condition are cachexia (tuberculosis, cancer, brucellosis), general infections (syphilis, typhoid, influenza, puerperal fever and dysentery) and diseases of the blood (leukemia and polycythemia). As local causes are mentioned pathologic processes of the adjacent areas (appendicitis, ulcer, splenitis and cholecystitis), hepatic lesions, tumors of the stomach, pancreas and duodenum, retroperitoneal lymph nodes, traumatism of the abdomen, infection of the umbilical vein in children and gastrointestinal disturbances. The duration varies from a few days to years. The prognosis is unfavorable. The symptom on which the diagnosis is based is the combination of splenomegaly with hematemesis. The treatment in the presence of gastrointestinal hemorrhages consists of blood transfusions. Relapsing hemorrhages and painful splenic tumor have been treated by splenectomy, but this intervention is contra-indicated in cases of suspected involvement of the portal vein. In children splenectomy has been known to produce favorable results. It can be considered only as a palliative treatment.

## Archivos de Medicina Infantil, Havana

11 1-46 (Jan-Feb-March) 1942 Partial Index

\*Diffuse Calcinosis in Infant Case B Sanchez Santiago and R Pereiras—p 1

**Diffuse Calcinosis in Infant**—Sanchez Santiago and Pereiras report a case in which the first symptoms of diffuse calcinosis were manifested at the age of 5 months. The symptoms were pain in the lumbar region, diffuse edema and nodules on the thorax and limbs. At 14 months the limbs were spastic and the seat of hard nodules. Diffuse calcinosis was diagnosed by roentgen examination and from a biopsy of one of the nodules on the limbs.

## Archivos de Pediatría del Uruguay, Montevideo

13 1-64 (Jan) 1942 Partial Index

Role of Mother in Hospitalization of Infants J Bonalba and M I Saldun de Rodriguez—p 9

Erythema Infectiosum or Fifth Disease A C Pisano—p 19

Relations Between Fecundity and Lactal Secretion M A Jureguay—p 25

Diarrhea in the Course of Measles E Peluffo and P L Aleppo—p 31

\*Sulfonamide Derivatives for Intraperitoneal Injection in Children V Zerbino and A Norbis—p 37

**Sulfonamide Derivatives by Intraperitoneal Injection**—Zerbino and Norbis confirm the rapidity of absorption of the sulfonamide derivatives by the peritoneal serosa. In a child of 14 months with febrile respiratory catarrh, diarrhea, repeated vomiting, otitis and pyuria, dietetic treatment proved ineffective and dehydration and acidosis developed with loss of much weight. Sulfathiazole treatment by mouth was made impossible by the continuous vomiting. Two tablets of 0.5 Gm each were dissolved in 10 cc of isotonic solution of sodium chloride brought to the boiling point, left to cool and then injected into the abdominal cavity. The dose was repeated in the afternoon and for two more days without any sign of intolerance. The improvement was rapid, fever, vomiting and diarrhea disappeared and the appetite improved. In 2 infants of the ages 2 and 8 months with meningitis it was demonstrated that the sulfonamide derivative administered by the peritoneal route rapidly passed into the cerebrospinal fluid. The authors conclude that the intraperitoneal administration of sulfonamide derivatives in children will not remain an extraordinary measure but will become the most effective technique in many grave disorders. They stress the following advantages: 1 The technique is harmless and well tolerated. 2 It insures rapid absorption and will be particularly valuable in urgent cases. 3 It

apparently permits the best diffusion in the cerebrospinal fluid and is therefore indicated in meningitis. 4 It makes possible administration of large amounts at one time when intensive treatment is necessary.

### Revista Medica del Hospital General, Mexico, D F 4 723 780 (Nov. 15) 1941 Partial Index

\*An Isuppurating Effect of Red Rays J Erdely —p 723

**Antisuppurating Effect of Red Rays**—Erdely protected the area of smallpox vaccination in infants and children with a shield of two layers of red transparent material. The inner layer is loosely attached to the external one, which has some perforations for ventilation. Rays of natural light pass through the perforations and are filtered through the inner layer of red material allowing only red rays to pass. This shield prevents inflammation, fever and suppuration. Vaccination results in the formation of a serous vesicle. General reactions do not take place. When the shield is applied after suppuration has formed the local and general reactions are diminished but are not prevented. The author believes that the inflammatory reactions of vaccination and suppuration are due to hypersensitivity of the skin to ultraviolet rays whereas red rays have the effect of preventing suppuration. The immunizing effect of vaccination without suppuration is the same as that of vaccination with pustules.

### Archiv fur Dermatologie und Syphilis, Berlin 181 593-794 (Feb. 20) 1941

Pathogenesis of Eczema K Halter —p 593

\*Lymphogranulomatosis of Skin S Tappeiner —p 720

\*Chemotherapy of Erysipelas W Volavsek —p 761

Relation Between Skin Tuberculosis and General Miliary Tuberculosis  
Kutcherer von Aichhergen Method of Inoculation with Cutaneous  
Tuberculosis in Therapy of Pulmonary Tuberculosis K W Kalkoff  
—p 770

Multiple Hautnekrosen bei Thrombangitis Obliterans W Kohlmeier  
—p 783

**Lymphogranulomatosis of Skin**—Tappeiner states that the isolation of lymphogranulomatosis from the group of disorders designated by the collective term pseudoleukemia was accomplished by the Viennese school of pathologists and dermatologists particularly Paltauf and Sternberg. The disease is still sometimes erroneously referred to as Hodgkin's disease. More than a hundred years ago Hodgkin described a clinical picture characterized by enlargement of the lymph nodes and sometimes also of the spleen. Later investigators were able to demonstrate that Hodgkin's description included disorders that differed greatly in etiology. Tappeiner describes 13 cases of lymphogranulomatosis with involvement of the skin which were observed at a Vienna dermatologic clinic in the course of the last decade. He differentiates four main forms: (1) the unspecific (2) the transitional (3) the specific and (4) the mixed form. He subdivides the unspecific form in (a) localized (b) generalized and (c) universal manifestations. The transitional form usually resembles the specific form mentioned under 3. The specific form is classified by the author into (a) the infiltrating (b) the nodular and (c) the ulcerous. In the mixed form various types concur. The author describes the clinical aspects and the course of atypical observations particularly of the ulcerous form (ulcus lymphogranulomatosis) and other hitherto unobserved cutaneous changes. He discusses the granulomatous and the blastomatous nature of lymphogranulomatosis and its differentiation from a rare form of mycosis fungoides that is accompanied by nodule formation in the internal organs. The frequent occurrence of lipoid phagocytes in the lymphogranulomatous tissue, in the lymph nodes as well as in the skin is worthy of attention. The author evaluates this observation as related to Letterer's in xanthomatous lymphogranulomatosis, Gottron's in Hand-Christian-Schüller's disease and Arzts in xanthomatosis. Attention is directed to the involvement of mucous membranes and of internal organs and to rare localizations in the myocardium, the bladder and the female genitalia.

**Chemotherapy of Erysipelas**—Volavsek reports observations made in the course of oral administration of azosulfamide in 600 cases of erysipelas. In order to estimate the efficacy of this sulfonamide compound the results obtained were compared with those observed in 600 cases of erysipelas treated before the sulfonamide era. The patients were given 2 tablets of 0.3 Gm each three times daily until the fever had subsided and after that 1 tablet three times daily until the cutaneous symptoms disappeared. The sulfonamide treatment reduced complications from 15.5 to 4 per cent and the mortality from 6.5 to 2 per cent. The reduction in complications concerned chiefly phlegmons and abscesses. The fever subsided in 3.2 days as compared to 5.6 days without the use of the sulfonamide. The therapeutic effect of the sulfonamide was also manifested in a 50 per cent reduction of recurrences and in shortening of the average length of hospitalization from 11.9 to 8.5 days. Chemotherapy of erysipelas reduces the severity of the infection and thus leads to a more rapid cure; it represents a great advance in the therapy of erysipelas.

### Beitrage zur klinischen Chirurgie, Berlin 171 497-664 (Feb. 15) 1941 Partial Index

\*Vertebral Sarcomas R Kienbock —p 497

Deformities of Cervical Vertebral Column R Kienbock —p 508

Traumatic Lesions of Spleen P Prulachs and G Aguilo Mercader —p 510

Plastic Surgery of Rectal Prolapse by Means of Thiersch's Fascia Ring Operation W Pohl —p 520

\*Ligation of Carotid Artery F Niedner —p 524

Bechterew's Disease Contribution to Knowledge of Exudative Synovial Form of Articular Tuberculosis with Vertebral Ankylosis T Canigani —p 547

Skeletal Changes Due to Overstrain in Light of Cartilaginous Callus Formation S Nagura —p 555

Form and Significance of Interrupted Circulation in Etiology and Pathogenesis of Aseptic Epiphyseal Necrosis F J Lang —p 581

**Vertebral Sarcomas**—According to Kienbock sarcomas appear in the vertebral column and in other parts of the skeleton in varying anatomic forms. He describes vertebral sarcomas of the infiltrating, sclerosing type in 4 children outlining the clinical and roentgenologic aspects. The cases show great similarity in their clinical as well as in their roentgenologic aspects. A vertebral body may show a diffuse density and a superficial haziness. This gives the impression of an inflammatory disease of the bone such as osteomyelitis or tuberculosis, especially if a noncalcareous, paravertebral mass adheres to the vertebra. This may simulate an abscess, a gravitation abscess, but is in reality a proliferating softened tumor mass. The author reports the history of a man aged 47 who had an infiltrating, sclerosing sarcoma with osteoplastic infiltration of the adjoining tissues, protrusion into the vertebral canal and compression of the spinal cord.

**Ligation of Carotid Artery**—Niedner reviews histories of 4 patients who were subjected to ligation of the internal or the common carotid artery because of an intracranial aneurysm. The multiplicity of the manifestations of intracranial aneurysm makes it impossible to cure all by the same operation. Ligation of the internal carotid artery is the operation of choice for basal aneurysms of the carotid artery and for aneurysms of the small vessels inside the brain. In these cases the mortality of carotid ligation is slight. Ligation for other conditions gives a high mortality. Previous to ligation of the carotid and previous to operation in the course of which the need for ligation may arise it is advisable to obtain an arteriogram of the healthy side in order to ascertain the likelihood of a collateral circulation developing. None of the other tests for collateral circulation are as reliable as the arteriogram. Patients in whom a collateral circulation is not likely to form because of advanced arteriosclerosis of the cerebral vessels or because of an open circle of Willis should be excluded from treatment by ligation of the carotid artery. Ligation should not be performed in the presence of suppuration in the neck or when infection of the operative field can be expected. In the presence of an arteriovenous intracranial aneurysm ligation of the internal carotid artery is done at the earliest from four to six weeks

**Ligation of Carotid in Erosion Hemorrhage Due to Peritonsillar Abscess**—Stabenau reports 7 cases in which this operation was employed to control erosion hemorrhage the result of a peritonsillar abscess. Ligation of the carotid in these cases was more effective than any other treatment. Other indications for the ligation of the carotid artery are hemorrhage as the result of injury to the carotid, hemorrhages in the course of extirpation of malignant tumors which adhere to the artery, and in operations for aneurysm. At the otorhinolaryngologic clinic in Leipzig ligation of the carotid artery has given favorable results in erosion hemorrhages resulting from peritonsillar abscess. The surgical technic described largely prevents possible cerebral complications of ligation of the carotid, so that the skepticism with which this operation is regarded is not justified.

Nordisk Medicin, Stockholm  
12 3387-3466 (Nov 29) 1941 Partial Index  
Hospitalstidende

\*Case of Acute Febrile Hemolytic Anemia of Lederer Type K Hoyer  
—p 3387

**Acute Febrile Hemolytic Anemia of Lederer Type** — Høyer reports a case in which pallor, jaundice and hemoglobinuria appeared after a catarrhal angina in a boy aged 3. Anemia developed with the appearance of microcytes and megalocytes accompanied by leukocytosis and continued fever of about 100.4 F. There were normoblasts and erythroblasts in the blood and the reticulocyte count was increased, suggesting lively reaction in the bone marrow. The blood platelet count was reduced. The osmotic resistance of the erythrocytes was normal. Blood transfusion resulted in immediate improvement, and in the course of a month the boy was well. The author finds the clinical picture similar to that described by Lederer. The etiology of the disorder is unknown. Blood transfusion is the sovereign remedy. The manner of its action is not understood. Liver and iron are without effect in the acute stage but can be excellent adjuvants in the convalescent period.

Norsk Magazin for Lægevidenskaben

Experiences in Treatment of 200 Cases of Lobar Pneumonia with M  
and B 693, with Remarks on Treatment of Cases Resistant to Sulta  
pyridine T Holst Larsen—p 3391

\*Recurrent Hemorrhages and Arthritis Urica R Opsahl—p 3198

Differential Diagnosis in Chronic Spinal and Pelvic Inflammations  
N S Nissen Lie —p 3403

\*Hypertension as Result of Renal Ischemia in Dissecting Aneurysm of Aorta K Berge—p 3408

Two Cases of Rectal Stricture in Venereal Lymphopathy R Steinert  
—p 3412

Case of Infarct in Greater Omentum O Bang Dietrichson —p 343

**Recurrent Hemorrhages and Arthritis Urica**—Opshahl describes 3 cases with the picture of (1) recurring hemorrhages of unknown cause, (2) arthritis urica and (3) hypertension. The hemorrhages occurred suddenly from the respiratory tract or the gastrointestinal tract, in 1 case from both, and are characterized by their tendency to recur. The arthritis urica also shows certain common features. Gradually in the course of many years a chronic polyarthritis develops with considerable destructive changes in cartilage and bones and with the typical picture of arthritis urica. In 2 cases there have been acute aggravations with transient enlargement and tenderness of one or several joints, usually one at a time. There is considerable hypertension in 2 of the cases, without reduction of the renal function, the third case shows less hypertension and definitely reduced renal function. The author is inclined to believe that these patients have the constitutional anomaly which is the basis for arthritis urica and are exposed by the recurring hemorrhages to what he calls endogenous uric acid overloading with resulting manifest arthritis urica. In 2 cases, he says, the arthritis is perhaps due to this overloading with the endogenous uric acid, as the hemorrhages probably began before involvement of the joint, in the third it is more likely that the joint was already involved but that the condition was aggravated after the start of the hemorrhages.

**Hypertension as Result of Renal Ischemia in Dissecting Aneurysm of Aorta**—Three months before admission Bærgø's patient, a man aged 63, had normal blood pressure and urine. Moderate pain in the left lumbar region and intermittent fever set in, on admission there was considerable hypertension but the diuresis and the renal function were good. Intravenous urography showed deficient excretion by the left kidney while retrograde pyelography indicated normal conditions. The diagnosis was occlusion of the left renal artery and nephrectomy was considered, but increasing renal insufficiency developed and the patient died from uremia. A dissecting aneurysm of the abdominal aorta was found, with complete occlusion of the left renal artery, while the right renal artery was patent. The occlusion and the occlusion of the left renal artery are assumed to have developed progressively, with the occurrence of hypertension of Goldblatt's type. Eventually increasing thrombotic masses blocked the blood supply to the right kidney and uremia rapidly developed. The absence of sclerosis or narrowing of the arterioles is attributed to the short duration of the renal insufficiency.

## Book Notices

**Directory of Medical Specialists Certified by American Boards 1942**  
Published for the Advisory Board for Medical Specialties. Directing  
Editor Paul Titus MD Cloth Price \$7 Pp 2495 New York  
Columbia University Press 1942

The first edition of the directory was published in 1939. The second edition contains information in regard to eighteen thousand physicians who have applied for and have been granted certification by the various specialty boards. It is impossible to state how many qualified specialists in the country have not sought such certification and are therefore not included in the directory. The directory cannot be considered as providing a complete list of all qualified specialists in the various fields of medical specialties. However, the fact that the new edition contains four thousand additions since the publication of the first edition is an indication of the respect which the profession has for certification by the various specialty boards. The greater portion of the directory is devoted to a geographic listing of the specialists certified, a special section being devoted to each of the specialty boards. Rather complete biographic information is given with regard to the training and experience of each of the physicians listed. Included in each section is a list of the officers and members of the various specialty boards, together with history and organization reports, qualifications of candidates for certification and methods of conduct of examinations. Following the section devoted to the various specialty boards is an alphabetical list of all specialists certified, together with their addresses and the specialty board by which they have been certified. The directory provides much valuable information and will be especially useful in connection with the mobilization of the medical profession in the present military program.

**White Eagle Chief of the Poncas** By Charles Leroy Zimmerman MD  
Cloth Price \$2.50 Pp 273 with 170 illustrations Harrisburg Pa  
Telegraph Press 1941

White Eagle, for fifty years chief of the Ponca tribe of American Indians, was remarkable for his great mind and was noted for his courage, high ideals and principles combined with the attributes of an orator and statesman. The author years ago was agency physician for the Poncas. He has done worthy and interesting research in writing a history of the tribe. He has drawn freely from official sources traditions folklore and old men's tales recorded through interpreters. The migrations of the Poncas through much of the United States and possibly Mexico, Central and South America probably have extended over thousands of years, yet today the tribe has some customs similar to those of the days of the mound builders. The author adds to the dim past, their tribal ceremonies the history of their more recent wars, their belief in the supernatural which was the province of their medicine men and the factual history of their treaties with our government. The oldest son of White Eagle was the last hereditary tribal Indian chief in the United States. Under present government ruling no tribe may select a chief after the death of those in power at the time the government order was issued. The affairs of the Poncas therefore are now in the hands of a council consisting of White Eagle's grandson, McKinley Eagle, and six other persons.

**Handbook of Communicable Diseases** By Franklin H. Top AB  
MD M. H. Director Division of Communicable Diseases and Epidemiology  
Herman Kiefer Hospital and Detroit Department of Health  
Detroit and Collaborators Cloth Price \$7.50 Pp 682 with 83 illustrations  
Including 10 color plates St. Louis C. V. Mosby Company 1941

Textbooks dealing with communicable diseases often fail to give the reader a broad view of the public health aspects of these disorders. The tendency is rather to adhere to the presentation of clinical data and their discussion. This may be the reason why the medical student and many practicing physicians fail to acquire an adequate knowledge of the public health connotations of communicable disorders. This book has combined the clinical aspects of communicable disease with the epidemiologic. For example in the discussion of pneumococcus

pneumonia there is an excellent presentation of the clinical aspects of the disease together with much important epidemiologic information. It is pointed out that certain types of pneumococci are much more frequent in healthy family contacts than in the population at large. This has but recently been made known to public health workers and is of more significance to them than to the general practitioner. Sufficient material is presented in the text to broaden the point of view of the reader be he a general practitioner nurse public health worker or teacher. The various diseases in the text are classified according to the port of entry of the etiologic agent. No matter what classification is used some overlapping occurs but the departure from the usual method of presentation is interesting. The color plates are good and the illustrations adequate.

**Textbook of Medical Treatment** By Various Authors Edited by D. M. Dunlop BA MD FRCP Professor of Therapeutics and Clinical Medicine University of Edinburgh Edinburgh L. S. P. Davidson BA MD FRCP Professor of Medicine and Clinical Medicine University of Edinburgh and J. W. McVee DSO DSc MD Physician H. M. the King in Scotland. With a foreword by the late Professor A. J. Clark BA MD DPH. Second edition Cloth Price \$8 Pp 1179 with illustrations Baltimore William Wood & Company 1942

The first edition and a large amended reprint of this book were exhausted in approximately two years, a fact which speaks well for its value to medical practitioners and students. The book is designed to fill the gap left by the majority of textbooks on general medicine in their sections on treatment. This edition has been completely revised and certain errors of omission and commission corrected. The sections devoted to epidemic meningitis—cerebrospinal fever of the British—septicemia venereal diseases and respiratory diseases have been extensively revised and brought up to date—a requirement brought about largely through the rapid advances in sulfonamide therapy. An interesting difficulty encountered in this revision is concerned with dietetic treatments and the availability of certain foodstuffs in Britain during the war. Thus for example two paragraphs are devoted to wartime restrictions and modifications in the diabetic diet. Most of the treatments outlined are reasonably standard though experienced internists may in some instances differ as to the detail of certain of the recommendations. It is difficult to single out any special sections for criticism or commendation. However, the discussion on the adjustment of the sexual instinct is combined with so much common sense and unusual brevity as to impress the reviewer particularly. This is essentially a reference book for medical students and general practitioners on the standard procedures of medical treatment.

**Nursing Care of Communicable Diseases Prophylactic Technics for the Prevention and Control of Disease** By Mary Elizabeth Pillsbury RN MA With a chapter on Fungous Diseases By Grace Maguire Swanner MD And a Brief Picture of Public Health Nursing By Mary F. Edgecomb RN Science Adviser Jean Broadhurst PhD Professor of Bacteriology Teachers College Columbia University New York City Sixth edition Cloth Price \$3 Pp 604 with 138 illustrations Philadelphia Montreal & London J. B. Lippincott Company 1942

This book contains a store of information for one who either plans to follow a career in public health or is now engaged in that special field of nursing. For the average student in training the scope of the text is perhaps too broad to be readily absorbed. Nevertheless it would still serve well for reference, and medical students and practitioners also could profit from its use.

Although the author states in the preface to this edition that she has carefully reviewed the entire text and that 'particularly important is the addition of new material on chemotherapy no noteworthy improvements over the preceding edition are apparent.

Discussions relating to the treatment of some of the sixty different diseases included in part two, though necessarily brief could be better. In the chapter on diphtheria a nurse might easily gain the impression that sulphanilamide could be given as a substitute for antitoxin. And the statement in reference to laryngeal diphtheria that "immediate relief to the breathing is given by suction expresses a degree of optimism which could be based only on a lack of experience. The description of the nurse's duties relating to intubation are incomplete.



There is no mention of the sulfonamides in connection with erysipelas, and the chapter on meningitis evidently escaped revision. The latter should be brought up to date. The author says that the prognosis for influenzal, streptococcal and pneumococcal meningitis "is almost always hopeless, the fatality being about 100 per cent." It is also stated that meningococcal meningitis patients are given antiserum intraspinally every eight to twenty-four hours.

Reference to the Dicks' accomplishments is scanty, and the assertion that "the urticaria following the giving of the serum may not show up until one to two weeks" is misleading. There are few reactions from the scarlet fever antitoxin now on the market. Apparently a poor opinion is held with regard to vaccine for whooping cough prevention. No vaccine is specified by name. The horse serum mentioned for the treatment of poliomyelitis may refer to Rosenow's antipoliomyelitic serum, but if so there is nothing to indicate it.

There seems to be a trace of provincialism in the medical aspects of the book.

**Medical State and National Board Summary.** By William H. Kupper, M.D. With a foreword to the Candidate by Earl S. Hallinger, M.D., Secretary, New Jersey State Board of Medical Examiners. Cloth. Price \$4.50. Pp. 369 with 40 illustrations. Paterson, N. J.: Colt Press Publishers, 1942.

This is a compendium designed to provide a handy and inexpensive summary for state board applicants, physicians, interns and nurses. The condensation has been so thorough that the author believes he has made available in one volume most of the fundamental principles of the science of medicine which ordinarily occupy several volumes. This has been possible through the extensive use of line drawings of the organs, areas and parts of the body and by a compact style of writing. The first chapter is on anatomy, the second on physiology, followed by biochemistry, pathology, bacteriology, preventive medicine, pharmacology and therapeutics, obstetrics and gynecology, surgery and medicine. Most of the chapters are followed by numerous questions with the page indicated where the answer will be found. A chapter contains questions asked in a recent examination by the National Board of Medical Examiners followed by brief answers or references to pages in the book where the answers will be found. The book closes with a glossary of commonly used medical terms and three pages on the history of medicine with names of distinguished members of the profession and the achievements that led to their prominence.

**Dermatologic Therapy in General Practice.** By Marion B. Sulzberger, M.D. Lt. Comdr. (M.C.) U.S.N.R. Assistant Clinical Professor of Dermatology and Syphilology, Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital of Columbia University, New York, and Jack Wolf, M.D. Attending Dermatologist and Syphilologist, Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital of Columbia University. Second edition. Cloth. Price \$5. Pp. 632, with 67 illustrations. Chicago: Year Book Publishers, Inc., 1942.

Here, designed especially for the general practitioner is a manual on diseases of the skin. The success of the first edition prompted a development of the new edition, with special emphasis on the five day treatment of syphilis, the treatment of burns and the use of the sulfonamides in dermatology. The association of the senior author with the Navy caused some changes in the book especially to adapt it to the use of naval medical officers. The book is in every sense a practical handbook for the physician who does not specialize in dermatology. It should serve, however, also as an excellent work for teachers of dermatology, who are necessarily limited in the amount of time that may be given to instruction in this subject.

**The Golden Jubilee of the Association of Military Surgeons of the United States. A History of Its First Half Century—1891-1941.** By Edgar Erskine Hume, Colonel, Medical Corps, United States Army. Cloth. Price, \$2. Pp. 371, with illustrations. Washington, D. C.: The Association, 1941.

The idea of forming the Association of Military Surgeons of the United States originated with Dr. Nicholas Senn, professor of surgery at Rush Medical College, Chicago. Dr. Senn practiced military surgery in Cuba in the Spanish-American War, where he was chief surgeon of the Sixth Army Corps.

The first meeting of the association was held on Sept. 17, 1891 at the Leland Hotel, Chicago. Dr. Senn was elected its first president. The author of this history summarizes consecutively the work of and the program presented at each of the forty-eight annual meetings which have been held. He prints the names of honored guests at the meetings, the resolutions passed, the titles of papers presented, pictures of the past presidents, the convention badges, and some title pages of the *Military Surgeon*, the official organ of the association. Brief biographic sketches are presented of each editor of the *Military Surgeon*, also a tabulation year by year of the papers published.

**Schizophrenia. The Cinderella of Psychiatry.** By Reg. S. Ellery, M.D. F.R.A.C.P., Consulting Alienist to Women's Hospital Melbourne. Cloth. Price, 12s. 6d. Pp. 170. Sydney: Australasian Medical Publishing Company, Limited, 1941.

This monograph is called by the author "an adventure into that realm that sprawling mental province called schizophrenia." It is a cleverly written contribution and is simple to digest. The author has borrowed idioms and sayings from many literary geniuses to emphasize the point under discussion. He speaks of Nebuchadnezzar's Bitter Grass, Through the Looking Glass, the scourge of schizophrenia, in the beginning, flowers of Evil. In the eyes of the reviewer this is a unique way of expressing oneself regarding schizophrenia. For that reason the book should be a "must" purchase for every neuropsychiatrist. Psychotherapy, prognosis and prophylaxis are adequately discussed. Although there are no bibliography and no new facts, this contribution will serve as a brief summary of the data regarding schizophrenia and for that reason is recommended.

**Pediatric Gynecology.** By Goodrich C. Schauffer, A.B., M.D. Assistant Clinical Professor of Obstetrics and Gynecology, University of Oregon Medical School, Portland. Cloth. Price \$5. Pp. 384, with 66 illustrations. Chicago: Year Book Publishers, Inc., 1942.

This pioneer book deals with pediatric gynecology. The author has had extensive experience, so the book is based not only on the literature but also on large personal knowledge. The material encompasses not only disturbances of the external and internal female genitalia but also surgical considerations including urologic and proctologic conditions. There is an excellent chapter on menstruation and its disorders in young girls. At the end are chapters on social service and medicolegal aspects of pediatric gynecology. The book is beautifully written and amply and clearly illustrated. The publishers have done their part extremely well. This book definitely belongs in the hands of every gynecologist, pediatrician, urologist, proctologist and general practitioner who deals with young girls.

**Contribución al estudio de la terapéutica de la infección tuberculosa.** Por el Prof. Isidoro Ricardo Steinberg. Tesis de profesorado. Paper. Pp. 365 with 12 illustrations. Buenos Aires: Aniceto López, 1940.

This is a well organized and orthodox summary of the recognized methods of treatment of tuberculosis, offered as a professorship thesis to the University of Buenos Aires. The author has classified the subtitles under the three general heads: (1) treatment of the soil, (2) treatment of the bacilli, (3) treatment of the focus. Under each of the general headings there are chapters carefully divided into paragraphs, each contributing its quota necessary to complete the entire field indicated in the title. The presentation constitutes an excellent compendium relating to all the methods of treatment, non-surgical and surgical, recognized as appropriate according to present day standards.

**The Bond Between Us (The Third Component).** By Frederic Leitch, M.D. Diplomate of the American Board of Obstetrics and Gynecology. Cloth. Price, \$2.50. Pp. 267. New York: Alfred A. Knopf, 1941.

The author of Consultation Room again has drawn on his experiences as a clinician who specialized in obstetric and gynecology to produce a book with sufficient interest and humor to create further approbation of his writings. Regardless of whether this book will receive more popularity with the public than with the medical profession, it is one that should interest the student and young practitioner. Part of the appeal in the book results from the author's handling of Furstenberg's statement "It is our aim to demonstrate that there are more than cold facts in any medical curriculum."



## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

### APPLICATION OF HEAT FOR SHOCK

**To the Editor**—Although I prescribe conservation of body heat in the treatment of shock, this treatment is not compatible with my understanding of the physiologic basis of shock therapy. I realize that a subnormal temperature is common in shock; however, the body temperature can safely fall much lower than we see even in shock. If our chief object in the treatment of shock is to maintain ample blood supply to the brain and internal viscera, why should we bring this blood to the periphery by applying blankets and external heat? It would seem to me more advantageous to allow the body surface to be cool so that the blood supply could be shifted to the internal organs, even though it would result in a slight lowering of the body temperature. I would be interested in your opinion on this subject.

I R Morrison MD Atchison Kan

**ANSWER**—The principle of conservation of body heat in the treatment of shock is established on the extensive practical studies made during the World War. Exposure to cold of soldiers in shock had a bad effect, and benefit was observed from the application of heat.

Superficially it may appear that cooling of the body of a person suffering from shock would be advantageous for the reasons stated in the inquiry, however, relatively little blood can be expressed from the skin by cooling because of the peripheral vasoconstriction present in shock. In fact, if cooling of the surface of the body is attended by a fall in body temperature of as little as 0.5 degree, shivering may be induced. This would greatly increase the expenditure of energy and increase the blood flow through skeletal muscle, which would be distinctly dangerous to the shocked person. Furthermore, as the temperature of the body is reduced, hemoglobin holds oxygen more firmly. This would aggravate the anoxia that is present in shock.

Excessive warming of the body is also to be avoided for the reasons outlined in the question. The practical application of the principle of conservation of body heat in the treatment of shock is, therefore, not as simple as it appears. It is probable that the patient in shock, unless his body temperature—not skin temperature—is below normal, does not require an environmental temperature above comfortable levels. The coldness of the skin, a common indicator for the use of heat, is due to peripheral vasoconstriction. The use of extreme heat is undoubtedly harmful, and experimental evidence fails to show harm from cold (Blalock, Alfred, and Mason M F. A Comparison of the Effects of Heat and Those of Cold in the Prevention and Treatment of Shock, *Arch Surg* 42:1054 [June] 1941). A sound practical rule to follow in governing the covering and warming of persons in shock is to keep them warm and dry.

### CALLUSES ON HANDS OF HAT WORKERS

**To the Editor**—Kindly advise me as to the best method of treatment of callus formation on the skin of the palms of the hands; this procedure is to be used for laborers whose hands are continually in steam while blocking hats. The body salt loss has been replaced by salt ingestion.

George S Stern MD New York

**ANSWER**—The extent of callus formation among workers occupied in blocking felt hats probably is partially based on an individual disposition. Persons with a tendency to ichthyosis, xerosis, and hyperhidrosis are said to be more inclined to have calluses than normal persons.

Treatment of calluses—which to a certain degree protect the worker's hands against steam, acids and friction—is usually not indicated unless they become painful, eczematized or fissured. If, however, such treatment becomes necessary, the hands should be soaked for one or two days (one hour, four times daily) in warm boric acid solution, soaking is to be followed by the application of a 10 to 20 per cent salicylic acid ointment for several days after which time the excessive horny tissue can be shaved off with a scalpel. Fissures should be painted twice daily with a 10 per cent silver nitrate solution.

In cases of resistant calluses, intensive roentgen irradiation can be tried, but this is usually followed by a recurrence if the worker resumes his regular occupation. The tendency to hyperkeratosis and fissuring can be reduced in some cases by the ingestion of large doses of vitamin A or by thyroid medication. In suitable instances rubber gloves may be worn as a protective measure.

### ALLERGY AND METRAZOL SHOCK

**To the Editor**—Several months ago a Negro aged 20 with dementia precox came under my care. He was given metrazol shock therapy with good results at first but later relapsed and has not responded well this time. He has a history of hay fever and moderate asthma occurring during the fall (ragweed season) and shows sensitivity to ragweed on cutaneous tests. He has had this allergy since early childhood. There is also a family history of allergy. The point of interest is that since metrazol therapy the sensitivity has persisted on cutaneous testing but he has had no hay fever or asthma during this ragweed season for the first time in many years. Did metrazol therapy have anything to do with his relief? Could you give me any references to the literature on this type of case?

M D Tennessee

**ANSWER**—Metrazol is one of the methods used for shock therapy in dementia precox. It is a powerful drug and causes severe reactions. These changes probably lead to a condition akin to that produced by other types of nonspecific shock therapy, e g, intravenous typhoid or gonococcus vaccine or fever therapy as induced by diathermy. These methods of treatment frequently bring temporary relief in various forms of allergic conditions, especially bronchial asthma, hay fever and allergic rhinitis. It is also well known that allergic conditions, especially asthma, not infrequently disappear in whole or in part during pregnancy or after a bout of fever, as from pneumonia or influenza. The cause of such relief is not known but it is known that the relief is not permanent. One would expect that the patient's hay fever and asthma would return during the next ragweed season.

Aigner (*Med Klin* 33:1306 [Sept 24] 1937) employed a mixture of metrazol and ephedrine, which he found effective in the treatment of bronchial asthma as well as cardiac and pulmonary disorders in which dyspnea occurred. Of course the good effect of this compound might well have been due to the ephedrine. It is also well known that insulin shock therapy (which is similar to metrazol shock) of asthma has been used with apparently good, although temporary, results. The following are references to insulin shock:

- Minet J and Warembourg H *Paris méd* 1:357 1939  
Vollmer H *Arch Pediat* 56:223 1939  
Hofmann A *Beitr z Klin d Tuberk* 92:58 1938  
Joseph B *M Rec* 149:16 (Jan 4) 1939  
Langeron L, Cordonnier V and Brudel B *Bull et mém Soc méd d hôp de Paris* 55:812 (May 29) 1939  
Bartelheimer H *Deutsche med Wchnschr* 64:1254 (Aug 26) 1938

### THE ARTICHOKE

**To the Editor**—As a subscriber to The Journal I wonder why you have never mentioned the artichoke (*Cynara scolymus*) so much spoken of in European medical reviews and so much used and prescribed by physicians here and in Europe. Many writers support the theory that the extract of the artichoke has highly medicinal properties and while it has not progressed much in other American countries this theory has good standing in Colombia. In view of the facts given and because the artichoke has attracted the attention of the medical profession in several parts of the world it is strange that in the United States physicians have not taken the trouble to investigate this plant. I believe it would be worth while if your Association would look into the matter in order to encourage some trials or observations and publish the results obtained.

Carlos Arbelaez C Medellín Colombia

**ANSWER**—Extracts of artichoke are apparently available commercially in France, and their use has been advocated in the treatment of hepatic and renal diseases, postoperative oliguria, pruritus, urticaria and asthma. Two plants called artichokes are commonly used as food. One is the Jerusalem artichoke (*Helianthus tuberosus* L.) and the other the French artichoke (*Cynara scolymus*). The tubers of the Jerusalem artichoke are similar to the potato and constitute the edible portion of the plant. The flower bracts of the French artichoke are considered a delicacy. The French artichoke is the species usually found on the market. Both types contain the carbohydrate inulin which is hydrolyzed to levulose instead of to dextrose, and because of this artichokes have been advocated as a food for persons with diabetes. However, there is no evidence that the diabetic tolerate levulose any better than they do dextrose, so apparently artichokes offer no advantage over the ordinary carbohydrate foods. This view has been stated in THE JOURNAL, Feb 4, 1933, p 342.

Several reports have originated in France regarding the use of extracts of the leaves and roots of the French artichoke as a cholagogue and diuretic. A crystallized material called cynarine has been isolated from these extracts. Apparently the edible portion of the French artichoke does not contain cynarine.

Artichoke extracts also have been advocated as an antitoxic substance. The evidence for their antitoxic action is not too conclusive. For instance, Gaudin (*Bull d sc pharmacol* 46:167 1939) fed sodium cacodylate to a series of guinea pigs. To some of the animals he fed also an extract of artichoke representing 35 Gm of artichoke per kilogram of body weight daily.

He claimed that autopsy revealed that there was less damage to the livers of the guinea pigs receiving the artichoke extract. However, he admitted that life was not prolonged by the administration of the extract.

### PROBABLE CEREBROSPINAL SYPHILIS IN INFANT

**To the Editor**—A boy aged 16 months, a second child, delivered with low forceps after a labor of seven hours, weighed at birth 8 pounds and 14 ounces (4 Kg). He smiled at 1 month, held up his head at 3 months and cut his first tooth at 6 months. At 5 months he began having daily clonic twitchings of the extremities. During these attacks, which recur four or five times every twenty-four hours, the extremities are drawn up and twitch, the eyes roll back, and the back is arched. Since the fifth month the child's progress has been retarded. At the age of 1 year he was hospitalized for study. The blood count and the urine were normal, the blood sugar content during fasting was normal (85 mg). Roentgenograms of the skull and the chest were negative, the Wassermann reaction of the blood of both mother and child was negative. The child's stool did not contain ova or parasites, the spinal fluid cell count was 3, the globulin reaction was negative, the colloidal gold curve was 0000000, and the Wassermann reaction of the spinal fluid was 4 plus. The blood calcium and phosphorus content was normal. The child has always had a poor appetite and has been hard to feed. The diet has been nutritious, with an adequate vitamin content. At present he is definitely retarded mentally. The general muscle tone is poor. The pupils are equal and react to light. The anterior fontanel measures 1 inch by 1 inch (2.5 by 2.5 cm), the posterior fontanel is closed. The height is 33½ inches (84 cm), and the weight 20 pounds and 1½ ounces (9.1 Kg). The child is expressionless, drools saliva, will not notice objects, cannot hold up the head or sit up and moves the right leg more than the left. Reflexes are present on both sides but are more active on the left. In all respects the child appears mentally defective. Should he have antisyphilitic treatment because of the 4 plus Wassermann reaction of the spinal fluid? Is it possible to have a positive Wassermann reaction of the spinal fluid with a negative reaction of the blood in mother and child?

William M. Petty, M.D., Pittsburgh

**ANSWER**—The boy described probably has cerebrospinal syphilis. There is no doubt that he has organic lesions in the brain. A birth injury, encephalitis, brain tumor and the like could cause such a picture but the 4 plus Wassermann reaction of the spinal fluid definitely points toward neurosyphilis. The Wassermann test of the spinal fluid should be repeated to confirm the first one before treatment is started.

It is possible to have a positive reaction of the spinal fluid with a negative Wassermann reaction of the blood. The child should have antisyphilitic treatment because of the 4 plus Wassermann reaction of the spinal fluid. Considerable improvement may result, but it is doubtful that complete recovery is possible.

### PERIADENITIS MUCOSA NECROTICA RECURRENS

**To the Editor**—A woman aged 43 has recurrent and rapidly receding "pimples" in her mouth which develop over three or four hours, are painless, rupture, exude a thick stringy substance and disappear, leaving no residue to be observed. This phenomenon has occurred about three times a week. She was treated for a typical outbreak of lichen planus including oral lesions about a year ago with twenty intramuscular injections of 2 grains (0.13 Gm) of bismuth subsalicylate, with complete disappearance of all lesions. She has demonstrated the "pimples" to her family, but before she is able to come to the office they have disappeared. All laboratory data are normal. Examination reveals linear white elevations along the inner sides of both cheeks and a recent similar noninflammatory lesion on the under surface of the tongue. I have considered retention cysts, lichen planus and dermatitis herpetiformis but am unable to fit the picture with any condition. Elimination diets were of no avail. Any assistance as to diagnosis and treatment will be appreciated.

M. E. Friedman, M.D., New Buffalo, Mich.

**ANSWER**—The occurrence of small painless nodules or "pimples" on the buccal mucosa that "exude a thick stringy substance" or result in the separation of a solid mummified-looking plug suggests the diagnosis of periadenitis mucosa necrotica recurrens. The course of this condition is chronic, and it is usually resistant to ordinary methods of treatment. The ingestion of drugs, e.g. phenolphthalein, should be ruled out, and any mouth washes or tooth paste used by the patient should be of a bland type. Attacks sometimes occur after the ingestion of oatmeal, but as a rule the condition is seen in patients with nervous instability, endocrine imbalance and low constitutional tone. It is therefore advisable to examine the patient completely for possible foci of infection depleting her reserve and for anemia. Specific therapy to relieve any constitutional conditions revealed by a complete general examination, together with the use of soothing mouth washes and the local application each night of a paint consisting of 5 cc of tincture of kino and 10 cc of tincture of myrrh may be of value. Sometimes the oral lesions occur with lesions on the vulva (Wien, M. S., and Perlstein, M. O. *Ulcus Vulvae Acutum* Associated with Lesions of the Mouth, *THE JOURNAL*, Feb. 6, 1932 p. 461).

### EFFECT OF ELECTRIC SHOCK THERAPY ON NORMAL SPAN OF LIFE

**To the Editor**—Is there any evidence that electric shock therapy shortens life?

Rolph H. Kuhns, M.D., Los Angeles

**ANSWER**—Electrically induced convulsions, since their introduction by Cerletti and Bini in 1938, have been employed chiefly in the treatment of patients with depressive mental state. Among their advantages claimed over the convulsive treatment with metrazol and insulin are that the danger of pulmonary and myocardial damage is seemingly less and that less of a fear reaction is produced in the patient. The danger of fracture, dislocation and injury to muscle appears also to be less in electric shock therapy than in therapy with metrazol. With metrazol therapy the chief cause of death is that exacerbation of chronic pulmonary tuberculosis is apt to occur. So far for more than ten thousand treatments by electric shock no deaths have been reported. However, because of the comparatively short experience with the new agent, no equivocal statement can be made at present as to whether the physiologic span of life of patients treated by electric shock may be shortened or not. The consensus is that electric shock treatment is contraindicated in the presence of serious chronic organic changes of the central nervous system, serious arteriosclerosis, cardiac disease, nephritis, active or recently healed pulmonary tuberculosis or other disease of the lung and any acute infection or febrile illness.

#### References

- Kalinowsky, L., and Barrera, S. E. *Psychiat Quart* 14 719 (Oct) 1940.  
Hauser, Abe, and Barbato, Lewis. *Texas State J Med* 27 228 (July) 1941.  
Whitsell, L. J. *Am J M Sc* 203 147 (Jan) 1942.

### HENOCH'S PURPURA

**To the Editor**—A woman aged 41 apparently has Henoch's purpura, and I should like some information as to treatment. The patient has recurrent ecchymoses of the skin, but her major symptoms are severe gastric intestinal pains, similar to gastric crises. Recently a laparotomy revealed no significant pathologic condition except some adhesions on the right side, which were released. Studies of the gallbladder and kidneys gave negative results, and the spleen was not enlarged. The patient has had appendectomy and hysterectomy. I hope you can advise me as to further treatment.

William D. Wessly, M.D., Glendale, Calif.

**ANSWER**—The treatment of Henoch's purpura (nonthrombocytopenic purpura) varies for different patients, depending on the cause. Sensitizing substances in the form of drugs, food or environmental products must be studied and must be removed if they are shown to be a cause of allergic reaction. If the granules of the neutrophils in the stained blood film do not stain blue but show the normal violet, it is not likely that a pyogenic infection is present. Calcium lactate 1 Gm three times a day may be given for its apparent effect in decreasing sensitivity to allergens. Epinephrine solution 1:1,000 may give symptomatic relief when injected subcutaneously or intramuscularly in doses of 0.5 to 1 cc. When there is evidence of a vitamin C deficiency, 100 to 200 mg of ascorbic acid in solution may be given intravenously for several days. Occasionally the desired effect is not obtained when the medicine is given orally. The sensitivity of the patient to moccasin snake venom solution (1:3,000) should be determined, and the medicine can be given in increasing doses intramuscularly, the injections starting with 0.3 to 0.5 cc twice a week and increasing until 1 cc is given over a period of weeks or months. A maintenance dose of 1 cc every week or two or three weeks may be determined. It may be well to note the effect in individual patients of histamine given by mouth.

### GLOMUS

**To the Editor**—What is the glomic or glomus system? Is there any relationship between the glomus system and a glomus tumor?

M.D., Brooklyn

**ANSWER**—According to definition (Webster's New International Dictionary, ed. 2, 1939, unabridged), the anatomic glomus is any coil or small plexus of blood vessels specifically one in relation to the pronephros. The term glomus has been applied anatomically to the carotid gland (glomus caroticum) and to the coccygeal gland (glomus coccygeum), which belongs generally to the chromaffin system, and to the glomus choroid, an extension of the choroid plexus into the lateral ventricle of the brain. The last mentioned anatomic use is in close agreement with the root significance of the term. Peripheral, i.e. cutaneous, arteriovenous anastomoses constitute other anatomic structures to which the term glomus has been applied and which in the aggregate are designated as the glomic system. Popoff's study (*Arch Path* 18 225 1931).

1934) of this system should be consulted. He has described the anatomic structure of the glomus as composed of (1) the afferent artery, (2) the Sucquet-Hoyer canal (the arteriovenous anastomosis proper), (3) the neuroreticular and vascular structures around the Sucquet-Hoyer canal, (4) the outer lamellar collagenous tissue and (5) the primary collecting veins. Masson (cited by Popoff) in 1924 described small subungual benign tumors, clinically painful, which he considered to be genetically related to the peripheral arteriovenous anastomoses. These he designated "glomus tumors."

### GONORRHEAL PROSTATITIS AND ARTHRITIS

**To the Editor**—A man aged 31 has had joint pains with swelling, heat, tenderness and redness for six weeks following prostatitis. The joint involvement was multiple at first but for the past three weeks has been confined to the left ankle thus suggesting a gonorrheal origin. Prostatic smears have thrice shown gram-negative extracellular diplococci. The patient's temperature was consistently elevated from 99 to 101 F for several weeks. Muscular pains were noted. Good relief was obtained from the use of salicylates in moderate doses and the sedimentation rate with the 1 cc Cutler tube has been consistently 28 to 32 mm in one hour thus suggesting rheumatic fever. As an aid to differential diagnosis can the elevation of the sedimentation rate be due to gonorrheal prostatitis and arthritis? Will salicylate therapy give relief in gonorrheal arthritis? Will a complement fixation test be of any real diagnostic value? In determination of the sedimentation rate with the 1 cc Cutler tubes should 0.1 or 0.2 cc of sodium citrate be used, and what should be the strength of the solution? M.D. Minnesota

**ANSWER**—The sedimentation rate can be elevated in gonorrheal arthritis and prostatitis.

Salicylate therapy often gives relief in gonorrheal arthritis.

A complement fixation test for the patient will tell no more than is already known as gram-negative diplococci have been found. However, such a test of the blood of this man, who presumably has specific infection of the prostate and seminal vesicles associated with metastatic and joint involvement, most certainly would have given a strongly positive complement fixation.

For determining the sedimentation rate most laboratory manuals suggest the use of oxalated blood. This may be used in any of the various tubes. One drop of a saturated solution of potassium oxalate is enough to prevent the coagulation of 8 to 10 cc of blood.

### EXCISION OF A SEBACEOUS CYST OF THE CHEEK

**To the Editor**—I am interested in the cosmetic aspects resulting from the excision of a wen in the right cheek about 1 to 2 inches from the angle of the mouth when approached from the inside rather than the outside. I have mentioned this to a number of surgeons but none have ever had the experience of approaching one from the inside. Could you refer me to any literature? J. B. Thompson M.D. Needham Mass.

**ANSWER**—A sebaceous cyst could be excised from the inside of the mouth if it was on the cheek, but it would be preferable to excise it from the outside although the scar might be greater. A sebaceous cyst is usually associated with an occluded sebaceous duct and it is usually considered wise to excise this occluded sebaceous duct with the cyst taking a small ellipse of skin. It would seem that there would be less likelihood of recurrence if it was operated on from the outside than from the inside. Moreover, the danger of infection in the operative wound is less from the outside than from the inside.

### EFFECT OF ANTEPARTUM NUTRITION ON CHILD HOOD GROWTH

**To the Editor**—What role does antepartum nutrition play in childhood growth? Has antepartum nutrition any bearing on the high number of rejections in the army?

Howard O. Brush M.D. Port Huron Mich.

**ANSWER**—While relatively little has been written on the subject, antepartum nutrition undoubtedly influences the future growth of children. It certainly has a bearing on their health at least during the first year or two of life. Dr. J. H. Ebbs (The Influence of the Antepartum Diet on the Infant *Am J Dis Child* 62:416 [Aug.] 1941) reported on the infant mortality of a group of adequately fed Toronto mothers as compared with a poorly nourished group. The difference in infant mortality was so much in favor of the well-fed group that the life of a baby could be figured in dollars and cents worth of groceries. According to his figures an infant's life was worth about \$215. It is also well known that since the deciduous teeth are formed before birth, much of their quality is dependent on the nutrition of the mother.

Whether this has anything to do with the high number of army rejections is problematic, since account of many new factors must be taken.

### CARCINOMA OF THE LIVER

**To the Editor**—I recently had a case of primary intracanalicular carcinoma of the liver. Would you kindly let me know the incidence of this new growth and refer me to any reports in the literature?

M.D. Virginia

**ANSWER**—Descriptive terms used to indicate the histogenic or histologic varieties of primary carcinoma of the liver do not include the (intra) canalicular form. This does not imply that the cells in a carcinoma of the liver with a hepatocellular structure may not produce bile canaliculi, the ultimate divisions of bile passages which in liver tissues lie between contiguous parenchymal cells. In the large bibliography cited by G. Herxheimer (in Henke F. and Lubarsch O. *Handbuch der speziellen pathologischen Anatomie und Histologie*, Berlin Julius Springer, 1930, part 1, vol. 5) no title includes the (intra) canalicular form. The generally accepted terms of primary carcinoma of the liver, expressed in terms of histogenesis or cellular differentiation are "liver cell" and "bile cell" each as the names imply with a cell structure repeating liver cell pattern or bile ducts (Loesch Johann. Primary Carcinoma of the Liver *Arch Path* 28:223 [Aug.] 1939).

### ASYMPTOMATIC CONGENITAL SYPHILIS

**To the Editor**—A girl aged 13 years asymptomatic congenitally syphilitic has been treated since the age of 8. The first course covered two years and consisted of alternating series of ten neosphenamine and six bismuth injections with no rest periods. At the end of this time the serologic reactions were persistently 4 plus. A subsequent series of fifty injections alternating neosphenamine and bismuth compounds was given after one year with no change in the serologic reaction. During the current year another series of treatments consisting of two courses of ten injections of mapharsen with an interposed course of six iodobismuth injections has been given. The Wassermann reaction remains steadfastly 4 plus to date. Is further heavy metal therapy indicated? What is the probability of the condition becoming active in the event of future marriage or pregnancy? M.D. Indiana

**ANSWER**—It probably would be advisable to give the girl further bismuth therapy and two series of ten injections each a year for the next three years might well be planned. If further treatment is necessary at the completion of this course arrangements might be made for it then. There is a possibility that in a girl of this age the disease might become active later on in life or possibly following pregnancy. Interstitial keratitis will occasionally develop in a young woman following birth of a child although she has been asymptomatic for many years previously.

### OIL FOLLICULITIS

**To the Editor**—There is a condition in a local plant for which you might give me some help. The plant is making steel shells with a copper band around the base. The shells are machined in oil. Lately the men have been having what they call oil pimples or oil boils. They work in oil up to their elbows and wash it off with a solvent when they stop work. Most of the pimples are more or less superficial but among 20 to 25 men working in a small area there have been a number of deep infections. I should like to know what can be done to eliminate these oil pimples or boils? Can one man with a virulent infection of the skin contaminate the solution so that others using it become infected? Edgar N. Mendenhall M.D. Fort Wayne Ind.

**ANSWER**—The condition described "oil pimples" is an oil folliculitis and is a common occupational dermatosis among workers with oil, such as machinists and machine tool operators. Numerous oils and emulsions are used in this process and it is improbable that any one oil is at fault. Oil folliculitis or as it is sometimes called cutting oil dermatitis has been discussed rather well in a recent bulletin No. 244 November 1941 of the Massachusetts Division of Occupational Hygiene, 23 Joy Street Boston in which the treatment and prevention are carefully outlined. It would seem probable that the oil could be contaminated and if recirculated without sterilization could cause infection in persons working in it.

### PREVENTION OF FORMATION OF CALCIUM OXALATE STONES

**To the Editor**—Can you give me information regarding methods for preventing the formation of calcium oxalate renal calculi?

Rolph H. Kuhns M.D. Los Angeles

**ANSWER**—Less is known about the formation of calcium oxalate renal calculi and the prevention of their recurrence than is known about any other type of renal lithiasis. Defects in metabolism apparently are the cause of stones composed of uric acid and cystine. Oversaturation with a low threshold to calcium phosphate is often present in the formation of calcium phosphate stones. All these forms of renal calculi are definitely

affected by dietary intake. Alkalization and acidification of urine also are factors in preventing the formation of cystine and calcium phosphate stones. Reduction in the intake of calcium is a large factor with calcium phosphate stones. It has not been demonstrated, however, that there is a low threshold of calcium oxalate in patients who form these stones. Their formation cannot be prevented by acidification or alkalization of the urine.

Dietary precautions are more indefinite with oxalate stones than with any other type. Since only approximately 15 mg of oxalic acid is excreted in twenty-four hours by the person with an ordinary diet, it would seem advisable to maintain a high urinary output. The elimination from the diet of vegetables containing a high content of oxalic acid, such as rhubarb, spinach and tomatoes, would also be indicated. This regimen would tend to prevent the formation of calcium oxalate in a concentration sufficient to allow its precipitation in the urinary tract. Fortunately, the incidence of recurrence with calcium oxalate stones is somewhat less than that with stones of other chemical constituents.

### CLOSTRIDIUM WELCHII CARRIERS

*To the Editor*—Recently a death was caused by a surgical wound infection. A culture was made of one of the assistants' stools, it was found positive for *Clostridium welchii*. The doctor has had an increase of gas in the bowels for many years but never suspected that it was anything but a harmless parasitic infection, such as *Giardia lamblia*. Please give the treatment for a carrier of *Clostridium welchii* who is a physician. Please give any medical references on treatment. What would be the best antiseptic for the hands besides a free use of soap and rubber gloves to protect others from accidental contamination? M D, New York

*ANSWER*—*Clostridium welchii* is a normal inhabitant of the intestinal tract of adults (Zinsser, Hans, and Bayne-Jones, Stanhope. Textbook of Bacteriology, ed 8, New York, D Appleton-Century Company, 1939, p 624). It is no more feasible to try to free the intestine of *Cl. welchii* than it is to free it of *Bacterium coli*. *Cl. welchii* is ubiquitous in nature and requires suitable conditions for growth such as necrotic tissue. Strains vary as to the toxins they produce. Good surgical asepsis and the wearing of sterile rubber gloves during surgical operations are important in reducing operative infections.

### PREGNANCY AND BLOOD GIVING

*To the Editor*—Should a pregnant woman in good health give blood for the Red Cross? In case there is no objection during the beginning of pregnancy, please state the time after which it would be no longer advisable. Walter Shifton, M D, Alban, N Y

*ANSWER*—There is a tendency of many pregnant women to have at least relative anemia during pregnancy. Frequently iron preparations are given to counteract this tendency. The removal of blood would deprive the woman of essential minerals and food materials which she has secured by elaborate metabolic processes. Her first duty is to herself and to her unborn child. It is advised that she do everything possible to maintain her health and not do anything which might impair it. An emergency, such as an abortion, a placenta previa or a postpartum hemorrhage, might arise. Under such a circumstance she might need the blood to protect herself. Hence blood donation would be ill advised. There are many persons other than the woman who could spare the blood with less possibility of harm to themselves.

### STRING TEST IN DIAGNOSIS OF GASTRO-DUODENAL ULCER

*To the Editor*—What is the consensus among gastroenterologists as to the value of the string test in the diagnosis of gastric and duodenal ulcer? W G Richards, M D, Billings, Mont

*ANSWER*—In 1909 Einhorn described the string test as an aid in the diagnosis of peptic ulcer. Briefly stated, it consists in the recognition of a blood stain on a string which has been introduced into the stomach and the duodenum. The appearance of the stain presumably indicates the presence and the level of an ulcerative lesion. Described before the era of modern roentgenologic technic, the test is of only slight corroborative value and has not been adopted or recommended by gastroenterologists. The objective diagnosis of peptic ulcer and the differentiation of benign and malignant ulcerative lesions of the stomach are much more valid when based on the evidence provided by roentgen examination and gastroscopy.

#### References

- Einhorn, Max. Value of the String Test in the Diagnosis of Peptic Ulcers, *Rev Gastroenterol* 6: 386 (Sept Oct) 1939.  
Einhorn, Max. Further Experiences with the String Test, *THE JOURNAL*, Nov 15, 1919, p 1509.

### PREGNANCY AFTER REMOVAL OF MALIGNANT TUMOR

*To the Editor*—In June 1941 I removed a mass from the axilla of a white woman aged 32. The pathologic report on this tissue was malignant lymphoma. Since that time I have seen the patient frequently and as yet have seen no evidence of recurrence. She came to me recently, and I found her to be two months pregnant. I checked her thoroughly at this time and found that she had gained 6 pounds (2.7 Kg) since the last examination. The red cell count was 4,800,000 and the hemoglobin content 85 per cent (Sohli). There was no evidence of disease in a 6 foot roentgenogram of the chest. The blood pressure was 110 systolic and 80 diastolic, and urinalysis showed no abnormalities. I should like your opinion as to how this patient should be handled. Should pregnancy be interrupted, or should she be allowed to go to term?

M D, Mississippi

*ANSWER*—There is little evidence that pregnancy would cause the recurrence of a tumor of the type stated or stimulate its growth should it recur. As the site of the growth is remote from the uterus and its contained fetus, there would be no contraindication to the use of radiation therapy. There is, of course, the possibility of a recurrence, with the resultant disability and shortening of life expectancy. This would deprive the baby of its mother, but there seem to be no medical indications for termination of the pregnancy. It is suggested that the patient be allowed to continue with the pregnancy but that future pregnancy be avoided.

### LENTICULAR ASTIGMATISM

*To the Editor*—Many eyes on refraction show astigmatism unaccounted for by the corneal astigmatism present. It is assumed that this is lenticular astigmatism. I have recently read that the optical system of a living eye with a contact lens in place, an refraction, shows no astigmatism. Is this true? If true, does it not disprove any effective lenticular astigmatism? J J Horton, M D, Budo, Texas

*ANSWER*—Probably the soundest as well as the simplest discussion on astigmatism is to be found in Tscherning's *Physiological Optics*, reprinted by Keystone in 1920, chapter IX, page 138. The literature to which reference is made that no astigmatism is to be found when a contact glass is in position is unknown to us, quite the contrary, in a rather extensive experience in fitting contact glasses several cases have been found that required either a spectacle lens before the eye or a cylindrical lens ground into the contact glass to correct lenticular astigmatism. Far better proof of the existence of true lenticular astigmatism is furnished by the Helmholtz measurements with the ophthalmophakometer.

### SHIN SPLINTS

*To the Editor*—I note in *The Journal*, April 11, 1942, an inquiry by Paul T. Perugini of New Rochelle, N Y, concerning "shin splints" and your reply, quoted from Thorndike *Athletic Injuries*. I do not consider Dr. Perugini's listed symptoms as typical of "shin splints", nor is his age group or the type of athletic endeavor engaged in likely to produce them. There have been a considerable number of similar cases at the Kansas City Athletic Club which I consider to be due to improper ankle support. Average persons between the ages of 35 and 55 who engage in games like paddle tennis, handball, badminton and squash are adopted to the ordinary heel of a street shoe and when they resume competitive sports they are not elastic enough to adjust themselves to the flat heelless tennis or basketball shoe without some evidence of strain. Treatment of this disability consists in a good toe lace, high top basketball shoe. Half inch sponge rubber lifts should be worn underneath the heels until the patient can find he can play without the symptoms. Ankle wraps should be worn by any adult playing a vigorous competitive game and having any type of leg symptoms. The majority of professional athletes in their prime wear ankle wraps, yet the occasional athlete will not take the trouble to use them. The best ankle wrap is a 2 inch wide linen bandage, 5 yards in length, wrapped in a figure of eight manner about the ankle. I do not consider these leg aches a counterindication for exercises.

Garrett Pipkin, M D, Kansas City, Mo

### FAMILIAL AND HEREDITARY CATARACT

*To the Editor*—In *The Journal* of April 18, 1942, section of *Queries and Minor Notes*, there is a letter from "M D, Missouri" regarding the advisability of having children in a family known to have congenital cataracts. The case in point is that of a young man who has cataracts himself but whose mother, maternal uncle, sister and brother have congenital cataracts. The answer states that "it would certainly be the part of wisdom for this young man to refrain from having children." While congenital cataracts may be transmitted by several types of inheritance the majority are transmitted as typical dominant characters and the genealogy of this family would not support this group. Accordingly, unaffected individuals of this family would not transmit cataracts to their offspring. This might be checked in the family by ascertaining whether or not the unaffected maternal aunts and uncles showed congenital cataracts in their offspring. I presume they did not. In my opinion, it would be entirely safe for the young man in question to have children as he is.

David G. Cogan, M D, E. A.



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## LIFELONG CARE OF THE EYES

CHAIRMAN'S ADDRESS

LAWRENCE T. POST, M.D.

ST. LOUIS

Education and legislation are handmaidens of progress. Each has a place in bringing about and maintaining ocular efficiency. Of the two education is far the more important. "Train up a child in the way he should go, and when he is old he will not depart from it." Teach the proper care of the eyes to the child, and the man will continue it throughout his life.

It is my purpose here to suggest some of the ideas that a physician may give his patients so that they will acquire and preserve good eyesight throughout their lives. Of man's many blessings, good vision is by no means the least. His happiness, his earning and sometimes his very life may depend on it. In most of the animal kingdom, blindness means death. In man it usually means dependence at least.

### PRENATAL PRECAUTIONS

Wise prospective parents will evaluate, even before the conception of the child, what the health outlook for the child will be, and this is an essential consideration if the defects due to heredity are to be avoided. Some of these can be prevented by antepartum care. For example, a person afflicted with syphilis can be treated so as to be a safe progenitor. This is true of the tuberculous person also, but unfortunately the same is not the case with the man having Leber's hereditary optic atrophy or with one who has congenital cataract or retinitis pigmentosa. For these, in the light of our present knowledge, safety for the next generation lies only in nonpropagation. Here we must depend on legislation as well as education, for education will not restrain an ever existing irreconcilable element that won't listen to reason but will heed only the strong arm of the law.

Of equal difficulty in handling is high myopia, chiefly because of its frequency. The elimination of excessive myopia depends on restricting propagation by those having this condition, for there is little evidence to show that this is usually anything but a hereditary defect handed down just as other physical characteristics are. Continued stressing of the importance of judicious mating may result in its diminution and finally in bringing about its end. Certainly there is not much hope for therapy in myopia, though there is some evidence to show that certain measures are valuable in preventing

its increase in the individual but such limitation will obviously not influence the hereditary element. Even if it is impossible to bring about complete eugenic mating it may at least be feasible to prevent the marriage of two people afflicted with extreme nearsightedness. Failure to do this is probably the principal reason for the very large incidence of this defect among the Germans today.

In addition to the full correction of the myopia I urge a sane, healthful life for the child, a well rounded diet with a quart of milk or its equivalent in calcium each day, maintenance of a good posture especially not stooping when reading, in which position the eye hangs by the optic nerve almost unsupported, as a grape from its stem, a good light, work at not too close a distance from the eyes, and if the general examination indicates it, adequate dosage of thyroid.

### INFANCY AND CHILDHOOD

Passing from prenatal considerations to those of infancy, one encounters immediately one of ophthalmology's greatest triumphs. Thanks to the genius of two men, Neisser and Crede and to the tireless efforts of thousands of other physicians and laymen, the scourge of ophthalmia neonatorum has been put largely under control in civilized countries. As education spreads, we may reasonably hope to see this devastating disease obliterated. The disappearance of gonococci with the use of the sulfonamide derivatives is one of the miracles of modern medicine.

As pneumonia was so aptly termed by Osler "captain of the men of death" so might we name trachoma, in many places, "captain of the men of blindness." In those countries where as in Egypt scarcely any one escapes, trachoma is to be found in almost every native child in the first year of its life. Recent work points definitely to the responsibility of a virus, and the sulfonamide drugs whether they act directly on the organism, as some think or on the secondary invaders as others contend, certainly have a very valuable place in the control of this condition and will prove important in its elimination, though it is to be hoped that some more specific drug will be found. If the infant could be protected from infection, it would not be long before trachoma would cease to hold its prominent place among diseases of the eye because infection in the adult population can be controlled by education alone. Legislation might be enacted to require prophylactic treatment as much and as long as is necessary for all children living in infected families in somewhat the same way that legislation has demanded preventive treatment of ophthalmia neonatorum. However, since trachoma is a disease of illiteracy and insanitation, its elimination will ultimately follow the introduction of education and without this background of understanding and cooperation the enforcement of health rules is almost impossible.



Proceeding to a consideration of the phase of childhood, a question frequently asked by intelligent parents is "When shall I take my child for his first visit to the ophthalmologist?" It is well to test the vision of the child between the third and fourth years and to make superficial examination of the eyes, but a thorough examination under cycloplegia should be made at about the start of the second grade in school, because it is then that the child really begins to use his eyes for prolonged close work, and a thorough check-up of the extraocular muscles and of the refraction is indicated at that time. If however, there is reason to suspect trouble before then such as poor vision, hereditary taint or latent strabismus, obviously the careful examination should be made earlier. Simple talks on hygiene should be given in the lower school grades, and elementary care of the eyes should be included in them. If no abnormality is found in the eyes at this time, it is suggested that reexamination be made every two years thereafter. If a pathologic condition is found, more frequent tests are indicated. Yearly checks on the vision should be made by the school physician and each child questioned as to symptoms of eyestrain. The period of childhood cannot be passed over in this discussion without a sincere plea for the elimination of dangerous toys. Within the last four months there have been seen in my own practice four eyes that have been destroyed by air rifles, five others in the Washington University Eye Clinic and two in the service of another of the doctors in the clinic. The air gun is too dangerous to be placed in the hands of youngsters. I have yet to see useful vision retained in an eye that has been penetrated by a missile fired from these deadly toys.

#### ADULT LIFE

The ocular hazards for early adult life are mostly the accidents of industry, and these have been greatly reduced by safety devices such as protective goggles for workers, guards on machines, improved lighting and shorter working hours. Poor illumination and long hours have been shown to occupy an important place in causation of eye fatigue and injury. Nevertheless, much remains to be done to give workers their greatest ocular efficiency.

In middle age one comes first on the misnamed presbyopia. At that age many for the first time consult the ophthalmologist. How frequently the patient says "Well, this is the first sign of old age." He jests about it but isn't very happy. Now is a good time to encourage him to make light of the matter and to point out the good things about his eyes and the relative unimportance of this to him epochal event. Even a little preparation for its coming, if the patient happens to report in his early forties, is probably an advisable way to soften the jar when it does come.

One must at this time consider also glaucoma, which often has its insidious beginning at this age. A more careful study of patients in middle life and older with glaucoma in mind is indicated. More frequent tonometric measurements and studies with the convenient contact glass, which has an attached handle that renders its manipulation simple, should be made. For those who have a bad heredity for glaucoma or slightly shallow anterior chambers, a small amount of pilocarpine in an eye wash for daily use may prove to be valuable. Here again better education of physicians, of the public and of all those whose business is the care of the eyes is needed. This subject is too vast for more than mention here.

There are not many who can truly say with Rabbi Ben Ezra "Grow old along with me, the best is yet to be." More often the feeling of those entering what may possibly prove to be for them life's last decade is more accurately expressed by Jeremiah's lament "The years draw nigh when thou shalt say 'I have no pleasure in them'." If ever a physician is needed, it is when the knees weaken, the hands shake and the sight dims. In these latter years, when the reparative processes are feeble and the incidence of cataract, retinal and corneal degenerations and glaucoma becomes frequent, the help of a wise and understanding physician is indeed a godsend.

#### THE DEGENERATIVE DISEASES

But is there nothing that can be done to aid in defeating these diseases or degenerations that beset old age, or, if not cure the lesions themselves, at least aid those who are afflicted with them? The end result of these pathologic processes is reduced vision, and this curtails reading especially, that greatest pleasure of old age, when of necessity life becomes sedentary and interests are narrowed—a reversal of the expansion that takes place in youth.

To consider for a moment the subject of reading, one factor that must not be overlooked is the importance of adequate illumination. Far more brilliant lighting is not only welcomed but is needed in age than in youth. By increasing the twenty-five foot candles chosen by the young to seventy-five, not only is the vision of the elderly helped but comfort is greatly increased. If one doubts the value of increased illumination let him try his own added ability to read fine type when the normal light is greatly augmented.

But more important than this one practical point is the broad question of how best to conduct the fight against the inroads of age, as exemplified by retinal arteriosclerosis with subsequent hyaloid retinal degenerations, cataracts and other items. Unfortunately we cannot go back to the beginning and pick parents with long life in their veins, and there is little local treatment that has any value once these regenerative changes are well established, so it behooves us to make every effort to recognize early senile variations and combat them through general preventive measures as fully as possible.

Carrel long ago showed that a group of embryonic heart cells properly nourished and freed from waste were potentially immortal. It is a fair deduction that at least a large part of our degenerations are due to the toxins of waste products, while another important share is probably caused by toxins from infections. Search for these, and their elimination is obvious therapy. It therefore is evident that the person with early senile changes in his eyes undoubtedly has similar processes elsewhere in his system and should restrict his energies, nervous as well as physical, recognize that more rest is required and that indiscretions of diet are no longer tolerated. Foods which were innocuous in the youth who could burn up his toxins by violent exercise may be poisons to the sedentary old person. Allergic individuals are well aware that the food which will produce headache during the night if eaten shortly before retiring may be consumed with impunity at noon. By this token one should not give up exercise too completely but should carry it on within reasonable limits. With approaching age sleep comes easier but its tone is lighter, less resuscitating, shorter than earlier in life. The busy man fights against this. He tries to do as

much on the shorter, lighter sleep as he used to do on the longer deeper sleep instead of dividing his work period by a real rest which may well include a brief sleep in the middle of the day.

Probably circulatory inadequacy plays a most important part in the ocular degenerations. More study is needed to determine the nature and beginning of these vascular lesions, whether arteriosclerotic or atherosclerotic. Suitable diets such as those which limit fat formation, are probably important perhaps equally so are those factors which are concerned with proper posture, the weakened abdominal muscles permitting protrusion of the abdomen from improper stance which in turn causes a pulling down on the diaphragm and serious interference with the proper functioning of the great vessels and the heart.

#### VITAMINS, PHYSICAL THERAPY

Without doubt the recent discoveries about vitamins have been of tremendous importance to our health and longevity. Little is yet known and most of our therapy is random but surely age produces deficiencies caused by lack of assimilation of the frequently inadequate vitamins from the foods and environment as well as witnessing the end results of their undersupply through the previous years. At present we must be satisfied with more or less shotgun prescriptions of them in the hope of bringing down a quarry or two.

Another method of aiding the blood supply in the retinal degenerations is by heat. Here there are three methods of application: hot packs, infra-red rays and diathermy. By the first of these the orbital temperature just behind the globe can be raised some 3 degrees, by the second a degree or two more, and by the last an additional degree or two. Hot packs for twenty minutes two or three times a day are a simple treatment and may have some value. An infra-red hand lamp is inexpensive and a very convenient method for applying heat. The diathermy instrument is usually not available in the home and frequent treatments are necessary so this method is seldom advocated. A last therapeutic adjuvant is the vasodilating drugs such as acetylcholine or nitrites.

Time will not permit more than this hasty and very incomplete summary of a vast subject. Syphilis, tuberculosis, cataract and countless other important subjects have not been discussed. This may serve, however, as an introduction to the symposium on geriatrics that is to follow, in which we may hope to hear much more in detail. Perhaps the point has been made that many of the important adverse elements which often occur in eyes during a long life can, by foresight, to a large extent be prevented.

Metropolitan Building

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**Immunity to Virus Disease**—Many workers in this field believe that a lifelong immunity to a second attack of a virus disease is due to a persistence of the virus in the recovered host. Inasmuch as circulating antibodies against yellow fever virus have been found in a recovered host for as long as fifty years after an attack of the disease during which time no further contact with the active agent has occurred, the statement just made about persistence of virus is particularly applicable to yellow fever. Such a persistence does not mean that an immune individual is capable of spreading disease, because it is most likely that the virus is stored in some remote part of the body within living cells where it cannot come in contact with circulating antibodies and from which point it cannot for one reason or another, reach the outside world.—Rivers, Thomas M. *Immunity in Virus Infections*. *Science* 85:108 (Jan 30) 1942

## MUSCLE SPASM IN THE ACUTE STAGE OF INFANTILE PARALYSIS

AS INDICATED BY RECORDED ACTION  
CURRENT POTENTIALS

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The first account in the eighteenth century of the clinical characteristics of infantile paralysis is a subject of controversy which centers around Michael Underwood in 1784. This date may therefore be accepted as a beginning of the modern concept of this disease.

The particular behavior and the extent of infantile paralysis have made it a world problem. Because of its epidemiologic characteristics it has become common to many countries, with an increasing incidence during the past fifty years. It is primarily a disease of childhood, but adults are not immune to its provocation of death and deformity. These multiple threats of physical deficiency have intensified the search for methods of control and treatment during each succeeding decade. Although methods of preventing infantile paralysis have not been discovered there has been developed an established attitude toward the treatment of patients during the acute stage of infantile paralysis.

In 1928 Jeremiah Milbank regarded infantile paralysis as "the most dreaded ailment of childhood."<sup>1</sup> He conceived, organized and financially supported the International Committee for the Study of Infantile Paralysis. In 1932 this committee, with Dr. William H. Park as chairman, published a five hundred and sixty-two page summary compiled by the fifteen members and forty-three investigators. The forty-four page bibliography, which is critically analyzed, represents more than eight thousand references. This work was accepted by the reviewer of the book as the "sum of human knowledge" on infantile paralysis at that time.

From this source the chapter on symptomatology, which includes physical manifestations, makes no reference to muscle spasm per se.

Hyperesthesia is often an early symptom more diagnostic than fever, which of course occurs at the onset of most infections. This hyperesthesia may be quite general and elicited by the slightest touch, but is usually more marked along the spine and over the large nerve trunks and is demonstrated by somewhat deep pressure. In dealing with very young children it is difficult to differentiate between pain due to hyperesthesia and that due to passive motion.

There is often pain in neck, back, abdomen or extremities. At times the pain in an extremity presages an oncoming paralysis. The pain varies greatly in severity. The duration is usually short but in some instances the neuritic pains may persist even into convalescence.

Tremors or twitchings of groups of muscles are occasionally early symptoms.

Meningeal symptoms occurring early are anterior-posterior stiffness of the neck and especially, of the back, often a Kernig's sign and Brudzinski's and Macewen's signs. The stiffness of the

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This paper has been abbreviated in *THE JOURNAL* by the omission of a number of the tracings. The complete article appears in the authors' reprints.

<sup>1</sup> Poliomyelitis. A Survey Made Possible by a Grant from the International Committee for the Study of Infantile Paralysis organized by Jeremiah Milbank. Baltimore: Williams & Williams Company, 1932.

neck and back was noted by Coverly in 1894 and the importance of this symptom has been emphasized by numerous writers since that time. Although less marked than early meningitis it is probably due to the same factor, namely, an inflammation over the posterior nerve roots, which causes pain when the spine is flexed.

A description of the early symptoms gives a very inadequate picture of the disease. The severity and nature of the symptoms listed varies in different outbreaks, and especially in individual patients. In some patients the meningeal symptoms are particularly marked, in a smaller number disturbances of the sensorium, in others the pain and hyperesthesia, in still others, the tremors, muscular twitchings, and other motor phenomena, and occasionally in others, disorders of the gastrointestinal or upper respiratory tract.

In addition to this 1932 summary of opinion relevant to tenderness on deep pressure and passive motion, hyperesthesia, stiffness of the neck, tremors and muscle twitchings, Lovett's<sup>2</sup> emphasis of tenderness is pertinent.

The stage of onset. It covers the period from the beginning of the illness until the disappearance of the tenderness, because the tenderness must be accepted as evidence of an active process still existent in the cord. In those exceptional cases where tenderness is absent, this stage may be assumed as lasting from four to six weeks.

Tenderness. This symptom may vary from slight tenderness on pressure to a condition of exquisite sensitiveness to touch, jar or movement. It is located either in the affected muscles or is widespread over the affected region. In an analysis made in the New York cases it was found that in 57 cases, in which tenderness existed at the time when the patients were seen in the clinic, the longest duration of tenderness had been sixteen weeks. The average duration is about six weeks, but tenderness can be prolonged almost indefinitely by massage, active movements given too early, osteopathy, chiropractic treatments, and other forms of manipulation, and a persistence of this condition over three months is in most cases likely to be explained in this way. This exceedingly important symptom has received too little attention, but exists in nearly all cases and is one of the most important guides to diagnosis and treatment.

The appearance of tenderness often masks the condition and leads to incorrect diagnosis, and it must be remembered that tenderness is a routine symptom in the majority of cases.

These statements have been quoted with the conviction that they represent the accepted behavior of symptoms and physical signs in skeletal muscles during the acute stage of infantile paralysis. Lovett was particularly emphatic regarding the significance of these symptoms as related to diagnosis and treatment. These criteria taken as a whole constituted the premise from which the profession established its attitude toward the diagnosis and treatment of infantile paralysis in the acute stage. Careful observations recorded throughout the world during fifteen decades were required to gain this much in common agreement.

A point of view which would differ from the understanding established by one hundred and fifty years of work has now been expressed by Miss Elizabeth Kenny.<sup>3</sup> The preface of her textbook *The Treatment of Infantile Paralysis in the Acute Stage* begins with the following statement: "Since the year 1933, I have been endeavoring to present to the medical world the fact that spasm is a damaging and ever present symptom of the disease infantile paralysis." The

treatment of these symptoms combats pain, stiffness, deformities and minimizes the degree of paralysis."

In accordance with this concept of spasm in the acute stage of infantile paralysis, Miss Elizabeth Kenny has recommended and demonstrated a method of treatment to diminish the "damaging and ever present symptom of this disease." Clinical observations made in Australia, England, Canada and the United States have fostered approval of the departure from passive splinting to active treatment in the acute stage of this disease. The recent increase in favorable clinical observations has not been accompanied by evidence from any other type of clinical investigation. For these reasons it was necessary to approach this question of muscle spasm by a method which would be independent of, but could be correlated with, clinical observations.

Action currents are among the means most suitable for recording extremely minor contractions of muscle in situ. The rigid principles that define the technique of this method were applied to the study of patients (1) 7 with infantile paralysis, (2) 3 with spastic paralysis and (3) normal subjects for control.

In all instances oscillographic records of muscle action currents were made through a four stage amplifier. This amplifier has a balanced in-put system which reduces those potentials not generated between the electrodes applied to the skin overlying the muscle under investigation. Stetson and Bouman<sup>4</sup> have shown that it is quite possible to make records of different muscles without significant interference from the related antagonist.

#### SPASTICITY

A particular pattern of action current records is established as definite evidence of muscle spasm. In some instances spasticity can be recorded in muscles at rest. However, Hoefer<sup>5</sup> has revealed that even in spastic paralysis it is usually possible to find a position of complete relaxation in which characteristic action currents are almost completely absent. Independent of cause and degree, muscle spasm in a muscle will be revealed in the action current records made on passive movement of the muscle. Under this condition the muscle does not actively contract, so there is no action current of voluntary contraction in such a record. The most common way of evoking spasticity in a muscle is by a fairly sudden stretching of the muscle (fig 1). Both records were taken from the gastrocnemius muscle during and following the quick passive dorsal flexion of the foot. Record A shows the action current response of a normal gastrocnemius, record B reveals the characteristic action current of a spastic gastrocnemius in an adult with typical spastic paralysis.

The importance of these patterns of action currents from respective muscles becomes increasingly apparent as they are compared with the subsequent records from the muscles of infantile patients. The first comparison is in relation to Miss Kenny's observation that there is spasm in the antagonists of muscles weakened by infantile paralysis. Figure 2 illustrates a record made during the passive movement of the antagonist of a weakened muscle. The continuous flow of action currents is typical of a spastic muscle as in record B.

4 Stetson R. H., and Bouman H. D. The Coordination of Simple Skilled Movements, *Arch. neerl. de physiol.* 20: 177, 1935. For a review of earlier literature see Wachholder, A. *Willkürliche Halte- und Bewegungsergebnisse d. Physiol.* 26: 568, 1928.  
5 Hoefer, P. I. A. Innervation of Tonus of Striated Muscle. *Man Arch. Neurol. & Psychiat.* 46: 947 (Dec.) 1941.  
P. F. A., and Putnam T. J. Action Potentials of Muscles in Condition of Rigidity and Tremor. *ibid.* 43: 1 (Jan.) 1940. Action Potentials of Muscles in Condition of Rigidity and Tremor. *ibid.* 43: 704 (April) 1940.

2 Jones Robert, and Lovett, R. W. *Orthopedic Surgery*, ed 2, New York, William Wood & Co., 1929, pp. 428-429.  
3 Kenny, Elizabeth. *Treatment of Infantile Paralysis in the Acute Stage*, Minneapolis, Bruce Publishing Company, 1941, vol. 15.

of figure 1. We have found this action current pattern, which is characteristic of muscle spasm in all records which we have made of the antagonists of muscles weakened by infantile paralysis. Our data therefore appear to support the statement that the weakening of a muscle in the disease infantile paralysis is accompanied by spasticity of the antagonist.

In the course of accumulating these records this evidence of spasticity in antagonists provoked other important questions. First among these: Is spasticity limited to the antagonist of the weakened muscle? To answer this we investigated the antagonists of muscles which showed no evidence of weakness on physical examination of our patients. The record reproduced in figure 3 is typical evidence of spasticity in those muscles despite the absence of demonstrable weakness.

That this spasticity can be very strong is demonstrated by the record shown in figure 4, which is the record obtained from the neck muscles of a patient. In this patient the disease had weakened only the muscles of the lower extremities. Record *A* was obtained by slow passive movement of the head. This figure also demonstrates the action currents in the same muscles in a resting position. Record *B* shows the action currents obtained. Hoefer found in spastic paralysis that it is almost always possible to find such a position for a spastic limb that the muscles show almost no action currents at all. Figure 4C shows another record of the neck muscle with the head supported in a position slightly different from the one reproduced in figure 4B.

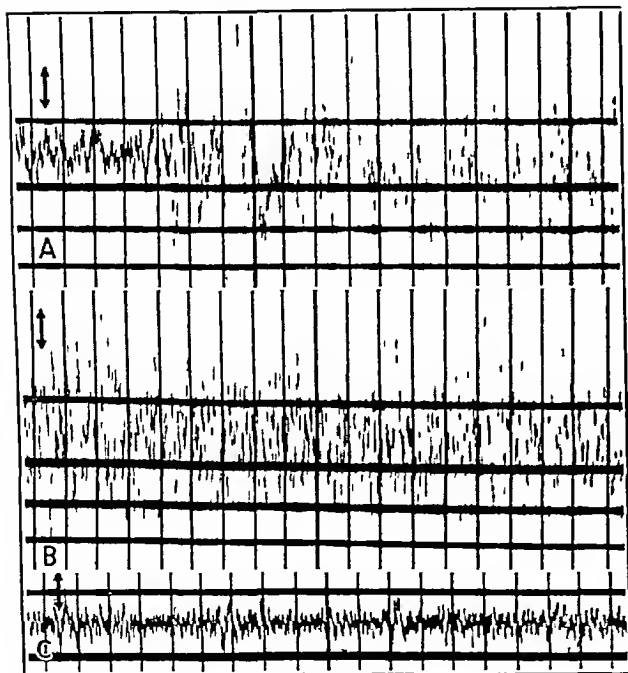


Fig. 4—Records from neck muscles of patient suffering with infantile paralysis. *A* slow passive movement of head. *B* head supported in resting position. *C* head supported in resting position for minimum of action currents. Length of calibration arrow is potential of 10 microvolts. Time unit is one-tenth second.

The change between the two positions is only a few degrees. It is clear therefore, that in the resting muscle in infantile paralysis patients a position can usually be found in which the action currents disappear almost completely, but a position which is only slightly different may cause the action current to reappear.

It appears, then, that the spasticity in infantile paralysis is much more generalized than has been previously suggested: not only antagonists of paralyzed muscles show evidence of it but also muscles in parts of the body where no clinical evidence of muscle weakening can be found. The question arises: Does the muscle weakened by the disease show any evidence of spasticity,

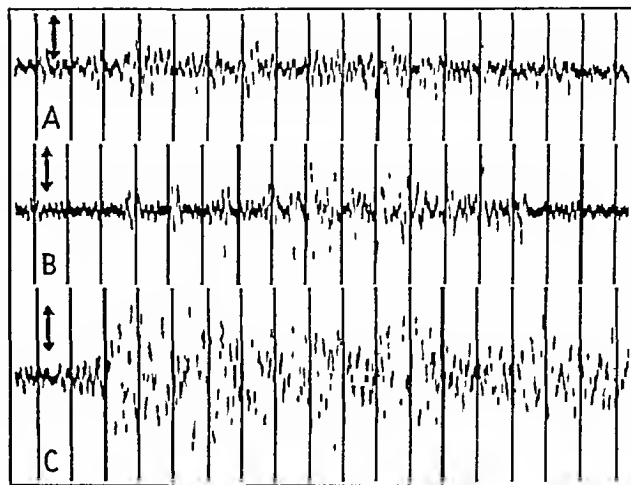


Fig. 7—Records from very weak muscle of patient with infantile paralysis. *A* maximal voluntary contraction. *B* spasticity record obtained by stretching of the antagonist. *C* spasticity record obtained by contraction of an antagonist. Length of calibration arrow is potential of 10 microvolt. Time unit is one-tenth second.

or does it show only decrease in contraction strength? Figure 5 shows the action current evidence on this point. Records were made from the gastrocnemius and its antagonist in the same patient. *A* shows the contraction record of the left gastrocnemius. *B* shows the contraction record of its antagonist (anterior tibial). *C* and *D* are the respective spasticity records on the same muscles. It is obvious from the records, as it was obvious from the records of all weakened muscles, that spasticity occurs also in the weakened muscle itself. It can be said, therefore, that in infantile paralysis spasticity is a general feature not limited to the antagonists of the weakened muscle but present also in the weakened muscle itself and in many other muscles in which no clinical symptoms of weakening are present.

How can the spasticity in the muscle of infantile paralysis patients be evoked? In the first place it is necessary that the muscle under examination is not completely paralyzed. In those muscles in which voluntary contractions are completely absent spasticity cannot be found. Figure 6 shows a contraction and a spasticity record of a completely paralyzed muscle. Neither shows any evidence of action currents. In the second place it is important to determine in which ways the spasticity of the weakened muscle can be made to appear. We have already seen that passive stretching of the muscle is a common and effective way to produce spasticity. However, it was found that there are other possibilities involving the antagonist muscle. In figure 7 are reproduced three records obtained from the same muscle that was considerably weakened by the disease and recorded in succession with the same electrode arrangement. Record *A* shows a maximal voluntary contraction. *B* shows a spasticity record obtained not by stretching the muscle itself but by stretching its antagonist, and record *C* shows the spasticity obtained by the contraction of the antagonist. Some important conclusions can be drawn from these records. They



show that the spasticity obtained in the reflex muscle is due to a reflex mechanism, because it is evoked by stretching or contraction of the antagonist. The spasticity we are dealing with, therefore, appears to be a true reflex spasticity and is not due to contraction developing in the muscle because of discontinuation of motor impulses.

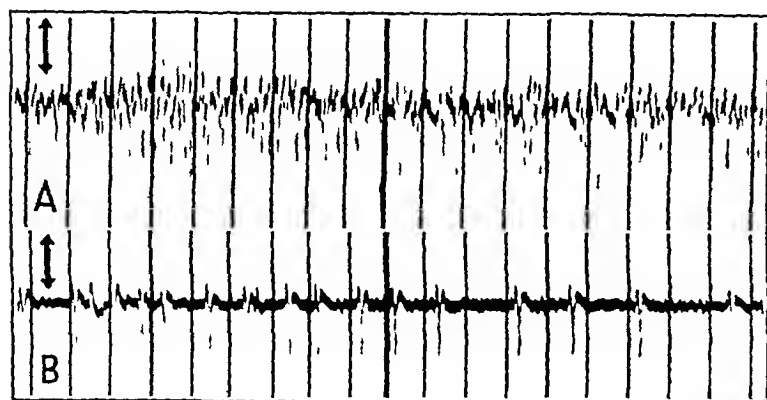


Fig 9—Records on the same muscle as those of figure 7 nine weeks later. *A*, maximal voluntary contraction. *B*, spasticity record obtained by stretching of the antagonist. Length of calibration arrow is potential of 10 microvolts. Time unit is one tenth second.

In fact figure 6 shows that in those muscles in which no motor impulses reach the muscles spasticity is not found. In the second place it is obvious that the weakened muscle behaves quite differently from normal muscles. In normal muscles contraction of the antagonist inhibits the muscle, in the muscle weakened by infantile paralysis contraction of the antagonist seems to evoke spasticity. We must conclude, therefore, that the reflex mechanism of the spinal cord is considerably altered in cases of infantile paralysis. The recordings in figure 8 show that spasticity developed by stretching the antagonist (record *A*) can actually be greater than spasticity developed by stretching the muscle itself (record *B*). In the third place it may be seen from the records of figure 7 that the spasticity developed in the muscle by reflex action can actually be stronger than by maximal voluntary contraction. It appears, then, that in infantile paralysis there is a dissociation between the voluntary and the reflex excitation of the weakened muscle which in a normal muscle does not exist.

How does the spasticity change when the patient improves under treatment, especially under treatment of the Kenny type? All our patients show that when under treatment the strength of contraction increases and the spasticity decreases. To demonstrate this, figure 9 shows action current records of the same patient on which the records in figure 7 were taken but recorded at a later date. Comparison of record 9 *A* with 7 *A* shows a definite increase in the possible voluntary contraction, a considerably larger number of fibers has become active, as is shown by the larger number of action current spikes in the same time interval. Comparison of record 9 *B* with record 7 *B* shows that the spasticity has decreased sharply. Only a few spikes are left, showing that possibly only one or two motor units contribute to this record. Increase in voluntary strength is accompanied by decrease in spasticity. Figure 10 is another demonstration of this, taken from the stretch reflex of the gastrocnemius muscle. Record 10 *A* shows the stretch reflex while strong spasticity was present. Record 10 *B* shows the stretch reflex taken in the same manner after treatment had improved the muscle. It is obvious that this picture resembles the short stretch reflex obtained in a normal nonspastic muscle (fig 1 *A*).

The patient on whom the records of figure 7 and figure 9 were made showed considerable spasticity in his shoulder muscles. Since there was no sign of muscle weakening in these muscles they were not treated. Figure 11 shows two records of spasticity in the deltoid muscle. Record 11 *A* was taken at the same time that the records in figure 7 were taken and record 11 *B* was taken at the same time that the records in figure 9 were taken. The records show clearly that in the muscles of this patient which had received no treatment spasticity had not decreased appreciably.

The records reproduced in this paper are representative of a series of more than five hundred records taken on 7 patients in acute stages of infantile paralysis and on normal subjects and control patients with spastic paralysis. The series of patients covered the range of muscular involvement usually encountered.

#### CONCLUSIONS

Our results then seem to justify the following conclusions:

- 1 In infantile paralysis spasticity of the muscles exists not only in the antagonist of the weakened muscle but also in the weakened muscle itself and in muscles in parts of the body in which clinical symptoms of the disease are not evident.
  - 2 The spasticity is of a reflex nature and is not present in the completely paralyzed muscle.
  - 3 The spasticity can be stronger than the voluntary contraction that the muscle is able to perform, as adjudged by action currents.<sup>6</sup>
  - 4 When the strength of the voluntary contraction increases through treatment, the spasticity decreases.
- Our investigation has shown that spasticity is present in infantile paralysis. Whether the spasticity is actually

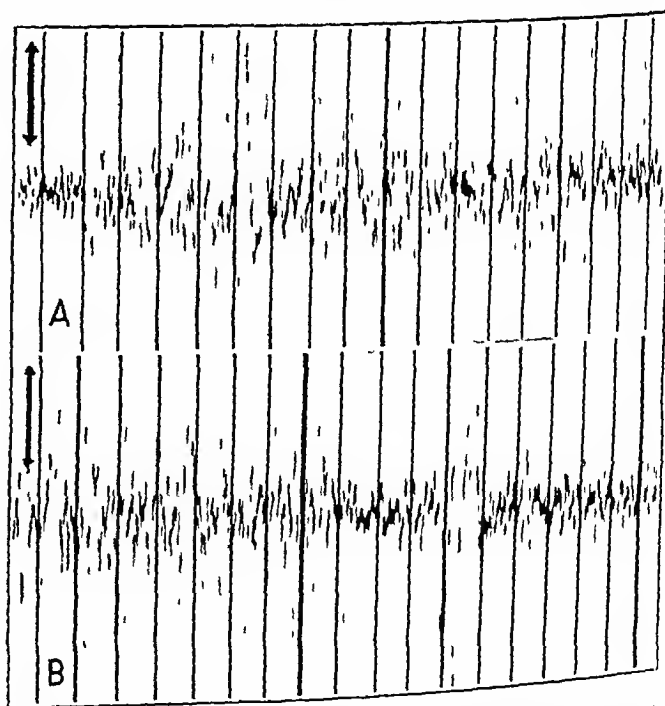


Fig 11—Spasticity records of deltoid muscle, no clinical symptoms in these muscles, no treatment given. *A*, record taken at same time as that of figure 7. *B*, record taken at same time as those of figure 9. Length of calibration arrow is potential of 20 microvolts. Time unit is one tenth second.

responsible for weakening of the muscle or whether it is a phenomenon which is merely another consequence of the disease is a question which cannot be answered at the present time.

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<sup>6</sup> The sensitivity of the action current amplifier is 1 microvolt per centimeter for the respective records.



CONVULSIONS PRODUCED BY THE  
INTRACRANIAL IMPLANTATION  
OF SULFATHIAZOLE

## PRELIMINARY REPORT

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In an experimental investigation of the chemotherapy of intracranial infections we have made a preliminary study of the effects of the sulfonamide drugs on the normal dog's brain. The development of convulsions in a very high percentage of animals following the intracranial implantation of sulfathiazole prompts this preliminary report, as a warning against the clinical use of this drug in this manner.

In this study varying doses of three drugs (sulfanilamide, sulfathiazole and sulfadiazine<sup>1</sup>) were placed on the brains of normal dogs under intravenous anesthesia with soluble pentobarbital. The dura mater was closed over the drug. Subsequent determinations of the concentration of the respective drugs in cerebrospinal fluid and blood were made at frequent intervals, clinical findings were recorded, the animals were killed after varying periods and specimens of dura mater and brain were obtained for microscopic study. In control experiments, two additional procedures were employed: the same operation was performed but no foreign substance introduced, and, in another group, kaolin was introduced in amounts corresponding to the largest amount of the drugs employed.

A detailed report of the findings will be made later. The present report is concerned with the incidence of the convulsions and the absorption of the drugs.

## OBSERVATIONS

A summary of the findings is shown in the accompanying table. The convulsions were classic Jacksonian seizures usually beginning in the contralateral facial muscles and exhibiting a typical "march." The attacks were observed in all animals in which 0.066 Gm of sulfathiazole per kilogram of body weight was employed (this amount corresponds to 5 Gm employed in a normal man) and in high percentages of the animals with smaller doses.

In many experiments with sulfanilamide convulsions were observed in only 1 animal, and they did not occur in any of the experiments with sulfadiazine. None of the control animals with kaolin or without implantation of any drug developed convulsions.

At necropsy, even of animals killed weeks or months after implantation of the drugs, the drugs remained as hard plaques adherent to the cortex (sulfanilamide tended to be somewhat softer, forming a very thick paste). At no time did sulfathiazole or sulfadiazine appear in either cerebrospinal fluid or blood in significant concentration. Sulfanilamide, somewhat more soluble, appeared in low concentrations when the larger dosage was employed.

Because Hurteau<sup>2</sup> has reported somewhat similar experiments in cats without the occurrence of convulsions, sulfathiazole (0.066 Gm per kilogram) was implanted on the cerebral cortex in 2 cats and 2 rabbits. Both rabbits and 1 of the cats developed convulsions.

Sulfathiazole was then implanted in a small area of cortical excision in 6 dogs, as carried out by Hurteau. One of these dogs had a single convulsive seizure on the third postoperative day. No other convulsions were observed.

## COMMENT

It is apparent that in animals the intracranial use of sulfathiazole is a dangerous form of therapy. Since these experiments were completed, Watt and Alexander<sup>3</sup> have reported almost identical results in cats and dogs after implantation of sulfathiazole intradurally. They did not observe convulsions when the drug employed was sulfanilamide, sulfapyridine, sulfadiazine or sulfacetamide.

*Incidence of Convulsions and Absorption of Drugs in All Groups of Experiments*

| Type of Experiment |   | Number of Animals | Percentage of Animals Having Convulsions | Average Maximum Level of Drug, Mg per 100 Cc † |       |
|--------------------|---|-------------------|--|--|-------|
| Drug               | Dose per Kilogram of Body Weight                      |                   |  | Cerebrospinal Fluid                            | Blood |
| Sulfathiazole      | 1.0 mg on cortex                                      | 9                 | 100                                      | ++   | ++    |
|                    | 2.5 mg on cortex                                      | 4                 | 75                                       | ++   | ++    |
|                    | 5.0 mg on cortex                                      | 13                | 38.4                                     | ++   | ++    |
|                    | 10 mg in area of cortical excision                    | 6                 | 16.6                                     | ++   | ++    |
|                    | 5 (Cats) 0.6 mg on cortex                             | 2                 | 50                                       | —  | —     |
|                    | 6 (Rabbits) 0.6 mg on cortex                          | 2                 | 100                                      | —  | ++    |
| Sulfanilamide      | 1.0 mg on cortex                                      | 6                 | 0  | 0.8  | 1.2   |
|                    | 2.5 mg on cortex                                      | 6                 | 16.6                                     | ++   | ++    |
| Sulfadiazine       | 1.0 mg on cortex                                      | 6                 | 0  | ±0.6   | ±0.6  |
|                    | 2.5 mg on cortex                                      | 6                 | 0  | ++   | ++    |
| Operation no drug  |   | 6                 | 0  |  |       |
| Kaolin             |   |                   |  |  |       |
|                    | Volume equivalent to 66 mg of sulfathiazole on cortex | 4                 | 0  |  |       |

Dogs were used in all experiments except where otherwise specified.  
† Indicates less than 0.5 mg.

Similar results have been observed in man. Watt and Alexander<sup>3</sup> reported convulsions in 5 patients in whom sulfathiazole had been placed in craniocerebral wounds, all of which were frontal in location. Two of these patients died in status epilepticus. Naffziger<sup>4</sup> has had 1 similar patient, who went into a status epilepticus, and Watt and Alexander<sup>3</sup> mentioned a case reported to them by Rogers which was almost identical with that of Naffziger. Germain and Picard<sup>5</sup> and Lemierre<sup>6</sup> have reported paraplegia following intrathecal injection of the sulfonamides.

Sulfanilamide and sulfadiazine do not appear to have the same irritating effects on the cerebral cortex, but until microscopic studies are completed no conclusion can be drawn in this regard. For the present, the experiments reported herein constitute a clear warning against the intracranial use of sulfathiazole.

2 Hurteau E. F. The Intracranial Use of Sulfonamides. Experimental Study of the Histology and Rate of Absorption. *Canad. M. J.* 44: 352 (April) 1941. The Intracranial Use of Sulfadiazine. Experimental Study of the Histology and Rate of Absorption. *ibid.* 46: 15 (Jan.) 1942.

3 Watt A. C. and Alexander G. L. Epilepsy Following Application of Sulfathiazole Near the Brain. *Lancet* 1: 493 (April 25) 1942.

4 Naffziger H. L. Personal communication to the authors.

5 Germain A. and Picard P. Myélite necrotique subaiguë consécutive à l'injection intrarachidienne de 363 en solution sodique dans un cas de méningite cérébro-spinale. *Bull. et mem. Soc. med. d. hop. de Paris* 56: 670 (Nov. 25) 1940.

6 Lemierre A. A propos du Traitement de la méningite cérébro-spinale par les sulfamides. *Bull. et mem. Soc. med. d. hop. de Paris* 56: 211 (May 9) 1940.

From the Department of Surgery, Vanderbilt University School of Medicine.

1 Sulfathiazole was furnished by E. R. Squibb & Sons, New York, and the sulfadiazine by Lederle Laboratories, Inc., Pearl River, N. Y.

STUDIES ON PURIFIED DIGITALIS  
GLYCOSIDESIV THE SINGLE DOSE METHOD OF  
DIGITALIZATIONHARRY GOLD, MD  
NATHANIEL T KWIT, MD  
McKEEN CATTELL, MD  
AND  
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NEW YORK

The customary plans for full digitalization involve distribution of dosage in such a manner as to produce the full effects within two or three days. The period is frequently shortened by the use of larger doses. The average full dose of digitalis given at one time is rarely recommended except when the condition is desperate, the reason being that it is too large for the more sensitive patients and results in toxic symptoms. The extent of the variation from the average response to an average full dose would theoretically be reduced by a preparation of digitalis which would be more quickly

TABLE 1—Classification of Patients Used in This Study

|                                   | Digitalis | Digitoxin |
|-----------------------------------|-----------|-----------|
| Number of patients                | 161       | 213       |
| Males                             | 66        | 90        |
| Females                           | 95        | 123       |
| Age (years)                       |           |           |
| Average                           | 44        | 51        |
| Range                             | 17-69     | 20-69     |
| Weight (pounds)                   |           |           |
| Average                           | 154       | 151       |
| Range                             | 103-295   | 98-295    |
| Diagnosis                         |           |           |
| Rheumatic fever                   | 44        | 36        |
| Arteriosclerosis                  | 30        | 50        |
| Arteriosclerosis and hypertension | 38        | 53        |
| Syphilis                          | 28        | 54        |
| Congenital                        | 5         | 1         |
| Unknown                           | 9         | 6         |
| Possible and potential            | 7         | 8         |

and more regularly absorbed from the gastrointestinal tract. With such a preparation, single dose digitalization might prove to be a safe and satisfactory routine.

Our experience with digitoxin<sup>1</sup> during the past few years suggested that this material might be put to use in that way. It has long been known that digitoxin is very well absorbed from the gastrointestinal tract.<sup>2</sup> This was confirmed in our laboratory in experiments on cats showing that absorption is virtually complete.<sup>3</sup> The animal in which vomiting is prevented by morphine frequently dies in from two to six hours after an average

intravenous fatal dose (cat unit<sup>4</sup>) given orally. After larger oral doses (four to ten intravenous fatal doses) absorption is usually sufficient to cause death within less than an hour, even without morphine to prevent vomiting.

The rapid onset of effects after oral administration may in part be due to the fact that digitoxin is rapidly absorbed directly through the wall of the stomach.<sup>5</sup> This does not apply to all digitalis glycosides.

Observations on patients show that digitoxin is also rapidly absorbed from the gastrointestinal tract in man. This fact was determined for patients with auricular fibrillation and varying grades of heart failure. They were in bed in the hospital. The ventricular rate was counted three times daily and the average recorded as a point on the chart, during a control period of a week or longer until the rate reached a fairly constant level. They then received a single full digitalizing dose. Apex counts were then made at intervals of approximately one hour in most cases throughout the day. In the subsequent days the record was made in a manner similar to the control period prior to the drug. Intervals of at least three weeks elapsed between courses. Chart 1 shows the course in each of 4 cases. If one judges absorption from the decline of the ventricular rate, it may be noted that absorption is virtually complete within four to ten hours. These are typical of fifteen digitalizations in 12 cases of auricular fibrillation and congestive heart failure varying from mild to far advanced grades in which such detailed observations were made.

The single full dose in all but 1 of these cases was 3 cat units, or 126 mg. In 1 case a dose of 4 cat units, or 168 mg., was administered with substantially similar results.

A comparison of the oral and intravenous dosage provides a means for determining the completeness of absorption. After some preliminary explorations it was found safe to administer 3 cat units, or 126 mg., of digitoxin at one time by intravenous injection. This dose was given seventeen times to 15 patients in whom the detailed course of the effects was observed in the manner just described. In 6 of these patients the oral dose of 126 mg. was given at one time and the intravenous dose at another time for purposes of comparison. Chart 2 shows typical results of this comparison. The degree of effect following the intravenous dose is practically identical<sup>5</sup> with that following the oral dose except that it comes on more rapidly in some. It may be assumed therefore that for practical purposes the absorption of digitoxin from the gastrointestinal tract of man is virtually complete.

With this as a basis we endeavored to ascertain the safety of the single dose method of digitalization with this material in an unselected group of 213 patients with varying grades of heart failure, including patients with auricular fibrillation and regular sinus rhythm, some ambulant and others confined to bed. The character of this group is shown in table 1. They had been without digitalis for at least three weeks. Each received

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1 The preparation used in this study was digitaline Natuelle. The nomenclature is discussed by Gold, Kwit and Cattell.<sup>6</sup>

2 Hitcher, R. A. Some Observations on the Pharmacology of Digitalis Body, J. A. M. A. 75:460 (Aug. 14) 1920. Eggleston, Cary. Digitalis Dosage, Arch. Int. Med. 16:1 (July) 1915. Njary, A. Die Resorption von Digitalispräparaten aus dem Darm. Arch. f. exper. Path. 165:432, 1932.

3 Travell, Janet, and Gold, Harry. Studies on the Absorption of Some Digitalis Preparations from the Gastrointestinal Tract in the Cat and Man, J. Pharmacol. & Exper. Therap. 72:41 (May) 1941.

4 The cat unit of digitoxin as determined by intravenous injection over the customary period of about seventy-five minutes is about 33 per cent larger than the absolute fatal dose. If injected at one time a smaller dose proves fatal after a longer interval. Also the cat unit of digitoxin as determined by the seventy-five minute injection period is 0.41 mg. but only 0.29 mg. in an injection period of four hours. However 75 per cent of the cat unit given orally, frequently also cause death, so that absorption is not far from complete.

5 The possibility exists that there may be some difference in the intensity of effects since the atropine test (Gold, Kwit, Ott and Felt)<sup>7</sup> to distinguish vagal from extravagal digitalization was not made in all cases, although the fact that the duration of action is often shorter suggests that the amount of glycoside involved in the two is not the same.

a single dose of 126 mg of digitoxin. The results are shown in table 2. The only toxic effects were those referable to the gastrointestinal tract. Of the entire group, 23 per cent showed nausea (none vomited) in an average of one hour and twenty minutes, in all

(Ciba). Chart 3 shows the results in two such experiments. In one 6 cat units by intravenous injection produced an effect almost as striking as 20 cat units given orally. In the other 3 cat units intravenously produced nearly as striking an effect as 15 cat units given orally.

Chart 4 shows 3 cases in each of which the doses of digitoxin and of digitalis which produced the same effects by oral administration are compared. Doses of from 12 to 20 cat units of digitalis leaf produced the same effects as 3 cat units of digitoxin by oral administration. Whether this result is significantly different from the results in which oral and intravenous digitalis are compared is uncertain and requires further investigation. The two groups of experiments (those of charts 3 and 4), however, point in the same direction and show that only about one seventh to one third of the potent materials in an oral dose of digitalis play a part in the total systemic effect.

The foregoing experiments show that 15 cat units of digitalis leaf or tincture may be taken as the average therapeutic equivalent of 3 cat units of digitoxin by oral administration in man. This is in substantial agreement with our previous findings.<sup>6</sup> This dosage for

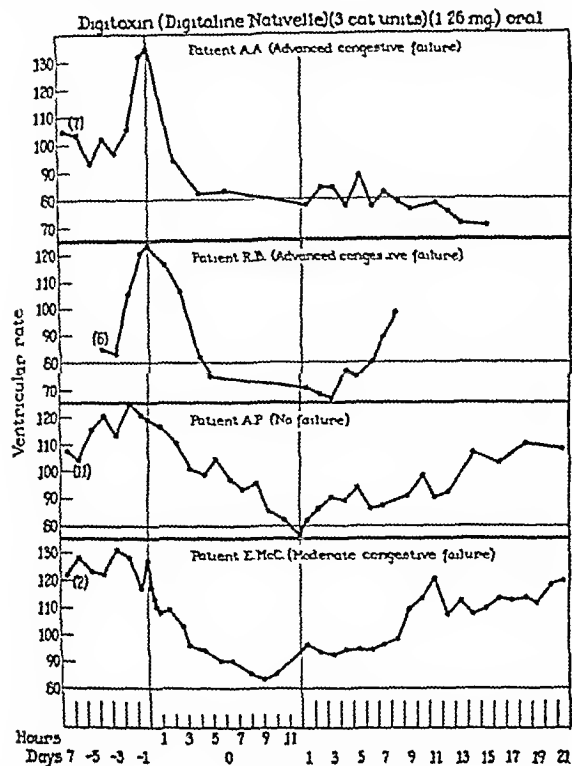


Chart 1—Courses in 4 cases after administration of digitoxin (digitaline Natuelle) 3 cat units (1.26 mg) orally.

probability a local action. A similar number had gastrointestinal symptoms within an average of fourteen hours, due obviously to a systemic action.

Can the same result be accomplished by the use of digitalis leaf or the tincture? The results of animal experiments indicate that these might present difficulties. In animal experiments the contrast between the absorption of digitalis and of digitoxin is very striking. It is almost impossible to kill the cat by the oral administration of digitalis. The largest total amount which is absorbed after the oral administration of a single intravenous fatal dose is not often more than 30 per cent.<sup>3</sup> Such a dose causes vomiting in about 15 per cent of the animals from a local action, as shown by the fact that it occurs within about one and one-half hours, sometimes as early as ten minutes and when only about 10 per cent of the dose has been absorbed. Larger doses as large as ten times the intravenous fatal dose, given orally, cause enough diarrhea (vomiting prevented by morphine) to prevent fatal poisoning.

In regard to man, it is well known that digitalis leaf and tincture are among the best absorbed of the crude materials belonging to the digitalis group, including strophanthus, convallaria, squill and adonis. We investigated the extent of absorption of digitalis in man by experiments in patients with auricular fibrillation in whom the effects of oral and intravenous doses were compared, again making these comparisons in one and the same person. For this purpose two materials were used, one a liquid preparation of digitalis which contained all the glycosides of the leaf and the other a purified mixture of the glycosides of digitalis in the form of the product of commerce known as digitoline

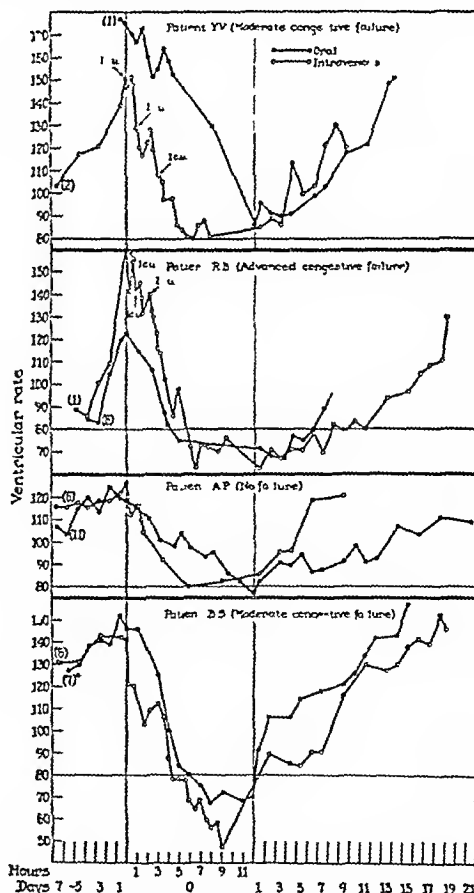
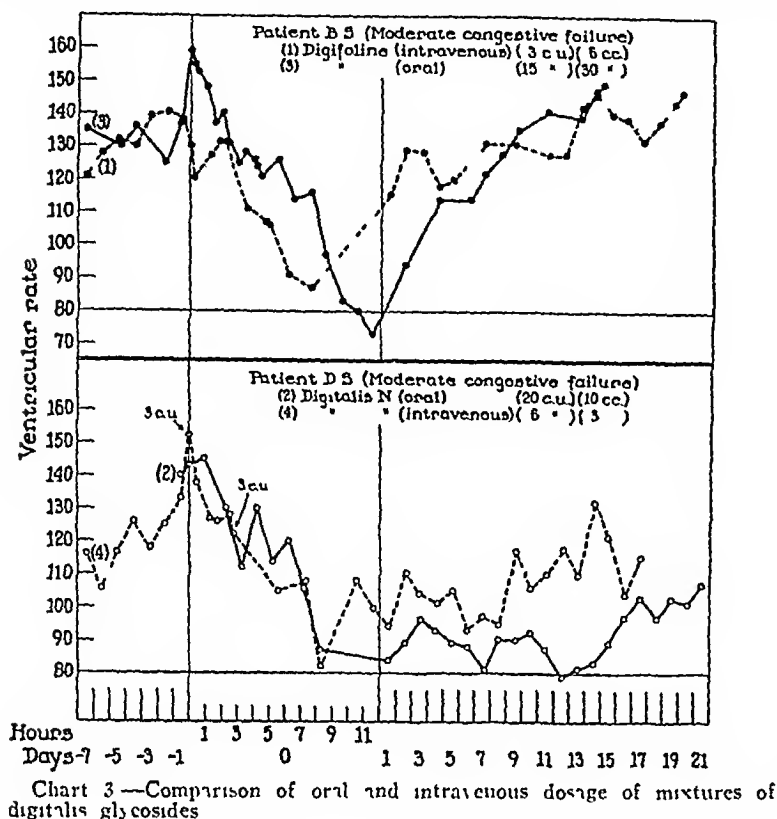


Chart 2—Comparison of oral and intravenous dosage of digitoxin (digitaline Natuelle) 3 cat units (1.26 mg).

digitalis is in line with the experience of others.<sup>7</sup> Chart 4 furthermore shows that with such full doses of digitalis given orally at one time the effects may, in many cases, develop about as quickly as with digitoxin. We

<sup>6</sup> Gold, Harry, Kwit, N. T. and Cattell, McKen. Studies on Purified Digitalis Glucosides. I. Potency and Dosage of Digitaline Natuelle by Oral Administration in Man. *J. Pharmacol. & Exper. Therap.* 69: 177, 1940. Gold, Harry and Cattell, McKen. Status of Bioassay of the Digitalis Group. *Science* 93: 197, 1941.  
<sup>7</sup> Pardee, H. E. B. Notes on Digitalis Medication. *J. A. M. A.* 73: 1822 (Dec. 13) 1919. Eggleston, Robinson.<sup>12</sup>

therefore endeavored to ascertain the safety of the single dose method of digitalization with digitalis leaf and the tincture in a series of patients in a manner similar to that for digitoxin. Sixteen specimens of digitalis leaf or tincture were administered in a single dose averaging 151 cat units to a total of 161 patients. The results



are shown in table 2. As in the case with digitoxin, the only toxic effects were those referable to the gastrointestinal tract. The incidence of nausea and/or vomiting due to local action within less than two hours was very high. It rose from 23 per cent in the case of digitoxin to 19.3 per cent. The local emetic action was encountered with both the tincture and the leaf.

#### COMMENT

**Local Emetic Action of Digitalis**—The emetic action of the digitalis bodies took a prominent place in Withering's<sup>8</sup> description of the action of the drug in man in 1785. For a long time thereafter the belief prevailed that digitalis caused vomiting by direct action on the gastrointestinal tract. The literature has been reviewed by Hatcher and Eggleston.<sup>9</sup> The classic studies of Hatcher and his collaborators, Eggleston and Weiss,<sup>10</sup> directed attention to the fact that the digitalis bodies exert an emetic action after they have been absorbed. The available evidence leaves little doubt that vomiting from digitalis is due to an action either on some structure of the central nervous system or some sensory endings in the periphery (the heart), or both. The gastrointestinal tract is not essential, since in an animal a toxic dose of digitalis produces all the phenomena of vomiting except expulsion of gastric contents, even after evisceration.<sup>9</sup> The result of these studies has been that interest in the local (gastrointestinal) emetic action of digitalis has declined, and in the more recent writings the tendency has been even to deny its existence.<sup>11</sup>

The plan of our studies on the assay of digitalis in man required single full doses of digitalis. In many of these experiments the patient was in the hospital for three or four weeks for purposes of control. A large dose of digitalis leaf or the tincture was then given. Its effects were to be studied over a period of several weeks. These time consuming experiments, however, often came to an unexpected end when within some minutes after administration of the dose the patient became nauseated and vomited, losing some of the drug and vitiating the experiment. This seemed to occur much more frequently than our previous views indicated should be the case if the local emetic action of digitalis is as negligible a factor as we had supposed it to be.

Our own experience, as well as that of most others, has been that when patients are digitalized with a series of small doses given at intervals, vomiting is relatively rare until strong systemic effects are in evidence, it is in these cases clearly due to the systemic action of the drug. The present experiments show, however, that when very large doses of digitalis are given in man at one time, local emetic action in the gastrointestinal tract develops. Nausea and vomiting occur in from five minutes to two hours, long before the major part of the dose has been absorbed, as shown by the relatively slight effect on the heart rate. The nausea may last for as long as three or four hours. The susceptibility of a person to the local emetic action is extremely variable. Many of these patients received several doses

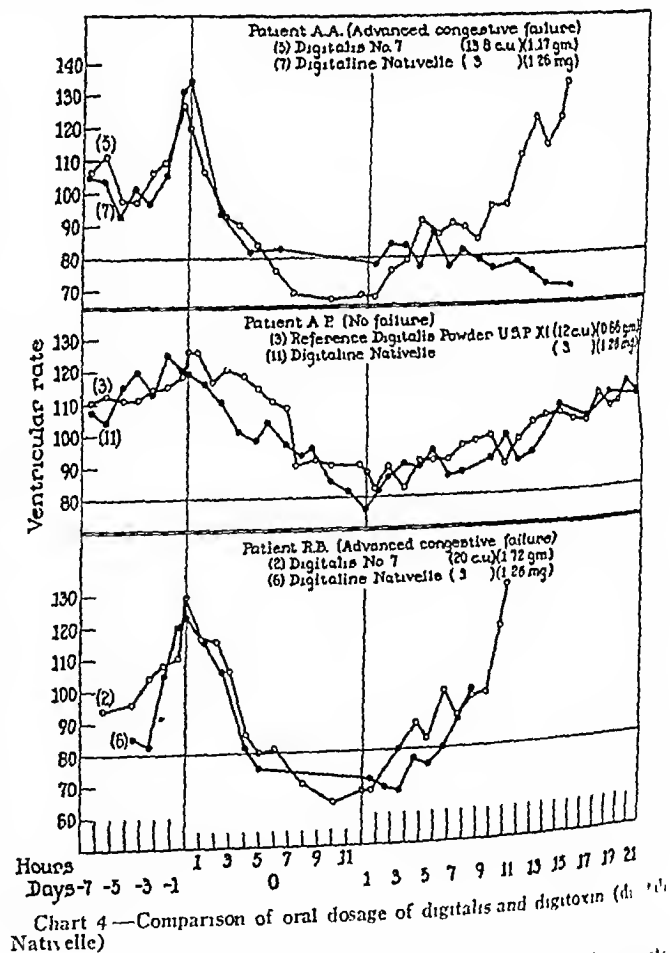


Chart 4—Comparison of oral dosage of digitalis and digitoxin (d. Nativelle)

of digitalis, often of the same preparation, and vomited after one or two of the doses and not after the other. In a given patient the doses of the same preparation which caused the vomiting were not always the largest ones.

The nature of the local action which causes emesis requires further study. We have examined the gastrointestinal tract of a cat which had severe nausea and diarrhea from the local action of large oral doses of

8 Withering, W. An Account of the Foxglove and Some of Its Medical Uses, with Practical Remarks on Dropsy and Other Diseases, Birmingham, 1785.

9 Hatcher, R. A., and Eggleston, Cary. The Emetic Action of the Digitalis Bodies. J. Pharmacol. & Exper. Therap. 4: 113 (Nov.) 1912.

10 Hatcher, R. A., and Weiss, Somer. The Seat of the Emetic Action of the Digitalis Bodies, Arch. Int. Med. 29: 690 (May) 1922. Hatcher and Eggleston.<sup>9</sup>

11 Goodman, Louis, and Gilman, Alfred. The Pharmacological Basis of Therapeutics, New York, Macmillan Company, 1941, p. 519. Sollmann, Torald. A Manual of Pharmacology, Philadelphia W. B. Saunders Company, 1942, p. 540.

digitalis. These symptoms are not necessarily associated with inflammatory changes in the mucosa.

What accounts for the fact that digitalis causes gastrointestinal symptoms by local action so much more frequently than digitoxin when the two are given orally in therapeutically comparable doses? Impurities such as

TABLE 2—Comparison of the Local Emetic Activity of Digitalis and Digitoxin in Man

|   | Digitalis               | Digitoxin               |
|---|-------------------------|-------------------------|
| Number of patients                          | 161                     | 213                     |
| Dose  |                         |                         |
| Grams                                       | 0.59 (0.4 to 0.4)       | 1.26 mg                 |
| Cat units                                   | 15.2 (7.2 to 30)        | 3                       |
| Nausea and/or vomiting from local action    |                         |                         |
| Number of cases                             | 31                      | 0                       |
| Percentage of cases                         | 19.3                    | 2.3                     |
| Dose  |                         |                         |
| Grams                                       | 0.59                    | 1.26 mg                 |
| Cat units                                   | 15.1                    | 3.0                     |
| Time to effect                              | 1.7 hr                  | 1.3 hr                  |
| Nausea from local action                    |                         |                         |
| Number of cases                             | 18                      | 5                       |
| Percentage of cases                         | 11.2                    | 2.3                     |
| Dose  |                         |                         |
| Grams                                       | 0.81 (0.4 to 1.2)       | 1.26 mg                 |
| Cat units                                   | 14.2 (7.2 to 19.5)      | 3                       |
| Time to nausea                              | 1.9 hr (10 min to 3 hr) | 1.3 hr (20 min to 2 hr) |
| Vomiting from local action                  |                         |                         |
| Number of cases                             | 13                      | 0                       |
| Percentage of cases                         | 8.1                     | 0                       |
| Dose  |                         |                         |
| Grams                                       | 1.0 (0.6 to 1.9)        | 0                       |
| Cat units                                   | 16.3 (10 to 23.6)       | 0                       |
| Time to vomiting                            | 1.5 hr (30 min to 3 hr) | 0                       |
| Nausea and/or vomiting from systemic action |                         |                         |
| Number of cases                             | 8                       | 0                       |
| Percentage of cases                         | 5                       | 2.3                     |
| Dose  |                         |                         |
| Grams                                       | 1.3 (0.73 to 2.4)       | 1.26 mg                 |
| Cat units                                   | 18.9 (13.3 to 30)       | 3                       |
| Time to effect                              | 14 hr (9 to 20)         | 14 hr (8 to 16)         |

The action was assumed to be local if it occurred within two hours and if little slowing of the ventricular rate had taken place. In the case of digitalis 2 patients are included in whom the interval was three and five hours respectively because negligible slowing had occurred at the time that vomiting appeared indicating little absorption.

fat and digitoxin have been charged with this action. Whether an impurity in digitalis plays any part cannot be stated. The fact remains that this action is not confined to crude materials. The cardioactive glycosides in purified form produce it. Table 3 summarizes some observations made in the course of other work with purified materials, lanatoside-C various mixtures of glycosides of squill, ouabain and digitofoline (Ciba). These experiments are not sufficient to reveal whether glycosides of the digitalis group vary in their local emetic potency. They point to the fact, however, that the local emetic action is related to the amount of the material given rather than to the cardiac potency of the dose (cat units). It may be seen that nausea or vomiting due to local action was for the most part confined to doses of the glycosides above 3.5 mg, doses below that failed to cause vomiting. For example, ouabain in oral doses of 2 and 3 mg failed to cause vomiting by a local action, although these doses amounted to 20 and 30 cat units, whereas the glycosides of squill frequently exerted the local emetic action in much smaller cat unit doses but the amount of the glycosides in these cases was considerably larger.

The larger amount of glycosides becomes necessary for therapeutic effects in the case of those materials which have a low cardiac potency and which are imperfectly absorbed. The local emetic action, as has already been noted, is rarely present in the case of digitoxin of which a total of only 1.26 mg is necessary for full digitalization by oral administration.

**Digitalization by the Single Dose Method**—There are several reports on the use of a massive dose of digitalis given at one time for full digitalization.<sup>12</sup> Robinson<sup>13</sup> gave from 15 to 25 cat units in a single dose to a series of patients under control in the hospital without encountering serious poisoning. He concluded that such doses are not dangerous when used under well controlled conditions, although he did not advocate the method as a routine practice. One out of 10 of his patients vomited within a few minutes, and a similar number had nausea within one-half to one hour. The more usual practice is to give the full dose, whatever it is estimated to be 1 or 1.5 Gm for a given patient, in four or five fractions, at intervals of six or eight hours to induce the full effects. One reason for the divided doses, as already stated, is the fact that systemic poisoning may result from a single full dose in the more susceptible individuals. Furthermore the fact that about 10 per cent of the patients may vomit shortly after the massive dose, as shown both in our own series and in that of Robinson, introduces a serious problem. Such a practice is likely to achieve precisely the opposite effect of what is intended by the single massive dose namely to delay satisfactory digitalization beyond what might have been possible with a series of small doses, since it is often difficult to determine what proportion of the dose has been lost in vomiting. To play safe it is necessary to wait for the full effects of the fraction that remains.

Since varying susceptibility as measured by oral doses includes the factor of varying absorption, it was considered that the digitoxin-like material which is rapidly and for practical purposes completely absorbed from the gastrointestinal tract, might provide a safe means of full digitalization by a single average dose. This has

TABLE 3—Local Emetic Action of Various Digitalis Glycosides in Man

| Glycosides                                | No of Patients | Total Doses* | Doses Causing Nausea and/or Vomiting |                                  | Doses Not Causing Nausea and/or Vomiting |           |
|---|----------------|--------------|--------------------------------------|----------------------------------|--|-----------|
|   |                |              | Milligrams                           | Cat Units                        | Milligrams                               | Cat Units |
| Lanatoside C                              | 83             | 1498         | 6.25 to 10 (12 doses in 2 patients)  | 25 to 40                         | 3.75 to 15 (12 doses in 12 patients)     | 15 to 60  |
| Mixtures of purified glycosides of squill | 2              | 10           | 3.5 to 10 (6 doses in 2 patients)    | 13 to 25                         | 1.25 to 3 (1484 doses in 69 patients)    | 5 to 12   |
| Ouabain                                   | 9              | 49           |                                      |                                  | 2.75 to 5 (4 doses in 2 patients)        | 13 to 25  |
| Digitofoline (Ciba)†                      | 16             | 16           |                                      | 15 to 18 (2 doses in 2 patients) | 2 to 3 (49 doses in 9 patients)          | 20 to 30  |
| Digitoxin                                 | 213            | 213          | 1.26 (5 doses in 5 patients)         | 3                                | 1.26 (208 doses in 208 patients)         | 3         |

\* The materials were given orally in a single dose at one time.  
† This material was available only in tablets or liquid hence the number of milligrams of active material is not stated.

proved to be the case. The full digitalizing dose of 1.26 mg may be given at one time to the patient with heart failure who has not recently received digitalis. It induces the full effects within six to ten hours and sometimes more quickly, within four hours. Only about 1 out of 50 patients under these conditions has nausea due to local action and a similar number

<sup>12</sup> Eggleston \* Robinson.  
<sup>13</sup> Robinson G C. The Value of Large Single Doses of Digitalis in the Treatment of Heart Disease. South M J 13:396 1920.



the latter examples the columnar cells were sometimes arranged in the form of irregular anastomosing double files forming a mosaic pattern (fig 4a). Occasionally the enclosed spaces were not empty but filled with a loose network of pale staining "reticular" cells with delicate branching processes. Here and there transitions between these cells and the columnar cells

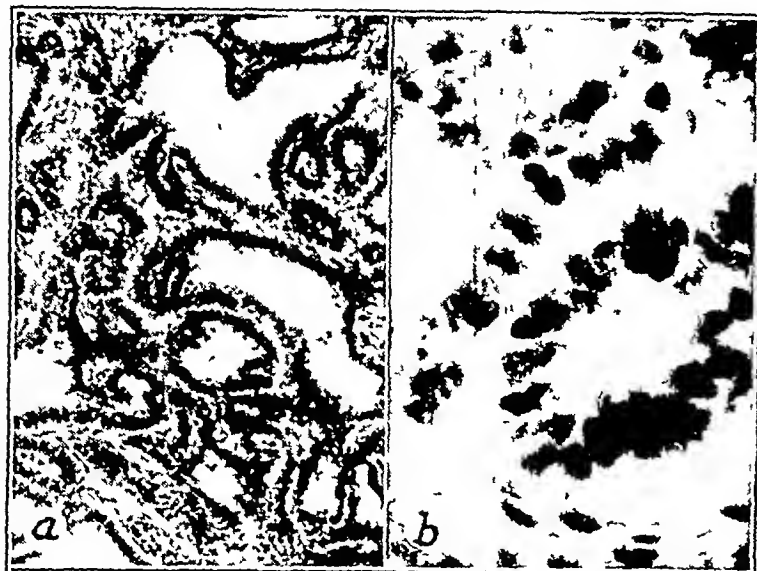


Fig 3—Glandular adamantinoma showing (a) striking resemblance to the picture of a low grade adenocarcinoma (hematoxylin and eosin,  $\times 110$ ) and (b) formation of alveoli (hematoxylin and eosin,  $\times 600$ ). This and the photomicrographs reproduced in figures 4, 5, 6, 7 and 8 have been reduced slightly from the magnifications given.

were seen in the form of intermediate rows of spindle cells (fig 4b). The latter arrangement was the one most closely approaching the typical picture of adamantinoma described in connection with the jaw (fig 7b). The adenomatous arrangement conformed to Ewing's subgroup "glandular adamantinoma." In this pattern the stroma was not abundant and was composed of young connective tissue cells with some collagen.

Another arrangement frequently noted was that of small cuboidal cells in the form of solid islands or irregular anastomosing sheets (fig 5a). The peripheral rows of cells appeared in palisade formation, and the resemblance to basal cell carcinoma sometimes was striking. Occasional cystic change was noted in these otherwise compact cellular masses, and occasionally there appeared central groups of stellate

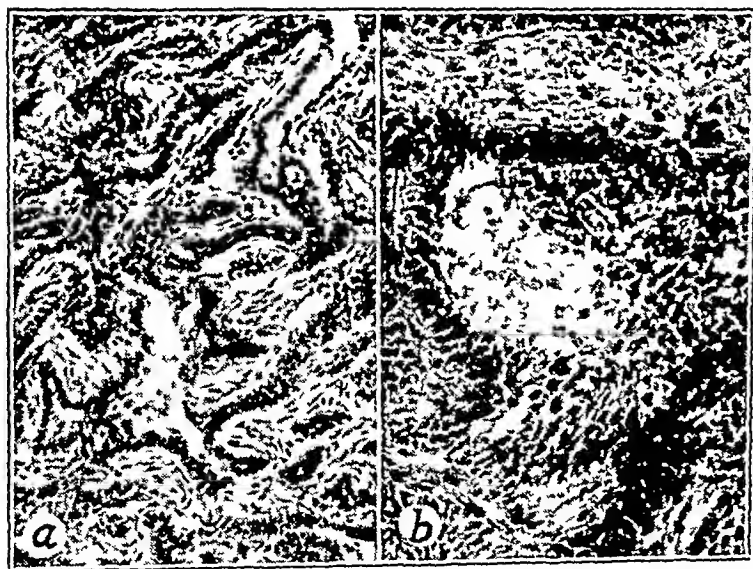


Fig 4—Glandular adamantinoma showing (a) irregular acini with strands of the epithelium, this mosaic pattern is highly diagnostic (hematoxylin and eosin,  $\times 155$ ), (b) a nest of "reticular" cells and transition of the latter to the columnar type of epithelium, compare with figure 7b, which depicts a typical adamantinoma of the jaw (hematoxylin and eosin,  $\times 210$ ).

"reticular" cells similar to those described in the preceding paragraph. This structural arrangement with its typical peripheral palisading recalled Ewing's "plexiform epithelioma" type of adamantinoma.

In still other regions the columnar character of the tumor cells was entirely lost and they assumed a more or less spindle

form, in brief, a picture of the "sarcomatoid" pattern (fig 5b), so commonly seen in adamantinoma (this has been reported in connection with the tibial variety but is rarely the predominant pattern). That the spindle cells represented not a different type but rather a variant of the columnar cells was demonstrated by transitions between the two (fig 6a).

Squamous cells were observed in several of the sections. They were usually in small compact groups and were occasionally seen to form epithelial pearls. No intracellular bridges were noted and keratohyaline granules were absent (fig 6b). These cells were regarded in the light of selective differentiation of the parent tumor cells. In case 2 this line was followed almost to the exclusion of all others, so that the tumor resembled a pure epidermoid carcinoma (acanthoma type of adamantinoma—Ewing<sup>9</sup>).

The stroma varied as did the epithelium in amount and in texture. In some regions the picture was that of wide bands of hyaline connective tissue enclosing semistrangulated nests of epithelial cells. In other zones the supporting element was small in amount and loose in texture. Blood vessels were fairly numerous throughout the tumor but did not offer any noteworthy features. The "invasion" of soft parts noted in the roentgenograms was not convincing microscopically. Involvement of muscle was expected, but the appearance was rather that of slow expansion of the tumor and of pushing aside such structures as muscles, nerves and tendons.



Fig 5—(a) plexiform epithelioma type of adamantinoma, note the solid anastomosing strands and sheets of small dark staining cells with attempted peripheral palisading, the resemblance to basal cell carcinoma is apparent (hematoxylin and eosin,  $\times 170$ ), (b) the sarcomatoid pattern seen in adamantinomas, here the cells are of the spindle type, somewhat pale staining and arranged irregularly like those in a sarcoma (hematoxylin and eosin,  $\times 155$ ).

Microscopic study of the skin over the lesion revealed a picture perhaps worth recording. The tips of the papillary pegs appeared irregular and hyperchromatic. Here and there budding masses of basal cells were seen growing into the underlying subcutis. In short, the appearance was that of multicentric, basal cell carcinoma in situ (fig 7a). While no actual connection could be traced between these neoplastic downgrowths and the underlying adamantinoma, one must remember that such a connection probably did exist prior to the first operation, when the overlying skin was excised. The point will be discussed subsequently.

As the microscopic examination of tissue from the material obtained at amputation provided little in the way of additional information, pertinent remarks will be limited to a description of the gross specimen. On sagittal section (fig 2) the tumor presented first a hemorrhagic cystic cavity, measuring 10 by 5 by 5 cm, at the recent operative site. Around the margin of this cavity the bony cortex was of eggshell thickness, and in the posterolateral wall there was a cortical defect measuring 3 by 2 cm and containing residual grayish red tumor material. This extended laterally into the soft tissue and

<sup>9</sup> Ewing, James. *Neoplastic Diseases. A Treatise on Tumors*. Philadelphia: W. B. Saunders Company, 1940. pp. 771-776.

partially surrounded, but did not involve, the shaft of the fibula. Of special interest, however, was the finding of reddish medullary and cortical nodules of neoplasm immediately above and below the large central cavity which presumably represented the main mass of the tumor. In the upper and lower ends of the tibia were found additional nodules which were grayish yellow, softer than the surrounding bony tissue and fairly well circumscribed. They varied from 1 to 4 cm in diameter and were practically all discrete. However the gross impression that these too were nodules of residual tumor was not confirmed microscopically, the sections revealing that they represented lesions of osteitis fibrosa.

A similar type of involvement in the lower third of the fibula constituted a finding which set the case apart from the previously reported examples of 'heterotopic' adamantinomas. The medullary cavity and the cortex of the bone were involved to such an extent that the shaft could be bent with the greatest of ease. The involvement again took the form of semidiscrete nodules similar to those found in the upper and lower ends of the tibia. As in the case of the tibia these nodules, grossly simulating tumor, proved on analysis to represent lesions of osteitis fibrosa.

**CASE 2**—A 27 year old white man first visited the clinic on Feb 21, 1939 complaining of "trouble with the left leg" seventeen years in duration. The patient stated that he had been well until the age of 10 years at which time he sustained

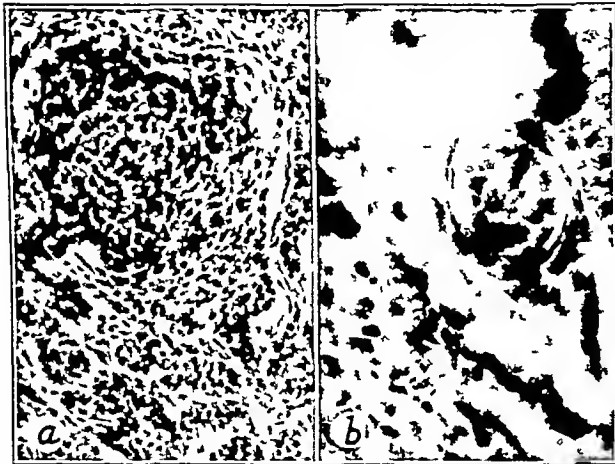


Fig 6—*a* transition between alveolar or glandular and sarcomatous patterns of tibial adamantinoma (hematoxylin and eosin  $\times 200$ ) *b* differentiation of the tumor cells into squamous epithelium with pearly bodies (hematoxylin and eosin  $\times 450$ )

a severe bruise to the left leg when he accidentally "stepped into a hole in the floor." Three years later the patient suffered a fracture of the left tibia when he jumped from a hay loft. The fracture healed in two to three months. Again, at the age of 16 years, fracture of the same bone "followed a bad step while running." Good union apparently was again secured. Following a third fracture at the age of 22 roentgenograms were taken which revealed an osseous cyst as possible background for the fractures. The cyst was excised three months later, but apparently no microscopic studies were done at the time. About one year before the patient's admission to the clinic (four years after excision of the cyst) pain and swelling developed over the left shin and the patient was hospitalized. The valuable surgical, pathologic and roentgenologic data which were obtained at the hospital and which were subsequently provided to us have made possible the diagnosis and presentation of this unusual tumor.

Essential descriptions of the roentgenograms taken when the patient was 22 years old are as follows. Dec 14, 1934 "re-examination of the shaft of the left tibia shows moderate evidence of resolution in the pathology (fracture with cyst). This is particularly evident in the portion of the shaft just below the line of fracture, where the large cyst which had been present is considerably smaller. There is also apparently resolution in the smaller cysts on the ventral aspects of the bone above

the line of fracture, although the line of the fracture is still visible indicating that complete union had not yet occurred." May 14, 1935, a "radiologic examination of the shaft of the left tibia shows findings which have been previously reported. The large area of rarefaction, more or less in the center of the shaft is definitely smaller at this time than it was at the



Fig 7—*a* skin overlying the tumor of the tibia the appearance is that of multicentric basal cell carcinoma (hematoxylin and eosin  $\times 175$ ) *b* typical adamantinoma of the jaw for comparison with fig 7*a* the palisaded basal cells are shown enclosing large islands of stellate reticulum transitional or intermediate cells are not well demonstrated

time of the last examination. The walls of this cavity are also somewhat thicker and sclerotic. The changes on the bone in the ventral aspect just above this cavity are of the same nature only not quite as extensive as they were at the previous examination. The distal end of the bone was not included in the plates made prior to September 1934. Two definite areas of rarefaction are seen in the cortical bone of the ventral aspect. These were not observed at previous examinations. These are probably areas of rarefaction resulting from embolic foci of infection which have spread through the haversian canals.

Roentgenograms taken in September 1938 demonstrated a healed fracture through the middle third of the body of the



Fig 8—Tibial adamantinoma differentiating along the line of fairly mature squamous epithelium (hematoxylin and eosin  $\times 170$ )

tibia. The cortex was thickened, and there was evidence of regions of rarefaction. On Sept 6, 1938 the cystic portion of the bone apparently including all the diseased portion had been "saucerized." The pathologist who had prepared the tissue and examined it microscopically recognized the striking dissimilarity of the neoplasm to the usual types of primary malignant lesion of the bone and suggested metastasis from a low grade epithelioma. This was ruled out clinically. Slides had been submitted to other eminent pathologists who first

suggested the diagnosis of atypical adamantinoma of the tibia. With this diagnosis the pathologist who first had examined the tissue concurred later, although, to put it in his own words, "In reading the original report if the word 'metastasis' had been omitted the histologic description would have been perfectly satisfactory for the final diagnosis."

It was then with this valuable advance information that the patient five months later was referred to the Mayo Clinic for consideration. Examination here disclosed little of additional importance. There was present on the anterior surface of the leg a cicatrix 7 inches (18 cm.) long. The underlying tibial margin felt rough. There was present a moderate degree of atrophy involving the muscles of the leg on the affected

side. From our last communication with the patient, in January 1941, we learned that he was "walking without the aid of a cane."

The photomicrograph (fig. 8) of the tumor afforded in this case is taken from material supplied us by the pathologist who examined the tissue removed in 1938. When we saw this tissue in 1939 our diagnosis was epithelioma, grade 1 (Broders' method). In retrospect now and as a result of comparison with the material from case 1 we agree with those who made the earlier diagnosis of atypical adamantinoma. The case therefore becomes almost unique in the extremely long duration of the lesion and the apparent response to the treatment employed.

Summary of Cases of Adamantinoma of the Tibia (Cases 1 to 15 Inclusive from Hebbel<sup>13</sup>)

| Case | Year | Author                         | Age, yrs. | Sex | Site                                   | Antecedent Trauma            | Latent Period | Character and Duration of Symptoms  | Initial Therapy                     | Subsequent Course   |
|------|------|--------------------------------|-----------|-----|--|------------------------------|---------------|-------------------------------------|-------------------------------------|---|
| 1    | 1913 | Fischer                        | 37        | ♂   | Junction lower and middle thirds, left | Contusion                    | 5 mo          | Pain, swelling, 5 mo                | Resection, bone graft               | No recurrence 8 mo later  |
| 2    | 1930 | Richter                        | 12        | ♂   | Middle third, left                     | Fall                         | ?             | Swelling, 8 mo                      | Amputation                          | Uneventful  |
| 3    | 1931 | Baker and Hawksley             | 46        | ♂   | Lower third, left                      | Contusion                    | 8½ mo         | Pain, swelling, 6 wk                | Resection, bone graft               | No recurrence 2 mo later  |
| 4    | 1932 | Ryle                           | 32        | ♂   | Middle third                           | Contusion                    | 8 yr          | Swelling, 8 yr                      | Curettage                           | Recurrence, amputation 6 mo later   |
| 5    | 1933 | Petrov and Glusunow            | 22        | ♂   | Middle third, left                     | None                         | None          | Swelling, 3 yr                      | Resection, bone graft               | No recurrence 1 yr later  |
| 6    | 1934 | Holden and Gray                | 36        | ♀   | Lower third, left                      | Abrasion, contusion of ankle | None          | Pain, 2 yr                          | Excision                            | Recurrence after 2 yr, reexcision, roentgen therapy of high voltage                 |
| 7    | 1937 | Bishop                         | 22        | ♂   | Upper third, right                     | Fracture                     | 8 wk          | Swelling, 3 yr                      | Curettage, chips, graft             | Recurrence amputation after 14 mo, 4 yr after fracture                              |
| 8    | 1938 | Rehbock and Barber             | 24        | ♀   | Lower third, left                      | Sprain of ankle              | None          | Pain, swelling, 18 mo               | Wide excision                       | No recurrence 8 mo later  |
| 9    | 1938 | Oberling, Vermees and Chevreau | 51        | ♂   | Middle third                           | ?                            | ?             | ?                                   | Excision                            | Recurrence amputation 7 mo later  |
| 10   | 1938 | Dunne                          | 32        | ♂   | Junction upper and middle thirds, left | Contusion abrasion           | 9 mo          | Swelling, 4 yr, pain later months   | Roentgen therapy of high voltage    | Progression amputation 9 mo later   |
| 11   | 1938 | Wolfort and Sloane             | 37        | ♀   | Junction middle and lower thirds, left | Contusion                    | None          | Swelling, 10 mo, pain 4 mo          | Excision                            | Recurrence in 16 mo, reexcision, no further recurrence 47 mo after first operation  |
| 12   | 1938 | Wolfort and Sloane             | 18        | ♀   | Lower half, right                      | Abrasion                     | 3½ yr         | Pain 4 mo                           | Curettage, radium                   | Recurrence, resection 13 mo later, recurrence again amputation after 12 mo          |
| 13   | 1939 | Thomas                         | 19        | ♀   | Upper right                            | None                         | None          | Swelling, 7 yr, pathologic fracture | Curettage, graft                    | Recurrence amputation 8 mo later  |
| 14   | 1939 | Rankin                         | 20        | ♂   | Lower left                             | Puncture wound               | 1 yr          | Pain, swelling, 1½ yr               | Curettage                           | Recurrence excision 13 mo later, no recurrence 9 yr after first operation           |
| 15   | 1939 | Hebbel                         | 14        | ♀   | Lower right                            | None                         | None          | Pain, swelling, 4 mo                | Curettage                           | Recurrence curettage 13 mo later, again recurrence amputation 2½ yr after operation |
| 16*  | 1941 | Dockerty and Meyerding         | 24        | ♀   | Left middle                            | ?                            | None          | Recurrent pain, 8 yr swelling, 4 yr | Excision                            | Recurrence, amputation 10 mo later  |
| 17†  | 1941 | Dockerty and Meyerding         | 27        | ♂   | Left middle                            | Abrasion                     | 6 yr          | Recurrent fractures, pain tumor     | Repeated excision, roentgen therapy | Arrested (?) 16 mo  |

\* Designated as case 1 in text of this paper

† Designated as case 2 in text of this paper

side. Roentgenograms revealed a bony defect (operative) involving the middle third of the shaft of the bone with considerable bowing. The patient was given a course of local roentgen therapy and returned home.

In the interval between February 1939 and September 1940 the patient did not suffer from any major complaints. Some slight pain was noticed in the old operative scar and anterior bowing of the bone became apparent. However, a routine roentgenogram taken at the time of his second visit here, on Aug. 28, 1940, showed a widening of the old fracture line previously noted. Greatly increased density of bone was observed in comparison with older roentgenograms. The possibility of recurrence was considered, and accordingly on September 2 surgical exploration was performed through the previous operative scar. The bone was white and sclerotic. No definite tumor was encountered, and tissue removed for examination showed only the picture of sclerosis and lesions of osteitis fibrosa. The patient was dismissed on September 16, with the wound almost completely healed.

COMMENT

While conceding that the term "adamantinoma" is probably a misnomer, we are of the opinion that since it has become so well established in the literature nothing would be gained by insisting on the more correct designation of "ameloblastoma" for the neoplasms under consideration. Adamantinomas arise from cells which under certain circumstances lay down enamel but which may or may not do so. Enamel has not been found in the tibial tumors, and some pathologists for example, Robinson,<sup>10</sup> deny that it has ever been demonstrated in the mandibular, maxillary and pituitary tumors of similar microscopic configuration.

As regards the histogenesis of this type of neoplasm we favor the hypothesis of Ryle supported by

10 Robinson H. B. G. Histologic Study of Ameloblastoma. Path. 23: 664-673 (May) 1937

Broders,<sup>11</sup> that the neoplasms arise from squamous cells which dedifferentiated into modified ameloblasts. We do not feel the necessity of postulating for the mandibular maxillary pituitary or tibial types the almost mythical occurrence of anatomic cellular rests. The prodigious capacity of cells to dedifferentiate is seen in the many examples of epidermoid carcinomas occurring in sites like the lung and gallbladder where squamous epithelium does not normally exist. In case 1 of our series we have seen in the epithelium overlying the tumors changes which suggested multicentric basal cell carcinoma. Although we were unable to demonstrate actual connection between these neoplastic pegs and the underlying tumor a similar picture could be found in the latter. In adjoining regions could be found a picture closely simulating adenocystic basal cell carcinoma. Epithelial pearls in still other regions indicated transition to fully differentiated squamous cells, and in case 2 the entire configuration of the tumor was almost that of a typical epidermoid carcinoma. In case 1 the arrangement often seen was that of palisaded cylindric cells, intermediate cells and stellate reticular cells in a triunivrate typical of adamantinoma of the jaw. By adding to these the picture of oval cells arranged in a diffuse or sarcomatoid pattern one obtains a veritable combination of tumor patterns, all on a basis of cellular dedifferentiation.

The part played by trauma in the production of these tumors is difficult to evaluate. The criteria laid down by Bell<sup>12</sup> in connection with the traumatic origin of neoplasms cannot be fulfilled in all tibial adamantinomas even when trauma is present in the patient's story. On the other hand the life history of such a tumor is very unusual in that it concerns a malignant lesion with an extremely slow rate of growth. As pointed out by numerous investigators, the anatomic location would favor a traumatic causation. The sharp anterior margin of the tibia provides the background for a vertical shearing type of injury of the overlying skin, and such injuries in this part of the body are very common. Whether such injuries "implant" epithelial cells into the periosteum of the underlying bone and, if they do so, what type of "thwarted repair" (Ryrie) process might give rise to tibial adamantinomas are matters which still are lacking in actual demonstration. It is interesting, however, that where nature provides such a possibility, *par excellence*, these tumors make their appearance to the exclusion of other situations. Case 2 furnishes an instance of such atypical trauma. Although no definite history of severe injury existed in case 1, the patient was a basketball player and undoubtedly was exposed to more than average danger in this regard.

Of particular interest in case 1 was the unusual and unexpected extent of the tumor. This observation has been made by others (Dunne) and undoubtedly accounts for the high "recurrence" rates observed following even such semiradical operative procedures as excision with bone grafting. Undoubtedly such an outcome would have ensued in our first case had any type of conservative operation been attempted. Such extension was probably not present in the second case, but in the light of the experience of others, it is perhaps yet too early to disregard the possibility of recurrence of the neoplasm.

The same degree of osteitis fibrosa present in both cases is of unusual interest. It is probable that this picture confused the roentgenologists who were led to believe that the fibula was secondarily involved by the tumor in case 1. Just why this localized bony rarefaction should occur we are at a loss to explain unless perhaps it represented a nutritional change resulting from circulatory obstruction by the tumor.

Finally Hebbel<sup>13</sup> in his recent review has summarized in tabular form most of the essential data pertaining to previously reported cases of tibial adamantinoma. It is with his consent that we reproduce this table and add to it our own 2 cases of this unusual neoplasm.

#### SUMMARY

In 2 new cases of tibial adamantinoma the disease had existed over a long period. Trauma appeared a probable etiologic factor in 1 case and a possible factor in the other. In 1 case amputation was performed because the lesion proved extensive beyond all expectation. Conservative operation apparently temporarily arrested the lesion in the second. Evidence proves that tibial adamantinomas are merely modified squamous cells which vary considerably in their differentiation into ameloblasts.

### TUBERCULOUS BACILLURIA

#### A TEN YEAR STUDY

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AND

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The concept that tuberculous infection of the urinary tract arises as a result of the distribution of tubercle bacilli through the blood stream is now generally accepted. That the presence of tubercle bacilli in the urine signifies the presence of a tuberculous lesion in the kidney, provided genital tuberculosis is ruled out, in the male especially, is still a much disputed point. There are investigators notably in continental Europe, who still maintain that tubercle bacilli may be excreted from the blood stream by a healthy kidney without a tuberculous lesion in the organ. The theorem that organs such as the liver, intestine and kidneys can excrete bacteria from the blood stream as a sort of physiologic function originated with Cohnheim,<sup>1</sup> who formulated the idea without any careful experimental investigations to support such a postulate.

Shortly after Cohnheim presented this theory, Wyssokowitsch<sup>2</sup> published a thesis, based on very painstaking experimental investigations which completely refuted the concept of physiologic excretion of bacteria. This article is a classic and should be read with great care by all who maintain that normal organs excrete bacteria as a part of their normal function. Cohnheim's postulate gained a considerable number of adherents, especially among clinicians and surgeons, primarily because it gave an easy and if true, a plausible explanation for the presence of bacteria of one sort or another in the urine of patients who had no clinical evidence of an infection of the genitourinary tract. The controversy over the

13 Hebbel Robert. Adamantinoma of the Tibia. Surgery 7: 860-868 (June) 1940.

From the Metropolitan Life Insurance Company Sanatorium.

1 Cohnheim quoted by Wyssokowitsch.

2 Wyssokowitsch W. Considerations on the Fate of Micro-Organisms Injected into the Blood Within the Body of Warm Blooded Animals. Ztschr. f. Hyg. 1886 No. 1.

11 Broders A. C. Personal communication to the authors.  
12 Bell E. T. A. Textbook of Pathology, ed. 4 Philadelphia: Lea & Febiger 1941 p. 251.



significance of bacteria in urine led to a number of careful and, in some instances, ingenious experimental investigations. In the United States painstaking researches of Helmholtz<sup>3</sup> refuted the idea that normal kidneys can excrete bacteria and also demonstrated that the technic used by some investigators, such as inserting catheters and leaving them in ureters that had been dissected free from the bladder, was responsible for certain positive findings. The researches of Sherrington,<sup>4</sup> Dyke,<sup>5</sup> Lepper,<sup>6</sup> and Kirkpatrick<sup>7</sup> in the British Isles and of Lieberthal and von Huth<sup>8</sup> and Montgomery and Allen<sup>9</sup> in the United States likewise have failed to support Cohnheim's postulate. Since there are numerous papers in which this whole controversial point is reviewed, no further discussion of the general question will be presented.

Among those investigators who still maintain that tubercle bacilli can be excreted by normal kidneys and that the existence of healed tuberculous lesions in the kidneys has not been proved are Deist<sup>10</sup> and Stenholm<sup>11</sup>. In the majority of reports supporting the "excretion without lesion" hypothesis reference is made to the original report of Foulerton and Hillier<sup>12</sup>. In this article, 7 patients who had had tubercle bacilli in the urine without clinical symptoms of genitourinary involvement came to necropsy, and evidence of renal tuberculosis was found in only 1. Later Medlar and Sasano<sup>13</sup> and Medlar<sup>14</sup> demonstrated that it was not possible to rule out tuberculous lesions in the kidney unless serial microscopic sections of the whole of both kidneys were made. While such a procedure involves a large amount of work, it remains imperative that those authors who seriously desire to support the "excretion without lesion" hypothesis fulfil this criterion of serial sections before they can maintain that their necropsy findings represent the fact. Some investigators as, for instance, Mack<sup>15</sup> and Deist,<sup>10</sup> have resorted to modified serial sections and have reported negative postmortem findings in cases in which tubercle bacilli had been demonstrated in the urine during life. On the other hand, Band,<sup>16</sup> using the serial section method, demonstrated bilateral tuberculous lesions in each of 5 patients who had excreted tubercle bacilli during life and who failed to show macroscopic evidence of renal tuberculosis at necropsy. Medlar and Sasano

have proved beyond question that tuberculous lesions shedding bacilli into the collecting tubules of the kidney may be so minute that they can be detected only by the use of the microscope.

The healing of tuberculous lesions of the kidney is still questioned by many investigators. Deist and Stenholm did not accept as evidence of healed tuberculous lesions the scars referred to by Medlar as probable healed tuberculous foci. Medlar stressed the fact that it is not possible to prove that such scars are healed tuberculous lesions since there is not a pathognomonic scar for tuberculosis in any tissue. He also pointed out that if tuberculous lesions in the kidney do not heal it is the only tissue of the body in which such a condition exists.

MATERIAL AND METHOD

To demonstrate tubercle bacilli in the urine is one thing. To determine the significance of such findings and to institute a course of treatment in the best interests of the patient is another matter. The best way to evaluate the finding of tubercle bacilli in the urine is to collect data of considerable volume on tuberculous

TABLE 1—Data on Guinea Pig Inoculations of Urine Containing Tubercle Bacilli in Two Hundred and Eighty-Seven Cases of Clinically Active Pulmonary Tuberculosis During a Ten Year Period

| Stage of Disease    | Tubercle Bacilli in Urine |                  | No Tubercle Bacilli in Urine |                  | Nephrectomy |    | Deaths                 |                |
|---------------------|---------------------------|------------------|------------------------------|------------------|-------------|----|------------------------|----------------|
|                     | Guinea Pig Tests          |                  | Guinea Pig Tests             |                  |             |    | Pulmonary Tuberculosis |                |
|                     | Cases                     | Guinea Pig Tests | Cases                        | Guinea Pig Tests | Yes         | No | Pulmonary Tuberculosis | Nontuberculous |
| Minimal             | 38                        | 6 23             | 32                           | 33               | 3           | 3  | 5                      | 1              |
| Moderately advanced | 169                       | 6 34             | 163                          | 246              | 1           | 5  | 11                     | 0              |
| Far advanced        | 80                        | 7 21             | 73                           | 118              | 0           | 7  | 3                      | 0              |
| Total               | 287                       | 10 87            | 268                          | 402              | 4           | 15 | 33                     | 1              |

patients who can be carefully followed over a number of years. Such a collection of material was begun in our institution in 1929, and the results of a ten year study are presented in this report. During the period 287 patients with clinically active pulmonary tuberculosis and 112 patients without evidence of pulmonary tuberculosis, or with pulmonary lesions considered to be of no clinical significance, have been investigated. In this series six hundred and thirty-four guinea pig inoculations of sediment from twenty-four hour samples of urine have been done.

RESULTS

Group of Patients with Clinically Active Tuberculosis—In table 1 are given the results of the tests on the group of tuberculous patients.

The 6 patients with minimal pulmonary tuberculosis with tubercle bacilli in the urine had the following renal complications on admission to the hospital: none, 3, convalescent from nephrectomy for tuberculosis, 1, convalescent from epididymectomy for tuberculosis, 1, and tuberculous nephritis, 1. Two patients had nephrectomy after admission to the hospital. Two of the three with nephrectomy had tubercle bacilli in the urine 1 to 5 years after the operation. To date the 3 patients who were not operated on have no clinical evidence of progressive renal tuberculosis.

3 Helmholtz, H. F., and Field, Ruth S. The Kidney: A Filter for Bacteria. III. The Role of Technic in the Apparent Excretion of Bacteria by the Kidney, *Am J Dis Child* 29: 641-644 (May) 1925, VI. The Effect of Ureteral Obstruction on the Excretion of Bacteria, *ibid* 31: 693-703 (May) 1926.  
4 Sherrington, C. S. Experiments on the Escape of Bacteria with the Secretions, *J Path & Bact* 1: 258, 1893.  
5 Dyke, S. C. On the Passage of Staphylococcus Aureus Through the Kidney of the Rabbit, *J Path & Bact* 26: 164, 1923.  
6 Lepper, E. H. The Production of Coliform Infection in the Urinary Tract of the Rabbit, *J Path & Bact* 24: 192, 1921.  
7 Kirkpatrick, H. J. R. An Investigation into the Permeability of the Kidney to Bacteria in the Circulating Blood, *Brit J Urol* 6: 1, 1934.  
8 Lieberthal, F., and von Huth, T. Tuberculous Bacilluria and Excretion Tuberculosis. An Experimental Study, *Surg, Gynec & Obst* 55: 440, 1932.  
9 Montgomery, L. G., and Allen, R. B. Tuberculous Bacilluria. An Experimental Study with Acid Fast Bacteria of Low Pathogenicity, *Am Rev Tuberc* 30: 92, 1934.  
10 Deist, H. Bacillemia and Bacilluria in Tuberculosis, *Klin Wchn schr* 12: 26, 1933.  
11 Stenholm, T. Spontaneous Healing in Renal Tuberculosis. Tuberculous Bacillemia and Tuberculous Nephritis. *Zentralbl f Chir* 62: 515, 1935.  
12 Foulerton, A. G. R., and Hillier, W. T. On the Urine in Tuberculous Infection, *Brit M J* 2: 774, 1901.  
13 Medlar, E. M., and Sasano, K. T. Experimental Renal Tuberculosis with Special Reference to Excretory Bacilluria, *Am Rev Tuberc* 10: 370, 1924.  
14 Medlar, E. M. Case of Renal Infection in Pulmonary Tuberculosis. Evidence of Healed Tuberculous Lesions, *Am J Path* 2: 401, 1926.  
15 Mack, W. S. Renal Tuberculosis and Excretory Bacilluria, *Glasgow M J* 129: 221, 1938.  
16 Band, D. Renal Tuberculosis. Histopathology and Pathogenesis, *Edinburgh M J* 42: 162, 1935.



Of the 6 patients with moderately advanced tuberculosis and with tubercle bacilli in the urine, only 1 has had an associated condition of tuberculosis of the kidney on admission to the hospital. This patient was not operated on and died two months after hospitalization from generalized miliary tuberculosis. One

TABLE 2—*Moderately and Far Advanced Pulmonary Tuberculosis. Results of Six Consecutive Monthly Tests of Twenty-four Hour Specimens of Urine for Tubercle Bacilli*

| Stage of Disease    | Cases | Tuberculous Bacilluria |          | Number of Tests | Guinea Pig Inoculation |          | Culture  |          |
|---------------------|-------|------------------------|----------|-----------------|------------------------|----------|----------|----------|
|                     |       | Positive               | Negative |                 | Positive               | Negative | Positive | Negative |
| Moderately advanced | 5     | 4                      | 3        | 3.1             | 11                     | 3.0      | 11       | 2.0      |
| Far advanced        | 19    | 1                      | 18       | 1.9             | 4                      | 10.5     | 1        | 10.5     |
| Total               | 76    | 5                      | 71       | 4.0             | 15                     | 4.5      | 12       | 4.5      |

patient had an epididymectomy for tuberculosis and later a nephrectomy. Three years after the nephrectomy tubercle bacilli were still present in the urine although there were no clinical manifestations referable to the genitourinary tract. In 4 cases no symptoms or clinical evidence of genitourinary tuberculosis have been present at any time during the period of study.

Of the 11 tuberculous deaths in the group of patients with moderately advanced disease only 1 showed tubercle bacilli in the urine. This patient showed bilateral advanced renal tuberculosis at autopsy. Postmortem examination in 4 other cases gave no macroscopic or microscopic evidence of renal tuberculosis.

Of the 7 patients with far advanced pulmonary tuberculosis and with tubercle bacilli in the urine, 1 was diagnosed as having a complicating renal tuberculosis unilateral, on admission to the hospital. This patient died two months after admission. Necropsy showed bilateral pulmonary tuberculosis. One kidney showed extensive destruction—a typical "surgical" tuberculous kidney. The other, on thorough examination, showed two small tuberculous cavities, a number of microscopic tuberculous foci and several areas of scar tissue. Two more of the 7 have died from pulmonary tuberculosis without having had any symptomatology referable to

small tuberculous lesions in the kidneys and in 1 of them a tuberculous cavity 4 mm in diameter.

Excluding the 5 patients who had a symptomatology referable to a tuberculous infection of the genitourinary tract on admission to the hospital, leaves 14 out of 282 patients with pulmonary tuberculosis who were found to have a tuberculous bacilluria. One of these, with a minimal form of the disease, had symptoms of progressive renal tuberculosis, which developed during hospital residence. A nephrectomy was performed and renal tuberculosis was proved. In the other 13 patients no evidence of a progressive renal tuberculosis has been found, and to date no nephrectomies have been performed. Two have died from pulmonary tuberculosis, 2 are under hospital supervision and 9 have been discharged back to work. One patient in the hospital continues to show tubercle bacilli in the urine, and the other has normal urine. The 9 discharged patients had intermittent bacilluria during hospital residence, 7 of these failed to show tubercle bacilli on the last examination before discharge and 2 had a bacilluria when discharged. A follow-up record of these 9 three to ten years after discharge revealed no deaths and

TABLE 4—*Tubercle Bacilli in Urine of Tuberculous Patients Without Genitourinary Symptoms*

| Author  | Cases Total | Cases of Tuberculous Bacilluria |          |
|---|-------------|---------------------------------|----------|
|   |             | Number                          | Per Cent |
| Band 16   | 174         | 25                              | 14.4     |
| Menton Brit M J 96 1952   | 100         | 1                               | 1.0      |
| Munro Edinburgh M J 42 17 1955  | 169         | 22                              | 13.7     |
| Harris Brit M J 16 461 1959   | 49          | 4                               | 8.8      |
| Rjaer Proc Staff Meet Mava Clinic 12 55 1937                            | 300         | 33                              | 9.2      |
| Bacanu Ztschr f Tuberk 76 340 1956                                      | 95          | 3                               | 3.1      |
| Bader Ztschr f Tuberk 65 202 1951                                       | 97          | 2                               | 2.1      |
| Saenz El endrath Costil and Sadettin Compt rend Soc de biol 119 95 1935 | 100         | 0                               | 0.0      |
| Splitzer and Williams quoted by Saenz et al                             | 103         | 0                               | 0.0      |
| Ordway and Medlar   | 276         | 17                              | 6.1      |

no development of a symptomatology referable to the genitourinary tract.

#### *Group of Patients Without Pulmonary Tuberculosis*

In addition to the group with pulmonary tuberculosis there was a group of 112 patients whose urines were examined for tubercle bacilli. There were 101 with 112 specimens examined whose urine contained no bacilli. Eleven cases of bacilluria were observed. Seven patients had entered the hospital with a diagnosis of renal tuberculosis, 3 having had a nephrectomy prior to admission to our institution. Of the 4 whose conditions were discovered during residence 1 underwent a nephrectomy and renal tuberculosis was proved. There were 47 persons who showed tuberculous lesions by roentgen ray that were not considered clinically significant. Three of these showed a tuberculous bacilluria and 1 had been subjected to a nephrectomy. Sixty-five patients had normal roentgenograms of the chest, and 8 of these had tubercle bacilli in the urine. Three of the latter have had a nephrectomy with renal tuberculosis proved, 3 had evidence of a bilateral renal tuberculosis and 2 had no symptomatology suggestive of a renal disease. In this group of 112 cases 8 deaths have occurred during the period of study. Not one of the deaths was due to a tuberculous infection.

TABLE 3—*Results of Tests in Five Cases of Tuberculous Bacilluria (Shown in Table 2)*

| Case | Number of Tests | Guinea Pig Inoculation |          | Culture  |          |
|------|-----------------|------------------------|----------|----------|----------|
|      |                 | Positive               | Negative | Positive | Negative |
| C A  | 6               | 1                      | 5        | 0        | 6        |
| B F  | 5               | 4                      | 1        | 4        | 1        |
| C P  | 7               | 5                      | 2        | 7        | 0        |
| J P  | 8               | 4                      | 4        | 1        | 7        |
| M H  | 5               | 1                      | 4        | 0        | 5        |

the genitourinary tract. No necropsies were done. The remaining 4 patients are still alive and have had no clinical symptoms referable to genitourinary tuberculosis.

In the group of patients with far advanced stages of the disease, 22 have died from pulmonary tuberculosis. Nineteen of these failed to show tuberculous bacilluria on thirty examinations. Necropsy was performed in 8 of the 19 cases, in 2 of the 8 there were

*Group of Patients with Six Consecutive Monthly Tests of Twenty-Four Hour Urine for Tubercle Bacilli*—The two groups so far presented had had random testing of twenty-four hour specimens of urine for tubercle bacilli. To complete our study it was decided to examine a twenty-four hour specimen of urine once a month for six months of all patients with moderately and far advanced stages of pulmonary tuberculosis in the institution. The purpose of this part of the study was to determine the incidence and frequency of tuberculous bacilluria. Seventy-six patients—19 with far and 57 with moderately advanced pulmonary tuberculosis—were available, and four hundred and forty tests were done. The urinary sediment was concentrated, and culture and guinea pig inoculation were done with each concentrate. The results of this study are presented in table 2.

Of the 5 patients with tuberculous bacilluria 1 had had a nephrectomy two years previously, 1 had recovered from a tuberculous epididymitis ten years previously, 1 had tuberculous epididymitis during the study and the other 2 had no symptomatology referable to the genitourinary tract. A total of four hundred and nine guinea pig inoculations and cultures was made in the 71 negative cases.

In table 3 the results of guinea pig inoculation and culture in the 5 cases of tuberculous bacilluria are given.

Patient C A had no symptomatology referable to the genitourinary tract but did have moderately advanced pulmonary tuberculosis and extensively involved tuberculosis of the knee. At necropsy both kidneys showed a few small tuberculous lesions and a tuberculous cavity 2 mm in diameter was found. In table 3 it is to be noted that tubercle bacilli were demonstrated in but one of six samples.

Patient B F had an orchiectomy for tuberculosis in 1935, which completely healed in six months. Five examinations of the urine in 1936 and 1937 showed tubercle bacilli, although there were no clinical symptoms referable to the genitourinary tract. A nephrectomy for tuberculosis was done in 1937. After this there were no genitourinary symptoms. In 1938 two tests of the urine showed tubercle bacilli and one did not. Of five consecutive monthly examinations of the urine in 1939 four showed tubercle bacilli.

Patient C P had far advanced pulmonary tuberculosis with tuberculous lesions of the spine and in numerous joints. In 1928 a tuberculous epididymitis developed, which ruptured and at the end of one year was clinically healed. In 1932 tubercle bacilli were found in the urine. Since 1929 there have been no clinical symptoms referable to the genitourinary tract. From March to October 1939 seven specimens of urine were examined, all of which showed tubercle bacilli by guinea pig inoculation or by culture.

Patient J P had an epididymitis, probably tuberculous, which developed during the period of study. The urine showed tubercle bacilli for four months before the epididymitis was clinically evident. The epididymal condition cleared up promptly. The last four specimens of urine examined were negative for tubercle bacilli.

Patient M H, with one out of five consecutive monthly urine examinations revealing tubercle bacilli, never had any symptoms referable to the urinary tract. Artificial pneumothorax was administered from 1934 to 1936. During this period six guinea pigs inoculated with urinary sediment showed no evidence of tuberculosis.

#### COMMENT

Until fairly recent times, surgical intervention in cases in which tubercle bacilli had been demonstrated in the urine was considered imperative. A broader study of the problem revealed the fact that bilateral

renal tuberculosis was not an uncommon occurrence. This led to a more meticulous study of each case, with limitation of operative procedure to the case in which there was only unilateral disease or in which one kidney was much more extensively damaged than the other. A further widening of the field, by examining the urine of tuberculous patients without symptoms referable to the genitourinary tract, led to the discovery of a certain number of instances in which tubercle bacilli were present intermittently in the urine.

In table 4 are presented data, reported in the literature available to the authors, on the occurrence of tubercle bacilli in the urine in cases of pulmonary tuberculosis in which there was no clinical evidence of genitourinary tuberculosis. This does not mean that the urine was entirely normal. A few leukocytes or erythrocytes might be found in urinary sediment, but not one of the classic symptoms of so-called "surgical renal tuberculosis" was present.

The data given in this table reveal a considerable difference in the percentage of positive urinary findings in cases of pulmonary tuberculosis without genitourinary symptoms, but even with the variations shown it is apparent that, with random sampling, in only a minority of cases of pulmonary tuberculosis are there tubercle bacilli in the urine.

Deist, one of the most ardent exponents of Coln-heim's theory of "excretion without lesion," has resorted to the examination of the total excretion of urine for twenty-five days in 90 cases of pulmonary tuberculosis. In this group there were no cases in which there was any clinical evidence of genitourinary tuberculosis. Tubercle bacilli were present in the urine, intermittently, in 35 (38.8 per cent) of the cases. This is the most comprehensive search for tubercle bacilli in the urine recorded in the literature. The fact must be accepted that tubercle bacilli do occur often in the urine of cases of pulmonary tuberculosis without clinical evidence suggestive of genitourinary tuberculosis. But even such a careful study failed to reveal tuberculous bacilluria in about two thirds of the cases. Deist's findings can be accepted, but his reasoning as to the significance of these findings is open to serious question. In his report negative postmortem findings in the kidneys were cited in 5 cases in which tests had revealed tubercle bacilli during life. It is unfortunate that Deist did not make serial sections of both kidneys as did Band. With the diametrically opposite findings reported by these two authors, credence accrues to Band rather than to Deist. The previous reports of Medlar and Sasano and of Medlar agree with Band. We know that tuberculous lesions can be present in the kidneys without corroborative clinical evidence and that in such cases tubercle bacilli can occur intermittently in the urine. One of the cases in our series represents such an instance, clinical evidence of tuberculosis being present in the lungs and the knee joint only. Of seven consecutive monthly examinations of urine only one specimen showed tubercle bacilli. Necropsy revealed several small tuberculous lesions in each kidney.

That more cases of tuberculous bacilluria may be discovered by more frequent examinations is revealed by our group of 76 cases in which monthly examinations were made over a period of six months. Three of the 5 cases in which tubercle bacilli were found might have been missed had a more random sampling

been resorted to. We believe that a few more cases might have been found had we adopted the technic used by Deist.

Harris has reported an incidence of 29 per cent of tuberculous bacilluria in a group of 110 patients with tuberculosis of the bone or joint. In our series there were 3 patients with tuberculosis of the bone or joint, and tubercle bacilli were present in the urine intermittently in each case. These findings suggest that renal tuberculosis is a common occurrence where hematogenous dissemination of bacilli as evidenced by bone or joint involvement, takes place.

In the data presented no tabulation of urinary findings other than those relative to the tubercle bacillus has been given. On all specimens microscopic examination of urinary sediments has been made. The reason for the examination for tubercle bacilli in the 112 cases in the nontuberculosis service of the hospital was that leukocytes or erythrocytes, or both, had been observed in urinary sediments. Of the four hundred and forty urines recorded in table 2, 19.5 per cent showed leukocytes in the sediment, 2 per cent showed erythrocytes, 1.6 per cent had a significant amount of albumin and 3.4 per cent contained tubercle bacilli. Only 1 patient of our entire series had any gross evidence of hematuria or pyuria, and this was one who showed extensive bilateral renal tuberculosis at necropsy. In this group no tubercle bacilli were found when leukocytes were absent from the sediment. On the other hand the presence of leukocytes, erythrocytes or albumin was not necessarily indicative of the presence of tubercle bacilli. It is our experience that it is a wise procedure to test for tubercle bacilli in urine which consistently shows leukocytes or erythrocytes or both, whether such findings are in tuberculous or nontuberculous patients. Such tests will in large part give negative results, but on occasion a positive finding will be obtained in an unexpected situation. Four of the 11 patients with renal tuberculosis in the nontuberculosis service were thus discovered.

In the group of 33 patients with tuberculous bacilluria 8 had had a nephrectomy and tuberculosis was proved. There have been no deaths in the group with nephrectomy. Of these 8, 4 were considered as having "clinically inactive" pulmonary tuberculosis and 3 had minimal and 1 moderately advanced "clinically active" disease. Of the remaining 25 patients who had no nephrectomy, 3 with far advanced and 2 with moderately advanced pulmonary disease have died. Three patients were examined post mortem, 2 showed extensive bilateral renal tuberculosis, and 1 had miliary tubercles in both kidneys. Of the 20 now alive 18 have shown no symptoms suggestive of progressive renal tuberculosis. Two have genitourinary symptoms, and both of these have clinical evidence of a bilateral renal tuberculosis.

Sixteen of the 33 patients with tubercle bacilli in the urine presented clinical symptoms referable to the genitourinary tract. This condition was discovered in 17 persons when urine tests were done because leukocytes or erythrocytes, or both, were present in the sediment. In only 1 of these was nephrectomy done, tuberculosis of the kidney being proved. To date in none of the 16 without nephrectomy, discovered in routine urine tests, has any evidence of progressive renal tuberculosis occurred and the majority of the patients had normal urine on discharge from the hos-

pital. The question which this situation raises is the significance of the casual finding of tubercle bacilli in the urine. At present it does not seem to indicate surgical intervention, for more than half of the patients have shown no evidence of progressive renal tuberculosis five to ten years after the bacilli were observed in the urine. The others have not been observed long enough to warrant any conclusions.

The adherents to Cohnheim's theory of "excretion without lesion" may choose to call these cases instances of excretory bacilluria, but here the point of view will be very largely governed by the individual's concept of the pathologic changes of renal tuberculosis. If it is assumed that every tuberculous infection of the kidney progresses to destruction of that organ, then there is no alternative to accepting Cohnheim's concept. If, however, any credence is given to the possibility and the probability that small tuberculous lesions in the kidney may completely heal in the same manner that they do in other body tissues, then evidence is at hand that small tuberculous lesions may ulcerate, discharge bacilli into the urine and later heal without at any time presenting clinical evidence that such a process has occurred. To present scientific proof that will completely refute the idea that a normal kidney can excrete tubercle bacilli from the blood as a part of its normal physiologic function is impossible, especially in the human being. While Medlar and others have reported the finding of scars representative of healed infectious lesions in kidneys with and without tuberculous foci in cases of tuberculosis, there is no possibility of proving that these scars represent the healed stage of tuberculous lesions. Unfortunately, cicatrices as such are not pathognomonic of a specific infection. Logic, supported by data from animal experiments may aid in the clarification of this problem, but the deductions made will depend on the premise that small tuberculous foci in the kidney can completely heal or that they will never retrogress. From the experience of the authors, the concept that small tuberculous lesions do completely heal in the kidney, as well as in other body tissues, is tenable. And on this premise our belief is based that the patients showing tubercle bacilli in the urine in the absence of other lesions of the urogenital tract and without clinical evidence of renal involvement present tuberculosis of the kidney.

In the male, tuberculous epididymitis may complicate the diagnosis of renal tuberculosis. In our series there have been 3 cases of this kind. In 1 case the tuberculous epididymitis had occurred twelve years previously and had completely healed. There had been no symptoms referable to the genitourinary tract since that time. At present tubercle bacilli are consistently evident in the urine. In the second case an epididymectomy for tuberculosis had been performed prior to hospital admission. The urine continued to show tubercle bacilli, although the operation for tuberculous epididymitis was successful. Careful studies revealed a renal tuberculosis, and nephrectomy showed an old tuberculous cavity. Three years after the nephrectomy tubercle bacilli were still present in the urine, and there was evidence that the remaining kidney was involved. The third case was of particular interest, as tubercle bacilli were demonstrated in the urine four months prior to a mild epididymitis, which subsided without surgical intervention. These 3 cases give credence to the statement of Young that "infection of the epididymis takes place in tuberculosis

as in gonorrhea, by means of the cold and not by the blood stream. That cases of hematogenous infection occur cannot be denied, but they are few in number."

Tubercle bacilli were found in the urine of patients with clinically active pulmonary tuberculosis in all stages. There were 17 patients without symptoms referable to the genitourinary tract, 3 had minimal, 6 moderately advanced and 8 far advanced pulmonary disease. Patients with tubercle bacilli in the urine and without genitourinary symptoms represented 8.5 per cent of the minimal, 3.6 per cent of the moderately advanced and 9.8 per cent of the far advanced group. The minimal group was composed of 35 persons, and it is likely that an examination of a much larger group might lower the incidence. As to patients with moderately advanced (163) and far advanced (82) pulmonary tuberculosis, tubercle bacilli were found in the urine at least twice as frequently in the latter group.

The significance of tubercle bacilli in the urine will remain controversial as long as there are any adherents to the concept that the kidney can excrete bacteria from the blood stream as a part of its physiologic function and that tuberculous lesions of the kidney never heal. No one, however, can refute the fact that tubercle bacilli occur in the urine of persons who have presented no clinical symptoms referable to the genitourinary tract at the time of, or over a long period subsequent to, the finding of the bacilli. Regardless of the interpretation one may choose to make of tuberculous bacilluria, one fact is very evident: this finding is no longer so ominous that surgical intervention need be promptly instituted. In certain instances nephrectomy for tuberculosis may be necessary, but before proceeding to major surgical intervention every patient with tubercle bacilli in the urine deserves exhaustive study. The patient who has access to the services of those who are cognizant of the protean nature (clinically and pathologically) of the disease tuberculosis will obtain the care best suited to his condition.

#### SUMMARY

Data were accumulated over a ten year period on the presence of tubercle bacilli in the urine of clinically tuberculous and nontuberculous patients. A total of 1,074 (634 random and 440 consecutive monthly) guinea pig inoculations of sediments from twenty-four hour specimens of urine has been done on 287 tuberculous patients and on 112 patients from the nontuberculosis service of the hospital.

Of the tuberculous patients, 22 (7.7 per cent) showed tubercle bacilli in the urine. Of these, 17 (77 per cent) had no clinical symptoms suggestive of renal tuberculosis.

Leukocytes and erythrocytes in urinary sediment need not indicate the presence of tubercle bacilli. It is, however, a wise procedure to test for the presence of tubercle bacilli in cases in which leukocytes and erythrocytes are consistently present.

The presence of tubercle bacilli in the urine does not indicate that progressive renal tuberculosis will inevitably follow. Surgical intervention should therefore be delayed until such time as progressive renal destruction has been proved.

Tubercle bacilli are not commonly found in the urine even in cases of far advanced pulmonary tuberculosis and may be demonstrated repeatedly in some cases in which tuberculous infection has not been suspected.

## EPIDEMIC CONJUNCTIVITIS OF PRESUMED VIRUS CAUSATION

REPORT OF AN ESTIMATED SIX HUNDRED CASES IN ONE SHIPYARD

FORREST E. RIEKE, M.D.

PORTLAND, ORE

During late October 1941 an epidemic of ocular inflammation appeared in the Oregon Shipbuilding Corporation yards. In the next six weeks I saw about 500 men with this condition. Although the men put the blame for their trouble on their working conditions, no matter where they were working in the yards, it was evident from the rapid spread, the similarity of the inflamed eyes and the uniform resistance to any treatment that I was dealing with the same process in all the men. The disease was more prevalent in men actively engaged in building the ships, but it was also found in the office workers, families of the workmen and several physicians in the Portland area.

At the time of the first appearance of this inflammation in the Portland yard the overall payroll was thousands of men, of which many were in ship construction work. A small percentage of the men exposed were affected in the ensuing few weeks. The rapid spread was startling. Within a week the incidence went from a few cases to nearly 200. Because medical work here normally involves treatment of several hundred cases of minor ocular difficulties each day, the idea was advanced that poor technique was assisting spread in the plant, but direct questioning of the new patients revealed that more than half had not been in the first aid hospital at any time closely preceding onset of their inflammation. None of the regular medical attendants became infected. One medical student employed for one day a week acquired the disease and, under care, was well in twelve days.

Repeated bacterial studies of smears and cultures by Portland ophthalmologists did not establish the cause, therefore it was assumed that it was a virus infection. No medication was found which would alter the course of the inflammation.

The editorial in THE JOURNAL on epidemic virus conjunctivitis<sup>1</sup> contained the only reference to the origins of this epidemic which I have been able to discover.

W. J. Holmes<sup>2</sup> reported an epidemic of infectious conjunctivitis which passed through the Territory of Hawaii in the summer of 1941. His clinical descriptions closely fit the disease as I saw it manifested here. Of interest was his statement that those who were infected in Hawaii were inclined to attribute their disease to foreign material lodging in or touching the eye, those working in canneries attributing it to getting pineapple juice in the affected eye, those doing much swimming to swimming in contaminated water, and so on. This was a common experience in the shipyard, the majority of the men alleging on presenting themselves for care that something was in the eye and that it was material with which they were working, be it dust, sawdust, steel, lime, red lead, fountain pen ink or oil vapors.

The disease usually involved only one eye, although in some of our men the other eye displayed redness never as severe as in the primarily affected eye.

<sup>1</sup> Epidemic Virus Conjunctivitis, editorial J. A. M. A. 114 (Feb. 7) 1942.  
<sup>2</sup> Holmes, W. J. Epidemic Infectious Conjunctivitis. Hawaii Med. J. 1: 11 (Nov.) 1941.

the typical case the eye was very red and swollen. The conjunctiva was widely involved with chemosis and extensive injection, of conjunctival, ciliary and episcleral types. Small hemorrhages about the bulbar vessels were common. The conjunctiva of the fornices in many bulged from beneath the lids. The lower lid was lined by a thick, velvety, reddened conjunctiva, which in some after ten to twelve days would desquamate heavily. The lining of the upper lid was much less severely inflamed and characteristically displayed small red spots, most apparent near the edge of the lids. Grossly, the cornea appeared uninvolved. The eye teared continuously with a straw colored to brown watery discharge, not purulent. The eyelids would be stuck together each morning. The eye was not painful, but the workman complained of a sticking or scratching sensation, as though an eyelash was scratching the eyeball. There was some photophobia but only of mild degree. Most inflammations lasted from sixteen to twenty-eight days, none for less than twelve. Of the cases which I observed in about 50 after twelve to fourteen days grossly visible speckling developed in the substance of the cornea, grayish condensations 0.5 mm in diameter, a few millimeters apart, and in such number as to reduce definitely the vision of the involved eye. The cornea did not lose its normal sheen, and there appeared little tendency to steaminess. Vascularization of these gray spots did not occur. Most of this group after two months showed little or no change in the speckling or visual acuity. In those whom I have had opportunity to see regularly for the past seven months, it is now evident that the number, size and density of the dots in the cornea are diminishing slowly and presumably will gradually disappear, at least to examination with the naked eye. Whether these scars will permanently alter vision of the involved eye I am unprepared to state. In practically no case was corneal ulcer a direct concomitant.

In general, I found that the process was most severe in early November, roughly paralleling its period of most rapid spread. It was less severe as the weeks advanced, and after December 15 I encountered no new cases until the middle of January, when a new wave of infection produced about 50 cases. These were mild conditions which disappeared within six to eight days after inception.

I then saw little of this ocular condition except in a few cases of doubtful relationship until early May, when more cases of typical appearance and behavior became manifest. The disease in these has been more severe than in those of January, in most cases lasting from eight to twelve days, but in only 1 has corneal speckling developed with diminished vision. The condition in this case, however, has not approached at all the degree of visual interference achieved in those observed in November and December.

It is safe to say that every known therapeutic agent for the treatment of ocular infections was used in some of these cases in Portland during November and December 1941, with a uniform lack of good results. In watching the whole group of cases as treated by myself in the shipyard and in the offices by the practicing ophthalmologists, it seemed that the workman was best cared for if he left the job, used a mild eye wash, avoided eyestrain and observed ordinary cleanliness and hygiene of the eyes. Any further medication or therapy seemed entirely noncontributory to cure.

## COMMENT

During the past eleven months I have seen many thousand men with arc flash, eye injuries, infections of the eyes and lids, burns about the eyes, and other disorders, all the pathologic ocular conditions to be found among steel workers, most of whom are inexperienced. The inference has been drawn that shipyard workers are particularly susceptible to this infection through some assumed peculiarity of their work. I have seen little proof offered to substantiate this theory and feel that it is untenable. A large number of my patients were unable to link the infection with known ocular foreign bodies, and the exact source of the infection was in nearly all cases not demonstrable. It should be reiterated that the disease attacked various elements in the population and is known to have been geographically distributed from Hawaii to Portland, Ore., to San Francisco to New York and way points. The usual factors influencing an epidemic would appear to have been active, namely, heavy concentration of men from all stations of life (farm and city), poor ocular hygiene and a newly introduced agent of rather remarkable virulence and contagiousness.

It is cogent that, of the persons exposed to a highly contagious organism, the number developing a clinically recognizable infection reached only a small percentage in several new outbreaks of the disease. Also notable was the rather spotty extension of infection to the workmen's families, the percentage incidence roughly paralleling that among the men.

## SUMMARY

An infection of the eyes of unknown causation was seen in the Oregon Shipbuilding Corporation yard at Portland, Ore., in November and December 1941. It was an acute conjunctivitis which (1) involved a small percentage of exposed men, (2) was contagious, (3) was unidentifiable as to cause by ordinary culture methods, (4) came apparently from Hawaii, (5) extensively inflamed only one eye, (6) left corneal scars in from 1 to 10 per cent of the patients, (7) was self limited and irresponsive to treatment, (8) spread rapidly over the United States, (9) remains locally endemic with sporadic increases and (10) is assumed to be due to a virus.

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**Appropriate and Satisfactory Recreation**—The advent of war has suddenly thrown on the people of the United States a responsibility for greatly increased work. Leisure time some of it in the enforced leisure of unemployment has vastly diminished. The planning of appropriate and satisfactory recreation seems all the more necessary at this moment. If we must have play to complete our lives and if the time in which we may play is reduced, it is obvious that we must learn and plan to play better while we are playing. It was wise of those counselors on civilian morale to include among the earliest exhortations which they addressed to the American public the advice that we should work as hard as we can but hold on to our hobbies. For such advice is, in the light of psychiatric experience, sound and sensible. If the proper direction and encouragement of play can be therapeutically useful it can also be prophylactically useful. If it is good for sick people it is even better for well people. We are all subject and liable to the disease of disturbed morale—demoralization—and one of the best antidotes against this is to be found in recreation—Menninger, Karl, and Menninger, Jeanetta Lyle *Recreation for Morale Bull Menninger Clin* 6:97 (May) 1942.



## Clinical Notes, Suggestions and New Instruments

### INTRABRONCHIAL METASTASIS OF HYPERNEPHROMA SIMULATING PRIMARY BRONCHIAL CARCINOMA

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There is seldom any difficulty in distinguishing malignant lesions that arise primarily in the lung from those which are borne by the blood and lymphatic vessels from a distant source to the pulmonary tissues and develop as secondary or metastatic growths.

In the majority of cases roentgenoscopic appearance is characteristic of a metastatic pulmonary malignant lesion, and even though metastatic nodules may be numerous and large they seldom produce physical signs or symptoms of pulmonary disease unless the pleura is invaded. When metastatic lesions involve the pleura, effusion may develop in sufficient amount to produce dyspnea and physical signs of pleural thickening or hydrothorax. In addition to lack of physical signs and symptoms of pulmonary disease in metastatic pulmonary lesions, a primary malignant tumor is usually readily detectable in some other portion of the body.

In contrast to metastatic pulmonary malignant lesions, a primary malignant lesion in the lung usually arises in one of the larger bronchi and produces characteristic physical signs and symptoms even when the tumor is small. Primary pulmonary malignant lesions usually produce obstruction to a bronchus with atelectasis of that portion of the lung supplied by the affected bronchus. On roentgenoscopic study a unilateral area of density, more or less triangular, radiates from the hilar region with the base of the triangle directed toward the periphery of the lung. Secondary deposits from the primary tumor are seldom observed in other portions of the affected or opposite lung. Other confirmatory evidence that the tumor is primarily from a bronchus is the absence of another tumor elsewhere in the body.

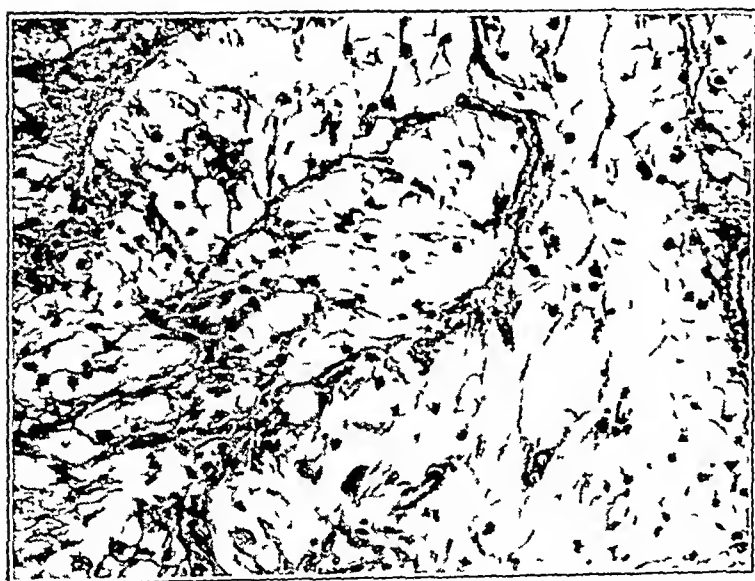


Fig 1—Section of tissue removed from bronchial lumen, showing typical appearance of adenocarcinoma of kidney (hypernephroma).

Adenocarcinoma of the kidney, or so-called hypernephroma, however, is one type of tumor that may be associated with secondary deposits in the lumen of a bronchus, producing physical signs and symptoms identical with those caused by a primary bronchial growth. Several occurrences of this kind

have been reported previously, but in all instances the primary renal tumor had been diagnosed prior to identification of the intrabronchial metastatic lesion. In the case we are reporting the primary renal growth was symptomless and was unidentified until after bronchoscopic examination, when tissue, removed from the bronchus for microscopic study, revealed hypernephroma.

#### REPORT OF CASE

A man aged 69 had been well until February 1941, when a respiratory infection developed that was diagnosed influenza. He was not particularly ill, but he felt bad for about a week

and was then fairly comfortable for two weeks. At that time he began to have a cough productive of purulent sputum and wheezing that seemed to be located on the right side of the thorax. At first he lost a little weight and thought he had slight elevation in temperature. He did not note thoracic pain, dyspnea or expectoration of blood. Roentgenoscopic examination revealed infiltration in the hilar area of the right lung with discrete nodules at the base and periphery of the right lung.



Fig 2—Appearance of chest of patient revealing infiltration in right hilar area with discrete metastatic shadows at periphery and base of right lung (note difference in aeration of right and left lung).

When the patient was examined on October 20 he looked and felt well and had regained the weight that had been lost during the early part of his illness. Examination of the blood disclosed a hemoglobin content of 90 per cent, erythrocytes numbering 4,300,000 and leukocytes 7,450. Urinalysis showed an acid reaction, a specific gravity of 1.017, albumin 0, sugar 0, acetone 0, and microscopically an occasional pus cell. The significant findings on physical examination were the presence of wheezes and definite diminution of breath sounds over the lower lobe of the right lung.

Bronchoscopic examination on October 20 revealed an ulcerating, pedunculated tumor in the bronchus to the lower lobe of the right lung. Large pieces of the tumor were removed for study. Microscopic examination of the tissue was uninformative in that the major part of the tumor was composed of necrotic material of ill defined, degenerating cells. The patient went home before microscopic examination of the tissue was completed, but he was advised to have a second bronchoscopic study because of the possibility of the tumor's being benign.

When he was examined on November 12 he felt well and had gained 3 pounds (1.36 Kg). Wheezing had disappeared and cough had diminished. On examination of the thorax breath sounds were reduced over the lower lobe of the right lung although more audible than at the previous examination. Bronchoscopic examination disclosed the same type of tumor that had been observed at the previous examination. Large pieces of tissue were again removed for examination, and microscopic study revealed the characteristic appearance of adenocarcinoma of the kidney (fig 1).

After the true nature of the tumor had been determined, palpation of the renal areas revealed a mass in the right kidney, apparently twice the size of a normal kidney.

Intravenous urography showed a normal outline of the left kidney and the right kidney rather poorly filled with the injected material. Three months later the patient continued in good health without symptoms referable to the urinary tract. There had been an increase in the tumor revealed in the roentgenogram (fig. 2).

## Special Article

### HANDBOOK OF NUTRITION I

#### INTRODUCTION

JAMES S. McLESTER, M.D.

BIRMINGHAM, ALA.

*The following article by Dr. James S. Mc Lester, Chairman of the Council on Foods and Nutrition of the American Medical Association and member of the Food and Nutrition Board of the National Research Council is the first of a series of articles on foods and nutrition prepared under the auspices of the Council on Foods and Nutrition. These articles will be published later as a Handbook of Nutrition—Ed.*

The most fertile field in the world of medical research today is nutrition. The yield is good and even in time of war the product compares favorably in value with that of the industries. To weigh these values critically, to correlate them, to examine them in their relation to medical practice and human welfare, and then in the light of the information thus gained to revise present day knowledge is the object of a forthcoming series of special articles on nutrition.

The advances which have been made in the science of nutrition within the past few years fire the imagination. Vitamins have been produced in pure form and their functions defined with a fair degree of clearness, and as a result a more intimate knowledge has been gained of the intricacies of metabolism, the essential nature of fats has been demonstrated, the roles of proteins and minerals in human economy have been further elucidated, the amounts in which all these necessary substances are required by man have been expressed in figures, and the foods which provide them most abundantly have been determined. Finally, there has developed a clearer understanding of the deficiency states with a fuller appreciation of the frequency with which these states impair man's usefulness and destroy his happiness. This marks an era of signal achievement.

Such discoveries, however, seldom tell the whole story. They clarify problems and give useful information, but not infrequently their most significant result is to increase the scope of the student's vision and to open up new vistas for further exploration. Constantly new problems present themselves. Consider for example, the relationship of vitamins to enzymes. Some are co-enzymes and are known to unfold their specific activities while serving as the prosthetic group of the enzyme molecule. Is all vitamin activity of this nature? Witness too the need for more complete data concerning man's requirement for the vitamins of the B complex, notably riboflavin and nicotinic acid and also for further information concerning the full function of ascorbic acid, one of the most thoroughly studied of the vitamins. How pressing is the need of the adult for

vitamin D? Do the requirements for all vitamins, as is true of some vary with circumstances? And what are the circumstances? To what extent does each of the known vitamins influence the requirement for the others? Is there such a thing as an optimum ratio between vitamins, and what is the result when this ratio is grossly upset? Will the administration of one vitamin precipitate symptoms due to the latent deficiency of another? In truth, the story of the vitamins is just beginning.

The same is true of the mineral elements. It would be of advantage to know, for example, more about the influence of the various life periods on human requirements for calcium and phosphorus and about the influence of the other inorganic elements on the availability of copper and iron. Of clinical interest too are the hazards to which the latter element is subjected in its absorption from the intestinal tract. One of the newest problems deals with the role played by the so-called trace elements in animal metabolism. There are indications that it is not an unimportant role.

Then come even more practical questions. After ages of experience in gathering, storing and cooking food, man is now beginning to inquire concerning the effect of all this on nutritive values. Only today he has learned that vegetables improperly gathered and permitted to remain hours upon hours on display at the grocer's lose much of their nutritive value and that the bottle of milk left on his doorstep in the bright sunlight will within the hour be deprived of a large part of its riboflavin. Even the effect of cooking on the digestibility and availability of the various proteins is not fully understood. Insistent questions too are being asked by nutritionists as to the effect on foods of storing, drying, freezing, sterilizing, pasteurizing and milling. Indeed, the influence of all forms of processing is under investigation.

Technical procedures suitable for clinical use are needed. The recognition of nutritive deficiency is often difficult because of the paucity of precise methods by which a person's nutritive status in respect to each of the known vitamins can be measured. The dark adaptation test for vitamin A deficiency and the slit lamp method for revealing the small vessels in the cornea, which tell of riboflavin deficiency, are of promise, but the pressing need is for special techniques by which biochemical changes can be measured. By such methods it is possible today to recognize in the blood a deficit in proteins, ascorbic acid or vitamin K, but the other techniques which have been developed are not available for clinical use. Then too there are more fundamental difficulties. One of these lies in the fact that figures obtained from the blood do not necessarily tell of the adequacy with which the body is equipped with a given substance. The amount of a vitamin held in the blood may not begin to fall until the stores of that substance in the tissues are almost exhausted and it is the state of the tissues that really tells the story. In addition there is a need for more dependable standards. It is a mistake to assume that the so-called normal subject, chosen because of his healthy appearance is necessarily normal in respect to his vitamin equipment. Standards should be obtained, not from the general population, but preferably from groups of persons whose intakes of all nutrients for a definite period are known to have

approached the optimum and, when feasible, these standards should also refer to age and occupation groups. Until the special technics are of wider availability and standards are more dependable the physician must continue to depend largely on his clinical acumen.

Research in nutrition has not been limited to the study of single essentials. Food products are being investigated in the effort to point out those articles which are especially rich in essential substances and those which have good supplementary values. The effort is being made also to improve the quality of cheap staple foods, as is seen in the development of enriched flour, in the fortification of oleomargarine with fish liver oils and in the addition of iodine to table salt. Such restoration of important substances lost in processing, as in the case of enriched flour, is being encouraged, but it should be noted that, with two exceptions (the addition of vitamin D to milk and vitamin A to butter substitutes), the Council on Foods and Nutrition of the American Medical Association does not approve of the addition to foods of substances not found in the native article or in amounts in excess of the amount carried by the best foods of its class. The attempt to convert a food into a pharmaceutical product is frowned on, but the restoration of substances lost in preparing the food for the market is a recognized part of the nutrition program.

The government also is interested in nutrition, vitally so in these perilous times of war. To wage successful war a nation must possess not only armed forces of surpassing valor, well equipped, but also, supporting these, a people of inflexible stamina. This last demands that the population be well fed. If their food is lacking in kind or amount they will be wanting in industrial efficiency and nervously unstable. To produce the food required, to get it to the people and then to induce them to use proper selection in its eating are problems of agriculture, transportation, commerce and education, all of which in turn are problems of government. The state is becoming acutely aware of its obligations in this regard, as was evidenced in the calling by the President of the nutritional conference for defense, in the formation of the Food and Nutrition Board of the National Research Council, in the activities in this field of the Federal Security Agency, and in the increased interest shown by the Food and Drug Administration in accuracy in labeling and truthfulness in advertising. Through these agencies, measures are being developed for the protection and education of the consumer, and increasing governmental regulation of the production, processing, storage and sale of food may be expected. If this is wisely done, benefits will accrue.

But, it is asked, is all of this in truth as important as would appear? Is the average American diet susceptible of great improvement? I would unhesitatingly answer yes. If some physicians answer no, it is perhaps because they are not looking at the whole picture. True, outspoken deficiency diseases are relatively rare in American hospitals—at least they seldom stare one in the face—but this is not the type of deficiency of which I write. The type which in point of numbers bulks largest is the milder type, often expressed by borderline states of nutritive failure in which the person is neither grievously sick nor entirely well. Scrutiny of the life histories of patients and studies of their personality have

shown that the earliest effects of nutritive deficiency are not to be found in the polyneuritis of beriberi or in the bleeding gums of scurvy or in the dermatitis of pellagra but rather in the mental depression, nervous instability and other forms of vague ill health which almost always come first. Indeed, the severer, more outspoken manifestations may remain indefinitely in abeyance, the patient is simply called a neurasthenic, or such terms as inadequate personality and constitutional inferiority are applied. After watching these patients, one is impressed by the truth of the statement that no greater catastrophe comes to man than the loss of efficiency, the lack of initiative and the mental depression which accompany nutritive failure. Evidence that these more elusive forms of nutritive deficiency are not rare but in reality are of frequent occurrence can be found in the other articles of this series and in the recent report of Jolliffe, McLester and Sherman.<sup>1</sup>

The prevention of the disorders just enumerated, however, is not the only object of present day studies in nutrition. A far wider objective is sought—the improvement of the race. This is not beyond reason, take two examples. Consider first the success of feeding experiments with the lower animals. Students of nutrition have been able through intelligent additions to a ration which already was regarded as adequate so to improve the albino rat in respect to stature, vigor, fertility and longevity as to produce in the course of years a superior race of animals. Then compare the children born in this country of immigrant parents with their forebears and note their superiority in physical and mental characteristics. Though not so striking, a similar trend can be seen in children born of American stock. This superiority can be attributed to the better environment enjoyed by these children, an important feature of which has been a more adequate diet. To students of nutrition this points the way to the development of a larger, more vigorous race.

Ever since man's early ancestors first climbed out of the sea and began to forage on land, he has been able through gradually increasing control of his environment steadily to improve the nature of his food. This has been a potent factor in the evolutionary process that has made him dominant as a species and has kept him so for thousands on thousands of years. Biologic history, however, contains numerous examples of evolution of a species which was followed in time by involution. The effort today to adjust human environment to physiologic needs is expected to prevent the latter process but as to its ultimate success genuine doubt may be entertained.

The trend of improvement in man's nutrition continues. In attractiveness, keeping qualities, palatability and digestibility his food today is superior to that of his immediate forebears, but it has also suffered loss. Because of the refinements to which it has been subjected it often fails to carry vitamins, minerals and other essential substances in the abundance supplied by its earlier foods. Is it possible that these disadvantages will in time outweigh the advantages and lead finally, at a halt, even to a retrogression, in the development of the race? And can this be prevented through the aid

<sup>1</sup> Jolliffe, Norman, McLester, J. S. and Sherman, H. C. Prevalence of Malnutrition. J. A. M. A. 118: 944 (March 1942).

cation of the recently gained knowledge of nutrition? Or, still better, is it possible by means of this knowledge to carry forward, even accelerate, man's upward progress? The answer can be sought in the special articles which follow

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION  
OF THE FOLLOWING REPORT      HOWARD A. CARTER, Secretary

### SANBORN WATERLESS METABOLISM TESTER ACCEPTABLE

Manufacturer    Sanborn Company, 39 Osborn Street, Cambridge, Mass

The Sanborn Waterless Metabolism Tester, model of 1942, is a compact semiportable unit 17 inches high by 8 inches wide by 12 inches long. It may be used with or without a stand which brings its total height to 46 inches. On this stand it occupies about 3 square feet of floor space and weighs about 50 pounds with equipment. Oxygen tank and auxiliary apparatus are carried on the stand, which is mounted on large casters.

The patient is connected to the machine by rubber tubes 27 inches long. The mouthpiece is amber gum rubber of the intraoral type. Nasal breathing is prevented by an adjustable spring nose clip cushioned with soft sponge rubber. The machine is available with or without the oxygen measuring chamber, which makes it possible to use the short test method as described herewith.

This waterless machine is essentially the same as the 1941 model Sanborn Waterless Metabolism Tester<sup>1</sup>. However, two parts have been changed: first, the patient valve has been shifted from the base of the machine to the end of the tubes at the mouthpiece connection; the valve is a ground fitting, and, second, the motor has been exteriorized together with the blower housing. It is connected to the blower housing by a covered shaft  $\frac{3}{4}$  inch long. This places the motor a total of  $3\frac{1}{2}$  inches above the base but still only  $\frac{3}{4}$  inch from the blower. As before, the motor requires 110 to 120 volt, 60 cycle, alternating current and will not work with direct current. The recording device is the same as that on the preceding machine and carries the same waxed paper chart.

In spite of the changed position of the motor mounting, conduction of heat as recorded by the thermometer on the machine is to the extent of 2 degrees in ten minutes and  $5\frac{1}{2}$  degrees in twenty minutes. When the system is running idle and not connected to the patient a series of tests showed the following:

|        |   |
|--------|---|
| Test 1 | 8.5 minutes—rise of 2 degrees             |
| Test 2 | 6.5 minutes—rise of 2 degrees             |
| Test 3 | 6.0 minutes—rise of $1\frac{1}{2}$ degree |
| Test 4 | 6.5 minutes—rise of 1 degree              |
|        | 27.5 minutes      6.5 degrees             |

These tests were run in rapid succession and represent a total rise of 6.5 degrees in a period of twenty-seven and a half minutes. Twenty minute breathing tests without running the motor in the machine showed a rise of only 1 degree in the thermometer. Tests of the machine thermometer reveal that it gives temperatures 1 degree below actual test-bath temperatures. The Council is of the opinion that these findings indicate a poor correlation between the temperature of the patient's expired air and the temperature as indicated by the thermometer of the machine, and that the motor on the machine exerts a greater influence on the thermometer than does the patient's breathing or the temperature of the air in the bellows.

Circulation of the oxygen in the bellows is aided by means of a motor driven blower which develops a positive water pressure of 2 mm on the patient intake tube. The patient valve mentioned makes it possible for the operator to connect the patient with room air or the oxygen of the bellows at will. When the patient is breathing room air through the mouthpiece the bellows are locked at their immediate position. The air inlets and tubes leading to the bellows are sufficiently large to accommodate regular breathing.

The methods of measurement of actual oxygen consumed in a test area is the same as in the previous model (Sanborn Waterless Metabolism Tester, 1941). Two methods may be used: one, the measurement of time necessary for the patient to consume a definite amount of oxygen, and, two, the measurement of the amount of oxygen consumed in a definite amount of time.

In the first, or shorter, method a definite amount of oxygen, 1.25 liters, is put in the bellows, and the patient breathes from this until that amount of oxygen is consumed. The time for this consumption is noted and the computation is made on that basis. Sufficient excess oxygen remains in the bellows at all times to insure the patient's comfort.

In the second, or long test, method the bellows is filled with a sufficient amount of oxygen for the patient to breathe for a definite length of time, which may be from six to ten or more minutes. The amount of oxygen is then computed from the fall of the bellows. This fall is calibrated in terms of oxygen volume.



Sanborn Waterless Metabolism Tester

Computation of the patient's basal metabolic rate in both test methods may be made by means of a special slide rule furnished with the machine. This rule can be used only after cubic centimeters of oxygen per minute have been determined. In the short test, measurements of the volume per minute may be read directly by means of a special scale found at the top of each sheet of the kymograph paper. This scale is logarithmic and calibrated to read cubic centimeters of oxygen per minute actually consumed by the patient.

In the long test a special T type scale is furnished from which cubic centimeters of actual oxygen consumption may also be read directly. It is calibrated in the same manner as the edge of the chart but is adjustable for corrections in temperature and barometric pressure as they exist when the test is being run.

The accuracy of both the short and the long test depends on the accuracy of the calibrations on the T scale and on the scale at the edge of the chart. These scales are unchanged from the previous model. They were again examined and found to be sufficiently accurate within the limit of experimental error.

The accuracy of the short test method depends on the accuracy with which the oxygen can be measured into the bellows. The oxygen is measured by means of a small compression chamber connected with a gage and designed to hold exactly 1,250 cc of oxygen at 0 centigrade.

Variations in temperature are accounted for in this type test by filling the measuring chamber and its gage to the mark of a movable red hand. Volumetric determinations were made to test the accuracy of this chamber and gage. Proper corrections of these determinations for temperature pressure and vapor pressure showed the contents of the chamber to be consistent on various trials and volumetrically within the limits of error.

Tests for leakage were made both by using the suggested tests in the "Instructions" pamphlet and by multiple twenty-four hour tests in constant temperature. Leakage was not present in the former series and minimal in the latter. These tests included both the patient valve and the breathing tubes of the machine.

The Council voted to include the Sanborn Waterless Metabolism Tester on its list of accepted devices.

<sup>1</sup> Sanborn Waterless Metabolism Tester 1941 Model Acceptable  
J. A. M. A. 117:932 (Sept. 13) 1941



## Council on Pharmacy and Chemistry and Council on Foods and Nutrition

AT THE MEETING OF THE COOPERATIVE COMMITTEE ON VITAMINS A COMMITTEE WAS FORMED TO PREPARE A REPORT ON THE USEFULNESS OF VITAMIN MIXTURES. THIS COMMITTEE CONSISTED OF DRs S. W. CLAUSEN, W. W. PALMER AND T. D. SPIES, CHAIRMAN, AND WAS AIDED BY OTHER MEMBERS OF THE COUNCILS. THE FOLLOWING REPORT HAS BEEN AUTHORIZED FOR PUBLICATION BY THE COUNCIL ON PHARMACY AND CHEMISTRY AND THE COUNCIL ON FOODS AND NUTRITION.

AUSTIN E. SMITH, M.D., Acting Secretary,  
COUNCIL ON PHARMACY AND CHEMISTRY

FRANKLIN C. BING, Secretary  
COUNCIL ON FOODS AND NUTRITION

### THE PROPER USE OF VITAMINS IN MIXTURES

Long after beriberi, rickets, scurvy and pellagra were recognized and described by physicians, the concept arose that certain "accessory food substances" are essential for life and health. With the development of this concept, a milestone in medicine was passed. Of late, considerable research has been directed toward the isolation and synthesis of so-called accessory food factors more commonly known as vitamins, and some of these substances have been found effective in the treatment of rickets, scurvy, beriberi and pellagra. The years following the brilliant investigations leading to the isolation and synthesis of riboflavin, thiamine hydrochloride, pyridoxine hydrochloride and pantothenic acid and the recognition of the role of nicotinic acid have seen many patients near death from dietary deficiency diseases restored to health by the proper use of some of these compounds. The administration of nicotinic acid to pellagrins confined to custodial hospitals for the insane may enable them to regain their normal mental state and to return to a satisfactory life in their homes. The giving of thiamine to patients has brought rest and freedom from pain arising from nutritional neuritis so severe that they could not sleep even after taking narcotics. Persons whose eyes hurt so badly through lack of riboflavin that they could not read or endure a lighted room have been relieved by riboflavin. These dramatic therapeutic effects are tending to overshadow the necessity of finding effective methods of prevention.

#### SYMPTOMATOLOGY

It is apparent that prolonged deprivation of vitamins due to a suboptimal intake, failure of absorption and utilization or increased demand produces a variety of diseases. In these diseases the symptoms are seldom well defined and, except for rickets or scurvy, rarely appear uncomplicated. The resulting clinical picture seen by the physician is a complex one, and he frequently recognizes a number of distinct deficiency diseases in the same person. The patient may have disease arising from partial deprivation of vitamin A, vitamin D, nicotinic acid amide, thiamine, riboflavin and ascorbic acid. In these deficiency states the skin, alimentary tract and the nervous, hemopoietic and cardiovascular systems may be involved. Signs and symptoms arising in the skin include atrophy, scaling, erythema, pigmentation, ulceration and cornification. If the nervous system is involved, pain, paresthesia, weakness, paralysis or mental disturbances may be present. Anorexia, stomatitis, glossitis, atrophy of the tongue, achlorhydria, loss of specific ferments, diarrhea, loss of tone of the gastrointestinal tract and ulceration of the intestine indicate involvement of the alimentary tract. If the hemopoietic system is affected, the patient may have macrocytic or microcytic anemia. Hemorrhage, easy bruising, edema and nutritional heart disease result from impairment of the cardiovascular system. A lack of adequate vitamin intake is particularly common in association with poverty, chronic addiction to alcohol, improper dietary habits and organic disease.

#### FUNCTIONS OF SOME INDIVIDUAL VITAMINS

Vitamins A and D, which are members of the fat soluble group, occur together in cod liver oil and other fish liver oils. These vitamins customarily are used together therapeutically.

Vitamin K is classified as a fat soluble compound, although water soluble synthetic compounds having vitamin K activity are now available. Vitamin K should be considered as a special substance essential for the maintenance of a normal concentration of prothrombin in the blood. Absorption of this vitamin is dependent on the presence of bile in the intestine, and synthesis probably depends on the intestinal flora. Except for hemorrhagic disease of the newborn where the cause has not been clearly established, a deficiency is usually the result of faulty absorption rather than an inadequacy of vitamin K in the diet.

Vitamin E has been shown to be necessary for the reproduction of the rat and the mouse, but there is no satisfactory evidence that it serves the same function in man. Extensive studies of the role of vitamin E in the treatment of various degenerative diseases have not established its value in the treatment of these conditions.

The vitamins of the B complex are water soluble and are found in such natural products as yeast and liver. Viable yeast and liver cells function as an active laboratory, so that the essential chemical changes necessary for the maintenance of life may go on. Components of the vitamin B complex are intimately concerned with carbohydrate metabolism. They appear to be essential constituents of enzymes which control certain oxidation-reduction systems in the living cell. This is fairly well established as far as thiamine, nicotinic acid and riboflavin are concerned. Ascorbic acid (vitamin C) is a member of the water soluble group and is specifically concerned in the prevention and treatment of scurvy.

#### METHODS OF THERAPY

Prevention of vitamin deficiency diseases usually involves the administration of an adequate diet. Supplements of several vitamins may be necessary, especially in the following situations: persons receiving (1) reducing diets for obesity, (2) restricted diets for treatment of allergy, (3) diet which is restricted during convalescence from severe infections which may exhaust the tissue reserves of vitamins, particularly the water soluble ones, (4) special diets for the treatment of peptic ulcer and (5) infant feeding.

In the treatment of deficiency diseases the problem is one of administering adequate amounts of the substances in which the patient is deficient in a way in which they can be utilized. Vitamin mixtures should not supplant preventive and therapeutic measures but should merely supplement them. All efforts to obtain an adequate diet should be made. The physician should realize that the more accurate the diagnosis of vitamin deficiency the more likely is he to avoid futile treatment with vitamin preparations. Therapy should be directed along three lines: (1) Conditions causing excessive requirements for the vitamins should be eliminated wherever possible, (2) the substances should be administered in sufficient amounts to correct the deficiency, (3) symptomatic treatment and treatment for coexisting diseases should be given.

In order to treat a patient successfully, it is often necessary to combine specific vitamin therapy, symptomatic therapy and the treatment of coexisting diseases. The essence of treatment for deficiency diseases lies in the administration of foods rich in vitamins, supplemented by specific therapeutic agents. The foods included in the dietaries will depend on the nature of the deficiency, age, race, habits, taste and financial status of the patient concerned. The diet may quite properly be supplemented with appropriate vitamin preparations.

When the patient with deficiencies of the water soluble vitamins is at the point of death the parenteral injection of vitamins is always indicated. Therapy with vitamin K preparations, some of which are suitable for parenteral use, is particularly indicated for the correction of lowered prothrombin concentration due to extensive intestinal lesions interfering with absorption or, more frequently, to the deficiency of bile in the intestine owing to obstruction of the common bile duct. It is also indicated in the treatment of the hemorrhagic disease of the newborn resulting from inadequate prothrombin concentration of the blood.



## THE DESIRABILITY OF MIXED VITAMIN THERAPY

In 1935 the Council on Pharmacy and Chemistry of the American Medical Association gave consideration to polyvitamin mixtures and authorized publication of a report entitled 'Shotgun Vitamin Therapy'.<sup>1</sup> In that report mention was made of the commercial products then available on the market and there was a discussion of the available evidence regarding such mixtures. On the basis of its consideration the Council expressed the opinion that the vitamin mixtures were a form of the deplorable "shotgun" prescriptions of the past, formulated in the hope that if one ingredient doesn't hit another will. It was then concluded that the use of vitamin mixtures was not in keeping with progressive medical practice.

The Council recognized at that time the obvious economical advantage to the patient of prescribing multiple vitamin preparations rather than single vitamin preparations and some other advantages of multivitamin therapy, but these were at that time outweighed by so many uncertainties that no other decision seemed possible.

Since that time there have been many developments which have necessitated a reconsideration of this type of therapy. Chemists have succeeded in isolating and identifying a number of components of the vitamin B complex and pure synthetic compounds have been available for carefully controlled clinical investigations. These studies have been aided by the fact that methods for the diagnosis of vitamin deficiency diseases have been greatly improved. They have led to the definite conclusion that it is seldom there is a deficiency disease due to inadequate ingestion of but one vitamin. Infantile scurvy and rickets, which are both frequently seen uncomplicated, are notable exceptions. In pellagra it is to be expected that there will be deficiencies of thiamine and riboflavin as well as of nicotinic acid. Evidence of deficiencies of vitamins A and C is not uncommon in those areas where pellagra occurs most frequently. More exact information has been gained with respect to human requirements for vitamins. There has also been considerable advance in the technique of manufacturing multiple vitamin preparations and it is now possible to administer one small capsule or tablet containing a day's requirement of all the known essential vitamins. Accordingly the decision has been reached that the acceptability of multivitamin preparations will depend on their conformity with the principles here set forth.

## PRINCIPLES FOR THE FORMULATION OF ACCEPTABLE MIXTURES OF VITAMINS FOR THERAPEUTIC PURPOSES

Too often the many polyvitamin products that have been prepared have not been as useful as they might have been. Frequently it has seemed that mixtures have been compounded

TABLE 1—Minimum Daily Requirements of Vitamins for the Adult

|                        |                   |
|------------------------|-------------------|
| Vitamin A              | 4 000 U S P units |
| Vitamin B <sub>1</sub> | 1.0 mg            |
| Vitamin C              | 30 mg             |
| Riboflavin             | 2 mg              |
| Nicotinic acid         | No value stated*  |
| Vitamin D              | 400 U S P units   |

\* The Food and Nutrition Board of the National Research Council has recommended that 10 mg be considered the minimum adult human requirement of nicotinic acid.

without reference to the relative amounts of the vitamins present or to the needs of the patient. Some of the vitamin mixtures provide enormous doses of vitamins A and D and relatively insignificant amounts of riboflavin. There is lack of desirable uniformity of composition of vitamin mixtures, both qualitatively and quantitatively. There is need for more proper formulation of commercial preparations, more informative labeling and suitable restrictions of advertising claims.

The Councils believe that the amounts of vitamins in mixtures should bear a relationship to the normal daily requirements

The physician then may prescribe amounts of these vitamins which will bear some simple relationship as a fraction or a multiple of the estimated daily requirements. The dietary requirements for the vitamins are still under investigation, but sufficient information is available to permit one to state these physiologic constants with a reasonable degree of accuracy for the present purpose. As a result of evidence produced in public hearings, the Food and Drug Administration has adopted certain figures—as representing the minimum daily requirements of the

TABLE 2—Values Recommended by National Research Council

|                        |  |
|------------------------|--|
| Vitamin A              | 5 000 U S P units  |
| Vitamin B <sub>1</sub> | 1.8 mg   |
| Vitamin C              | 75 mg  |
| Riboflavin             | 2.7 mg   |
| Nicotinic acid         | 18 mg  |
| Vitamin D              | No values recommended<br>for adults 400 to 800<br>U S P units for children |

vitamins known to be essential in the diet. For the adult these figures are given in table 1.

It is of interest to direct attention also to the figures adopted by the Committee on Food and Nutrition of the National Research Council, which is now known as the Food and Nutrition Board for the amounts of vitamins that are desirable in the daily food intake. The values recommended by this board for the adult male weighing 70 Kg and eating a diet of 3,000 calories are given in table 2.

In the treatment of vitamin deficiencies, physicians may consider it desirable to administer larger quantities of the vitamins than are mentioned in the "minimum requirements" or the "recommended allowances" to which reference has been made. The problem of deciding on acceptable formulas for vitamin mixtures thus is not an easy one. It is necessary not only to give consideration to the items mentioned in the present report but also to the use for which any particular product is intended and the claims that may be made in advertising. For these reasons the Councils will give individual consideration to commercial mixtures of vitamins when such mixtures are compounded in proportions related to the minimum daily requirements as defined by the Food and Drug Administration.<sup>2</sup> Concerning the vitamin B complex, the Council on Pharmacy and Chemistry has voted to give consideration to preparations which meet the following specifications:

1 Mixtures of pure thiamine, riboflavin and nicotinic acid which provide in the recommended daily intake 1 mg of thiamine, 2 mg of riboflavin, 10 mg of nicotinic acid or simple multiples thereof.

2 Dry brewers yeast having as the minimum vitamin content per gram, 0.12 mg of thiamine, 0.04 mg of riboflavin and 0.250 mg of nicotinic acid.

3 Dried brewers yeast as described under 2 to which has been added riboflavin and nicotinic acid in such quantities that for each milligram of thiamine contained in the finished product there are present 2 mg of riboflavin and 10 mg of nicotinic acid.

4 A concentrate of the vitamin B complex from brewers' yeast as described under 2 and providing in the recommended daily intake 1 mg of thiamine (or a simple multiple thereof) and corresponding proportions of other known vitamins of yeast.

5 A concentrate of the vitamin B complex from liver containing in each gram not less than 0.25 mg of riboflavin.

6 A concentrate of the vitamin B complex from brewers' yeast fortified with riboflavin and nicotinic acid and providing in the recommended daily intake 1 mg of thiamine, 2 mg of riboflavin and 10 mg of nicotinic acid or simple multiples thereof.

7 A concentrate of the vitamin B complex from rice polishings fortified with riboflavin and nicotinic acid providing in the recommended daily intake 1 mg of thiamine, 2 mg of riboflavin and 10 mg of nicotinic acid or simple multiples thereof.

<sup>1</sup> Shotgun Vitamin Therapy. J. A. M. A. 105:1037 (Sept. 28) 1935.

<sup>2</sup> Federal Register 6:5921-5926 (Nov. 22) 1941.

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SATURDAY, JULY 18, 1942

## CARCINOMA OF THE PROSTATE

Wolff found only 83 cases of prostatic cancer reported in medical literature up to 1899. Young, however, in 1906 reported 68 cases (21 per cent) of malignant growth among 318 cases of prostatic obstruction. Muir in 1934, in routine necropsies on men over 60, reported an incidence of 13 per cent. Rich (1935) announced an incidence of 14 per cent in 292 consecutive necropsies on men over 50. Moore, in a series of routine necropsies in Viennese hospitals in which serial sections of the prostate were cut, discovered an incidence of 17 per cent. Gaynor in 1938 studied multiple sections of the gland in one thousand necropsies on men over 40 and reported prostatic carcinoma in 18.4 per cent. Prostatic cancer is now recognized therefore as one of the most frequent types of malignant disease in men. The pessimistic attitude of the majority of urologists with regard to the prognosis of cancer of the prostate is accounted for by two factors: (1) the condition is without noticeable symptoms for a long time, (2) the growth displays a tendency to early invasion by perineural routes of the pelvis, sacrum, lumbar vertebrae and femur. In the series reported by Bumpus, 25 per cent of the patients had metastases when first seen, while Barney and Gilbert reported 58 per cent. The neoplasm, according to Bairinger, is radiosensitive in only 10 to 20 per cent. Advocates of Young's radical perineal operation maintain that a five year clinical cure may be obtained with this procedure in about 50 per cent of the cases. Colston, an enthusiastic supporter of the operation, points out that it is applicable only in cases in which the malignant growth has not extended beyond the capsule of the prostate gland or in the membranous urethra or beyond the bases of the seminal vesicles. In addition, metastases must not be demonstrable on physical or roentgenologic examination. Colston<sup>1</sup> admits that of

all the cases treated at the Brady Urological Institute over a period of fifteen years only 4 or 5 per cent were suitable for radical operation. Lowsley<sup>2</sup> states that the malignant growth is discovered in time to effect a cure by total extirpation in less than 5 per cent of the cases of carcinoma of the prostate gland. "Thus is because there are no symptoms in the early stages of the disease." Thompson and Emmett<sup>3</sup> say that all investigators who have made postmortem studies of carcinoma of the prostate submit evidence that metastasis and invasion of structures beyond the prostate are likely to occur early in the course of the disease even in cases in which the primary lesion is small. It would appear, therefore, that complete surgical extirpation is rarely possible.

Kutscher and Wolbergs,<sup>4</sup> while investigating the source of outpourings of acid phosphatase in the urine of men, discovered that normal adult prostate tissue is extremely rich in phosphatase, with optimal activity at about  $p_H$  5.0. The Gutmans and Sproul<sup>5</sup> found prostate phosphatase also in the primary prostatic tumor and at the site of distant metastasizing carcinoma of the prostate. The Gutmans<sup>6</sup> did not find a significant rise in acid serum phosphatase activity in disease of the prostate gland other than carcinoma with metastasis. They concluded that the determination of serum phosphatase activity at  $p_H$  4.9 may be of limited value in the diagnosis of metastasizing carcinoma of the prostate.

Huggins and Hodges<sup>7</sup> have recently reported interesting observations of the effects of castration on the activity of prostatic neoplasms. The rationale of this therapeutic measure is based on the fact that adult prostatic epithelium undergoes atrophy when androgenic hormones are greatly reduced or inactivated. In many instances malignant prostatic tumor is an overgrowth of adult epithelial cells. Huggins, Stevens and Hodges<sup>8</sup> have also reported the clinical effects of castration on 21 patients with advanced prostatic cancer who were observed during a twenty months period. Four of the patients have died, and unsatisfactory results were obtained in 2 additional men. In the 15 patients who were improved the objective clinical evidence included

2 Lowsley, O. S. Surgical and Nonsurgical Treatment of Prostate Gland, Bull. New York Acad. Med. 17: 651 (Sept.) 1911.  
3 Thompson, G. J., and Emmett, J. L. Carcinoma of the Prostate Gland, J. Clin. Investigation 17: 473 (July) 1938.  
4 Kutscher, W., and Wolbergs, H. Prostatic Phosphatase, Z. f. physiol. Chem. 236: 237 (Nov.) 1935.

5 Gutman, Ethel B., Sproul, Edith E., and Gutman, A. B. S. Cancer of Increased Phosphatase Activity of Bone at Site of Metastases Secondary to Carcinoma of Prostate Gland, Am. J. Cancer 28: 485 (Nov.) 1936.

6 Gutman, A. B., and Gutman, Ethel B. An "Acid" Phosphatase Occurring in the Serum of Patients with Metastasizing Carcinoma of Prostate Gland, J. Clin. Investigation 17: 473 (July) 1938.

7 Huggins, Charles, and Hodges, C. V. Studies on Prostate Cancer. I. The Effect of Castration of Estrogen and of Androgen on Serum Phosphatases in Metastatic Carcinoma of the Prostate, J. Clin. Investigation 23: 293 (April) 1941.

8 Huggins, Charles, Stevens, R. E., and Hodges, C. V. Prostate Cancer. II. The Effects of Castration on Adenocarcinoma of the Prostate Gland, Arch. Surg. 42: 209 (Aug.) 1941.

1 Colston, J. A. C. The Surgical Treatment of Carcinoma of the Prostate, New England J. Med. 223: 205 (Aug. 8) 1940.

increased appetite and a progressive gain in weight, improvement in red cells and hemoglobin values, decrease in pain and in objective neurologic signs in 2 patients who had compression of the cauda equina, decrease in size of the primary tumor on rectal palpation and at cystoscopic examination, stabilization or regression of bony metastases in roentgenograms and a decrease in the size of palpable lymph nodes which were the seat of metastatic cancer. The investigators believe that complete regression of the tumor had not taken place, although the depression of the tumor activity with resulting improvement of the patient in some cases was considerable. In about 20 per cent of the cases the results were unsatisfactory. Huggins and Hodges made serial observations of the levels of the acid phosphatase in the serum of 8 patients and demonstrated that castration and administration of estrogens caused significant decrease of this enzyme while administration of androgens increased it. In patients with elevation of serum acid phosphatase, castration caused a prompt and sharp reduction to or toward normal which was maintained for many months. When the reduction was not distinct, administration of diethylstilbestrol was effective in further lowering the phosphatase. Intramuscular injection of 25 mg of testosterone daily for eleven to eighteen days in 3 cases in which bony metastases were present caused an increase in the acid phosphatase of the serum. The patients complained of an increase of pain in the legs. The investigators feel that the improvement in the 15 cases was greater than that observed in any case in which far advanced or metastatic cancer was treated in any other way. They state that, when acid phosphatase is greatly increased (above 10 units), carcinoma of the prostate with metastasis has always been present, but prostatic cancer may be present without elevation of acid serum phosphatase, thus there are false negatives but no false positives.

The rich concentration of acid phosphatase in the prostate of the adult man as compared with the child may be regarded as a secondary sex characteristic of a chemical nature. Munger<sup>9</sup> treated 11 cases by irradiation of the testes with resection. He believes that slightly better results were obtained than were secured in cases treated by resection and irradiation exclusive of the testes.

Androgenic activity may be suppressed chemically by administration of estrogens or by surgical or roentgenologic castration. The clinical application of the knowledge of the effects of the androgens on the activity of the prostatic neoplasm by Huggins and his associates injects a note of optimism into the hitherto gloomy picture of advanced carcinoma of the prostate.

## SHAPE OF THE MOUSE ENCEPHALOMYELITIS VIRUS

Increasingly, physical and chemical tools are being applied to problems of medicine. Among them are tools for aiding in the purification and characterization of proteins. Since these substances are significant in many processes of the living organism, a clearer understanding of the nature and behavior of proteins will aid greatly in elucidating physiologic reactions in which they participate. Furthermore, the more recent demonstration that viruses, enzymes and certain hormones may be proteins is additional basis for the need for complete knowledge regarding this group of substances. For these reasons the construction and application of the ultracentrifuge in the laboratory of Svedberg in Uppsala and the development and use of electrophoretic procedures by Tiselius and his colleagues in Copenhagen are significant. The use of one or several of the techniques devised by these investigators has resulted in an enormous expansion of fundamental knowledge regarding proteins. It is now possible to determine with a high degree of accuracy the size and shape of protein molecules, from studies of this type the rodlike shape of certain of the viruses has been established. Of considerable interest is the recent observation by Gard and Pedersen<sup>1</sup> that purified virus of mouse encephalomyelitis has a molecular weight of the order of 52,000,000 and is a long, rodlike particle with a length approximately forty-six times its width.

The observation with regard to the shape of this virus is particularly valuable in explaining previously established facts regarding the mouse encephalomyelitis virus. The ready ultrafiltrability of the activity had led to the belief that the infectious agent would be of a relatively small molecular size. However, the latter conclusion was difficult to reconcile with other observations to the effect that the active agent was readily sedimented in the ultracentrifuge in fields of relatively low gravitational force, a finding which would appear to indicate a high molecular weight. However, the high degree of ultrafiltrability of infectious particles was rationalized by suggesting that the activity sedimented at low speeds in the ultracentrifuge was merely the adsorbed agent on high molecular weight impurities. The results of Gard and Pedersen now clarify the situation. In view of the extremely elongated nature of the virus of mouse encephalomyelitis, the exertion of pressure on solutions during ultrafiltration, it is apparent, results in an orientation of these virus rods in solution with the short axis perpendicular to the pores of the ultrafilter. Under these circumstances there is little resistance to the passage of the virus through the ultrafilter. It is as though one were trying to push a pencil through an opening of a size which would permit ready passage of the pencil only when the latter has its short axis perpendicular to the open-

9 Munger, A. D. Experiences in the Treatment of Carcinoma of the Prostate with Irradiation of the Testicles. *J. Urol.* 46: 1007 (Nov.) 1941.

1 Gard, S. and Pedersen, K. O. *Science* 94: 493 (Nov. 21) 1941.

ing Moreover, it is now evident that virus of mouse encephalomyelitis is indeed a molecule of enormous molecular weight, therefore the heavy, active particles which have been sedimented by low speed ultracentrifugation consist of purified material and not small amounts of the virus adsorbed on tissue proteins

The foregoing observations are of further importance in view of their possible contributions to studies of strains of the virus of human poliomyelitis, thus do the methods of physics and chemistry contribute to the advancement of medicine

### ELLIPTIC ERYTHROCYTES IN MAN

Although oval, elliptic or rodlike erythrocytes are occasionally seen in blood smears from healthy persons, a predominance of such forms is rare in the absence of severe anemia. Dresbach<sup>1</sup> of Ohio State University reported in 1904 that he had found 90 per cent of elliptic red cells in the blood smears of a mulatto medical student. Smears were sent to Arnet, Ehrlich, Ewald and Ewing, who considered the condition a congenital or developmental anomaly. This was no doubt the first authentic report of elliptocytosis in man. Sporadic cases were reported by Bishop, Sydenstricker, Huck and Bigelow, Beinhart, and Terry and his associates. Hunter and Adams<sup>2</sup> found in a group of sixteen persons of pure Dutch extraction twelve carriers of elliptic erythrocytes. A study of the Netherlands branch of the same family was reported by van den Bergh. A father, each of his eight children and three of his six grandchildren exhibited the anomaly. These authors believed that the anomaly is inherited as a dominant trait, a striking example of inheritance of an anomaly of a cellular component of the blood. The truly hereditary character of the trait was further shown by the presence of oval and rodlike erythrocytes in the blood of two newborn babies in the same group. The hereditary transmission of this condition was again emphasized by Cheney,<sup>3</sup> who in 1932 reported a study of a family consisting of forty-one members in three generations, fourteen of whom were carriers of a high percentage of elliptic red cells. Cheney did not find sufficient evidence to associate this anomaly with secondary anemia and with sickle cell anemia.

Huck and Bigelow<sup>4</sup> washed the erythrocytes from their patient in isotonic salt solution and then placed them in the normal blood serum from a member of the same blood group. The fresh preparations were made and sealed. Observations continued for three weeks did not show any change in the elliptic shape

of the cells. Normal red cells from a patient of the same blood group were washed three times in isotonic salt solution and were suspended in the patient's serum. Fresh preparations were made and sealed. The normal cells remained spherical over a period of three weeks, after which time the preparations dried. These authors also found that slightly hypotonic and slightly hypertonic salt solutions had no effect on the elliptic cells. Similar observations were made by Terry and his associates<sup>5</sup> and by other observers. These experiments demonstrated that the elliptic shape of the erythrocytes was not the result of any influence of the plasma on them but that the anomaly was inherent in the structure of the cell itself. Scharum-Hansen<sup>6</sup> studied the genesis of the elliptic cells by staining the sternal punctate of carriers of elliptic cells with supravitral stain. He was able to demonstrate that these cells appear during and immediately after the reticulocyte stage and thus represent old forms of red cells. Vischer<sup>7</sup> transfused blood from four persons whose blood contained from 80 to 95 per cent of elliptic red cells into recipients with normal red cells and belonging to the same group. Daily blood examinations revealed the complete disappearance of the elliptic cells from the blood of the recipients in from twelve to thirteen days. Since the life span of a normal round red cell is believed to be approximately thirty days, Vischer concluded that the transfused elliptic cells perished earlier because they represent the end stage of a red cell and are therefore closer to the end of their life span.

Wyandt and her associates<sup>8</sup> examined six hundred persons belonging to three interrelated families of pure German extraction. Of these, forty-three were located in Germany in the locality from which the ancestors of the three families emigrated in 1869. Eighty-six members were found to be carriers of elliptic cells. The possible relationship of the anomaly to anemia has been a controversial point. Wyandt and her associates point out that the persons whom they studied were singularly free from any type of anemia and were unusually healthy and long lived. Leitner<sup>9</sup> points out that, if families with normal red cells were investigated hematologically as thoroughly as families in which elliptocytosis occurs just as many cases of unexplained anemia might be detected as have been reported in connection with that anomaly.

Thus elliptocytosis appears to be a well differentiated anomaly whose cause is entirely unknown. The percentage of elliptic red cells in typical cases may be as high as 90. The diagnosis is not difficult. The principal blood condition from which it must be differentiated

1 Dresbach, M. Elliptical Human Red Corpuscles. *Science* **19** 469 (March 18) 1904.

2 Hunter, W. C., and Adams, R. B. Hematologic Study of Three Generations of White Family Showing Elliptical Erythrocytes. *Ann. Int. Med.* **2** 1162 (May) 1929.

3 Cheney, Garnett. Elliptic Human Erythrocytes. *J. A. M. A.* **98** 878 (March 12) 1932.

4 Huck, J. G., and Bigelow, Rena M. Poikilocytes in Otherwise Normal Blood (Elliptical Human Erythrocytes). *Bull. Johns Hopkins Hosp.* **34** 390 (Nov.) 1923.

5 Terry, M. C., Hollingsworth, E. W., and Eusebio, V. Elliptic Human Erythrocytes. Report of Two Cases. *M. Bull. Vet. A.* **7** (July) 1932.

6 Scharum-Hansen, H. Die Genese der Ovale. *Scandinav. Med.* **86** 348, 1935.

7 Vischer, A. Ueber die Lebensdauer der Erythrocyten. *Klin. Med.* **135** 133 (Nov.) 1938.

8 Wyandt, Helen, Bancroft, P. M., and Winsten, T. D. Elliptic Erythrocytes in Man. *Arch. Int. Med.* **68** 10-3 (Dec.) 1941.

9 Leitner, S. J. Die familiäre Elliptocytose. *Deutsches Arch. f. Klin. Med.* **193** 69 (1931).

entrated is sickle cell anemia. Sickle cell anemia is differentiated from elliptocytosis by the fact that it occurs almost exclusively in Negroes, by the influence of serum on the shape of the cells, and by the grave course of the disease, its hemolytic nature and the frequent existence of a mild degree of jaundice. The elliptic erythrocytes represent the smallest cellular carriers of certain hereditary characteristics. The anomaly is not to be considered a degenerative stigma. Either the anomaly is caused by mutation or it is directly inherited from distant ancestors. Remarkable is the fact that the discovery of this hereditary anomaly was made only within the last two decades.

## Current Comment

### THE RADIOCLAST EXPOSED

Since the death of Albert Abrams in 1924, before he had time to hitch himself up to one of his own machines, various commercial promoters have continued to manufacture devices in imitation of those with which he worked. Somehow our federal agencies have not apparently taken the necessary steps to establish that the promotion of such devices constituted fraud and deception. One organization, however, has publicized the fakery involved. In connection with this effort the manager of the Indianapolis Better Business Bureau had a serious investigation made of one such device. This device, known as the "Radioclast," is manufactured and sold by the Electronic Instrument Company of Tiffin, Ohio. The result of this investigation, which was publicized in a recent bulletin of the Better Business Bureau, fully justified the conclusion as to the fraudulent character of the Radioclast. The particular device investigated, known as Model 40, looks like a very expensive radio console 44 inches high, 30 inches long and 18 inches deep. As a matter of fact, "the present price of them is \$945.00." On opening the door of the Radioclast, one sees a control panel of highly polished black bakelite on which are symmetrically arranged twenty-four radio type control dials. Contact is made with a person by means of electrodes.

An investigative committee composed of physicians, physicists and engineers opened the apparatus and found that it was made of radio parts, some being especially modified, such as rotary switches. In general the parts were such as can be purchased in any electrical shop carrying radio equipment. The circuit, when traced, revealed an astonishing hook-up. Quoting from the Indianapolis Better Business Bureau Bulletin: "The device has been branded as a fake and a fraud by competent scientists who have examined it." "The Manager of the BETTER BUSINESS BUREAU,<sup>1</sup> in a public affidavit before the Indiana State Board of Medical Registration and Examination, branded the use of this device in the diagnosis and treatment of serious diseases as a fraudulent practice, and asked the

revocation of the licenses of certain 'doctors'." The conclusion of the investigating committee appointed to examine and report on the Radioclast, Model 40, is

The Committee has made a careful scientific examination of the aforementioned apparatus and concludes that this Radioclast is totally incapable of accomplishing what is claimed for it as a diagnostic device, and the use of the device would not constitute competent scientific treatment for any disease that may be present.

### ESTIMATE OF NUMBER OF MYELINATED FIBERS IN THE PYRAMIDAL TRACT

Nerve fibers originating in the large pyramidal cells of the motor region of the cerebral cortex or the precentral gyrus pass downward through other levels of the brain, and before entering the spinal cord many of them cross over in the decussation of the pyramids. The direct and crossed pyramidal tracts are the most conspicuous of the corticospinal tracts. Lassek<sup>2</sup> has classified and estimated the number of the mature myelinated fibers in the pyramid of the human medulla. He obtained two medullas shortly after the accidental death of a Negro man aged 20 and a Negro woman aged 18. With Weigert's technic he stained for myelinated sheaths five microsections taken just above the motor decussation. With an ocular micrometer he measured the diameter of 15,000 pyramidal fibers in each specimen and by sampling with a Whipple square estimated the number of pyramidal fibers. Knowing the area of the pyramidal tract, he was able to compute the total number of myelinated fibers at this level at about 688,800. The diameter of the fibers varied from 1 to 22 millimicrons, 89.57 per cent were classified as small (1 to 4 millimicrons in diameter), 8.7 per cent as medium (5 to 10 millimicrons in diameter) and 1.73 per cent as large (11 to 22 millimicrons in diameter). The pyramidal bundle forms about 30 per cent of the spinal cord in man. Lassek points out that the morphology of the pyramid does not harmonize with the view that the relatively scarce Betz or large pyramidal cells are the sole origin of the pyramidal tract. However, Levin and Bradford<sup>2</sup> have widened the concept of the Betz cell, in their opinion all cortical cells which give origin to nerve fibers which go to the spinal cord should be designated as Betz cells. If this view were tenable, Lassek says, on the basis of the fiber content of the pyramids, there would be a tremendous number of Betz cells and most of them would have to be smaller than they are believed to be. It remains difficult to give an accurate scientific description of just what constitutes such a cell. Nerve velocity is believed to be proportional to the diameter of the fibers, the larger nerve fibers conducting more rapidly than smaller ones. Lassek says that the unmyelinated fibers which comprise a formidable share of the total number of fibers, would be slow conductors and that only a small percentage of the pyramidal tract fibers are designed for speedy transmission of impulses.

<sup>1</sup> Lassek, A. M. The Human Pyramidal Tract. IV. A Study of the Mature Myelinated Fibers of the Pyramid. *J. Comp. Neurol.* 76: 217 (April) 1942.

<sup>2</sup> Levin, P. M. and Bradford, F. K. The Exact Origin of the Corticospinal Tract in the Monkey. *J. Comp. Neurol.* 68: 411 (June) 1938.

<sup>1</sup> Further information for the attention of the profession and the public may be obtained by writing to Mr. T. M. Overley, manager of the Indianapolis Better Business Bureau.



# MEDICINE AND THE WAR

*In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession*

## THE ARMY IS IN EXCELLENT HEALTH

The War Department announced June 29 that the Surgeon General reports that the health of the army is excellent. No general outbreak of acute respiratory disease occurred in the winter months, and compared to the previous winter, there was a reduction of 52 per cent for all diseases and 70 per cent for respiratory infections. Since the winter months, the admission rates to the army for all cases have showed a steady decline of nearly 25 per cent, due chiefly to a falling off in respiratory infections. The venereal disease rates are now lower than at any time since the beginning of mobilization, and the syphilis rate for the first five months for 1917 is the lowest in the history of the army. There has been a steady decline of as much as 30 per cent in cases of gonorrhea.

In recent weeks there have been numerous admissions to hospitals on account of jaundice, which has the characteristics, the War Department said, of catarrhal jaundice (epidemic hepatitis), but the total number of cases in the entire army has not been enough to appreciably increase the admission rate for all diseases. The War Department points out that this is definitely not yellow fever and it is not dangerous to the general public. The disease is being studied, however, by some of the outstanding medical scientists. Outside of the United States, health conditions in the army continue favorable. There have been no serious epidemics and only slight rises in admissions due to diseases peculiar to some of the new areas where the troops are established.

## MILD TINCTURE OF IODINE FOR WOUNDS

With the widespread interest in first aid instruction and the distribution of millions of first aid manuals throughout the country, the druggists have been swamped with calls for "Mild Tincture of Iodine, U S P," which has been adopted for first aid treatment by the Army, the Navy and the American Red Cross. Since reports indicate that some druggists express ignorance of the existence of such a product, the formula for Mild Tincture of Iodine, U S P follows:

|                 | Metric Formula   | Alternative Formula |
|-----------------|------------------|---------------------|
| Iodine          | 20 Gm            | 146 grains          |
| Sodium iodide   | 24 Gm            | 175 grains          |
| Diluted alcohol | to make 1,000 cc | 1 pint              |

Dissolve the iodine and the sodium iodide in sufficient diluted alcohol (equal parts of alcohol and water) to make 1,000 cc.

The label on this product should be somewhat as follows: Mild Tincture of Iodine. Contains 46 per cent alcohol. An antiseptic for application to cuts and wounds. There should also be a poison label followed by:

**ANTIDOTE**—Give starch, white of eggs or flour mixed with water. Follow with emetic of mustard. Give strong tea, coffee, stimulants of diluted alcohol, whiskey or 1 teaspoon of aromatic spirit of ammonia in water. Demulcent drinks of flaxseed, if needed.

According to E. Fullerton Cook, chairman of the Committee of Revision of the Pharmacopeia of the United States of America, pharmacists should always sell the U S P Mild Tincture of Iodine for first aid, not the strong (7 per cent) tincture of iodine, neither should they prepare the mild tincture by diluting the strong tincture, for then it will contain potassium iodide instead of sodium iodide, and the alcohol percentage will not be correct. Sodium salts are much better for application to a wound than are potassium salts. Dr. Cook's announcement

says that the strong (7 per cent) tincture of iodine should never be applied to a wound, as it evaporates quickly, leaving crystals of free iodine in the wound, which injure the tissues and prevent healing.

## ASSIGNMENT TO GREAT BRITAIN

Two members of the Subcommittee on Industrial Health and Medicine of the Health and Medical Committee, Dr. W. C. Sawyer and Mr. W. P. Yant, are now in Great Britain as representatives of the United States government to study the industrial hygiene program in British war industries. Dr. Sawyer is a new member of the subcommittee, replacing Dr. Lloyd M. Noland, who recently resigned.

## INSTRUMENTS FOR RESEARCH WORKERS

Research workers seeking instruments required in their work but difficult to find are invited to communicate with D. H. Killeffer, 60 East Forty-Second Street, New York, chairman of the newly appointed Committee on the Location of New and Rare Instruments of the National Research Council. The plan of the committee's activity is to assist in locating needed instruments of types not ordinarily available through accustomed channels.

Assistance is particularly desired from owners and builders of instruments falling within the new or rare categories which might be made available to others through sale or for temporary use under mutually satisfactory conditions.

## HEALTH PROTECTION FOR CALIFORNIA WAR WORKERS

A series of one day sessions will be held in seven centers in California from August 18 to August 28 on the health protection of war workers. The programs will interest physicians, industrial nurses, safety engineers and industrial managers. They will assist all physicians whose services are in any way being rendered to industrial workers. Some of the problems to be discussed will be medical relationships in industry, pulmonary diseases of industry, industrial hygiene in war production, medical and engineer control of occupational diseases, the physician's legal responsibilities and the surgical management of industrial injuries. These meetings will be sponsored by the California Medical Association, Committee on Postgraduate Activities and on Industrial Practice, Western Association of Industrial Physicians and Surgeons, and the California State Department of Public Health. Among the speakers will be Dr. Carey P. McCord, medical advisor to Chrysler Corporation, Detroit; J. J. Bloomfield, chief of the States' Relations Section, Division of Industrial Hygiene, National Institute of Health, U. S. Public Health Service, Bethesda, Md.; Donald E. Cummings, director, Division of Industrial Hygiene, University of Colorado School of Medicine and Hospitals, Denver; Dr. Harold T. Castberg, acting chief, Industrial Hygiene Service, California State Department of Public Health; and Carl H. Fry, chief, Industrial Accident Prevention Bureau, California State Industrial Accident Commission.

Only two other states, Iowa and Connecticut, have had such meetings for physicians who have been called on by the state to supervise the health of many thousands of workers in war industries.

## WAR PRODUCTION DRIVE AND INDUSTRIAL HEALTH

Shortly after the joint meeting in April of the National Conference of Governmental Industrial Hygienists with the Subcommittee on Industrial Health and Medicine of the Health and Medical Committee a series of conferences between various units of the War Production Board and the Division of Industrial Hygiene was initiated by Mr. Charles Taft, assistant coordinator of defense health and welfare services. As a result of these conferences a letter signed by the chairman of the War Production Board, the chairman of the War Manpower Commission, the under secretary of war, the under secretary of navy, the land-force administrator and the chairman of the Maritime Commission was mailed on June 5 to about one thousand labor management production drive committees, which have been organized by the War Production Board in war contract plants throughout the country. This letter urged the committee to make health conservation an essential part of the production drive, through the organization of industrial hygiene and medical services in the plants and through attention to public health services and medical facilities in their communities. Within one week after the letter was mailed eighteen plant committees wrote to the U. S. Public Health Service for advice on the development of health conservation activities. The Division of Industrial Hygiene has referred these committees directly to their state industrial hygiene directors and has informed the industrial hygiene directors of this action. In addition, the division has prepared a detailed outline of an industrial hygiene program for the information of these committees. Copies of the outline may be obtained on request to the division.

## COMMITTEE URGES REFORM IN PERSONNEL POLICIES OF HOSPITALS RELATED TO NURSING

On April 29 the Subcommittees on Nursing and Hospitals of the Health and Medical Committee in the Office of Defense Health and Welfare Services adopted the following resolution:

WHEREAS There will be a steadily increasing demand for nurses for military services and for the civilian population for the next two or three years and

WHEREAS Many inactive nurses and private duty nurses must be brought back into service in civilian institutions and

WHEREAS Many graduate nurses are being attracted into other occupations because of more desirable employment and salary conditions and

WHEREAS It is becoming increasingly difficult to attract well qualified young women into schools of nursing because of the competition with other fields and

WHEREAS We are faced with a serious shortage of graduates and student nurses

Therefore The Subcommittee on Nursing and the Subcommittee on Hospitals of the Health and Medical Committee join in calling to the attention of hospital authorities the revised Manual of the Essentials of Good Hospital Nursing Service published by the American Hospital Association and the National League of Nursing Education with the urgent request that the personnel policies therein be thoughtfully reviewed in relation to the policies effective in their institutions in order that graduate nurses may be encouraged to remain in institutional service rather than to go into non nursing work and that a large number of qualified young women may be attracted to enter schools of nursing

It was the opinion of the committee that the shortage of graduate nursing personnel in civilian institutions was in many instances largely due to their personnel policies and salaries

## ARMY PHYSICAL STANDARDS MODIFIED

The War Department has stated that the army physical standards have been modified effective August 1 in order to call into limited military service under a regular quota system men now in class 1-B due to minor physical defects. Among the 1-B eligibles are men whose weight and chest circumference are under or over the standard set for class 1-A and who are not in class 4 who have a minimum of 20/400 in one or both eyes without glasses if correctable with glasses to 20/40 in either eye, whose hearing in one or both ears is not less than 5/20 who have lost an entire thumb on either hand or who have lost three entire fingers, provided the thumb remains

## NASSAU COUNTY PROFESSIONAL TRAINING CORPS

About 200 physicians and dentists in Nassau County, New York, met in Hempstead April 7, 1942 and formed the Nassau County Professional Training Corps, in response to a call signed by Dr. Arthur C. Martin, now adjutant of the corps. The object of the organization has been to prepare the members for military service. They have met weekly to drill under the command of Paul Brown, a former infantry captain, and also to hear lectures by army and navy officers. The speakers at these meetings have been Dr. Louis H. Bauer, formerly a colonel in the medical corps of the army, Commander Page O. Northington M. C., U. S. Navy, Major Harry Marcus, Post Exchange officer at Mitchel Field, Major James M. Mullen, Dental Corps, U. S. Army, Captain Reynolds Hayden, M. C., U. S. Navy, Captain John Groopman, flight surgeon, M. C., U. S. Army, Captain John Landers, Quartermaster Corps, U. S. Army, Frank Entwistle D.D.S., formerly first sergeant in the Medical Department, U. S. Army, Colonel Henry Harmeling, Judge Adjutant General's Department, U. S. Army, Arthur C. Martin, formerly major in the Medical Corps of the U. S. Army, and Major Paul Geigrich, U. S. Army. The several members who have already gone into active military service have reported that the preliminary instruction received as a member of the Nassau County Professional Training Corps was of distinct benefit to them.

## CONFERENCE ON MEDICAL SERVICE IN INDUSTRIAL AREAS

The Subcommittee on Industrial Health and Medicine of the Health and Medical Committee met in the conference room of the Federal Security Agency June 15-16. Marked for special attention on the agenda was the extreme difficulty in which the war industries are finding themselves with respect to obtaining and retaining personnel for their medical services. The subcommittee considered the definition of 'an essential man' in government and private industrial hygiene services and was expected to make recommendations to the War Manpower Commission through the Procurement and Assignment Service at its meeting on June 22. Recommendations will also be forthcoming on the nutrition in industry program. Dr. Townsend presented the progress report of the Division of Industrial Hygiene, National Institute of Health. Surgeon General Parran and other members of the staff, together with Dr. A. P. McCormack, state health commissioner of Kentucky, also met the subcommittee to consider problems of medical care in critical war areas.

## EMERGENCY MEDICAL FIELD KITS

The Medical and Surgical Relief Committee of America, with headquarters at 420 Lexington Avenue, New York City, has presented to the general hospital in Lawrence, Mass., completely stocked chests of supplies for the hospital's several mobile units each of which is staffed by four doctors and eight first aid workers. The equipment in each of these chests is valued at \$110. It is not possible for the Medical and Surgical Relief Committee to present such units to all medical squads as its means are limited.

The committee on June 4 presented two emergency field kits to the Civilian Defense Council of Charleston, S. C., which were assigned to the casualty stations at North Charleston and Chicora. These kits were developed as a result of actual experience in air raids in London. None of the eight casualty stations in Charleston proper had on June 5 been supplied with equipment.

## RUSSIAN WAR RELIEF

Russian War Relief, Inc., with headquarters at 535 Fifth Avenue, New York City, announced, May 28, that in the eight months since it was organized it has expended \$1,128,949.23 for relief supplies for use in the Soviet Union and is increasing its rate of shipments each month. The group is conducting a campaign for six million dollars this year.

### CAMPAIGN TO INDEX BLOOD TYPES OF WORKERS

A campaign to index the blood types of a hundred thousand industrial workers of Baltimore has been started by the Emergency Medical Service of the Baltimore Committee on Civilian Defense, according to Dr. Reid Edwards, director of the service, the *Baltimore Evening Sun* reports. The drive will enable the medical service to provide quick transfusions in the event the city is attacked. The names of workers typed will be registered with the medical service and with various hospitals throughout the city and, in the event of an emergency, volunteers will be reached by means of radio and newspapers.

The blood tests of plant workers will be undertaken by doctors and nurses at the places of the workers' employment and at such times as will not interfere with production schedules. The testing and classification of the blood will be taken care of in six hospital laboratories.

### FLORENCE NIGHTINGALE'S CARRIAGE

According to the June issue of *St. Thomas's Hospital Gazette*, Miss Florence Nightingale's carriage was among the casualties in the hospital blitz. As well as losing a wheel it suffered much other damage. Now, thanks to the generosity of Mr. and Mrs. Bradshaw, it is repaired and renovated and returned to a glory such as only its first owner can have seen before. It returned in state across Westminster Bridge, with nurses for passengers, and a driver clad in the uniform of Miss Nightingale's day. Ensconced once more within the hospital walls, it is now on view.

### EMERGENCY MEDICAL FIELD SETS FOR ALASKA

Eight emergency medical field sets completely equipped for the use of physicians in potential target areas were sent on June 18 to the Territorial Department of Health at Juneau, Alaska, by the Medical and Surgical Relief Committee of America, 420 Lexington Avenue, New York. Each set consists of two portable kits containing instruments, medicines, antiseptics and dry cells to provide power for lighting. The sets will be distributed to Dr. Thomas Morcom, Nome, Dr. Harold Sogn, Anchorage, Dr. F. B. Gillespie, Fairbanks, Dr. W. H. Chase, mayor of Cordova, the Griffin Memorial Hospital, Kodiak, Dr. Ray G. Banister, Seward, Dr. Dwight Cramer, Ketchikan, and Dr. William Charteris, Sitka.

### INVENTORY OF WATER SUPPLY EQUIPMENT

Water department executives and sanitary engineers throughout Michigan were scheduled to meet in June to inventory the chlorination units, the amount of chemicals in stock, power and pumping capacities, water pipes and other equipment so that, if the emergency arises, Michigan cities may shift quickly needed equipment to the scene of extensive damage resulting from air raids. The survey was ordered, according to the *Detroit News* by the Michigan Citizens Defense Corps emergency medical services division and included also complete information on the number and experience of water department personnel.

### HOSPITAL CONTRIBUTES RUBBER PIL- LOWS TO SALVAGE DRIVE

The officers of Mount Sinai Hospital, New York, in ransacking the institution for scrap rubber, decided to turn in the sponge rubber pillows on which patients could lie and listen through radio earphones concealed inside. The one hundred and forty sponge pillows turned over to the government contain 400 pounds of high grade rubber. The hospital installed a central radio system in 1931 providing one hundred and forty rubber pillows with earphones. It has now been discovered that patients can listen comfortably to the radio simply by resting the earphones next to them in bed.

### SOCIETY OF MEDICAL DEPARTMENT OFFICERS AT FORT DEVENS

Capt. Charles C. Verstandig, M. C., U. S. Army, who is now on duty some 6,000 miles away, writes that he receives his copy of *THE JOURNAL* regularly and has noticed the item "Society of Medical Department Officers at Fort Devens" in the issue of June 6. He says that this society was organized in the fall of 1940 instead of 1939 for the purpose of furthering the progress of medical science "while we medical officers were in the armed forces." He was responsible for its organization and was elected its first secretary, the first president of the society was Col. Henry P. Carter, M. C., U. S. Army, and the treasurer Capt. (now Major) Oscar B. Griggs, M. C.

### TEACHING DAY IN WAR MEDICINE AND SURGERY

The Medical Society of the State of New York sponsored a teaching day on war medicine and surgery in Elmira, June 25, under the auspices of the Chemung, Schuyler, Steuben, Tioga and Tompkins county medical societies. Dr. Forrest I. J. Young, Rochester, spoke on "The Care of Soft Tissue Injuries" and Dr. Emmett A. Dooley, New York, "Treatment of Burns." Dr. Carl A. R. Peterson, New York, addressed the evening session on "The Care of Head Injuries."

### GAS DECONTAMINATION SCHOOL

The War Production Board has approved the construction of a gas decontamination school in Alameda County, Calif. Ralph E. Hoyt, county defense coordinator, has announced. A station is to be built near the Cowell Memorial Hospital on the Berkeley Campus of the University of California which will serve as a central training station for gas decontamination squads organized by the county civilian defense council.

### NAVY HOSPITAL BUILT ON GOLF COURSE

The U. S. Navy expects to occupy soon its new hospital unit of more than seventy-five buildings on what was the St. Albans Golf Club course in Queensborough, New York City. This hospital will replace the Naval Hospital at 263 Flushing Avenue, Brooklyn, and will provide general, surgical and psychiatric care for patients.

### EXPLOSION LABORATORY COMPLETED

An explosion laboratory, built of reinforced concrete topped by a hinged roof and specially designed to afford maximum safety to personnel, has been completed on the grounds of the National Institute of Health, Bethesda, Md. The laboratory will be used in the determination of the toxicity and potential health hazards of various old and new explosives.

### BLOOD BANKS

Capt. John B. Alsever, technical director of the blood plasma program of the Office of Civilian Defense, spent part of May at the University of Oregon Medical School, Portland, in conference with state officials to plan the blood donor program. The Office of Civilian Defense is aiding in gathering blood supplies for any crisis in coastal cities.

### FLIGHT SURGEONS

The following Ohio physicians have been assigned to duty as flight surgeons with units of the air corps: Major Warren M. Best, Xenia; Major George P. Tyler Jr., Ripley; and Capt. Richard L. Meiling, Columbus. John A. Riebel, Ashland; Earl Rosenblum, Steubenville.

### NEW ADDRESS FOR PROCUREMENT AND ASSIGNMENT SERVICE

The Procurement and Assignment Service for Physicians, Dentists and Veterinarians may now be addressed at 1400 Street N.W., Washington, D. C.

# ORGANIZATION SECTION

## MEDICAL LEGISLATION

### DISTRICT OF COLUMBIA

*Bills Introduced*—H R 7340 introduced by Representative Hebert Louisiana provides that notwithstanding any limitation relating to the time within which an application for a license must be filed the Commission on Licensure to Practice the Healing Art in the District of Columbia be directed to issue a license to practice osteopathy to Morris C. Augur on condition that he be found by the commission to be otherwise qualified to practice under the healing arts practice act. H R 7368, introduced by Representative Schulte Indiana provides for the issuance of a license to practice osteopathy in the District of Columbia to Charles Joseph Briggs.

### MEDICAL BILLS IN CONGRESS

*Changes in Status*—H R 7242 to authorize temporary appointments in the Army of the United States of officers on duty with the Medical Administrative Corps has passed the Senate with amendment. H R 1052 has been reported to the House by the House Committee on the Judiciary, proposing to amend section 40 of the United States Employees' Compensation Act so as to authorize chiropractors to treat the beneficiaries of that act.

*Bills Introduced*—S J Res 152, introduced by request, by Senator Russell Georgia, proposes to designate the third week of September of each year as 'National Employ the Physically Handicapped Week.' H R 7130, introduced by Representative Sauthoff Wisconsin, proposes to amend the Social Security Act to provide that aid by states to dependent children who are mentally incompetent, irrespective of age be included in computing grants by the United States to such states for aid to dependent children. H R 7215, introduced by Representative Rankin Mississippi, proposes to amend the Selective Training and Service Act of 1940 to provide compensation for members of local boards and for other persons who render services in connection with the work of such boards and whose compensa-

tion for such services is not otherwise provided for. Such persons will be compensated it is proposed, at the rate of \$5 a day for time actually spent by them in conducting or assisting in the work of the boards. H R 7243, introduced by Representative Vinson Georgia provides for the establishment of the rank and grade of rear admiral, dental surgeon, in the Dental Corps of the United States Navy. H R 7256, introduced by Representative Dworshak, Idaho, provides compensation for the injury, death and detention of certain employees of contractors with the United States resulting from war hazards. H R 7259 introduced by Representative Rolph, California, provides compensation for personnel sustaining disease or injury while performing civilian defense duties. H R 7273 introduced by Representative Secrest, Ohio proposes to amend the act providing books for the adult blind by authorizing an appropriation not to exceed \$20,000 for the maintenance and replacement of government owned reproducers for sound reproduction records for the blind. S 2597, introduced by Senator Hughes, Delaware, for Senator Reynolds, North Carolina, proposes to provide for the appointment of chiropody officers in the United States Army in such numbers as will provide at least one chiropodist for each base hospital and training camp. Such officers it is proposed, will be commissioned in the Medical Corps of the Army in such grades as the Surgeon General deems advisable. S 2639, introduced by Senator Chavez New Mexico, provides that the pay and allowances of the members of the Army Nurse Corps be increased so that the pay of Army nurses will be equal to that of officers in the Army in the corresponding grades from second lieutenant to colonel. H R 7292, introduced by Representative Myers, Pennsylvania, proposes to amend the law relating to the civil service of the United States by providing that no person shall be discriminated against in any case because of his blindness or impaired visual acuity in examination, appointment, reappointment, reinstatement, reemployment, promotion, transfer, retransfer, demotion, removal or retirement.

## MEDICAL ECONOMIC ABSTRACTS

### BIRTHS AND DEATHS IN THE UNITED STATES

While the United States set a new record low for infant and maternal death rates in 1940, the Vital Statistics Summary United States 1940 finds that the general mortality rate increased slightly, from 10.6 per thousand to 10.8. This change was due largely to increases in deaths from heart disease, cancer and diabetes. The birth rate, however, also increased from 17.3 per thousand of population in 1939 to 17.9 in 1940 which is the highest recorded from the birth registration area since its completion in 1933. Possibly this indicates a cyclic change closing a long period of a declining birth rate.

This increase in birth rate has been accompanied by a reduction of the infant mortality rate to 47.0 per thousand live births in 1940 which was the lowest ever recorded for the birth registration area. However, the provisional infant death rate for 1941 is 46.2 which would seem to predict a further decline. In 1915 the infant death rate was approximately 100, so that the last twenty-five years has seen a decline of about one half. It is estimated that this amounts to the saving of the lives of 973,626 infants that would otherwise have been among the 3,264,365 infants that died during the past twenty-six years. This reduction in infant mortality has taken place in both the

white and Negro races, although the rate for Negroes is still considerably higher than that for the white race. The rate of decline of infant mortality has been slightly greater for the Negroes than for the white race.

The lack of medical care in rural districts, of which so much has been said and written, did not raise the death rate on the farms to the level of the city population. The rural rate in 1940 was 9.8 per thousand of population, while in the cities of more than a hundred thousand residents it was 11.3. The highest rate (12.4) was in cities of between 2,500 and 10,000 population. Males have a decidedly higher death rate than females, 12.0 to 9.5 per thousand of population respectively. There is an even wider difference between the white and other races, the white being 10.4 and other races' 13.8.

A comparison of the crude death rates for thirty-three specified countries, of which the latest information is for the year 1937, shows that of nations with a dominant white population Chile has the highest death rate. Yet Chile is the only nation on the western continent that has an extensive system of sickness insurance. The only nations that have a lower death rate than the United States are Denmark, Uruguay, Norway, New Zealand, Australia, Canada, Union of South Africa and the Netherlands. Denmark is the only one of these countries that has a nationwide system of compulsory sickness insurance.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATIVE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH)

### ALABAMA

**Dr Beach Goes to Children's Bureau**—Dr Bessie Mac Beach, associate in charge of the division of child hygiene of the state department of health, has been appointed regional medical consultant in maternal, child health and crippled children services of the Children's Bureau of the U S Department of Labor, with headquarters in New Orleans. Dr Beach graduated at the University of Cincinnati College of Medicine, Ohio, and has been with the Alabama State Health Department about two years. She formerly was on the staff of the bureau of child health of the Wisconsin State Board of Health.

### CALIFORNIA

**Society News**—Dr Joseph F McCarthy, New York, presented an outline of the progress in optics as it concerns the etiology of the past one hundred years—its influence on general medicine—before the Hollywood Academy of Medicine, July 9. Dr Charles B Huggins, Chicago, addressed the academy, June 18, in Los Angeles on "Cancer of the Prostate."

**Hospital Needs Physicians**—The Receiving Hospital Department for the city of Los Angeles has announced that many of its ambulance and hospital doctors have joined the armed forces. Physicians interested in emergency traumatic injury work should communicate with Dr Wallace Dodge, chief surgeon, 1337 Georgia Street, Los Angeles.

**Medical School Sponsors Camp for Diabetic Children**—Two groups of 60 diabetic children will be cared for at Whitaker's Forest, Fresno County, by the University of California Medical School, San Francisco. The first group of children will leave San Francisco July 19 and the second August 2. The university agricultural extension services makes available its 4-H club camp to the medical school, with camp fire amphitheater, large cement swimming pool, outdoor dining room and showers. Whitaker Forest, 60 miles east of Fresno, adjoins the General Grave Grove section of Kings Canyon National Park.

**Personal**—Dr Jacob J Singer, director of the Rose Lamport Graff Foundation at the Cedars of Lebanon Hospital and associate clinical professor of medicine, University of Southern California School of Medicine, Los Angeles, has been appointed medical director of the Los Angeles Sanatorium. Dr Ebon B McGregor, Lemongrove, has been appointed a member of the state board of medical examiners to succeed Dr Clark L Abbott, Oakland. Dr Percival Dolman, San Francisco, and Dr George Thomason, Los Angeles, were reappointed members of the board.

**Conservation of Human Resources in Wartime**—The University of Southern California, University Park, Los Angeles, sponsored a workshop on conservation of human resources in wartime, July 2-3, in cooperation with the U S Employment Service, California State Bureau of Vocational Rehabilitation, and the Southern California Social Service Council for the Hard of Hearing. Individual topics included Rehabilitation of War Disabled and Physically Handicapped Workers in War Industry, Employment of War Disabled and Physically Handicapped Workers in War Industries and Civil Service, Safeguarding the Hearing of Preschool Children and Conservation of Hearing Programs in Schools.

### CONNECTICUT

**Honorary Degrees Conferred**—The Connecticut State Medical Society, during its recent sesquicentennial celebration in Middletown, conferred the honorary degree of doctor of medicine on Dr Alice Hamilton, Hadlyme, and Yandell Henderson, Ph D, New Haven. Dr Hamilton graduated at the University of Michigan Medical School, Ann Arbor, in 1893 and has been medical consultant to the U S Department of Labor. She was assistant professor of industrial medicine at Harvard Medical School, Boston, from 1919 to 1935. Dr Henderson had been a member of the faculty at Yale University, New Haven, from 1898, when he received his degree of doctor of philosophy, to 1938, when he became emeritus professor of physiology.

### DELAWARE

**Editorial Offices Moved**—The editorial offices of the *Delaware State Medical Journal* have been moved from 1022 Du Pont Building, where they have been for twenty-three years, to 618 Citizens Bank Building, Wilmington.

### GEORGIA

**Society Honors Dr Paullin**—The Fulton County Medical Society gave a dinner at the Piedmont Driving Club, Atlanta, July 7, in honor of Dr James E Paullin and to mark his election as President-Elect of the American Medical Association. Dr Paullin is professor of clinical medicine, Emory University School of Medicine, Atlanta, and once served as president of the Fulton County Medical Society and of the Medical Association of Georgia.

### INDIANA

**Student Loan Fund**—Mrs William M Loudon, Indianapolis, recently established the Lila B Loudon Scholarship Loan Fund with a contribution of \$1,000 to aid students in the Indiana University School of Medicine to complete their training. The contribution supplements a previous gift for the same purpose and serves as a memorial to her two sons.

**Society News**—Dr Wemple Dodds, Crawfordsville, was named president-elect of the Indiana Roentgen Society at its May meeting in Indianapolis, May 14, and Dr Chester A Stayton, Indianapolis, was installed as president. Other officers include Drs Cecil S Wright, Anderson, vice president, and Harold C Ochlsner, Indianapolis, secretary-treasurer.

### IOWA

**Case of Spotted Fever**—The first case of spotted fever for the current season and the one hundredth in Iowa since notification of the initial case in 1933 was reported on June 16 from Decatur County in the southern central part of the state. The patient was a child 5 years of age. Onset of symptoms was noted on June 5.

**Personal**—Dr Arthur Steindler, professor and head of the department of orthopedic surgery, State University of Iowa College of Medicine, Iowa City, was recently nominated to honorary professorship at the National University of Mexico. Dr Elmer L Lampe, Bellevue, has been appointed health officer of Lamotte.

### KANSAS

**Venereal Disease Among Selectees**—The Kansas State Board of Health recently conducted a venereal disease survey among 14,311 Kansans examined under the Selective Service Act. Of the total 388 were found to have syphilis. Eighty-two and seven-tenths per cent of the cases occurred in the eastern third of the state, with 72.6 per cent falling in areas now recognized as defense or war industry zones. Independence, the leading city, had a rate of 90.9 per thousand, which is twice the national rate, and Wyandotte County led other counties by a rate of 79.9 per thousand. The rate of 27.1 places Kansas ahead of such industrial states as Pennsylvania, New York, Illinois, Michigan and New Jersey. A total of 3,746 cases were reported by physicians during 1941. Hon John M Houston of Kansas discussed the survey in the House of Representatives, Washington, July 2, stressing that control of syphilis and gonorrhea is the number one public health problem. Our effort is hampered at countless points by two serious contagious diseases, he said. Representative Houston, in pointing out the need for tuberculosis programs in defense areas, stated that during 1941, 751 cases of tuberculosis were reported in the state, 82.6 per cent occurred in the eastern third of the state and 71.7 per cent in defense areas. The Kansas State Board of Health and county medical societies are cooperating in county-wide case finding and special educational programs.

### KENTUCKY

**Changes in Health Officers**—Dr James A Oatman, Murray, health officer of Calloway, will take over the duties of Trigg County. The new arrangement was caused by the resignation of Dr Leonard A Crosby, Eddyville, who has been in charge of Caldwell, Lyon and Trigg counties.

**Society News**—Dr Joseph Garland Sherrill, Louisville, gave a paper entitled "Carcinoma Study" before the Louisville Surgical Society on June 5 and Dr De Lou Perrin Hall, Louisville, presented a case report on "Trichobezoar of Stomach." The Louisville Society of Medicine was addressed on "Hypertension" by Dr Lytle Atherton, Louisville, on "Hypertension and Its Clinical Management."



## LOUISIANA

**Medal for Work on Tropical Diseases**—The Louisiana State Medical Society has awarded a medal to Drs Arthur L. Koven and William R. Whitehouse, 1942 graduates, respectively, of Louisiana State University School of Medicine and Tulane University of Louisiana School of Medicine, New Orleans, for their work on tropical disease and preventive medicine. The society has been planning a monument to be known as the Walter Reed Memorial in recognition of the Yellow Fever Commission's work in 1900. The house of delegates of the state society decided at its 1940 meeting that an annual prize be offered to a senior student to replace, temporarily, the erection of a monument to Dr. Reed. The actual medal has not yet been designed in view of the opinion held by some members of the society that the names of other members of the Yellow Fever Commission should be included on the medal. When this point has been settled, Dr. Koven and Dr. Whitehouse will be given the award. Dr. Koven has been doing graduate work in industrial medicine at the Medical College of Virginia, Richmond.

## MASSACHUSETTS

**Personal**—Dr. William Danieshek, assistant professor of medicine at Tufts College Medical School, Boston, has been appointed professor of clinical medicine.

**State Medical Election**—Dr. Roger I. Lee, Boston, was chosen president-elect of the Massachusetts Medical Society at its annual meeting in Boston May 25, and Dr. George L. Schadt, Springfield, was installed as president. Dr. Michael A. Tighe, Boston, is the secretary. The next annual meeting will be held in Springfield, the date to be determined later.

**New Director of Venereal Disease Control**—Dr. John B. Hozier, Boston, has been detailed as acting director of the division of genitoinfectious diseases in the Massachusetts Department of Health. He succeeds Dr. Ernest B. Howard, who has been named a special venereal disease control officer for the U. S. Public Health Service with headquarters in Omaha.

**Mental Health for Defense**—The Massachusetts Society for Mental Hygiene and the state department of mental health have prepared a pamphlet on "Self Discipline in War Time." The brochure offers suggestions for meeting problems arising from war hysteria. The Massachusetts Society for Mental Hygiene announces that it had planned to begin publication this spring of a new monthly bulletin to take the place of the *Mental Health Sentinel*, which had to be terminated with the January 1942 issue because of lack of funds. The society felt that the pamphlet would be of more interest at this time and plans to bring out its new monthly bulletin in the fall.

## MICHIGAN

**Administrative Changes at Herman Kiefer Hospital**—Mr. G. R. Harris, formerly superintendent of public health for the city of Detroit, has been appointed hospital administrator at the Herman Kiefer Hospital, Detroit, and Dr. Franklin H. Top, Detroit, director of the division of communicable diseases and epidemiology of the city department of health and the hospital has been named medical director.

**Typhoid Carrier Suspect Kept in Hospital**—A 40-year-old woman in Ypsilanti has been committed to University Hospital on a warrant as a typhoid carrier. The complaint was filed by Dr. Otto K. Engleke, health director of Washtenaw County, who charged that the woman had violated an order of confinement to her house issued on June 7. The woman, who is said to be in good health, has been under observation as a carrier since a child staying at her home a year ago contracted typhoid.

**Ragweed Pollen Count**—The Michigan Department of Health began its third ragweed pollen study on July 1 with observers at forty-four places in the upper and lower peninsulas cooperating to provide a pollen count throughout the summer. The information assembled will serve as a guide to persons having hay fever. The pollen counts are made by exposing glass slides, covered with a film of grease to hold the pollen grains, and counting the grains caught in twenty-four hours. Last year's survey showed that pollen counts were low in the northern part of the state, some inland areas and some along the lake shorelines. Results of the pollen surveys in 1940 and 1941 reveal that pollen contamination of the air in Michigan reaches its peak during the last week of August and the first week of September.

## MISSISSIPPI

**Physician Honored for Work on Oxygen**—The Mississippi State Medical Association was asked during its annual meeting in May to give special recognition to Dr. Peter W. Rowland, professor of pharmacology at the University of Mississippi School of Medicine, University. The recommendation came from a committee report which indicated that Dr. Rowland had been the first physician to administer oxygen through a nose tube in the treatment of pneumonia, according to the *Mississippi Doctor*. He used the device on a patient in 1903. The report was presented after investigations to determine the accuracy of this claim. In 1934 Dr. Rowland was president of the Mid-South Post Graduate Medical Assembly, of which he is considered the only living charter member. In 1939 the University of Mississippi voted to name its medical library in honor of Dr. Rowland, who two years previously had volunteered his services to augment the library, becoming field director.

## NEW YORK

**Hospital Additions**—The Methodist Hospital, Brooklyn, dedicated its new nine-story Buckley Pavilion, June 21. The new construction replaces the old Surgical Pavilion erected in 1883 and was named in honor of Rev. Dr. James Monroe Buckley, first president of the hospital board of managers, a post which he held for thirty-five years. The five hundred thousand dollar wing of the Home for Aged and Infirm Hebrews, New York, was dedicated on June 21 and opened to the public on June 28. The unit is four stories high and offers accommodations for 52 patients. The building is a memorial to Florentine Scholle Sutro, trustee for forty-one years and vice president for nine years.

## New York City

**Dr. Kleinschmidt Resigns from Tuberculosis Association**—Dr. Harry E. Kleinschmidt, New York, has announced his resignation as a member of the staff of the National Tuberculosis Association, effective at the end of the summer when certain projects now under way are completed. Dr. Kleinschmidt joined the association in 1927 as supervisor of the medical service. He has been director of health education since 1929.

**Committee on Wartime Care for Children**—Mayor La Guardia has appointed a special committee on wartime care of children in New York consisting of the commissioners of welfare and health and an official from the board of education. The committee's purpose is to review all available data and information concerning the problem of child care in New York and to determine the best method of meeting necessary needs. The committee will be responsible for making certain recommendations to care for children whose mothers are engaged in wartime work. It will not administer or operate services but will work out a program by which proper departments and private agencies cooperate on a unified basis to provide the necessary services and secure state and federal approval in establishing these programs.

**Dr. Hinsey Named Dean of Cornell**—Joseph C. Hinsey, Ph.D., professor and head of the department of anatomy, has been appointed dean of Cornell University Medical College. Dr. Hinsey succeeds Dr. William S. Ladd, dean of the college since 1935, who retired recently because of ill health but who will continue as professor of clinical medicine. Dr. Hinsey has been acting dean of the medical college for the past six months. He received his degree of doctor of philosophy at Washington University, St. Louis, in 1927. Before becoming professor of anatomy at Stanford University in 1930 he taught at Northwestern, Western Reserve and Washington universities. In 1936 he was appointed professor and head of the department of physiology at Cornell, and three years later he became head of the department of anatomy.

**Increased Prevalence of Meningococcic Meningitis**—One hundred and seventy cases of meningococcic meningitis occurred in New York City between January 1 and May 11, as compared with 38 in the same period during 1941, according to the *Quarterly Bulletin*. More than 80 per cent of the cases were reported in the boroughs of Brooklyn and Manhattan. The most striking difference between this and previous outbreaks is the reduction in case fatality. The number of persons dying per hundred cases has been 188 as compared with the average case fatality for the past five years of 41 per cent. The bulletin points out that the great reduction in the case fatality rate is due to earlier recognition of the disease and prompt and effective use of the various sulfonamides. Since 1936 the incidence of the disease has decreased yearly until a new low was reached during 1940 when only 48 cases occurred.

**Vacations Start for Diabetic Children**—On July 1 the first contingent of 30 children, aged 7 to 13, were taken to Camp Nyda at Wallkill, which has served for six years as a summer camp for underprivileged diabetic children of the tenements. The camp is under the sponsorship of the New York Diabetic Association, which accepts contributions to defray expenses of the camp. Last year one hundred thirty-seven subscribers and eighty-one additional contributors maintained 94 of the diabetic children at the camp. It is estimated that \$25 is needed to provide a week's stay in the camp. The medical department of the camp is under the direct supervision of Dr Herman O Mosenthal, clinical professor of medicine, New York Post-Graduate Medical School, Columbia University. Officers of the New York Diabetic Association include Drs Charles F Bolduan, president, George E Anderson, first vice president, Frederick W Williams, second vice president and medical chairman of the camp committee, Beverly Chew Smith, secretary, and Miss Virginia Elgelhardt, executive secretary. The scientific care at the camp is provided by a staff of dictitians, nurses and a resident physician, for psychologic reasons, children there are taught self treatment for the disease.

### NORTH DAKOTA

**State Medical Election**—Dr Frank I Darrow, Fargo, was chosen president-elect of the North Dakota State Medical Association at its annual meeting in Jamestown, May 18-20, and Dr Alfred R Sorenson, Minot, was inducted into the presidency. Drs Arne O Arneson, McVile, and James F Hanna, Fargo, were elected vice presidents and Dr William W Wood, Jamestown treasurer. Dr Leonard W Larson, Bismarck, is the secretary. The 1943 session will be in Bismarck. Among the speakers at the recent meeting were:

Dr Ralph A Reis, Chicago, Bleeding in Pregnancy.  
Dr George M Construs, Bismarck, Glaucoma and the General Practitioner.  
Dr Lawrence R Boies, Minneapolis, The Symptom of Headache.  
Dr Erling S Platon, Minneapolis, The Care of the Premature Infant.  
Willard H Wright, Ph D, Bethesda, Md., Medical and Public Health Aspects of Trichinosis.  
Dr Stanley R Maxeiner, Minneapolis, Emergency Treatment of Fractures.  
Dr Verl G Borland, Fargo, The Emergency Treatment of Lacerations.  
Dr Gordon R Kammorn, St Paul, The Depressed Patient.

A symposium on encephalomyelitis was conducted by Herald Cox, Sc D, Hamilton, Mont, and Drs Larson, Arthur C Fortney, Fargo, Paul J Breslich, Minot, and Edward C Rosenow, Rochester, Minn. Other features included a round table discussion and a clinic on nervous and mental diseases. The North Dakota Health Officers Association held its annual conference May 18 and speakers included Drs Calvin C Applewhite, Kansas City, Mo., on "The Importance of Local Health Service in National Defense" and Dr Wright, Bethesda, "The Epidemiology of Trichinosis as Indicated by Findings of Trichinae in a Random Sampling and Other Samplings of the Population of the United States."

### OKLAHOMA

**Dr Halpert Appointed Director of Laboratories**—Dr Bela Halpert has been appointed director of laboratories of the State University and Crippled Children's Hospitals and professor of clinical pathology at the University of Oklahoma School of Medicine, Oklahoma City. Dr Halpert, who graduated at the Deutsche Universität Medizinische Fakultät, Prague, in 1921, has been assistant professor of pathology and bacteriology at Louisiana State University School of Medicine, New Orleans, since 1937.

**Program of Immunization**—An immunization program is under way in Oklahoma as a part of the national plan to immunize all children against common communicable diseases as a wartime measure. The Oklahoma State Medical Association approved the project, which was given over to local county medical societies for control. Each county is making its own financial arrangements. Biologic products are being furnished by the state health department, and the civilian defense organization in Oklahoma is assisting in the administration of the program.

**Sterilization Law Declared Unconstitutional**—The U S Supreme Court, in a unanimous decision June 1, declared unconstitutional a 1935 statute of the state of Oklahoma authorizing the sterilization of certain classes of habitual criminals, newspapers reported on June 6. The statute authorized sterilization of persons convicted for the third time of "crime amounting to felonies involving moral turpitude" and exempted offenses "arising out of the violation of the prohibitory laws, revenue acts, embezzlement or political offenses." The report stated that the case on which the supreme court gave its verdict involved an Oklahoma court order for the sterilization of a man con-

victed once of stealing chickens and twice of robbery with firearms. One opinion declared that there are limits to "the extent to which a legislatively represented majority may conduct biological experiments at the expense of the dignity and personality and natural powers of a minority."

### PENNSYLVANIA

**District Meetings**—The Fourth Councilor District of the Medical Society of the State of Pennsylvania met on July 1. Among the speakers were Drs William L Estes, Bethlehem, on "Early Diagnosis of Cancer of the Colon" and Sydney I Hawley, Danville, "History of Montour County Medical Society."—The Ninth Councilor District of the Medical Society of the State of Pennsylvania was addressed on June 25 in Punxsutawney, among others, by Drs Thomas R Griest, Pittston, on "The Place of the General Physician in the Conservation of Vision Campaign", Edward J McCague, Pittsburgh, "Present Day Conception of the Etiology and Treatment of Carcinoma of the Prostate", Floyd H Bragdon, Pittsburgh, "Headache—Underlying Causes" and James E McClenahan, Pittsburgh, "Constipation—Underlying Causes." Fifty year testimonial certificates were given to Drs William C Newcome, Big Run, Thomas H Newcome, Cowansville, and Jay C Booher, Falls Creek.

### Philadelphia

**Program to Reduce Infant Mortality**—Five "baby stations," equipped with incubators and other medical services available to all physicians at any hour, were opened on July 2 as a part of a new program to decrease the rate of infant mortality due to premature births, according to the New York Times. At the same time a city ordinance became effective requiring physicians to report within two hours the births of all babies weighing less than 5½ pounds. The entire program is under the auspices of the Philadelphia Department of Health.

**Alvarenga Prize Goes to Dr Cohn**—The College of Physicians of Philadelphia awarded the Alvarenga Prize, July 14, to Edwin J Cohn, Ph D, professor of biological chemistry and head of the department of physical chemistry, Harvard Medical School, Boston, in recognition of his distinguished contribution to the knowledge of blood proteins. The prize was established by the will of the late Pedro Francisco DaCosta Alvarenga, Lisbon, Portugal, an associate fellow of the college, to be awarded annually by the college on each anniversary of the death of the testator, to the author of the best memorial on any branch of medicine which may be deemed worthy of the prize.

### SOUTH DAKOTA

**State Medical Election**—Dr Joseph C Ohlmacher, Vermillion, was chosen president-elect of the South Dakota State Medical Association at its annual meeting in Sioux Falls, May 13-15, and Dr Nelus J Nessa, Sioux Falls, was installed president. Dr Daniel S Baughman, Madison, is vice president and Dr Clarence E Sherwood, Madison, secretary-treasurer.

### TEXAS

**Special Society Elections**—Dr Marvin L Grice, Houston, was elected president of the Texas State Heart Association at its annual meeting in Houston, May 11, Dr Merritt B Whitten, Dallas, vice president, and Dr Walter B Whitmire, Wichita Falls, secretary-treasurer. The association will hold its meeting in San Antonio next year.—The Texas Dermatological Association elected Dr James Lewis Pipkin, San Antonio, president at its recent annual meeting, Dr Paul H Power, Waco, vice president, and Dr Duncan O Poth, San Antonio, secretary-treasurer.—Officers of the Texas Railway and Traumatic Surgical Association include Dr Walter L Reeves, Greenville, president, Travis M Harrell, Corpus Christi, and Frank L R Snyder, Fort Worth, vice president, and Ross B Trigg, Fort Worth, secretary-treasurer.—Dr Edward A Cayo, San Antonio, was elected president of the Texas Orthopedic Society at its annual meeting in Houston, May 11, Dr Fred A Bloom, Houston, vice president, and Dr Edward T Smith, Houston, secretary.

### VERMONT

**Personal**—Dr Francis J Bean, assistant superintendent of the University of Nebraska Hospital, Omaha, for ten years, has been appointed administrator of the Hunt Putnam Memorial Hospital, Bennington.—James Montrose Olmsted, Ph D, professor of physiology, University of California, was awarded an honorary degree of doctor of science at Middlebury College during the school's recent commencement. Dr Olmsted, who received his bachelor's degree at Middlebury in 1907, gave the annual Phi Beta Kappa address on "The Place of Physiology in a University Curriculum."

## WEST VIRGINIA

**Society News**—Dr Charles F Geschickter, Baltimore, discussed "Clinical and Experimental Aspects of Cancer of the Breast" before the Cabell County Medical Society in Huntington, recently.—The Kanawha Medical Society was addressed in Charleston, recently by Dr Emil Novak, Baltimore on "Endocrines in Gynecologic Practice"—Dr Curtis C Meehling, Pittsburgh, addressed a recent meeting of the Marion County Medical Society on "Indications for and Technique of a Proctologic Examination"

**University Opens Student Health Center**—The West Virginia University, Morgantown formally opened its new student health center on May 15. The \$150,000 building is three stories high. The first floor has a large waiting room, offices for four physicians and treatment rooms. The second floor houses the department of pathology and clinical microscopy, while the third floor has accommodations for 21 bed patients and is fully equipped for hospitalization. One ward may be used for an isolation ward. The staff consists of three full time physicians, three full time trained nurses and one full time laboratory technician. The center is under the direction of the university's school of medicine.

**Dr Pelouze Lectures on Gonorrhea**—Dr Percy S Pelouze, assistant professor of urology, University of Pennsylvania School of Medicine, Philadelphia, and recently appointed consultant for the gonorrhea control program for the United States Public Health Service, opened a series of lectures on gonorrhea in Charleston July 1-2. The Charleston talks were the initial ones in a statewide series to reach local health authorities and county medical societies. The state medical journal reported the following schedule: July 3 Huntington, July 5 Fairmont, July 7 Morgantown, July 8 Clarksburg, July 9 Parkersburg, July 10 Wheeling, July 17 Elkins, July 20 Logan, July 21 Williamson, July 22 Welch, July 23 Bluefield, July 24-25 Beckley, July 27 Lewisburg, July 29 Keyser and July 31 Martinsburg.

## PUERTO RICO

**Compulsory Physical Examinations**—A regulation has been placed in effect in Puerto Rico making it compulsory for all employees of the government, teachers, officials and employees of public and private schools, universities and colleges and all pupils over 13 years of age to have physical examinations including roentgenograms of the chest, at least once every two years or oftener if the commissioner of health thinks it necessary, according to the *Bulletin* of the National Tuberculosis Association. Employees and pupils refusing to comply with the regulation will be removed from their positions and places in the classroom until the examinations have been made. Reports will be made to the superintendents of the schools and to the commissioner of health on any active pulmonary tuberculosis found among the students, school or public employees. These persons will be excluded from schools and places of employment until they are no longer considered a menace to the health of others.

## GENERAL

**Winners of Cigarette Contest**—Dr Sylvester E Gould, Dearborn Mich, won first prize in a contest conducted by Philip Morris & Co Ltd during the recent annual meeting of the American Medical Association in Atlantic City, N J. Remarks on the research on the physiologic effects of smoking figured in the contest. The prizes were \$250 in war bonds. Second prize went to Dr Morton M Mayers, Los Angeles and the following took third prize: Drs Joseph A DeCaro Philadelphia, Julius Stark, Brooklyn, Leon Felderman Philadelphia and George G R Kunz, Tacoma Wash.

**Home Study Course in Ophthalmology**—The American Academy of Ophthalmology and Otolaryngology will open its home study course in the fundamentals of ophthalmology and otolaryngology on September 1. Registration for the course will close on August 15. The program is designed as a reading course in fundamentals primarily for residents who do not have the opportunity for formalized instruction in the basic sciences, but others planning to enter these specialties may register. Because of the limited faculty only fifty registrants each will be accepted in ophthalmology and otolaryngology. Applications should be sent to the office of the late Dr W B Wherry, 1500 Medical Arts Building Omaha, where they will be accepted in the order of receipt.

**Friedenwald Medal to Dr Einhorn**—The Friedenwald Medal of the American Gastro-Enterological Association was presented to Dr Max Einhorn since 1896 professor of medicine, New York Post-Graduate Medical School, Columbia Uni-

versity, New York during the association's annual meeting in Atlantic City, June 8, for outstanding achievements in the field of gastroenterology and for the invention and putting into practical use of many instruments of precision used in the study of digestive diseases. Dr Einhorn was born in Grodno, Russia, in 1862 and graduated at the Germany-Friedrich Wilhelm Gymnasium, Germany, in 1884. He was president of the American Gastro-Enterological Association from 1900 to 1902.

**Radioactive Substances Declared Hazardous for Children**—Occupations involving exposure to radioactive substances are declared hazardous to minors under 18 years of age in an order issued by the Children's Bureau of the U S Department of Labor, effective May 1. The order establishes an 18 year minimum age for employment in these occupations under the child labor provision of the Fair Labor Standards Act of 1938. Exposure to radioactive substances occurs in the manufacture of self-luminous compound (radium paint) and in its use when applied to the numerals and hands of watches, clocks and instruments or to buttons and other miscellaneous articles and in the manufacture of incandescent mantles. The Children's Bureau will provide on request, information as to what officials are responsible for issuing certificates of employment and age in each state. The findings on which the order is based are the result of careful investigation and are embodied in a report entitled 'Occupational Hazards to Young Workers, Report No 6—Radioactive Substances,' available on request from the Children's Bureau.

**Committee to Cooperate in Venereal Disease Control**—A National Advisory Police Committee on social protection was recently formed by Paul V McNutt, federal security administrator, to assist in the enforcement section of the federal government's social protection program. The program is based on an eight point agreement adopted jointly by the army, navy and Federal Security Agency and sets up the medical, legal and social principles for the control of venereal disease in wartime. The group met in Washington on June 30 in joint session with representatives of the army, navy, U S Public Health Service, Federal Bureau of Investigation, American Social Hygiene Association and the Office of Defense Health and Welfare Services, all of which have representatives on the committee. Objectives of the conference were to bring about an understanding of the government's program of venereal disease control among local and state law officials and to develop new and effective techniques of police enforcement pertaining to the repression and prevention of prostitution. Eliot Ness, director of the social protection section of the Office of Defense Health and Welfare Services, warned that the repression of prostitution as a venereal disease control was an essential wartime measure and that wherever voluntary cooperation of local law enforcement officials did not meet the problem the Department of Justice, by authority of the May Act, would step into those communities and clean them up.

## LATIN AMERICA

**Personal**—Plans are under way to observe the completion of fifty years in the practice of medicine of Dr Alejandro Ceballos, Buenos Aires, professor of clinical surgery, Faculty of Medicine, Buenos Aires. It is planned to present Dr Ceballos with a book of testimonials written by his friends in honor of the occasion.

**English Physiologist Lectures in Buenos Aires**—Dr Edgar S Adrian, since 1937 professor of physiology, Cambridge University, Cambridge, England recently gave a series of lectures in the National Academy of Medicine and the Faculty of Medicine of the University of Buenos Aires under the auspices of the British Council of London. He won the Nobel Prize in medicine in 1932.

**Conference on Tuberculosis**—The first Peruvian Conference on tuberculosis will be held in Lima, October 12-17. It was organized by the Sociedad Peruana de Tisiología and will be held under the auspices of the government of Peru. Drs Max Espinoza Galarza and Juan A Werner are the president and general secretary of the committee of organization respectively. There will be four different sections: medicosocial, clinical, surgical and one for presentation and discussion of free topics on tuberculosis. The subjects to be discussed include indexes of infection and morbidity and mortality from tuberculosis in Peru and involved social factors, classification of clinical forms of tuberculosis in dispensaries and nosocomia, surgery in pulmonary tuberculosis and its indications and free topics on tuberculosis. The committee of organization may be addressed at Apartado Postal Number 1699, Lima, Peru.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

May 30, 1942

#### The Declining Birth Rate

The serious decline of the birth rate is causing much concern. The *Times* refers to a letter from a reader giving the depressing experience of his wife expecting her first baby in August. She spent a day in London going from shop to shop in a fruitless attempt to get articles absolutely essential for maternity and has decided that "to have a baby in this country now has become a crime." Other readers consider that the difficulty of obtaining domestic help—increased on a vast scale by the war—is responsible more than anything else for the decline of the birth rate.

Sir Leonard Hill (physiologist), director of research at the Institute of Physical Medicine, says that, as in Russia, the begetting of children should be extolled and regarded as the highest of social services. It should be made easy by free access to a maternity ward where birth is made painless and safe. In addition to family allowances, creches should be provided so that mothers can go out to work and obtain relaxation. He adds that the glands of the body exert their inexorable rule and it is the women who suffer, as every gynecologist knows, when the natural law of having children is set aside by artificial means.

The declining birth rate is also a subject in the *British Medical Journal*. There Hill points out in a communication that modern science has reduced the death rate and at the same time introduced means of preventing birth. The result is a great increase in the number of the middle aged and old and a precipitous fall in the number of young persons—a new and artificial condition and one which does not exist in Japan, Germany or Italy. The fall of France he attributes partly to the fall in the number of young persons.

In an editorial the *British Medical Journal* gives the main statistics of the decline of the birth rate. In the period 1870-1900 it fell by 20 per cent. In the period since 1900 the fall has been accelerated and has reached 50 per cent. The birth rate for married women aged 15-45 in the triennial period 1930-1932 was less than half that in 1870-1872. The decline did not affect all classes alike and was much greater among the affluent than among the others. In 1911 one fourth of the wives contributed over one half of the child population and at the other end of the scale one third of the wives had only one twentieth of the children.

A fall in the death rate was concurrent with the fall in the birth rate. In the decennium 1861-1870 the death rate was 22.5 and the birth rate 35.2 per thousand, in the period 1921-1931 the rates had fallen respectively to 12.1 and 18.3. The result was that at first the growth of population was not materially changed. The decennial rate of increase of population varied from 11 to 14 per cent during the period 1871-1911, but it fell to 4.93 in 1921 and 5.52 in 1931. The changes in the birth rates have altered the age constitution of the population, increasing the proportion of the aged. The percentage aged 60 and over increased from 7.42 in 1861 to 11.56 in 1931.

In the House of Commons the minister of health was asked whether it was the intention of the government to encourage an increase of the birth rate. He replied that it had been the policy of successive governments, in fields much wider than his department, to influence the national life and economy in favor of families with children. Examples were the income tax allowances for children, the arrangements for the care of mothers and young children, the provision of free education

and of school meals and school medical services, and the preference given to large families in the selection of tenants of municipal houses. This policy had been extended by many war measures, such as increased allowances for children under the unemployment insurance and assistance schemes for children of members of the fighting forces, subventions toward the cost of bread and other staple foods, the extension of the school meal service and the provision on an increasing scale of cheap or free milk and other protective foods for expectant mothers and young children. Moreover, children's clothes have been excluded from the war purchase tax. These measures carry a very substantial relief from the financial burden of parentage.

#### Enemas of Sea Water Unsuccessful for Quenching Thirst

In a previous letter was reported the discussion in the *Times* and *British Medical Journal* of the suggestion, made some years ago, that enemas of sea water might be used for the quenching of thirst of the survivors from shipwreck crowded in lifeboat when drinking water has given out. On theoretical grounds a pharmacologist thought that the body would lose water in the transaction. The highest concentration of sodium chloride in the urine after taking large quantities of concentrated solution by mouth is 16 per cent, while sea water contains 27 per cent. This reasoning has now been justified by a practical test. In the *South African Medical Journal* (March 28, p. 113) Fox, Altmann and Kondi report from the South African Institute for Medical Research experiments on 6 healthy persons who were deprived of all fluid for about eighty hours, 3 receiving rectal injections of sea water and 3 acting as controls. The only food was dry ship biscuits, which were hardly taken at all after the first day, and lime flavored sweets, called "life savers." A daily total quantity of 1,500 cc of sea water in five or six doses was aimed at, but this quantity could not be retained. The maximum in the first twenty-four hours was 1,300 cc, and 2 of the 3 persons actually returned from 150 to 200 cc more fluid from the rectum than they received. Thereafter four daily doses of 200 cc were given, but even this quantity was retained only by the greatest effort.

There was no difference clinically between the two groups. All had decreasing pulse rates and a tendency to lowered blood pressure. The signs of dehydration (dry mouth, sunken eyes, inelastic skin) were equal in the two groups, as was the continuation of thirst. All said that sucking the sweets helped to overcome the dryness of the mouth and so alleviated the thirst. On the last day of the experiment, 2 of those taking the sea water complained of severe lumbar pains. The hemoconcentration produced by dehydration was practically the same in the two groups, but those receiving sea water had higher values for blood chlorides, also their urinary output, urinary concentration and total excretion of chlorides were much the higher. There was evidently enforced tissue dehydration, which was confirmed by an average loss in weight per person of 10 pounds as against 6 pounds in the controls. The conclusion was that even if water is absorbed, is of little or no value in maintaining water balance and possibly is harmful.

#### The Casualties of German Reprisal Raids

The reprisal raids by Germany for the British bombing of munition factories took the form of bombing the principal residential and historic cities of Exeter, Bath, Norwich and London. This was responsible for most of the air raid casualties in April, which were as follows: killed (or missing) 938, injured and detained in hospitals 993, killed or missing and believed killed include 359 men, 440 women, 122 children and 11 unclassified. The effect of the reprisal raids in sending up the casualties is shown by the figures for the preceding three months. The number of casualties from air raids was 155, being 112 in January, 22 in February



21 in March. One extraordinary result is that some young children found wandering in the ruins of these towns may never know their true names, as their parents could not be found. They may have been blown to pieces or their bodies so damaged that they cannot be identified.

## RIO DE JANEIRO

(From Our Regular Correspondent)

June 10, 1942

### Communicable Diseases in Rio de Janeiro

Dr I P Fontenelle, former commissioner of health for Rio de Janeiro, has published a monograph entitled "The Incidence of Communicable Diseases in Rio de Janeiro," in which he studied with full details the prevalence of various communicable diseases in the city and their trend since the beginning of this century. To describe the incidence of these diseases the author has mainly used mortality figures, since reporting by the physicians is still comparatively undeveloped. To furnish a picture of the present prevalence of communicable diseases, Dr Fontenelle used the 1941 data, because that year has been practically "normal" except for diphtheria, of which a medium sized outbreak has been registered, with an increase of about 39 per cent of deaths from that cause. The 1940 mortality data for the United States have been used as a standard. The figures demonstrate that the crude death rate for the communicable diseases as a whole is seven times as large in Rio de Janeiro as in the United States (556.1 against 79.6 per hundred thousand of population). For the most important diseases the ratios between the mortality in Rio de Janeiro and in the United States are: mumps 10 (0.1 to 0.1 per hundred thousand), chickenpox 20 (0.2 to 0.1 per hundred thousand), epidemic meningitis 22 (1.1 to 0.5), influenza 39 (60.6 to 15.4), typhoid 65 (7.2 to 1.1), tuberculosis of all forms 69 (317.5 to 45.8), erysipelas 70 (3.5 to 0.5), whooping cough 71 (15.6 to 2.2), syphilis 71 (57.1 to 8.0), diphtheria 96 (10.6 to 1.1), rabies 100 (0.3 to 0.03), malaria 114 (12.5 to 1.1), dysentery 157 (14.1 to 0.9), smallpox 200 (0.2 to 0.01) and measles 238 (11.9 to 0.5). Leprosy presented the death rate of 3.6 per hundred thousand in Rio de Janeiro and 0.0 in the United States. The only diseases presenting higher death rates in the United States than in Rio de Janeiro were scarlet fever (0.8 in the United States against 0.2 in Rio de Janeiro), epidemic encephalitis (0.6 against 0.5), poliomyelitis (0.8 against 0.05) and undulant fever (0.1 against 0.05). From tularemia and from typhus fever the death rate was 0.1 and 0.2 respectively against 0.0 from both diseases in Rio de Janeiro.

That the number of reported cases of communicable diseases is still rather low in Rio de Janeiro is shown by the figures for the ratio between cases and deaths in 1941: 10 for epidemic encephalitis for rabies and for influenza, 13 for tuberculosis (all forms), 14 for dysentery (one fourth of the cases are of amebic dysentery), 16 for malaria, 17 for syphilis, 21 for epidemic meningitis, 45 for typhoid and for leprosy, 52 for measles, 100 for scarlet fever, 126 for diphtheria, 137 for whooping cough, 211 for mumps, 270 for poliomyelitis, 315 for smallpox and 1907 for chickenpox. For all the communicable diseases together the ratio is only 19. For the same diseases the ratios between the figures for cases and deaths in the United States as a whole in 1940 and Rio de Janeiro in 1941 are: rabies 10 (10 to 10), epidemic meningitis 13 (27 to 21), typhoid 15 (68 to 45), tuberculosis 15 (19 to 13), whooping cough 47 (639 to 137), smallpox 59 (1863 to 315), epidemic encephalitis 125 (25 to 0.2), chickenpox 166 (3172 to 1907), dysentery 169 (236 to 14), scarlet fever 238 (2384 to 100), influenza 246 (246 to 10), syphilis 255 (434 to 17), malaria 351 (561 to 16), mumps 607 (1,2674 to 211) and measles 822 (4275 to 52). The only diseases presenting higher ratios of cases/deaths in Rio de Janeiro than in the United

States were diphtheria (106 in the United States against 126 in Rio de Janeiro) and epidemic poliomyelitis (98 to 270). For all the communicable diseases together the ratio is 20.5 in the United States against 19 in Rio de Janeiro. According to Dr Fontenelle, diphtheria and typhoid are somewhat milder in Rio de Janeiro than in the United States, so much so that instead of 10 and 15 cases respectively to one death, as the American Public Health Association standards put it, 15 and 25 should be known in Rio.

The second part of Dr Fontenelle's monograph relates to the trend of communicable diseases during the forty year period included in the study (1902-1941). As in the first part, the mortality rates for the whole United States, taken from *Public Health Reports*, are used as a standard for comparison. During the eight five year periods the death rate from all causes has declined in the United States from the mean annual value of 16.5 per thousand of population, in 1902-1906 to 10.6 in 1937-1941, whereas in Rio de Janeiro the mortality similarly decreased from 250 to 176 or an average decline of 10 per cent a year, for the former case against 0.9 for the latter. The mortality from all the communicable diseases together decreased in the United States from the mean annual death rate of 4.3 per thousand in 1902-1906 to 0.8 per thousand in 1937-1941, against 9.5 in 1902-1906 to 5.4 in 1937-1941 for Rio de Janeiro. This corresponds to an average decline of 1.2 per cent a year against 2.3 per cent a year for the United States, thus meaning that the average reduction of the mortality for all the communicable diseases together in Rio de Janeiro during the last forty years has been practically only one half the decline registered for the same diseases in the United States. For Rio de Janeiro this long period of forty years may be roughly divided into two about equal parts, the first one beginning with Oswaldo Cruz, the successful organizer of the fight against the tropical scourges represented mainly by yellow fever, plague, malaria and smallpox of the worst character, which have been eradicated from the city, and the second part beginning with Carlos Chagas, who introduced modern public health in Brazil. In this second period a campaign was begun against a group of diseases comparable to the ones that are at present being fought in Europe and in the United States. Besides the successful campaign won against the tropical scourges that were considered a 'shame' for the beautiful capital city of Brazil, relatively little has been accomplished against tuberculosis, typhoid, diphtheria, dysentery, measles, whooping cough and syphilis.

Typhoid has had a very slow decline in Rio de Janeiro from the mean annual death rate of 13.9 per hundred thousand of population in 1902-1906 (31.0 in the United States as a whole) to 7.1 in 1937-1941 (1.3 in the United States). Large epidemics of typhoid are not common in the city, and since 1926 the annual death rate from this disease has been always under 10 per hundred thousand. The water supply is adequately protected, but, as one fifth of the population in the suburbs lives in unsewered districts, small local outbreaks occur almost every year, through the pollution of the water supply from ditches conveying the effluents or the latrines. The city administration now has a program to extend the sewerage system. Diphtheria has had a slight and continuous increase from 5.5 per hundred thousand in 1902-1906 (34.8 in the United States) to 8.4 in 1937-1941 (1.5 in the United States). A project of toxoid immunization, carried out during Dr Fontenelle's administration of the Health Department (1935-1939) was discontinued in 1940. A new drive of immunization is just beginning. The death rate from tuberculosis is very high (316 per hundred thousand in 1941) and the mortality has practically had no decline (415 per hundred thousand in 1902-1906 and 323 in 1937-1941). Dysentery, whooping cough and measles have had only a small reduction and still present high mortality rates (14.4, 15.4 and 14.6 respectively).



## Deaths

**John Oliver McReynolds** ♂ Vice President of the American Medical Association in 1926-1927 and chairman of the Section on Ophthalmology in 1922-1923, died July 7 at his home in Dallas, Texas, of carcinoma of the stomach. Dr. McReynolds was born in Elkton, Ky., July 23, 1865. He graduated at the College of Physicians and Surgeons, Baltimore, in 1891, receiving the highest honors in a class of 116. After serving as first assistant resident physician at the Baltimore City Hospital, Dr. McReynolds entered private practice in Dallas in 1892. He once served as dean and professor of ophthalmology at the Southern Methodist University Medical Department, Dallas, and early in his career was professor of mathematics and natural sciences at Burritt College in Tennessee. At one time he also taught mathematics and astronomy at the Dallas High School. He was a member of the American Academy of Ophthalmology and Otolaryngology, American Laryngological and Otolological Society and the Association for Research in Ophthalmology, Inc., and honorary member of the Ophthalmological Society of Mexico and of the National Academy of Medicine of Mexico. Dr. McReynolds was a fellow and member of the board of governors of the American College of Surgeons and had been a specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology. At one time he had been



JOHN O. McREYNOLDS, M.D.  
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president of the Pan American Medical Association and of its fourth congress, of the Flight Surgeons Association of the United States and of the Air Service Medical Association of the United States, of which he was also a founder, of the Texas State Medical Association and of the Dallas County Medical Association. He represented America at the Oxford Congress of Ophthalmology and Texas and Mexico at the International Congress of Ophthalmology in Amsterdam.

Dr. McReynolds served on the staffs of St. Paul's Hospital and Clinic, Methodist Hospital and the Shrine Hospital for Crippled Children, the Gulf, Colorado and Santa Fe Railroad, Chicago, Rock Island and Pacific Railway, and the Missouri, Kansas and Texas Railway. In 1934 he received the Order of Carlos Finlay of the Republic of Cuba and the Venezuela medal of honor "as a mark of the gratitude of the people of Venezuela" in recognition of his services to the cause of education.

During World War I Dr. McReynolds was a major in the medical corps of the U. S. Army and consultant flight surgeon for the Southwestern Flying Fields. He established an aviation research laboratory at St. Paul's Hospital and was director of the research laboratories at the Aviation Concentration Camp at Camp Dick.

Dr. McReynolds had recently prepared an educational series on the eye for *Hygeia*. He was devoted to his specialty and to the advancement of research. His friendships throughout the world were legion.

**Frederic Moses Stanton** ♂ Columbus, Ohio, Ohio State University College of Medicine, Columbus, 1915, chemist, U. S. Geological Survey, from 1904 to 1907, chemist in charge of the U. S. Bureau of Mines Laboratory from 1907 to 1909, assistant professor of chemistry, Starling-Ohio Medical College, from 1911 to 1914, associate professor of chemistry at his alma mater, 1915-1916, for many years on the staffs of the Grant, St. Clair and St. Ann's hospitals, aged 62, died, May 22, of acute myocardial infarction.

**Ernest Willoughby Carpenter** ♂ Greenville, S. C., Medical College of the State of South Carolina, Charleston, 1895, member of the American Academy of Ophthalmology and Otolaryngology, fellow of the American College of Surgeons,

specialist certified by the American Board of Ophthalmology, member of the Selective Service System, for many years on the staffs of the Shriners' Hospital for Crippled Children, St. Francis Hospital and the Greenville General Hospital, aged 67, died, May 29.

**John Wellington Sansom** ♂ Sparkill, N. Y., University of Vermont College of Medicine, Burlington, 1895, member of the American Society of Anesthetists, Inc., since 1937 health officer of the town of Orangetown, aged 72, on the staffs of the Rockland State Hospital, Orangeburg, Summit Park Sanatorium, Pomona, New York State Reconstruction Home, West Haverstraw, and the Nyaack (N. Y.) Hospital, where he died, May 11.

**Alfred Richards** ♂ Washington, D. C., Georgetown University School of Medicine, Washington, 1897, formerly assistant demonstrator of anatomy at his alma mater, veteran of the Spanish-American War, medical officer for the draft board during World War I, formerly surgeon for the police and fire departments, aged 69, died, May 26, in the Providence Hospital of chronic bronchiectasis and congestive heart disease.

**Nathan Norman Smiler**, Washington, D. C., George Washington University School of Medicine, Washington, 1919, member of the Medical Society of the District of Columbia, clinical instructor of surgery at his alma mater, fellow of the American College of Surgeons, assistant surgeon, Central Dispensary and Emergency Hospital, aged 53, died, May 5, of coronary thrombosis and renal calculi.

**George A. Tuttle**, New York, College of Physicians and Surgeons, medical department of Columbia College, New York, 1886, formerly assistant professor of clinical medicine at his alma mater, for many years attending physician to the Presbyterian Hospital, aged 82, died, May 10, in the Middlesex Hospital, Middletown, Conn., of coronary thrombosis and carcinoma of the bladder.

**Robert Theodore Tapert** ♂ Detroit, Detroit College of Medicine, 1901, formerly city physician and assistant police surgeon, chief of staff of the Evangelical Deaconess Hospital from 1918 to 1940, for many years on the staff of the Providence Hospital, formerly pension examiner for the First Congressional District, aged 64, died, May 7, of adenocarcinoma of the right kidney.

**Harley James Gunderson** ♂ Beverly Hills, Calif., Northwestern University Medical School, Chicago, 1911, fellow of the American College of Surgeons, surgeon, California, Queen of Angels, Cedars of Lebanon and Hollywood hospitals, Los Angeles, aged 53, died, May 27, in Los Angeles of pulmonary tuberculosis.

**Theodore Sallee**, Covington, Ky., Kentucky University Medical Department, Louisville, 1906, formerly health officer of Covington, served as a lieutenant in the medical corps of the U. S. Army during World War I, aged 73, on the staff of St. Elizabeth Hospital, where he died, May 7, of lobar pneumonia.

**James Pogue Gibson**, Lakewood, Ohio, St. Louis College of Physicians and Surgeons, 1900, served as a first lieutenant in the medical corps of the U. S. Army during World War I, aged 65, died, May 23, in the Lakewood Hospital of benign prostatic hypertrophy, Parkinson's disease and arteriosclerosis.

**Charles Harvey Hay**, Lakewood, Ohio, Western Reserve University Medical Department, Cleveland, 1901, fellow of the American College of Surgeons, specialist certified by the American Board of Otolaryngology, formerly on the staff of the Lutheran Hospital, aged 69, died, May 15, of carcinoma.

**Joseph W. Helz**, Fond du Lac, Wis., College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903, member of the State Medical Society of Wisconsin, county physician, aged 63, died, May 5, of coronary occlusion, arteriosclerosis and hypertension.

**Oliver Howard Campbell** ♂ St. Louis, Missouri Medical College, St. Louis, 1899, a lieutenant colonel in the medical corps of the U. S. Army during World War I and later a colonel in the reserve corps, aged 70, died, May 27, in the Missouri Baptist Hospital of carcinoma.

**Justin Limbaugh Conrad** ♂ Jamestown, N. D., Northwestern University Medical School, Chicago, 1929, president of the Stutsman County Medical Society, aged 42, died, May 28, at Rochester, Minn., of cerebrospinal meningitis and osteomyelitis of the maxilla.

**Marion N. Thayer**, Linton, Ind., Rush Medical College, Chicago, 1902, served as a captain in the medical corps of the U. S. Army during World War I, aged 66, died, May 1, in the Veterans Administration Facility, Marion, of cerebral hemorrhage and hypertension.

William A Weaver, Philadelphia Hahnemann Medical College and Hospital of Philadelphia 1896, aged 71, on the courtesy staff of the Hahnemann Hospital, where he died, May 18, of hypertrophy of the prostate and calculus of the bladder

Frederick N Brown, Providence, R I, Dartmouth Medical School, Hanover, N H, 1899, member of the Rhode Island Medical Society, editor of the *Rhode Island Medical Journal* from 1920 until 1936, aged 79, died, May 23, of arteriosclerosis

Ira Bratton Whitehead, Pittsburgh, Jefferson Medical College of Philadelphia, 1903, member of the Medical Society of the State of Pennsylvania, aged 68 died, May 20 in St Joseph's Hospital of coronary occlusion and arteriosclerosis

Ross Foster Wolever @ Fulton, N Y, Syracuse University College of Medicine 1919 past president of the Oswego County Medical Society, roentgenologist, Lee Memorial Hospital, aged 49 died, May 4, of hypertensive heart disease

Charles Benjamin Frothingham, Lynn, Mass, Dartmouth Medical School Hanover N H, 1892, for many years city physician and member of the school committee, formerly state senator, aged 84 died, May 28 of coronary thrombosis

Thomas K Cassidy, Cheyenne, Wyo, Western Reserve University Medical Department, Cleveland, 1897, collector of internal revenue for Wyoming, aged 68, died, May 28 of cerebral hemorrhage, hypertension and arteriosclerosis

Albert Harry Fagerstrom, Clearwater, Fla, Milwaukee Medical College, 1912, formerly on the staffs of the Swedish and Asbury hospitals, Minneapolis, aged 56 died, May 1 in the Morton Plant Hospital of diabetes mellitus

Yacob Kevork Kelleyan, Los Angeles American University of Beirut School of Medicine Syria, 1905, member of the California Medical Association aged 59, died, April 2, of coronary thrombosis and arteriosclerosis

Walter Reid George, Indianapolis, Medical College of Indiana, Indianapolis, 1895 at one time health commissioner of Marion County, aged 70, died, May 1, in the Methodist Hospital of hypertrophy of the prostate

Henry Bronson Hollen, Los Angeles, Chicago Homeopathic Medical College, 1902, Hahnemann Medical College and Hospital, Chicago, 1905, aged 64, died April 4, of arteriosclerosis and coronary occlusion

Highland Z Dean @ Prosser Wash Lincoln Medical College of Cotner University, Lincoln, Neb, 1902, formerly health officer and coroner of Kittitas County, aged 70, died May 14 of coronary thrombosis

Alexander J Williams, Racine Wis, Rush Medical College, Chicago 1900, member of the State Medical Society of Wisconsin, formerly health officer of Racine, aged 68, died, May 17, of chronic nephritis

Joseph Charles Gallagher, Rossford Ohio, Washington University School of Medicine St Louis, 1901, member of the Ohio State Medical Association, aged 62, died May 3, of coronary thrombosis

Richard Beason Short, Bedford, Ind, Kentucky School of Medicine, Louisville, 1891 University and Bellevue Hospital Medical College New York, 1899 aged 75 died May 21 of cerebral hemorrhage

Lewis McPhee Gibson, Asbury Park N J College of Physicians and Surgeons, medical department of Columbia College, New York, 1889, aged 76 died, May 31 of carcinoma of the stomach

Elmer Emanuel Behler, Germansville Pa, Medico-Chirurgical College of Philadelphia 1907, aged 57 died, May 26 in the Sacred Heart Hospital, Allentown, of coronary thrombosis

James William John, Pine Bluff, Ark Memphis (Tenn) Hospital Medical College 1896 member of the Arkansas Medical Society, aged 74 died May 2, of carcinoma of the bladder

Robert John Hall, Wheatley, Ark (licensed in Arkansas in 1907) mayor of Wheatley, aged 56 died May 8, in the Baptist Memorial Hospital, Memphis, Tenn of gangrene of the lungs

Spencer B Dykes, Esbon Kan, Memphis (Tenn) Hospital Medical College 1902, member of the Kansas Medical Society aged 71 died March 10, in Concordia of nephritis

Andrew Russell Davis, Moundville Ala Southern Medical College Atlanta Ga 1890 aged 85 died May 30 in a hospital at Tuscaloosa of chronic glomerular nephritis

William Saunders Baldwin, Dallas, Texas, Kentucky School of Medicine, Louisville, 1892, aged 78, died, May 31, in the Baylor Hospital of pneumonia and heart disease

Frederick Voss Mohn, Los Angeles, University of Minnesota College of Medicine and Surgery, Minneapolis, 1892, aged 85, died, April 15, of carcinoma of the prostate

Arthur Lewylen Damon @ North Wilbraham, Mass, University of Vermont College of Medicine, Burlington, 1890 aged 74, died, April 30, of cerebral thrombosis

Robert M White, Freeport, Ill, College of Medicine and Surgery (Physio Medical) Chicago, 1906, aged 61, died, May 12, of carcinoma of the pancreas and liver

Edward James Ross, Cincinnati, Meharry Medical College, Nashville, Tenn, 1921, aged 45, died, May 11, of acute coronary thrombosis and chronic cholecystitis

Wilbur S Reynolds, Virginia, Minn (licensed in Minnesota in 1883), aged 84, died, May 6, of arteriosclerosis, cerebral hemorrhage and bronchopneumonia

Elijah Wootton White @ Poolesville, Md, University of Maryland School of Medicine, Baltimore, 1906, aged 60, died, May 29, of coronary occlusion

Valentine Mott Pierce, Pasadena, Calif, University of Buffalo School of Medicine, 1891, aged 76 died, May 26, of myocarditis and hemiplegia

George H Williamson, Warren Pa Cleveland University of Medicine and Surgery, 1897, aged 75, died, May 24, of carcinoma of the stomach

John Burrows Atwood, Long Beach, Calif Rush Medical College, Chicago, 1891 aged 77, died, April 24 of subacute bacterial endocarditis

Angus James Fraser, Winnipeg, Man Canada Manitoba Medical College, Winnipeg, 1900 aged 70, died May 23 of coronary thrombosis

John Ross Swartz, Harrisburg Pa, Hahnemann Medical College of Philadelphia 1879, aged 85, died, May 3, of congestive heart disease

Arthur Carr Roll, Columbus Ohio, Pulte Medical College, Cincinnati, 1889, aged 74, died, May 10, of cerebral hemorrhage and arteriosclerosis

Milo George Miller, Atlantic City, N J, University of Pennsylvania Department of Medicine, Philadelphia, 1888, aged 80 died May 23

Thomas Cowger, Danville, Ark (licensed in Arkansas in 1903), aged 66, died, May 7, in St Mary's Hospital Russellville

Edward Oscar Thorson @ Luverne Minn, Bennett Medical College Chicago 1906 aged 67, died, May 27, of cerebral hemorrhage

Maitland Charles Bennett, Washington, D C, Howard University College of Medicine Washington, 1893, aged 79, died, May 8

Curtis A Boorman, St Petersburg, Fla, Rush Medical College, Chicago, 1887 aged 79 died in May of carcinoma of the bladder

Raymond Malcolm Carmichael @ Maysville, Ky University of Cincinnati College of Medicine, 1936, aged 33 died May 27

James Wilson Norton, Walland Tenn University of Tennessee Medical Department, Nashville 1892, aged 78, died, May 31

Ignazio Michele Cangialosi, Brooklyn, Eclectic Medical College of the City of New York 1910, aged 63 died, May 29

Frederick Smith Waterbury, Huntsville, Ohio Hospital College of Medicine, Louisville Ky, 1896, aged 77 died, May 9

Maurice Weinrobe, Chicago, Rush Medical College Chicago 1928, aged 40 died May 3, of acute coronary thrombosis

Francis L Smith, Lucas Kan Ensworth Medical College St Joseph Mo 1900 aged 68, died May 9, of heart disease

Henry C Childs @ Tulsa Okla College of Physicians and Surgeons Dallas Texas 1905, aged 64 died, May 7

Frederick Douglass, Tuskegee, Ala, Meharry Medical College Nashville Tenn, 1939 aged 28, died, April 9

David Newton E Campbell, Baltimore Leonard Medical School Raleigh N C, 1897, aged 71, died, April 27

David Roswell Rothrock, Milton Pa, Baltimore University School of Medicine 1885 aged 80 died May 4

Thomas Lynch, Waldorf Md College of Physicians and Surgeons Baltimore 1881 aged 83 died May 20

## Bureau of Investigation

### THE ELGA "BUST DEVELOPER" FAKE

#### California and Federal Investigations Result in Promoter Being Placed on Probation

As notorious in the quackery field as the fake "fat cures," though not so numerous, have been the fraudulent "bust developers" that have swindled thousands of dollars out of credulous women. Time after time the Post Office Department has banned some of these vicious "developers" from the mails. Invariably others have sprung up to take their places and to make juicy profits for their promoters.

The Food and Drug Administration, aided by state authorities and local interests, brought an end to the business conducted at San Francisco under the names "Elga Laboratories" and "Elga Studios" by a Myrtle E. Edwards, also known as Mrs. Edwards, Myrtle E. Bander and Myrtle Tarnaskey. The information that follows is taken from documents issued by federal and California state authorities, and from the records of the Bureau of Investigation of the American Medical Association.

At one time in her shadowy past Mrs. Edwards had been arrested in Salt Lake City for some reason not now clear and later (1918) in St. Louis, under the Tarnaskey name, for passing worthless checks. She appears to have gone into the "bust developing" game in San Francisco considerably later. Typical of her advertising blurbs was the following, which was said to have appeared weekly in a San Francisco paper:

#### YOUTH AND BEAUTY

and feminine loveliness is expressed in a softly curved body, especially in high, firm, rounded breasts. If yours sag or are immature, Dr. Thompson's remarkable food will bring you the loveliness you desire. Home Treatment Guaranteed. Not a cream or a massage. No drugs or narcotics. Free Private consultation. No embarrassment.

Taking the initiative in looking into this fraud, apparently, was the California State Board of Medical Examiners, which began an investigation in 1938, but because of the intimate nature of the treatment and the embarrassment that would be caused Mrs. Edwards' victims in testifying against her, it seemed impossible at that time to obtain definite evidence of a criminal nature against her. Hence the board could only warn her against her type of advertising and any attempt to prescribe for or treat bust deficiencies.

In July 1940 a woman investigator for the same board, accompanied by one representing the San Francisco Better Business Bureau as a witness, went to Mrs. Edwards' office for treatment. Mrs. Edwards examined and measured the customer and, noting her rather flat contour, promised her that the "Elga Bust Developer" would give her a larger, well formed, firm bust in a short time. She added the "guaranty" that twelve bottles of the "wonder" elixir would produce completely satisfactory results, and charged her \$6 for a 6 ounce bottle, which, contrary to state and federal food and drugs acts, bore no label.

On the second visit the investigator was told that she also needed hormone tablets for certain gland deficiencies and purchased fifty 5 grain tablets taken from a bottle labeled "Thyroid and Ovarian Substance" for \$2.50. These were to be used along with the Elga Bust Developer to expedite the promised "development." Since Mrs. Edwards was unable to give directions for taking the tablets, she directed the customer to get these instructions from an Arthur R. Gould, M.D., who gave them over the telephone without even seeing the patient. Dr. Gould's name and that of the Elga Laboratories also appeared on the back of a special diet list that Mrs. Edwards supplied to the customer, together with a laxative nostrum, "Caroid and Bile Salts."

The Elga Bust Developer, a liquid prepared and bottled by Mrs. Edwards in her kitchen, was found on analysis to be only a sugary syrup flavored with sassafras and colored with a coal tar dye (amaranth). Although the mixture was found to be worthless—and was presumably harmless—an Oregon girl later claimed that it had caused her to lose weight and impaired her health.

Besides selling the "developer" and the Thyroid and Ovarian Tablets, Mrs. Edwards put out a "hair tonic" and a nostrum called "Sobr-Quick" for sobering up drunks.

On Aug. 1, 1940 the California Board of Medical Examiners had Mrs. Edwards arrested on the charge of practicing medicine without a license. On August 5 she pleaded not guilty and demanded a jury trial. A judge in the municipal court set bail at \$500 cash and ordered her to cease operations until the case should be concluded. Mrs. Edwards, however, ignored this order, continued to promote her swindle, and on September 7 was again arrested. Once more she pleaded not guilty, demanded a jury trial and was released on bail, this time \$1,000. After many continuances she withdrew her request for a jury trial, and the case was heard on October 9. Mrs. Edwards was found guilty of practicing medicine without a license on two charges and the case was continued, pending the outcome of two federal cases against her, which will be mentioned later.

Finally, on Jan. 28, 1941 the municipal judge sentenced her to six months in the county jail on each of the two charges. In the first case the jail sentence was suspended on condition that Mrs. Edwards make full restitution, totaling \$402, to the thirteen victims who testified against her. This was to be done by March 15, or her jail sentence would take effect. On the second charge Mrs. Edwards was given a suspended sentence of six months in the county jail and placed on probation for four years, on condition that she would not attempt to practice medicine or engage in any similar activities.

The state's investigation of this brazen piece of quackery developed some interesting revelations. It brought out that Mrs. Edwards had done "a tremendous mail order business

both in and out of California" and that "her books showed that her income from the sale of said developer ran into thousands of dollars" at the time of the defendant's arrest. Her books listed more than 700 patients, who were either taking the "developer" at that time or had taken it in recent months. Of some fifty of the local victims selected at random from Mrs. Edwards' records and interviewed for their opinions, not one claimed to have received the slightest degree of bust development, though some had taken as many as fifty-two bottles of the "Elixir."

From the first, Mrs. Edwards had advertised "satisfactory results guaranteed or money back after nine bottles." When the "treatment" failed to fulfil her claims she increased the number of bottles covered by the "guaranty" to eighteen and then to twenty-four. When discouraged victims decided to discontinue, Mrs. Edwards sent them fraudulent testimonials and "come-on" letters to entice them to continue with another six or twelve bottles at an additional cost of \$12 to \$24. Should a victim demand the "guaranteed" refund she would receive the insulting reply that she did not "live right." It is said that in one instance Mrs. Edwards threatened to have a "patient" arrested if she attempted to take legal action to get her money back.

In her advertising Mrs. Edwards exploited the name "George F. Thompson, M.D." Investigation revealed that no physician of that name had ever been connected with the business. When questioned about this, Mrs. Edwards declared that "Dr. Thompson" was her uncle, had practiced in Chicago and had given her the "formula" for the "developer" prior to his death some thirty years before. This claim, too, was obviously false, for she had given her age as only 41 at the time of her arrest. Still later she stated that George F. Thompson was not a physician but a book salesman and her former husband.

The "testimonials" exploited by Mrs. Edwards were found to be fraudulently used, since their signers admitted that they had written them on commencing the treatment after a letter from Mrs. Edwards that they would obtain the desired results and that she would not show these documents to prospective patients until after the writers' "development" was complete. Instead, it was revealed, they were unable to get their money back and the fact was that Mrs. Edwards had had the "testimonials" photostated and used them as "come-on" bait. Further investigation shown that in 1 case Mrs. Edwards' secretary, having become discouraged over the treatment, sent her a letter

tion of herself (the writer) as a "patient" which corresponded to the victim's own condition, and influenced her to take an additional twenty-one bottles, making a total of thirty-nine that she bought. Still getting no results, she was eventually unable to obtain the "guaranteed refund of her money."

Victims of the scheme were asked to pose in the nude for photographs taken at angles designed to show a flat bust or an increased size, as the case might be. In some instances a thin brassiere was employed to give the illusion of a larger bust. These photographs were shown to prospective suckers as "before and after" bait. Subsequently Mrs. Edwards admitted that for some of the photographs she had hired professional models who had never used her "developer."

Another element of fraud in the scheme was Mrs. Edwards' claim to have the approval of the California State Board of Pharmacy, the State Food and Drug Department, the Federal Food and Drug Administration and Dr. J. C. Geiger, Director of the San Francisco Department of Public Health. On May 17, 1938 Dr. Geiger notified Mrs. Edwards by letter to discontinue the lying claim that either he or his department approved of her fake treatment.

So much for Mrs. Edwards' experiences with the California authorities. Not daunted by these difficulties, she also shipped a consignment of her product to a distant state and encountered another law enforcement agency, the Federal Food and Drug Administration. This agency, far from giving its approval to the scheme as Mrs. Edwards represented, arrested her on Sept. 19, 1940 on two counts of violating the national Food, Drug and Cosmetic Act. She was charged with fraudulently representing on the labels that her "developer" was a food. As with her case in the municipal court she pleaded not guilty and asked for a jury trial. After obtaining several delays she and her attorney finally appeared before Judge Michael J. Roche in the district federal court on Jan. 21, 1941, when she withdrew her former plea of not guilty and pleaded guilty to both counts. When her attorney made a motion for probation the court continued the case to February 4 and referred it to the Probation Officer for a report. On February 4 Mrs. Edwards was placed on probation for four years, as had been done in the municipal court case. Reports of the federal court actions were published under *Food Notice of Judgment No. 2096 February 1942*, and *Drugs and Devices Notice of Judgment No. 370 March 1942*. At the hearing of one of these cases it was shown that Elga Bust Developer consisted essentially of invert sugar, extracts of plant drugs and a small amount of calcium phosphate, with water and red coloring—a more detailed report than that given earlier in this article.

Probation was granted to Mrs. Edwards in this government case on condition that she report to the federal probation officer once a month for four years and refrain from any violation of the law during that period; otherwise, it was provided she would again be brought before Judge Roche and given a maximum sentence of two years in a federal prison and a fine of \$2,000. At the conclusion of the case the chief investigator of this swindle for the California Board of Medical Examiners commented:

It is reasonably certain that this outfit 'is at last definitely out of the business of defrauding the public.'

As for Arthur Richard Gould, M.D., of San Francisco, it is not surprising to find that he was tied up with the Edwards scheme as he had been, in turn a disciple of the Albert Abrams and George Starr White quackeries and the promoter of various patent medicines and fad foods. As a result of his connection with the Edwards fraud the California Board of Medical Examiners on Oct. 24, 1940 found him guilty of aiding and abetting an unlicensed person in the practice of medicine and placed him on probation for three years.

The California Board of Medical Examiners acknowledged the assistance of the San Francisco Better Business Bureau in the investigation and exposure of the Edwards swindle. In view of successful prosecution of this and other bust developer frauds by various government and state agencies, it would appear that those who imagine that they can long exploit such fakeries with impunity are as obvious suckers as are the victims whom they swindle.

## MISBRANDED PRODUCTS

### Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE—These Notices of Judgment are issued under the Food, Drug and Cosmetic Act and in cases in which they refer to drugs and devices they are designated D D N J and foods, F N J. The abstracts that follow are given in the briefest possible form: (1) the name of the product, (2) the name of the manufacturer, shipper or consigner, (3) the composition, (4) the type of nostrum, (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which is considerably later than the date of the seizure of the product and somewhat later than the conclusion of the case by the Food and Drug Administration.]

**Beautysage Vibrators**—Beauty Appliance Corporation, Racine, Wis. An electric vibrator fitted with three differently shaped rubber appliances. Misbranded because the label falsely represented that the device would stimulate the blood flow, maintain the firm contours of face and figure by gentle massaging action, check the falling of dry brittle hair and stimulate new growth, would be effective treatment for pains, lumbago, fatigue, stiffness and other disorders and an aid for almost every imaginable ailment.—[D D N J F D C 199 April 1941]

**Bersted's Eskimo Vibrator**—Bersted Manufacturing Company, Folsom, Ohio. An electric vibrator fitted with several attachments. Misbranded because label falsely represented among other things that the device would enable one to vibrate one's way to health and beauty and was efficacious for obesity, insomnia, blackheads, neuralgia, nervousness, acute rheumatism, sagging muscles and lifeless skin.—[D D N J F D C 200 April 1941]

**El Aguinaldo Cuban Wonder Honey**—Cuban Health Products and Cuban Honey, Inc., Lansing, Mich. Misbranded because label bore the word "Health" and representations that carbohydrates in this form (honey) mean pep, that it contained many of the necessary salts and had been clinically tested and that such tests had been carried on in cases of bronchial asthma and bronchitis under the care of reputable physicians, that it had been found to be a desirable food supplement to a bland diet in cases of stomach ulcers and other digestive disorders, that it had been used with wonderful effects, would do everything for which it was recommended and was efficacious for local irritations of nose and throat associated with coughs, colds, asthma, bronchitis, sinus and hay fever among other things.—[D D N J F D C 204 April 1941] Another Notice of Judgment (D D N J F D C 377) involving seizures of four additional shipments of this product on misbranding charges was issued in March 1942. Examination of the article in these cases showed that it contained nothing but honey.

**Endiphrin Inhalant**—Harrower Laboratories, Inc., Glendale, Calif. Adulterated and misbranded because represented to be a 1 per cent solution of epinephrine hydrochloride, whereas its strength was only 0.67 per cent of this ingredient.—[D D N J F D C 294 November 1941]

**Gilbert Vibrator**—A. C. Gilbert Company, New Haven, Conn. An electric vibrator with three attachments consisting of a button, a rubber cup and a rubber brush. Label falsely represented that this vibrator would restore health, cleanse the pores of the skin, develop the bust, overcome thin brittle hair and do some other things.—[D D N J F D C 201 April 1941]

**No. 357 Table Type Therapeutic Lamp**—Eagle Electric Manufacturing Company, Brooklyn. Device consisted of an incandescent bulb screwed into a goose-neck table type lamp. Falsely represented as an effective treatment of abscesses, colds, backache, rheumatism, sore throat, boils, carbuncles, ulcers and some other things.—[D D N J F D C 195 April 1941]

**Thermolite Heat and Light Applicators**—H. G. McFadden & Company, Inc., New York. Device contained an incandescent electric bulb inserted into a socket equipped with a parabolic mirror reflector. Label falsely represented it as efficacious in treating such conditions as pains and colds and promoting the growth of hair.—[D D N J F D C 196 April 1941]

**Vapo Spa Vapor Bath and Vapo Spa Pine Needle Oil**—Health Glo Laboratories, Inc., New York. Composition essentially pine needle oil. Misbranded because falsely labeled as a scientific aid to slenderizing, cleansing the respiratory tracts, purifying the air and the blood and ridding the body of stiffness and soreness.—[D D N J F D C 189 April 1941]

**Varlure Heat and Light Applicator**—Varick Electric Manufacturing Company, New York. An electric lamp inserted in a socket fitted with a metal reflector. Label falsely represented the device as an effective treatment of abscesses, eczema, rheumatism, skin diseases and some other things.—[D D N J F D C 197 April 1941]

**Wonder Heat Pack**—Wonder Heat Pack Company, Chicago. Product consisted of a bag containing chemicals which would produce heat when moistened with water. Falsely labeled as an effective treatment of colds, colic, cramps, infections, neuritis, pleurisy, pneumonia and some other disorders.—[D D N J F D C 198 April 1941]



## Correspondence

### IRRADIATED ERGOSTEROL POISONING

*To the Editor*—The following letter came to me through the mail. It implies that the same precaution is unnecessary in using their preparation of activated ergosterol (Ertron) as when other sources of vitamin D are employed. This information is misleading and conducive to a false sense of security on the part of the physician employing this product.

Smith Freeman, M.D.  
302 E. Chicago Ave.  
Chicago, Ill.

June 16, 1942

Dear Dr. Freeman:

### IRRADIATED ERGOSTEROL POISONING

IN THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION May 16, 1942, Tammuly, working at Johns Hopkins University, described renal damage and other deleterious effects caused by massive doses of ultraviolet irradiated ergosterol.

For a long time many investigators have been of the opinion that such high dosages of ordinary vitamin D products are unwise.

In sharp contrast to this Ertron, which is prepared by the special Whittier process of the electrical activation of heat vaporized ergosterol in which no ultraviolet rays are used, has been subjected to very carefully controlled clinical investigations in thousands of patients for eight years without a single report of serious toxicity.

The safety and antirheumatic effectiveness of Ertron, as contrasted to the reported toxicity of various preparations of ultraviolet irradiated D, have been clearly demonstrated in many reports from university clinics, large hospitals and private practice.

It is of great importance, therefore, that physicians prescribing Ertron for arthritic patients exercise great care so that another so-called similar product is not used instead of Ertron, without the physician's knowledge.

We are enclosing a list of references which describe the safety and beneficial results obtained with Ertron in the treatment of chronic arthritis.

Very truly yours,

NUTRITION RESEARCH LABORATORIES  
S. N. BLACKBERG, M.D., PH.D.  
Medical Director

In the *American Journal of Physiology* (135:577 [Feb] 1942) McChesney and Messer showed "Ertron" to be a potent hypercalcemic principle capable of raising the serum calcium level to values far above normal, and that such doses resulted in toxic manifestations in the recipient.

SMITH FREEMAN, M.D., Chicago

### PERSONNEL FACTORS IN THE NATIONAL HEALTH SURVEY

*To the Editor*—The editorial notice (*THE JOURNAL*, May 23, p. 347) of my paper on personnel factors of the national health survey of 1935-1936 (*Am J Hyg* 34:110 [Nov] 1941) discussed this paper on the assumption that its interest lies in providing a critique of the statistics produced by that survey. For this purpose the paper provides many interesting facts, which may not, however, be taken out of the context.

I shall be glad to leave that part of the discussion of the survey to others. They should, for the sake of perspective, first recognize some well known facts of census history and also the fact that the paper is a product of the National Institute of Health. As a matter of census history it is the record of the first attempt of a statistical agency to test the ability of its staff in relation to the quality of its statistical products. The result hoped for in publishing it is an improvement in population statistics that can be brought about by studies of survey method as such. As regards content, the paper is the first published statistical study of the relation between enumerator ability, schedule make-up and the resulting reports on the population under survey. Critical studies of this problem, while necessary and

feasible, have usually been held to be inconvenient, expensive and risky to the agency. Such studies are likely to be more frequent, for variable enumerator ability and error are now accepted as costly and permanent factors in census enumerations. While attempts to solve the enumerator problem are of recent date the recognition of it is at least as old as Joab's attempt to enumerate Israel (1 Chronicles xxvii, 24). "Joab, the son of Zeruiah, began to number, but he finished not because there fell wrath for it against Israel, neither was the number put in the account of the Chronicles of King David."

Variants of this story appear frequently in later census history. The wrath figured in the debates on the English census during the eighteenth century. Pained references to enumeration error occur in the earliest U. S. census volumes. In this country the wrath has taken a political form and the U. S. marshals, enumerators and census clerks have ordinarily been blamed for the errors of record. This judgment places the responsibility where it belongs, with Joab, the statistician, the supervisor and the worker who design and operate the enumeration. The wrath, while still a threat to the success of a census, properly viewed as a disturbance of human origin. Joab reports that he finished not, estimates the error, and tries to find out why it occurred. The chronicles show the numbering and also the account of how Joab failed to finish his work.

The method outlined in the paper is intended to be more widely useful than its incidental application to illness enumeration suggests. This usefulness will probably be realized more fully in the next U. S. census. The Johns Hopkins School of Hygiene and the U. S. Census Bureau have recently endeavored in related studies of method. It is hoped that statistical agencies will continue the trend toward close scrutiny of procedure. In any case, it is no longer permissible to neglect personnel factor and schedule design problems. To do so invites the criticism that failure to correct or allow for these factors vitiates attempted comparison.

C. C. LIENAU, Baltimore

### BALDNESS AND CALCIFICATION OF THE "IVORY DOME"

*To the Editor*—Some questions concerning baldness which were raised by Dr. Ballenger's comments in *THE JOURNAL* June 27, may be answered by observations which I made while serving as technician in gross anatomy at the College of Medicine of the University of Illinois (1916-1917). I then had occasion to remove the brains of about 80 cadavers for separate use in the neurology classes and incidentally noted a remarkable obvious relation between the blood (vessel) supply to the scalp and the quantity of hair. Baldness occurred in persons in whom calcification of the skull bones apparently had not only knitted the cranial sutures but also closed or narrowed various small foramina through which blood vessels pass, most prominently in persons with a luxuriant crop of hair. These blood vessels are mainly veins which normally communicate with the diploic veins in the spongy tissue of the skull bones but which are evidently pinched off by calcification of the foramen. At various stages of this process of impairing the blood circulation to the scalp could be observed.

This, then, not only explains why baldness occurs but also why men are more likely to become bald than women. Bone growth or calcification is generally greater in men than in females. Obviously "hair tonics" or vitamins are not likely to restore a blood circulation through what has practically become "solid ivory." Moreover, one wonders whether the use of a higher calcium intake among adults may not eventually increase the incidence of baldness and the need for its remedies.

FREDERICK HOFFMAN, C.



## Medical Examinations and Licensure

### COMING EXAMINATIONS AND MEETINGS

**ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE**  
Chicago Feb 15-16 1943 Sec Council on Medical Education and Hospitals Dr H G Weiskotten 535 North Dearborn Street Chicago

#### NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in THE JOURNAL July 11 page 902

#### BOARDS OF MEDICAL EXAMINERS

**ARKANSAS** \* Little Rock Nov 5-6 Sec. Dr D L Owens Harrison  
**CALIFORNIA** \* Written Los Angeles July 27-30 Oral examination (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California)  
Los Angeles Sept 16 Sec Dr Charles B Pinkham 1020 N St, Sacramento  
**CONNECTICUT** \* Endorsement Hartford July 28 Sec to the Board Dr Creighton Barker 258 Church St New Haven  
**DISTRICT OF COLUMBIA** \* Washington Nov 9-10 Sec Commission on Licensure Dr George C Ruhland 6150 East Municipal Bldg Washington  
**ILLINOIS** Chicago Oct 13-15 Superintendent of Registration Mr Philip M Harman Department of Registration and Education Springfield  
**MARYLAND** \* Homeopathic Baltimore Dec 8-9 Sec Dr John A Evans 612 W 40th St Baltimore  
**MICHIGAN** \* Lansing Oct 14-16 Sec Board of Registration in Medicine Dr J Earl McIntire 203 Hollister Bldg Lansing  
**MINNESOTA** \* Minneapolis Oct 20-22 Sec Dr Julian F Du Bois 230 Lower Medical Arts Bldg St Paul  
**MISSOURI** Kansas City Oct. 3 Sec State Board of Health Dr James Stewart State Capitol Bldg Jefferson City  
**MONTANA** Helena Oct 6 Sec Dr Otto G Klein First National Bank Bldg Helena  
**NEVADA** \* Reciprocity Carson City Aug 3 Sec Dr Frederick M Anderson 215 N Carson St Carson City  
**NEW HAMPSHIRE** Concord Sept 10-11 Sec Board of Registration in Medicine Dr T P Burroughs State House Concord  
**NEW JERSEY** Trenton Oct 20-21 Sec Dr Earl S Hallinger 28 W State St Trenton  
**NEW MEXICO** \* Santa Fe Oct 13-14 Sec Dr LeGrand Ward 130 Sena Plaza Santa Fe  
**OHIO** \* Endorsement Oct 6 Sec Dr H M Platter 21 W Broad St Columbus  
**SOUTH DAKOTA** \* Pierre July 21-22 Dir Medical Licensure Dr J F D Cook State Board of Health Pierre  
**TEXAS** Austin Dec 28-30 Sec Dr T J Crowe 918 20 Texas Bank Bldg Dallas  
**VIRGINIA** Richmond Dec 8-11 Sec Dr J W Preston 30½ Franklin Rd Roanoke  
**WASHINGTON** \* Seattle Aug 3 Dir Department of Licenses Mr Thomas Swayze Olympia

\* Basic Science Certificate required

#### BOARDS OF EXAMINERS IN THE BASIC SCIENCES

**DISTRICT OF COLUMBIA** Washington Oct 19-20 Sec. Commission on Licensure Dr George C Ruhland 6150 East Municipal Bldg Washington  
**FLORIDA** Gainesville Oct 31 Application must be on file not later than Oct 16 Sec Dr J F Conn John B Stetson University DeLand  
**NEBRASKA** Lincoln Oct 6-7 Dir Bureau of Examining Boards Mrs Jeannette Crawford 1009 State Capitol Bldg Lincoln  
**NEW MEXICO** Albuquerque Feb 1 Sec Miss Pia Joerger State Capitol Santa Fe  
**OKLAHOMA** Oklahoma City May 1943 Sec Dr Oscar C Newman Shattuck  
**OREGON** Portland Oct 31 Sec State Board of Higher Education Mr Charles D Byrne University of Oregon Eugene  
**RHODE ISLAND** Providence Aug 19 Chief Division of Examiners Mr Thomas B Casey 366 State Office Bldg Providence  
**WASHINGTON** Seattle July 30-31 Dir Department of Licenses Mr Thomas Swayze Olympia

### Hawaii January Report

The Board of Medical Examiners of the Territory of Hawaii reports the written examination for medical licensure held at Honolulu Jan 12-15, 1942. The examination covered 10 subjects and included 80 questions. An average of 75 per cent was required to pass. Six candidates were examined 4 of whom passed and 2 failed. The following schools were represented

| School                                    | PASSED | Year Grad | Number Passed |
|---|--------|-----------|---------------|
| University of Colorado School of Medicine | (1940) |           | 1             |
| Rush Medical College                      | (1940) |           | 1             |
| Jefferson Medical College of Philadelphia | (1940) |           | 1             |
| Pennsylvania Medical School Shanghai      | (1930) |           | 1             |
| School                                    | FAILED | Year Grad | Number Failed |
| Chicago Medical School                    | (1940) |           | 1             |
| Pennsylvania Medical School Shanghai      | (1936) |           | 1             |

### Alabama Reciprocity Report

The Alabama State Board of Medical Examiners reports 20 physicians licensed to practice medicine by reciprocity and 1 physician so licensed on endorsement of credentials of the National Board of Medical Examiners from January 19 through April 28. The following schools were represented

| School  | LICENSED BY RECIPROCITY | Year Grad | Reciprocity with |
|---|-------------------------|-----------|------------------|
| Atlanta College of Physicians and Surgeons                          | (1913)                  |           | Georgia          |
| Georgia College of Eclectic Medicine and Surgery                    | (1883)                  |           | Georgia          |
| Northwestern University Medical School                              | (1892)                  |           | Illinois         |
| State University of Iowa College of Medicine                        | (1927)                  |           | Iowa             |
| Hospital College of Medicine Louisville                             | (1907)                  |           | Mississippi      |
| University of Louisville School of Medicine                         | (1934)                  |           | Kentucky         |
| Tulane University of Louisiana School of Medicine (1940) Louisiana  | (1938)                  |           | Tennessee        |
| Johns Hopkins University School of Medicine                         | (1935)                  |           | Maryland         |
| Wynne University College of Medicine                                | (1932)                  |           | Michigan         |
| Washington University School of Medicine (1935)                     | (1940 2)                |           | Missouri         |
| University of Cincinnati College of Medicine                        | (1940)                  |           | Ohio             |
| University of Pittsburgh School of Medicine                         | (1923)                  |           | Penna            |
| Medical College of the State of South Carolina                      | (1939)                  |           | S Carolina       |
| University of Tennessee College of Medicine (1937) (1939) Tennessee | (1925)                  |           |                  |
| Queen's University Faculty of Medicine                              | (1937)                  |           | New York         |
| School  | LICENSED BY ENDORSEMENT | Year Grad |                  |
| University of Nebraska College of Medicine                          | (1933)                  |           |                  |

### Pennsylvania January Report

The Pennsylvania State Board of Medical Education and Licensure reports the written examination for medical licensure held at Philadelphia, Jan 6-10, 1942. The examination covered 5 groups and included 50 questions. An average of 75 per cent was required to pass. Forty-one candidates were examined, 36 of whom passed and 5 failed. The following schools were represented

| School  | PASSED   | Year Grad | Number Passed |
|---|----------|-----------|---------------|
| Howard University College of Medicine   | (1940)   |           | 1             |
| Johns Hopkins University School of Medicine   | (1939)   |           | 1             |
| Harvard Medical School  | (1939)   |           | 1             |
| Washington University School of Medicine  | (1939)   |           | 1             |
| Eclectic Medical College Cincinnati   | (1939)   |           | 1             |
| Hahnemann Medical College and Hospital of Philadelphia                                    | (1940 4) |           | 4             |
| Jefferson Medical College of Philadelphia   | (1939)   |           | 1             |
| Temple University School of Medicine (1937) (1939)  | (1940 2) |           | 4             |
| University of Pennsylvania School of Medicine (1939 2) (1940 2)                           | (1940 2) |           | 5             |
| University of Pittsburgh School of Medicine   | (1940 2) |           | 2             |
| Woman's Medical College of Pennsylvania   | (1940)   |           | 1             |
| University of Vermont College of Medicine   | (1939)   |           | 1             |
| Marquette University School of Medicine   | (1941)   |           | 1             |
| Dalhousie University Faculty of Medicine  | (1921)   |           | 1             |
| University of Western Ontario Medical School  | (1918)   |           | 1             |
| Medizinische Fakultät der Universität Wien (1933 2)                                       | (1938)   |           | 3             |
| Universität Heidelberg Medizinische Fakultät (1938)                                       |          |           | 1             |
| Magyar Királyi Pazmany Petrus Tudományegyetem Orvosi Fakultasa Budapest (1939)            |          |           | 1             |
| Regia Università degli Studi di Bologna Facoltà di Medicina e Chirurgia (1938)            |          |           | 1             |
| Regia Università degli Studi di Roma Facoltà di Medicina e Chirurgia (1901) (1938) (1939) |          |           | 3             |
| Regia Università di Napoli Facoltà di Medicina e Chirurgia (1939)                         |          |           | 1             |
| School  | FAILED   | Year Grad | Number Failed |
| Hahnemann Medical College and Hospital of Philadelphia                                    | (1940 2) |           | 2             |
| Johann Wolfgang Goethe Universität Medizinische Fakultät Frankfurt am Main (1937)         |          |           | 1             |
| Medizinische Fakultät der Universität Wien (1930)   |          |           | 1             |
| Magyar Királyi Erzsébet Tudományegyetem Orvostudományi Pecs (1927)                        |          |           | 1             |

Six physicians were licensed to practice medicine by reciprocity and 5 physicians so licensed on endorsement of credentials of the National Board of Medical Examiners from January 6 through January 29. The following schools were represented

| School  | LICENSED BY RECIPROCITY | Year Grad | Reciprocity with |
|---|-------------------------|-----------|------------------|
| The School of Medicine of the Division of the Biological Sciences | (1936)                  |           | Michigan         |
| New York Homeopathic Medical College and Flower Hospital          | (1929)                  |           | New York         |
| University of Cincinnati College of Medicine                      | (1937)                  |           | Ohio             |
| Hahnemann Medical College and Hospital of Philadelphia            | (1938 2)                |           | Maryland         |
| University of Pennsylvania School of Medicine                     | (1917)                  |           | California       |
| School  | LICENSED BY ENDORSEMENT | Year Grad |                  |
| Tufts College Medical School                                      | (1939)                  |           |                  |
| Cornell University Medical College                                | (1937)                  |           |                  |
| Syracuse University College of Medicine                           | (1932)                  |           |                  |
| Duke University School of Medicine                                | (1939)                  |           |                  |
| University of Vermont College of Medicine                         | (19-0)                  |           |                  |

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Optometry Practice Act Sale of Lenses Selected by Customer Not the Practice of Optometry**—The defendant corporation operated a chain of stores in which optometric goods were sold and certain optometric services were rendered. The state of Indiana, alleging that the defendant was unlawfully engaged in the practice of optometry, instituted an action to enjoin it from practicing optometry and the judgment prayed for issued. Among other things, it seemed to be a practice followed in the defendant's stores for a sales employee to hand a customer a pair of glasses for the customer to determine if satisfactory by reading magazines and signs on nearby buildings, repeating the process until a pair satisfactory to the customer was obtained. This practice, the trial court specifically held, did not constitute the practice of optometry and the practice was not embraced within the injunction issued by the trial court. The state appealed to the Supreme Court of Indiana.

The practice of optometry is defined by the optometry practice act of Indiana to be any one, or any combination of, or art, of the following acts

"(a) The examination or diagnosis of the human eye, to ascertain the presence of abnormal conditions or functions which may be diagnosed, corrected, remedied or relieved, or the application or prescription of lenses, prisms, exercises, or any physical, mechanical, physiological or psychological therapy or the employment of any means, for the purpose of detecting any diseased or pathological condition of the eye, or the effects of any diseased or pathological condition of the eye which may have any significance in a complete optometric diagnosis of the eye or its associated structures

"(b) The application use or adoption of physical anatomical, physiological psychological or any other principles through scientific professional methods and devices, to the examination of the eyes and vision, measuring their function for the purpose of determining the nature and degree of their departure from the normal, if any, and adopting optical, physiological and psychological measures and/or the furnishing or providing any prosthetic or therapeutic devices for the emendation thereof" Acts 1935 c 38, sec 4, sec 63 1004, Burns' 1933 (Supp.), Sec 13174 Baldwin's Supp 1935

The state contended that the practice referred to clearly constituted the practice of optometry as comprehended in the definition just quoted. It will be noted, said the court, that subsection a quoted has two separate parts—one pertains to the examination of the eye without designating the character of the examination, and the other pertains to the examination of the eye but designates various means, all, however, for the purpose of detecting a pathologic condition or its effect. There is no suggestion in this subsection of any remedial action. There is no mention of vision. It is the eye which is the subject of examination. The first part of subsection b likewise pertains to the examination of the eye but also includes vision—"eyes and vision." But this examination is "through scientific professional methods" and not otherwise. The purpose of the examination is to determine "the nature and degree of their departure from the normal." The latter part of subsection b is the only portion of the definition of the practice of optometry which purports to cover any remedial action and is chiefly relied on by the state as indicating that the practices of the defendant constitute the practice of optometry. The state argues that "furnishing prosthetic devices" means furnishing eyeglasses, "for the emendation thereof" means to correct, and "thereof" refers to "eyes and vision", so that the whole clause means furnishing eyeglasses to correct eyes and vision. However, we cannot accept this view. The italicized conjunctive "and" joins the two parts of subsection b so that read as a whole it pertains to the scientific professional examination of the eyes and vision and the furnishing of remedies, including lenses, for the correction of their abnormal conditions. We realize that courts sometimes substitute the disjunctive for the conjunctive where the context requires, but here we see no reason for such substitution. It seems to us that the legislature was careful with its "and" and "ors" in this whole subsection. Later the symbol "and/or" is used, which does not add certainty but does permit a choice between the conjunctions. If any such choice had

been intended where the italicized "and" appears we should expect to find the same symbol. We think the two parts were intended to be read together. Since there is no pretense that the defendant's sales are made in connection with scientific or professional examination either of the eyes or of the vision the definition does not fit the facts. Nor can we find in the opening words of the section justification for severing words and phrases from their context or rearranging them to procure a definition which, in the language of the trial judge, might have been stated, if intended, "in plain English language." Nowhere in the definition is mentioned either "sale" or "eyeglasses," two very common English words. But they were used by the legislature elsewhere in the act. Why not in this particular section defining the practice of optometry? Instead, technical words were used which may not have been understood by the legislators themselves. It ought not be necessary to use a glossary to find the meaning of a penal statute. Considering the section as a whole, concluded the court, we do not think it applies to the sale of eyeglasses as articles of merchandise, as was done by the defendant.

The state attempted to make much of the fact that employees of the defendant's store sat at a table instead of standing behind a counter and that employees handed the glasses to the customers instead of permitting the customers to select those which they would try. By this method, said the court, the lenses with which the customers can best see are probably found more quickly than by starting at one end of a row of one hundred and taking them in order. A clerk familiar with his merchandise can frequently help his customer find a fit, but the customer usually determines what suits him. The "trial and error" method depends, not on the salesman's selection, but on the customer's choice after trial. We see nothing in these facts that will convert a sale of eyeglasses into the practice of optometry.

A section of the optometry practice act, among other things, purports to make it unlawful "for any person to publish any advertisement which quotes prices on glasses." The trial court had held that this provision did not prohibit the defendant from advertising the prices of the glasses it sold, the sale of which the trial court had held did not constitute the practice of optometry. The appellate court found it necessary to advert to the title of the act to determine whether the act comprehended a prohibition of advertising prices for the sale of glasses. The title of the act read

An act to define and regulate the practice of optometry, providing for the issuance of certificates to practice providing for a state board of registration and examination and defining their duties, providing for the collection and disposition of fees and dues defining certain misdemeanors and providing penalties therefor

So far as the express language of the section, said the Supreme Court, prohibiting the publication of any advertisement quoting prices on glasses is concerned, it is not expressly limited to persons engaged in the practice of optometry. It is broad enough to apply to any person whatsoever and if taken at its face value forbids the defendant from advertising the price of the glasses which it sells. Is this subsection when construed as extensively as its language permits within the title of the act? The subject of the act, said the court, is the practice of optometry. Its object is "to define and regulate such practice." Matters that are regulatory of such practice are clearly covered by the title. To forbid price advertising by an optometrist is a regulation of his practice. But to forbid price advertising by the defendant is merely regulation of its merchandising. We do not believe the words "to define" in the title give it broad scope. They probably were inserted that there might be no questions as to the constitutionality of a statutory definition of optometry differing from the dictionary definition or common understanding of what is comprehended by the word "optometry." Truthful price advertising is a legitimate part of a lawful merchandising business. Deprivation of the right to advertise has been held to violate the due process clause of the fourteenth amendment. We cannot assume that the legislature intended to permit the sale of eyeglasses as merchandise and to deprive the dealer of one of the reasonable and lawful means of procuring purchasers for such merchandise. We are of the opinion that the title of an act should be liberally construed and the purpose of that construction is to ascertain its true meaning.

title before us is not ambiguous. The object of the act is to regulate the practice of optometry as defined in the act, and the field of regulation is circumscribed by the definition. Advertising and sale of eyeglasses as articles of merchandise are outside that field. The court accordingly concluded that the trial court in holding that advertising by the defendant was not a violation of the optometry practice act was not in error.

The decree of the trial court was affirmed—*Smith ex rel Booth v. Beck Jewelry Enterprises, Inc.* 41 N E (2d) 622 (Ind., 1942).

**Medical Practice Acts Conviction of Crime as Proof of Bad Moral Character**—The Missouri Medical Practice Act authorizes the revocation of the license of a physician "of bad moral character, or guilty of unprofessional or dishonorable conduct." Hughes, a licensed physician, was convicted in the United States courts of the crime of using the United States mails to defraud. Subsequently the Missouri Board of Health revoked Hughes' license to practice on a charge that he was a person of bad moral character and had been guilty of unprofessional and dishonorable conduct because, among other things, of his conviction of the crime referred to. The St. Louis circuit court, division no. 3, in effect ordered the board to restore Hughes' license and the state board of health appealed to the Supreme Court of Missouri, division no. 1.

The Missouri medical practice act, as stated, authorizes the revocation of the license of a physician of bad moral character or guilty of unprofessional or dishonorable conduct. The medical practice act then specifies certain acts, such as habitual drunkenness, as being dishonorable or unprofessional and dishonorable conduct. Hughes argued that the ground of revocation must be expressly specified in the statute and, since the statute did not specifically specify conviction of a crime as a ground for revocation, the board was without power to revoke his license. The fact, said the court, that the statute specifically enumerates certain acts as unprofessional and dishonorable conduct does not thereby exclude other acts indicative of unprofessional or dishonorable conduct not mentioned in the statute. Any conduct, although not specified, which by common opinion and fair judgment is determined to be unprofessional or dishonorable, may constitute grounds of revocation. The conviction of a crime may properly be considered as a ground of revocation. If found to be evidence of bad moral character, unprofessional or dishonorable conduct, it may warrant revocation of a physician's license, especially where the crime involves moral turpitude. The court accordingly held that the charge that Hughes was a person of bad moral character because of his conviction of the crime of using the mails to defraud was sufficient and proper under the statute to warrant the revocation of his license.

The fact, said the court that Hughes received a presidential pardon full and unconditional, in no way affects the situation. The pardon cannot be construed as restoring good character. Generally speaking a pardon is an act of grace which exempts the individual on which it is bestowed from the punishment the law inflicts for a crime he has committed. Whether an unconditional pardon had the effect of restoring to one convicted of a crime a license to practice the art of healing revoked because of such conviction was considered in *State v. Hazzard*, 139 Wash. 487, 247 P. 957, in which the court concluded that a pardon merely restores civil rights and not the right to resume the practice of the art of healing.

An additional charge filed against Hughes as a ground for revoking his license was that he permitted an unlicensed person employed by him as a bookkeeper to practice medicine in his offices under his direction and instruction. Hughes contended that this charge stated no improper conduct, since the employee in question was a technician and as such had the right to perform certain duties "under the direction and instruction of a physician." The evidence, said the court, shows that this employee was employed full time by Hughes. At first he kept books then he became a technician. Hughes "specialized in the treatment of venereal diseases in men and at his instigation the employee, although not a physician, received and examined patients in Hughes' office, made diagnoses, determined the treatment treated them and accepted fees from them for

Hughes. The employee would do this without any immediate supervision of Hughes and at times when Hughes was away from the office. Such acts by the employee constituted the practice of medicine. Practicing without a license is unlawful. When done at the command and with the knowledge and aid of a physician, that physician is guilty of unprofessional conduct. The very purpose of the act in protecting the public from untrained and incompetent persons is thereby violated by one who should be foremost in upholding it.

The court concluded that proof of either one of the two charges discussed was sufficient to sustain the action of the board in revoking Hughes' license to practice and, accordingly, the action of the board, in effect, was affirmed—*Hughes v. State Board of Health* 159 S W (2d) 277 (Mo., 1942).

**Hospitals Liability for Injuries Caused by Defective Cauterizing Apparatus**—The plaintiff entered the defendant hospital for a cervical operation to be performed by her own physician. After the operation, the physician cauterized the wound with a cautery machine furnished by the hospital. While applying the cauterizing pencil, the physician heard a sparkling or sizzling noise. He stopped the operation, examined the plaintiff and discovered a burn in the pubic area directly above the vagina. Subsequently an abscess formed which did not completely heal until five months later, during which time small pieces of copper wire were removed from it on two different occasions. Contending that her injuries were due to the negligence of her physician and of the defendant hospital, the plaintiff filed suit against both for damages. The trial court dismissed the case against the physician. The case against the hospital was submitted to the jury, which found for the plaintiff. From the judgment entered thereon the hospital appealed to the appellate court of Illinois, first district, third division.

The defendant argued that there was no evidence in the record which indicated, or from which it could be inferred, that it was guilty of negligence in connection with the electrical cautery equipment furnished and that a verdict could not be sustained where essential facts are left in the realm of conjecture and speculation. But, said the appellate court, there can be no doubt that the burn which the plaintiff suffered was caused by the cauterizing machine. The intern and the nurse who assisted at the operation both testified that when the sparkling, sizzling, crackling noise, which sounded louder than normal came from the cauterizing machine, the operation was stopped. The record further established that the abscess developed in the place where the burn was inflicted by the cautery pencil. The attending physician removed three pieces of wire from it and another physician later removed a fourth piece of wire. Only after these pieces of wire were removed did the burn heal. The pieces of wire removed were similar to the wire in the cautery apparatus. In the opinion of the appellate court, the jury was justified in finding that the cauterizing machine inflicted the burn and caused pieces of wire to enter the plaintiff's body. There was, therefore, ample evidence on which to base a finding that the defendant was guilty of negligence. The judgment for the plaintiff was accordingly affirmed—*Delling v. Lake View Hospital Assn and Training School for Nurses*, 33 N E (2d) 915 (Ill. 1941).

## Society Proceedings

### COMING MEETINGS

- American Association of Obstetricians Gynecologists and Abdominal Surgeons White Sulphur Springs W Va Sept 10 12 Dr James R Bloss 418 Eleventh St Huntington W Va Secretary
- American Association of Railway Surgeons Chicago Sept 10 12 Dr Raymond B Kepner 547 West Jackson Blvd Chicago Secretary
- American Congress of Physical Therapy Pittsburgh Sept 9 12 Dr Richard Kovacs, 2 East 88th St New York Secretary
- National Medical Association Cleveland Aug 17 21 Dr John T Givens 1108 Church St Norfolk Va General Secretary
- Oregon State Medical Society Portland Sept 9 11 Dr John R Montague 1020 SW Taylor St Portland Secretary
- Utah State Medical Association Provo, Aug 27 29 Dr D G Edmunds 610 McIntyre Bldg Salt Lake City Secretary
- Washington State Medical Association Spokane Aug 17 19 Dr V W Spickard 1305 Fourth Ave Seattle Secretary
- Wyoming State Medical Society Cheyenne Aug 16 18 Dr Marshall C Keith Capitol Bldg Cheyenne Secretary

**Current Medical Literature****AMERICAN**

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

**American Journal of Ophthalmology, Cincinnati**

25 387-512 (April) 1942

- Adrenal Neuroblastoma with Orbital Metastases. Case Report with Autopsy. G. P. Guibor, Chicago—p. 387.
- Temporary Amaurosis and Hemianopia Due to Epilepsy. A. King and F. B. Walsh, Baltimore—p. 398.
- Results of Cataract Extraction. E. Jackson, Denver—p. 403.
- Simplified Technique of Gonioscopy. M. E. Alvaro and M. A. Silva, São Paulo, Brazil—p. 406.
- Dendritic Keratitis. J. O. Wetzel, Lansing, Mich.—p. 409.
- Goniotomy. S. T. Clarke, Boston—p. 423.
- Wound Rupture After Cataract Extraction. H. S. Gradle, Chicago and H. S. Sugar, Vancouver, Wash.—p. 426.
- Treatment of Staphylococcal Infections of Eye by Immunization with Toxoid. L. A. Julianelle, R. H. Boots and G. H. Harrison, St. Louis—p. 431.
- Alterations in Capsular Epithelium in Immature Cataracts. C. A. Clapp, Baltimore—p. 437.
- Methyl Alcohol Amblyopia. L. T. Simons, St. Paul—p. 446.
- Verrucae as Cause of Unilateral Conjunctivitis. C. A. Turtz, New York—p. 452.

**American Journal of Psychiatry, New York**

98 633-790 (March) 1942 Partial Index

- Hypothalamus in Psychiatry. J. H. Masserman, Chicago—p. 633.
- Study of Manic-Depressive Psychoses Occurring During the Later Life Period. E. J. Doty, New York—p. 645.
- Schilder's Disease in Ergotamine Intoxication. G. A. Jervis, Thiells, N. Y. and J. A. Kindwall, Hartford, Conn.—p. 650.
- Mental Symptoms in Narcolepsy. Forgetfulness and Learning Difficulty as Manifestations of Excessive Inhibition of Highest Cerebral Centers. M. Levin, Baltimore—p. 673.
- \*Use of Amphetamine (Benzedrine) Sulfate in Treatment of Chronic Alcoholism. M. Rosenbaum and L. Lams, Cincinnati—p. 680.
- Schizophrenia Among Primitives. Present Status of Sociologic Research. N. J. Demerath, New Orleans—p. 703.
- The Petit Mal Response in Electric Shock Therapy. L. B. Kalmowsky, S. E. Barrer and W. A. Horwitz, New York—p. 708.
- Studies in Senile and Arteriosclerotic Psychoses. I. Relative Significance of Extrinsic Factors in Their Development. H. W. Williams, E. Quesnel, Vera Winston Fish and L. Goodman, Howard, R. I.—p. 712.
- Rheumatic Epilepsy. Sequela of Rheumatic Fever. W. L. Bruetsch, Indianapolis—p. 727.
- Mental Defect in Epilepsy and Influence of Heredity. W. G. Lennox, Boston—p. 733.
- Clinical and Electroencephalographic Studies in Polyneuropathy. J. W. Owen and L. Berhnrood, New York—p. 757.
- Alcohol Absorption and Intoxication. Their Modification by Autonomic Drugs. M. Rinkel and A. Myerson, Boston—p. 767.

**Amphetamine Sulfate for Alcoholism**—Rosenbaum and Lams obtained poor results with amphetamine sulfate in the treatment of 24 patients suffering from severe chronic alcoholism and alcoholic addiction. Some of the possible reasons for the poor results are that the feeling of "well-being" and "lift" that accompanies the use of the drug may act in some patients as a source of security, in others it may tend to combat the effects of a mild depression with which the drinking is associated, while in still others, and this may be the most universal factor, the psychologic effect of the drug may gratify the patient's dependent needs as does alcohol but in a less toxic manner. Certainly the action of the drug at best is only that of a substitute for alcohol. The authors agree with Bloomberg that the main value of the drug in chronic alcoholism is that the free interval produced by the drug might allow time for instituting a more fundamental psychotherapeutic regimen.

**American Journal of Public Health, New York**

32 345-456 (April) 1942

- Epidemiology of Tuberculosis in a Mental Hospital. J. K. DeLoe, J. E. Culp and F. Beck, Ithaca, N. Y.—p. 345.
- Study of Atypical Enteric Organisms of Shigella Group. Elizabeth J. Cope and K. Kilander, Detroit—p. 352.
- Time Factor in Chlorine and Chloramine Disinfection of Contaminated Swimming Pool Water. E. T. Chanlett and H. B. Gotars, Chicago—p. 355.
- Delayed Birth Registration. A. W. Hedrich, Baltimore—p. 363.
- Functioning School Lunch. Martha Koehne, Columbus, Ohio—p. 369.
- Epidemic Influenza. Epidemiologic Clinical and Laboratory Aspects. 1940-1941 Outbreak in St. Louis. S. E. Salkin, J. F. Bredekamp and D. D. Doughlass, St. Louis—p. 374.
- Studies on Aberrant Coliform Bacteria. L. W. Parr and H. Froelander, Washington, D. C.—p. 381.
- \*Simultaneous Administration of Diphtheria Toxoid and Pertussis Vaccine in Young Children. L. W. Sauer and W. H. Tucker, Evanston, Ill.—p. 385.
- Influence of Wetting Agents on Various Antiseptics. C. Virginia Felt, New York—p. 389.
- Worker's Health Education. Elizabeth G. Pritchard, Washington, D. C.—p. 395.
- Use and Abuse of Staphylococcus Aureus as Test Organism. C. W. Brewer, Beltsville, Md.—p. 401.
- Nutrition Survey of Small North Carolina Communities. D. F. Webb, Chapel Hill, N. C.—p. 406.

**Diphtheria Toxoid and Pertussis Vaccine**—Since 1938 Sauer and Tucker have injected simultaneously 464 children with diphtheria and pertussis antigens. To determine whether the mixing of the two might lessen or augment the antigenic value of either or both, 208 children were injected simultaneously with the 15,000 million bacilli per cubic centimeter vaccine (2, 2 and 3 cc) and in the same arm with diphtheria toxoid (1, 1 and 1 cc) at intervals of three weeks and 244 were injected with the antigens mixed and prepared so that each dose of 2, 2 and 3 cc equaled that when the antigens were given separately but at the same time. The Schick and complement fixation tests and the determination of diphtheria antitoxin concentration of the serum were performed before and after the injections were completed. The diphtheria antitoxin concentration exceeded 0.002 unit per cubic millimeter of serum in 89 per cent of the children retested three to six months after the final injection. The highest incidence and degree of antibody response seemed to occur when the retests were performed six weeks after completion of the injections. The preliminary and follow-up pertussis complement fixation and Schick tests for diphtheria in the two series reveal that the pertussis antibody response in both series compares favorably with the response when months intervene between the pertussis vaccine injections and the diphtheria toxoid injection. In several minor outbreaks of pertussis among noninjected children a few of the injected children of both series were intimately exposed but pertussis did not develop in them. It appears that children older than 2 years can also be protected against pertussis and diphtheria by the administration of three doses of mixed antigens at intervals of three weeks. The number of injections necessary for protection against the two diseases is halved.

**American Journal of Surgery, New York**

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- War Surgery and Traumatic Lesions. Early Diagnosis of Cranial Injuries. D. Munro, Boston—p. 3.
- Id. Stab Wounds of Chest Wall and Lungs. A. Stewart, Chattanooga, Tenn.—p. 15.
- Id. Diagnosis in Abdominal Trauma. A. H. Storck, New Orleans—p. 21.
- Id. Post-Traumatic Infections of Extremities. G. A. Collins, Orleans—p. 64.
- Chronic Ulcerative Lesions of Mouth. Incidence of Cancer. Cases at Harvard Hospital. E. I. Keyes, St. Louis—p. 66.
- Carcinoma of Stomach. Diagnostic Aspect. D. I. Williams, Shenson, San Francisco—p. 94.
- Complications Associated with Appendicitis. H. K. Roper, Jr., Mich.—p. 102.
- Anal Perianal Perineal and Sacrococcygeal Sinus. J. P. Evanston, Ill.—p. 154.
- Postoperative Pulmonary Atelectasis. W. F. Adams, Chicago—p. 154.
- Primary Carcinoma of Lung. H. B. Stephens, San Francisco—p. 154.
- Renal Disease as Factor in Hypertension. W. F. I. Vinn—p. 209.
- Diagnosis of Dehydration in Surgical Conditions. J. V. Arbor, Mich.—p. 282.
- Vitamin Therapy in Surgical Patient. J. B. Hartz, Detroit—p. 288.



## Am J Syphilis, Gonorrhea and Ven Dis, St Louis

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Inadequacy of Single Prolonged Fever for Treatment of Early Acute Syphilis Ruth A Boak C M Carpenter N Jones Rochester N Y R H Kampmeier Nashville Tenn W S McCann S I Warren Rochester N Y and J R Williams Jr Nashville Tenn—p 291

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\*Evaluation of Sulfathiazoline Aldamil and Sulfathiazole in Gonorrhea V Jacobs I J Baron and V H Ollswang New York—p 305

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Syphilis of Spinal Cord A B King Baltimore—p 336

**Yolk Sac Antigens in Diagnosis of Lymphogranuloma Venereum**—The agent of lymphogranuloma multiplies luxuriantly in the yolk sac of the developing chicken embryo and suspensions from heavily infected yolk sacs are exceedingly rich in the elementary bodies of the virus. Shaffer and his associates developed an improved antigen to be used either for the Frei test or with slight modifications in a simple complement fixation test. It is possible to carry out the latter in any serologic laboratory and to determine the result within two hours after the test is set up. It has also been possible regularly to demonstrate specific complement fixing properties in lymphogranulomatous serums. The Frei test and the complement fixation test performed with yolk sac antigen confirm the previous reports of the high incidence of infections with the agent of venereal lymphogranuloma concomitantly with other venereal disease. Infection with the virus of venereal lymphogranuloma appears to be widespread and constitutes a serious public health problem. Epidemiologic surveys to study its distribution and prevalence in various population groups should be undertaken by health authorities.

**Sulfathiazoline in Gonorrhea**—Jacoby and his co workers report treatment of gonorrhea in 88 cases with sulfathiazoline in 131 with sodium sulfanilamide formaldehyde sulfoxylate (aldamil) and in 100 with sulfathiazole. The dose for the three compounds was respectively 30 grains (2 Gm) a day for ten days 80 grains (5.3 Gm) a day for four days and 40 grains (2.7 Gm) for the next six days and 30 grains a day for ten days. Seventy-three of the first group were cured in an average of twenty days 40 of the second in an average of sixteen days and 89 of the third group in an average of twelve days. Aldamil although practically nontoxic, was not very effective. With sulfathiazoline the concentration of the drug in the blood was greater and there were fewer toxic manifestations in the major systems with the same dose as with sulfathiazole.

**Chemotherapy of Female Gonorrhea**—A big portion of 110 women whom Smith and Deakin found infectious have become patients because they were named as sources or contacts by men under treatment in the male section of the clinic. Gonorrhea in both the male and the female is treated as a unit of the general work of the clinic following a definite medical and social routine. The lapse rate is extremely low (less than 10 per cent) owing to a systematic case holding program. There is no police regulation or coercive control. The responsibility for medical care is shared by a gynecologist and a urologist. The women were mainly in the second and third decade, the youngest was 14 and the oldest 44. They were nearly equally divided between the white and Negro races. The routine treatment is as follows. After the diagnosis is made the patient is given 1 Gm of sulfathiazole four times a day for five consecutive days. Criteria of cure are the absence of clinical evidence of infection, negative smears and cultures from the urethra and cervix at weekly intervals for three weeks and at

monthly intervals for three months. A single course of 20 Gm of the drug given to 70 women gave a known cure in 44, a probable cure in 21, there were 3 failures and 2 were unable to take the drug. If the patient is not rendered noninfectious by such a single short intensive course of chemotherapy, nothing is gained by prolonging such medication or returning to it in the event of a relapse, for which local, focal, surgical and fever therapy all have a place. Fever therapy has been most effective in sterilizing stubborn types of infection resistant to chemotherapy and to local and focal measures. It is especially indicated when the patient is threatened with permanent crippling of a joint or with blindness. In spite of all the therapeutic measures an occasional woman will have a pelvic abscess that requires surgical drainage. Laparotomy must be the procedure to relieve the semi-invalidism of the individual with a retroverted uterus and prolapsed adnexa bound down by extensive adhesions between the pelvic and abdominal viscera.

## Archives of Dermatology and Syphilology, Chicago

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\*Treatment of Cutaneous Leishmaniasis (Oriental Sore) by Grenz Rays V Dosikov Lv and F Sagher Jerusalem Palestine—p 865

Bismuth Ethyl Camphorate Its Use in Twenty Six Cases of Early Syphilis I J Alexander and A G Schoch Dallas Texas—p 876

\*Massive Arsenotherapy of Syphilis by Continuous Intravenous Drip Method Preliminary Report on 271 Patients Treated with Arsenoxide Preparation F Prats G L Infante Varas and E Haraszti Santiago Chile—p 885

Massive Arsenotherapy in Early Syphilis Report of Sixty Cases in Which Neoparsphenamine Was Given L Prunes and H Hevia P Santiago Chile—p 894

Specific Cutaneous Lesions in Chronic Myeloid Leukemia Clinical Significance J T Paul and L R Limarzi Chicago—p 897

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Intravenous Drip Method in Intensive Arsenotherapy of Syphilis with Particular Reference to Its Application for Latent Syphilis and for Late Stages of the Disease B I Kaplan Ossining N Y—p 941

Treatment of Seabies with Rotenone E Epstein Oakland Calif—p 950

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Liver Extract in Treatment of Acne Vulgaris in Tuberculous Patients M R Lichtenstein and A W Stillians Chicago—p 959

**Pinta**—Pardo-Castello and Ferrer discuss recent advances in the knowledge of mal del pinto pinta and carate which are the same disease. The etiologic agent is a spirochete indistinguishable from that of syphilis and of yaws which diseases pinta resembles in its general evolution. It begins with an initial lesion followed by disseminated macules and pink, red, slate blue brown and/or black plaques and ends in a late dyschromic symmetrical stage which usually affects the extremities. It never affects the general health. The complement fixation and precipitation tests for syphilis elicit positive reactions in 60 per cent of the patients in the early and in 100 per cent in the late stages. The lesions are superficial and do not ulcerate. Cardiovascular and cerebrospinal changes have been reported by several authors. Of the authors 41 cases 52.1 per cent showed changes in the spinal fluid similar to those of cerebrospinal syphilis. In 64.5 per cent cardiovascular changes were present enlargement of the aorta and thickening of its wall. High blood pressure was present in 8, in 5 of these there were no aortic changes. Pinta has been transmitted experimentally to man by Leon y Blanco in Mexico and in Cuba. The following conclusions can be drawn from his experiences: 1 Mal del pinto may be transmitted from person to person by superficial epidermal inoculation. 2 Syphilis and mal de pinto are two separate spirochetoses. 3 Mal del pinto confers immunity. Reinfections are partially successful in the early stages but patients with late dyschromic manifestations cannot be reinfectured. The Mexican and Cuban strains of spirochetes cause parallel manifestations. The more limited and



chronic type of the disease in Cuba seems to be due to peculiarities of the terrain and not to the spirochete. Treatment is the same as that for syphilis and yaws. The intravenous injection of arsphenamine and the intramuscular injection of bismuth are specific, arsphenamine, as in syphilis and yaws, is more quickly effective. Mapharsen has also proved highly effective. In the early stages, combined treatment causes the lesions to disappear rapidly. A few weeks after healing, the skin seems normal. In the late stages the hyperpigmented areas disappear almost completely but some vitiliginous patches remain, although repigmentation is extensive. The hyperkeratosis of the palms and soles and the pigmented lesions of the mucous membranes respond to treatment and usually disappear. The Wassermann and Kahn reactions of many patients remain persistently positive in spite of intensive and prolonged treatment. The assertion that pinta is easily cured with an arsenical preparation is doubtful.

**Cutaneous Leishmaniasis** — Dostrovsky and Sagher attempted to determine the optimal dose of infraröntgen rays by treating lesions of 2 patients with different doses and different qualities of rays. As a result, 800 roentgens with a half value layer of 0.027 mm of aluminum was established as the optimal dose. This was given one to three times. In 72 cases of leishmaniasis nodosa and leishmaniasis ulcerosa and in 12 of leishmaniasis recidiva they treated a total of eight hundred and fifty-three lesions by exposure to grenz rays. For the nodular type the dose employed was two exposures of 800 roentgens with a half value layer of 0.027 mm of aluminum and for leishmaniasis recidiva it was from 3,000 to 11,000 roentgens with a half value layer of 0.02 mm of aluminum. The nodular type of lesion usually disappeared within eight weeks and the leishmaniasis recidiva lesion in six to eight months.

**Massive Arsenotherapy of Syphilis** — The hydrochloride of arsenoxide (arsarsolan) has been employed by Prats G and his co-workers in the treatment of 233 syphilitic patients by the massive dose-continuous intravenous drip procedure. The average dose was 12 Gm for men and 0.8 Gm for women. The first 111 patients, whose period of observation extended up to seven months, are discussed. Spirochetes disappeared from the lesions during the first twenty-four hours, and the darkfield examination was most often negative between the fifth and the eighth hour after the treatment was started. The large infiltrated or gangrenous chancre healed in an average of ten days. The superficial erosive lesion healed in five or six days. The papular secondary syphiloderm disappeared in variable periods. Enlarged inguinal lymph nodes diminished in size slowly and often were still palpable after several months. The clearing of the serologic reactions occurred between the second and the fifth month. Of 69 patients observed for seven months, 55 (80 per cent) gave negative reactions and 10 (14 per cent) almost negative reactions, in 4 cases (6 per cent) the treatment was considered a failure. This period of observation, seven months, is too short to permit of final conclusions. Approximately 94 per cent of the patients were proceeding in a satisfactory manner.

### Archives of Physical Therapy, Chicago

23 193-256 (April) 1942

- \*Artificial Fever Therapy: Discussion of Its Management and Report of Complications of 6,881 Treatments. J. A. Trautman, New Orleans —p 197
- Threshold of Stimulation of Alternating Currents. H. H. Carter and J. S. Coulter, Chicago —p 207
- Treatment of Dermatophytosis by Ion Transfer. W. M. Solomon, Cleveland —p 214
- Studies on Cause of Pain in Ischemia. K. Harpuder and I. D. Stein, New York —p 218
- Technic for Reduction and Ambulatory Treatment of Sacrospin Displacement. W. Travell and Janet Travell, New York —p 222

**Artificial Fever Therapy** — Artificial fever, at levels of 105 to 107 F, was used by Trautman in the treatment of 1,243 patients. 653 had gonorrhea, 248 syphilis, 57 ocular disorders, 7 venereal lymphogranuloma, 127 nonspecific urinary infections, 28 acute and 42 chronic infectious arthritis, 18 leprosy and 25 chronic hypertrophic arthritis, 38 had twenty-two different diseases. One patient died suddenly several hours after the fever session was completed. Despite the fact that apparently a fair amount of salt solution was administered during the treatment,

the secondary fever following the session and the basic cause of death was principally a fluid and chloride deficiency. Since death from treatment is a possibility, treatment must be terminated as soon as danger signs present themselves. There were two hundred and thirty-eight complications which caused termination of treatment. These were cardiovascular, mental convulsive, hyperesthetic and hypoesthetic. There has been a significant decrease in the serious complications (seventy-one) during the last two and three-fourths years, when 2,272 treatments were given as compared with the previous four and or fourth years, when 4,609 sessions of fever were induced.

### Archives of Surgery, Chicago

44 779-962 (May) 1942

- Gunshot Wounds of the Chest: Review of 280 Cases. H. G. Hardt, J. and L. Seed, Chicago —p 779
- Gunshot Wounds of the Brain: Report of Two Unusual Complications. Bifrontal Pneumocephalus and Loose Bullet in Lateral Ventral. E. Campbell, W. P. Howard and W. B. Weary, Albany, N. Y. —p 789
- \*Hepatic (Hepatorenal) Factor in Burns. F. F. Boyce, New Orleans —p 799
- \*Sulfathiazole Ointment in Treatment of Burns. J. G. Allen, F. W. Owens Jr., B. H. Evans and L. R. Drigstedt, Chicago —p 819
- \*Changes in Body Water Partition and Extracellular Electrolytes. Shock. C. T. Ashworth and L. A. Kregel, Dallas, Texas —p 839
- Preparation for Operation and Postoperative Care of the Patient with Cancer: Review of Contemporary Advances and Analysis of Experiences with Current Clinical Procedures. G. L. Robillard and A. I. Shapiro, Brooklyn —p 840
- Absorption of Surgical Gut (Catgut). I. Decline in Tensile Strength in Tissues. H. P. Jenkins and L. A. Hrdina, Chicago —p 881
- Acute Appendicitis: Clinical and Pathologic Study of 1,690 Consecutive Cases. J. E. Jennings, H. H. Burger and M. Jacoby, Brooklyn —p 896
- Polypsis of the Vermiform Appendix: Report of Case. S. Sincera and D. F. Patchin, Buffalo —p 912
- New Diagnostic Points in Appendicitis: Clinicoradiologic Considerations of Bilateral Hyperalgesia. M. S. Levitas, Brooklyn —p 918
- Strangulated Femoral Hernia. G. O. Dean, Little Rock, Ark. —p 911
- Stimulation of the Cervic Plexus in the Dog. I. Cardiovascular and Respiratory Effects. S. J. Martin, C. J. Burstein and E. A. Ross, New York —p 943
- Mesencephalic Tricetomy: Method for Relief of Unilateral Intracranial Pain. A. E. Walker, Chicago —p 953

**Hepatic (Hepatorenal) Factor in Burns** — The mortality for the 1,243 burns treated at Charity Hospital in the six and a half years ended June 30, 1941, was 17.46 per cent (217 deaths). Among 217 fatal cases the upper limit of safety (a burn of 50 per cent of the surface of the body) was exceeded in 78 and death could be expected. Recovery of at least a fair proportion of the other 137 patients with less than the area involved might have been expected. Boyce states that there was no reason to anticipate a fatal outcome in 14 in whom only 15 per cent and in 9 in whom only 10 per cent of the surface of the body was involved, or in many in whom the burn was of first and second degree. Such facts suggest that other than merely physical factors of extent and depth determine the prognosis. Obvious factors are extremes of shock, infection, hemoconcentration, toxemia and the hepatorenal factor. The theory of hemoconcentration and the toxemic theory are not mutually exclusive. The renal lesion in burn is considered as a secondary phase of the hepatic lesion and a parallel is traced between certain deaths from burns and the so-called liver death and the liver-kidney syndrome. Analysis of the 1,243 cases of burns showed that toxemia of all degrees played a part in more cases than either shock or pain, but that extreme toxemia was relatively infrequent. The failure of the liver in its function of detoxification because it is overwhelmed by the toxins poured into the circulation from the injured surface. If the patient lives long enough, the kidney, the great organ of detoxification in the body, is overwhelmed in its turn. Acute toxemia can be minimized by adequate measures. The administration of plasma, high protein solutions, decreases or prevents fatty metamorphosis. Dextrose, if administered on a strictly calculated basis, does not increase the promiscuous administration of fluids is never safe. Certain other therapeutic measures should be reserved for the light of their possible effect on the liver. Any measure which has its accompanying depressive effect on hepatic function should be avoided whenever possible. The sulfonamide should be employed with caution.

**Sulfathiazole Ointment for Burns**—The treatment of burns in war injuries has brought out the observation that tannic acid is not as satisfactory as is commonly stated and that plasma replacement is of life saving value. Replacement of plasma is the most important consideration in extensive tissue damage with the escape of this portion (protein) of the blood. Harkins compounded a rule which is an effective guide to the administration of plasma: 100 cc of plasma for every 1 per cent rise in the hematocrit above 44 per cent. Allen and his co-workers report the treatment of 4 severely burned patients admitted to the Albert Merritt Billings Hospital fifteen minutes after an explosion in a chemical laboratory and treated with sulfathiazole ointment. Pain was promptly alleviated. Infection was minimized and scarring was apparently less severe. Remaining islands of epithelium were preserved and possibly even stimulated by its application. A large denuded area cannot be kept sterile by pressure dressings; some bacteriostatic material is needed, particularly in wartime when many patients must be treated by a small staff. The coagulation by tanning probably kills much of the epithelium which would ordinarily survive. Furthermore, tanning fixes the viable tissues on the surface of the denuded areas and thus scarring is somewhat more extensive. Sulfathiazole ointment was particularly effective against the common pathogens. A 20 per cent sulfathiazole ointment placed on the donor site of a dermatome graft did not retard epithelial regeneration. The base for the ointment was aquaphor, which contains 5 per cent ox-cholesterol and 95 per cent petrolatum. Absorption of sulfathiazole from the extensively burned areas was minimal. The sulfathiazole in the circulating blood failed to exceed 15 mg per hundred cubic centimeters. Results with the ointment at the University of Chicago Clinics in the treatment of superficial ulcerating areas, abrasions, infected superficial wounds and for the impregnation of gauze packs for infected surgical wounds have been gratifying.

**Body Water Partition, Extracellular Electrolytes and Shock**—Ashworth and Kregel studied in dogs the various changes that occur in the electrolytes of the extracellular fluid and in the processes of the body in regulating the osmotic pressure of the intracellular and extracellular fluids in shock produced by hemorrhage, trauma or the injection of a 25 per cent solution of sodium chloride. After shock the plasma volume was greatly reduced, especially in shock following the intraperitoneal injection of the saline solution. It was intermediate after traumatic shock and least in hemorrhagic shock. The interstitial water changes with but few exceptions, indicated a striking increase in dogs shocked by saline solution, a decrease in dogs shocked by hemorrhage and an increase in 2 dogs and a decrease in 1 dog shocked by trauma. The intracellular water decreased after saline shock, increased after hemorrhagic shock and decreased after traumatic shock. The changes in the size of the erythrocytes invariably corresponded directly, it not proportionally, to the intracellular fluid change. In shock from hemorrhage the plasma sodium, with 1 exception, increased when interstitial water decreased and vice versa. The few experiments with traumatic shock render a conclusion difficult with regard to changes in plasma sodium. A fairly constant, slight but definite increase was noticed in plasma potassium in both hemorrhagic and traumatic shock. In hemorrhagic and traumatic shock glomerular filtration fell during shock. In shock from hemorrhage, tubular reabsorption of water increased, sodium reabsorption increased and sodium was conserved two thousand to four thousand times in its passage through the tubules while potassium reabsorption decreased. In traumatic shock this conservation of water and sodium was absent, while potassium was apparently conserved. The body conserves sodium and water after hemorrhage so that the retained fluid would be of normal osmolar concentration, but how this is brought about by the renal tubules is difficult to solve. The regulating influence of the adrenal cortex hormone, the pituitary hormones and the hypothalamus must be considered. Although the study indicates a decrease in interstitial fluid in shock from hemorrhage accompanied by anoxemia and an increase in the interstitial fluid in traumatic shock, these changes take place only partly between plasma and interstitial fluid but largely between the interstitial and the intracellular fluid. The potas-

sum of the extracellular fluid did not increase until just before death in hemorrhagic and traumatic shock and this terminal increase may be the result of a final severe injury of the cell membrane from anoxemia allowing potassium to pass freely from the cell. It is probably an extreme compensatory effort to reestablish an equilibrium between the osmotic pressure within the cell and its internal environment, the extracellular water. There is reason to believe that, when cellular osmotic pressure is increased the tubular reabsorption of potassium decreases and that, when cellular osmotic pressure is decreased (or extracellular osmotic pressure increased), tubular reabsorption of potassium increases.

## California and Western Medicine, San Francisco

56 167-278 (April) 1942

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## Endocrinology, Springfield, Ill

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## Florida Medical Association Journal, Jacksonville

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- Role of the Physician in Defense G S Osinecup Orlando—p 475  
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## Michigan State Medical Society Journal, Muskegon

41 261-340 (April) 1942

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Some Uses of Chemotherapy in Ophthalmology P Heath Detroit—p 303  
Chemotherapy in Infectious Diseases C S Keefer Bo ton—p 305  
Arthritis—a Curable Disease? R L Cecil New York—p 311  
Medical Service in Small Industries A J Lanza New York—p 315

**Treatment of Shock from War Injuries**—One of the reasons for irreversibility of the shock syndrome according to Harkins, is anoxic damage to tissues, for the prevention and treatment of which early administration of oxygen which effects a considerable rise in the alveolar oxygen, is imperative. The cortex of the adrenal gland is essential to life, but its use in the treatment of shock rests on an infirm foundation as physicians who have used it do not state definitely which substances, desoxycorticosterone corticosterone compound E or others, were used. This phase of the therapy offers much promise. Rhoads, Wolff and Lee report encouraging results with it in the treatment of burn shock, but Besser's report on the pre-

operative use of desoxycorticosterone acetate to prevent surgical shock tends to discredit its value. In using numerous blood substitutes suggested, the maintenance of blood volume is the chief requisite. Of the substances, plasma, dried in cellophane cylinders (the rotor pervaporator) has an important wartime application because it is cheap, easy to store in a sterile state and large quantities can be readily produced. Plasma and pectin are especially adaptable to wartime use. Pectin, if it proves to be a satisfactory blood substitute, has the advantage because it can be obtained from fruit by the ton. The fact that pectin is excreted within thirty-six hours suggests that it would be of only temporary value. In the United States 6,000 persons die every year from burns and of these 60 to 75 per cent die of burn shock. Since plasma, rather than whole blood, is lost in burns, the administration of 100 cc of plasma for every point the hematocrit is above the normal of 45 best supplies the deficiency.

### Nebraska State Medical Journal, Lincoln

27 157-192 (May) 1942

- Calculus Disease of Urinary Tract C F Rusche, Los Angeles — p 157  
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### New England Journal of Medicine, Boston

226 629-670 (April 16) 1942

- \*Relation of Tannic Acid to Liver Necrosis Occurring in Burns D B Wells H D Humphrey and J J Coll Hartford, Conn — p 629  
 Clinical Aspects of Paroxysmal Rapid Heart Action L Wolff, Boston — p 640  
 Chemical Measurement and Control of Clinical Vitamin Deficiency W T Salter, New Haven, Conn — p 649

**Tannic Acid Therapy and Liver Necrosis**—The sequence of the phenomena which follows severe burns is illustrated by 10 consecutive necropsies performed at the Hartford Hospital. Two of the patients, Wells and his associates say, died from direct trauma within two to four hours after injury, 1 died of shock or fluid imbalance in eleven hours, 4 died of "toxemia" in ninety-three to one hundred and twenty hours, 1 admitted late died of infection in one hundred and twenty hours and 2 died of complications, 1 as result of an associated cerebral laceration and 1 of a cerebral glioma—the glioma was probably the cause of the convulsive seizure during which the patient was burned. In each of the 4 patients who died of "toxemia" central lobular hepatic necrosis was exhibited as an especially prominent lesion or as the sole cause of death. In the treatment of these 4 patients a tannic acid bath was employed in which a careful debridement was done without an anesthetic. A thin, sterile tan was secured and maintained by a tannic acid spray and kept dry by a current of warm air from a commercial hair drier. Dextrose in isotonic solution of sodium chloride was given intravenously in adequate quantities. Each patient received transfusions of whole blood, and oxygen intranasally. The common denominator in the 4 appeared to be the tannic acid. The possible role of tannic acid in the production of hepatic damage in rats was investigated. Subcutaneous injections of a 5 or 10 per cent solution of tannic acid were given in doses that did not exceed 15 cc at any one site. No anesthesia was used. Rats that survived were killed on the third or fourth day. Of the 77 rats injected, 8 did not survive. Every one of the others showed some degree of hepatic damage, which, in general, varied directly with the amount of tannic acid injected and the number of injection sites employed. All other organs examined, except for a slight cloudy swelling appeared normal. The hepatic damage produced by the tannic acid was characterized by necrosis of the hepatic cells in the central portion of the lobule, a variable zone of intact cells in the peripheral area exhibiting a granular cytoplasm and enlargement of the nuclei, irregular clumping of hyperchromatic nuclear material, regular and bizarre mitosis, some with dis-

persions of the chromosomes and hemorrhage and leukocytic infiltration in minor degree in areas of necrosis. The degree of hepatic damage was directly proportionate to the amount of tannic acid injected.

### New York State Journal of Medicine, New York

42-737-832 (April 15) 1942

- Conservation of Renal Tissue J E Heslin Albany — p 761  
 \*Adenocarcinoma of Cervix B T Simpson A A Thibault and E M Burke, Buffalo — p 767  
 Utilization of Pus in Treatment of Pyogenic Disorders I J M Buffalo — p 770  
 \*Dilute and Concentrated Preparations of Tocopherols (Vitamin E) Treatment of Fibrositis C L Steinberg Rochester — p 773  
 Industrial Otology in Caisson Workers R Almour, New York — p 777  
 Role of Spas in Medical Preparedness Survey of Accommodations Available at Six Spas in New York State W S McClellan Saratoga Springs — p 786  
 Recent Advances in Bacillary Dysentery J Felsen New York — p 794  
 Adirondack Medicine Historical Outline L H Wardner Saratoga Lake — p 794  
 General John Cochran T W Clarke Utica — p 798  
 Dalbourn's Water—Its Uses in Dermatology T J Riordan O Ca zares and G E Morris New York — p 802  
 Tachycardia in Newborn H Tarnower and B Littin Scarsdale — p 805

**Adenocarcinoma of Cervix**—According to Simpson and his associates, a survey of the patients presenting themselves at the state institute for treatment of cervical cancer showed 1 adenocarcinoma for each 26 squamous cell carcinomas. Sixty-three patients, for whom microscopic sections were available and five years had elapsed since treatment were selected for study. Microscopically the tumors were placed in four categories: grade 1 showed malignant epithelial cells in gland formation and grade 4 was composed of a solid growth of anaplastic cells with only an occasional attempt at gland formation, grades 2 and 3 presented intermediate microscopic pictures. Dependent on their localization or extension the neoplasms were placed in their respective clinical groups. In the lowest groups were those tumors in which the neoplasm was confined to the cervix. Of the patients alive and well five years or more 46 per cent were placed both in the low clinical groups and in grades 1 or 2, while only 25 per cent with grade 3 and 4 tumors placed in the same low clinical group lived for the same period. Patients placed in the intermediate clinical groups with tumors of grade 1 or 2 showed a 29 per cent five year cure rate, while the five year cure rate for those in the same clinical groups with tumors of grade 3 and 4 was only 4 per cent. In the high clinical groups there were no five year survivals. Of those who died, 15 per cent were in the low clinical and microscopic groups, while the remaining 85 per cent had grade 3 and 4 tumors or were in the high clinical groups. The duration of symptoms in these patients showed that some had disturbances for only a few weeks before examination, while others had suffered from irregular menstruation together with discharge and pain for several years. Tumors of a low malignant grade may persist for many years and, while giving rise to symptoms indicative of malignant change, may remain localized and fail to metastasize. On the other hand, highly anaplastic malignant infiltrating growth may cause severe disturbances early. Treatment consisting of interstitial irradiation with gold seeds together with intracervical irradiation with tandem tubes of 50 or 100 mg of radium following this a course of external irradiation with 200 kV was given. Twenty-four, or 38 per cent, of the 63 patients alive and have remained well for five years or more. Ten of the women in the series had not borne children.

**Tocopherols in Fibrositis**—Steinberg used tocopherols, a trade name for a product containing the natural mixed alpha, beta and gamma tocopherols—in the treatment of fibrositis with primary or secondary fibrositis. The dose was 0.2 cc of the natural mixed tocopherols three times a day after meals. The patients were treated for three months. If no improvement was observed in the first three weeks of treatment none occurred later. No side effects were observed. Whereas several patients on tocopherols the wheat germ oil repeating or causing mild disturbances, none reported such effects with tocopherols.

the patients with primary fibrositis were completely relieved of all symptoms. The drug was useful in alleviating muscular spasm of the back of 4 patients with Marie Strümpell arthritis. The product was relatively ineffective in secondary fibrositis. It may prevent rather than cure the severe muscular atrophy of atrophic arthritis. Primary fibrositis is a metabolic rather than an infectious disease.

### North Carolina Medical Journal, Winston-Salem

3 161-216 (April) 1942

- Diagnosis and Treatment of Upper Respiratory Diseases F A Cooper Baltimore—p 161  
Treatment of Respiratory Diseases in Children W C Davison Durham—p 167  
Comparative Study of Pregnancy in the White and Colored Races W Z Bradford and W B Bradford Charlotte—p 172  
Treatment of Ftitulence with Protigmine Bromide R H Temple Kinston—p 176  
The Family Physician and the Oculist W P Spear Winston-Salem—p 179  
Enlarged Parietal Foramina K B Geddie High Point—p 182  
Management of the Early Diabetic Patient J C P Fearrington Winston-Salem—p 185  
Treatment of Burn with Spray of Sulfadiazine Report of Case W E Keiter Kinston—p 190  
Meckel's Diverticulum and Its Complication J F Marshall Winston-Salem—p 192  
Molded Plaster Splint in Treatment of Fractures of Hand G L Carrington Burlington—p 195  
\*Treatment of Chronic Idiopathic Ulcerative Colitis with Sulfaguanidine D Caver and J M Ruffin Durham—p 196

**Sulfaguanidine for Chronic Idiopathic Ulcerative Colitis**—Caver and Ruffin used sulfaguanidine in the treatment of 17 hospitalized patients with active ulcerative colitis. Definite improvement was observed in 4 and some improvement in 10 at the end of treatment but the effect could not be attributed to the drug alone as diet, rest, vitamin therapy and psychotherapy all play an important therapeutic part. The results obtained were no different from those obtained in patients receiving only nonspecific therapy or other sulfonamides.

### Public Health Reports, Washington, D C

57 521-552 (April 10) 1942

- \*Studies of Acute Diarrheal Diseases VI New Procedures in Bacteriologic Diagnosis A V Hardy J Watt and Thelma DeCapito—p 521  
Id VII Carriers of Shigella Dysenteriae J Watt A V Hardy and Thelma DeCapito—p 524  
\*Id VIII Sulfaguanidine in Control of Shigella Dysenteriae Infections A V Hardy J Watt J Peter on and Elise Schloesser—p 529  
Sulfadiazine in Murine Pertussis J W Hornibrook—p 535  
Administrative Organization for Mental Hygiene A H Vogel—p 537

**Acute Diarrheal Diseases**—The need for a simplified procedure for obtaining fecal cultures to diagnose bacillary dysentery became apparent to Hardy and his collaborators in their study of institutional inmates. They devised a rectal swab technique which they found to be widely applicable. A small lubricated rubber tube containing a dry sterile swab within its lumen is inserted. Gum rubber tubing (0.5 cm inside and 0.8 cm outside diameter) is cut into 12 cm lengths. One end is beveled for about 1 cm. Tightly wound cotton swabs prepared on the usual wooden applicators are placed in the rubber tubes with their tips slightly short of the beginning of the beveled opening. The external end of the tube is lubricated. The jelly should not reach the swab or cover the opening. The unit is easily inserted past the sphincter and up about half the length of the tube. The swab is exposed by withdrawing the tube 2 to 3 cm. The specimen is collected by rotating the applicator while sweeping it in a circular motion. The swab is then drawn back into the tube and in this position removed from the patient. The rubber tube and swab are separated and the latter is immediately used for plating. This method of obtaining rectal swabs is rapid and convenient for hospitalized patients and for study of men in military barracks. The new Shigella-Salmonella agar yields a significantly greater number of positive isolations than desoxycholate citrate medium. A total of 6324 examinations performed in New Mexico, Georgia and Puerto Rico on individuals who stated that they had had no diarrheal disorder during the preceding year disclosed 239 (3.8 per cent) to be positive for Shigella dysenteriae while in New York City only 2 (0.1 per cent) carriers were found among 1639 persons

examined. Convalescent and passive carriers of Shigella dysenteriae are common, and a large proportion of them may be identified with relative ease if persons with diarrheal disease and their contacts are promptly studied by the use of the new highly selective culture mediums Shigella-Salmonella agar and desoxycholate citrate medium. The possible value of sulfaguanidine in the control of Shigella dysenteriae infection was determined among inmates of a mental hospital. Inmates were selected with an approximate ratio of 1 infected to 4 noninfected persons. No general measures of control other than treatment with sulfaguanidine, were instituted under conditions favorable for the spread of infection. After five doses of the drug the number of positive cultures and of infected individuals was reduced by more than 50 per cent. After three days of treatment those infected on admission to the study were almost free from infection. A practical program for specific control can be determined only through experience, but preventive measures are most needed in readily controlled groups institutional inmates, men subject to military orders, families with an infectious enteric disease involving some member (usually a child) and all persons with positive or suggestive organisms. The dose of sulfaguanidine used has varied but has not been less than 0.3 Gm daily per kilogram of body weight for at least four days.

### Radiology, Syracuse, N Y

38 383-512 (April) 1942

- Fluoroscopes and Fluoroscopic Carman Lecture W E Chamberlain Philadelphia—p 383  
Inception and Development of Fluoroscopy Influence of Carman on Its Status in America P Brown Boston—p 414  
\*Roentgen Diagnosis of Vitamin Deficiency Cardiac Conditions with Some Clinical Observations on Thiamine Deficiency L H Garland and A C McKenney San Francisco—p 426  
Significance and Management of Radiation Injuries E Uhlmann Chicago—p 445  
Fluorographic Examination of Chest as Routine Hospital Procedure F J Hodges Ann Arbor Mich—p 453  
Mass Roentgenography of Chest for United States Army A A de Lorimier Washington D C—p 462  
\*March Fracture G R Krause Fort Jackson S C—p 473  
Correlation Between Roentgen Dosage and Lymphoid Cell Migration in Tissue Cultures W Stenstrom J T King and A F Henschel Minneapolis—p 477  
Radiation Effects on Blood Vessels I Erythema Edema J Borak New York—p 481

**Vitamin Deficiency Cardiac Conditions**—Garland and McKenney state that the roentgenograms of patients with vitamin D and C deficiency alone or in combination, presented no evidence of cardiac enlargement or failure while those of most of the patients with vitamin B<sub>1</sub> deficiency showed evidence of cardiac enlargement and failure. The heart shows generalized enlargement and diminished pulsations. The response to thiamine therapy is usually prompt and satisfactory; the classic symptoms of cardiac failure abate rapidly and the size of the heart diminishes greatly within two weeks but some patients with perhaps irreversible cellular changes show little improvement even on adequate diet and rest. These cases are usually terminal or are complicated by myocardial damage of other origin. There are no pathognomonic roentgen signs in cardiovascular disease due to vitamin deficiency but the finding of an enlarged poorly contracting heart and mild pulmonary congestion in an adult without valvular disease should suggest the possibility of thiamine deficiency in addition to the other well known causes of such changes. The clinical exclusion of hypertensive disease increases the possibility of the enlargement being avitogenic and its prompt diminution under thiamine therapy confirms the diagnosis. Cardiac enlargement in scurvy and rickets is probably always due to an associated but masked thiamine deficiency. Fourteen cases of cardiovascular disease due to thiamine deficiency (beriberi hearts) in adults, 2 of ascorbic acid deficiency in adults and 1 in an infant, 5 of combined ascorbic acid and vitamin D deficiency in infants and 4 of vitamin D deficiency are reported. In none of the nonthiamine cases was there any definite evidence of cardiovascular disorder.

**Mass Roentgenography of Chest in the Army**—Consideration of the available roentgen procedures for examining men for the services. Lorimier points out reveals a preference for stereoscopy and that the attributes of stereoscopy are par-



ticularly important when hundreds of cases must be studied in a day and when the roentgenograms may serve for legal evidence. When mass roentgenography is to be conducted, stereoscopic viewing of the 4 by 5 inch films is given priority, the 35 mm film is also highly rated. As regards fatigue and the field of visual concentration, the detailed viewing of a standard 14 by 17 inch film is comparable to studying at least four, and possibly six, of the miniatures. The 4 by 5 inch photograph of the fluoroscopic image was adopted as the official procedure, in doubtful cases the standard 14 by 17 inch conventional film is added. An intensity of radiation of 200 milliamperes is believed practical. The x-ray tube should withstand no less than 700,000 heat units per hour. Single emulsion x-ray films are recommended because they increase the sharpness of detail and decrease the contrast characteristics. High kilovoltages are favored. The use of a wafer type of grid is recommended for very thick chests and when a kilovoltage of more than 85 is required. For the lens a relatively short focal-fluoroscopic screen distance, 36 to 48 inches, is believed best. The handling of two hundred to four hundred such examinations daily presents a definite radiation hazard to the technician, for if the equipment is not properly positioned and lead protective shields used he will receive more than 0.1 roentgen, the recognized daily tolerance dose.

**March Fracture**—As hundreds of thousands of young men entering the Army will walk distances much greater than those to which they are accustomed, march fracture is certain to increase. Krause saw only 1 case in three and a half years prior to active duty with the Army, but he has seen 9 cases in six months at the Station Hospital, Fort Jackson, S. C. The pathogenesis of the fracture is not clearly understood, but all patients give a history of prolonged and repeated foot strain. The first symptom is usually a slight discomfort in the metatarsal area, which slowly increases and is manifest only when the foot bears the weight of the body. This pain and its accompanying tenderness are usually localized at the site of the fracture. Technically perfect roentgenograms, showing maximal detail, are needed for an early diagnosis. On the basis of the changes seen in the roentgenograms the syndrome may be divided into four stages. 1. Within the first seven to ten days after the onset of symptoms no pathologic changes may be seen because the fracture line is narrow and often incomplete and because no displacement occurs. 2. After one to three weeks a loosely calcified and fuzzy callus is seen around the shaft of the second or third metatarsal, the fracture line is usually visible and the callus may be abundant if the foot has not been placed at rest immediately. 3. After immobilization in a plaster cast the callus in three to six weeks becomes more dense and circumscribed and less bulky. 4. After several months the only remaining sign is slight thickening of the cortex. March fracture must be differentiated from osteogenic sarcoma and Ewing's tumor. The treatment is that of any fracture in this area: immobilization, preferably in a plaster cast, for three to six weeks followed by physical therapy.

## Review of Gastroenterology, New York

9 91-164 (March-April) 1942

- Relation of Gastrointestinal Tract to Syndrome of Arthritis R. Pemberton, Philadelphia—p. 91  
 Chronic Ulcerative Colitis II. Complications Outside Digestive Tract I. R. Jankelson, C. W. McClure, Boston, and F. N. Sweetser, Merrimac, Mass.—p. 99  
 Dietary Management of Bleeding Peptic Ulcer with Orange Juice Milk M. J. Matzner and C. Windwer, Brooklyn—p. 105  
 Peptic Ulcer of Esophagus S. B. Kaplan and N. Ziswiler, Newark, N. J.—p. 108  
 Cardiospasm E. S. Emery Jr., Boston—p. 112  
 Therapeutic Action of Adenylic Acid and Its Relation to Blood Formation H. Rothmann, San Francisco—p. 117  
 Cancer of Stomach Analytic Survey of 104 Cases at Metropolitan Hospital, Welfare Island M. Golob, T. Ipolitto and C. Nussbaum, New York—p. 120  
 Evaluation of Peritoneoscopy in Intra Abdominal Diagnosis W. Y. Lee, Philadelphia—p. 133  
 Rational Treatment of Constipation and Mucous Colitis Accompanied with Ptoxis G. M. Russell, Billings, Mont.—p. 141  
 Are Complications of Cholelithiasis Due to Delay in Treatment? C. Bearse, Boston—p. 146

## Rhode Island Medical Journal, Providence

25 75-96 (April) 1942

- Treatment of Pleural and Pulmonary Suppuration J. M. Beard, Providence—p. 75  
 Hypertension Experimental Aspects M. Cutts, Providence—p. 83  
 Surgical Treatment R. R. Baldrige, Providence—p. 81  
 Medical Aspects C. B. Leech, Providence—p. 84  
 The Rhode Island Hospital's Army Unit E. Stone, Providence—p. 87

## Rocky Mountain Medical Journal, Denver

39 317-396 (May) 1942

- Serum and Plasma as Blood Substitutes C. M. Hyland, Los Angeles—p. 334  
 Miller Abbott Double Lumen Tube for Small Intestinal Intubation G. W. Henderson, Casper, Wyo.—p. 341  
 Hyperinsulinism E. H. Ryneason, Rochester, Minn.—p. 343  
 Use of Physical Therapy in Internal Medicine O. L. Huddleston, Denver—p. 346  
 A New Colpeurmeter R. O. Johnson, Murray, Utah—p. 350  
 Tarr Apparatus in General Practice R. Waldapfel, Grand Junction, Colo.—p. 354

## South Carolina Medical Assn Journal, Florence

38 81-108 (April) 1942

- Surgical Difficulties, with Special Reference to Small Town Surgeons C. A. West, Camden—p. 81  
 Gonorrhea in Female R. F. Zeigler Jr., Seneca—p. 87  
 Preoperative and Postoperative Treatment of Prostatism A. C. Braham, Anderson—p. 92

## Southern Medical Journal, Birmingham, Ala

35 325-424 (April) 1942

- \*Weil's Disease Clinical and Epidemiologic Report of Fourteen Cases B. S. Lester, G. A. Demson, L. C. Posey and G. M. Tate, Birmingham, Ala.—p. 325  
 Venereal Disease Control in St. Louis F. G. Gillick and J. C. Willett, St. Louis—p. 332  
 \*Convulsions of Anesthesia J. P. Tye, Albany, Ga.—p. 339  
 Exophthalmic Ophthalmoplegia R. K. Drury, L. Drury, J. D. Walker and H. J. Peterson, Houston, Texas—p. 344  
 Surgical Treatment of Glaucoma M. E. Randolph and G. Roberts, Baltimore—p. 352  
 Some Whys and Wherefores Relative to Nasal Sinus Histopathology J. D. Heitger, Louisville, Ky.—p. 359  
 Nasal and Sinus Surgery Critical Review of Causes of Unsuccessful End Results A. R. Hollender, Miami Beach, Fla.—p. 363  
 Dehydration and Edema J. W. Scott, Lexington, Ky.—p. 372  
 Blood Pressure Studies in Patients Undergoing Convulsive Therapy H. Cleckley, W. P. Hamilton, R. A. Woodbury and P. P. Volpert, Augusta, Ga.—p. 375  
 Distribution of Physicians in Louisiana, with Special Reference to Those in Private Practice B. I. Burns, New Orleans—p. 381  
 \*Treatment of Gonococcal Vaginitis in Children with Diethylstilbestrol J. D. Woodruff and R. W. TeLinde, Baltimore—p. 389  
 Continuous or Fractional Spinal J. F. Davidson, Chevy Chase, Md.—p. 393  
 \*Acute Cholecystitis W. Barrow and F. M. Massie, Lexington, Ky.—p. 397  
 Palliative Treatment of Irreducible Congenital Dislocations of the Hip C. I. Frankel, University, Va.—p. 404  
 Studies on Human Hypersensitivity to Poison Ivy E. L. He, Baltimore—p. 408  
 Tuberculosis Its Evolution and Its Eradication C. A. Stewart, New Orleans—p. 410  
 Management of Dermatitis Herpetiformis J. L. Callaway, Dallas, N. C.—p. 414

**Weil's Disease**—Lester and his associates give the clinical and epidemiologic details of 14 cases of Weil's disease that occurred within two and one-half years in a single locality (a mine) in Alabama. The diagnosis in each was confirmed by laboratory studies. The coal mine in question was not unusual except that it was extremely damp. As many of the patients represented persons engaged in operating pumps and maintaining pipe lines, a blood survey was confined to the men of this crew who were not known to have developed the disease. Of 16 such individuals available the blood of 3 showed agglutinins in dilutions sufficient to be diagnostic, only 1 had a definite history of an acute illness accompanied by jaundice. Other mild or subclinical cases might have been detected had blood specimens been examined from those engaged in mining and the loading of coal. However, the great majority suffered by those who operate pumps and maintain pipe lines. Twenty-five men customarily work on this crew. Of the two and one-half years, 8 contracted Weil's disease. 68 rats trapped in the mine and examined by the authors showed spirochetemia and icterohemorrhagiae was found in the livers.



Microscopic preparations of positive rat kidneys showed the leptospiras to be distributed in great masses lining the tubules. Direct examination of mine water and of muck collected from the bottom of pools revealed many leptospiras morphologically typical of *Leptospira icterohemorrhagiae*. Following the institution of control measures (rat elimination in the mine and surrounding vicinity and education of the workers and villagers) no further cases have occurred. The true incidence of Weil's disease is probably greater than realized and will be determined more definitely only when physicians become fully acquainted with the disease.

**Convulsions of Anesthesia**—The etiologic factor or factors responsible for anesthesia convulsions are still obscure and, as there is no method to predict such a convulsion, prevention is impossible. However, Tve points out that the complication is more prone to occur under certain conditions and should be apprehended in a child or young adult who is excited or frightened before the anesthetic is started in any patient with sepsis and a temperature of 101 F or more and in patients who have been overdosed with atropine. After a convulsion has been precipitated it should be arrested before it becomes generalized. As soon as twitching of the muscles about the face is noticed the operative procedure should be suspended and the patient given deeper anesthesia. Under deeper anesthesia the convulsion will not become violent, and after a few minutes it will cease and the operation can be continued. If the convulsion recurs when the operation is resumed or if it becomes worse an intravenous barbiturate should be prepared so that it can be used at a moment's notice, after which the operation may be resumed if a patent airway has been established and oxygen is administered. A mixture of oxygen and carbon dioxide may be necessary to stimulate respiration. Artificial respiration may be necessary, particularly if an overdose of barbiturate was given. Five cases of anesthesia convulsions with 2 deaths and 3 recoveries are reported. 1 patient died during the convulsion and 1 after twenty-nine days, during which time a state of decerebrate rigidity without consciousness existed. The 3 patients who recovered were given deeper anesthesia. The convulsion of 1 recurred when the operation was resumed but it was controlled with intravenous anesthesia and the operation was completed. The most logical etiology of convulsions of anesthesia is that of Raab that the convulsions are due to hyperventilation tetany.

**Diethylstilbestrol for Gonococcal Vaginitis**—Woodruff and TeLinde administered diethylstilbestrol to 50 children with gonococcal vaginitis. 29 with suppositories, 5 with suppositories for whom oral therapy was unsatisfactory and 16 orally. The suppositories contained 0.1 mg of diethylstilbestrol. One suppository was inserted into the vagina every night during the course of treatment. The vaginal smears of 22 became negative after one week of 8 within two weeks and of 2 within three weeks and of 1 in twenty-five days. 1 failed to respond after five weeks of treatment but did so to oral therapy. There were five recurrences or reinfections, all of which responded rapidly to a second course. At the end of seven days of treatment the smears of only one third of the patients receiving oral therapy were negative, but at the end of two weeks the percentage of negative smears was approximately the same (90) for the two types of therapy. The optimal daily dose by mouth was 1 mg. Nausea and vomiting occurred in an appreciable percentage of the patients given the drug by mouth, whereas it did not occur in any treated with suppositories.

**Acute Cholecystitis**—Acute cholecystitis Barrow and Massie state, was encountered in 159 of 1000 patients with disease of the gallbladder. A statistical analysis of the 159 patients shows that the mortality rate increased in direct ratio to the interval between the onset of symptoms and admission to the hospital. Early hospitalization and prompt operation of patients with acute cholecystitis was associated with a minimal morbidity and mortality and little subsequent difficulty. Partial cholecystectomy is frequently wise for patients with extensive inflammation around the common duct. Jaundice in patients with acute cholecystitis may be due to inflammatory changes around or in the bile ducts rather than to choledocholithiasis and is not by itself an indication for exploring the common duct.

## Western J Surg, Obst & Gynecology, Portland, Ore 50 177-224 (April) 1942

- \*Morbidity and Mortality in Resections of Rectum M S Woolf San Francisco—p 177  
Theca Cell Tumor of Ovary Report of Case R E Fallas Los Angeles—p 182  
Tuberculosis of Long Bones Importance of Its Differential Diagnosis from Pyogenic Osteomyelitis M C Mensor San Francisco—p 187  
Spontaneous Artificial Anus of Cecum After Appendectomy P Campiche, San Francisco—p 192  
The After Coming Head A W Diddle H C Willumsen E D Plass and W F Mengert Iowa City—p 196  
Sarcococcyal Tumors Case Report R H Loe Seattle—p 202  
\*Diethylstilbestrol Dipropionate Clinical Comparison with Estrone and Estradiol Benzoate 502 Cases F E Harding Los Angeles—p 207

**Resections of Rectum**—The 265 cases of rectal cancer admitted to the University of California Hospital in the last twenty years are divided by Woolf into two groups: those seen between 1921 and 1930 and those seen between 1931 and 1940. The mortality from colostomy and posterior resection was 12.5 and 8 per cent respectively for the first ten and the last ten years. The respective rates for the two periods of one stage abdominoperineal resection were 50 and 16.6 per cent, for two stage abdominoperineal resection they were 25 and zero per cent, for local excision 50 and zero per cent and for the Hartmann anterior resection during the last ten years the mortality rate was 10 per cent. The excessive morbidity or complications and residual difficulties that follow two stage procedures arise directly from the operations themselves. A careful survey of the postoperative difficulties ensuing after rectal resection shows them to be numerous and often grave. After the two stage operation of the Mummery type 1 patient in 3 or 4 would have permanent or long standing physical disorders in addition to the colostomy. For some of them additional operations may be necessary. It would seem that the best way to avoid many of the complications would be not to do this type of operation if it can be avoided without fatal risk to the patient. Complications and sequelae are by no means obviated by the one stage operation, many of them are due to the abdominal part of the procedure, but they are considerably less than in other types. The complications generally affect the urinary and/or intestinal tract. The reduction in mortality at the University of California Hospital has been partly due to a more gentle and painstaking technic, an exhaustive preoperative survey of the physical assets of the patient, teamwork in the operating room, relegation of certain specialized supervision to the departments concerned during the whole period of hospitalization and the utilization of the newer aids to surgery, chemotherapy, vitamin therapy and attention to altered physiologic body mechanisms as they occur. Morbidity and mortality are intimately connected.

**Diethylstilbestrol Dipropionate**—The degree of clinical improvement both symptomatic and physical following therapy with theelin, dihydrotheelin and diethylstilbestrol of 502 patients is discussed by Harding. The response to the various hormones was determined by the change in clinical symptoms: hot flashes, mental depression, menstruation and nervousness. All three preparations were used orally and parenterally. On a basis of weight estradiol benzoate (dihydrotheelin) was more effective than theelin and diethylstilbestrol dipropionate was the strongest estrogen of the three. There is a qualitative and quantitative difference in the substances. In this respect the natural estrogens seem to have an advantage over diethylstilbestrol dipropionate. The effect of estradiol benzoate lasts a little longer than that of theelin and it is generally more effective in severe cases. Diethylstilbestrol dipropionate was definitely superior in relieving mental depression. In doses of 0.5 mg or more diethylstilbestrol dipropionate was likely to inhibit menstruation and to cause uterine bleeding in women who were not still menstruating. Diethylstilbestrol dipropionate is a powerful pharmacodynamic agent and should be administered with care. Only enough to relieve the patient's symptoms should be prescribed. Still about 10 per cent of patients cannot use it because of adverse symptoms. They prefer theelin or estradiol benzoate. Substitution therapy for relief of the symptoms of hypoeestrogenism must be individualized.

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Tuberculosis, London

36 1-46 (Jan) 1942

- Pulmonary Cavities: Their Persistence and Closure C. P. Thomas —p. 4  
Anatomy of Bronchial Tree A. F. Foster-Carter —p. 19

## Journal of Endocrinology, London

3 1-122 (March) 1942

- Further Investigations on Mechanism of Estrone Production in Ovary B. Zoudek and J. Sklow —p. 1  
Corticotrophic Activity in Pregnant Mares' Serum Y. M. L. Golla and M. Reiss —p. 5  
Further Observations on Role of Progesterone (Pregnandiol) and Estrogen in Pregnancy A. M. Ham —p. 10  
Endocrine System and Hair Growth in Rat C. W. Emmens —p. 64  
Effect of Implanting Tablets of Synthetic Estrogens on Histology and Cytology of Anterior Pituitary of Immature Rats C. L. Foster —p. 79  
Behavior of Uterus of Rhesus Monkey Under Influence of Certain Hormones G. H. Bell —p. 87  
Assay of Hypophyseal Growth Promoting Extracts Employing Rats Treated with Diethylstilbestrol M. Griffiths and T. G. Young —p. 96  
Implantation of Sex Hormone Tablets in Man G. L. Foss —p. 107  
Serologic Protection Against Diabetogenic Substance of Anterior Pituitary Gland A. H. Ennor and E. Singer —p. 118

## Journal of Laryngology and Otology, London

57 1-54 (Jan) 1942

- General Survey of Otorhinologic Considerations in Service Aviation J. F. Simpson —p. 1  
Aviation Noise Deafness and Its Prevention E. D. D. Dickson —p. 8  
Suggestion for New Method of Testing Hearing in Aviation Candidates D. B. Fry —p. 11  
Aviation Pressure Deafness J. E. G. McGibbon —p. 14  
Observations on Air Sickness R. H. Winfield —p. 23

## Lancet, London

1 343-372 (March 21) 1942

- Reconstruction in the Practice of Medicine E. F. Buzzard —p. 343  
\*Superficial Granulating Areas Treated with Antiseptic Emulsions R. M. Heggie, E. A. Gerrard and J. F. Heggie, in collaboration with C. G. Bradbury, P. J. Morrison and W. Stout —p. 347  
\*Chemical Coagulants in Treatment of Burns P. B. Medawar —p. 350  
Pneumococcal Meningitis: Seven Cases with Five Recoveries V. N. Leyshon —p. 352

**Antiseptic Emulsions for Superficial Granulating Areas**—During the last eighteen months Heggie and his collaborators have used lymphagogues followed by antiseptic emollient dressings for the treatment of infected superficial burns. Lymphagogues were most effective in removing gross infection and in separating sloughs. The antiseptic in the emulsion was then usually capable of completing and maintaining the sterility of the area while the emollient dressing preserved the recently healed tissue when changes were necessary. For the water in oil emulsion they modified the buffered isotonic proflavine sulfate solution suggested by Russell and Falconer for head injuries. The concentration of proflavine sulfate was 0.4 per cent, and urea was added to the extent of 5 per cent. The oil in water emulsion was so constituted as to behave as a "wet dressing," from which the proflavine of the abundant buffered isotonic water phase would be available in requisite concentration to sterilize the granulating areas. Water in oil emulsions were made as water creams (40 to 50 per cent of water) and were designed to be used as occlusive dressings for cases of light or reduced infection in which the main object was to leave the area undisturbed until healing was complete. Gross infection was removed by the action of lymphagogues. Sterilization was usually obtained by the fourteenth day. The emulsion is warmed to body temperature, spread liberally on two thicknesses of gauze, applied to the burned area so as to include the margins, then two or four thicknesses of gauze and a layer of wool, and the whole is bandaged and left for seven to fourteen days, according to the amount of exudate appearing in the superficial dressings. Superficial areas healed at the end of fourteen days, others were redressed and left for a further

seven to fourteen days. The dressings can be changed with ease, most of the water phase evaporates and leaves a thin layer of "unguent." If a dressing is stuck it should not be disturbed. Some patients who were feverish were also given sulfanilamide or sulfapyridine. Recently emulsions have been made incorporating the sulfonamides, but as yet they have not been tried. Proflavine oleate, 1 per cent, in cod liver oil with or without petrolatum would make an excellent antiseptic preparation for the initial treatment of burns.

**Chemical Coagulants in Treatment of Burns**—Medawar tested which coagulants were capable of "fixing" tissue in burns so that it would be resistant to digestion by proteolytic enzymes. Coagulation therapy attempts to form a surface seal or "tan" over the lesion, to restrict external fluid loss, to furnish a general protective and analgesic function and to transform dead tissue from being part of the lesion to being its most immediate dressing. All the coagulants considered fix tissue in the microscopic sense, which does not consider resistance to proteolytic digestion, but the stability of the compounds they form with protein varies greatly. Picric acid, for example, can be washed out of tissue merely by prolonged irrigation with water, therefore the potential danger of systemic poisoning when it is applied to extensive burns. Results with cylinders of clotted cockerel blood plasma (fibrin and serum protein) suggest that tissue fixed by tannic acid or methylrosaniline is stabilized to the action of body fluids, and that in burns layers of coagulated tissue must be split off as intact sheets since they cannot be digested away. Silver nitrate, because of its secondary reactions, introduces special problems. Since coagulants destroy living cells with which they come in contact, their penetrative power must be considered. Tannic acid and methylrosaniline were the most feeble penetrants. Increasing the strength of a coagulant did not proportionately increase its penetrative power. The thickness of the coagulated crust formed on a burn does not necessarily represent the depth to which the coagulant has penetrated. The crust may be formed by the building up of coagulated serous exudates in layers from the inside outward.

## Medical Journal of Australia, Sydney

1 275-302 (March 7) 1942

- Problem of Bladder Neck Obstruction H. Mortensen —p. 275  
Application of Hirst's Phenomenon to Titration of Vaccinia Virus: Vaccinia Immune Serum F. P. O. Nagler —p. 281  
Note on Preservation of Certain Bacterial Cultures Under Paraffin Oil R. T. Simmons —p. 283  
Psychiatric Examination of Recruits N. V. Youngman —p. 283

1 303-330 (March 14) 1942

- \*Surgical Treatment of Congenital Pyloric Stenosis of Infancy: Report of 400 Cases H. Williams —p. 303  
Lumbago and Abdominal Pain M. Kelly —p. 311  
Some New Aspects of Electrocardiology O. V. Short —p. 317

**Surgical Treatment of Congenital Pyloric Stenosis of Infancy**—The four principles involved in the treatment of congenital pyloric stenosis are correction of the alkalosis, chloride deficiency and dehydration, relief of the pyloric obstruction, maintenance of the infant's nutrition and prevention of infection. Alkalosis and infection are the two main causes of death. They were responsible for 38.6 per cent and 40.9 per cent, respectively, of the deaths in a series of 294 infants treated surgically from 1928 to 1938. The alkalosis and chloride deficiency can be corrected by the slow administration of 1,200 cc of isotonic solution of sodium chloride by the continuous intravenous drip method. The mortality rate for 106 infants treated surgically from 1938 to 1941 was 2.8 per cent as compared to 15 per cent for the 294 infants treated before 1938. This difference in mortality is attributed to Williams to the use of adequate preoperative saline therapy, which has abolished death due to alkalosis, to the adoption of isolated nursing, which has considerably reduced cross-infection, and to the use of blood transfusion for all extremely ill infants, which has eliminated deaths from inanition. The operative progress (daily gain in weight and average survival) of the 106 infants was better than that of the 294 infants. This must be attributed to more effective treatment before and after operation.

**Schweizerische medizinische Wochenschrift, Basel****71 1545-1572 (Dec 13) 1941 Partial Index**

- Problem of Hyperthyroidism A Weiss and I Abelin—p 1545  
\*Who Is a Suitable Blood Donor? R Meyer Wildisen—p 1550  
Noteworthy Manifestations of Tumors in Tropical and Subtropical Areas (Belel Tumors) Attempt to Explain Tumor Development O Schneider—p 1552  
\*Antagonism and Synergism of Female and Male Sex Hormones W Jadassohn and H E Fierz—p 1554  
Mode of Action of Sulfonamide Derivatives G A Moosbrugger—p 1556

**Suitable Blood Donors**—Meyer-Wildisen stresses that a blood donor service must see to it that donors of the same group are available and that universal donors are obtainable. He suggested in 1939 the employment of the double designations AB-I, A-II B-III and IV-O. Persons of the AB-I group have the advantage in that they can receive blood from every donor, because the group is one of universal recipients. However, if a patient in this group is to receive blood of his own group he is at a decided disadvantage, because his group has an incidence of only 2.4 to 4.3 per cent. Blood groups A-II and IV-O are found in from 80 to 90 per cent of all persons. Thus if donors are limited to these two groups more than 80 per cent of persons can be supplied with blood of their own group and furthermore donors of group IV-O can serve as universal donors, and recipients with group AB-I are universal recipients. Other factors play a part in the selection of a blood donor, such as the health of the donor and the recipient dangers for both and changes in the blood that nullify the value of the transfusion. Loss of blood is detrimental for the donor if his general condition is impaired but in conditions like polycythemia, polyglobulism and hypertension donorship is not only not harmless but advantageous. Persons with pyogenic or septic infections should be excluded from donorship. The suitability of the veins for withdrawal of blood must be considered and the blood to be transfused must be of good quality in every respect.

**Antagonism and Synergism of "Female" and "Male" Sex Hormones**—Jadassohn and Fierz stress the following points: 1. If androsterone or testosterone propionate in an aqueous solution is dropped on the nipple of male guinea pigs the nipple becomes lengthened, but not quite as much as when estrone is applied. 2. Application of drops or subcutaneous injection of androsterone and testosterone propionate in an oily solution does not cause lengthening of the nipple. 3. Castration intensifies the effect produced in the nipple by percutaneous application of estrone (inhibiting effect of testes). 4. Injections of testosterone propionate inhibit the effect which the percutaneous application of estrone exerts on the nipple. Thus the male sex hormone which in one form of application (percutaneous with aqueous solutions) effects an enlargement of the nipple, inhibits the nipple enlargement produced by estrone in another form of application (subcutaneous injection of oily solution). Thus depending on the mode of administration testosterone propionate may have opposite effects on the same test organ.

**Hospital, Rio de Janeiro****21 329-498 (March) 1942 Partial Index**

- \*Immunization with BCG in Rio de Janeiro A de Assis A de Carvalho and W Guedes Pereira—p 487

**Immunization with BCG in Rio de Janeiro**—De Assis and his collaborators heads of the central department for administration of BCG vaccination to newborn infants and infants in Rio de Janeiro administered BCG vaccine to three groups of infants. Newborn infants exposed to tuberculous contacts were given the vaccine on the second, fourth and sixth days of life in a dose of 0.03 Gm every two days up to a total of 0.09 Gm. Infants not exposed to tuberculous contacts were given the vaccine in the same doses on the fifteenth to the twentieth day after birth. Infants who passed the twentieth day of life without having had the vaccine constitute the third group. They are given the vaccine when they reach 6 months of age provided they are nonallergic as demonstrated by negative tuberculin skin tests and intradermal reactions and by roentgen examination. Infants in the third group receive the vaccine in one dose of 0.2 Gm by mouth. The mothers bring

their infants at periodic intervals for examination. The BCG vaccine should not be administered to infants who have had any obstetric accident, to those with grave congenital heart disease or to those with acute or general infection. When jaundice of the newborn is acute it is advisable to wait until it disappears before administering the BCG vaccine. The vaccine is reliable and harmless.

**Rev Brasileira de Oto-Rino-Laringologia, São Paulo****9 413-506 (Nov-Dec) 1941 Partial Index**

- \*Nicotinic Acid in Therapy of Gangrenous and Ulcerous Stomatitis and Vincent's Infection A Correa and L Oriente—p 439

**Gangrenous and Ulcerous Stomatitis**—Correa and Oriente stress the role of avitaminosis in the pathogenesis of ulcerous stomatitis and the frequent occurrence of Vincent's infection as a complication. The authors report good results from topical applications of a 20 per cent solution of sodium hypochlorite four or five times a day and of nicotinic acid by mouth in doses which varied from 100 to 400 mg. The average duration of the treatment was between twenty and thirty days. Subacute ulcerative stomatitis has a tendency to develop into a gangrenous type unless the patient has the proper hygienic care and diet. Gangrenous stomatitis frequently exhibits symptoms similar to those of noma. Nicotinic acid administered in the doses mentioned controls the stomatitis of either the gangrenous or the ulcerative type and the complicating Vincent's infection. Twenty-four cases are reported as occurring in children from 2 to 15 years of age. Good results were obtained in all.

**Revista de Cirugía de Buenos Aires****20 541-600 (Dec) 1941 Partial Index**

- Cervical Ribs and Scalenus Syndrome L Rogers—p 541

**Cervical Ribs and Scalenus Syndrome**—According to Rogers cervical ribs which can be palpated or visualized in roentgenograms, as a rule, do not exert pressure on the brachial plexus. Symptoms similar to those caused by nonpalpable compressing ribs are observed in the scalenus syndrome in presence or in absence of a rudimentary or a noncompressing cervical rib. The scalenus syndrome is caused by compression of the brachial plexus by a band of fibrous tissue which, in the absence of a compressing cervical rib, occupies the anatomic plane which would be occupied by the latter if it were present. This band may represent the prolongation of a rudimentary or of a noncompressing cervical rib or of the middle scalenus muscle. In the first instance the band originates in the rudimentary rib and is formed by nonossified tissue. In the second instance it consists of the anterior tendinous fibers of the middle scalenus muscle. The anterior scalenus muscle may play a role in the production of the syndrome by compressing the lower portion of the brachial plexus and the subclavian artery against the band which is the main causal agent of the syndrome. Symptoms of the scalenus syndrome are transient in the beginning and constant in time. They are predominantly neurologic and consist of pain in the shoulder area which radiates into the neck and down the arm of sensory disturbances along the forearm and of neurovascular disturbances in the hand and the forearm. These symptoms can be differentiated from symptoms caused by a lesion of the cubital nerve by subacromial bursitis or by laceration of the supraspinatus tendon by the character of pain and especially by the diminished tone and weakness of the small muscles of the hand. They abate when the arm is placed in abduction in an airplane splint. Their abatement in abduction is a sign of diagnostic value and an indication for surgical intervention. The treatment consists in sectioning the anterior and the middle scalenus muscles and the fibrous tissue band. The cervical rib if present is removed. A sharp edge of the first rib must be converted into a depression. The phrenic nerve is carefully isolated and protected before the anterior scalenus muscle is cut. The posterior scapular artery is sectioned between ligatures if it originates in the third segment of the subclavian artery. Before closing one must be certain that the brachial plexus is entirely free from any compression.

## Semana Médica, Buenos Aires

49 621-680 (April 2) 1942 Partial Index

- \*Elimination of the Sulfonamides Through Milk R Cibils Aguirre, J R Calcarani, D Aguilar Giraldes and H M Berisso—p 621  
Hereditary Syphilis in Children E P Navarini—p 651  
Varicose Veins Social Problem L G Gret—p 666

**Elimination of the Sulfonamides in Milk**—Cibils Aguirre and his collaborators determined the elimination of the sulfonamides in the milk and in the blood of 49 women in the course of the puerperium. They also made sulfonamide determinations on the blood of 34 newborn infants of these mothers. Bratton and Marshall's technic was used with a slight modification. The patients were placed in seven different groups and were given the following sulfonamide preparations in the usual therapeutic doses: sulfathiazole, sulfadiazine, acetylsulfanilamide, dimethyldisulfanilamide, sulfanilamide, sulfapyridine and monomethyldisulfanilamide. Specimens of the blood and milk of the mothers were taken within fifty-two and fifty-three hours after administration of the first dose. Milk for the determinations was taken before and immediately after nursing. Blood was taken from infants an hour and a half after administration of the last dose of the sulfonamide to the mother. The sulfonamide concentration was higher in the milk than in the blood when the drug administered was acetylsulfanilamide, sulfapyridine or sulfathiazole, with the other drugs it was lower. The sulfonamide concentration in milk was higher in the first week after the puerperium than in the days following. The concentration of conjugated sulfanilamide was higher in the milk than in the blood when the drug used was sulfanilamide. The concentration of the drug in the milk in relation to that in the blood when other sulfonamide preparations were administered was in decreasing amounts. The milk showed traces only when dimethyldisulfanilamide was given. The amount of sulfanilamide in the blood of newborn infants nursed by mothers in the course of sulfonamide therapy was nil or almost nil. Infants nursed by mothers or wetnurses in the course of sulfonamide therapy do not exhibit toxic symptoms. The author concludes that (1) administration of the sulfonamides to women in the course of the puerperium does not contraindicate lactation, (2) sulfonamide therapy for infants by administration of the drug to the mother or wetnurse is inadequate because the amount of drug eliminated in milk is negligible for therapeutic purposes.

## Der deutsche Militärarzt, Berlin

6 257-320 (May) 1941 Partial Index

- Question of Treatment of Pneumonia Sulfapyridine or Quinine Calcium R Mark and K H Veuhoff—p 262  
Prophylactic Treatment of Dysentery with Polyvalent Dysentery Bacteriophages F Klose and W Schröder—p 265  
Observations on Bacillary Dysentery in Polish War Prisoners P Schlierbach—p 268  
Simulation of Jaundice, Particularly by Atabrine G Hansen—p 272  
\*Demonstration of Spirochetes by Means of Dark Field in Duodenal Juice in Weil's Disease F Jahn and E Ludwig—p 274  
Postserotherapeutic Polyneuritis and Paralysis W Sprugel—p 275  
\*Instantaneous Cure of Causalgia by Removal of Sympathetic Ganglions and of Pertaining Sympathetic Nerves A Fuchs—p 277  
\*Treatment of Burns with Cod Liver Oil or Tannin Attempt at a Comparison R Gey—p 287

**Spirochetes in Duodenal Juice in Weil's Disease**—Jahn and Ludwig report the history of a soldier who had bathed in rat infested waters and who subsequently had severe headache, jaundice, conjunctivitis, an enlarged, extremely painful liver, cutaneous hemorrhages over the abdomen and pains in the calves of the legs. Dark field examination of the urine, blood, saliva and conjunctival secretions disclosed spirochete-like bodies in the blood only. The authors examined the duodenal juice with dark field illumination and found numerous motile, corkscrew-like organisms. Irrigation of the duodenum with magnesium sulfate resulted in an increase of spirochetes under observation. Duodenal aspirations were repeated every second day and always gave the same results up to the twentieth day, when the spirochetes were no longer detectable. Serologic tests corroborated that the spirochetes were those of Weil's disease. The object of reporting this case was to induce the use of dark field examination of the duodenal juice in cases of Weil's disease. In doubtful cases of jaundice this method might be an aid in clarifying the diagnosis.

**Sympathectomy for Causalgia**—Fuchs observed 8 cases with gunshot injuries of the extremities presenting symptoms of causalgia (a term first used by Weir Mitchell). The condition presents the following symptoms: (1) There is a pain which burns, pierces, draws and tears, (2) the pain cannot be influenced by analgesics, (3) it is elicited by tactile irritation in the involved region, (4) there is a synesthesia which the patients in this group designated as transmission pain (touching the left arm or the head intensifies the pain in the right palm), (5) attacks of pain are elicited by sensory stimuli such as intense light or noises, (6) psychic experiences are transformed into pain sensations, thus pain may be originated by excitement or by anticipation of being touched, (7) synesthesia, that is, touching of the dry skin or touching the skin with dry fingers causes pain, also the putting on of rough socks, the touch of paper or starched linen, (8) the patient tries to prevent elicitation of pain by using substances which will facilitate gliding (wet stockings or gloves, moistening of the hair, application of petrolatum), (9) there is pain on movement, (10) there is algogenic or algophobic akinesia. The previous history did not indicate unusual sensitivity to pain, it was not detected among 178 men with gunshot injuries of nerves. However, the syndrome may develop when the peripheral nerves are not involved. Causalgia occurs in probably 1 per cent of gunshot injuries of the extremities when the injury involves an afferent, direct, continuous sympathetic nerve. Apparently these nerves are not uniformly capable of pain conduction and this probably explains why identical injuries cause causalgia at one time and not at another. Causalgia is not widely known. Several of the author's cases had been diagnosed by others as neurosis or hysteria. The grotesque manner in which patients will sometimes try to protect themselves against a recurrence of pain leads readily to the diagnosis of hysteria. Section of the sympathetic nerve and of the first lumbar and second sacral ganglions, or of the stellate ganglion and the first and second thoracic ganglions is advisable only after the diagnosis of neuritis and of neuralgia have been ruled out. Sympathectomy should not be postponed for too long.

**Cod Liver Oil or Tannin in Treatment of Burns**—Gey compares the cod liver oil with the tannin treatment of burns. He applied sterile cod liver oil bandages without previous disinfection to burns of every degree. Some severely burned extremities were immobilized in plaster casts. Tetanus antitoxin and vitamin C were given to all patients. At a city hospital physicians employed tannin treatment. The patients were anesthetized, the burned area was cleansed with soap and benzene and alcohol. After being dried with warm air the area was sprayed with a 5 per cent aqueous solution of tannin and sprayed with a 10 per cent silver nitrate solution. The hands were splinted, the face was not bandaged. Tetanus antitoxin was administered. Cod liver oil proved satisfactory in every respect. It could be applied to all wounds and its application was considerably less complicated than the tannin treatment. If large numbers of patients have to be treated the cod liver oil method is best. Tannin treatment has its advantages. It is apparently preferable for burns of the face and tages. It is apparently preferable for burns of the face and has a greater analgesic effect, but it has the disadvantages that it requires anesthesia and can be used advantageously only in first to third degree burns, not on fourth and fifth degree burns. The decision as to the degree of burn that exists is not always easy.

## Monatsschrift für Kinderheilkunde, Berlin

88 307-422 (Aug 18) 1941 Partial Index

- Type of Exsiccosis in Toxicosis of Infants Anna von Szostak—p 313  
\*Sulfapyridine in Treatment of Epidemic Meningitis A Vitiello—p 313  
Pathology of Tuberculous Diseases D Gyüre—p 321  
\*Transverse Myelitis After Mumps D N Bobeff and C I Berman—p 331  
Establishment of Vitamin C Requirements in Infants and Small Children A Iancu, C Opris and V Jula—p 337  
**Sulfapyridine in Treatment of Epidemic Meningitis**—A group of 11 children comprising 1 infant, 4 between 1 and 4 years of age and 5 between 4 and 14 years with epidemic meningitis, were treated with spinal fluid azosulfamide or septasin, endolumbar irrigations and transfusions. Of these 11 children 5 died.



21 patients, comprising 6 infants, 9 small children and 6 older children, was treated with sulphyridine and some of these with blood transfusions. One infant and 1 older child died, giving a mortality rate less than 10 per cent. A third group comprised patients who either remained without treatment because they arrived at the hospital in a moribund condition and died within the first twenty-four hours or were treated only by spinal puncture. Of this group of 13 all 7 infants and 4 small children died, 2 children both aged 14 years, recovered completely without treatment. Widenmann concluded that sulphyridine therapy is the most effective in epidemic meningitis.

**Transverse Myelitis After Mumps**—Bobeff and Petroff believe that the virus of mumps has an affinity for the central nervous system. Its involvement varies according to different statistics between 1 and 10 per cent. Meningitis is one of the most frequent complications of mumps involving the central nervous system, but neuritides leading to impairment of the abducens, the acoustic or the optic nerve have been observed. Encephalitis or encephalomyelitis is extremely rare. The authors report the history of a girl aged 6 years who had, ten days after an attack of mumps, symptoms of a transverse myelitis of an area corresponding to the third dorsal segment and three days later of an area corresponding to the eighth cervical segment with meningeal symptoms. The impairment of the upper extremities subsided, but the paralysis of the lower extremities persisted after two years. The authors believe that the virus of mumps caused an inflammatory process in the spinal cord.

### Strahlentherapie, Berlin

69 541-732 (May 31) 1941 Partial Index

- \*Roentgen Irradiation at Close Range in Cancer of Gastrointestinal Tract H. Chaoul and W. Neumann—p. 541
- Diagnostic and Roentgenotherapeutic Experiences with Glandular Tumors of Cervical Region H. Oeser—p. 554
- Results of Radium Therapy of Carcinoma A. Hintze—p. 579
- Experiences and Results in Treatment of Cancer of Cervix Uteri During 1935 H. Knaus and W. Wolfram—p. 657
- Roentgenotherapy of Chronic Eczema C. Esser—p. 670
- Primary Lymphosarcoma of Bone Decidedly Radiosensitive Tumor J. Nielsen—p. 683
- \*Role of H Substances in Cutaneous Inflammations F. Voss—p. 695

**Roentgen Irradiation in Cancer of Gastrointestinal Tract**—Chaoul and Neumann discuss close range roentgen irradiation of intestinal carcinoma. The approach to the rectal carcinoma was originally produced by surgical intervention and the results left no doubt as to the efficacy of the method. Nevertheless it seemed desirable to restrict the time consuming and hazardous surgical procedures. The utilization of special endoscopic tubes for intrarectal irradiation appeared feasible because of the structural character of close range x-ray tubes. The first attempts with the 'peranal' irradiation were made on patients with low rectal carcinoma, in whom surgical intervention was inadvisable because of advanced age, impaired general state or the concomitant disease. The newly developed pointed anode tube, with its conical antikathode, which emits rays in all directions and with its small anode shaft, made it possible to approach cancers of higher localization. Whereas in the exteriorization method the artificial anus was necessary, in the peranal method the question of its advisability must be considered in each case. Although the artificial anus facilitates irradiation (greater cleanliness, better survey and more rapid improvement of inflammation), a number of patients could be treated successfully without the abdominal anus. In extensive cancers an artificial anus cannot be avoided. Irradiation must be continued until the tumor has disappeared. To depart from this principle would mean to nullify the partial success. The authors employed close range roentgen irradiation in the treatment of 131 patients with gastric or intestinal carcinoma, of whom 125 had carcinoma of the rectum and in 65 of whom the treatment was completed. In 35 surgical exposure preceded the close range roentgen irradiation, of these 5 died intercurrently and, of the remaining 30, 14 were cured and 16 were not. Of the 30 patients treated by the peranal method without previous surgery 2 died intercurrently and of the remaining 28 patients 20 were cured and 8 were not. The authors regard it as strange that experienced surgeons advise against irradiation

as having no prospect of success. This is the more surprising because results of surgical procedures in intestinal carcinoma have been disappointing and have not shown much improvement during the last decade.

**Role of H Substances in Cutaneous Inflammations**—Voss points out that the numerous reactions which constantly take place in the human organism and which are necessary for its maintenance, growth and defense are elicited and regulated by a complicated system of endocrine and exocrine glands, autonomic nerve centers and tracts, and active substances which appear in the intermediate metabolism in the form of decomposition products of protein. Few of these substances are known and little is known about their action because they are present in extremely small quantities and because they decompose rapidly. The best known of these is histamine which plays an important part in inflammatory processes, especially in allergic inflammations such as urticaria and eczema. The results of his experiences support the assumption that, in the experimentally irritated, inflamed and burned skin as well as in the skin diseased by inflammatory dermatoses, H substances are formed as the result of increased metabolic processes and accelerated protein decomposition. Determinations of the gastric juice made it possible to discover a certain system in the behavior of the gastric secretions in the course of cutaneous disorders. In animal experiments cutaneous irritations and burns produced analogous results and thus demonstrated that the disturbances in the gastric secretion are dependent on the duration, extent and intensity of the inflammatory cutaneous irritations. The observation that prolonged cutaneous irritation and chronic skin diseases lead regularly to a decrease in acidity had not been reported before. That the same gastric disturbances appear when in the animal experiment the cutaneous irritation is replaced by the administration of histamine further supports the opinion that in cutaneous inflammations the H substances are liberated as active agents and that they are of fundamental importance in the metabolism of inflammation.

### Virchows Archiv f. path. Anat. u. Physiol., Berlin

307 281-456 (April 29) 1941 Partial Index

- Reactive Thrombosis in Animal Experiments A. Dietrich—p. 281
- Cardiac and Hepatic Lymphogranulomatosis with a Blastomatous Form of Growth J. Catsaras and Eugenia Patsouri—p. 297
- Primary Lymphogranulomatosis of Stomach J. Catsaras and Eugenia Patsouri—p. 303
- Contribution to Knowledge of Accessory Livers P. Eiserich—p. 307
- Histologic Changes of Peripheral Nerves in Spontaneous Gangrene K. Farkas—p. 314
- Intercapillary Glomerular Sclerosis in Diabetes Mellitus W. H. Gunther—p. 380
- \*Occupational Cancer in Asbestos Workers A. J. Linzbach and H. W. Wedler—p. 387

**Cancer in Asbestos Workers**—Linzbach and Wedler report the history of a man aged 61 who worked in an asbestos factory from 1921 to 1939. He was exposed to the inhalation of large amounts of dust during the first three years and had exhibited mild symptoms of asbestosis. A number of roentgenograms taken during 1934 and in the following years revealed the progressive development of pulmonary fibrosis. This observation suggests that once asbestos dust has entered the lung it may cause a progressive pathologic change. The roentgenograms taken during the last year of the patient's life suggested a malignant condition. A postmortem examination established the existence of cancer of the lung. A period of fifteen years elapsed between the development of asbestosis and that of cancer. Other cases in which cancer of the lung followed asbestosis likewise occurred at comparatively long intervals. The asbestos fibrosis produces a local disposition for the development of cancer. It is not certain, however, whether another chemical or mechanical factor is essential. Theoretical discussions are of little importance in deciding whether cancer of the lung is to be regarded as an occupational disease in asbestos workers. Cancer does frequently concur with asbestosis. A mechanical action of asbestos dust cannot be denied since it is inconceivable that the long, pointed asbestos needles particularly of hornblende asbestos, which are not readily dissolved can be tolerated by the constantly moving lung without causing mechanical lesions. The more easily soluble needles may cause chemical lesions by the action of silicic acid.



## Book Notices

**Psychological Effects of War on Citizen and Soldier** By R D Gillespie, M.D., Physician for Psychological Medicine, Guy's Hospital, London. Cloth Price, \$2.75 Pp 251 New York W W Norton & Company, Inc., 1942

This is a compendium of the Thomas W Salmon lectures given in 1941 by the author, a prominent English psychiatrist, who holds the post of wing commander in the Royal Air Force. As is often true of such compendiums, this is an interesting, clearly written, sincere but uneven work. The first chapter is an able statement of Gillespie's conviction that many acute "neurotic" symptoms, especially those which develop in civilians and soldiers under the emotional stresses of war, are within reach of conscious control and therefore may be treated effectively by relatively simple and direct methods. While this thesis is undoubtedly true, it does not, as the author implies, furnish adequate grounds for the rejection of a deeper psychodynamic etiology of the neuroses. Gillespie's arguments go further afield when he tries to prove a "constitutional" basis for war neuroses by citing small series of adult neurotic persons who are vaguely reported as having been "nervous in childhood," with the result that the reader is confronted with statements like these

"Certain physical factors appear from these figures to favor the development of some form of psychoneurotic reaction in war, such as, age over 30, height and weight above average, generally poor physique and a record of illnesses other than neurasthenia before service. The general psychological factors favoring breakdown, at any rate in these people, were marriage, skilled or clerical occupations and exemplary conduct, or, in other words, if you are unmarried, unskilled and rather a 'bad egg' you are less likely to develop a war neurosis, at any rate of the chronic sort."

Similarly, Gillespie's tendency to class consciousness will be foreign to most American readers, who might be disconcerted to learn that "desires and repressions are apt to be less" in poorer economic groups or that "well-to-do parents may be supposed to be among other things the most intelligent. While the middle class may be less ambitious and, on the whole, more secure, the poorest parents have either never been competitive or have become reconciled to their lot."

The author reaches firmer ground in the second part of his book, in which he discusses, with the authority of able and intensive observation, the symptomatology, diagnosis, prevention and treatment of neuroses in the civilian and military population. Here he reveals, by case history and brief exposition, his sound recognition of the fact that "war neuroses" in children and adults do not constitute clinical entities but must be understood dynamically as instances of psychologic maladaptations of individual persons to their special war experiences. Gillespie's final chapter on human relationships in the post war world is a sober and inspiring piece of sociopsychiatric writing.

The volume is recommended to psychiatrists, sociologists, psychologists, social workers and others concerned—and who is not?—with the vast problems that can be marshaled under its title.

**Athletic Injuries Prevention, Diagnosis and Treatment** By Augustus Rhoads M.D. Surgeon in the Department of Hygiene Harvard University Boston. Second edition. Cloth Price \$3 Pp 216 with 105 illustrations Philadelphia Lea & Febiger 1942

The book is divided into three parts: (1) the prevention of injuries in athletics, (2) the more common types of athletic injuries and (3) the more common regional injuries. A review of the athletic medical history of Harvard shows great improvement in the prevention and treatment of injuries. In 1908, when proper headgear and equipment were required to be worn for the first time, there were only 3 cases of concussion. In 1905 there had been 19. A chapter on physical fitness takes up the cardiovascular and respiratory systems, the central nervous system and certain chemical and physical changes contributing to the efficiency of the trained athlete. The author

concludes that the healthy heart is not damaged by athletic activity. The four main features of proper training are diet, graduated muscular exercise and the absence of all drugs. To maintain weight in the average athlete of college age a diet of 5,000 to 6,000 calories is necessary in football and cricket, somewhat less in hockey, track and baseball. At least eight and one-half hours of sleep is recommended for any athlete of college age. Physical fatigue is considered scientifically regarding chemical studies. "Pep pills," as the administration of sugar, gelatin or vitamins, have not been proved to be of use in dispelling fatigue. "Overtraining" is not a matter of physical fatigue but rather of mental fatigue and should be treated by vacation or break in the monotonous routine of daily practice together with an adequate period of physiologic rest. Various injuries are discussed under the heading of sprains, strains, contusions, fractures and dislocations, internal injuries, infections and inflammations, lacerations and abrasions. Statistics on parts injured agree with those of previous writers including Lloyd, Deaver and Eastwood, and Hobart. The head is still the most vulnerable location, with the ankle second. The rest of the book deals with the diagnosis and treatment of various injuries and would make an excellent work of reference. The book is well organized, scientific and attractive. It has many good illustrations and should be a useful addition to the library of doctors, coaches, trainers and others who have to do with the care and supervision of athletes.

**Neural Mechanisms in Poliomyelitis** By Howard A. Howe, M.D., Associate in Anatomy, The Johns Hopkins University Baltimore and David Bodian, Ph.D., M.B., Assistant Professor of Anatomy, Case Reserve University, Cleveland. Cloth Price \$3.50 Pp 331 with 111 illustrations New York Commonwealth Fund London Oxford University Press 1942

Recent important studies on poliomyelitis which have been carried on in the department of anatomy at the Johns Hopkins School of Medicine have been summarized in this volume. They deal largely, as the title suggests, with neuropathology, but the author and the reader cannot help but be drawn into consideration of the wider implication of their observations. Consequently the book is not to be regarded as a neuroanatomical treatise, for (with certain recognized limitations) it is concerned with the whole problem of the pathogenesis and clinical infection in poliomyelitis in the clinical as well as the experimental disease. In other words, as T. M. Rivers points out in his foreword of this volume, the technique presented is that of the "neurobiologist." Essentially the experiments deal with the anatomic distribution of poliomyelitis lesions which have been experimentally produced within the central nervous system under a variety of different conditions, but the experiments are also concerned with the selective action or tropism of the virus has for living and injured nervous tissue. Illustrative of the approach we find, in chapter 2, not only a series of interesting experiments performed on rhesus monkeys demonstrating the circumstances under which the poliomyelitis virus travels along the intact nerve and its subsequent travel along the freshly injured nerve. In describing these phenomena the author indicates that the virus is not neurotropic but neurocytotropic or neuronotropic. Many previous investigators in this subject, however, have not limited themselves to the study of one strain of poliomyelitis virus and one species of monkey; they point out the dangers of drawing clinical conclusions on the basis of experience with one variety of monkey. They also point out the many variables which enter the picture as soon as multiple species of monkeys are used and as many strains of virus are used, they even go so far as to use chimpanzees. In fact they are the only group of monkeys which have used a large series of these animals in experimental poliomyelitis work. In their series of chimpanzees they succeeded in producing the experimental disease by a variety of different routes, and they compare and discuss their findings (at necropsy) with the findings in human necropsies. This comparison would seem to be a valuable contribution to the history of poliomyelitis, and rather than urging one to read the original text

**Glandular Physiology and Therapy** A Symposium Prepared Under the Auspices of the Council on Pharmacy and Chemistry of the American Medical Association. Reprinted from The Journal of the American Medical Association. Fabrikoid. Price \$2.70. Pp 571. Chicago: American Medical Association 1942.

This is the third revision of this excellent book which appeared first in 1924 as a series of articles under the auspices of the Council on Pharmacy and Chemistry of the American Medical Association. They were published in book form the following year and revised in 1927 and 1935. In Dr Morris Fishbein's introduction to this 1942 edition he gives as one of the reasons for publishing the original series of articles the need to combat a "pseudoscientific therapy" which existed at the time and was based on the use of many glandular products for which pharmaceutical manufacturers made great claims. This type of therapy has now largely disappeared but there is still an urgent need for a reference book in which clinicians may find authoritative information as to the normal physiology of the glands of internal secretion, their dysfunction and the most acceptable therapy. *Glandular Physiology and Therapy* fills this need admirably.

The present edition is somewhat longer than the preceding one. There are thirty-one chapters as in the previous edition but some material has been omitted, some chapters are combined and new chapters have been added. Some of the new chapters deal with the subject of antihormones, the role of the anterior lobe of the hypophysis in intermediary metabolism, the adrenogenital syndrome and the clinical significance of hormone assays. The results of recent investigations have been added to bring the book as nearly up to date as possible in such a rapidly expanding field as endocrinology.

The thirty-five contributors, who are authorities in their respective fields, are to be highly commended for putting a large body of complicated information into clear, concise and readable form with a minimum of repetition and overlap. This book can be recommended as an invaluable aid to clinicians and to research workers in experimental endocrinology.

**Diseases of the Thyroid Gland Presenting the Experience of More Than Forty Years** By Arthur E. Hertzler, M.D., Professor of Surgery in the University of Kansas. Lawrence. Cloth. Price \$8.50. Pp 670 with 495 illustrations. New York & London: Paul B. Hoeber, Inc. 1941.

Dr Hertzler states in his preface that this book is 'in no wise a treatise on the thyroid gland'. It is merely a record of his observations and studies which now extend 'over a period of nearly fifty years'. He discusses in detail the morphology, the pathology and the goiter of childhood, adolescence and adult life, including the nodular hyperplastic, chronic inflammatory and neoplastic changes in the thyroid gland. There are also chapters on the author's personal methods of hospital management of goiter patients, hepatic insufficiency in toxic goiter, operative technique and postoperative course. Hertzler advocates total thyroidectomy for all goiters and claims that myxedema is relieved by such an operation. The lack of uniformity of histologic states as correlated with the clinical picture is emphasized in the sections on the surgical pathology, the importance of the stage of the disease is stressed, also the fact that large cancers grow from small adenomas. The volume is profusely illustrated with clear and well chosen photographs of patients, gross specimens and photomicrographs. The style, while by no means orthodox, is entertaining. All in all, this is a distinctly worthwhile book, containing much instructive material.

**Illustrations of Bandaging and First Aid** Compiled by Lois Oakes, S.R.N., D.N., County Organiser for the Civil Nursing Reserve, Cambridge, England. Second edition. Cloth. Price \$2. Pp 256 with 111 plates. Baltimore: William Wood & Company 1942.

The author is a well qualified nurse and the methods of bandaging are clearly illustrated. Sections 1 and 2 of the book cover the large number of methods of applying the triangular and roller bandages. By means of photographs the author offers the beginner in first aid an opportunity of studying the various techniques of applying bandages. Sections three and four devoted to first aid in cases of hemorrhage and fractures, are not as clear as necessary for a beginner. A nurse or a physician would find those two sections simple and comprehensive, but a lay person anxious to learn first aid would not readily grasp the suggestions set forth.

**The Roentgen Density of the Cystine Calculus** A Roentgenographic and Experimental Study Including a Comparison with More Common Uroliths. By Axel Renander. Translated from the Swedish by Catherine Djurklou. *Acta Radiologica Supplementum* XLI. Paper. Price 15 Swedish kronor. Pp 148 with 67 illustrations. Stockholm: P. A. Norstedt & Söner 1941.

In this small monograph Renander has reviewed in characteristically thorough fashion all the available literature on the development of cystine calculi in the urinary tract and has added his own clinical and experimental observations. He reviewed all the known 37 cases of cystinuria in Sweden, 27 of which were complicated by the formation of calculi. By means of the photometric studies of the roentgenograms of various urinary concentrations including cystine stones made under various conditions he concludes that all cystine calculi should give a density sufficient to produce a clearcut shadow in the ordinary roentgenogram. In 15 of the 18 cases of his series in which adequate roentgen examinations had been made the shadows were clearly visible. In 3 of the cases very small stones could not be distinguished in the roentgenogram but this was probably due to overlapping intestinal shadows. Excellent description of the roentgenographic characteristics of cystine calculi are detailed. A proper experimental method for the study of the roentgenographic density of urinary calculi is described. The author calls attention to the value of the photometric method even in the practical differential diagnosis of urinary concretions. This supplement to the *Acta radiologica* should be of great interest to any one concerned with the problem of urinary calculi.

**Play for Convalescent Children in Hospitals and at Home** By Anne Marie Smith. Staff Instructor, Leaders Training School, Community Recreation Service, Chicago. Cloth. Price \$1.60. Pp 133. New York: A. S. Barnes & Company 1941.

Resulting from six years of experimenting with play for children under treatment at the children's Memorial Hospital in Chicago, this book is of vital interest and importance. The contents give one a good idea of the completeness of this study, new attitudes in using play, the value of traditional play activities, organization and administration of the department of play, play activities and their use, suggestions for gifts of play equipment for children in a hospital and classifications of tested forms of play. There can be no doubt in any of the conclusions drawn from such a thorough study as this. The play department should be an integral part of every children's hospital and every hospital having a children's ward. The principles of play, cooperation with children and the selection of toys and books are laid down and supplemented by ample illustrations, examples and tales. What goes for a sick child goes for a well one too. The conclusions, instructions and suggestions are valuable not only to doctors, nurses and play directors but to parents, relatives and friends. No doubt the war has put a kink in the development of many a hospital's play department. Women now graduating from the current Red Cross courses should find ample outlet for their energy as volunteers in the hospital play departments after the war is over.

**Aids to Obstetrics** By Leslie Williams, M.D., M.S., F.R.C.S., Consulting Obstetric Surgeon to Queen Charlotte's Hospital, London. Eleventh edition. Cloth. Price \$1.50. Pp 238 with 10 illustrations. Baltimore: William Wood & Co. London: Baillière Tindall and Cox 1942.

This tiny book, which may easily be carried in a coat pocket, contains practically all the essential facts about obstetrics. That physicians in England realize this is proved by the fact that the book has gone through eleven editions. The material is arranged in the more or less traditional manner of writing textbooks of obstetrics. Throughout the book the author indicates his conservatism. He advises against cesarean section in eclampsia, advocates manual rotation of the head in cases of occiput posterior and warns against rotation of the head with forceps by physicians with limited experience. He considers rupture of the membranes as the safest and most satisfactory method of inducing labor. The reviewer objects to the author's recommendation to squeeze the uterus like a lemon if the placenta fails to separate from the uterus within an hour. The Crede method of expressing the placenta should be discarded, because it is not only dangerous but also unnecessary. The book can be highly recommended to all who desire to have a brief outline of obstetric knowledge.

## Queries and Minor Notes

### TREATMENT OF PARALYZED URINARY BLADDER

To the Editor—What is the accepted treatment of paralysis of the bladder whether an indwelling catheter is left in the bladder or not?

M. D., South Carolina

ANSWER—Treatment of the paralyzed bladder is largely influenced by the etiologic factors present and by the site of the spinal lesion. With complete destruction of the spinal paths by injury, the best way of handling urinary retention would be to permit the development of an overflow bladder if possible. However, development of an overflow bladder may be difficult, and in some cases catheter drainage will be necessary. Furthermore, it may be difficult to determine the extent of spinal injury until some time has elapsed. If there is only partial destruction, the vesical function may return to normal gradually. Under such circumstances, return of function would be better insured with catheter drainage than by development of an overflow bladder.

The objection to either catheter drainage or suprapubic drainage is the secondary infection with resulting ascending pyelonephritis. However, by employing modern aseptic precautions, and with the aid of sulfonamide therapy, serious infection can in many cases be prevented. Where these precautions are available, this procedure may be best in many cases. On the battlefield, catheter drainage should be postponed if possible. Tidal drainage, as suggested by Monroe, has been successfully employed in some cases but its maintenance is not easy.

In many cases of paralysis of the bladder, transurethral resection of tissue from the bladder neck has been followed by elimination of residual urine and improved vesical drainage.

### MILIA OF THE SCROTUM OR SEBACEOUS CYSTS?

To the Editor—A man aged 23 has lymph nodules on the scrotum. These are numerous and vary in size from that of a wheat grain to that of a large split pea, there is no discharge and no pain. Apparently the patient is healthy except for obstinate constipation. He is 5 feet 7 inches (170 cm) tall and weighs 110 pounds (50 Kg). Blood tests give negative results. What can be done for him?

J. R. Heath, M.D., Grover Hill, Ohio

ANSWER—One could wish that the correspondent had given more detailed information about the character of the lesions. Without such details the correct diagnosis is one for conjecture.

Two possibilities come to mind, of which the first is milia. Milia are small whitish tumors of the skin formed by the accumulation of inspissated sebum beneath the horny epidermis. The lesions are familiar as the small, white masses which are seen frequently on the cheeks below the eyes. They occur as firm, white or yellowish papules usually of the size of a pinhead, which are superficial and whose content can readily be pressed out after incision. They are found most frequently around the eyes and on the cheeks and forehead but may occur elsewhere. Frequently they are seen on the scrotum, and they may occur on the penis. After reaching the size of a pinhead, or a little larger, they usually remain stationary. Occasionally they become as large as a small pea. They are ordinarily few, but at times they occur in large numbers. As a rule they remain discrete, but the lesions may coalesce into masses the size of a pea or perhaps larger. The larger lesions are usually yellowish or dirty yellow, and they may become hard from the deposit of calcareous salts, chiefly calcium phosphate and carbonate, forming so-called cutaneous calculi.

Milia are common in young adults, especially in association with comedos. They are not infrequent in nursing infants on the face, and occasionally they are present at birth. They are sometimes produced as a result of other lesions of the skin, as at the site of pemphigus bullae, in scars and after inflammatory processes like erysipelas. They are a constant accompaniment of lymphangioma tuberosum multiplex.

After incision the lesions are cleaned out by a little pressure, and the sac may then be touched with phenol (carbolic acid) or tincture of iodine to prevent recurrence.

The second possibility is that the lesions are sebaceous cysts. Sebaceous cysts occur as rounded or oval, sharply defined tumors situated in the corium or subcutaneous tissue. They vary in size from that of a small pea to that of an egg or larger and are not lobulated. They are firm, of about the consistency of adipose tissue, and are movable. The skin over them is normal, although it is stretched and glistening and is usually devoid of hair. The duct of the enlarged gland may remain patulous so that the contents of the tumor can be expressed, but frequently

this opening is entirely obliterated and the tumor is in a closed capsule. The tumors are usually single, but they may be multiple, and rarely they are numerous. They may occur on any part of the body but are most frequent on the head, especially the scalp, and on the neck, the back and the scrotum. They grow slowly and after reaching a certain size may remain stationary for years. From their prominence they are likely to be injured, and thus they frequently become inflamed. Occasionally they ulcerate spontaneously, and in old age they sometimes the site of development of cutaneous horns and epitheliomas. When the cyst is not large the contents may be pressed out through a small incision and the cavity treated with tincture of iodine or equal parts of phenol and glycerin.

### GOLD DENTURE AND POSITIVE WASSERMANN TEST

To the Editor—A single woman aged 31, while being examined for a marriage license, was found to have strongly positive Kohn and Wassermann reactions. Blood was sent to four different laboratories and was reported by all as strongly positive for syphilis. Examination revealed that the woman was a virgin, and no lesions were found. I am unable to determine the mode of infection. Could the presence of gold teeth in the mouth through absorption be a factor in the positive syphilis test? If you suggestions to offer regarding the possibility of kissing contaminated toilet seats or hereditary transmission in this case? Any information you may be able to give me will be appreciated.

M. D., Illinois

ANSWER—Gold is electronegative to approximately all the various other metals which are used in the mouth for dental restorations and is therefore not ionized and deposited in the oral mucosa, as sometimes occurs in infinitesimal amounts from electropositive metals. Therefore the possibility of absorption of gold even from a crude alloy of low karat dental restoration is so remote as to be eliminated from consideration.

Furthermore, gold has been given in amounts from 10 to 100 mg intravenously both in the treatment of certain skin and other diseases and for experimental purposes in syphilis, always with negative results.

There are numerous acute infectious processes such as pneumonia, scarlet fever, spotted fever, septicemia, lymphopneumonia, venereum and leishmaniasis which may sometimes produce a plus Wassermann reaction though only during the active stage of the disease. In a case of mononucleosis when doing a complement fixation test using sheep corpuscles, one may occasionally obtain a positive Wassermann reaction.

Extragenital contraction of syphilis from toilet seats is so remote as not to be considered. However, the incidence of infection with syphilis from scratches, abrasions, fissures on a part of the exposed body and kissing is a common cause recorded in the files of every experienced syphilologist and in every case of suspected syphilis this must be considered as a possibility.

Yaws, leprosy and generalized carcinosis may at times give a plus Wassermann reaction. Congenital syphilis usually gives a weak plus Wassermann reaction even as late in life as the age of this patient, but rarely a strongly positive reaction without other evidence of active lesions.

The inquiry implies that the patient otherwise appears to be in perfect health, therefore it is probable either that she substitutes an instance of asymptomatic hereditary syphilis or that she may have acquired syphilis extragenitally and passed through the primary and secondary stages with such mild symptoms that they were unnoticed.

### TYPHOID AND DYSENTERY NOT LARGE FACTOR IN BILE TRACT DISEASE

To the Editor—Is it the generally held opinion of most medical men who have studied gallbladder disease, especially chronic infections of the bile tracts, that (1) typhoid and (2) dysentery are diseases that alter the original and predisposing causes of bile tract disease in later life?

V. Heber Sergeant, M.D., St. Louis

ANSWER—It is not likely that typhoid and dysentery play any large role in the etiology of bile tract disease. In many instances the sequence of events is probably as follows: gallstones consisting largely of cholesterol form in the gallbladder chiefly as the result of a metabolic defect associated with increased excretion of cholesterol in the bile and one of those factors which keep this substance in solution in the biliary tract is due to stasis produced in the gallbladder. The changes in the gallbladder in acute cholecystitis are, however, not due to infection but to circulatory changes resulting from the tension caused by impaction of the cystic duct. The local destructive effect of the infection in the bile is also a factor in these changes.

## HYPOGLYCEMIA OR CAROTID SINUS HYPERSENSITIVITY?

**To the Editor**—A white married woman aged 19 fainted while bending forward and lifting a tray in a bakery where she was working. She was unconscious for one to two minutes. She was ordered to bed and had five more spells during the next forty-eight hours. She felt weak after each attack. I had a chance to observe one attack after which the patient was hospitalized. The attack lasted about two minutes; there was no change in pulse or respiration and there were no convulsions. The patient gave a history of having had fainting spells at varying intervals (one to four months) for several years. These attacks were always preceded by paresthesia in both arms. Sometimes they were accompanied by convulsions. At one time the patient took iodine for "internal goiter." The patient has one girl 11 months old and is still nursing her. Physical examination revealed that the habitus is asthenic, the weight 95 pounds (43 Kg), the blood pressure 102 systolic and 70 diastolic and the pulse rate between 52 and 58; otherwise the patient was normal. The blood picture was normal except for 40 per cent lymphocytes and 48 per cent polymorphonuclear leukocytes. Administration of  $\frac{1}{160}$  grain (0.001 Gm.) of atropine raised the pulse rate from 52 to 96. Pressure on the right carotid sinus for thirty seconds brought about paresthesia in both arms and dizziness but did not produce syncope. The blood sugar content was 68 mg. per hundred cubic centimeters. A dextrose tolerance test was performed to see whether it would produce the symptoms. None except headache were noted for six hours, although the blood sugar content was 62 mg. before the administration of dextrose and 58 and 44 after two and four hours respectively. An electrocardiogram was reported as normal. It was felt that the patient had carotid sinus hypersensitivity of the vagal type and tincture of belladonna was prescribed. While receiving belladonna in the hospital the patient had no more attacks. For the hypoglycemia a high carbohydrate diet with frequent meals was ordered in spite of the fact that most textbooks recommend a low carbohydrate diet. This doesn't seem to be reasonable because no change in the blood sugar content will be brought about in this manner while frequent meals should tend to keep the sugar on a higher level. Do you agree with my diagnosis and treatment? If not what would you recommend? Does this case come under the compensation law?

Mauro Rosenberg M.D. New York

**ANSWER**—The validity of the diagnosis in this case depends primarily on whether stimulation of the carotid sinus produced symptoms qualitatively identical with those occurring spontaneously. This is the most essential point in establishing this diagnosis. It appears that this requirement has been fulfilled. Perhaps more prolonged pressure on the right sinus or stimulation of the left side would have produced complete syncope.

If there was no well defined bradycardia during attacks, as stated the reflex involved must be the so-called cerebral type. Atropine is of no value in cases of this type. The hypoglycemia may have served to sensitize the cerebral reflex, as is sometimes the case. The attacks could hardly be on the basis of hypoglycemia alone, because of their short duration. (For further information see Capps, R. B. Practitioners Library of Medicine and Surgery, 1940, Supplement, p. 725.)

The data are insufficient for one to diagnose the cause of the hypoglycemia. In the majority of cases frequent feedings high in protein but low in carbohydrate are much more effective than a high carbohydrate diet. This is because sugar stimulates the secretion of insulin and so favors a low blood sugar content. Protein can be in part used as sugar in the body, but the release of sugar is slow, so that there is less stimulation to insulin production.

Treatment should be that for hypoglycemia, the cause of which it may be necessary to investigate further. The case presented probably does not come under the compensation law.

## BEHAVIOR OF BLOOD IN MASSIVE HEMOTHORAX

**To the Editor**—Our hospital group is organizing for medical home defense. We have speakers weekly who present topics on war medicine. In the last session we had a chest specialist cover injuries to the chest resulting from bomb concussion. He told us that in cases of massive hemothorax with shock the blood from the chest can be used for transfusion and the blood replaced by air. He stated that blood in the pleural cavity will not clot and that this cavity is the only one in the body where blood will not clot even if one has a pneumothorax. What is the physiology involved if an explanation is available?

M.D. Michigan

**ANSWER**—In cases of hemorrhage into the pleural cavity there is some delay in coagulation of the blood, but it is not true that clotting fails to occur. Any one who has had occasion to open the pleural cavity after a massive hemorrhage has seen clots of blood within the pleural space. In fact, if the blood is to be used for autotransfusion it is essential that it be filtered through several layers of gauze in order to remove the clots which are present. The blood that is poured into any of the serous cavities of the body is diluted quickly by a massive effusion of serum from the serous membrane. The dilution of the blood will delay the clotting and will result also in a suspension of a large number of blood corpuscles in the fluid exudate. When aspiration is performed and some of the exudate

is removed, it naturally gives the impression of unclotted blood. The conditions in the pleural cavity do not differ from those present in the other serous cavities, except that it is probably easier for a large effusion to take place in the pleural cavity than it is in the pericardial, the peritoneal or the joint cavities. The replacement of aspirated bloody effusions from the chest with air is an old procedure which was popularized during the first world war by Bastianelli, an Italian surgeon. The artificial pneumothorax, by keeping the lung collapsed, tends to diminish the amount of bleeding, which may otherwise occur from vessels of small or moderate size in the lung.

## DETERIORATION OF EPINEPHRINE BY CONTACT WITH RUBBER

**To the Editor**—In one of my textbooks I found the statement that epinephrine is made inert by contact with rubber. Is there any truth in this statement? At least one manufacturer puts up its epinephrine in rubber capped vials.

M.D. New York

**To the Editor**—If carried in a rubber capped vial will epinephrine deteriorate? Is there any danger in using epinephrine out of a rubber capped vial if the expiration date is not on the product? Is there any particular advantage in the ampuls of epinephrine over the rubber capped vials of epinephrine if proper sterile precautions are used?

M.D. Texas

**ANSWER**—The question of the deterioration of epinephrine hydrochloride solutions by contact with rubber has previously been considered by the American Medical Association Chemical Laboratory. It found that deterioration was due to the presence of certain substances employed in the manufacture of rubber, such as accelerators, dyes and lubricants. All reputable manufacturers of solutions marketed in rubber stoppered containers are cognizant of this difficulty, and they overcome it by carefully removing impurities from the rubber. The Council on Pharmacy and Chemistry requires a statement on the labels of all brands of epinephrine solution accepted for inclusion in New and Nonofficial Remedies warning against the use of solutions which show evidence of deterioration by discoloration or by the presence of a precipitate, despite the fact that nearly all contain an antioxidant to retard deterioration from exposure of the solution to light, heat and air. Solutions which show discoloration or precipitation are not necessarily dangerous but they are usually less potent. The injection of a solution from a multiple dose rubber capped vial appears to involve no special danger provided it contains, in addition to an antioxidant a bacteriostatic agent to protect against possible contamination from repeated use. From the standpoint of repeated exposure to accidental contamination the single dose ampul is preferable. Corked or screw capped multiple dose vials of the solution should be restricted to topical use. The Council recently voted to require both an antioxidant and a bacteriostatic agent in solutions of epinephrine regardless of the type of container in which they are marketed.

## MOCCASIN SNAKE VENOM AND STRYPHNON FOR TREATMENT OF THROMBOCYTOPENIA

**To the Editor**—Please tell where dilute moccasin venom can be obtained, the price of it and whether it is generally conceded to be of value in the treatment of idiopathic thrombocytopenic purpura. I would also appreciate your evaluation of stryphnon in this type of purpura.

M.D. Nebraska

**ANSWER**—Moccasin snake venom solution for use (principally by injection) in the treatment of hemorrhagic conditions is marketed by Lederle Laboratories, Inc., Pearl River, N. Y., and Sharp & Dohme, Inc., Philadelphia. According to the American Druggist Blue Price Book 1941-1942 the product is sold in 10 cc. vials by Lederle for \$2.63 and by Sharp & Dohme (1:3000 solution) for \$2.10. The question concerning the value of this preparation in idiopathic thrombocytopenic purpura is discussed in the report of the Council on the Lederle brand of snake venom solution (moccasin) declaring the product unacceptable for N. N. R. because the scope of its usefulness and its limitations have not been established satisfactorily. Stryphnon is the proprietary name used in Europe to designate the externally applied hemostatic agent sold in this country by the Alba Pharmaceutical Company, 80 Varick Street, New York, under the name Kephene Hydrochloride. The preparation has been accepted by the Council under the latter name as a vasoconstrictor agent for local hemostatic effects to arrest capillary bleeding. Obviously this preparation would have no systemic influence on thrombocytopenic purpura since it exerts no action on the clotting mechanism.



## SMALLPOX VACCINATION FOR PEMPHIGUS

**To the Editor**—Has smallpox vaccination ever been tried in the treatment of pemphigus on the supposition that it is a virus disease? It would seem to me to be a dangerous procedure because of the possibility of a generalized vaccinia or acute pemphigus following vaccination in the presence of cutaneous lesions

R P Little, M D, New York

**ANSWER**—Smallpox vaccination has been recommended for the treatment of pemphigus, as stated by the Suttons in their textbook. It would certainly appear to be a rather dangerous procedure on account of the possibility of multiple vaccinia due to autoinoculation. In extensive eczema of infants and young children, especially of the moist type, vaccination for smallpox is contraindicated, as fatal results have followed this procedure.

One dermatologist in New York has tried vaccination in 2 cases of pemphigus with generalized eruptions. Great care was taken to avoid autoinoculation. However, no improvement was obtained and there were fortunately no ill effects. No report of these cases has been published.

## ALLERGY TO FLAXSEED AND CORN

**To the Editor**—I am treating a man aged 27 who is in apparent good health except for asthma, which is present throughout the year and is not made worse in any particular season of the year. He is a dental mechanic running his own laboratory, and he had symptoms before engaging in this work. Initial cutaneous tests with the forty-three most common offenders reveal reactions as follows:

|            |      |
|------------|------|
| Dag dander | +    |
| Flaxseed   | ++++ |
| Corn       | ++++ |
| Buckwheat  | +++  |
| Wheat      | +    |
| Oats       | +    |
| Rye        | +    |
| Beans      | +    |
| Mustard    | +    |

When he is pouring powders used in his laboratory his breathing becomes difficult. He has never required epinephrine for relief. What products for both domestic and commercial use are made from or contain flaxseed? Does the powder used (plaster of paris and pumice stone) constitute a mechanical irritant to the bronchi, or is it an allergen? Aside from removing the edible articles listed from the diet temporarily, how should one proceed?

Morton Silverman, M D, Allentown, Pa

**ANSWER**—A search of the literature reveals no reference to pumice stone or to plaster of paris as allergens and so they probably constitute mechanical irritants to the bronchi.

Among the possible offending agents in the dental laboratory are celluloid products, resin of various sorts for dental prostheses, e g acrylic, acetone for acrylic solvents, vulcanite, a rubber compound for dentures, hydrocolloidal substances for impressions, silicate in the various grinding stones, various powders for polishing, phenol, chloroform, ether, formaldehyde and cresol.

Flaxseed may cause cutaneous, gastrointestinal and respiratory disturbances. Flaxseed, karaya gum and quince seed are widely used for women's wave sets. Flaxseed meal is used as food for cattle, and the alleigic factor in it may be present in the meat or milk of these animals. Linseed oil is yielded from flaxseed and is used as a basis for paints and varnishes, in furniture polish and in the manufacture of linoleum, oil cloth, cork linoleum, patent leather, imitation leather, waterproof stuffs, carriage tops, oilskin, artificial rubber, printing and lithographic inks, soft soaps and carion oil for burns. Linseed oil is used in combination with slaked lime for preparing a cement for metals and is used in some depilatories and hair tonics, in linseed oil cake (after oil is extracted from flaxseed), as a feed for livestock and poultry, in tea, cough syrups and poultices and in breakfast foods (e g Roman Meal and Uncle Sam's Health Food) in association with flaked wheat and bran. Flax straw is used in refrigerator insulation, straw mats and rugs, fiber board, writing paper, high grade sack paper, shot shell paper and coarse stuffing materials for couches, car seats and carriage cushions.

Corn not only is used as a food but in the form of corn starch is widely used in the baking, cosmetics and other industries, it may possibly be used to coat dental equipment, just as lycopodium is used to coat rubber goods. The patient should by all means be tested for sensitivity to lycopodium.

To check the effect of inhalation of materials used in the dental laboratory, the patient should keep away from this place for about two weeks, if symptoms disappear only to reappear when he returns to work, something in the laboratory must be responsible rather than any food or house dust.

The use of a mask or respirator is strongly recommended.

## LEG CRAMPS IN PREGNANCY

**To the Editor**—Recently I addressed to Queries and Minor Notes a question concerning the etiology and treatment of leg cramps during pregnancy. In your answer a deficiency of calcium or vitamin D was given as the likely cause. This explanation frequently appears in textbooks, etc. I have not found an article in the literature dealing with this complication of pregnancy. In my practice I have looked on this complication as a symptom of nutritional deficiency probably related to the B complex. I have treated patients, with prompt relief, using small doses of nicotinic acid and thiamine hydrochloride. However, it helped me in my practice to consider leg cramps as evidence that pregnancy has placed too great a toll on the nutritional reserves of the body. This in turn leads me to place an increased emphasis on the patient eat an adequate diet and to reach a much better state of nutrition. Do you know of any article or work that has been done on this subject which I have overlooked in my cursory search of the literature?

Ferdinand Gaensbauer, M D, Pontiac Mich.

**To the Editor**—In Queries and Minor Notes in the March 21, 1942 issue of The Journal I note that there is no mention made of the use of thiamine hydrochloride in leg cramps in pregnancy. It is my opinion, as well as that of many others, that these cramps are a definite sign of nutritional deficiency. I have found that from 10 to 20 mg of thiamine hydrochloride daily will usually relieve this symptom completely, depending on the severity of the case. There is no question that thiamine hydrochloride has a definite place in the treatment not only of these symptoms but of the more severe symptoms of weakness and pains associated with pregnancy.

J W Carney, M D, Logan, W Va.

**To the Editor**—In the March 21 issue of The Journal I noticed the question and answer regarding "Leg Cramps in Pregnancy." May I add that I have found that giving the patient concentrated liver often prevents these cramps entirely and certainly helps to decrease them in most cases.

Richard N Pierson, M D, New York

**ANSWER**—The statement made in the answer is that there may be a connection between the cramps and lack of vitamin B and calcium. Likewise, we agree that there may be an association between the cramps and lack of vitamin B. There are in some cases vitamin D and calcium, and in other instances thiamine hydrochloride, may be helpful. Women who eat a well rounded diet which includes a sufficient supply of vitamins are not as prone to have cramps in the legs as those who are on diets that are deficient in vitamins. Richardson (Illinois M J 65 367 [April] 1934) considers cramps in the legs during pregnancy to be part of a symptom syndrome of tetany. Relief was obtained in Richardson's cases by the use of viosterol.

## TINCTURE OF IODINE IN OPEN WOUNDS

**To the Editor**—My attention has been called to an article by R N France, R N, in the issue of Public Health Nursing for March 1942. The article is entitled "The Skin is the First Line of Defense." In it states that tincture of iodine should be used in all wounds and that much should be used. It seems to me that it is poor practice to burn the tissues with such so called antiseptics.

J W Robinson, M D, Los Angeles

**ANSWER**—Medical and nursing journals are not to be held responsible for opinions expressed by contributing authors. Editors should not be expected to censor honest views on controversial subjects. In a living science there are few persons who can qualify as unquestionable authorities, but it is the genius of modern medicine that authoritative knowledge is shifted from individual persons to the corporate experience of the profession. The author quoted had a right to her views regarding the use of iodine in wounds, on the other hand readers have an equal right freely to accept or reject them. Views do not settle the matter, however. The practice of treating wounds with corrosive agents, such as tincture of iodine, unavoidably stands before the bar of cumulative experimental evidence and clinical experience, and (except perhaps as a preliminary to radical debridement) it is generally condemned by physicians. In such a case the interests of the public would be served not by prohibiting the advocacy of iodine in wounds but rather, as the correspondent suggests, by a policy of publicizing the demonstrable harmful effect of this method of treatment.

## GESTATION PERIOD AND SWEATING IN ORIENTALS

**To the Editor**—Early in 1942 the New Republic in an article by George Barker quoted "an Everest mountaineer" who said "I could understand the Japanese without knowledge of the fact that they gestated for only six months in the womb." Would you please comment on this statement? Is it true as John Gunther remarks in his "Inside Asia," that the Chinese do not sweat?

M D N Y

**ANSWER**—The gestation period of all human beings is about nine calendar (ten lunar) months. Any shorter period is abnormal and results in prematurity. The Japanese can form no exception to this. Their sitting position and "public acts of urination and defecation" are cultural, not biologic or racial characteristics. Chinese sweat, though not so freely as white people. Negroes. Histologically their skin shows fewer sweat glands.



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## MINIMIZING THE AFTER EFFECTS OF ACUTE POLIOMYELITIS

A RATIONALIZATION OF THE KENNY TREATMENT

CHAIRMAN'S ADDRESS

PHILIP MOEN STIMSON, M.D.

NEW YORK

To pediatricians usually falls the care of poliomyelitis in its early stages. On them rests the responsibility of seeing that at the time when they are most effective those measures are taken which are best able to save a maximum of function from the ravages of the disease. It is well that the Section on Pediatrics of the American Medical Association should devote a little time to surveying what it is that can best be done and why.

At best, the treatment of poliomyelitis is as yet not satisfactory because there is no specific serum, drug or chemical which will unquestionably cure or prevent the ravages of the disease. All treatment must be directed along the lines of symptomatic relief, helped of course by a study of the pathologic condition.

For years the outstanding pathologic feature has been considered to be paralysis due to loss of function of peripheral motor nerves, but as a result of the painstaking life work of the remarkable Australian nurse Sister Kenny, and the recent studies of many medical research workers and clinicians more and more persons are realizing that there are factors involved in muscle dysfunction in poliomyelitis other than loss of innervation and that much of the conception of the treatment of the disease held by most clinicians until recently must be changed. It is my purpose in this paper briefly to give the reasons for the necessity of this change and to summarize the present day treatment of choice of poliomyelitis.

### CAUSES OF MUSCULAR DYSFUNCTION

The lesions in the spinal cord that occur early in poliomyelitis have been well known for some years. Those that affect the anterior horn cells can be classified under four headings: edema, perivascular infiltration, petechial hemorrhages and the additional direct effect of the virus itself on the motor neurons. The first three factors alter the nutrition of the nerve cells and presumably their function, but this effect is only temporary. The action of the virus on the neurons may be totally destructive, causing permanent loss of function, but on some of the anterior horn cells it may possibly cause only temporary damage from which complete recovery is possible. Certainly at autopsy,

on examination of a cross section of the spinal cord, it is not the rule to find complete destruction of all motor nerve cells in a given area, usually at least a few survive in an anterior horn. Just what proportion must be destroyed before there is a clinical evidence of loss of muscle function is not known. In patients dying of respiratory failure very early in an attack of poliomyelitis, examination of the spinal cord at autopsy frequently reveals a surprisingly extensive destruction of the anterior horn cells throughout the length of the cord, even though there may have been no gross clinical evidence of any weakness whatever in the arms or legs.

Studies on muscle physiology by Eccles and Sherrington and by Clark have indicated that each anterior horn cell in the spinal cord controls through its axon and collateral fibrils a group of muscle fibers which vary in number in the different muscles. The motor neuron with the muscle cells it supplies is called a motor unit, and there are many such in any given muscle. Those motor units whose neurons are killed in poliomyelitis are henceforth destroyed and cannot recover but it is probably rare to have all destroyed even in a small muscle. What happens to those that are not destroyed determines the end result of the injury to the muscle. The survivors in time may recover from the nonfatal influences on their respective neurons, but meanwhile pending the subsidence of the temporary pathologic conditions in the spinal cord, these muscle fibers are subject to other harmful factors, particularly spasm.

Muscles in spasm are usually tender and painful and show a more or less tonic state of contraction of the muscle fibers, often apparently of the entire muscle. An additional form of spasm is the visible twitching, or fasciculation which in the past has been considered of diagnostic significance as a probable precursor of paralysis. This consists in irregular contractions of the muscle fibers in groups of motor units and is presumably due usually to irritation of the anterior horn cells in the spinal column.

The causes of the more obvious spasm, that apparently involving an entire muscle or the greater part of it, are not clear. There are many theories at present, involving reflex action, irritation, circulation, inflammation and anoxia, which do not need to be gone into at this time. But whatever the cause, spasm certainly is constantly present in early poliomyelitis, being found in the muscles of the neck and the back, and in the hamstrings as well as in a variable number of other groups of muscles. It is found both in muscles most of whose motor neurons are definitely weakened or paralyzed and in those without any evidence of weakness.

Spasm causes dysfunction not only of the muscle that is in spasm but also of its antagonist, which may be overstretched and rendered noncontractile. For instance, spasm of the biceps affects the use not only of the biceps itself but also of the triceps. By oscillographic recordings of action currents Schwartz and

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Read before the Section on Pediatrics at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1942.

Bouman of Rochester, N. Y., have recently proved that in the acute stage of poliomyelitis spasticity is found not only in the antagonists of weakened muscles but also in the weakened muscles themselves and furthermore in muscles elsewhere in the patient which show no clinical evidence of weakness.

Spasm is aggravated by pain and tenderness, by attempts at active motion, by forced immobilization as by casts and splints, also considerably by massage and by electrical stimulation. If untreated, muscle fibers in spasm may become hard and inelastic and may comprise the bulk of a muscle, eventually, some may show fatty replacement, others fibrous degeneration. Hipps also has described "stretch tears," or minute ruptures of bundles of muscle fibers due to the force of a slow, continued stretch. If spasm is allowed to persist, permanent contracture and further loss of function ensue.

As a result of these several factors, that is, the diminution of innervation, the presence of spasm, as already mentioned, and also because of muscle tenderness and pain, patients develop additional motor difficulties. There is a loss of ability to use muscles in proper relationship to one another and to the work to be done. This is called muscle incoordination by Sister Kenny and is illustrated by the substitution of an unsuitable or inefficient muscle for one that is weakened or in spasm. For example, when a patient has spasm of the intercostal muscles, he tries to breathe with his pectorals, with his sternocleidomastoids and even with the platysma in the skin of the neck.

A second difficulty consists of a physiologic block preventing the proper transmission of a nerve impulse from the central nervous system to a contractile or nonparalyzed muscle, a condition known in the Kenny nomenclature as mental "alienation." Here there is no persisting organic injury to the motor units but because of various factors the patient is unable to operate the motor neurons normally. Inhibition due to pain can cause "alienation," as can also spasm in an antagonistic muscle, or a temporary loss of function of the neurons due to pathologic factors in the spinal cord. Even after these influences have disappeared the "alienation" may persist, the patient having lost the power of accustomed control over the particular motor units involved.

Thus, to recapitulate, there are several causes of muscular dysfunction in poliomyelitis. First, a primary loss of innervation, with resulting actual paralysis, second, spasm of the surviving fibers in the involved muscle or in an antagonistic muscle, third, muscle incoordination, and, fourth, mental "alienation." Of these factors, only the first is irremediable and permanent. Destroyed motor units remain destroyed, and no newly formed or regenerated muscle cells will appear. Occasionally practically all the motor units in a particular muscle may be so involved, but much more commonly only a fraction of the motor units in any given muscle are killed. The rest are subject to spasm, incoordination and "alienation" and, unless these factors are counteracted, spasm overcome and the continued misuse of surviving muscles and parts of muscles prevented, otherwise viable motor units may eventually die, and contractures and further crippling may be produced.

No treatment will help dead motor units, but the Kenny treatment will rescue still living units from the effects of spasm, muscle incoordination and mental "alienation." It is believed that motor units which

survive can develop a compensatory hypertrophy even to the extent of compensating for the killed units, so that there may be no apparent loss of function in a muscle that had seemed to be seriously involved. Therefore, I for one am convinced that the treatment of an acute case of poliomyelitis must include consideration of this pathologic conception of the cause of muscle dysfunction.

#### APPLICATION OF KENNY TREATMENT

We pediatricians would do well to put the Kenny techniques in their proper place in the whole detailed care of early poliomyelitis. When a new patient comes to our attention there are four general groups of manifestations to the management of which should be devoted our most earnest endeavors. These are (1) toxicity, (2) spasm and its sequelae, muscle incoordination and mental "alienation," (3) certain difficulties such as of swallowing, of breathing, of urination and of defecation, and (4) shaken morale.

On admission to a hospital many of these patients are obviously toxic, prostrated and more or less delirious. The intravenous injection of moderate amounts of a 10 per cent solution of dextrose is often useful. Sister Kenny has told me that she does not like these injections because they are in the way of the essential hot fomentations, but she grants they are sometimes very helpful. Patients should be subjected to a minimum of handling. They are irritable and in pain with many tender muscles, so complete rest is essential, or spasm will be increased. Examinations of the patient should, as far as possible, be limited to inspection. Spasm is sought after and, wherever found, is at once treated with hot fomentations according to the technique of Sister Kenny. Schwartz and Bouman have proved by their electrical recordings that under the Kenny treatment spasticity disappears and the strength of voluntary contraction improves, while without treatment spasticity does not disappear in the same time interval. Of course, nothing is permitted which may increase spasm, such as massage, electrical stimulation or splinting of any sort.

Manifestations that, in the past, have caused special trouble such as difficulties of swallowing, of breathing, of urinating and the like, are almost always largely attributable to spasm somewhere. For instance inability to breathe is found to be due principally to spasm of the intercostals and pectorals, or of the diaphragm, and is treated with hot fomentations applied more frequently and over longer periods than usual. Mechanical respirators not only interfere with this treatment but tend to aggravate the spasm, although they may oxygenate the patient and give temporary relief from suffocation. Patients with moderate respiratory difficulty because of spinal involvement, those for whom the respiratory organs have hitherto been thought to be life saving, do much better on the Kenny treatment, and patients with severe spinal involvement with so much actual paralysis of the muscles of respiration that they cannot breathe by the Kenny treatment (which naturally does not use all) would not have been saved by a respirator, although life might have been temporarily prolonged. Patients with bulbar involvement never have done well in respirators, so it is my sincere belief that those who have been most closely associated with Sister Kenny that the use of the respirator is contraindicated in the routine treatment of poliomyelitis. It is conceivable that a respirator

be valuable for keeping a patient alive until he can get the Kenny treatment for instance during transportation to a hospital

Disturbances of swallowing are usually due to spasm of the muscles of the neck and if treated early by the applications of hot fomentations around the neck are rapidly relieved. Similarly difficulties in emptying the bowel or bladder are often quickly relieved by combating the spasm of the abdominal and lower back muscles.

For the first day or two particularly in early cases, the application of hot fomentations or compresses comprises practically the entire treatment, then when the spasm is somewhat relieved, passive motion of each involved muscle is started to establish or maintain mental awareness of its function. Fatigue and increase of spasm are sedulously to be avoided. Only when spasm and tenderness are not augmented thereby is active motion permitted and the Kenny technic of muscle reeducation fully established.

A most important part of the treatment of an early acute case of poliomyelitis is management of the morale. There are few illnesses which so greatly shake the courage of a patient's parents, and sometimes of the patient himself, as does poliomyelitis. With patients on the Kenny treatment, the maintenance of morale is easier than in former years because the patients are more comfortable and are more hopeful from the start, but there are bound to be those destined to be left with limitations, despite the best care and for them and their families I plead for special consideration—consideration not to take the form of extra solicitude and sympathy but rather to emphasize the distinction between restricted and handicapped. We are all of us restricted by one factor or another, whether it be by age, vision, hearing or force of other circumstance, and some have restrictions that are more obvious than others. But only those are handicapped who admit it. Surely, to be handicapped is a state of mind, a lack of courage or will or maybe of imagination. Certainly one can recite many instances of people who have been greatly restricted but who have not been handicapped, who despite obvious limitations have fought on and conquered and who, instead of slipping into the depths, have risen to great heights. We all know of people who illustrate this point. There is the college girl who was elected president of the athletic association because she was the college champion both at archery and at canoe paddling. She had two legs that were nearly useless. A college man was awarded the most important undergraduate prize in his university because of his campus leadership. He broke the world's record in the rope climb and after graduating went on most successfully to medical school and a choice internship. He was restricted by two legs almost completely paralyzed by poliomyelitis, but he was not handicapped. A girl I know well had poliomyelitis at 14 and was left with a useless right arm and an awkward, but useful left hand. She has gone on to graduate from high school and college with honors in campus activities as well as in her studies, has completed postgraduate instruction and holds a desirable position as a librarian. She is entirely self sufficient and well adjusted. In fact the majority of patients with poliomyelitis usually achieve a workable philosophy, it is the parents who often need most help. Many of the paralytic, however find most helpful the distinction between restricted and handicapped—they become willing to recognize the fact of the restrictions but press on to achieve the most with what they have.

So a great responsibility and a great privilege now belong to the pediatricians. As children stricken by this dread disease are entrusted to us, we must institute proper measures, the insuring of rest and quiet, the combating of toxicity, of spasm, and of muscle incoordination and mental "alienation" and, finally, the maintenance of morale. For thus only do we give our patients their fullest opportunity for a maximum recovery.

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## SOFT PARTS DYSTOCIA

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By soft parts dystocia is meant abnormal or pathologic labor due to the soft parts of the pelvis in contradistinction to difficulties encountered because of the bony pelvis. The soft parts include the vulva, perineum, vagina, cervix, uterus, adnexa, rectum and bladder. Anomalies of any one of these structures may result in dystocia. The soft parts are much more frequently the cause of troublesome labor than the bony pelvis.

It is manifestly impossible to discuss all the disturbances of the soft parts which can give rise to abnormal labor, hence I shall limit my remarks to the important ones.

### THE VULVA

The vulva is rarely the cause of dystocia and, when it is, the pathologic condition is generally high grade edema. The latter is usually due either to toxemia or to prolonged labor with considerable vaginal manipulation, but it may be due to lymphogranuloma. Rarely the vulva may be seriously enough constricted so as to interfere with labor. Such strictures may be due to improperly performed plastic operations, burns, injuries or infections, such as syphilis or granuloma inguinale. In some instances the vulvar obstructions may be easily overcome, as for example by aspiration of fluid from highly edematous labia, but in other cases the only safe procedure for the mother is abdominal delivery.

### THE PERINEUM

The perineum in primiparas is practically always a barrier to the exit of a full term baby. However, this obstruction is usually overcome by the uterine contractions with or without lacerations of the perineum, or the physician removes the barrier by manually stretching the perineum or by cutting it. Hence the perineum rarely gives any concern. Even in elderly primiparas there is seldom cause to worry about perineal obstruction. No matter how rigid the perineum may be, a sufficiently large episiotomy can practically always overcome the difficulty. The exception to this rule is the rare case of congenital or acquired narrowing which involves not only the perineum but also a good part, or all, of the vagina.

Hesitancy to employ an episiotomy has resulted in the death of some babies in cases in which there was delay at the perineum. Hence, when the second stage is prolonged, particularly when the caput is visible and still no progress is apparent, not only must the fetal heart tones be frequently auscultated to determine how the baby is tolerating labor but also an effort should be made to determine the cause of the delay. This may be

a rigid perineum, as well as failure of rotation of the head, a narrow pelvic outlet, a short cord, a constriction ring or other cause. If the perineum seems to be delaying progress, there should be no hesitancy in performing an episiotomy. Certainly if the baby's heart tones become irregular or too rapid or too slow or if the mother is exhausted, the perineum should be incised to permit delivery of the baby. If spontaneous delivery does not follow the episiotomy, forceps should be applied.

#### THE VAGINA

Among the causes of vaginal dystocia are congenital narrowing and septums, constrictions due to disease, such as diphtheria in childhood, scars from trauma of labor or unskilful operations, constrictions due to burns or infections and neoplasms in or encroaching on the vagina. In most of these cases the physiologic changes which occur during pregnancy overcome the obstructions. Thus under the influence of the excessive output of estrogen during gestation the vaginal tissues soften and dilate and constrictions may disappear. Likewise during labor obstructions may vanish, particularly septums which are pushed aside and scars which are flattened out of the way of the descending baby. Only in some instances is it necessary to perform a cesarean section for vaginal dystocia or even to incise scars and septums in order to permit delivery from below. Occasionally a colpeurynter will aid in overcoming constrictions in the vagina. In other cases a deep episiotomy extending high in the vagina will help. If, however, a tumor blocks the vagina, the safest procedure is to perform a cesarean section.

#### THE CERVIX

The term "cervical dystocia" in my opinion is used too frequently, not because I believe the cervix is rarely responsible for trouble in labor but because the cervix is blamed in far too many cases in which the physician attempts to deliver the infant through an incompletely dilated cervix. In such a case it is not the cervix which is at fault but the impatient physician. Nevertheless there are many cases of dystocia which are attributable to the cervix.

Nearly always cervical obstructions are anatomic, but in rare cases there may be a true spasm of the external os which prevents the expulsion of the baby. A spasm may be overcome by deep anesthesia alone or by this plus digital dilatation of the cervix. Anatomic strictures of the cervix may be due to scars from previous difficult deliveries, extensive electric treatment, trachelorrhaphy and neoplasms. Likewise trouble may arise because of edema of the cervix. In addition to these definite causes there are a few disturbances of the cervix which are not well understood. Among these anomalies are adherence of the membrane to the region of the internal os preventing proper dilatation, slow and incomplete dilatation due to excessive fibrous tissue in some old primiparas and conglutination of the external os, a condition in which the cervix is completely effaced but there is absolutely no dilatation, there is practically no external os and the cervix fits the presenting part snugly.

Cervical dystocia always occurs in the first stage of labor, by definition the second stage does not begin until the cervix is completely dilated and effaced. When the second stage is reached, the cervix cannot give trouble unless edema is present. In all cases of true cervical dystocia, progress ceases at a certain point, after which the pains become increasingly stronger and

more painful. In most cases the obstruction is removed by the forces of labor, but in some the physician must interfere to prevent serious damage to the mother or child, or both. If aid is not given as labor continues the child may die, the cervix may be lacerated or torn off and expelled with the child or the lower uterine segment may rupture, with escape of the baby into the abdominal cavity.

The treatment of cervical dystocia depends on the cause. Patience coupled with ample sedation will be rewarded by spontaneous delivery in most cases. In every woman whose cervix dilates slowly in spite of strong regular contractions must be closely watched. If during a long period of time labor fails to progress because of incomplete dilatation of the cervix, several methods are available to the physician.

1 Packing the vagina with cotton saturated with boroglycerin for a few hours often leads to dilatation of the cervix, so may a prolonged hot douche.

2 Digital dilation is helpful in some cases, but if the cervix is rigid and only partially effaced, this is not easy to carry out. In most cases in which finger dilation is successful the cervix is lacerated, although generally the tears are small. Attempts to dilate the cervix manually should seldom be made before the cervix is completely effaced and dilated at least 7 cm. The fingers are most useful for overcoming obstruction due to edema of the anterior lip. In such cases the edematous lip can easily be pushed upward beyond the presenting part during a labor pain. Nearly always delivery follows rapidly in such cases. In a case of agglutination of the external os, if the finger is forced into the tiny opening which is usually present in the cervix it will miraculously remove this cause of dystocia. In such a case the agglutination is not complete and pressure by a finger tip causes the tiny opening to widen rapidly, so that labor is terminated quickly. The small opening can much more readily be seen through a speculum than palpated with the gloved finger. The fingers may also be used to break up adhesions between the membranes and the cervix, after which labor will progress normally.

3 Instrumental dilation with Hegar or Bossi dilator has been recommended, but these instruments should never be used during labor because they are capable of doing great harm.

4 The metreurynter may be used to overcome cervical dystocia, but there are many disadvantages to the use of rubber bags. They are foreign bodies and their presence in the lower uterine segment and vagina increases the risk of infection, they displace the presenting part with the risk of prolapse of the cord, they increase intrauterine pressure, which is hazardous in cases of distention of the lower uterine segment. They do not physiologically dilate the cervix but often produce lacerations, and nearly always when the bag is expelled, no matter how large, the cervix retracts so that its size is considerably less than the diameter of the metreurynter that slipped through it.

5 Incisions in the cervix, generally spoken of as Dührssen's incisions, are distinctly helpful in cases of cervical dystocia, but they should never be used until the cervix is completely or almost completely effaced. If an insufficiently effaced cervix is incised there is danger of extension into the bladder, rectum or uterine arteries. Generally two or three incisions are made at 10, 2 and 6 on the clock, and they should be long enough to permit delivery of the presenting part without force. Usually it is hazardous to perform such

extraction after Dührssen's incisions because of the risk of extension of the incisions with resultant hemorrhage and possible rupture of the uterus. Therefore after the cervix has been incised it is best to await spontaneous delivery or deliver with forceps.

6 Vaginal hysterotomy or vaginal cesarean section should be done only by an experienced operator and only when the baby is small, particularly if the patient is a primipara.

7 Abdominal cesarean section is rarely necessary for cervical dystocia. However if a true anatomic obstruction exists this is the only safe procedure. If during abdominal delivery the opening in the cervix is found to be tiny, it may be advisable to amputate the uterus after the baby has been delivered. However the necessity for a Porro operation will rarely arise, because much anatomic obstruction of the cervix is most unusual and when it occurs it can be overcome by forcible dilation from the uterine cavity at the time of cesarean section.

In all cases of so-called cervical dystocia one must be certain the patient is actively in labor. In many cases severe uterine contractions occur during the last few days of pregnancy, yet the cervix does not dilate, the pains subside and the patient goes on for days in peace before true labor sets in. My own feeling is that regardless of how strong the uterine contractions may be, if the cervix does not become effaced the patient is not really in labor. Such patients are having false labor pains. In most cases sedatives, such as morphine, will stop the pains. Another point of differentiation is that solution of posterior pituitary will not increase the frequency and severity of false pains. If a physician considers such a patient as having true labor pains, particularly if the contractions continue for twenty-four or forty-eight hours, and if on his own volition or because of the insistence of the patient's family that he do something he resorts to measures to hasten labor, he invites trouble. To avoid such pitfalls, the physician should use effacement of the cervix as the criterion of the presence of true labor. If the cervix is becoming effaced the patient is in labor, and if there is no effacement after a reasonable number of hours she is not in active labor.

#### THE CORPUS UTERI

*Atony*—The body of the uterus may be the cause of dystocia in the first, second and third stages. In the first stage the most common disturbance is what is generally called atony of the uterus, although true atony does not exist. This disturbance may also occur in the second and third stages.

In the first stage atony usually manifests itself by weak and infrequent uterine contractions. Labor may drag on for days. Strong pains may occur for varying periods of time and then cease almost entirely. Dilatation and effacement of the cervix are very slow. As long as the membranes are intact there is little danger, but after rupture of the bag of waters a prolonged delay in delivery is attended with danger to the mother and baby. The chief element of risk is intrauterine infection.

Many causes have been assigned to uterine atony, including poor general health, anemia, disturbances in the nervous mechanism, few local alterations in the uterus such as fibroids and scars, overdistention due to the presence of twins or polyhydramnios and malpresentation. However in most cases the real cause of weak uterine pains cannot be found, although most likely the nervous system is at fault. In addition to the foregoing possible causes, one must always bear in mind that in

many cases atony results from fatigue that is, labor comes almost to a standstill after a prolonged period of severe uterine contractions.

The treatment of uterine atony should depend on the cause but since in most cases this is unknown one must use certain measures which have proved to be helpful empirically. There are two main ways of treating atony, and it is highly important to choose the proper one.

In the majority of cases of uterine atony the pains at the beginning of labor are strong, and then they decrease in frequency and strength. The patient is usually tired and frightened. In these cases the best remedy is to give the patient a few hours of deep sleep. This may be secured by morphine, dilaudid, paraldehyde or any of the barbiturate drugs or by a combination of drugs, but enough should be given to insure sleep and not simply amnesia or analgesia. Nearly always, soon after the patient awakens uterine contractions begin in a normal way and they continue to increase until delivery takes place. One must not forget to watch every patient who has atony for dehydration, starvation, a full bladder and a full rectum. Hence such a patient should be given fluids and nourishment (dextrose) in addition to sedatives for procuring sleep. Likewise her bladder and rectum should be emptied at regular intervals. Above all, she should never be given solution of posterior pituitary or any other oxytocic to increase the strength and frequency of the pains, because she is tired physically and mentally and requires rest, not a whipping up of uterine activity. The use of oxytocics for atony may result in fetal death, rupture of the uterus and even maternal death.

In rare cases of atony in which true pains are being experienced with effacement and dilatation of the cervix the contractions may be weak from the start and may drag on for many hours and even days. In such cases if simple measures, such as hot enemas, castor oil and quinine, do not help, solution of posterior pituitary may be used. However, only 1 minim (0.06 cc.) of the drug should be given at a time, and this should be measured in a tuberculin or similar syringe. The interval between injections should be at least twenty minutes, preferably thirty, and if pains have been initiated no more solution of posterior pituitary should be given until the pains cease. The fetal heart tones must be listened to every few minutes and certainly for at least a full minute after each injection. Furthermore, a can of ether or a bottle of chloroform should be at hand in case a too powerful uterine contraction follows an injection. I know of two ruptures of the uterus following the injection of minim doses of solution of posterior pituitary.

Atony of the uterus in the second stage of labor is usually easy to overcome. By definition the cervix is completely effaced and dilated in this stage. If the head is low down, and certainly if it is on the perineum, the baby should be delivered by means of a low forceps operation. A simpler procedure is to make an episiotomy and use the Kristeller expression to deliver the baby, but this procedure must be carried out with the utmost care to avoid traumatizing the uterus and placenta and to prevent injury to the baby. Of course, the Kristeller expression should never be attempted if the lower uterine segment is thinned out. Occasionally when the head is on the perineum it can be delivered by a modified Ritgen maneuver, that is, pressing the head out by means of the fingers placed on either side of the anus. This procedure is especially successful if combined with an episiotomy. If the head is high up



after the cervix is fully dilated, delivery should be accomplished by version and extraction.

I prefer these methods of delivery to the use of solution of posterior pituitary, which is especially dangerous in the second stage of labor. The only indication for this drug in the second stage of labor is when the head is on the perineum and there is no disproportion. Even in such a case I should resort to a low forceps operation because I can always control the instrument but not always the drug.

Uterine atony in the third stage usually results in hemorrhage. The treatment of this consists in uterine massage, removal of the placenta and membranes if they are still in utero, the intravenous injection of ergonovine, the intramuscular injection of solution of posterior pituitary, intrauterine packing and, when necessary, blood transfusions or the use of plasma or serum. I have found the injection of solution of posterior pituitary directly into the uterine muscle through the abdominal wall to be a highly effective method of controlling bleeding, but this procedure should be carried out only by an experienced physician.

*Uterine Tetanus and Spasm*—Dystocia may be produced not only by uterine atony but also by the reverse, namely, excessively severe uterine contractions. When the entire uterus is involved in the process the condition is spoken of as uterine tetanus. When only a localized area of the uterus is contracted, the condition is described as uterine stricture. The most likely cause of these disturbances is a disturbance in the nervous mechanism of the uterus. Spasms of the uterine musculature may be brought about by local manipulation, such as rough examinations, forcible dilation of an incompletely dilated cervix, intrauterine manipulation, attempt to deliver a baby through an incompletely dilated cervix and obstructed labor. Solution of posterior pituitary may also cause these anomalies.

When there is a tetanic contraction of the uterus, be it general or local, labor ceases. Both the mother and the baby, however, suffer considerably. The maternal and fetal mortality and morbidity are very high, particularly in the cases of conditions to be described as constriction rings.

Clinically the most important type of stricture of the uterus and the one which gives the most trouble is that known as Bandl's ring. The terminology of this condition is most confusing, hence a word of explanation. Situated between the body of the uterus and the lower uterine segment is a distinct area all around known by various names, such as the constriction ring of Schroeder and the retraction ring of Barbour and Lusk. However, Rudolph and Ivy properly suggested the name physiologic retraction ring for this area. This ring is usually at the level of the symphysis pubis and is at about the region where the anterior uterine peritoneum is fixed to the uterus. In contradistinction to the physiologic retraction ring is the Bandl ring, which is called the pathologic retraction ring by Rudolph and Ivy. This is usually situated about 14 to 16 cm. above the superior border of the symphysis pubis or in the region of the umbilicus. It may be identified as an oblique or transverse depression in the anterior abdominal wall. It is distinctly palpable when a hand is inserted into the uterine cavity, and this is the only way to make an absolute diagnosis of pathologic retraction ring. Whenever such a ring is present one must be on guard against a rupture of the uterus, because the lower uterine segment is usually elongated and thin, on the other hand, the corpus is thicker.

In a woman with a pathologic retraction ring the uterine contractions are very painful, but in spite of this there is no progress in labor. The delay in labor is usually erroneously ascribed to cervical dystocia, occiput posterior or disproportion.

Abdominal examination in a case of Bandl's ring usually reveals the groove as described. On rectal examination it will be found that in spite of strong and regular pains the cervix is not fully dilated, that it is soft and edematous and that the head does not seem to fit the pelvic cavity. On vaginal examination the soft, succulent, incompletely dilated cervix can be felt and also the head, which does not come down to fill the lower uterine segment during a uterine contraction. Insertion of the hand into the uterine cavity easily reveals the tense ring all around the uterus. Bandl's ring may, of course, develop in the second stage of labor, and in such a case either the head comes down almost to the perineum during each contraction and immediately recedes or it does not come down very far with the pains. A localized spasm may occur in the third stage of labor and interfere with placental separation.

The preparation of the patient's psyche for labor may prevent the development of Bandl's ring in some cases, especially in women who are unduly apprehensive about childbirth. Likewise, the avoidance of oxytocics, rough vaginal examinations, unnecessary intrauterine manipulations and forcible dilation of the cervix will definitely diminish the incidence of pathologic retraction ring. The proper use of sedation will prevent the condition in a few more cases.

If the diagnosis is made during the first stage, large doses of sedatives should be given in order to secure rest for the uterus and sleep for the patient. If this plus repeated bolstering of the patient's psyche by encouragement and fortification of the patient's physical condition by means of fluids and dextrose do not result in progress after a long lapse of time, delivery must be accomplished. Sometimes, when the patient is in excellent physical condition, when the vaginal examination was performed gently and without risk of infection and when the baby is in good condition, cesarean section should be performed, preferably the cervicohysterotomy type and under local anesthesia. In other cases, if the head is fairly low down and the cervix completely dilated, the Bandl's ring may be gently but steadily dilated under deep anesthesia and the baby delivered by forceps. Ether and chloroform are the best anesthetics for this purpose. If difficulty is encountered under deep anesthesia, 8 minims (0.5 cc.) of epinephrine should be given hypodermically, as advocated by Rucker. This treatment often results in relaxation of the ring. If the head is high and the ring cannot be dilated, version and extraction may be performed if the lower uterine segment is not thinned out. In some cases it will be necessary to dilate the cervix manually before delivery by forceps or version can be accomplished. If the baby is dead, and in some cases in which it is alive, the application of a Wrigley's or a volsellum to its scalp with an attached wire will result in spontaneous delivery. In some cases, if the baby is dead, craniotomy must be done. Whenever manipulations from below fail to bring about delivery of the baby a Porro operation must be done. In the average skill are used. In some cases an external cesarean section, such as the one described by Wrigley, will enable the operator to save the uterus.

*Other Causes of Uterine Dystocia*—Another disturbance of the uterus which may result in dystocia is the presence of myofibromas. Fortunately in most cases these growths give very little trouble during labor. Sometimes they cause irregular contractions in the first stage, occasionally they produce malpresentations, and not infrequently they result in hemorrhage in the third stage and infection in the puerperium. Rarely they block the exit of the child making cesarean section imperative.

Still another uterine source of dystocia is the presence of a scar from a previous cesarean section. Regardless of the type of cesarean section performed there is always some risk of rupture in a subsequent pregnancy and labor. After the classic operation many ruptures have occurred not only during labor but also in pregnancy while the patient was at rest. However, after the cervical cesarean section rupture during pregnancy is extremely rare and rupture during labor is far less common than after the classic operation. Regardless of this every woman who has had a cesarean section should give birth to all her subsequent babies in a hospital. If the same indication for cesarean section exists as for the first operation for example a contracted pelvis of course the operation should be repeated, preferably a few days before term or as soon after the onset of labor as possible. However, if the indication for the first cesarean section is placenta previa or severe toxemia, is not present subsequently, the patient may be permitted to deliver from below, but only in a hospital. If vaginal delivery is to take place it is safest to deliver the baby by low forceps soon after the cervix is completely dilated. If there is good reason to believe that the cesarean scar did not heal properly, as may occur after a markedly febrile puerperium, or if a defect is definitely felt through the abdomen, an elective cesarean section should be performed a week or ten days before term.

Scars from myomectomy operations need not be feared, because a rupture of such a scar in labor is a great rarity.

#### THE ADNEXA

Practically the only way the adnexa can result in dystocia is by the development of a tumor. The most frequent neoplasm of obstetric interest is an ovarian cyst, regardless of whether it is a simple serous cyst, a dermoid, carcinoma or other type. The only consideration is whether the growth is large and obstructs the exit of the child. Otherwise it has practically no obstetric importance unless it undergoes torsion. If acute torsion occurs an operation must be performed, whether this takes place in pregnancy, labor or the puerperium. Ovarian cysts give rise to dystocia much more frequently than do uterine fibroids, hence some obstetricians believe that every ovarian neoplasm discovered during pregnancy should be removed. However, I have followed many women with ovarian cysts during pregnancy, labor and the puerperium without observing any harm. Hence I believe that if an ovarian tumor is drawn up out of the pelvic cavity during pregnancy and does not block delivery of the baby it should be left alone. If, however, an ovarian cyst remains in the cul-de-sac and cannot be displaced by posture and gentle pressure, it should be removed, preferably during pregnancy. If there is reason to suspect malignancy of an ovarian tumor or if a roentgenogram reveals a dermoid cyst, an operation should likewise be performed.

#### FULL BLADDER AND RECTUM

Occasionally an overdistended bladder or an overloaded rectum will interfere with the progress of labor. For this reason it is important to be sure the patient empties her bladder and rectum or that these organs are emptied by catheter and enema respectively whenever these procedures seem necessary.

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### PITRESSIN TANNATE IN OIL IN THE TREATMENT OF DIABETES INSIPIDUS

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The effects and disadvantages of solution of posterior pituitary and of pitressin administered hypodermically or intranasally in relieving the symptoms of diabetes insipidus are well known. The subcutaneous injection of the drug causes local irritation and is frequently followed by intestinal cramps, diarrhea, headaches, palpitation and pallor. Moreover, the therapeutic effect is temporary, lasting only a few hours. In order to control a patient's symptoms by this method, it is necessary to inject the drug three, four or more times a day. The intranasal use of solution of posterior pituitary and of pitressin appears to be somewhat more satisfactory because it avoids the necessity of injection and can be taken easily a number of times a day. Again, however, the effect lasts only for several hours. Frequently patients become sensitive to the drug intranasally with resultant sneezing, irritation of the nose and a mucous discharge and diminished absorption.

A compound solution of posterior pituitary with slow absorption and a greatly prolonged antidiuretic effect appears desirable, especially if there are no side reactions. Green and January<sup>1</sup> found that pitressin tannate in oil given subcutaneously to 3 patients with diabetes insipidus had an antidiuretic effect for thirty to eighty-two hours. In Stephens's<sup>2</sup> cases, single injections of this preparation exhibited an antidiuretic effect for twenty-four to ninety-six hours. Thorn and Stein<sup>3</sup> observed that the intramuscular injection of pitressin tannate in oil was very effective in 3 cases of diabetes insipidus and that the symptoms were controlled for twenty-four to forty-eight hours. It appears that pitressin tannate in oil, administered hypodermically, has an antidiuretic effect in cases of diabetes insipidus which may last for twenty-four to ninety-six hours.

This paper reports the results in 8 cases of diabetes insipidus following the subcutaneous or intramuscular injection of pitressin tannate in oil.<sup>4</sup>

The plan of study consisted chiefly in observing the daily fluid intake and output before and after the hypodermic injection of pitressin tannate in oil. In addition,

From the Medical Clinic of the Peter Bent Brigham Hospital.  
1 Green J A and January L E. Diabetes Insipidus Treated by the Subcutaneous Administration of a Suspension of Pitressin Tannate in Oil. *J A M A* 115 1183 (Oct 5) 1940.

2 Stephens D J. Pitressin in Oil. Prolonged Antidiuretic Effect in Experimental and Clinical Diabetes Insipidus. *J Clin Investigation* 20 463 1941.

3 Thorn G W and Stein K E. Diabetes Insipidus and Pitressin. Pitressin Tannate Therapy in Diabetes Insipidus. *J Clin Endocrinol* 1 680 (Aug) 1941.

4 Pitressin tannate is a water in oil chemical combination of the pressor fraction of the posterior lobe of the pituitary gland with tannic acid. The pressor fraction is precipitated with tannic acid and the precipitate is removed by filtration, washed and dried under aseptic conditions. Five pressor units of pitressin tannate is suspended in 1 cc of peanut oil. The pitressin tannate in oil was supplied by Parke Davis & Co.

the weight of the patients and the specific gravity of the urine were noted frequently. Various blood tests were made in certain instances. In all of the cases 1 cc of pitressin tannate in oil was injected subcutaneously or intramuscularly daily for several days and then on

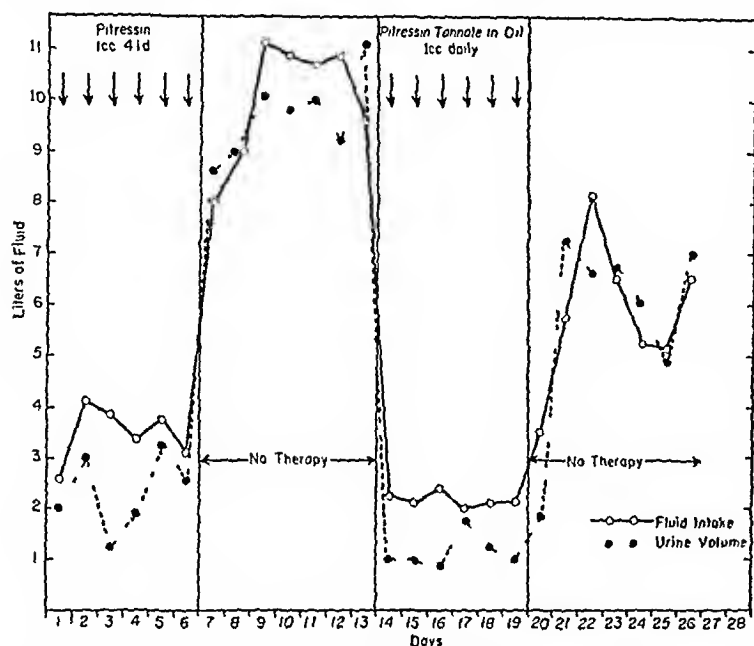


Chart 1—Relative effects of pitressin, pitressin tannate in oil and no treatment on the daily fluid intake and output of a patient (Mr. H. N.) with diabetes insipidus

alternate days or at longer intervals. The longest period of administration of the drug in these cases was seven months.

#### CLINICAL MATERIAL AND RESULTS

The persons studied included 5 males and 2 females who had had diabetes insipidus of idiopathic origin for a number of years and 1 male whose diabetes insipidus was due to a brain tumor. Except for the last person, I have observed the cases for three or ten years and know well the state of their disease. The ages of the males ranged from 14 to 37 years and the ages of the women were 29 and 72 years. All were relieved of the polyuria and polydipsia with the intramuscular or intranasal administration of solution of posterior pituitary except the patient with brain tumor.

#### REPORT OF CASES

The cases are presented briefly as follows.

**CASE 1—H. N.**, a man aged 37, unmarried, had had diabetes insipidus for seventeen years. His general physical examination was normal, although he was about 10 pounds (4.5 Kg) underweight. His daily fluid intake and output usually varied from 10 to 11 liters. With 1 cc of pitressin injected four times a day, his daily fluid intake and output were about 2 to 4 liters. When 1 cc of pitressin tannate in oil was injected daily, the fluid intake dropped to approximately 2 liters and the urine volume to about 1 liter a day. When the drug was omitted for four or five days the fluid intake and output had increased but not to the large volumes which were present before this therapy

was started. After four days of treatment with the drug he put on 3 pounds (1.3 Kg). The details of his fluid intake and output are recorded in chart 1. Later the drug was administered every other day and the fluid intake and output remained at about the level when the drug was given each day.

**CASE 2—Miss E. S.**, a school teacher aged 29, had had polyuria and polydipsia for eleven years. Her daily fluid intake and output had been about 10 or 11 liters. The menstrual history had been normal, but the intramuscular injection of solution of posterior pituitary caused dysmenorrhea. One cc of solution of posterior pituitary injected three times a day or the intranasal insufflation of powdered pituitary about five or ten times a day reduced the daily fluid intake and output to about 3 liters. The physical examination was negative. She was about 15 pounds (6.8 Kg) underweight. The administration of 1 cc of pitressin tannate in oil, daily and on alternate days, reduced her daily intake and output to a low level, usually between 500 and 1,000 cc. The details of her fluid intake and output are shown in chart 2. Here again the fluid intake and output increased considerably after the drug had been omitted for six days but not to the high level present before therapy. No painful menses occurred during this treatment.

**CASE 3—F. C.**, a man aged 36, married, a clerk, developed diabetes insipidus during the course of a severe septic throat twelve years previously. His daily fluid intake and output during the past four or five years had been about 10 liters. He was unable to use solution of posterior pituitary intranasally because it produced asthmatic attacks. The physical examination was normal. The administration of 1 cc of pitressin tannate in oil every sixty hours kept his daily fluid intake and output at approximately 1 liter.

**CASE 4—J. K.**, a man aged 30, a clerk, had had polyuria and polydipsia for eleven years. His daily fluid intake and output had been as high as 11 liters in the past and about 6 liters during the last three or four years. The physical examination showed him to be about 15 pounds (6.8 Kg) underweight. The skin was of the female type and he was sexually underdeveloped. The administration of 1 cc of pitressin tannate in oil every other day reduced his fluid intake and output to approximately 0.5 to 1 liter a day.

**CASE 5—A. S.**, a man aged 27, unmarried, a musician, had the disease for sixteen years with a daily fluid intake and output of about 14 liters. This was reduced to 3 or 4 liters when 1 cc of solution of posterior pituitary was injected

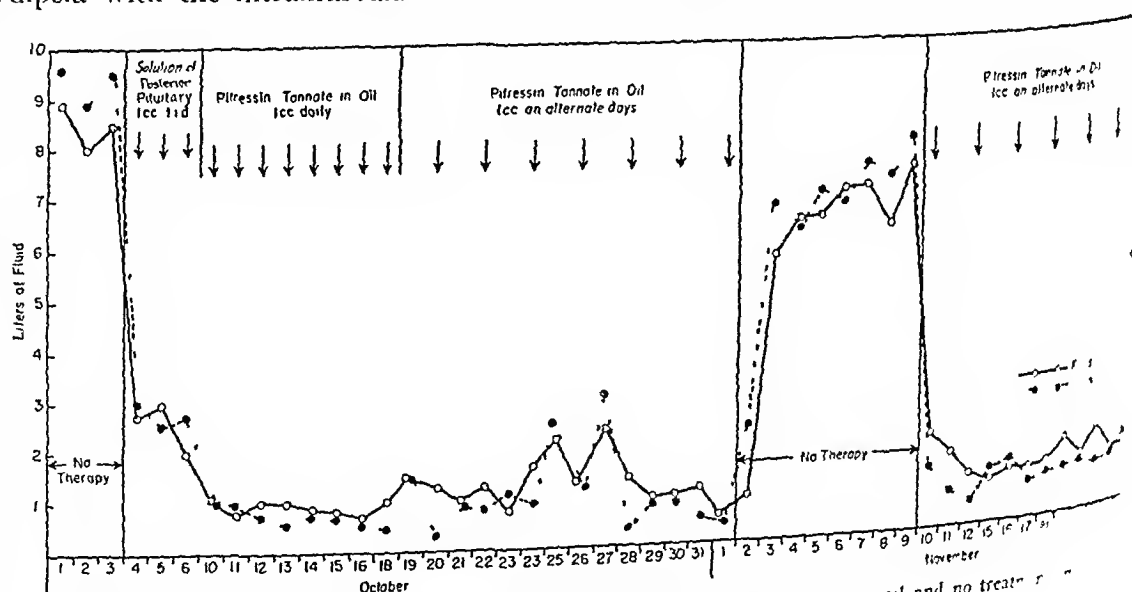


Chart 2—Relative effects of solution of posterior pituitary, pitressin tannate in oil and no treatment on the fluid intake and output of a patient (Miss E. S.) with diabetes insipidus

times a day. The physical examination was entirely normal. The administration of 1 cc of pitressin tannate in oil on alternate days reduced the daily fluid intake and output to about 2 liters a day.

**CASE 6—Mrs. M. A.**, aged 72, a housewife, had had diabetes insipidus for eleven years. She had had the menopause about

previously. Her daily intake and output had been about 10 liters. She had a total thyroidectomy on June 24, 1935, and the details of this aspect of the case were published elsewhere.<sup>5</sup> The essentials of the recent examination were obesity, moderately enlarged heart and slight edema of the legs. Her height was 5 feet (152 cm) and her weight 198 pounds (90 kg). The pulse rate was 72. The basal metabolic rate was -10 per cent. Her daily intake and output had been about 10 liters until a year ago when it dropped to about 6 liters. Five-tenths cc of solution of posterior pituitary administered intranasally three or four times a day reduced the values to approximately 2 or 3 liters a day. The injection of 1 cc of pitressin tannate in oil every other day kept the fluid intake and output at approximately 1 liter.

CASE 7—G A, a boy aged 14 years had had polyuria for five and one-half years with a daily fluid intake and output of approximately 10 liters. He had been maturing sexually during the previous three months. The physical examination was normal. The fluid intake and output had been about 3 liters on 25 mg of powdered pituitary taken by insufflation four times a day. The daily administration of 1 cc of pitressin tannate in oil for several days reduced the daily fluid intake and output to slightly less than a liter beginning with the first injection. When the drug was given on alternate days, the volumes rose to approximately 3.5 liters on the day it was not used.

CASE 8—R M, a man aged 29, single, an electrician was found to have a neoplasm of the third ventricle of unknown type in October 1932 and had received roentgen therapy for this. For the past six months he had had some polyuria. However, during the previous week he developed great thirst and frequency and said that his intake was about 8 liters a day. His general physical examination was not remarkable except for some neurologic changes due to the brain tumor. His spinal fluid contained 107 mg of protein per hundred cubic centimeters. At the hospital his fluid intake ranged from 4,350 to 5,950 cc and the output from 4,200 to 5,760 cc without therapy. On 1 cc of solution of posterior pituitary injected twice a day his fluid intake ranged from 4,300 to 7,200 cc and the output from 3,300 to 6,700 cc. With the daily injection of 1 cc of pitressin tannate in oil the fluid intake ranged from 3,200 to 2,400 cc and the output from 1,100 to 1,950 cc.

#### COMMENT

The hypodermic administration of 1 cc of pitressin tannate in oil was very effective in reducing the fluid intake and output to normal in these cases. The effect of the first injection of the drug was so evident that the subsequent twenty-four hour fluid intake and urine volume were normal. When injected daily its antidiuretic effect became cumulative and these volumes decreased to below the average normal. The antidiuretic effect usually was as obvious during the second twenty-four hours as it was during the first twenty-four hours after the injection of the drug. Consequently the frequency of the use of 1 cc of this medication was adjusted so that it was given every forty-eight or sixty hours. With this adaptation the fluid intake was near normal and the polyuria, polydipsia and thirst completely disappeared. In the case of brain tumor the duration of action of the drug was only about thirty hours, but in this case standard solution of posterior pituitary had no effect. This was the only case in which the drug was needed daily.

It was interesting that the patients commented that pitressin tannate in oil increased the saliva and improved the appetite and digestion. Also the dryness in the mouth, which occurred even with solution of posterior

pituitary therapy, disappeared. There were no disagreeable side reactions such as local irritation, slough, pallor or intestinal cramps. Nevertheless 4 of the 8 patients have discontinued the use of pitressin tannate in oil because they can take pituitary intranasally and avoid injections.

There was no significant change in the body weight after administration of pitressin tannate in oil with the dose used except in 1 case in which 3 pounds (1.3 kg) was gained after four days of the daily injection of the drug. The specific gravity of the urine, which was usually 1.001 or 1.002, increased to 1.026 and even 1.030 with pitressin tannate in oil therapy.

The hematocrit and phenolsulfonphthalein excretion were determined before, during and after treatment with pitressin tannate in oil in 1 case. The phenolsulfonphthalein excretion remained the same during the various periods of observation being approximately 68 per cent in one hundred and thirty minutes. The blood showed slight dilution, as evidenced by the hematocrit of 42 per cent without treatment and 38 per cent during therapy.

#### SUMMARY

Some observations were made on the effect of hypodermic injections of 1 cc of pitressin tannate in oil on the daily fluid intake and output of 8 patients with diabetes insipidus. It usually was administered daily for several days and then on alternate days.

The duration of its action in controlling the polydipsia and polyuria was forty-eight to sixty hours in 7 cases of diabetes insipidus of idiopathic origin and thirty hours in 1 case in which the polyuria was refractory to solution of posterior pituitary and due to a brain tumor. There were no appreciable changes in the body weight or toxic reactions with the dose and frequency of the administration of the drug in these cases.

The fluid intake and output of patients with diabetes insipidus was maintained at a normal level with pitressin tannate in oil more consistently and satisfactorily than with any other drug.

189 Bay State Road

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**Bird Preserves**—There are five large national organizations of bird lovers: the American Ornithological Union with a membership of 1,800 composed chiefly of professional people (educators, scientists, lawyers), the National Audubon Society with 6,300 adult members and more than 200,000 school children in the Junior Audubon Clubs, the Wilson Ornithological Club and the Cooper Ornithological Club, each with over 1,500 members and the bird banding organizations, of which there are four with interrelationships among them.

The National Audubon Society does not limit its interest entirely to birds, and since its organization in 1885 it has been one of the most powerful forces for conservation of wild life in this country. It was largely responsible (during the term of President Theodore Roosevelt) for starting bird preserves, of which the federal government has established about one hundred and seventy, covering approximately 14,000,000 acres. The Audubon Society itself maintains protection on 5,000,000 acres in thirty-six different areas, and most of the states have set aside preserves amounting to several thousand in number. The largest preserve, set aside by Taft, is in the delta of the Yukon, an area larger than the state of Connecticut. In 1913 President Wilson established the Panama Canal as a bird refuge. There are countless private bird preserves. As a result of these efforts undoubtedly the smaller birds are more numerous in this country than ever before.—Menninger, William C. *Bird Study*. *Bull Menninger Clin* 6:93 (May) 1942.

<sup>5</sup> Blotner, Harry, and Cutler, E. C. Total Thyroidectomy in the Treatment of Diabetes Insipidus. J. A. M. A. 116:2739 (June 21) 1941.

THE ACUTE TOXICITY OF MERCURIAL DIURETICS

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Several human fatalities have recently been reported for which the intravenous injection of a mercurial diuretic was believed to be the causative agent<sup>1</sup> It therefore seemed desirable to make a comparison of toxicity of the mercurial diuretics by this route and to study the influence of the drugs commonly used in the treatment of heart disease on this toxicity The drugs used for the comparison were esidrone, mercupurin and salyrgan-theophylline and the three parent mercurials, esidrone without theophylline, mercurin and salyrgan

PROCEDURE AND RESULTS

*Comparative Acute Lethal Dose*—The cat was selected as the experimental animal The drugs were injected without dilution so that the concentration of mercury was approximately 40 mg per cubic centimeter in every case Injections were given into the femoral vein by means of a micro buret connected to a 19 gage needle with a short piece of rubber catheter

vival would be even more applicable, but such a quantal response technic would require a prohibitive number of animals to obtain the same precision as in the method just described Medium size healthy cats were assigned by lot to the drugs listed in table 1 Excepting esidrone without theophylline, and theophylline sodium acetate the assays were run in parallel, 2 cats being killed for each of the five drugs on each of three days The results are thus not biased by a secular trend in the sensitivity of the animals

The results of the assay of the diuretics are given in table 1 together with other pertinent information The lethal doses are expressed in cubic centimeters of ampule solution per kilogram and are adjusted on the basis of chemical analysis to an equal mercury concentration of 40 mg per cubic centimeter It will be seen that esidrone was the most toxic drug either with or without theophylline, salyrgan is intermediate and mercupurin, mercurin and salyrgan-theophylline are the least toxic

*Comparison of Mercupurin and Salyrgan-Theophylline*—These drugs are the only mercurial diuretics that are available to the physician at the present time It is therefore important to decide whether or not there is a significant difference between the mean lethal dose of 0.83 cc per kilogram for mercupurin and 1.11 cc per

TABLE 1—Composition and Lethal Dose of Mercurial Diuretics in the Cat

| Drug  | Mercupurin                                   | Mercurin                                     | Salyrgan Theophylline                        | Salyrgan                                     | Esidrone                                     | Esidrone Without Theophylline        | Theophylline Sodium Acetate |
|---|--|--|--|--|--|--------------------------------------|-----------------------------|
| Volume in cc per Kg injected at two minute intervals  | 0.05   | 0.05   | 0.1  | 0.1  | 0.02   | 0.02-0.04                            | 0.5                         |
| Mercury content, mg per cc by analysis  | 42.5   | 36.1   | 40.2   | 40.8   | 43.2   | 40.2                                 | None                        |
| Labeled anhydrous theophylline content, mg per cc   | 35.3   | None   | 45.5   | None   | 30.6   | None                                 | 31.4                        |
| Lot number  | 411870                                       | E 2249                                       | GL 857                                       | FP 853                                       | 91003  | Prepared in this laboratory          | Prepared in this laboratory |
| pH (glass electrode)  | 8.6  | 8.7  | 7.8  | 9.2  | 8.0  | 10.4                                 | 9.0                         |
| Lethal dose in cc ampule solution per Kg when injected at a rate which killed in 20 to 30 minutes (adjusted to a mercury content of 40 mg per cc) | 0.85<br>0.48<br>0.75<br>0.79<br>1.33<br>0.78 | 0.28<br>0.87<br>0.40<br>0.63<br>1.05<br>0.94 | 1.41<br>1.00<br>1.00<br>0.97<br>1.39<br>0.90 | 0.87<br>0.32<br>0.39<br>0.26<br>0.31<br>0.33 | 0.29<br>0.27<br>0.21<br>0.23<br>0.16<br>0.32 | 0.19<br>0.20<br>0.31<br>0.30<br>0.36 | 1.0<br>1.0<br>1.0           |
| Mean lethal dose  | 0.83   | 0.70   | 1.11   | 0.41   | 0.24   | 0.27                                 | 0.3                         |
| Average time of death in minutes  | 31   | 31   | 22   | 20   | 22   | 24                                   | 23                          |

No anesthesia was used and conditions thus approximated those which obtain clinically It seemed probable that the rate of injection might modify the magnitude of the lethal dose and therefore a scheme similar to the proposed U S P XII cat assay for digitals was adopted An amount (one tenth to one fifteenth of the lethal dose determined by preliminary experiments) of drug was injected per kilogram every two minutes, so that death should occur between twenty and thirty minutes after the start of the injections This time interval was made as short as possible so that the lethal action of the drug would be limited to the acute phenomena observed in man It is recognized that a single injection with the observation of death or sur-

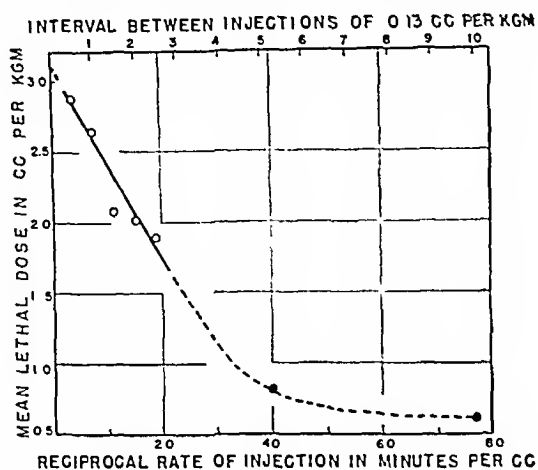
kilogram for salyrgan-theophylline For this purpose was calculated according to Fisher and found to be 1.93, which fails to exceed the expected value of 2.22 for odds of 20 to 1 Thus, there is better than a chance in twenty that the difference between the two mean lethal doses might have occurred by random sampling alone, and by the usual criteria the difference would not be considered significant

*Influence of Theophylline*—Theophylline was initially added to these drugs because it was known to enhance their absorption and lessen their local toxicity It will now be seen that (table 1) theophylline lowers the acute intravenous toxicity in the case of salyrgan and mercurin, although it fails to alter the toxicity of the esidrone mercurial base It has previously demonstrated<sup>2</sup> that theophylline mer-

From the Department of Therapeutics, New York University College of Medicine  
1. Friedfeld, Louis, Kissin, Milton, Modell, Walter, and Sussman, Ralph. Mercupurin, correspondence, J A M A 117: 1806 (Nov 22) 1941  
2. DeGraff, A C. Buttermann R C. Lehman P A. Proc Soc Exper Biol & Med 39: 250 (Nov) 1937



maximum rate of urinary excretion of salyrgan to a greater extent than mercurin and causes both maximums to occur somewhat earlier. From table 1 it appears that theophylline lowers the toxicity of salyrgan to a greater extent than mercurin, and it seems logical to surmise that the onset and rate of excretion of mercury



Linear relationship between reciprocal injection rate and mean lethal dose for mercupurin in the cat

following injection of these mercurials is an important factor in determining their lethal dose in the cat. Since the lethal dose of theophylline itself by this technic is about six times as large as the least toxic mercurial, it is unlikely that this substance makes any considerable contribution to the lethal effect. The action of the theophylline is most probably the result of a chemical combination with the mercurial, as was shown for its other effects.<sup>3</sup> There is, of course, no way to determine whether the lethal doses found in this study for the cat stand in the same relationship to each other as they do for man. However, deaths were reported a few months after the marketing of esidrone but were observed only after several years of clinical use of salyrgan and mercupurin. This would lend credence to the assay results, since esidrone was found to be much more toxic than mercupurin or salyrgan.

**Influence of Other Drugs on the Lethal Dose of Mercupurin**—Various drugs are used in the treatment of heart disease concomitantly with the mercurial diuretics, and it seemed possible that one of them might, by sensitization of the heart, or in some other way, precipitate the fatal syndrome. Furthermore, the rate of injection will control the concentration of mercury to which the tissues are at any time exposed. These two factors were studied simultaneously, a randomized 5 by 5 Latin square design being used. This procedure has been described in detail by Fisher<sup>4</sup> and others and has the advantage of efficiency in the use of the animals and in evaluating the interaction of the variables. In this study mercupurin was used as a typical mercurial diuretic and was injected in doses of 0.13 cc per kilogram. Five cats were killed on each of five days. On any given day 1 cat was killed by repeated injections at each of the following five time intervals: 0.5, 1.0, 1.5, 2.0 and 2.5 minutes corresponding to reciprocal injection rates of 38, 77, 115, 154

and 192 minutes per cubic centimeter. At the same time that rates of injection were varied on different days there were five preliminary treatments given, as here listed. The doses per kilogram are as nearly as possible equal to the maximum which would be used clinically.

**A Digitaline Nativelle** This was administered intravenously twenty-four hours before the assay at a dose of 0.025 mg per kilogram, or about one-sixteenth the average lethal dose.

**B Aminophylline** Fifteen minutes before the assay, 48 mg per kilogram was injected intravenously.

**C Ammonium Chloride** One hour before the experiment, 20 mg per kilogram was administered orally in a red gelatin capsule. The animals were put into individual cages and observed carefully, and whenever there was evidence of emesis the animal was taken out of the series and another substituted.

**D Untreated control**

**E Soluble Phenobarbital** One hour before the assay, 20 mg per kilogram was given orally in a capsule and the same precautions taken as in C against loss of the drug by emesis.

The lethal doses in cubic centimeters of ampule solution per kilogram are given in table 2. In table 3 the analysis of variance for these data is given in the usual form so as to test the significance of the various factors. The conclusions from this experiment are that (1) there was no significant modification of the lethal dose either because of determinations on different days or (2) as the result of treatment with other drugs commonly used in heart disease.<sup>5</sup> On the other hand, there was (3) a highly significant linear relationship between the interval between injections and the lethal dose. This relationship is shown graphically in the chart. It will be seen that the longer the interval between injections (or the longer the length of time required for injection of 1 cc), the smaller the lethal dose. However, after about forty minutes per cubic centimeter the curve flattens but will undoubtedly rise again when the intervals become so long that excretion becomes a major factor. The implication is that these mercurials have a slightly delayed action and that injecting them in man at an unusually slow rate would give no guaranty that a reaction would not occur. It may be noted from the chart that the point plotted at 0.83

TABLE 2—Influence of Preliminary Treatments and Injection Intervals on the Lethal Dose of Mercupurin in Cubic Centimeters per Kilogram

Treatments are designated A, B, C, D and E and are described in the text

| Date of Experiment | Interval Between Injection of 0.13 Cc per Kg |         |         |         |         |
|--------------------|--|---------|---------|---------|---------|
|                    | 0.5 Min                                      | 1.0 Min | 1.5 Min | 2.0 Min | 2.5 Min |
| December 3         | 1.30 C                                       | 1.43 A  | 1.30 D  | 1.17 E  | 0.63 B  |
| December 4         | 1.95 D                                       | 1.17 B  | 1.30 E  | 1.04 C  | 1.04 A  |
| December 5         | 1.82 B                                       | 1.30 C  | 1.30 A  | 1.04 D  | 0.91 E  |
| December 8         | 1.69 A                                       | 1.43 E  | 0.82 C  | 0.91 B  | 0.91 D  |
| December 9         | 0.78 E                                       | 1.30 D  | 1.04 B  | 0.91 A  | 1.04 C  |

cc per kilogram and forty minutes per cubic centimeter is taken from table 1. Thus it appears that (at least in the case of mercupurin) the lethal dose determined over a twenty to thirty minute period actually approaches a minimum average lethal dose under the conditions described.

5 It is recognized however that long continued treatment with digitaline Nativelle can cause myocardial damage in the cat and ammonium chloride depletion of base. Hence the single doses used here do not exhaust the possibility of a synergistic effect on the mercurial diuretics.

3 Lehman R A and Dater A J Pharmacol & Exper Therap 63 443 (Aug) 1938. DeGraff A C Bateman R C and Lehman R A Proc Soc Exper Biol & Med 38 373 (April) 1938.  
4 Fisher R A The Design of Experiments ed 2 London Oliver and Boyd 1937.

*Effect of Dilution*—Since the maximum effect of these mercurials comes on only after a delay of some minutes, dilution would not be expected to have any considerable effect. This is shown in table 4. The mercurium ampule solution was diluted with isotonic solution of sodium chloride as indicated and approximately one lethal dose (0.83 cc per kilogram) was injected over a period of twenty seconds in each case. There is some indication that the drug is less toxic when highly diluted. Nevertheless, 1 animal out of 3 died at a dilution of 25 to 1, so that this would not seem to offer any practical solution to the problem of human fatalities.

*Mechanism of the Lethal Action*—In order to determine whether or not the circulatory action of the mercurial diuretics used in this study is qualitatively the same as that of other mercurials whose actions have been reported in the literature, various experiments were carried out on the cat under pentobarbital anesthesia. Measurements were made of the mean carotid blood pressure, venous pressure, respiration, electrocardiogram and intestinal and hind limb volume after intramuscular and repeated intravenous injections of several of the diuretics used. The evidence obtained is in agreement with previous reports and indicates that death is primarily the result of the cardiac action of mercury. The organic residue unquestionably modifies the magnitude of the lethal dose but does not appear to cause any qualitative change in the fatal sequence of events.

If the mercurial is introduced into the blood stream rapidly, the heart may suddenly go into ventricular fibrillation and continue to fibrillate for several minutes after the blood pressure has fallen to zero and the

TABLE 3—Analysis of Variance for Factors Affecting the Lethal Dose of Mercurium (Data of Table 2\*)

| Variation Due to   | Degrees of Freedom | Sum of Squares | Variance  | Variance Ratio | Interpretation   |
|--|--------------------|----------------|-----------|----------------|--|
| Assumption of a linear relationship between the lethal dose and the injection interval (reciprocal rate) | 1                  | 0.137,770      | 0.137,770 | 9.24           | Odds are about 100 to 1 against this value occurring by random sampling                                    |
| Assumption of a curvilinear relationship for the above   | 3                  | 0.008,467      | 0.002,822 | < 1            | The variances for these factors are less than the experimental error and thus do not approach significance |
| Preliminary treatments   | 4                  | 0.040,945      | 0.010,236 | < 1            |  |
| Change in the sensitivity of cats on different days  | 4                  | 0.045,748      | 0.011,437 | < 1            |  |
| Experimental error (uncontrollable factors)  | 12                 | 0.179,073      | 0.014,923 | 1              |  |
| Total  | 24                 | 0.412,002      |           |                |  |

\* The lethal doses of table 2 were changed before the analysis to logarithms, since this function usually is more normally distributed than is the dose in cubic centimeters per kilogram.

respirations have ceased. With more gradual administration of the drug (either intravenously or by a large dose intramuscularly) the electrocardiogram shows T wave changes followed by an intraventricular block. These effects are accompanied by a gradual fall in the arterial and venous pressures and an equivalent fall in the volume of the intestine and the leg. As more drug is injected intravenously or absorbed from

the muscle, a rapid ventricular tachycardia usually ensues, the blood pressure fluctuates in a highly irregular manner between about 10 and 40 mm of mercury and the venous pressure rises sharply. This state may terminate in one of the following ways: (1) The respiration fails, presumably owing to anoxia resulting from

TABLE 4—Effect of Dilution of Mercurium on the Lethal Effect. Approximately one lethal dose (0.83 cc per kilogram) given in twenty seconds.

| Cat | Dilution | Result             |
|-----|----------|--------------------|
| 1   | 5 times  | Died in 10 minutes |
| 2   | 5 times  | Died in 8 minutes  |
| 3   | 5 times  | Survived           |
| 4   | 12 times | Died in 18 minutes |
| 5   | 25 times | Died in 20 minutes |
| 6   | 25 times | Survived           |
| 7   | 25 times | Survived           |

the low blood pressure, (2) death results from ventricular fibrillation, or (3) the heart recovers to slow sinus rhythm with an intraventricular block and the blood pressure rises. Mercuric succinate, mercuric bichloride, salyrgan and neptal have been studied. Salant and his co-workers,<sup>6</sup> Jackson, McCrea and Meek,<sup>8</sup> Cohen,<sup>9</sup> Debre, Leroux and Hazard<sup>10</sup> and Johnston,<sup>11</sup> with results similar to those just described. The influence of the autonomic nervous system on the action of the mercurials was studied by Salant and Kleitman,<sup>12</sup> who showed that neither bilateral vagotomy nor atropinization would alter the effect, and by Salant and Brodman,<sup>13</sup> who found that epinephrine improves the heart poisoned with mercury while paralysis of the sympathetic nerve endings with ergotamine increases the toxicity of the mercurial. These results have been in general confirmed. It should be mentioned that there is no evidence from animal experiments that sudden pooling of blood in the periphery is responsible for the effects of these drugs, as would be the case with an anaphylactoid reaction or the like.

The possible treatment of the cardiac irregularities following the mercurial diuretics is being considered and will be reported shortly. Johnston<sup>11</sup> showed that the isolated turtle heart recovered from mercurial poisoning by treatment with sodium thiosulfate. It has been found that this occurs also in the intact cat. The action of sodium formaldehyde sulfoxylate is being investigated in this connection.

CONCLUSIONS

1. The lethal doses for six mercurial diuretics injected intravenously in the cat so as to kill within twenty to thirty minutes are salyrgan-theophyllin 1.1, mercurium 0.83, mercurin 0.70, salyrgan 0.41, etc.

6 Salant, William and Brodman, K. J. Pharmacol. & Therap. 36: 195 (June) 1929.  
7 Jackson, D. E. J. Pharmacol. & Exper. Therap. 29: 417 (April) 1931.  
8 McCrea, F. D. and Meek, W. J. J. Pharmacol. & Exper. Therap. 36: 295 (July) 1929.  
9 Cohen, S. J. J. Pharmacol. & Exper. Therap. 35: 117 (Nov.) 1927.  
10 Debre, R., Leroux, H., and Hazard, R. Compt. Rend. Acad. Sci. Paris 125: 518, 1937.  
11 Johnston, R. L. J. Lab. & Clin. Med. 27: 33 (1937).  
12 Salant, William and Kleitman, N. J. Pharmacol. & Therap. 19: 315 (May) 1922.  
13 Salant, William and Brodman, K. J. Pharmacol. & Therap. 37: 121 (Oct.) 1929.

0.24 and esidrone without theophylline 0.27 These values are in cubic centimeters per kilogram and have been adjusted to a mercury content of 40 mg per cubic centimeter

2 Previous treatment with oral ammonium chloride, oral phenobarbital, intravenous aminophylline and intravenous digitiline Natrelle had no effect on the lethal dose of mercupurin

3 At least in the case of mercupurin, the lethal dose is smaller the slower the rate of injection (or the greater the interval between injections) This suggests (a) that the sudden death following these drugs cannot be avoided by slow injection and (b) that lethal doses of the various drugs should be compared only when the animals die within the same average time interval

4 Dilution of the drug is of little value in preventing death from the intravenous injection of mercupurin

5 Death is caused by action of these drugs on the heart An early manifestation is a change in intraventricular conduction while the terminal effect is either ventricular fibrillation or respiratory failure secondary to the cardiac action

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## SUDDEN DEATH AND MERCURIAL DIURETICS

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Our purpose in this communication is to report the death of 4 patients following the injection of different mercurial diuretics and to point out the similarity of the cardiac function of these patients at the time of death to the experimental cardiac arrest in dogs produced by mercury

Jackson<sup>1</sup> reported on the pharmacologic action of organic mercury compounds on the heart By using 5 cc of a 2 per cent solution of salyrgan intravenously, he was able regularly to produce death by ventricular fibrillation within three to five minutes in normal dogs under ether anesthesia If the vagus inhibition of the heart was removed either by direct section or by large doses of atropine, death occurred from respiratory failure before the onset of ventricular fibrillation He was of the opinion that the mercurials acted primarily on the heart through the mechanism of stimulation of the vagus and secondarily on the respiratory center if the vagal effect was removed Salant and Kleitman<sup>2</sup> had previously observed ventricular fibrillation in normal dogs following the intravenous administration of inorganic mercurial salts and mercurochrome Chastain and Mackie<sup>3</sup> studied the effects of esidrone (an organic mercurial with theophylline) on normal dogs

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<sup>1</sup> Jackson D E J Pharmacol & Exper Therap 29 471 (Oct) 1926

<sup>2</sup> Salant William and Kleitman Nathaniel J Pharmacol & Exper Therap 19 315 (May) 1922

<sup>3</sup> Chastain L L and Mackie G C South Med & Surg 102 5 (Jan) 1940

anesthetized with barbiturates They were regularly able to produce death by giving large intravenous doses of mercury salts From twelve to fifteen seconds after the administration the electrocardiogram showed deviations of the T waves followed by ventricular flutter and fibrillation Death occurred in from three to five minutes

Five deaths following the use of mercurial diuretics have been reported<sup>4</sup> Each of the patients was suffering from the nephrotic type of renal disease and 4 of the 5 were children Since each patient had received previous injections, "anaphylaxis" was considered the cause of death

To the reported cases we wish to add the reports of the deaths of 4 adults with the following clinical and anatomic diagnoses (1) coronary sclerosis, tabes dorsalis and minimal evidence of syphilitic heart disease, (2) nephrotic state of chronic glomerulonephritis, (3) hypertensive cardiovascular disease with decompensation, and (4) hypertensive cardiovascular disease with cirrhosis In reporting these cases, only the significant clinical, laboratory and postmortem observations will be given

CASE 1—H T, a white man aged 59, was seen Nov 25 1930 because of weakness and moderate dependent edema associated with arteriosclerotic heart disease and tabes dorsalis The electrocardiogram showed a rate of 90, sinus mechanism, slurring of the QRS in all three leads and absent ST intervals The blood pressure was 120 systolic and 80 diastolic His general condition was greatly improved on a low sodium-high potassium diet together with 2 Gm of ammonium nitrate after meals There were occasional recurrences of edema and breathlessness which became more difficult to control, so that short periods of bed rest were required Between 1932 and 1935 twelve intravenous injections of salyrgan were given, with excellent diuretic response Even though the patient felt well most of this time, wasting of the body, characteristic of chronic cardiovascular disease, was indicated by a gradual loss of weight from 163½ pounds (74 Kg) in 1930 to 116 pounds (52.6 Kg) in 1935

On Jan 15, 1935 2 cc of mercupurin was given slowly intravenously and from three to five minutes later the patient sat up in bed, his eyes turned upward and he fell back unconscious Twitching of the body, deep cyanosis and asystole were followed by an occasional ventricular contraction then short runs of what were interpreted as atricular fibrillation The patient regained consciousness and a normal mechanism was resumed It was estimated that the whole episode lasted about ten minutes, and the patient felt perfectly well in half an hour His usual activity was resumed during the next few weeks Edema gradually accumulated and on April 12 it was decided to administer a mercurial diuretic Because of the previous episode, this time 2 cc of salyrgan (plain) was administered slowly intravenously Two minutes later a few extrasystoles were noted, there were rapid runs of fibrillation, the patient became very restless and then what seemed to be a ventricular tachycardia followed The patient rose in bed, became deeply cyanosed, rolled his eyes and fell back dead Asystole was followed by a fine rumbling sound over the precordium and was interpreted as ventricular fibrillation

Autopsy showed an ancient occlusion at the orifice of the left circumflex artery and mild syphilitic change of the aorta but nothing could be found that might explain the sudden death

Thus two different mercurial diuretics produced almost identical episodes in the same patient, the second ended fatally This caused us to watch patients

<sup>4</sup> Wolf I J, and Bongiorno H D Canad M A J 25 737-5 (July) 1931 Greenwald H M and Jacobson Seymour J Pediat 11 540 (Oct) 1937 Molnar Istvan Klin. Wchnschr 14 239 (Feb 16) 1935 Tyson

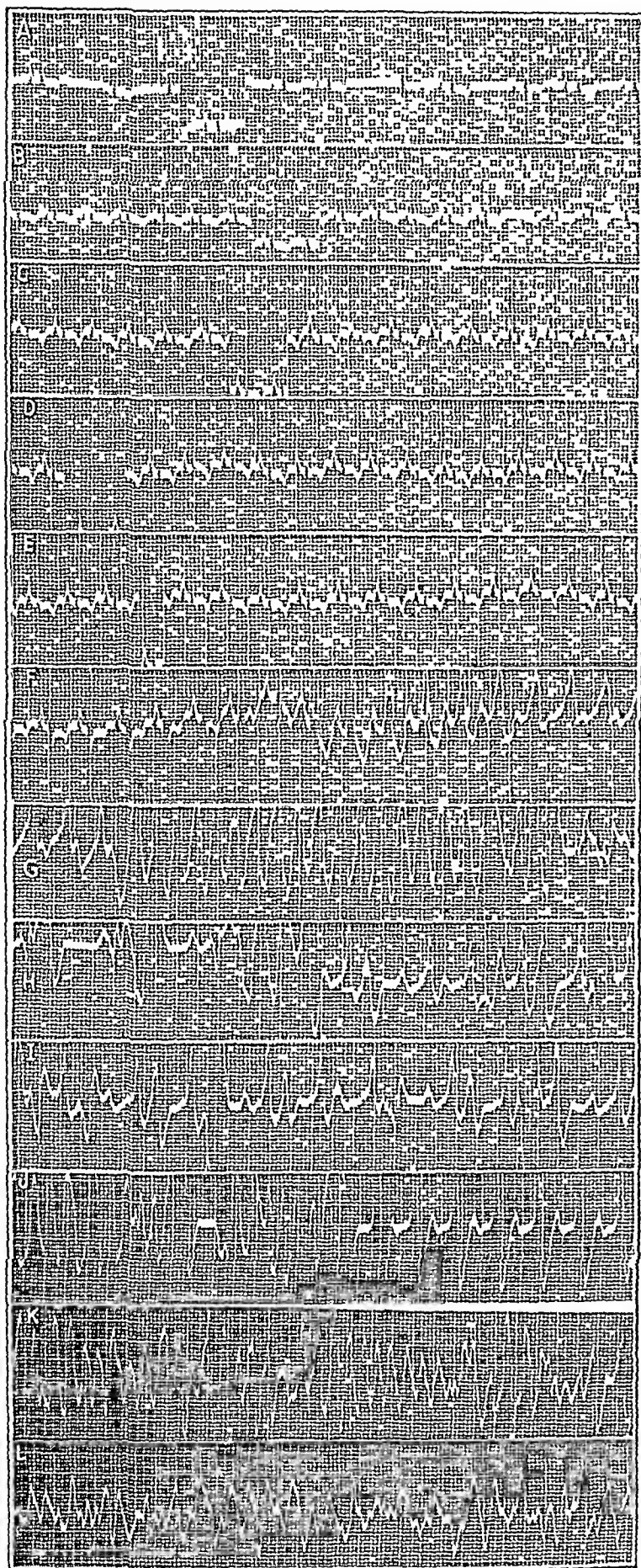


Fig 1 (dog 150, weight 7 Kg) —Intravenous soluble pentobarbital anesthesia was given, vagi were severed and 2 cc of salyrgan was injected intravenously. A control unanesthetized sinus arrhythmia, inverted T waves, rate approximately 105. B, control anesthetized QRS shows decreased amplitude normal sinus mechanism with tachycardia, T waves inverted, rate 170. C, after the right vagus was cut P waves increased sharply inverted T waves, rate 160, increased amplitude of QRS. D after the left vagus was cut T waves sharply inverted, rate 164. E during the injection of 2 cc of salyrgan rate 154. F, ten seconds after injection ST segment depressed, changed to ventricular tachycardia. G, fifteen seconds after injection continued ventricular tachycardia and fibrillation. H, thirty seconds after injection ventricular tachycardia and extrasystoles. I one minute after injection ventricular extrasystoles. J three minutes after injection ventricular fibrillation and extrasystoles. K, five minutes after injection ventricular fibrillation. L six minutes after injection respirations ceased, ventricular fibrillation, tracing continued unchanged for five minutes.

more closely following the administration of these drugs and three more deaths have been observed in the last six years.

CASE 2—W G, a man aged 48, entered the hospital with a history of generalized edema associated with a gain of 100 pounds (68 Kg) in two months. Five months previously he had a severe infection of the upper respiratory tract, pharyngitis but otherwise had been in perfect health. There was a questionable scarlet fever in childhood. The patient had a pale, pasty appearance with definite edema of the face, neck, abdominal wall, sacrum and thighs. The blood pressure was 148 systolic and 90 diastolic. The tonsils were small and atrophic, with evidence of infection. The cervical lymph nodes were palpable. The urine contained 4 plus albumin, a few cellular and hyaline casts and doubly refractile lipoid bodies. The specific gravity was 1.022. Blood chemistry revealed blood urea nitrogen of 15 mg per hundred cubic centimeters, phosphorus 3.46 mg, cholesterol 6250 mg and total protein 3.1 Gm per hundred cubic centimeters with inversion of albumin-globulin ratio, the urea clearance was 50 per cent normal, phenolsulfonphthalein excretion was 55 per cent in two hours. The basal metabolic rate was -15. Hemoculture for streptococci were present in cultures of material taken from the throat.

The clinical diagnosis was chronic glomerulonephritis in the nephrotic stage. He was placed on a salt free, high protein diet with 2 Gm of ammonium chloride after meals, but after several weeks there was little improvement. The removal of his tonsils was followed by an acute exacerbation of the glomerulonephritis. During the next four months the disease progressed as indicated by a decreased kidney function, a rise in blood pressure and an increase in the anemia and edema. During this period blood transfusions, hypertonic solutions and diuretics failed to modify the persistent edema. The most helpful treatment had been a low sodium, low phosphorus diet with 2 Gm ammonium nitrate after meals and potassium chloride as a salt substitute. Finally, six months after his admission he decided to attempt a diuresis with the aid of a mercurial diuretic. On the morning this was given the patient was comfortable and ambulatory. Blood pressure was 170 systolic and 100 diastolic and the pulse was 80 and regular. Two cc of mercurpurin was given slowly intravenously (diluted to 10 cc in isotonic solution of sodium chloride). Within five minutes after the administration of the drug the patient, who had been lying in bed, suddenly gasped, stiffened and then relaxed. A period of forceful irregularity of the heart was noted, followed by a decrease and finally absence of any sounds. The patient failed to respond to artificial respiration or intracardiac administration of epinephrine.

This patient in a nephrotic stage of chronic glomerulonephritis, after several months in the hospital on a low sodium, low phosphorus diet, died following the initial injection of 2 cc of mercurpurin. The sequence of events was injection followed in three to five minutes by a gasp, stiffening, relaxation with an irregular cardiac irregularity, then death.

The postmortem diagnosis was subacute glomerulonephritis with parenchymatous fatty degeneration associated with generalized edema, hydrothorax, hepatomegaly, pericardium and ascites. No cause was found for the sudden death. During fifteen years of the use of mercurial diuretics in nephritic disorders this is the first death that could be attributed to the drug.

CASE 3—Mrs M D, aged 64, was admitted to the hospital for the fifth time in two years with a diagnosis of cardiovascular disease with cardiac decompensation. She had been ill for years prior to her first hospital admission and was now bedridden. During this time her family physician had given her ammonium chloride and salyrgan at ten to twenty grains daily.

5 Tyson, Mary Catherine. Danger of Irritation of the Heart in Nephrosis, J A M A 117:998 (Sep. 20) 1941.



of the edema. Subsequent to her first hospitalization the edema free and remained fairly well controlled on a low sodium diet with added ammonium and potassium. Occasional bouts of hypertensive encephalopathy and decompensation necessitated hospitalization.

At the time of her final admission she complained of fatigue, distress and orthopnea. Physical examination revealed the right side of the chest an enlarged liver and The blood pressure was 200 systolic and 115 diastolic. The heart was enlarged to the left and there was a gallop.

The urine contained 2 to 3 plus albumin with rare red cells and hyaline casts. The red blood cell count 3 million and the hemoglobin 9 Gm. During the four of her hospital stay there was a slight progression of renal function and the cardiac status became. The edema became more difficult to control despite and various diuretic salts (ammonium nitrate and potassium nitrate and chloride). During this our intravenous injections of salyrgan and theophylline in 10 cc of isotonic solution of sodium chloride) were without notable diuresis. During the next twenty-eight uretic minerals and digitalis were discontinued. One erginin was given three times a day, since it was believed digitalis had produced nausea. Finally it was decided to mercurial diuretic again and twenty eight days after the injection 4 cc of salyrgan and theophylline was given orally. Two minutes later she gasped and became cyanotic, and a rapid irregularity of the heart promptly developed. After a few irregular forceful ventricular beats there was diastolic standstill, and death occurred within three minutes of injection.

Salient features of the postmortem examination were generalized arteriosclerosis, diffuse fibrosis and hypertrophy of the heart with an old infarct in the intraventricular septum, advanced arteriosclerosis of the kidneys. The general finding was that of chronic passive congestion of the viscera, effusion of fluid in the serosal cavities. Microscopic examination of tissues failed to reveal any cause for the sudden death.

It is estimated that during the five year period this patient had received more than two hundred injections of mercurial diuretics. At the time of her death, her weight was approximately 75 pounds (34 Kg). It is conceivable that the patient received a toxic dose of her reduced body weight or because of the degree of cardiac damage.

4.—Mrs. Z. T. aged 64 with a history of diabetes was admitted to the hospital in a somnolent condition. There was a history of increasing edema of six months' duration. The edema had been controlled by 65 units of protamine zinc insulin daily. The patient had received fifteen injections of mercurial diuretics, but none had been given six months prior to admission to the hospital. On admission she was massively edematous and dyspneic with a history of relative anuria of about 500 cc daily. The blood pressure was 160 systolic and 60 diastolic, the heart was enlarged to the left and the pulse was regular at 100 beats a minute. Examination of the urine was negative for sugar and acetone but it contained albumin. Blood sugar was normal.

It was deemed advisable to add 1 cc of salyrgan through a drip rather than give it directly, in the hope that this injection would produce no ill effect. After thirty minutes, the solution was still running the patient, who had appeared relatively comfortable suddenly gasped for breath, became cyanotic and vomited. A coarse irregular heart action was heard, the pulse became imperceptible and respirations ceased.

Death occurred twenty-two hours after admission. Autopsy showed arteriosclerosis of the kidneys, cardiac hypertrophy and dilatation and pulmonary atelectasis.

This patient was moribund on admission, and death had occurred without any medication, but it is more than a mere coincidence that death

should occur in this manner during the time of injection of the mercurial diuretic.

In view of these clinical experiences it was decided to study the effect of the various mercury salts experimentally on the heart by the electrocardiogram and by direct observation. Mercurial compounds injected intravenously into 30 normal dogs produced death by a particular pattern, namely depression of the T waves, runs of extrasystoles, ventricular tachycardia, ventricular fibrillation and death. In animals under intravenous barbitol anesthesia the mechanism was the same. Similar results were obtained when 4 animals were vagotomized and in 2 animals when the cervical cord

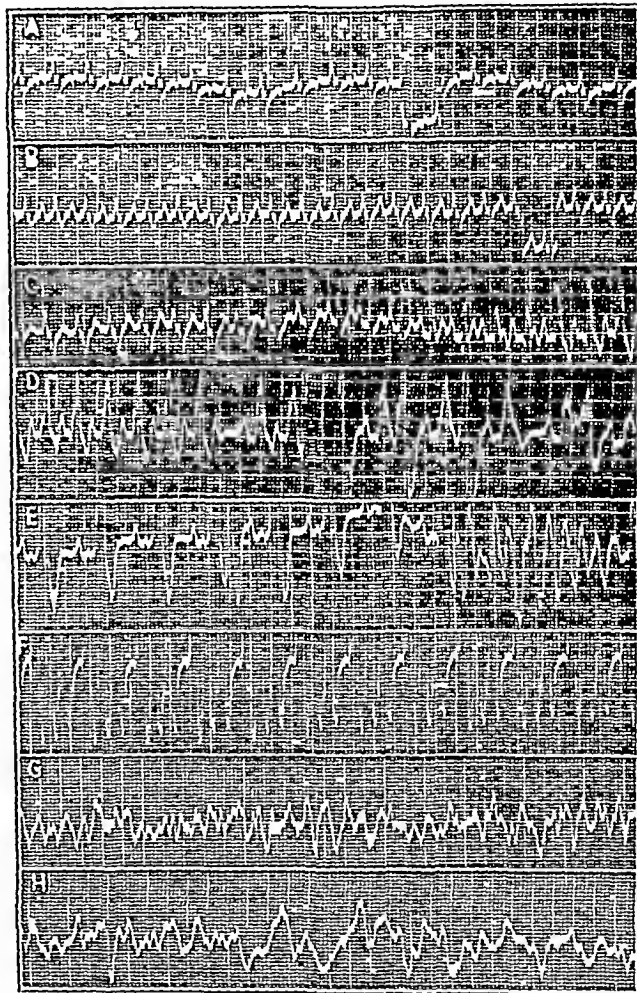


Fig. 2 (dog 50 weight 8 Kg.)—Intravenous soluble pentobarbital anesthesia was given, the spinal cord was severed at the lower cervical region and 2.2 cc of salyrgan and theophylline was given intravenously. A control before the cord was severed, inverted T waves, rate 170. B control after the cord was severed, T waves upright, rate 190. C fifteen seconds after the injection, ST interval depressed and slurred, rate 190, beginning ventricular extrasystoles. D twenty seconds after the injection, ventricular extrasystoles. E thirty seconds after injection, ventricular extrasystoles changing to ventricular fibrillation. F one minute after injection, ventricular extrasystoles. G four minutes after injection, respirations ceased, ventricular fibrillation. H eight minutes after injection, the tracing showed ventricular fibrillation and after four more minutes the only change was decrease in amplitude.

as well as the vagi were severed, and in instances of an isolated perfused heart. It was noted that the sequence of events was almost identical in a large number of instances, and after cessation of all ventricular electrical impulses, as observed by the electrocardiogram, the auricles continued with a regular sinus.



rhythm The observations were made with equivalent amounts of either organic or inorganic mercurial compounds From these studies it is our impression that the mercury ion acts directly on the ventricular muscle to produce ventricular fibrillation and death Complete studies are being published elsewhere

## COMMENT

In a search for common factors and pertinent points in these four deaths following mercurial diuretics we note that all 4 patients had suffered from some chronic wasting disease Edema had been present in variable amounts over many months Each patient had received diuretic salts, chiefly ammonium nitrate and potassium chloride, in variable amounts as a salt substitute The sequence of events leading to death were similar Three patients who had had definite cardiac damage received digitalis occasionally, but none were taking it at the time of death However, 1 patient was taking urginin Two patients had advanced renal disease and a third

DEATHS IMMEDIATELY FOLLOWING  
THE INTRAVENOUS ADMINISTRATION  
OF MERCUPURIN

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The fact that there are but few reports of serious accidents following the intravenous administration of mercupurin gives the impression that such reactions are very infrequent Tyson<sup>1</sup> reported two deaths following the intravenous administration of mercurial diuretics (esidrone and mercupurin) to patients with nephrosis She also cites other deaths in the literature from other mercurial diuretics But we know of no reports of deaths following the use of mercupurin in patients with congestive heart failure

Each of us has given a large number of injections of mercurial diuretics during the past six or seven years to patients with congestive heart failure, our combined experience exceeds many thousands of injections, yet none of us had previously seen a serious or fatal reaction It was with great surprise, therefore, that we learned that within a short space of time we had independently observed deaths immediately following the administration of mercupurin A short letter to the editor concerning three of these deaths was printed in an earlier issue of THE JOURNAL<sup>2</sup> Since then we have heard of other deaths and we are able to add the fourth case (case 1)

As far as we can judge, the technic of injection in each instance was satisfactory The injections were made slowly, although not actually timed Needles of small caliber (23 to 26 gage) were used Blood was withdrawn into the syringe and mixed with the mercupurin Since ampules of mercupurin are not "lot marked," it has not been possible to determine whether any one particular lot was responsible for all the reactions Unfortunately, postmortem examinations could not be performed

CASE 1 (Dr Brown)—A man aged 68 with a history of angina of effort for about ten months and acute myocardial infarction for four months before his death had, during the first days following the myocardial infarction, repeated attacks of left ventricular failure For the relief of this he had received ammonium chloride and aminophylline without benefit

On the fourth day of the illness he was given 1 cc of mercupurin intravenously Before the needle could be withdrawn the patient became unconscious, respirations became shallow and the face became very pale The pulse rate fell to 20, 30 beats a minute Within thirty seconds there was a spontaneous recovery, but within the next five minutes this type of syncopal seizure was repeated four times In the intervals between seizures the pulse rate was rapid and became slow during an attack There was full spontaneous recovery after this An electrocardiogram did not give evidence of a block, which was presumed to have occurred during the attack

From the Bronx Hospital the Beth Israel Hospital the Hospital (Brooklyn) the Hospital for Joint Diseases and the Department of Pharmacology of Cornell University Medical College  
1 Tyson Mary Catherine Danger of Intravenous Administration in Nephrosis J A M A 117 998 999 (Sep 26) 1941  
2 Friedfeld, Louis Kissin Milton Modell Walter Modell  
R \ Mercupurin correspondence J A M A 117 1 1941

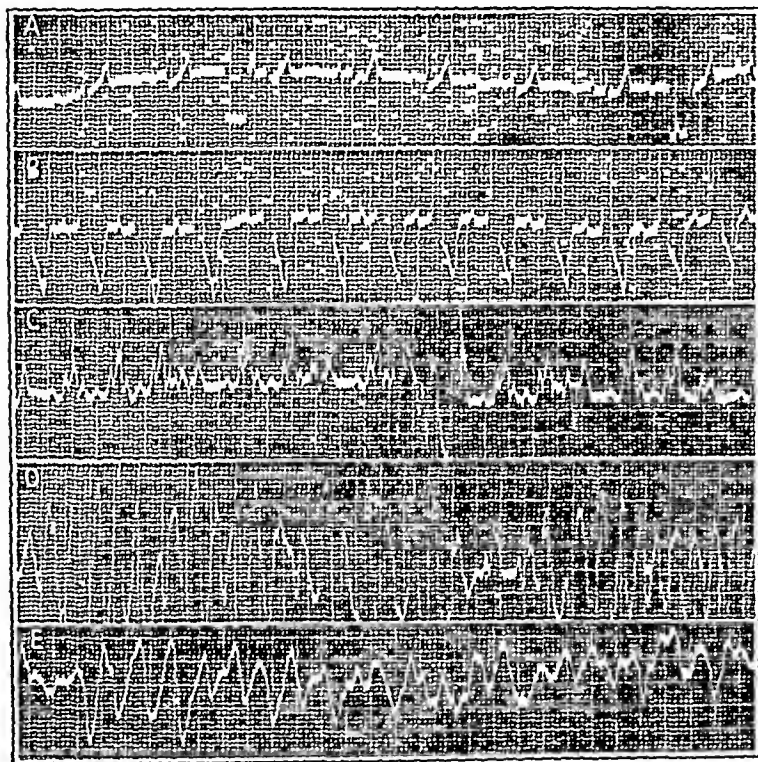


Fig 3 (dog 960, weight 7 Kg) —No anesthesia, 1.4 cc of mercupurin injected intravenously A, control on Sept 3 1941 B, twenty seconds after injection C one minute after injection D two minutes after injection E three minutes after injection respiration ceased at this time, the same type of tracing continued for two minutes, at the end of which time the electrocardiograph was stopped

had moderate cirrhosis of the liver Three of the patients had received numerous injections of different mercurial diuretics (ranging from fifteen to two hundred) while the nephrotic patient died following the initial dose To date we are unable to correlate the method of administration of the drugs, adjunct mineral diuretic salts or changes in the body chemistry with these fatalities Because of the wasting of the body tissue, which is striking in the edematous patient, we were unable to exclude a toxic effect of a relative overdose of mercury Whether in patients or in dogs, death by cardiac arrest is similar regardless of the type of mercurial compound employed

It is far from the intent of this report to deter from the clinical use of mercurial diuretics but rather to emphasize caution in their intravenous use in the waterlogged, wasted patient

About five days later, because of increasing hepatomegaly and dyspnea an injection of mercupurin was prescribed. By error it was given intravenously instead of intramuscularly as ordered. This time there was but a single seizure like that already described lasting about one minute with prompt recovery.

On subsequent examination it was determined that a large ventricular aneurysm had developed. In the ensuing four months there were repeated attacks of paroxysmal dyspnea and pulmonary edema. Mercupurin was given ten times intramuscularly with good diuretic effect and no reaction. During the last episode of pulmonary edema after morphine and oxygen had been given without benefit the physician in charge did not observe the injunction against intravenously administered mercupurin and gave 2 cc of mercupurin intravenously. Within one minute the patient was dead. The pulse and the exact behavior of the patient during this episode were not recorded.

**CASE 2 (Drs Friedfeld and Kissin)**—A housewife aged 52 with a twelve year history of diabetes and a four year history of hypertension had about a year before the final episode suffered an attack of constrictive pain in the chest on walking. An electrocardiogram showed the changes of ventricular strain on the left side seen in hypertension of long duration. About a month after this there was a sudden severe attack of viselike pain in the chest with the typical picture of acute myocardial infarction, although this was not corroborated by the electrocardiogram. Two months later she suffered a pulmonary infarction.

About four months before death the patient was seen in congestive failure: the liver was enlarged and ascites rales in the chest, dyspnea and orthopnea were present. Digitalis was given (1 cat unit daily). Ammonium chloride and mercupurin suppositories were followed by good diuretic effect. Five-tenths cc of mercupurin given intramuscularly was effective and at five day intervals other mercupurin injections were given intramuscularly, until one of them was followed by slough. After this the patient refused to submit to intramuscular injections, so that all subsequent injections were given intravenously.

About one month later 1 cc of mercupurin was given intravenously. From one to two minutes after the completion of the injection severe dyspnea and orthopnea developed. The cardiac rhythm was unchanged and the pulse was of good quality. The episode lasted from two to three minutes.

Despite exceedingly slow injections similar attacks followed seventeen of eighteen subsequent injections, but since the patient steadily refused any but intravenous injections this mode of administration was continued. The dose of mercupurin was gradually increased to 2 cc.

The last injection was 2 cc. In less than one minute the usual dyspnea and orthopnea developed. It subsided and the patient started to chat with her daughter. Suddenly, about three minutes after the completion of the injection, her face flushed intensely and she collapsed. A pulse was not palpable and no heart sounds were heard. After a few gasps the patient was dead.

**CASE 3 (Dr Modell)**—A woman aged 48 with syphilitic heart disease and aortic insufficiency of many years duration suffered from congestive heart failure. After digitalis (2 cat units daily) no longer prevented decompensation and her liver became larger and edema appeared in her legs and lungs she was given ammonium chloride and weekly doses of 2 cc of mercupurin intravenously. During the forty-two weeks preceding her death she had received as many weekly injections with no untoward effect. Each injection was followed by a gratifying diuresis, so that the patient would look forward to her treatment, as fluid accumulated during the week.

The last injection was given in the same manner as all the prior injections had been with the patient sitting. On completion the patient appeared normal. About two minutes later while the patient was resting with her arm crooked to compress the injected vessel, she tapped her physician on the shoulder to bring his attention to her. Apparently unable to speak, she pointed to her chest presumably indicating some type of sub-sternal distress. Then she fell forward. She was placed supine

on the floor. There was no respiration, no pulse, heart sounds were not heard, cyanosis developed rapidly.

Artificial respiration with cardiac massage was attempted for a few minutes without effect. One cc of epinephrine (1:1000) was injected into the heart without effect. Artificial respiration was resumed for about fifteen minutes without avail.

**CASE 4 (Dr Sussman)**—A woman aged 60 with a history of hypertension and myocardial infarction of three years duration and congestive failure for the past two years had during the last year and a half been receiving digitalis and various diuretic drugs. The electrocardiograms indicated myocardial damage and infarction of the anterior and posterior wall. During her stay at a hospital in the early stages of her illness the record states that she received mercurial diuretics intravenously with 'unpleasant effects'. The patient later repeated to her physician that "unpleasant effects" immediately followed these injections. Striking symptoms in this patient were the coldness and pallor of her limbs and face, with intermittent generalized sweating.

When she was discharged from the hospital there was enlargement of the liver. Oliguria was severe except after the administration of mercupurin. During the one month preceding her death she received digitalis (1 cat unit daily), ammonium chloride and weekly injections of mercupurin. Salt and fluid intake were restricted. Her blood pressure for the two weeks preceding her death was low as compared with previous determinations.

Four injections of mercupurin were given to the patient at her home without reaction. The last injection (2 cc) was given by the same technic. Immediately after its completion the patient's face flushed intensely. She made an effort to speak but could not. Her heart rate slowed to about 30 beats a minute. The intensity of heart sounds varied. Cyanosis quickly became more intense. Death occurred within four minutes of the completion of the injection.

#### COMMENT

It is noteworthy that in 3 of the 4 cases presented there was a history of previous reactions following the intravenous administration of mercupurin. In 2 cases a change in cardiac rhythm was observed, on 2 occasions in 1 case.

That the reaction was not due to the theophylline component in 1 case is borne out by the fact that seven times the dose present in 1 cc of mercupurin was given without ill effect (case 1).

Whereas 3 of these patients had received intramuscular injections of mercupurin on numerous occasions without reactions, the intravenous administration was the method used in all the fatal instances. It is also significant that in all the fatal injections the dose was 2 cc.

All the patients were known to have adequate renal function as judged by the specific gravity of the urine. It is also worth noting that in all cases previous injections of mercurials had been followed by generally satisfactory diuresis.

#### SUMMARY

In cases of congestive heart failure the intravenous injection of 2 cc of mercupurin was followed by immediate death.

In 3 of the 4 cases immediate reactions were noted after intravenous injections prior to the final one. These included dyspnea, orthopnea, sweating, pallor, bradycardia and syncope. In no case was there a delayed reaction such as might be due to massive diuresis, loss of chloride or disturbance of the electrolyte balance. In all the patients a satisfactory but not massive diuresis followed previous injections of mercupurin.

Two of the 4 patients had received intramuscular injections with adequate effect and without toxic reactions on previous occasions.

## A REVIEW OF THE TOXIC MANIFESTATIONS OF MERCURIAL DIURETICS IN MAN

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Recent publicity<sup>1</sup> given to sudden deaths which were believed to have resulted from the use of mercurial diuretics prompted us to review the entire subject of the acute toxicity of these drugs. In this issue of THE JOURNAL DeGraff and Lehman<sup>2</sup> have reported the results of experiments on cats to determine the possible mechanisms involved. This report will deal with the various untoward reactions that have been observed in patients. Toxic manifestations other than those of purely local nature, e g at the site of injection, may be roughly divided into two major groups: (1) those not directly related to the diuretic but to the associated diuresis and (2) those directly related to the drug.

First we shall consider the toxic reactions not related to the drug. As early as 1891, Jendrassick<sup>3</sup> in giving mild mercurous chloride to patients with cardiac edema noted an increase in the urinary excretion of water and chlorides. Saxl and Heilig,<sup>4</sup> who were the first to discover that merbaphen (novasurol) caused a strong diuretic response in patients with cardiac edema, also demonstrated not only a relative but also an absolute increase in the chlorides excreted in the urine. These facts have been amply corroborated.<sup>5</sup> Coincident with the diuresis there is a decrease in the blood serum chlorides.<sup>6</sup> This fall in the serum chlorides is due to the fact that the amount of chloride found in the extra urine excreted is greater than that of an equivalent volume of body fluid.<sup>7</sup> Blumgart and his associates<sup>8</sup> found that the fall in serum chloride is secondary to the diuretic effect of the mercurial on the kidney and is not essential for the production of diuresis. Furthermore, Evans<sup>9</sup> observed that the response to mercurials depends on the available supply of chloride and water in the tissues.

Symptoms of chloride depletion may be produced, therefore, as a result of mercurial diuresis. This picture is seen also in other instances of excessive chloride loss, such as in heat prostration and in pernicious vomiting. Thus one may get a syndrome characterized by profound weakness, apathy, somnolence, disorientation, delirium and occasionally coma.<sup>10</sup> Muscle pains, especially in the calf muscles, are frequently prominent.

McCance and Widdowson<sup>11</sup> noted mental symptoms in all cases of experimentally induced salt depletion with dehydration. Poll and Stern<sup>10</sup> reported 7 cases of dehydration following the use of mercurial diuretics in patients with heart failure, and they too were impressed by the mental symptoms, especially the preliminary ones of restlessness and confusion. In the more severe states of dehydration, psychoses sometimes progressing to coma and death may result.<sup>10</sup>

The serum sodium and calcium usually do not change appreciably after mercurial diuresis even though the diuresis may be considerable.<sup>12</sup> Nothmann<sup>13</sup> observed a lowering of serum calcium in a few cases, but in others no change was noted. Spontaneous tetany<sup>14</sup> developed in some instances but was not necessarily associated with a drop in the serum calcium level. Tetany after repeated injections of mercurial diuretics was also noted by Pavel and his associates.<sup>14</sup> Grand mal attacks are said to have been provoked in epileptic patients by mercurial diuresis.<sup>15</sup>

It is quite possible for edema to be still present even though there are dehydration, a negative chloride balance, and hemoconcentration as a result of mercurial diuresis.<sup>16</sup> Thus oliguria or anuria may result from a deficiency of salt to aid in the excretion of water. Unless the mechanism is properly understood in such cases, the dose of the mercurial may be increased or the interval between doses decreased. Then, added to the factor of dehydration may be that of mercury poisoning due to poor excretion of the drug. Hines<sup>17</sup> and Evans and Paxon<sup>18</sup> concluded that azotemia after the use of mercurial diuretics is more likely the result of the rapid removal of large amounts of edematous fluid than the result of damage to the kidney from mercury.

Price<sup>19</sup> reported the development of gout following salyrgan<sup>20</sup> diuresis in 5 patients who had a previous history of gout. He stated that it was not due to mere mechanical concentration of uric acid in the tissues as a result of the diuresis. We observed a patient in congestive heart failure who had a history of gout but were unable to precipitate an attack of gout with repeated profuse diuresis by mercupurin,<sup>21</sup> even though an attack could readily be induced by a high purine diet.

It is evident from the foregoing that, unless the electrolyte and water balance are carefully controlled, symptoms of considerable severity are possible merely as the result of rapid diuresis and not primarily owing to a toxic reaction following the use of a mercurial diuretic. Care must therefore be taken to keep the patient in salt balance. Symptoms such as muscle cramps are usually prevented by the administration of ammonium chloride to replace the chloride lost by diuresis.

Another important toxic manifestation related not directly to the mercurial but rather to the rapid diuresis is digitalis toxicity due to a mobilization of digitalis.

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1. Friedfeld, Louis, Kissin, Milton, Modell, Walter, and Sussman, Ralph. Mercupurin, correspondence, J A M A 117:1806 (Nov 22) 1941, personal communications to the authors.

2. DeGraff, A C, and Lehman, R A. The Acute Toxicity of Mercurial Diuretics, J A M A, this issue, p 998.

3. Jendrassick, E. Deutsches Arch f klin Med 47:226-288, 1891.

4. Saxl, P, and Heilig, R. Wien klin Wochenschr 38:943, 1920.

5. Keith, N W, and Whelan, M. J Clin Investigation 3:149, 199, 1926. Boln, quoted by Keith and Whelan. Nonnenbruch, W, and Muhling, A, quoted by Keith and Whelan.

6. Crawford, J H, and McIntoch, J F. J Clin Investigation 1:333, 1925. Bouyoucos, B G. Compt rend Soc de biol 115:1170, 1934. Fulton, M N, Van Auken, H A, Parsons, R J, and Davenport, L T. J Pharmacol & Exper Therap 50:223, 1934. Nothmann<sup>13</sup>.

7. Blumgart, H L, Gilligan, D R, Levy, R C, Brown, M G, and Volk, M C. Action of Diuretic Drugs. Arch Int Med 54:40 (July) 1934.

8. Blumgart, Gilligan and Volk.<sup>12</sup> Blumgart, Gilligan, Levy, Brown and Volk.<sup>7</sup>

9. Evans, W A. Medical Papers Dedicated to H A Christian, 1936, pp 204-222.

10. Poll, Daniel, and Stern, J E. M Clin North America 21:1873, 1885, 1937.

11. McCance, R A, and Widdowson, E M. Proc Roy Soc 141:119, 245, 1935, 1936.

12. Blumgart, H L, Gilligan, D R, and Volk, M C. Medical Papers Dedicated to H A Christian, 1936, pp 191-203.

13. Nothmann, M. Ztschr f klin Med 129:158, 1932.

14. Pavel, I, Paunescu Podcanu, A, and Tanasescu, G. Spitalul 56:100, 1936.

15. Baumer, L. Nervenarzt 13:481 (Nov) 1940.

16. Klinghoffer, K A. New Internat Clin, vol 1, series 4, p 226 (March) 1941.

17. Hines, L E. The Effect of Diuresis by Mercurial. J A M A 110:202-205 (Jan 15) 1938.

18. Evans, W, and Paxon, T. Brit Heart J 3:112-120 (A) 1941.

19. Price, N L. Lancet 1:22-23 (Jan 7) 1939.

20. Mersalyl salyrgan, theophylline is identical with mercupurin, theophylline, U S P XII.

21. The names mercupurin, novurit and mercurophylline are essentially synonymous.

from retained tissue fluids when a fully digitalized patient is given a mercurial diuretic. Miller and Smith<sup>22</sup> found that edema fluids of digitalized patients when tested on the cat contained an appreciable amount of a digitalis-like substance, whereas fluids from controlled undigitalized patients produced no effect. The same effect was later demonstrated by Schnitker and Levine<sup>23</sup> on the Straub heart preparation in the frog. They showed as did Gouley and Soloff<sup>24</sup>, Kissane and Koons<sup>25</sup> and Hyman<sup>26</sup> that redigitalization even to the point of toxicity could be produced as these body fluids found their way back to the blood stream and out through the kidney during a mercurial diuresis. Rapid diuresis in fully digitalized patients may bring on typical signs and symptoms of digitalis toxicity not present prior to the administration of the mercurial diuretic. Our experience is in accord with that of the investigators cited. Symptoms of digitalis toxicity may develop with the loss of considerable edema fluid even though digitalis has not been administered for several days. It is necessary, therefore, that considerable caution be exercised in the administration of a mercurial diuretic to a patient who has been fully digitalized. If the diuretic must be given, a small dose, i. e. 0.5 cc., should be used preferably by the intramuscular route. If appreciable diuresis does not result, larger doses can then be given later.

In common with other potent drugs, cases of individual susceptibility or idiosyncrasy have been noted with the mercurial diuretics. All of the commercially available drugs of this group have at some time or other been reported as producing, in isolated instances, alarming symptoms and even death. In some cases this appears to be a susceptibility to mercury and is noted regardless of the preparation used<sup>27</sup>. In others the reactions seem to be related to the organic structure of the particular diuretic, because another preparation can subsequently be given with impunity (to be discussed later).

Those reactions which seem most clearly related to the mercury itself are the gastrointestinal and the renal disturbances. The effects on the gastrointestinal tract are typically those of mercury poisoning, namely stomatitis, salivation and hemorrhagic colitis. Merbaphen, one of the first of the mercurial diuretics, was the most frequent offender in this regard<sup>28</sup>. The development of stomatitis<sup>29</sup> and excess salivation<sup>30</sup> is not a particularly reliable early sign of mercurial toxicity, for, as Stokes<sup>31</sup> has pointed out, the presence of stomatitis is dependent as much on the bacterial flora of the mouth and incidental conditions as it is on the dose of mercury that the patient is receiving.

With the use of theophylline-containing mercurial compounds, the danger of mercurial poisoning may be

considerably lessened because of the more rapid and complete excretion of the drug<sup>32</sup>.

The changes produced in the kidney by mercurial diuretics consist chiefly in degeneration of the epithelium of the tubules. As a rule, the signs in the urine of renal irritation which occur with use of mercurial diuretics appear in the following order: (1) casts, hyaline and granular, (2) albumin, (3) leukocytes, (4) erythrocytes. Sprague and Graybiel<sup>33</sup> and Herrmann and Decherd<sup>34</sup> have reported mild renal irritation produced by salyrgan, and Herrmann and Decherd<sup>34</sup> and Klinghoffer<sup>35</sup> have noted the same for mercupurin. Brown and Englebach<sup>35</sup> made counts of the urinary casts before and after the administration of clinical diuretic doses of salyrgan to 5 patients with ascites who had no evidence of renal disease. In every instance they found that the count was appreciably increased after the drug was given but that this effect was transient. Hematuria has been noted following the use of merbaphen<sup>36</sup> and salyrgan<sup>37</sup>.

A case of relatively severe renal irritation caused by salyrgan was reported by Derow<sup>38</sup>. In a series of necropsies on 30 patients who received salyrgan during life, Tarr and Jacobson<sup>39</sup> found only 1 patient with a renal lesion suggestive of mercurial intoxication. The risk of uremia as a complication is not great. Hines<sup>37</sup>, Evans and Paxson<sup>38</sup> and Klinghoffer<sup>36</sup> have shown that a rise in blood urea may occur. However, this is generally interpreted as due to rapid removal of edematous fluid with hemoconcentration rather than to kidney damage from the mercurial used.

While toxic anuria has been produced in animals by salyrgan<sup>39</sup> and 2 cases of anuria in man with extensive tubular damage found at necropsy were reported by Schwab and his associates,<sup>40</sup> it appears that extrarenal factors, such as disturbance of the electrolyte balance, are the more likely cause of anuria when present. Parent<sup>41</sup> observed a man aged 64 with coronary arteriosclerosis and previous myocardial infarction who had severe congestive heart failure. Digitalis was no longer effective, so 2 cc of mercupurin was given intravenously. Anuria resulted and the patient died forty-eight hours later in coma with convulsions. Petersen<sup>42</sup> reported that 1 patient with anuria was given salyrgan, and not only was urinary flow reestablished but a satisfactory diuresis was obtained. Apparent anuria may be due to prostatic swelling following the diuresis, as was noted by Tscherning<sup>43</sup> with salyrgan in 4 old men with hypertrophied prostates.

Patients with evidence of kidney damage usually tolerate mercurial diuretics fairly well. However, as will be noted later, it is this group that furnishes us with a large proportion of deaths following the use

32 DeGraff A C, Batterman R C, Lehman R A and Yasuna E. *Proc Soc Exper Biol & Med* **39**: 250-255 (Nov.) 1938.

33 Sprague H B and Graybiel A. *New England J Med* **204**: 154-157 (Jan 22) 1931.

34 Herrmann G and Decherd G M. *J Lab & Clin Med* **22**: 767-779 (May) 1937.

35 Brown C L and Englebach F. *Medical Papers Dedicated to H A Christian* 1936 pp 239-246.

36 Marcus S. *Canad M A J* **16**: 690, 1926.

37 Barker M H and O'Hare J P. *The Use of Salyrgan in Edema* J A M A **91**: 2060-2064 (Dec 29) 1928. Binger M W and Keith N M. *The Effect of Diuresis in Different Types of Edema* *ibid* **101**: 2009-2015 (Dec. 23) 1933.

38 Derow H A. *Medical Papers Dedicated to H A Christian* 1936 pp 261-267.

39 Dautrehande L, Philippot E, Nogaredo F and Charlier R. *Arch internat de pharmacodyn et de therap* **62**: 443-459 1939.

40 Schwab E H, Herrmann G and Stone C T. *Texas State J Med* **29**: 240 1933.

41 Parent S S. Personal communication to the authors 1942.

42 Petersen A. *Ugeskr f læger* **102**: 476-481 (May 9) 1940.

43 Tscherning Rudiger. *Deutsche med Wchnschr* **53**: 1465 (Aug 26) 1927.

22 Miller G H and Smith F M. *J Clin Investigation* **10**: 666 1931.

23 Schnitker M A and Levine S A. *Presence of Digitalis in Body Fluids of Digitalized Patients* *Arch Int Med* **60**: 240 (Aug) 1937.

24 Gouley B A and Soloff L. *Am Heart J* **16**: 561-567 1938.

25 Kissane R W and Koons R A. *Tr Am Therap Soc.* (1939) **39**: 111-114 1940.

26 Hyman A S. *Rev cubana de cardiol* **3**: 316 (Jan-April) 1941.

27 Blackford L M. *J M A Georgia* **29**: 397-398 (Aug) 1940.

28 Agnew G H. *Canad M A J* **18**: 45 1928. Lyons R. *New Orleans M & S J* **90**: 188-195 (Oct.) 1937. Horine E F. *South M J* **33**: 315-318 (March) 1940. Marvin<sup>30</sup>.

29 Marvin<sup>30</sup>, Snell<sup>46</sup>, Tarr and Jacobson<sup>39</sup>, Binger and Keith<sup>37</sup>, Thomson<sup>40</sup>, Herrmann and Decherd<sup>34</sup>.

30 Marvin H M. *Merbaphen (Novasurol) as a Diuretic in Congestive Heart Failure* J A M A **87**: 1016-1020 (Sept. 25) 1926. Tarr Leonard and Jacobson Sheldon. *Toxicity of Mersalyl (Salyrgan)* *Arch Int Med* **50**: 158-166 (Jul.) 1932.

31 Stokes, J H. *Modern Clinical Syphilology*. Philadelphia W B Saunders Company 1928 p 138.



of mercurial diuretics. The presence of kidney disease is a contraindication to the use of mercurial diuretics even though many times serious complications may not result.

Mercurial diuretics in common with other compounds containing mercury may on occasion produce cutaneous eruptions.<sup>44</sup> There is a striking variability in the type of reaction produced. Those particularly mentioned in the literature are urticaria,<sup>45</sup> small reddish spots or purpuric areas<sup>46</sup> and morbilliform<sup>47</sup> or scarlatiniform erythema.<sup>48</sup> Occasionally the rash is followed by desquamation in from one to three weeks. Patch tests by Wilson<sup>49</sup> demonstrated that these reactions may be on an allergic basis. In contrast, there may occur in rare instances a severe mercurial dermatitis due to an accumulation of mercury in the body. While the latter reaction was occasionally seen with the older type of mercurial diuretic, it is no longer observed with the rapidly excreted theophylline-containing mercurials.

An erythematous eruption may follow either the first or any subsequent injection of the diuretic. As a possible mechanism, Lesser<sup>50</sup> suggested that the mercury circulating in the blood stream caused paralysis of the sympathetic nerves with consequent vasodilatation. That capillary dilatation is also an effect of mercury on the skin is supported by the histologic studies of Almkvist.<sup>51</sup>

In those persons in whom sensitivity to a mercurial diuretic manifests itself by a rash, changing the route of administration from intravenous to intramuscular or rectal routes is of no avail.<sup>27</sup> While not serious in itself, the occurrence of a rash may be a warning of more serious reactions if one persists in the use of the mercurial. In the case reported by Wolf and Bongiorno,<sup>47</sup> a blotchy rash resembling measles was seen on the face following the fourth injection of salyrgan. The next injection, one week later, caused death within one minute.

Chills and fever have been noted with merbaphen,<sup>52</sup> salyrgan<sup>53</sup> and mercupurin.<sup>54</sup> Coventry<sup>55</sup> noted an elevation of temperature with mercupurin, and Robinson<sup>54</sup> had 1 patient who had a rise in temperature after each injection of mercupurin. The reaction is probably not due to pyrogenic material in the ampule because, in the first place, the maximum volume of fluid injected is 2 cc., and, in the second place, material from the same lot number caused no pyrogenic response in other patients. In some instances at least it would appear that individual susceptibility to a particular preparation is responsible, because changing to another mercurial produced no further reactions. Gold<sup>56</sup> had a patient who had a rise of temperature after the use of mercupurin but failed to get a reaction on changing to salyrgan with theophylline. We had the opportunity to observe a similar situation in a patient aged 68 with

arteriosclerotic and hypertensive heart disease and severe congestive heart failure who received 2 cc. of mercupurin intravenously at weekly intervals. More than sixty injections had been given without untoward effects. About one hour after the next injection rigor and a slight elevation in temperature developed. One week later an injection was followed by a more severe, prolonged rigor with a slight fever. The next dose of mercupurin was given intramuscularly and for the third consecutive week the patient had a chill, this time even more severe than before, and the temperature rose to 102 F. In each instance the temperature was normal the next day and an excellent diuretic response was obtained. Other patients receiving mercupurin from the same batch had no reactions. The next week and subsequently salyrgan with theophylline was given intramuscularly with good diuretic response and no chills or fever.

Reactions resembling a state of shock with chills, sweating, cyanosis, collapse and urinary suppression have occasionally been noted following the use of mercurial diuretics, namely merbaphen,<sup>57</sup> salyrgan,<sup>53</sup> mercupurin<sup>58</sup> and esidrone.<sup>59</sup> While it is generally considered that this syndrome is a direct result of mercurial poisoning, Poll and Stern<sup>10</sup> compare it to the similar clinical picture seen in Addison's disease and believe it to be due to loss of water and chlorides. It should be noted, however, that in many cases the acute reaction is observed long before the onset of diuresis. Another case reported to us by Parent<sup>41</sup> would indicate that here again individual susceptibility to a particular mercurial may be the important factor. His patient was an elderly man who had an old myocardial infarction and general anasarca and who had received several doses of mercupurin intravenously. Because the effect was much less than had been experienced previously, Parent decided to change to esidrone. Immediately after the administration of esidrone (no mercurial had been given for two weeks) the patient began to cough, his breathing became asthmatic, cyanosis appeared, followed by clonic convulsions of the hands and face, and he became unconscious with involuntary urination and defecation. Two minutes later the twitchings ceased, he regained consciousness, but coughing and heavy breathing continued for the next ten minutes. Subsequently mercupurin was again given without any reaction.

The first deaths reported were by Redlich<sup>60</sup> in 1925 from the use of merbaphen. There were three fatalities. In 1 case death occurred after two doses with a three day interval between, in another, a single dose of 1 cc. of merbaphen was followed three weeks later by death, which appeared to be due to enteritis and volvulus.

The next fatality was reported by Wolf and Bongiorno<sup>47</sup> following the use of salyrgan. Their patient was a 4 year old child with nephrosis who was given salyrgan intravenously in gradually increasing doses up to 1 cc., about a week apart. The fourth injection of 1 cc., was followed by a chill in about one hour and a rise in temperature to 102 F. The next morning the temperature was normal, a blotchy rash resembling measles was seen on the face and this was gone by

57 Henuus, *Therap. d. Gegenw.* 63:398 (Oct.) 1922.  
58 Parent, *Heb.*  
59 Tyson, Mary C. *Danger of Intravenous Mercurial in Nephrosis* J. A. M. A. 117:998-999 (Sept. 20) 1941.  
60 Redlich, F. *Wien. klin. Wchnschr.* 38:359-360 (M. 1925).

44 Zimmerman, F. B. *Kentucky M. J.* 37:446-451, 1939. Billo, O. E. *Am. J. M. Sc.* 210:756-763, 1941. Cushman, A. R. *Pharmacology and Therapeutics*, ed. 8, Philadelphia, Lea & Febiger, 1924, p. 626.

45 Turrai, L. *Orvosi hetil.* 78:173-174 (Feb. 24) 1934. Blackford, A.

46 Snell, A. M. and Rountree, L. G. *Ann. Int. Med.* 2:97-103, 1928. Thomson, W. A. R. *Quart. J. Med.* 6:321-351, 1937.

47 Greenwald, H. M. and Jacobson, S. *J. Pediat.* 11:540-546 (Oct.) 1937. Wolf, I. J., and Bongiorno, H. O. *Canad. M. A. J.* 25:73-75 (July) 1931.

48 Boos, H. *Ugeskr. f. Læger* 101:1525 (Dec. 28) 1939.

49 Wilson, D. J. *Nebraska M. J.* 24:70-71, 1939.

50 Lesser, E. *Deutsche med. Wchnschr.* 14:264, 1888.

51 Almkvist, J. *Arch. f. Dermat. u. Syph.* 141:342, 1922.

52 Marvin, S. Snell and Rountree.<sup>46</sup>

53 Andrews, C. T. *Lancet* 2:131-132 (July 18) 1931. Cadbury, W. W. *Medical Papers Dedicated to H. A. Christian*, 1936, pp. 259-260.

54 Robinson, L. C. Personal communication to the authors, 1941.

55 Heyl, A. Personal communication to the authors, 1941.

56 Coventry, W. D. Personal communication to the authors, 1941.

57 Gold, H. Personal communication to the authors, 1941.



two days. Within 1 minute after the fifth injection the child coughed, cried and fell dead.

Sundaram<sup>61</sup> reported the death of a boy aged 10 years with rheumatic heart disease who died after receiving his first dose of 0.5 cc of salyrgan. The drug was diluted with 10 cc of water and injected intravenously. In about five minutes the patient complained of a sudden pain in the chest, collapsed and died. Hug<sup>62</sup> reported a similar fatality in 1 case of severe myodegeneration and cirrhosis of the liver but believed that poor liver function contributed to the death. Cadbury<sup>63</sup> had 2 patients with nephritis who died following the use of salyrgan. One girl aged 21 with nephritis was given salyrgan on three occasions; after the last injection of 2 cc intravenously she became dizzy and was dead in five minutes. The other was a 5 year old boy with nephritis; 0.6 cc of salyrgan was injected into the jugular vein, he collapsed and died in ten minutes in spite of epinephrine given intramuscularly and intracardially. Two other deaths have been reported by Barker and his associates<sup>64</sup>.

Sudden death due to neptal<sup>64</sup> was reported in 2 cases by Greenwald and Jacobson<sup>65</sup>. Their first patient was a child aged 2 years with nephrosis who was given 0.5 cc of neptal intramuscularly followed by 1 cc intramuscularly four days later. One week later 1 cc of neptal given intravenously caused dyspnea, cyanosis, cardiac standstill and death within one minute of injection. The second patient was a child aged 3 years with nephrosis who received 0.5 cc of neptal intravenously followed by 0.5 cc given intravenously six days later. Three days later an injection of 0.5 cc intravenously caused a convulsion, dyspnea, cyanosis and coma within two minutes and death in less than five minutes after the injection. They believe that death was due to anaphylactic shock.

The first two fatalities following the use of mercupurin were reported by Engel and Epstein<sup>66</sup>. In the first patient 1 cc was given for edema of cardiac origin and a good diuresis was obtained but two days after the injection an intractable bloody diarrhea developed. Examination of the feces proved negative and the patient died two weeks later. Postmortem examination revealed severe colitis. Though they could not identify the cause of the severe colitis, they did not consider that it could have been caused by a single injection of mercupurin. Their second fatality occurred in a case of bronchial asthma and decompensated arteriosclerotic heart disease. They gave 2 cc of mercupurin intravenously and the patient died suddenly a few minutes after the injection. Postmortem examination revealed high grade narrowing of the lumens of the coronary arteries and extensive myocardial degeneration—a pathologic picture in which, they contended, sudden death frequently occurs even without an injection.

Henszelmann<sup>66</sup> also reported a fatality but did not believe that it was due to the mercurial. Molnar<sup>67</sup> described a man aged 39 who had ascites, syphilitic aortitis and aortic insufficiency. The patient was given 2 cc of mercupurin intraperitoneally and complained of intense abdominal pain immediately after the injection.

Twenty to twenty-five minutes later he became dyspneic and cyanotic and died. Autopsy revealed the presence of syphilitic aortitis but failed to explain the sudden death. Molnar believed, however, that his patient died because of hypersensitivity to the drug. In this regard, it is interesting to note that Petersen<sup>62</sup> injected salyrgan into the ascitic fluid in 7 cases. The administration of the drug by this method did not give any serious side reactions, but it was not of any advantage either, for it failed to give a protracted diuresis. Tyson<sup>67</sup> reported the death of a boy aged 3 years with severe anasarca from nephrosis. He received 0.5 cc intravenously and one month later 1 cc of mercupurin intravenously. As soon as the needle was withdrawn the patient had a generalized convulsion and gave an outcry. The heart beat could not be heard and respirations became slow and stertorous, and he died one minute after the injection. Partial necropsy revealed considerable congestion of the kidneys and typical changes of chronic lipid nephrosis.

Two fatal cases following the use of mercupurin were reported by Lindberg and his associates<sup>63</sup> but details of these cases are lacking. Vaughn<sup>68</sup> studied a 16 year old boy who had been deeply cyanosed since birth and in whom myocardial failure due to a congenital heart disease had developed. He was receiving digitalis and ammonium chloride and was given 2 cc of mercupurin intravenously (which was practically synonymous with intra-arterial injection due to a patent ductus arteriosus). Within two minutes he complained of lumbar pain, became ashen gray and rapidly unconscious and died a respiratory death with severe dyspnea within four minutes of the time of completion of the injection. Hausheer's<sup>69</sup> patient was a woman aged 59 with hypertensive, arteriosclerotic heart disease and considerable renal involvement; she had been receiving digitalis, ammonium chloride and mercurial diuretics (salyrgan and mercupurin) for over three years. Owing to the better diuresis obtained with mercupurin, it was used exclusively during the latter part of her illness. She received from one to three intravenous injections of 2 cc weekly. At the time of her last injection her condition seemed worse than usual, she was literally gasping for breath. Immediately following her usual injection she slumped over and died instantly without a gasp or effort of any kind.

Through the courtesy of the authors we are able to present the pertinent facts about the deaths reported by Friedfeld, Kissin, Modell and Sussman<sup>1</sup>. Friedfeld and Kissin's patient was a woman aged 52 with diabetes, hypertension and arteriosclerotic heart disease. In addition to the mercurial diuretic the patient was receiving digitalis and ammonium chloride. At first mercupurin was given intramuscularly, but because one injection was followed by a slough they changed, on the insistence of the patient, to the intravenous route. The first intravenous injection of 1 cc of mercupurin was followed in from one to two minutes by a sudden paroxysm of urgent dyspnea and orthopnea. The heart rhythm remained regular and the blood pressure was unchanged. This episode lasted from two to three minutes and recurred at almost each succeeding injection despite all precautions. Since the patient persisted in her aversion to the intramuscular injections, and other efforts at diuresis were inadequate, the intravenous injections (increased to 2 cc) were of necessity continued at five day intervals. About four

61 Sundaram S K. Idiosyncrasy to Salyrgan. correspondence J A M A 103: 60 (July 7) 1934.

62 Hug W. Munchen med Wchnschr 52: 184-185 (Jan 31) 1935.  
63 Lindberg H, Thomas M and Barker M. American College of Physicians meeting Chicago Dec 6 1941. personal communication to the authors.

64 A term used synonymously with salyrgan by Greenwald and Jacobson<sup>65</sup>.

65 Engel K and Epstein T. Obstet Met 77: 793-796 (Sept 9) 1933.

66 Henszelmann A. Gynogynat. 74: 584-588 (Oct 7) 1934.

67 Molnar Stephan. Klin Wchnschr 14: 239-240 (Feb 16) 1935.

68 Vaughn J O. Personal communication to the authors 1940.

69 Hausheer W C. Personal communication to the authors 1941.

and one-half months after her first intravenous injection, following the injection of 2 cc of mercupurin intravenously, she presented the usual reaction in about one minute. In another minute this seemed to subside and suddenly, about two to three minutes after the completion of the injection, her face flushed intensely and she collapsed. There were no convulsions. Her pulse was not obtainable and heart sounds were not heard. After a few gasps the patient was dead.

The patient observed by Modell had syphilitic heart disease and had received more than forty injections of mercupurin at weekly intervals with good diuretic response and no unpleasant or untoward reaction. She was also taking digitalis and ammonium chloride. Within about two minutes of completion of the last injection she became breathless, indicated distress in the region of her chest and fell over dead. Artificial respiration, intracardial epinephrine and cardiac massage were to no avail. The heart action had stopped before the respirations. There were no convulsions at any time.

Sussman's patient was a woman aged 60 with hypertension, arteriosclerotic heart disease and old coronary occlusion with persistent right and left sided heart failure. Other than the usual cardiac complaints, she had profuse sweats which seemed at times to be aggravated by intravenous diuretics. For the past year and a half she had been receiving digitalis, ammonium chloride and diuretics. Following her last intravenous injection of 2 cc of mercupurin her face became flushed, she made an effort to speak but could only move her hands. Her heart rate slowed to 30 beats a minute and continued irregular. Respiration became infrequent, progressive cyanosis appeared and death took place within four minutes after the injection. Because of technical difficulty the injection prior to the last one was given intramuscularly.

Goldring and Sussman<sup>70</sup> furnished us with a report that a man aged 60 with arteriosclerotic heart disease and recent myocardial infarction in congestive failure had been given 1 cc of mercupurin with good diuretic response. Twelve days later he was given a second injection of mercupurin, and three hours later he suddenly became dyspneic, syncope developed, and in a few seconds he died.

In reviewing these deaths certain significant facts are apparent. First, some deaths are obviously not the result of the mercurial diuretic, and in others the part that the diuretic may have played in the fatal outcome is decidedly questionable. Second, a large proportion of the deaths occurred in patients with evident kidney disease. It may have been necessary to use a mercurial diuretic in such cases, but the increased risk involved should certainly have been known prior to the injection of the drug. Mercurial diuretics are generally conceded to be contraindicated in kidney disease. Third, several patients had reactions of some type with a previous injection. Such reactions are warning signals of danger, and if mercurial diuretics must be given, then a change to another preparation is indicated. Fourth, some patients were practically moribund on admission. Any drug used might be blamed for the death, posthoc, propter hoc. Fifth, a small group of cases is left in which death unfortunately must be ascribed to the drug itself, and no precautions taken prior to the injection could seemingly have prevented the fatal out-

come. Further investigations on animals may lead to some information which may help to reduce even this small number.

#### COMMENT AND SUMMARY

In a review such as this, one should not lose perspective. One must remember that the toxic reactions and deaths reported from mercurial diuretics are in reality only a small number in relation to the extensive use of these drugs. The low toxicity of the mercurial diuretics has been amply demonstrated by Wiseman,<sup>71</sup> Marx, Scott and Harvey,<sup>72</sup> Dixon,<sup>73</sup> Levine<sup>74</sup> and Fineberg. At Bellevue Hospital approximately 6,000 injections, most of them intravenously, of mercurial diuretics given every year. Since 1934, when mercupurin was first used in that hospital, we have known of no serious toxic reaction or death which might be attributed to the drug. Modell in a personal communication states "I might say that I personally have given over 2,000 injections of mercurial diuretics without any serious mishap prior to the one reported." A comparison with the arsphenamines used in the treatment of syphilis is illuminating. Hahn<sup>75</sup> recently reported an incidence of one death in twelve thousand injections of arsphenamines. While we do not possess accurate statistics relating to the number of injections of mercurial diuretics administered, it can safely be assumed that well in excess of one hundred deaths a year would be attributed to these drugs if deaths occurred at the same rate as follow the use of the arsphenamines. Actually, there has been reported a total of twenty deaths from mercurial diuretics over a period of sixty years.

No deaths have been reported from the administration of the mercurial diuretics intramuscularly or in the rectum, but this may be due to the fact that the intravenous route is by far the commonest method used.

The human liver is apparently much less sensitive to mercurial diuretics than the liver of experimental animals, for though we have carefully looked for liver damage in our patients we failed to observe any. A case of aplastic anemia or granulocytopenia, such as is occasionally seen with mercury in the treatment of syphilis, has been reported in the literature or suggested by us.

Circulatory disturbances, collapse, rigors, fever and more rarely the state suggestive of anaphylactic shock following the use of mercurials are occasionally seen by the intravenous injection of other substances, such as 10 per cent calcium chloride.<sup>65</sup> These reactions are probably no more common than with other potent drugs commonly employed and, although rare, they must be considered carefully in the treatment of a patient. It would seem that the organic portion of the molecule is of considerable significance in determining such a toxic reaction, since the several drugs differ decidedly in their lethal doses<sup>2</sup> and in their ability to produce reactions.<sup>66</sup> When a reaction occurs, another preparation should be cautiously tried. Changing the mode of administration with the same preparation does not seem to help.

Previous medication by digitalis may produce digitalis toxicity but not one of the characteristic mercurial

- 71 Wiseman, J. R. *The Prolonged Use of Salysgrin*, *J. A. M. A.* **99**, 114 (July) 1932.  
72 Maxwell, E. S., Scott, J. W. and Harvey, John. *The Effect of Mercurial Diuretics on Kidney Disease*, *J. A. M. A.* **101**, 2074 (Dec. 23) 1933.  
73 Dixon, J. M. *New England J. Med.* **210**, 899 (1934).  
74 Levine, S. A. *Clinical Heart Disease*, Philadelphia, 1936, p. 299.  
75 Fineberg, M. H. *Am. Heart J.* **17**, 494, 1939.  
76 Hahn, R. D. *Am. J. Syph. Gonorr. & Ven. D.*

reactions If a mercurial diuretic must be given to a completely digitalized patient it is advisable to discontinue the digitalis temporarily and remove as much fluid as possible by paracentesis before the mercurial diuretic is given

As in the experimental animal, sudden death appears to be chiefly cardiac, probably ventricular fibrillation, although a few cases would suggest respiratory failure as well

Mercurial diuretics are useful drugs, frequently indispensable, and it would indeed be unwise to restrict their clinical application on account of an occasional untoward reaction It should be borne in mind, however, that these drugs are very potent and they must be used with due consideration to contraindications, associated medication such as digitalis state of salt and water balance and previous reactions shown by the patient

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## PNEUMONIA IN ILLINOIS 1938-1941

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The use of highly refined antipneumococcus serum and the sulfonamide compounds has revolutionized the treatment of pneumonia As most clinical reports have shown, these advances in treatment have occasioned a material reduction in the pneumonia fatality rate Much of this remarkable achievement is the result of well organized pneumonia control programs conducted by public health agencies Yet relatively few reports emanating from these agencies have appeared in the literature

Our purpose in this paper is not only to present the results of the Illinois Pneumonia Control Program but also to encourage physicians in the use of such facilities, where they exist, to a greater degree Although year by year a higher percentage of pneumonia patients have come under the Illinois Control Program, less than 50 per cent are now obtaining the services available

Table 1 exhibits the history of pneumonia in Illinois during the last five years In 1937, the year prior to the institution of the control program, there were 5,512 deaths, giving a fatality rate (per hundred cases reported) of 36.8 per cent During the second year of pneumonia control activity there were 3,738 deaths, with a fatality rate of 25.6 per cent The fatality rate of those cases treated under the program in 1940 was only 8.7 per cent It would seem reasonable to assume that the lowered pneumonia mortality rate during 1940 in Illinois was due largely to improved methods and facilities for the treatment of this disease The advent of therapeutic serum and drugs was undoubtedly the principal factor in the reduction of mortality However,

this result could not have been accomplished without the facilities of the control program The program not only acquainted the physician with the modern methods of treatment but also furnished him with free diagnostic services and therapeutic materials These services were available free of cost for all patients with pneumonia regardless of their financial status

### ORGANIZATION OF THE ILLINOIS PNEUMONIA CONTROL PROGRAM

Prior to 1938 there had been no concerted effort to control pneumonia in Illinois In November 1938 the Illinois Department of Public Health with the cooperation of the United States Public Health Service inaugurated a statewide program for the control of this disease During the first year pneumococcus typing stations as well as distributing centers for serum and drugs were established An extensive educational program was undertaken to familiarize the physicians and the public at large with the new facilities available for the treatment of pneumonia At first only horse serum for the common types of pneumococcal pneumonia was available As concentrated rabbit serum and, later, the sulfonamide compounds were proved efficient by clinical trial, these were also made available for free distribution to all patients with pneumonia

Progress was rapid, and by 1940 there were one hundred and sixty private and state agencies approved to perform pneumococcus typing and twenty-seven strategically located centers authorized to distribute serum and drugs In 1940 the number of typing stations was increased to one hundred and eighty and the

TABLE 1—Pneumonia in Illinois 1935-1941

| Year   | Cases Reported | Deaths | Fatality Rate * |
|--|----------------|--------|-----------------|
| 1935   | 13,519         | 5,924  | 44.3            |
| 1936   | 12,976         | 6,312  | 39.6            |
| 1937   | 14,970         | 5,512  | 36.8            |
| 1938   | 12,534         | 4,590  | 35.8            |
| Illinois Pneumonia Control Program inaugurated November 1938 |                |        |                 |
| 1939   | 13,472         | 4,193  | 31.1            |
| 1940   | 14,593         | 3,738  | 25.6            |
| Results of Illinois Pneumonia Control Program                |                |        |                 |
| Jan 1 1939 June 30 1939                                      | 1,445          | 222    | 15.3            |
| July 1 1939 June 30 1940                                     | 6,345          | 539    | 8.5             |
| July 1 1940 June 30 1941                                     | 7,632          | 664    | 8.7             |

\* Per hundred cases reported

serum centers to thirty-seven For more efficient and rapid distribution the sulfonamide compounds (sulfapyridine and sulfathiazole) were made available at all the pneumococcus typing stations as well as at the serum centers This extensive distribution system provided every area of the state, rural and urban, with readily available specific agents for the treatment of pneumonia The geographic distribution of the pneumonia control centers is exhibited by the accompanying map

### COLLECTION OF DATA

*Source of the Data*—All physicians utilizing diagnostic services or obtaining therapeutic materials from approved pneumonia control centers were required to submit a "physician's pneumonia case report" The physicians cooperated splendidly, and satisfactory reports were obtained for over 90 per cent of the cases To simplify analysis of results, these reports were abstracted and the pertinent information was punched on eighty-column cards Tabulating machines were then used to prepare the reports Cases in which

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Department of Public Health and the members of the Illinois Pneumonia  
Advisory Board cooperated in making this study possible. Valuable  
clerical assistance in processing data was furnished by the Work Projects  
Administration

the diagnosis of pneumonia was doubtful or in which the outcome was not determinable from the history were eliminated from the series.

**Limitations of the Data**—Case reports were often incomplete, so that many cases had to be eliminated from certain analyses for lack of information on age, interval from onset until beginning of treatment and number of lobes involved. Since case reports originated from many sources, they varied not only in completeness but also in the interpretation of many items. There seems to be no reason, however, to believe that the accuracy and completeness of reporting varied significantly in the groups of patients receiving different kinds of treatment. It is well recognized that there may be selective factors for the group receiving serum and

19.4 per cent (277) of all deaths. In 277 cases a pneumococcus was isolated but could not be classified by the Neufeld quellung reaction and other diagnostic tests into the thirty-three types for which serum was available.

It should be mentioned that more than 10 per cent of all specimens submitted were from children in Cook County Hospital. Thus the relative incidence of types 6, 14 and 19, which are most commonly found in children, is perhaps higher in this series than in others reported.

In this series there were 2,288 cases of non-pneumococcal pneumonia with 225 deaths, giving a fatality rate of 9.9 per cent. A streptococcus was the apparent etiologic agent<sup>1</sup> in 972 cases. Hemolytic streptococci accounted for 217 cases, *Streptococcus viridans* for 262 cases and unclassified streptococci for 493 cases. The respective fatality rates were 10.1, 9.5 and 11.2 per cent. In 134 cases in which staphylococci<sup>2</sup> were isolated there were 26 deaths, giving a fatality rate of 19.4 per cent. No laboratory report was received for 1,156 cases, in which there were 91 deaths, giving a fatality rate of 7.9 per cent.

In 1,515 cases more than one organism was isolated from the specimen submitted. In this group there were 160 deaths, giving a fatality rate of 10.6 per cent.

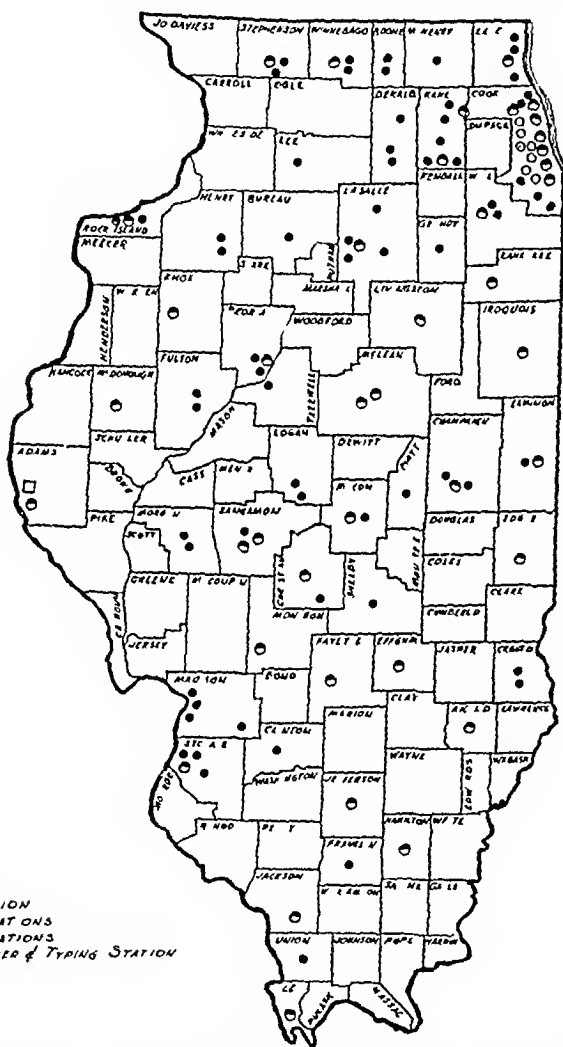
It has been definitely shown by numerous investigators that certain factors influence the outcome of pneumonia. Our results corroborate these observations, and from the data accumulated we are able to show strikingly the important roles played by several factors. These are (1) age, (2) bacteremia, (3) number of lobes involved, (4) day treatment begun and (5) complications.

**Influence of Age on Outcome**—Data on the effect of age on the outcome of pneumonia are shown in table 3. The results obtained are in agreement with present knowledge of the disease, namely that the prognosis becomes graver as age increases despite the form of treatment used. We may divide our series into three age groups: under 2 years of age, 2 to 39 years, and 40 and over. The respective number of cases and fatality rate are as follows: under 2 years of age, 1,398 cases with 103 deaths (7.4 per cent); 2 to 39 years of age, 7,296 cases with 257 deaths (3.5 per cent); and over 40 years of age, 6,500 cases with 1,034 deaths (15.9 per cent). It should be pointed out that apparently age played an important role in the choice of therapy. Among patients over 40 years of age, 3,178 received combined treatment, as compared with 2,479 who received drug alone. In contradistinction, among patients under 40 years of age, including infants, 3,082 received serochemotherapy while 4,593 received drug alone.

**Effect of Bacteremia and Lobar Involvement on the Outcome**—Although blood cultures were reported for only one fourth of all cases, the 4,140 cultures in this series constitute a sufficient sample to warrant definite conclusions. Of the 4,140 blood cultures, 811 (19.5 per cent) were positive. Of the 811 cases in which the cultures were positive there were 208 deaths, giving a fatality rate of 25.6 per cent. On the other hand, of 1

1 Streptococci were reported on the bacteriologic report as the dominant organism. It should be emphasized that these organisms are the predominant organism isolated from sputum, throat swabs and other specimens, particularly *Streptococcus viridans* and unclassified streptococci, may or may not be true etiologic agents since these are frequently found in the upper respiratory tract of normal persons.

2 The etiologic significance of staphylococci in these cases is questioned.



Geographic distribution of pneumonia control centers in Illinois in 1941

chemotherapy, since it is common knowledge that patients who fail to show a satisfactory response to drug alone are often given serum later.

#### RESULTS

From November 1938 to July 1941 there were 15,448 pneumonia case histories received by the Section of Pneumonia Control under the program. Among the 15,448 cases there were 1,425 deaths, giving a fatality rate (per hundred cases reported) of 9.2 per cent, 13,160 of these cases were due to the pneumococcus (table 2). In this group there were 1,200 deaths, giving a fatality rate of 9.1 per cent. Types 1, 3, 2 and 7 were the most prevalent types encountered and together accounted for 41 per cent (6,409) of all cases and 42 per cent (602) of all deaths. The other common types (8, 6, 4, 19, 5 and 14, in order of their prevalence) accounted for 22.1 per cent (3,409) of all cases and

269 deaths occurred among the 3,329 cases in which the blood cultures were negative a fatality rate of 81 per cent

That the number of lobes involved is an index to the severity of pneumonia is also shown in table 4. Single lobe involvement was twice as frequent as multi-

diminished when treatment is delayed. Of the patients with pneumococcal pneumonia for whom all pertinent data relating to prognostic factors<sup>3</sup> were obtained and who received serum or chemotherapy, 1,963 were treated after the fourth day, with 231 deaths (11.8 per cent fatality rate), as compared with 7,601 treated

TABLE 2—Pneumonia Morbidity and Fatality Classified According to Kind of Treatment for Each Type of Organism

| Laboratory Result *                 | All Treatments |        |        | Chemotherapy and Serum |        |        | Chemotherapy (No Serum) |        |        | Serum (No Chemotherapy) |        |        | No Chemotherapy or Serum |        |        |
|-------------------------------------|----------------|--------|--------|------------------------|--------|--------|-------------------------|--------|--------|-------------------------|--------|--------|--------------------------|--------|--------|
|                                     | Cases          | Deaths | Rate † | Cases                  | Deaths | Rate † | Cases                   | Deaths | Rate † | Cases                   | Deaths | Rate † | Cases                    | Deaths | Rate † |
| Pneumococcus type 1                 | 241            | 133    | 62     | 1408                   | 41     | 67     | 701                     | 20     | 29     | 291                     | 23     | 95     | 50                       | 11     | 220    |
| Pneumococcus type 2                 | 1117           | 134    | 102    | 774                    | 78     | 108    | 414                     | 25     | 60     | 135                     | 22     | 142    | 24                       | 9      | 375    |
| Pneumococcus type 3                 | 1092           | 250    | 154    | 1013                   | 171    | 169    | 464                     | 41     | 88     | 63                      | 18     | 261    | 76                       | 20     | 263    |
| Pneumococcus type 4                 | 557            | 51     | 95     | 291                    | 1      | 124    | 183                     | 6      | 32     | 36                      | 7      | 125    | 21                       | 4      | 190    |
| Pneumococcus type 5                 | 471            | 3      | 71     | 299                    | 23     | 105    | 189                     | 4      | 21     | 43                      | 4      | 83     | 17                       | 2      | 118    |
| Pneumococcus type 6                 | 611            | 53     | 82     | 205                    | 0      | 146    | 101                     | 11     | 33     | 17                      | 5      | 294    | 39                       | 4      | 68     |
| Pneumococcus type 7                 | 1017           | 63     | 64     | 58                     | 1      | 70     | 44                      | 12     | 35     | 119                     | 9      | 80     | 32                       | 7      | 219    |
| Pneumococcus type 8                 | 897            | 71     | 88     | 431                    | 41     | 91     | 211                     | 11     | 56     | 90                      | 1      | 144    | 35                       | 4      | 114    |
| Pneumococcus type 9                 | 267            | 15     | 89     | 99                     | 8      | 81     | 84                      | 6      | 71     | 10                      | 0      | 300    | 9                        | 1      | 111    |
| Pneumococcus type 10                | 158            | 13     | 95     | 66                     | 9      | 136    | 7                       | 3      | 41     | 4                       | 0      | 00     | 15                       | 3      | 200    |
| Pneumococcus type 11                | 211            | 71     | 109    | 61                     | 11     | 124    | 100                     | 7      | 70     | 6                       | 2      | 333    | 16                       | 3      | 188    |
| Pneumococcus type 12                | 119            | 11     | 92     | 43                     | 7      | 70     | 67                      | 6      | 90     | 7                       | 1      | 143    | 2                        | 1      | 500    |
| Pneumococcus type 13                | 161            | 20     | 124    | 37                     | 10     | 175    | 88                      | 6      | 68     | 5                       | 1      | 200    | 12                       | 3      | 250    |
| Pneumococcus type 14                | 46             | 22     | 50     | 169                    | 4      | 50     | 236                     | 11     | 47     | 2                       | 1      | 43     | 16                       | 2      | 125    |
| Pneumococcus type 15                | 176            | 22     | 125    | 50                     | 6      | 120    | 109                     | 10     | 92     | 1                       | 0      | 1000   | 14                       | 3      | 214    |
| Pneumococcus type 16                | 151            | 21     | 159    | 69                     | 1      | 217    | 68                      | 7      | 103    | 12                      | 0      | 250    | 11                       | 1      | 91     |
| Pneumococcus type 17                | 200            | 21     | 105    | 10                     | 11     | 138    | 109                     | 6      | 59     | 8                       | 2      | 250    | 10                       | 2      | 200    |
| Pneumococcus type 18                | 257            | 94     | 93     | 88                     | 9      | 102    | 111                     | 7      | 53     | 15                      | 4      | 267    | 23                       | 4      | 174    |
| Pneumococcus type 19                | 305            | 46     | 91     | 105                    | 25     | 128    | 245                     | 10     | 41     | 25                      | 5      | 200    | 40                       | 6      | 150    |
| Pneumococcus type 20                | 247            | 26     | 105    | 80                     | 1      | 162    | 146                     | 11     | 75     | 5                       | 0      | 00     | 16                       | 2      | 125    |
| Pneumococcus type 21                | 109            | 9      | 83     | 35                     | 6      | 171    | 61                      | 1      | 15     | 3                       | 2      | 667    | 4                        | 0      | 00     |
| Pneumococcus type 22                | 151            | 19     | 86     | 61                     | 9      | 148    | 74                      | 2      | 27     | 5                       | 2      | 400    | 11                       | 0      | 00     |
| Pneumococcus type 23                | 189            | 17     | 90     | 70                     | 8      | 114    | 93                      | 5      | 54     | 9                       | 2      | 222    | 17                       | 2      | 118    |
| Pneumococcus type 24                | 193            | 10     | 81     | 44                     | 9      | 205    | 63                      | 0      | 00     | 10                      | 0      | 00     | 6                        | 1      | 167    |
| Pneumococcus type 25                | 55             | 4      | 73     | 17                     | 2      | 118    | 29                      | 1      | 34     | 1                       | 0      | 00     | 8                        | 1      | 125    |
| Pneumococcus type 26                | 4              | 0      | 00     | 0                      | 0      | 00     | 4                       | 0      | 00     | 0                       | 0      | 00     | 0                        | 0      | 00     |
| Pneumococcus type 27                | 47             | 1      | 21     | 18                     | 0      | 00     | 24                      | 1      | 42     | 2                       | 0      | 00     | 3                        | 0      | 00     |
| Pneumococcus type 28                | 176            | 12     | 95     | 41                     | 8      | 186    | 67                      | 3      | 45     | 4                       | 1      | 250    | 12                       | 0      | 00     |
| Pneumococcus type 29                | 123            | 11     | 89     | 41                     | 4      | 91     | 58                      | 5      | 86     | 7                       | 1      | 143    | 14                       | 1      | 71     |
| Pneumococcus type 30                | 1              | 0      | 00     | 0                      | 0      | 00     | 1                       | 0      | 00     | 0                       | 0      | 00     | 0                        | 0      | 00     |
| Pneumococcus type 31                | 91             | 7      | 77     | 6                      | 2      | 56     | 38                      | 2      | 53     | 6                       | 2      | 333    | 11                       | 1      | 91     |
| Pneumococcus type 32                | 74             | 3      | 88     | 16                     | 2      | 125    | 14                      | 0      | 00     | 0                       | 0      | 00     | 4                        | 1      | 250    |
| Pneumococcus type 33                | 10             | 7      | 54     | 35                     | 2      | 57     | 78                      | 1      | 13     | 8                       | 2      | 250    | 9                        | 2      | 222    |
| Pneumococcus unclassified           | 277            | 9      | 83     | 2                      | 0      | 00     | 253                     | 15     | 75     | 0                       | 0      | 00     | 36                       | 5      | 139    |
| Friedländer's bacillus type A       | 5              | 1      | 125    | 0                      | 0      | 00     | 7                       | 1      | 143    | 0                       | 0      | 00     | 1                        | 0      | 00     |
| Friedländer's bacillus type B       | 5              | 0      | 600    | 0                      | 0      | 00     | 5                       | 0      | 600    | 0                       | 0      | 00     | 0                        | 0      | 00     |
| Friedländer's bacillus unclassified | 1              | 2      | 154    | 0                      | 0      | 00     | 11                      | 2      | 182    | 0                       | 0      | 00     | 2                        | 0      | 00     |
| Staphylococcus aureus               | 89             | 12     | 150    | 0                      | 0      | 00     | 71                      | 11     | 155    | 0                       | 0      | 00     | 0                        | 0      | 00     |
| Staphylococcus albus                | 14             | 3      | 214    | 0                      | 0      | 00     | 11                      | 3      | 273    | 0                       | 0      | 00     | 3                        | 0      | 00     |
| Staphylococcus unclassified         | 40             | 11     | 275    | 0                      | 0      | 00     | 37                      | 8      | 250    | 0                       | 0      | 00     | 8                        | 3      | 375    |
| Streptococcus hemolyticus           | 217            | 22     | 101    | 1                      | 0      | 00     | 192                     | 20     | 104    | 0                       | 0      | 00     | 24                       | 2      | 83     |
| Streptococcus viridans              | 262            | 23     | 95     | 1                      | 0      | 00     | 26                      | 20     | 85     | 0                       | 0      | 00     | 25                       | 5      | 200    |
| Streptococcus unclassified          | 49             | 55     | 112    | 3                      | 0      | 00     | 401                     | 43     | 107    | 1                       | 0      | 00     | 88                       | 12     | 136    |
| No laboratory result                | 1156           | 91     | 79     | 2                      | 0      | 00     | 1055                    | 70     | 66     | 1                       | 1      | 1000   | 95                       | 20     | 202    |
| All cases                           | 15448          | 1475   | 92     | 6334                   | 690    | 109    | 7181                    | 442    | 62     | 1092                    | 144    | 141    | 891                      | 149    | 167    |

\* If more than one type was reported for a case and there was no indication as to predominant type the case is classed in this table under the lowest type number.  
† Per hundred cases reported

TABLE 3—Influence of Age on Pneumonia Morbidity and Mortality

| Age of Patient, Years | All Treatments |        |        | Chemotherapy and Serum |        | Chemotherapy (No Serum) |        | Serum (No Chemotherapy) |        | No Chemotherapy or Serum |        |
|-----------------------|----------------|--------|--------|------------------------|--------|-------------------------|--------|-------------------------|--------|--------------------------|--------|
|                       | Cases          | Deaths | Rate * | Cases                  | Deaths | Cases                   | Deaths | Cases                   | Deaths | Cases                    | Deaths |
| Under 2               | 1398           | 103    | 74     | 281                    | 38     | 1003                    | 47     | 96                      | 4      | 88                       | 14     |
| 2-9                   | 2207           | 46     | 21     | 56                     | 13     | 1449                    | 24     | 65                      | 3      | 152                      | 6      |
| 10-19                 | 1270           | 27     | 21     | 487                    | 7      | 690                     | 13     | 100                     | 2      | 85                       | 5      |
| 20-29                 | 1730           | 65     | 37     | 774                    | 23     | 715                     | 26     | 16                      | 7      | 78                       | 9      |
| 30-39                 | 2091           | 119    | 57     | 1004                   | 65     | 876                     | 37     | 170                     | 14     | 95                       | 5      |
| 40-49                 | 2066           | 221    | 107    | 967                    | 113    | 844                     | 64     | 165                     | 21     | 94                       | 2      |
| 50-59                 | 1895           | 261    | 138    | 963                    | 137    | 637                     | 69     | 133                     | 29     | 112                      | 26     |
| 60-69                 | 1425           | 278    | 195    | 688                    | 153    | 545                     | 8      | 112                     | 35     | 80                       | 27     |
| 70 or over            | 1114           | 274    | 246    | 565                    | 151    | 403                     | 73     | 64                      | 27     | 87                       | 23     |
| Unknown               | 254            | 31     | 122    | 94                     | 10     | 109                     | 11     | 22                      | 2      | 29                       | 8      |
| All cases             | 15448          | 1475   | 92     | 6334                   | 690    | 7181                    | 442    | 1092                    | 144    | 891                      | 149    |

\* Per hundred cases reported

ple lobe involvement, there being 8,482 and 4,704 cases respectively. The fatality rate of 15.7 per cent for cases of multiple lobe involvement was approximately three times as great as the rate (5.7 per cent) for cases of single lobe involvement. In 2,262 cases the number of lobes involved was not reported. In this group there were 203 deaths, giving a rate of 9 per cent.

**Influence of Delayed Treatment on Outcome.**—Our results corroborate the well known fact that the efficacy of any form of pneumonia therapy is decidedly

on or before the fourth day, with 616 deaths (8.1 per cent fatality rate). This is shown in table 6.

**Effect of Complications and Associated Diseases on Outcome.**—As might be expected, patients with complications and associated diseases were definitely poorer risks. Of those who received combined treatment there were 1,685 with complications or associated diseases, of this group 444 died (26.4 per cent fatality rate).

<sup>3</sup> Prognostic factors included age, day of disease treatment was begun, lobes involved and complications.



Among 3 604 patients without complications or associated diseases who received combined treatment only 139 died a rate of 3·8 per cent. Similarly of patients treated with the drug alone 613 had complications and 102 died, a fatality rate of 16·6 per cent as compared with 2,839 patients with uncomplicated pneumonia of whom 53 died, a rate of 1·9 per cent.

COMPARISONS OF METHODS OF TREATMENT

At present much interest is focused on the comparative value of serum plus drug versus sulfonamide compounds alone in the treatment of pneumonia. The

pneumonia control programs should give valuable aid in the solution of this problem. In the absence of adequate controls a valid comparison of therapeutic procedures must allow for compositional differences among the groups considered with respect to factors affecting outcome. Thus some of the apparent superiority of drug therapy alone over the combined method is certainly due to the fact that the patients receiving the combined therapy were more seriously ill. The severity of illness in these patients cannot be measured accurately with present methods. Until the time when precise methods of determining severity of

TABLE 4—Influence of Bacteremia and Lobar Involvement on Mortality

| Number of Lobes Involved | Blood Culture |        |        |            |         |            |        |           |        |        |
|--------------------------|---------------|--------|--------|------------|---------|------------|--------|-----------|--------|--------|
|                          | Total         |        |        | Positive * |         | Negative † |        | No P or † |        | Rate ‡ |
|                          | Cases         | Deaths | Rate ‡ | Cases      | Deaths  | Cases      | Deaths | Cases     | Deaths |        |
| 1                        | 8 482         | 453    | 5·7    | 429        | 91      | 2 073      | 82     | 5,981     | 247    | 4·1    |
| 2                        | 3,795         | 419    | 12·4   | 235        | 67      | 675        | 82     | 2,479     | 274    | 11·1   |
| 3                        | 920           | 206    | 22·1   | 71         | 29      | 187        | 51     | 622       | 125    | 20·1   |
| 4                        | 203           | 56     | 27·6   | 14         | 7       | 32         | 10     | 157       | 27     | 17·2   |
| 5                        | 21            | 61     | 28·6   | 6          | 5       | 16         | 15     | 161       | 10     | 6·2    |
| Not given                | 2,262         | 206    | 9·0    | 58         | 16      | 316        | 25     | 1,888     | 122    | 6·5    |
| All cases                | 15 445        | 1 425  | 9·2    | 811        | 205     | 3,329      | 229    | 11 305    | 648    | 5·7    |
|                          |               |        |        |            | (25·6%) |            | (6·9%) |           |        | (5·7%) |

\* At least one positive blood culture † No positive blood culture but at least one negative ‡ Per hundred cases reported

TABLE 5—Influence of Age, Time of First Treatment, Number of Lobes Involved and Complications to Morbidity and Fatality in Relation to Kind of Treatment

| Treatment<br>Begun                            | Involve-<br>ment of<br>Lobes | Com-<br>plica-<br>tions * | All Treatments |        |        | Chemotherapy<br>and Serum |        |        | Chemotherapy<br>(No Serum) |        |        | Serum<br>(No Chemotherapy) |        |        | No Chemother-<br>y or Serum |        |        |
|---|------------------------------|---------------------------|----------------|--------|--------|---------------------------|--------|--------|----------------------------|--------|--------|----------------------------|--------|--------|-----------------------------|--------|--------|
|   |                              |                           | Cases          | Deaths | Rate † | Cases                     | Deaths | Rate † | Cases                      | Deaths | Rate † | Cases                      | Deaths | Rate † | Cases                       | Deaths | Rate † |
| Age 40 years and over                         |                              |                           |                |        |        |                           |        |        |                            |        |        |                            |        |        |                             |        |        |
| After<br>fourth day<br>from<br>onset          | Two or<br>more               | Yes                       | 198            | 96     | 48.5   | 141                       | 68     | 47.6   | 79                         | 17     | 43.6   | 12                         | 8      | 66.7   | 4                           | 3      | 7.5    |
|   |                              | No                        | 210            | 28     | 13.3   | 169                       | 16     | 14.7   | 75                         | 8      | 10.7   | 26                         | 1      | 4.3    | 5                           | 2      | 40.0   |
|   | One                          | Yes                       | 175            | 47     | 26.9   | 86                        | 26     | 30.2   | 79                         | 14     | 17.7   | 8                          | 5      | 62.5   | 2                           | 2      | 100.0  |
|   |                              | No                        | 385            | 17     | 4.4    | 153                       | 10     | 6.5    | 197                        | 4      | 2.0    | 31                         | 3      | 9.7    | 4                           | 0      | 0.0    |
| On or be-<br>fore fourth<br>day from<br>onset | Two or<br>more               | Yes                       | 545            | 226    | 41.5   | 403                       | 166    | 41.2   | 81                         | 27     | 33.3   | 59                         | 31     | 52.5   | 2                           | 2      | 100.0  |
|   |                              | No                        | 894            | 70     | 8.7    | 535                       | 50     | 9.3    | 194                        | 9      | 4.6    | 70                         | 8      | 11.4   | 5                           | 5      | 100.0  |
|   | One                          | Yes                       | 628            | 139    | 22.1   | 428                       | 56     | 22.4   | 142                        | 22     | 15.5   | 56                         | 21     | 37.5   | 2                           | 0      | 0.0    |
|   |                              | No                        | 1 480          | 57     | 3.9    | 857                       | 32     | 3.7    | 476                        | 14     | 2.9    | 134                        | 8      | 6.0    | 15                          | 5      | 33.3   |
| Age under 40 years                            |                              |                           |                |        |        |                           |        |        |                            |        |        |                            |        |        |                             |        |        |
| After<br>fourth day<br>from<br>onset          | Two or<br>more               | Yes                       | 95             | 27     | 28.2   | 65                        | 20     | 30.8   | 22                         | 1      | 4.5    | 7                          | 1      | 14.3   | 1                           | 1      | 100.0  |
|   |                              | No                        | 227            | 10     | 4.4    | 92                        | 3      | 3.3    | 115                        | 3      | 2.6    | 16                         | 2      | 12.5   | 4                           | 2      | 50.0   |
|   | One                          | Yes                       | 122            | 18     | 14.8   | 61                        | 11     | 18.0   | 49                         | 5      | 10.2   | 10                         | 1      | 10.0   | 2                           | 1      | 50.0   |
|   |                              | No                        | 576            | 4      | 0.7    | 161                       | 4      | 2.5    | 371                        | 0      | 0.0    | 39                         | 0      | 0.0    | 5                           | 0      | 0.0    |
| On or be-<br>fore fourth<br>day from<br>onset | Two or<br>more               | Yes                       | 292            | 51     | 17.5   | 206                       | 32     | 15.5   | 69                         | 10     | 16.7   | 27                         | 8      | 29.6   | 1                           | 1      | 100.0  |
|   |                              | No                        | 971            | 24     | 2.5    | 522                       | 11     | 2.1    | 544                        | 8      | 2.4    | 98                         | 5      | 5.1    | 17                          | 0      | 0.0    |
|   | One                          | Yes                       | 468            | 34     | 7.3    | 293                       | 25     | 8.5    | 141                        | 6      | 4.3    | 22                         | 3      | 13.6   | 2                           | 0      | 0.0    |
|   |                              | No                        | 2 472          | 24     | 1.0    | 1,175                     | 1      | 1.1    | 1 077                      | 7      | 0.6    | 205                        | 4      | 2.0    | 16                          | 0      | 0.0    |
| All cases *                                   |                              |                           | 9 619          | 864    | 9.0    | 5 289                     | 383    | 11.0   | 452                        | 15     | 4.5    | 879                        | 109    | 13.2   | 85                          | 21     | 24.7   |

\* A case was included in the Yes group under Complications if at least one of the following items was indicated on the history: bacteremia, diabetes mellitus, heart disease, lung abscess, meningitis, nephritis, pleural effusion, postoperative pneumonia, pregnancy, etc. It is quite possible that cases of unreported complications are included in the groups classified as having no complications. † Per hundred cases reported. ‡ This table includes only the cases for which all of the following items were reported: type of pneumococcus, patient age, sex, lobes involved and time of first treatment in relation to onset of the disease. There were 770 other cases for which some of the items were not reported.

results of laboratory studies show that in general the ideal treatment of pneumonia should include both specific serum and drug. Clinical studies to date, however, have not substantiated this view. The solution of the problem, as Bullowa<sup>4</sup> has stated, will come only after observation of many patients over a period of years. The clinical and statistical studies arising from effective

pneumonia are available, one must be content to measure severity by the presence or absence of prognostic factors. Table 5 shows how the various treatment groups in this study were composed with respect to certain prognostic factors. The factors considered were age, time of disease on which treatment was begun, lobe involved, and complications. Each of the four factors was divided into only two categories, because otherwise a prohibitive number of classes would have been obtained in the present classification. The group having complications

4 Bullowa J G M Osgood E E Bulantiz S C and Brownlee I E The Effect of Sulfapyridine Alone and with Serum on Pneumococcal Pneumonia and on Pneumococcus Injected Marrow Culture. Am J M Sc. 199 364 380 (March) 1940

cially heterogeneous. It is recognized that some of our classifications could be improved particularly by a fuller use of the information available on the amount of drug or serum used, the time of the first treatment and the duration of treatment. A higher proportion of serious cases was found to exist among the patients receiving combined drug and serum treatment than among those treated with drug alone. This is shown by the relative numbers of patients classified in the group of greatest severity of disease, namely persons over 40 with two or more lobes involved and complications present. Out of 666 patients in this category, 546 were treated with both drug and serum and 120 with drug only. Thus among these seriously ill patients there was a selection of  $4\frac{1}{2}$  to 1 in favor of combined therapy. Other classifications relating disease severity to age, number of lobes involved and complications all show that in the presence of unfavorable prognostic factors drug plus serum were more apt to be given than drug alone. Thus, in patients over 40 years of age 51 per cent received combined treatment and 37 per cent chemotherapy only. In cases with multiple lobe involvement 39 per cent were given drug and serum while only 27 per cent were treated with drug alone. Similarly among patients with complications the ratio was combined therapy 32 per cent drug only 18 per cent. The one adverse prognostic factor present to a greater degree in the cases in which only chemotherapy was administered was that of treatment begun after the fourth day of the disease, e. g. combined therapy 16 per cent, drug alone 27 per cent. It is probably of considerable importance to note in this same table 5 that of type 3 pneumonias 62 per cent had combined treatment as compared with 29 per cent who received only drug. The number of patients not given chemotherapy was so small that the percentages for these groups are, in general, insignificant.

*Comparisons by Adjusted Fatality Rates* — As already shown, the patients in the group receiving combined therapy were not distributed in the same way with respect to prognostic factors as the patients receiving sulfonamide compounds alone. To offset these differences adjusted fatality rates\* for each factor are exhibited in table 7.

TABLE 6—Influence of Delayed Treatment on Outcome

| Treatment          | Treated On or Before Fourth Day |        |                         | Treated After Fourth Day |        |                         |
|--------------------|---------------------------------|--------|-------------------------|--------------------------|--------|-------------------------|
|                    | Num-<br>ber                     | Deaths | Mor-<br>tality<br>Rate* | Num-<br>ber              | Deaths | Mor-<br>tality<br>Rate* |
| Combined treatment | 4 419                           | 425    | 9.6                     | 870                      | 158    | 18.2                    |
| Drug alone         | 2 565                           | 103    | 4.1                     | 947                      | 52     | 5.5                     |
| Serum alone        | 677                             | 85     | 13.0                    | 146                      | 21     | 14.4                    |
| Totals             | 7 661                           | 613    | 8.1                     | 1 963                    | 231    | 11.8                    |

\* Per hundred cases reported

The adjusted rates are derived from the data of table 5 by first estimating the deaths to be expected among patients in each of the sixteen prognostic factor combinations if all patients with a given combination of prognosis items had received the same treatment. For example, in the first prognostic factor group of 198 cases, on applying the fatality rate of 43.6 per cent for the patients receiving chemotherapy alone 83.6

estimated deaths are obtained. Thereupon the adjusted rates are computed from the expected deaths. Thus a comparison of the two methods of treatment by adjusted rates is in effect a comparison based on a standard group of patients. It is readily seen that a large part of the difference between treatments in the crude fatality rates is due to the variation in com-

TABLE 7—Comparison of Combined Treatment with Drug Therapy Alone in Regard to Factors of Age, Lobar Involvement, Time of First Treatment and Complications as Shown by Adjusted Fatality Rates

| Prognostic Factors                                 | Number of Cases | Adjusted Fatality Rate* |            |
|--|-----------------|-------------------------|------------|
|  |                 | Combined Treatment      | Drug Alone |
| Age 40 or over                                     | 4 495           | 15.8                    | 11.5       |
| Age under 40                                       | 5 224           | 3.9                     | 2.5        |
| More than one lobe involved                        | 3 742           | 15.8                    | 12.3       |
| Only one lobe involved                             | 6,807           | 6.0                     | 3.6        |
| Treatment begun after fourth day from onset        | 1 088           | 13.9                    | 8.6        |
| Treatment begun on or before fourth day from onset | 7 651           | 8.2                     | 6.1        |
| With complications                                 | 2 523           | 25.7                    | 19.1       |
| Without complications                              | 7 126           | 3.6                     | 2.2        |
| All cases  | 9 649           | 9.4                     | 6.6        |
| Crude death rate* for all cases                    |                 | 11.0                    | 4.5        |

\* Per hundred cases reported

position between the group receiving combined therapy and that receiving chemotherapy alone. The crude fatality rate of 11 per cent for the group receiving both serum and drug is two and one-half times as high as the rate for the group receiving drugs alone (4.5 per cent), while the adjusted rate is only one and one-half times as high (9.4 per cent and 6.6 per cent respectively).

## SUMMARY

1 The Pneumonia Control Program of the Illinois Department of Public Health was initiated in November 1938. From this date to July 1, 1941, 15,448 cases of pneumonia were reported to the Section of Pneumonia Control. Among this number there were 1,425 deaths, giving a case fatality rate of 9.2 per cent. Of this group 13,160 were due to pneumococcus types 1-33, and all but 597 received chemotherapy, serum or both, 1,200 of the total group died, giving a mortality of 9.1 per cent.

2 The most common types of pneumococci in order of their prevalence were 1, 3, 2 and 7. The case fatality rates of these four types were 6.2, 15.4, 10.2 and 6.4 per cent respectively.

3 Cases were studied with reference to prognostic factors, namely age, day of disease treatment was begun, lobe involvement and complications.

4 An attempt was made to assess the value of treatment with serum and chemotherapy by allowing for the combined effects of these four prognostic factors.

5 While the death rate among patients treated with both serum and drug was more than twice that resulting from chemotherapy alone, it was found that the great majority of the most severely ill patients were selected for combined therapy.

6 Further statistical analyses are being undertaken with the purpose of elucidating as far as possible the value of combining serum with sulfonamides in the treatment of pneumonia.

5 A detailed description of such adjustment procedure is given by Pearl Raymond, *Introduction to Medical Biometry and Statistics*, ed. 3, Philadelphia and London, W. B. Saunders Company, 1940, chapter IX.

## Clinical Notes, Suggestions and New Instruments

### ZINC DERMATITIS AN ADDITIONAL HAZARD IN THE AIRCRAFT INDUSTRY

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The salts of zinc, such as zinc chloride, are widely used in welding in large plane manufacturing, and reactions to these compounds have been reported.<sup>1</sup> However, no recorded instance of reaction to zinc has been found, and I have no previous knowledge of such allergic reaction.

"Kirk'site"<sup>2</sup> is an alloy which is used in the foundry in the preliminary stages of die making. It is composed principally of zinc with a small admixture of aluminum and copper and a lesser amount of magnesium.

At this time of national emergency it seems desirable to record the following case, although it is readily acknowledged that such cases will be rarely encountered.

#### REPORT OF CASE

K. W. W., a man aged 33, was referred for dermatologic consultation by Dr. M. L. Loomis, of the Long Beach medical division of the Douglas Aircraft Company, Inc. The patient was of English descent. His past history was irrelevant. The family history, though, was of interest. He stated that his grandmother, mother and father were sensitive to zinc and galvanized metals. His mother, for instance, could never use zinc coated buckets or tubs for such tasks as laundering without having a dermatitis develop on the exposed parts. There were no other known instances of allergic reactions in the patient or his near relatives.

This man suffered a burn from a splash of hot kirk'site in the bend of the left elbow, and around this, while it was healing, developed an inflammation. Zinc oxide, among other ointments, had been used in the preliminary treatment of the burn.

Examination showed a healing burn about 2 cm in diameter in the left cubital space. There was an erythematovesicular and exudative eruption extending around this slightly keloidal area for 3 cm in each direction.

The Wassermann reaction of the blood was negative, and the urine was normal.

Patch tests with scrapings of kirk'site showed, after fifteen hours, a severe erythema in which a small vesicular eruption was superimposed. The results of a control test were negative.

Improvement was definite but fairly slow while therapy consisted in roentgen radiation and the application of sulfanilamide and bismuth tribromphenate in a cream locally, and it was more rapid when weak silver nitrate compresses were used. Alibour water (water containing zinc and copper sulfates) was carefully avoided. During treatment, when the patient was away from the plant considerable improvement would be noticed, and when he would return the involved areas would become pruritic "in about thirty minutes." For this reason it was necessary for Dr. Loomis to have him transferred from the foundry to another department where there would be no exposure to zinc.

After the eruption had entirely healed, and thirty-four days after the original patch test had been applied, patch tests with the constituents of kirk'site were applied. Those with aluminum, magnesium and copper gave negative results after forty-eight hours, while that with zinc showed, after eighteen hours, a bullous reaction, which later became a 5 mm deep slough and required another two weeks to heal.

At the time of the last mentioned reaction edema, erythema and pruritus occurred at the sites of the original patch test with kirk'site on the same (right) forearm and of the original dermatitis on the left arm.

#### COMMENT

Sensitivity to zinc must be regarded as very rare. It has been suggested<sup>3</sup> that the dermatitis may have been due to the formation of zinc chloride from zinc reacting with perspiration. This cannot be disproved, as of course perspiration would occur under a patch test, but it is true that similar scrapings of kirk'site have been applied as patch tests on several other persons without inducing any reaction. Zinc chloride is a primary irritant, and these negative results in other persons would indicate that there was a true zinc sensitivity in this case and that the reaction was not due to zinc chloride.

The flare-up at the previously involved sites when the zinc patch test was applied emphasizes the truly allergic nature of the reaction. This phenomenon has been previously described as the recurrent patch test reaction.<sup>4</sup>

704 Professional Building

### RENAL TORSION WITH ISCHEMIA CAUSING HYPERTENSION

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AND

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This report is presented because of its unusual bearing on renal hypertension. The major implications seem consistent with scientific validity.

Since Goldblatt's work, impetus has been given to research on hypertension, and a great many articles have been written on the association of disorders of the kidney to high blood pressure. McCann<sup>1</sup> postulated the following events in cases of nephropathy exhibiting orthostatic hypertension:

"1. Erect posture causes some slight interference with the afferent blood supply in consequence of which renin is produced."

"2. The action of renin results in constriction of the afferent arteria in both kidneys with the result that the total renal blood flow is still further decreased, while at the same time the glomerular filtration remains relatively constant, owing to the compensatory effect of increased intraglomerular pressure."

In his series of 5 cases in which nephropexy was performed or kidney belts were applied the hypertension still existed to a lesser degree, but symptomatically there was much improvement.

#### REPORT OF CASE

A well developed woman aged 47, first seen Nov. 7, 1938, complained of severe headaches, nervousness and severe hot flashes. The headaches, which had become much more severe during the last three months, started one week before the expected menstrual period and lasted throughout. The symptoms had been present for two years but had been milder. The menses had become scanty during the past two years but were still regular every twenty-eight days. Physical examination was essentially negative except for a blood pressure reading of 180 systolic and 110 diastolic. Urinalysis was entirely negative. The impression at this time was that the climacteric had started, and until March 1939 estrogenic substances in the form of theelin and amniotin were given. During this period the blood pressure varied from 170/100 to 160/110.

3. Personal communication from Dr. Louis Schwartz, chief of the Dermatoses Investigation Section of the United States Public Health Service.

4. Counter, Clement E. Recurrent Reaction to Patch Test. *Dermat. & Syph.* 37: 495-496 (March) 1938.

1. McCann, W. S. and Roninsky, M. J. Orthostatic Hypertension. *J. A. M. A.* 115: 573 (Aug. 24) 1940.

Dr. Freeman is now a captain in the Medical Corps and temporarily at the Johns Hopkins School of Hygiene, Baltimore.

1. Schwartz, Louis, and Russell, John P. Skin Hazards in Airplane Manufacture, *Pub. Health Rep.* 56: 1581-1593 (Aug. 8) 1941.

2. "Kirk'site" is supplied by Morris P. Kirke & Son, Inc., Los Angeles.

The flashes and nervousness were greatly relieved and the headaches were milder.

In September the patient complained of dizzy spells, tiredness, fatigue and swelling of the ankles. For the past two months she had been menstruating profusely every eighteen days. A second degree anemia was noted. Vaginal examination revealed a small normal anteverted uterus. Roentgen therapy was instituted for the menorrhagia and complete cessation of the menses occurred by December 15. The blood pressure was 180/100.

The patient felt well until Jan 20 1940 when she again complained of severe occipital and frontal headaches that came on at frequent intervals and were associated with nausea and vomiting. Hot flashes became intense thirty to forty a day. The blood pressure was 180/100 otherwise physical examination was negative. Estrogenic therapy was reinstituted, large doses being given with relief of the flashes but no apparent relief of the headaches. Morphine sulfate  $\frac{1}{4}$  gram (0.016 Gm) and soluble pentobarbital 4 to 6 grains (0.26 to 0.4 Gm) were taken for relief. The blood pressure at this time was 220/120. A mixture of theobromine and phenobarbital was given as a vasodilator but caused no effect on the headaches or blood pressure. Urinalysis was still negative, nonprotein nitrogen of the blood was 40.8 mg and creatinine 1.2 mg. The climacteric symptoms were controlled with 1 mg of diethylstilbestrol daily. Complete bed rest was instituted the patient improved and the blood pressure dropped to 180/190. Bed rest in a completely horizontal position relieved the patient to a great extent.

In September 1940 tenderness was noted for the first time over the left kidney region and a genitourinary study was advised. The only other urologic symptoms were nocturia one to three times and a dull pain over the left kidney. A memory of attacks of kidney trouble twenty-five years previously was elicited otherwise the past history was negative.

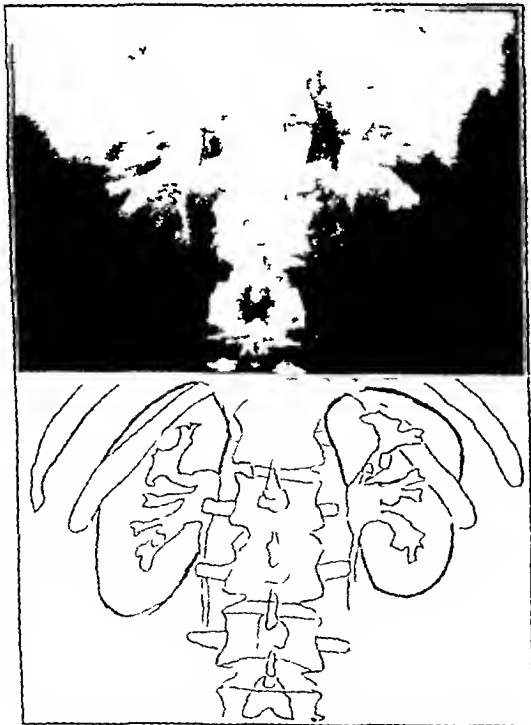


Fig 1—Normal extrarenal pelvis horizontal

The blood pressure prior to urologic study was 240/120. The essential cystoscopic observations were that a number 6 catheter passed to the right pelvis easily but met resistance in the entire length of the left ureter. Phenolsulfonphthalein appeared in three minutes and in excellent concentration from both sides. Urine from both the right and the left kidney was normal. The

retrograde pyelogram revealed normal appearing extrarenal pelvis. In the upright position on the right side a torsion of 45 to 60 degrees of the pelvis was noted while the left side showed delayed emptying time probably owing to the narrowing of the left ureter. The diagnosis of torsion of the right kidney

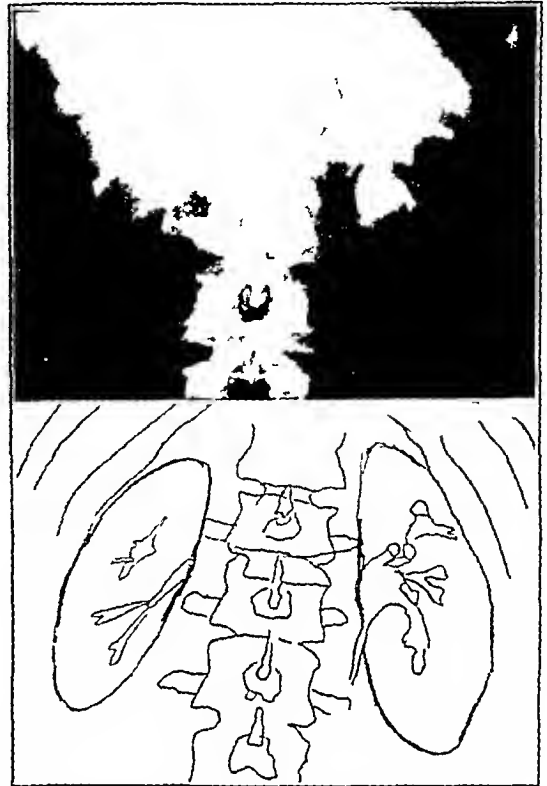


Fig 2—Torsion of right kidney in upright position

and narrowing of the left ureter was made. Basing our supposition on the fact that torsion of the right kidney might cause a rotation of the renal artery on a fixed axis resulting in a twist which would cause an obstruction to the renal blood flow, recommendation was made by the urologist that the left ureter should be dilated periodically. The torsion of the right kidney, it was suggested might be prevented by using a kidney belt or corset which should be applied while the patient was in bed.

With the application of the corset, the patient was decidedly benefited and three weeks later the patient asked permission to make an automobile trip back East. Since then the blood pressure has stayed fairly close to normal except for an occasional upset. Once when the patient removed the belt for a day the symptoms recurred with a blood pressure of 220/120. Another time when the patient fell and hurt her back her blood pressure was 200/100.

On Oct. 23 1941 the patient said she was feeling well once in a while a severe headache occurred and then her pressure would go up a little. It descended to 154. She reported that she tried taking the belt off for just one day and the pressure went up to 190 immediately.

#### COMMENT

This case presents many problems, as hypertension occurs in the menopause and may be just temporary. The pathologic condition of the kidney has probably been present for many years and it may have been exacerbated by the climacteric. Regardless, the pressure of the belt can be said to have forced the rotated kidney into place, thereby renewing the normal status of the renal blood flow. The only experimental observation was incidental when the patient removed her belt or fell, resulting in a rise in blood pressure.

3875 Wilshire Boulevard

**Special Article****HANDBOOK OF NUTRITION· III****ROLE OF FAT IN THE DIET**W R BLOOR, PH D  
ROCHESTER, N Y

*These special articles on foods and nutrition have been prepared under the auspices of the Council on Foods and Nutrition. The opinions expressed are those of the authors and do not necessarily reflect the opinion of the Council. These articles will be published later as a Handbook of Nutrition—Ed*

Fat is used biologically mainly as a source of energy and as a constituent of the body tissues. It has minor functions, such as carrying important accessory substances. Weight for weight, fat supplies about twice the energy of the other staple organic foods, carbohydrate and protein. It is an essential in the structure and functions of all tissues and especially of the brain and nerves. The natural fats contain many of the vitamins which are necessary for the growth, maintenance and well-being of animals and probably plants as well. Fats serve passively as heat insulation under the skin, as padding to keep the bodily organs and blood vessels and nerves in place, and for rounding out the angular contours of the bodily structure. They constitute the most important form of stored energy for tiding the animal over through periods of food scarcity and for transmitting to the offspring, as milk or egg, food material to serve until the young animal can forage for itself. Most fats are readily synthesized by animals from other foods but there are certain important exceptions, fatty acids, which must be supplied in the food and the lack of which produces the fat deficiency disease. Fat is thus an important source of energy both immediate and remote. As ordinarily used, mixed with considerable other food, it is completely and easily digested and used. When used alone or when it is the main food constituent of the diet, it is less well used and may cause important disturbances in the organism.

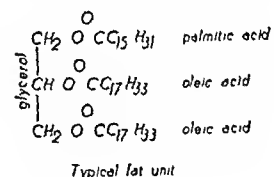
The proper understanding of the part taken by fat in the life processes of animals requires a consideration of the chemical nature of fat and its various related substances and the changes which they undergo in their use by animals. The characteristic constituents of the group comprising the food and body fats and related substances (ordinarily grouped under the name of lipids) are the fatty acids. These are monobasic straight chain acids, two to twenty-four or more carbon atoms in length, some of them with from one to six unconjugated double bonds per molecule. The commonest ones in both food fat and body stores are palmitic ( $C_{16}H_{32}O_2$ ), oleic ( $C_{18}H_{34}O_2$ ) and stearic ( $C_{18}H_{36}O_2$ ) acids with linolic ( $C_{18}H_{32}O_2$ ) and palmitoleic ( $C_{16}H_{30}O_2$ ) close seconds and a variety of others mostly confined to some tissue or fluid in the organism. Some of these are butyric ( $C_4H_8O_2$ ) found in milk fat, arachidonic ( $C_{20}H_{32}O_2$ ) in brain, liver, muscle and other tissues, lignoceric ( $C_{24}H_{48}O_2$ ) in brain and nerve, and cerebronic ( $C_{24}H_{48}O_3$ ),  $\alpha$ -hydroxylignoceric,<sup>1</sup> in brain. For the complete list and for other detailed information regarding classification of the fatty acids

and their compounds, the reader is referred to the numerous good textbooks of biochemistry.

Melting points of the fatty acids depend on the length of chain and on the number of double bonds. The longer the chain the higher the melting point, while double bonds lower the melting point. Thus stearic acid ( $C_{18}H_{36}O_2$ ), a long chain saturated acid, has a melting point of 69.5 C, while lauric acid ( $C_{12}H_{24}O_2$ ) melts at 43.6 C and oleic acid ( $C_{18}H_{34}O_2$ ), corresponding to stearic acid but with one double bond, has a melting point of 14 C, the double bond lowering the melting point about 55 degrees C. Since the melting points of the constituent fatty acids determine the melting points of the fats and since the stored fat must be kept fluid while the animal is alive, there is often a careful adjustment of the fatty acid mixture in the fat stores.

The fatty acids exist in various types of combination in the animal body. Most common of these is that of the fats, also called neutral fats, which are triglycerides of the fatty acids. These are compounds in which the trihydroxy alcohol glycerol is combined in ester combination with three fatty acids. In nature these three fatty acids are rarely the same. Often three different fatty acids are found and in general (Hilitch's rule)<sup>2</sup> there will be as great a variety of fatty acids in the triglyceride molecule as are available to the animal at the time the fat was synthesized. The selection is also controlled by the necessity of a balance between saturated and unsaturated acids or perhaps by the requirement that the completed triglyceride have a melting point not far from the body temperature of the animal. The fact that these esters as well as the fatty acids themselves generally have two and sometimes more melting points some distance apart and that they can be kept in a greatly supercooled condition for long periods of time are facts which require something more complicated than the simple triester type of formula. Evidence points to the occurrence of the esters in several polymorphic forms.<sup>3</sup>

The formula for a typical fat unit is



which would be called palmitodioleim. The naturally occurring fats generally contain several varieties of such units.

In all living organisms fatty acids occur in several types of combination in addition to that in the fat and, since these compounds are now believed to be either stages in the progress of the fats through the processes of metabolism or important constituents of the living cells, it is necessary to include them in the discussion. These compounds include the phosphorylated fats or phospholipids, found everywhere in animal tissues, the cerebrosides, which contain a fatty acid combination, found in the brain and liver, and cholesterol, which always occurs along with the fats, generally free but sometimes in ester combination with the fatty acids, as in the cholesterol esters of the plasma.

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<sup>1</sup> Klenk, E. Ueber die Cerebronsäure, Ztschr. f. physiol. Chem. 179: 312 (Dec.) 1928.

<sup>2</sup> Longenecker, H. E. Composition and Structural Chemistry of Glycerides in Relation to Classification and Environment, C. 29: 201 (Oct.) 1941.

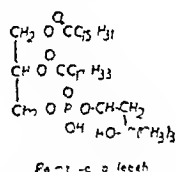
<sup>3</sup> Grütziger, W. Ueber die Schmelzpunktsdifferenzen der einsäurigen Triglyceride, Ztschr. f. anorg. Chem. 210: 313 (1933).



## PHOSPHOLIPIDS

The phospholipids or phosphorylated fats call for an extended discussion, since they are connected with the fatty acids in several stages of their metabolism and are important cellular constituents. Phosphoric acid has long been recognized as one of the necessary food constituents of both plants and animals but only recently has light been thrown on just why it is so necessary. Thus the part which it takes in the metabolism of the carbohydrates has been well worked out, and although the picture is incomplete in some details enough has been shown to indicate that the phosphoric acid takes part in most of the stages of carbohydrate metabolism. In fat metabolism only the first stages of phosphoric participation are known. There are three main types of phosphorylated fats, the first two lecithin and cephalin being very similar in composition while the third one sphingomyelin is quite different. Since different fatty acids enter into each of these compounds, there are several members of each group.

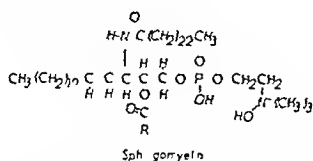
Lecithin is believed to have a composition represented by the formula



This would be called palmito-oleo-lecithin. As may be seen, it is an ordinary fat with one of the fatty acids on the glycerin molecule replaced by phosphoric acid in combination with the base choline.

Cephalin is believed to differ from lecithin only in the nature of the base in combination with the phosphoric acid, which in this case is either aminoethyl alcohol ( $\text{CH}_2\text{OH} - \text{CH}_2\text{NH}_2$ ) or its carboxylated form, serine. There are two forms of both lecithin and cephalin the  $\alpha$  form in which the phosphoric group is on the terminal carbon of the glycerin and the  $\beta$  form in which it is on the middle carbon. Both forms occur in tissues and it is significant that  $\alpha$ -lecithin and  $\beta$ -cephalin disappear during starvation, while the  $\beta$ -lecithin and  $\alpha$ -cephalin persist.\*

The third phospholipid, sphingomyelin, as the derivation of the name indicates, is still the "mystery" substance. It is found mainly in brain and nerve and in small amounts in other tissues including the blood. The present accepted formula is



It would be called lignoceryl-sphingosine-phosphoric-acid-choline-ester. It is made up of the two bases sphingosine, which is an unsaturated  $\text{C}_{18}$  chain with one amino and two hydroxyl groups, and choline, both of which are united to the phosphoric acid by ester linkages. It contains one fatty acid ordinarily the saturated lignoceric ( $\text{C}_{24}\text{H}_{48}\text{O}_2$ ), united with the sphingosine as an acid amide, and often another fatty acid united by an ester linkage with the other hydroxyl

group. The fact that sphingomyelin sometimes contains two fatty acids and sometimes only one<sup>5</sup> indicates that it may be of importance in the transport of fatty acids. The fact that the fatty acid in ester linkage may be detached by alkaline hydrolysis or by lipases, while the amide linked fatty acid is not affected is of unknown significance. Fragments of sphingomyelin, e.g. lignoceryl sphingosine, were found by Thudichum in brain and later by others in liver,<sup>6</sup> and sphingosine phosphoric acid choline has been reported in kidney.

A significant difference between the phospholipids and the fats is that the phospholipids contain groups which have a strong affinity for water (phosphoric acid and bases) which render the phospholipids miscible with if not actually soluble in water. The phospholipids thereby provide a physical link between the water insoluble fats and cholesterol on the one hand and the tissues and fluids of the animal body which are either water soluble or mix readily with water. Phospholipids and cholesterol are found in cell walls and membranes and because they are intermediate in properties between the water insoluble fats and the watery environment, undoubtedly serve to regulate the passage of water and water soluble material as well as to facilitate the passage of fat in and out of such cells as those of the intestinal epithelium, the liver cells and the cells of the fat stores. In the intestine this passage appears to be brought about by processes of hydrolysis and resynthesis in which the phospholipids take part, and the same may be true in the case of other cells. One of the impressive phenomena of cellular processes in general is the ease with which hydrolysis and recombination take place. Lecithin and sphingomyelin are nearly neutral substances, for although they contain strong acidic and basic groups these appear to be internally compensated either by union of the opposing groups with loss of water or by the zwitterion form. Cephalin, on the other hand, may be titrated as a monobasic acid, since the bases which it contains, aminoethyl alcohol or serine, are too weak to interfere with the titration of the strongly acidic third hydrogen of the phosphoric acid. Its acidic character gives it the power to combine with the basic groups of proteins and with metals, a fact which may explain its importance in such processes as blood coagulation. The fact that cephalin sometimes contains serine and sometimes the decarboxylated base (aminoethyl alcohol) may explain the fact that when it is too highly purified it is no longer effective in blood coagulation.

Lecithin and cephalin exist in living organisms almost entirely in the "complete" form, i.e., have their full complement of fatty acids and base. Under certain circumstances they may lose one fatty acid becoming lysolecithins and lysocephalins, or they may lose the base, becoming phosphatidic acids. Lysolecithin and lysocephalin are highly dangerous substances because, as their names indicate, they bring about extensive lysis and destruction not only of red blood cells but of tissue cells as well. The increased affinity for water which the loss of one fatty acid confers makes them excellent wetting agents with the result that, entering the cell wall they upset the water balance between cell and fluid, causing swelling and bursting of the cells. Much of the destructive power of some snake venoms is due

\* MacLachlan, P. L., Hodge, H. C., Bloor, W. R., Welch, E. A., Truax, F. L., and Taylor, J. D., *Lipids of the Fasting Mouse. II. The Fat to Water Relation and the Fractionation of the Liver Phospholipid*, J. Biol. Chem. **143**, 473 (Apr.) 1942.

5 Reichel, M., and Thannhauser, S. J., *Studies on Animal Lipids. VII. The Synthesis of Lignoceryl-sphingosine Fatty Acid Esters (Sphingosin-Fats) and Sphingosine Amides (Ceramide)*, J. Biol. Chem. **133**, 15 (Aug.) 1940.

6 Thannhauser, S. J., and Frankel, E., *Ueber das Lignoceryl-sphingosin. II. Zur Kenntnis des sogenannten Unverseifbaren der Saugerleber*, Ztschr. f. physiol. Chem. **203**, 183, 1931.

to the fact that they contain an enzyme which produces these lyso compounds. Phosphatidic acid is not known to occur in animals but is found in plant leaves.<sup>7</sup>

Sphingomyelin may take on an extra fatty acid in ester combination at its second hydroxyl group<sup>8</sup> and, since this acid has been found to be one of the common fatty acids (palmitic), it seems likely that sphingomyelin takes a more active part than has been supposed in the processes of fat metabolism.

Lecithin and cephalin in the living organism appear to be very labile substances, exchanging their fatty acids and their phosphoric acid with similar materials coming in with the food. The exchange of fatty acids takes place rapidly in the intestinal epithelium, in fact, it appears that this passage of fatty acids into and out of the framework of the epithelial phospholipids is the method or an important method of fatty acid absorption. Phosphoric acid of the food also has been shown to exchange with the phosphoric acid of the cellular phospholipid. These exchanges have been satisfactorily demonstrated by the modern use of labeled or tagged fatty acids and phosphorus as food. The fatty acids used were those of cod liver oil and elaidin by Sinclair,<sup>9</sup> the latter prepared by treatment of ordinary olive oil with nitrous acid. The phosphorus used was the P<sup>32</sup> isotope, which is radioactive and has been used as a tracer substance in fat metabolism by several investigators, notably Chaikoff and his associates,<sup>10</sup> and in this laboratory by Haven.<sup>11</sup> Other labeled fatty acids which are satisfactory are those containing conjugated double bonds, either natural as in tung oil or artificial as produced by prolonged saponification of corn oil. These have been used by Buri and his associates.<sup>12</sup>

Rapid exchanges were found also in the lipids of liver in the case of both fatty acids and phosphoric acid and considerably less rapid in muscle and most other tissues. Brain, nerve tissue and testicle have a very slow exchange. The significance of these exchanges in the tissues is not yet understood, but they emphasize the fact that the fatty acid compounds in tissues are quite labile, giving up or taking on new units according to the supply from the food. This conception of ever labile compounds has been found to hold also for the body proteins<sup>13</sup> and is compatible with the fact that chemical processes in the animal body must be carried on without the usual laboratory aids in bringing about chemical changes, i. e., heat, strong acids, bases or other strong reagents. The warm blooded animal body is a well regulated thermostat kept at about 37 C and likely to be severely damaged by temperatures much below and especially much above that "normal" level. The body fluids are very nearly

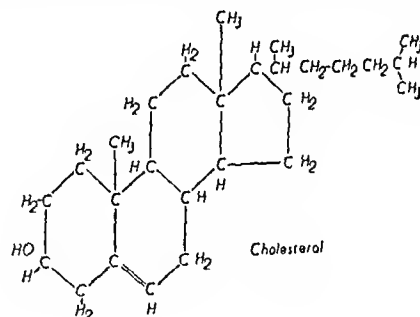
neutral in reaction and are similarly regulated about the neutral point. Close regulation extends also to concentration of the various bodily constituents and to the balance between fluids inside and outside the cell. Consequently the body components must be such as can undergo fundamental transformations readily under narrowly limited conditions.

Although free exchange has been established of the various constituents of the phospholipids (at least of lecithin and cephalin) with the incoming ones from the food, certain preferences have been established. Thus Sinclair<sup>14</sup> found that, although the fatty acid constituents of the phospholipids of the intestinal mucosa, liver and muscles changed in response to the fatty acids of the food, the more highly unsaturated fatty acids of cod liver oil were taken up more rapidly and retained more tenaciously than other fatty acids. The special desirability of highly unsaturated acids as phospholipid constituents fits in with other findings regarding the tissue phospholipids—their ready oxidizability in air and hence the difficulty of preparing them in even approximately pure form.

The need of the organism for the more highly unsaturated fatty acids finds expression in the fat deficiency disease which develops in experimental animals as the result of the lack of certain necessary fatty acids in the diet<sup>15</sup> and is cured by the addition to the diet of these acids or acids from which the essential ones can be made. MacLean and her associates<sup>16</sup> have suggested that the essential unsaturated acid is arachidonic (C<sub>20</sub>H<sub>32</sub>O<sub>2</sub>) a four double bond acid which the organism can manufacture from those acids, linoleic and linolenic, which cure the fat deficiency disease.

#### CHOLESTEROL AND CHOLESTEROL ESTERS

Cholesterol (C<sub>27</sub>H<sub>46</sub>OH) has the formula shown



It is a member of the large group known as sterols and is part of a still larger group known as the steroids or sterids. Also members of this group and chemically closely related to cholesterol are the bile acids, the sex hormones and substances occurring as glycosides in such compounds as digitalis and toad poisons. Whether cholesterol can be changed into these important substances or has any physiologic relation to them has not been shown. Cholesterol is connected with the fats in their role in the animal organism because it always occurs along with them and combines with the fatty acids to form the cholesterol esters. The cholesterol esters occur normally in notable amounts in blood plasma and the adrenal cortex, but in almost

7 Channon H. J. and Chibnall A. C. The Ether Soluble Substances of Cabbage Leaf Cytoplasm. IV. Further Observations on Diglyceridephosphoric Acid, *Biochem. J.* **21** 1112 (1927).

8 Thannhauser S. J. and Reichel M. Studies on Animal Lipids. XVI. The Occurrence of Sphingomyelin as a Mixture of Sphingomyelin Fatty Acid Ester and Free Sphingomyelin Demonstrated by Enzymatic Hydrolysis and Mild Saponification, *J. Biol. Chem.* **135** 1 (Aug.) 1940.

9 Sinclair R. G. The Metabolism of the Phospholipids. VIII. The Passage of Elaidic Acid into Tissue Phospholipids. Evidence of the Intermediary Role of Liver Phospholipid in Fat Metabolism, *J. Biol. Chem.* **111** 515 (Oct.) 1935.

10 Perlman, I. Ruben S. and Chaikoff I. L. Radioactive Phosphorus as an Indicator of Phospholipid Metabolism. I. The Rate of Formation and Destruction of Phospholipids in the Fasting Rat, *J. Biol. Chem.* **122** 169 (Dec.) 1937.

11 Haven F. L. The Rate of Turnover of the Lecithins and Cephalins of Carcinoma 256 as Measured by Radioactive Phosphorus, *J. Nat. Cancer Inst.* **1** 205 (Oct.) 1940.

12 Barnes R. H. Miller E. S. and Burr G. O. The Absorption and Transport of Fatty Acids Across the Intestinal Mucosa, *J. Biol. Chem.* **140** 233 (July) 1941.

13 Schoenheimer R. and Rittenberg D. Studies in Protein Metabolism. X. The Metabolic Activity of Body Proteins Investigated with 1-(—) Leucine Containing Two Isotopes, *J. Biol. Chem.* **130** 703 (Oct.) 1939.

14 Sinclair R. G. The Metabolism of the Phospholipids. I. The Relationship Between the Amount of Fat Ingested and the Degree of Unsaturation of the Phospholipids and Neutral Fat in the Tissue, *Rat J. Biol. Chem.* **96** 103 (April) 1932.

15 Burr G. O. and Burr Mildred M. A New Disease Produced by the Rigid Exclusion of Fat from the Diet, *J. Biol. Chem.* **82** 345 (May) 1929.

16 Hume Eleanor M. Nunn L. C. A. Smedley M. L. Smith Hannah H. Fat Deficiency Disease of Rats. I. Curative Potencies of Methyl Linoleate and Methyl Arachidate. Note on the Action of the Methyl Esters of Fatty Acids, *Oil Biochem. J.* **34** 879 (June) 1940.

conditions they are found in deposits in various parts of the animal body—in the liver in fatty livers especially when caused by cholesterol feedings in the walls of diseased arteries either as mushy deposits (atherosclerosis) or in the actually hardened arteries<sup>17</sup> and in gallstones. Cholesterol and cholesterol esters are among the lipids present in the deposits of Niemann-Pick and Schuller-Christian diseases and in the blood and skin and joint nodules of essential hypercholesterolemia. Whether the cholesterol esters of these deposits represent normal stages in the metabolism of the fats or whether they represent a mechanism for the disposal of cholesterol or unusable fatty acids remains unsettled.

The fact that the cholesterol esters of the blood plasma constitute from 60 to 70 per cent of the total plasma cholesterol and the fact that the cholesterol absorbed through the intestine is esterified with the absorbed fatty acids to about the same extent<sup>18</sup> indicate that it is concerned with the transport if not the metabolism of the fatty acids. Recent work<sup>19</sup> as well as older work<sup>20</sup> indicates that the fatty acids in combination with the cholesterol are relatively highly unsaturated (average about two double bonds) which leads to the belief that the cholesterol combination has to do mainly with the more unsaturated acids. The presence of cholesterol esterases in blood and tissues is the basis for Sperry and Stoyanoff's<sup>21</sup> conception that since cholesterol esters exist in the blood but not in normal tissues, these enzymes are responsible both for the cholesterol-cholesterol ester equilibrium in the blood and also for the breaking up of the ester in its passage into the tissues.

Animals vary a good deal in their ability to absorb and metabolize cholesterol. Herbivorous animals such as the rabbit absorb it slowly and, having absorbed it, have difficulty in disposing of it. In these animals it raises the blood cholesterol and is deposited in characteristic fashion in arterial walls and other places. In omnivorous or carnivorous animals such as the human being and the dog, moderate feeding of cholesterol has no effect on the blood cholesterol nor has it been shown to have any effect on the arterial walls. Gallstone formation has also been shown to be independent of the cholesterol level in the diet. The reason for the lack of effect of dietary cholesterol in omnivorous and carnivorous animals lies in their ability to excrete the excess by way of the intestine. Animals can oxidize cholesterol but slowly. Normally the excretory mechanism is adequate to keep the body in balance as regards cholesterol, but under some circumstances it can be overloaded, with the result that the level of blood cholesterol rises. It has been shown that animals can manufacture cholesterol as needed from compounds of relatively small molecular size.<sup>22</sup>

Cholesterol is confined to the animal kingdom. In plants and bacteria there are other but closely related sterols which presumably have a similar function in their life processes. All available evidence indicates

that animals cannot use these sterols in place of cholesterol, in fact cannot absorb them from the alimentary tract.

With the exception of the adrenals the cholesterol is normally present in the cells and tissues almost entirely in the free form, while in the blood plasma it is about two-thirds combined with fatty acids as esters. Various figures are available regarding the content of cholesterol in normal human blood the differences being due to a number of causes. Differences in analytic method will explain some of the divergence—for example digitonin precipitation method always gives lower results than the colorimetric method based on the Liebermann-Burchard reaction. Since even the digitonin method is not specific for cholesterol, it seems likely that true cholesterol values have not yet been found. The relative values reported are, however, probably as useful for most purposes as absolute values.

Diet undoubtedly plays a considerable role in blood cholesterol values, especially in herbivorous animals, although moderate effects are demonstrable in omnivorous and carnivorous animals as well.

The thyroid secretion appears to have an effect on the blood cholesterol level. Hyperthyroidism lowers blood cholesterol as though the more intense metabolism in this condition resulted in a more complete combustion, while in hypothyroidism the blood cholesterol level is higher. Since all workers have not obtained pronounced differences, the thyroid effect should be regarded as probable but not invariable.

In the variety of nephritis commonly called nephrosis, the blood cholesterol values may reach very high levels, five or six times the normal, and are accompanied by fatty (cholesterol ester) deposits in the kidneys. The reason for the high values is unknown.

In diabetes before the insulin era cholesterol and fat values in the blood were often very high, but with insulin treatment and inclusion of carbohydrate in the diet these high values are exceptional. The earlier values were undoubtedly due to the unbalanced, excessively high fat diet.

Essential hypercholesterolemia in human beings appears to be analogous to the state of affairs found in normal rabbits—a very low ability to destroy or excrete cholesterol. The result is that the cholesterol of animal food accumulates in the blood, resulting in excessive values and in deposits of cholesterol similar to the tophi of gout in various places in the body such as the joints and tendons. The symptoms are relieved by giving the patient a vegetable diet (plant sterols not being absorbed), but the disappearance of cholesterol from the nodules is a very slow process.

Cholesterol mostly in the free form, is found in all bodily tissues being especially abundant in the adrenals (1.5 per cent, mostly as ester), brain (1 to 1.5 per cent, all free), liver (0.3 per cent) and blood (about 0.2 per cent, two thirds as ester). The cholesterol content of muscle varies with the type of muscle, with the species and with activity. Smooth muscle has the highest content (0.18 to 0.2 per cent moist weight), ventricle muscle (0.14 to 0.2 per cent moist weight) and skeletal (0.07 to 0.09 per cent moist weight).

Hen's egg yolk contains about 1.5 per cent of cholesterol, which would amount to about 0.3 Gm. per egg. Milk contains about 0.02 per cent, amounting to about 0.2 Gm. per quart.

The human being loses by the feces about 1 Gm. of sterol daily, most of which arises in the food either

17 Schonheimer R. Zur Chemie der gesunden und der atherosklerotischen Aorta. I. Ueber die quantitativen Verhältnisse des Cholesterins und der Cholesterinester. *Ztschr. f. physiol. Chem.* **160**: 61 (Oct.) 1926.

18 Mueller J. H. The Assimilation of Cholesterol and Its Esters. *J. Biol. Chem.* **22**: 1 1915.

19 Kelsey F. E. and Longenecker H. E. Distribution and Characterization of Beef Plasma Fatty Acids. *J. Biol. Chem.* **139**: 727 (June) 1941.

20 Bloor W. R. The Fatty Acids of Blood Plasma. II. The Distribution of the Unsaturated Acids. *J. Biol. Chem.* **59**: 543 (April) 1924.

21 Sperry W. M. and Stoyanoff V. A. The Enzymatic Synthesis and Hydrolysis of Cholesterol Esters in Blood Serum. *J. Biol. Chem.* **126**: 77 (Nov.) 1938.

22 Schoenheimer R. and Breusch F. Synthesis and Destruction of Cholesterol in the Organism. *J. Biol. Chem.* **103**: 439 (Dec.) 1933.

as cholesterol in animal food or as unabsorbed sterols in the vegetable part of the diet

In most body tissues and fluids there is a well defined balance or ratio between the phospholipid and cholesterol. This ratio varies for different tissues but is fairly constant and characteristic for a single tissue.

In the accompanying table the phospholipid content and the phospholipid/cholesterol ratios are arranged in the order of magnitude. As may be seen, there is almost a reversal in the relative position of the brain and the muscle in the two columns of the table. Brain, which has the highest phospholipid, has the lowest phospholipid/cholesterol ratio, owing to its high cholesterol content, while voluntary muscle, which has the lowest phospholipid content, has nearly the highest phospholipid/cholesterol ratio, owing to its still lower cholesterol content. The position of the other items in the table is practically the same in the two columns. Among the muscles the ratios for skeletal muscle and heart are the same (14 to 16), while for smooth muscle the ratio is 4, owing to the much higher content of cholesterol, the phospholipid value being about the same as in skeletal muscle. The high cholesterol is thought to be related to the automatic character of the muscle. Smooth muscle contracts regularly independently of

*Phospholipid/Cholesterol Ratios*

| Phospholipid Content<br>% Moist Weight |         | Phospholipid/Cholesterol<br>Ratio |     |
|--|---------|-----------------------------------|-----|
| Brain                                  | 4.0     | Liver                             | 18  |
| Liver                                  | 3.0     | Voluntary muscle                  | 16  |
| Heart                                  | 1.8     | Heart                             | 16  |
| Kidney                                 | 1.4     | Kidney                            | 11  |
| Lung                                   | 1.2     | Lung                              | 6   |
| Serum                                  | 0.2     | Serum                             | 2.5 |
| Voluntary muscle                       | 0.5-1.0 | Brain                             | 2.5 |

external nervous stimuli. Heart muscle also contracts automatically and has a high cholesterol content, but in this case the high cholesterol is balanced by a correspondingly high phospholipid content, so that the ratio remains high. Since nervous tissue is present in muscle and contains both phospholipid and cholesterol, it would be desirable to know the extent of its contribution to the phospholipid and cholesterol of the muscle. Up to the present, no means for such a study has been available. There may be some significance in the fact that in smooth muscle, which is spontaneously active, there is nearly the same phospholipid/cholesterol ratio as in brain.

It may be noted here that creatine phosphorus (phosphocreatine) and lipid phosphorus (phospholipid) appear to be in inverse relationship in heart and skeletal muscle. Creatine phosphorus in heart is about 6 mg per hundred grams with lipid phosphorus about 80 mg per hundred grams, while in skeletal muscle the creatine phosphorus is about 60 mg per hundred grams and the lipid phosphorus about 30 mg per hundred grams. As is well known, the phosphocreatine of heart muscle must be promptly renewed if the muscle is to continue active, while skeletal muscle can work for a relatively long time before its phosphocreatine is exhausted. A relation between the high phospholipid content of heart muscle and its low phosphocreatine seems likely, and it is a reasonable assumption that the phospholipid is a readily available source of energy for the renewal of the phosphocreatine and perhaps of supply of phosphorus for the compound.

#### FAT METABOLISM

An understanding of the way in which fat is dealt with in the body is necessary for determining its function in the animal economy. The animal body is about three-fourths water, and practically all reactions which go on in life take place in water solution or in the presence of water. Solubility or miscibility in water is a basic requirement for utilization. Fat and its main constituent, the fatty acids, are insoluble in water, and various devices are employed to make them useful in the watery environment.

The fat entering the organism as food is, like all other foods, first broken up into its constituent parts, the fatty acids and glycerol. This process, hydrolysis, is brought about by enzymes (lipases) supplied mainly in the pancreatic juice. The lipases are in water solution and, since water does not penetrate fat, the action can take place only at the surface of the fat particles. It would therefore be slow. The devices employed to bring the splitting time within the limits allowed for digestion (about four hours) are first to increase greatly the surface, which is done by emulsification. Emulsification is accomplished by the help of a small amount of soap formed by interaction of the alkali of the pancreatic secretion with free fatty acid always present in fat. The soap together with other emulsifying agents—phospholipid (present in the pancreatic juice and the bile) and the bile salts, rapidly break up the mass of fat into minute particles, greatly increasing the surface presented to lipase action. Splitting proceeds rapidly and is speeded up by the prompt removal of the split products by absorption. In the absorption the bile salts are especially useful. The exact mode of action of these substances is not known, but several factors enter and are important. First, they form water soluble, diffusible compounds with the fatty acids. Second, they are excellent wetting agents and penetrate easily into the complicated absorbing surface. They have an affinity both for fatty acids and the watery absorbing surfaces and in this way carry the water insoluble fatty acids into close contact with and eventually through the walls of the epithelial cells. The water soluble form necessary for the absorption of the fatty acids is thus provided by the bile salt combination. Another water soluble form of the fatty acid is the sodium salt called soap. The importance of soap in fat absorption has been a matter of dispute for many years and is now recognized as secondary. The reaction of the intestinal contents is generally slightly on the acid side of neutrality and, under these circumstances, soap if formed would soon be broken up again. It has been found that soap in any considerable concentration is irritating and destructive to the intestine. It is apparently useful in the first stages of fat metabolism, emulsion formation and hydrolysis, after which the bile salts become the major agent in absorption. During its stay in the epithelial cells the absorbed fatty acid is recombined into fat before being passed out of the cells into the collecting system, which in the case of the fats is the lymph. A number of factors appear to be involved in this resynthesis. Sinclair<sup>23</sup> showed by the use of fats of pronounced character, coconut and cod liver oils, that the phospholipids of the epithelium were involved, since the newly absorbed fatty acids were found in the epithelial phospholipids in amounts sufficient to indicate that most or all

23 Sinclair, R. G. The Role of the Phospholipids of the Intestinal Mucosa in Fat Absorption with Additional Data on the Phospholipids of the Liver and Smooth and Skeletal Muscle, *J. Biol. Chem.* 92: 117, 1929.



the absorbed fatty acids passed into the framework of the intestinal phospholipids. These therefore constitute a stage in the absorption process. The resynthesized fat appearing in the thoracic duct is generally not the same as the absorbed fat but differs from it in degree of unsaturation, melting point and mean molecular weight of the fatty acids. These differences seem to mean either that the degree of unsaturation is adjusted (up or down) in the epithelium or that there is a mixing of the absorbed fat with fat brought from nearby depots. There appears to be an attempt to adjust the melting point of the incoming fat to a point near to body temperature since high melting fat when fed appears in the chyle with a considerably lower melting point, and low melting fat has its melting point adjusted upward.<sup>24</sup> That there is a dilution of absorbed fat with body fat appears probable from recent work.<sup>25</sup> As to the fate of the absorbed fat, the belief has always been that it passes into the lymph system and enters the blood stream as fat via the thoracic duct. All efforts to demonstrate other paths of absorption e. g. the blood stream via the portal system, have so far been unsuccessful. On the other hand, it has never been demonstrated that all the absorbed fat passes into the blood by way of the thoracic duct, in fact, recent attempts to recover absorbed fat from the thoracic duct have given remarkably small returns.<sup>25</sup> As noted earlier in the discussion, fat is believed to be hydrolyzed and then absorbed as fatty acid and glycerol but the possibility of absorption in the unhydrolyzed state has never been entirely eliminated. Furthermore, the manner of passage of the resynthesized fat out of the epithelial cells and into the lacteals of the villi is not known nor is the method of passage out of the blood into the storage and tissue cells any better understood. The best explanation of the latter two processes, and of the absorption of unsplit fat if any is absorbed, is that the fat passes the cell membrane by solution in it, as in the case of water soluble molecules, the phospholipid of the membrane aiding in the process.

A considerable portion of the absorbed fat appears promptly in the liver, which is for fat, as it is for other foods, a place of temporary storage for excess food which would otherwise flood the organism and probably be wasted either by unnecessary combustion or by excretion. Of the fat thus mobilized to the liver a considerable portion, perhaps all of it, is changed to phospholipid and then probably a large percentage is discharged into the blood and distributed to other tissues. The change of fat to phospholipid in the liver appears to be a necessary step for its later use. If formation of phospholipid is prevented there is an accumulation of fat, which in extreme instances may amount to half the liver weight and which eventually leads to death as the result of interference with normal liver function. The main cause of the fat accumulation has been shown to be a lack of the base choline, a necessary constituent of lecithin, since the fatty liver may be prevented and cured by the administration of choline. When choline or its "makings" are lacking, lecithin cannot be formed and the fat accumulates. The story is not quite as simple as that because of the involvement of other factors. For example, there is always some cholesterol ester present in the accumulated fat, and the amount is larger when there is much

cholesterol in the diet. The formation of cholesterol esters with the fatty acids and their storage appears to be one of the means used by the organism for disposing of excess cholesterol as well as excess of certain fatty acids, especially the more highly unsaturated ones.<sup>26</sup> The accumulation of cholesterol esters is always more difficult to clear out of the liver than the fat. Instead of choline, substances which supply the material for making choline are effective in curing the fatty liver. Certain proteins, casein among them, are effective and the constituent of casein mainly responsible has been shown to be the amino acid methionine, of which the methyl group is the important part (there being three methyl groups in choline).

The fate of the phospholipid formed in the liver and hence the fate of the fat from which it was formed is not known. The use of tracer substances has not given clear answers, since their use has shown, along with pertinent facts, that constituents of living tissues are in a continuous state of flux. In the proteins, whole sections, single amino acids or parts of amino acids may be taken out and replaced by new ones without the chemical composition of the protein being appreciably changed.<sup>27</sup> Similarly, in the case of the phospholipids the phosphorus and the fatty acids have been shown to be replaceable by similar substances in the food. Probably choline and glycerin are also replaceable, so that the finding of a phospholipid in muscle which has the same labeled fatty acid or phosphorus which was found earlier in the liver need not mean that the liver phospholipid has been transferred to the muscle, although it may have been.

A second function of the liver in fatty acid metabolism which has been recently shown to be important and perhaps essential is its ability to break the long carbon chains of the fatty acids into four carbon fragments which appear sometimes as acetoacetic acid ( $\text{CH}_3\text{COCH}_2\text{COOH}$ ), sometimes as beta-hydroxybutyric acid ( $\text{CH}_3\text{CHOHCH}_2\text{COOH}$ ) and sometimes as acetone ( $\text{CH}_3\text{COCH}_3$ ). These substances, known as acetone bodies or ketone bodies, have been known for a long time but have been regarded as dangerous by-products in fatty acid metabolism, dangerous because they are fairly strong acids and use up significant amounts of the metallic bases of the body for their neutralization and excretion. They appear in the blood and urine of human beings and some other animals when a large proportion of the energy is supplied by fat as in starvation or in untreated diabetes mellitus. They were considered to be the partially oxidized last four carbon atoms in the fatty acid chain, which were what was left after successive  $\beta$  oxidation and which for some unexplained reason were unoxidizable unless carbohydrate was being burned at the same time ("fats can burn only in the fire of the carbohydrates"). Work in the last ten years (summarized by Stadie and his associates<sup>27</sup>) has shown (a) that these substances are normally formed from fat in large amounts by the liver and to a considerable extent by the kidney, more than ten times the amount which appears in the urine, (b) that they are burned by muscle and other tissues, which however cannot form them, and (c) that they may supply most of the energy needed by the heart and presumably other tissues. The demonstration that these ketone acids can be formed and used by normal tissues in amounts large enough to

24 Bloor W. R. On Fat Absorption. III. Changes in Fat During Absorption. *J. Biol. Chem.* **16**: 517, 1913-1914.

25 Little J. M. and Robinson C. S. The Translocation of Absorbed Lipids. *Am. J. Physiol.* **134**: 773 (Nov.) 1941.

26 Kelsey and Longenecker.<sup>26</sup> Bloor.<sup>27</sup>

27 Stadie W. C., Zapp J. A., Jr. and Lukens F. D. W. The Effect of Insulin on the Ketone Metabolism of Normal and Diabetic Cats. *J. Biol. Chem.* **132**: 423 (Jan.) 1940.



account for the total amount of fat metabolized puts an entirely new face on their importance and use in the organism, raising them from the status of harmful and occasional accidents to that of regular stages in fatty acid breakdown.

In many ways these substances are analogous to lactic acid which appears in carbohydrate breakdown. They appear in excess in blood and urine whenever unusual pressure is put on the organism to burn fat, just as lactic acid appears in excessive amounts in blood, urine and sweat when unusual pressure is put on the carbohydrate burning mechanism, as in heavy muscular work. They are relatively strong acids, call for neutralization to about the same extent, and have the same or only slightly greater potential menace to the state of neutrality in the organism as lactic acid. In their formation from fatty acids there is considerable energy loss just as there is in the change from glycogen or *d*-glucose to lactic acid. The loss is probably much greater in the case of the ketone acids because it is due to oxidation while the diminished energy value of lactic acid is due to internal rearrangement in the breaking of the glucose molecule. The liberation of energy in the change from glycogen to lactic acid is put to good use in bringing about the recovery of the contraction mechanism of the muscle. No consideration has as yet been given to the much greater liberation of energy in the change from a  $C_{16}$  fatty acid to four 4 carbon ketone acids, but there is little doubt that it could be and probably is put to similar uses. In the changes involved in the formation of lactic acid from glycogen or *d*-glucose phosphoric acid figures largely. The participation of phosphoric acid in the metabolism of the fatty acids has not been demonstrated beyond the first stage, that of phospholipid formation from fat, but it seems probable that much if not all of the metabolized fat does go through the phospholipid stage. As has already been noted, not much is known about the fate of the phospholipid formed in the liver, but since the ketone body acids are also formed there the obvious next step would be the formation of ketone acids from the fatty acids of the phospholipid and, if the analogy with lactic acid holds, they are formed by way of intermediate phosphorylated compounds. Nothing has yet been done to elucidate these later stages of fatty acid metabolism.

#### NUTRITIONAL VALUE OF FATS

Very little need be said about the relative nutritional value of fats and hence of availability and distribution for the reason that most of the ordinary food fats of both plant and animal origin consist mainly of the same few fatty acids—oleic, palmitic and stearic—in varying proportions, and it is to be expected that they would not differ much in digestibility or in metabolic usefulness. This is found in general to be the fact.<sup>28</sup> When the melting point is high digestion is slower and there is a tendency for unabsorbed fat to appear in the feces. The rate of absorption of various fats was found by one group of investigators<sup>29</sup> to be in the following order: linseed (best), then olive, whale, soybean, peanut, lard (rancid), cottonseed, cocoa butter, coconut and palm, but all were well utilized. Fats with a melting point above 37.8 C. were slowly absorbed. Laxative effects were noticed in only two

fats of a series of sixty-three fats fed at a 50-115 Gm level to human subjects. These were cocoa butter and goose fat.<sup>28</sup> At 140 Gm a day, beef fat was laxative. Hydrogenated oils, as long as the melting point remains below 37.8 C., are as well absorbed as the natural oils.

Natural fats carry in solution a number of non-fat substances some of which, for example, the fat soluble vitamins, are useful and desirable but have little importance in the metabolism of fat as such. Other fat soluble substances such as the sterols may in some cases be useful, as for example cholesterol in animal fats, while the sterols of plant fats are not useful because they are not absorbed by animals. This fact is made use of in treating certain individuals who have difficulty in excreting cholesterol, a shift from an animal to a plant diet stopping the cholesterol inflow.

Milk fat or butter contains, in addition to the common fatty acids, oleic, palmitic and stearic, considerable amounts of short chain fatty acids from butyric ( $C_4$ ) up to  $C_8$  which are presumably especially useful to the young animal. Milk fat contains also small amounts of cholesterol and phospholipid and varying amounts of the fat soluble vitamins or their mother substances. Egg fat is especially rich in phospholipid, cholesterol and vitamins. The fatty acids in both milk fat and egg fat are not especially notable since they originate largely from the food of the mother.

Aside from those well known dietary factors or vitamins which are essential for the general well-being of the living organism, two others have been found to be essential for the proper carrying on of fat metabolism. These are choline, the lack of which causes fatty livers and eventually death through liver failure, and certain "essential" fatty acids the nature of which is not entirely established. One, and perhaps the main one of these is arachidonic acid, although linoleic and linolenic acids are effective in curing the fat deficiency disease.<sup>30</sup> They appear to do so by transformation into arachidonic acid.

Since choline or its "makings" are essential for the necessary phospholipid stage in fat metabolism, materials for its synthesis must be supplied by the food. Choline itself is found in foods containing lecithin or sphingomyelin, such as brain, egg yolk, glandular products, meat, especially heart muscle and to a less extent in other animal foods. It may be synthesized by the organism. In its construction the methyl groups appear to be the critical constituents and there are not many sources of these. The most important one is the amino acid methionine, methyl homocystein or  $\alpha$ -amino methylthiol-n-butyric acid, which readily yields its methyl group in a variety of reactions in the animal body.<sup>30</sup> Methionine is supplied in food proteins, and of these casein has been found to be a satisfactory source. Undoubtedly other "good" proteins or mixtures of proteins would provide an adequate supply of methionine.

The essential fatty acids, especially linoleic, are widely distributed in both plant and animal fats and are found also in combination in starches, so that their supply in adequate amounts needs no special consideration. These acids are low in amount or absent in certain tropical seed fats, as for example coconut oil, which is used in making oleomargarine, and this fact has been urged as an objection to the use of oleomargarine instead of butter. However, commercial oleomargarine generally contains a considerable proportion of a

<sup>28</sup> Langworthy, C. F. The Digestibility of Fats. *J. Indust. & Engin. Chem.* 15: 276 (March) 1923. Holmes, A. D. Digestibility of Fats Taken from Different Parts of the Animal Body. *J. Oil & Fat Ind.* 3: 11 (Jan.) 1926.

<sup>29</sup> Steenbock, Harry, Irwin, Margaret H., and Weber, Janet. The Comparative Rate of Absorption of Different Fats. *J. Nutrition* 12: 103 (July) 1936.

<sup>30</sup> du Vigneaud, Vincent, Cohn, Mildred, Chandler, J. J., J. R., and Simmonds, Sofia. The Utilization of the Methyl Group of Methionine in the Biological Synthesis of Choline and Serine. *J. Biol. Chem.* 140: 625 (Aug.) 1941.

fat or even butter and most diets contain enough other sources of these acids to make up for any deficiency. On the other hand marine animal fats contain large amounts of the essential fatty acids.

As sources of the essential fatty acids may be listed brain organs and tissues of animals which are not deficient in these acids and several natural fats generally with a high iodine number (degree of unsaturation) such as cod liver oil, corn and cotton oil, butter and egg yolk (provided the source animals are not fat deficient). Linseed oil is rich in the necessary acids but is unpalatable unless specially treated. In fact most of the natural oils (liquid fats) will yield enough of the required essentials if taken in ordinary amounts.

## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS COFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADJUNCTION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

ALBERT E. SMITH, M.D., Acting Secretary

**DIGITALINE NATIVELLE**—Digitaline Cristallisee (Nativelle)—A glucosidal substance derived from the dried leaves of *Digitalis purpurea*, first prepared by Nativelle (*J. Pharm. Chem.* 9 225, 1869). The empiric formula of digitaline Nativelle closely approximates  $C_{44}H_{64}O_{17}$ . It is standardized by the intravenous cat method of Hatcher and Brody. 0.42 mg. equals 1 cat unit but the therapeutic dose is much less than that of digitalis in terms of cat units.

**Actions and Uses**—The action of digitaline Nativelle is like that of digitalis but its cardiac action is more persistent than that of digitalis.

**Dosage**—The full therapeutic effects are induced in a patient who has not had digitalis during the previous three weeks by the oral administration of a total of from 1.25 to 1.5 mg. of digitaline Nativelle given in fractional doses. This is the therapeutic equivalent of from 13 to 16 Gm. (20 to 25 grains) of digitalis. The total dose is given in fractions of from 0.25 to 0.5 mg., at intervals of from four to six hours. The total daily maintenance dose is from 0.1 to 0.2 mg. Patients may be digitalized by starting with total daily doses of 0.2 mg., such doses usually induce the full therapeutic effects in about one week. The great potency of digitaline Nativelle requires a careful observance of the proper technique of its administration.

Poisoning with digitaline Nativelle requires no treatment except the utmost quiet in bed, with a sedative, such as phenobarbital if necessary to secure rest. The stomach should not be washed unless there is reason to believe that it contains some of the poison but severe and repeated vomiting is a prominent symptom of poisoning with all digitalis bodies.

#### Tests and Standards—

Digitaline Nativelle appears as thin colorless odorless elongated rectangular platelike crystals possessing a bitter taste. It is practically insoluble in water, ether and glycerin, soluble in acetone, chloroform, ethyl alcohol and pyridine. Digitaline Nativelle may sinter at 230°C. and melts finally at from 253 to 263°C.

Digitaline Nativelle dissolves in cold concentrated hydrochloric acid to form a colorless solution but if this solution is heated on a water bath a green color should be obtained.

Dissolve a crystal of digitaline Nativelle in 2 cc. of glacial acetic acid containing a trace of ferric chloride and layer the solution on 2 cc. of concentrated sulfuric acid. A brown color should be produced at the zone of contact of the two liquids. This color gradually changes to green and finally to indigo blue. After half an hour the entire acetic acid layer will become blue.

#### E. FOUGERA AND COMPANY

Digitaline Nativelle (crystals) bulk

Tablets Digitaline Nativelle 0.1 mg. and 0.2 mg.

Solution Digitaline Nativelle, 1:1,000. 10 cc. glass stoppered bottles. Each 1 cc. contains 1 mg. of Digitaline Nativelle in a mixture of alcohol and glycerin.

**THIAMINE HYDROCHLORIDE** (See New and Non-official Remedies, 1941, p. 551)

The following dosage forms have been accepted

NATIONAL DRUG CO., PHILADELPHIA

Tablets Thiamine Hydrochloride 0.1 mg., 1 mg., 3.3 mg. and 6 mg.

Ampuls Solution Thiamine Hydrochloride, 3.3 mg. per cc. 1 cc. and 10 cc.

Ampuls Solution Thiamine Hydrochloride, 10 mg. per cc. 1 cc. and 10 cc.

Solution Thiamine Hydrochloride, 25 mg. per cc. 5 cc. ampul vials.

Solution Thiamine Hydrochloride, 50 mg. per cc. 5 cc. ampul vials.

Solution Thiamine Hydrochloride, 100 mg. per cc. 5 cc. ampul vials.

**DIPHTHERIA TOXOID, ALUM PRECIPITATED (REFINED)** (See New and Nonofficial Remedies, 1941, p. 464)

The following dosage forms have been accepted

NATIONAL DRUG CO., PHILADELPHIA

Refined Diphtheria Toxoid (Alum Precipitated) Marketed in packages of one 10 cc. ampul-vial representing five immunizations. For the two dose immunization treatment it is marketed in packages of one 2 cc. ampul-vial and two 10 cc. ampul-vials representing respectively one and ten immunizations. Contains merthiolate 1:10,000 as a preservative.

**ASCORBIC ACID** (See New and Nonofficial Remedies, 1941, p. 557)

The following dosage forms have been accepted

PARKE, DAVIS & CO., DETROIT

Tablets Ascorbic Acid 100 mg.

Glaseptic Ampoules Solution of Ascorbic Acid 2 cc. Each cubic centimeter contains 50 mg. of ascorbic acid and 0.1 per cent of sodium bisulfite added as a preservative.

**SOLUBLE PENTOBARBITAL** (See New and Non-official Remedies, 1941, p. 136)

The following dosage forms have been accepted

FLINT, EATON & COMPANY, DECATUR, ILL.

Capsules Pentobarbital Sodium 0.032 Gm. ( $\frac{1}{2}$  grain), 0.046 Gm. ( $\frac{3}{4}$  grain), 0.065 Gm. (1 grain), and 0.1 Gm. ( $1\frac{1}{2}$  grains).

**MENADIONE** (See THE JOURNAL, Jan. 17, 1941, p. 226)

The following dosage form has been accepted

S. M. A. CORPORATION, CHICAGO

Tablets Menadione 1 mg.

**RIBOFLAVIN** (See New and Nonofficial Remedies, 1941, p. 553)

The following additional dosage form has been accepted

GEORGE A. BREON & CO., INC., KANSAS CITY, MO.

Tablets Riboflavin 5 mg.

**LIVER AND STOMACH PREPARATIONS** (See New and Nonofficial Remedies, 1941, p. 328)

The following dosage form of Extract of Liver U. S. P. has been accepted

ARMOUR LABORATORIES, CHICAGO

Capsules Liver Extract Concentrate 0.5 Gm. in 0.37 Gm. of corn oil. A suspension of extract of liver U. S. P. in corn oil marketed in capsules. Each capsule (0.5 Gm. of extract of liver) represents a potency of  $\frac{1}{10}$  U. S. P. oral unit.

**NICOTINIC ACID AMIDE** (See New and Nonofficial Remedies, 1941, p. 556)

The following product has been accepted

MERCK & CO., INC., RAHWAY, N. J.

Nicotinamide (powder)  $\frac{1}{8}$  ounce, 1 ounce,  $\frac{1}{4}$  pound and 1 pound bottles.

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SATURDAY, JULY 25, 1942

## THE SUPPLY OF PHYSICIANS

As has been indicated previously in *THE JOURNAL*, many of the states have already given to the armed forces almost every physician that can be spared now. Some of the larger states must supply the personnel necessary for the immediate demands. Elsewhere in this issue (p 1029) is notation of the establishment in several states of additional recruiting boards which are designed to aid the work of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians.

The letter circulated by the Procurement and Assignment Service has brought to the headquarters of that organization great numbers of return postal cards which indicate that many physicians have volunteered and are volunteering in response to the latest appeal. Nevertheless there is a distinct disparity between the applications coming through various routes directly to the Office of the Surgeon General of the Army, to the Air Force and to the Navy and the number that ought to be immediately available. Certainly the situation is not satisfactory when the armed forces are without a reserve pool from which to draw for an emergency. Everything possible is being done that can be done to hasten action on the applications of physicians through recruiting boards or directly through the Offices of the Surgeon Generals. The drive must continue, however, until some thousands of doctors have been commissioned who will be available for any contingency that may arise.

Again and again *THE JOURNAL* has pointed out that the needs of the armed forces will require that every physician under 45 years of age and physically fit who has not been stated by his state board of procurement and assignment to be engaged in an essential occupation must be made available to the armed forces. The Selective Service Act makes available to the armed forces every male citizen in the United States under 45 years of age. The physician who waits for the draft to pick him up certainly is in an unenviable light before his profession but even more in his own self respect. Little is to be gained by hesitating or holding back until

the call comes, as it eventually will have to come from the boards of the Selective Service if the needs of the armed forces are not satisfied.

The Procurement and Assignment Service for Physicians, Dentists and Veterinarians was developed to aid the medical profession in determining for itself equitable distribution of medical service during the emergency. By utilizing its facilities, hospitals are being enabled to retain essential members of their staffs, industries are being enabled to retain necessary physicians and medical schools are being enabled to hold a sufficient number of their faculties to continue medical education. Everything possible is being done to enable individual communities to retain enough physicians to provide needed medical services for the civilian population. If, however, the armed forces do not get the medical personnel that they require the civilian population might be compelled to yield physicians who are doing their utmost to maintain civilian health. Let us realize that the winning of this war is the most important single objective ever placed before the medical profession of these United States and give to our nation the same complete, wholehearted, voluntary service on which the nation has learned to depend in the past.

## TOXICITY OF MERCURIAL DIURETICS

Recently a communication<sup>1</sup> was published in *THE JOURNAL* attributing the sudden death of 3 patients with congestive heart failure to the intravenous injection of a mercurial diuretic. The publication of this statement stimulated a review of the toxic manifestations and the fatalities that have been reported in connection with these widely used agents. In this issue of *THE JOURNAL* appear four reports.<sup>2</sup> The completeness with which consideration is given to various phases of the problem lends to this group of papers the aspect of a symposium. They should focus the attention of the medical profession on the need for care in the use of mercurial diuretics.

While the frequency of fatal accidents due to the mercurial itself is probably higher than has been supposed, the mortality attributable to the mercurial diuretics by any mechanism does not appear to be greater than is indeed as great as, that reported for certain other potent drugs which are employed with equal frequency. The mechanism of sudden death in the small proportion of patients in whom the cause could be ascribed to the drug alone is explained by experimental studies on animals.

1. Friedfeld, Louis, Kissin, Milton, Modell, Walter, et al., *Ralph Mercurpurin*, J. A. M. A. 117: 1806 (Nov. 22) 1941.  
2. DeGraff, A. C. and Nadler, J. E., *A Review of the Toxic Manifestations of Mercurial Diuretics in Man*, this issue, p. 1029.  
George, Friedfeld, Louis, Kissin, Milton, Modell, Walter, et al., *Deaths Immediately Following the Intravenous Injection of Mercurpurin*, p. 1004.  
Barker, M. H., *Lindberg, H. A., et al., Sudden Death and Mercurial Diuretic*, p. 1011.  
A. C. and Lehman, R. A., *The Acute Toxicity of Mercurial Diuretics*, p. 998.

either a primary poisoning effect of the mercury on the heart (ventricular fibrillation) or as respiratory failure secondary to the impaired cardiac action which is presumed to lead to anoxia through lowering of the blood pressure. However, in the majority of deaths reported following the use of mercurial diuretics the blame could be placed on the moribund condition of the patient, on digitalis poisoning due to mobilization of that drug in the blood stream from the edematous fluid removed by action of the mercurial, on the depletion of chloride resulting from previous diuresis, leading to oliguria or anuria and to faulty elimination of the diuretic itself or on the presence of kidney impairment sufficient to prevent adequate excretion of the drug or to predispose to such damage by the mercurial. The largest proportion of the fatalities occurred among patients with evident kidney disease in which the use of mercurial diuretics is generally considered to be contraindicated. The comparatively rare idiosyncrasy to mercury compounds has been reported as a cause of death but apparently occurs with no greater frequency than with other drugs in susceptible patients. In the reports appearing elsewhere in this issue of THE JOURNAL it is suggested that the cutaneous eruptions produced by mercurial diuretics are now probably on an allergic basis rather than on the basis of a true mercurial dermatitis, since the latter is said to be no longer observed with the use of the more rapidly excreted theophylline containing mercurials on the market. Emphasis is placed on minor reactions, as well as the rare one suggestive of anaphylactic shock, as they may constitute a warning of more serious reactions if the mercurial agent is not discontinued.

The observations reported also indicate that change in the route of administration may not prevent the danger of accidents. The lack of deaths following the intramuscular or rectal administration of the mercurial may be due to the fact that the intravenous route is by far the one most commonly employed. Studies in animals of the comparative lethal doses of the commonly employed organic mercurial diuretics given at various intervals suggest that the sudden deaths reported in man probably cannot be avoided by slower injection or by dilution of the drug, nor can they be accounted for by the theophylline component or the concomitant administration of other drugs used in heart disease. The clinical observers further suggest that the striking wasting of the body of the edematous patient may account for the deaths on the basis of a relative overdose of mercury although the animal experiments indicate that the size of the dose administered cannot be evaluated as a factor unless death occurs within the same time interval.

The deaths reported should serve to emphasize to the physician the importance of observing the known

precautions in the use of these drugs. The investigators have made a praiseworthy attempt to bring these facts to the attention of the medical profession. As indicated in one of the reports, a possible method of treatment for the cardiac irregularities sometimes induced by the mercurial diuretics is under consideration. Further investigations may conceivably provide a means of eliminating even the danger of fatalities which cannot be avoided by the observance of known contraindications to the use of mercurial diuretics. The reported fatalities and toxic reactions should not discourage the rational use of mercurial diuretics. They should, however, serve as a warning and explanation of what to expect in rare instances or following promiscuous use of such agents.

#### THIAMINE IN THE AMERICAN DIET

In a recent contribution on the thiamine content of the American diet, Williams and his co-workers<sup>1</sup> state that their plan involved an attempt "to formulate a sequence of diets which contain all of the more important foodstuffs of the American dietary in proportions corresponding to the annual per capita consumption of each." Significance is given the conclusions through the use, as the principal basis of computation, of the extensive data of Stiebeling and Phipard<sup>2</sup> on diets of families of employed wage earners and clerical workers in cities. The assay was carried out by a modern chemical method supplemented, when indicated, by animal tests. With a daily intake of 2,500 calories as a basis for computation, the comparative contribution of the various food groups to the energy intake and to the total thiamine consumption is given.

The cereal products account for 47 per cent of the total daily calories and, when the white bread was not fortified with added vitamin, for 24 per cent of the thiamine. The dairy products, providing 18 per cent of the energy, give 21 per cent of the thiamine. Meat, which accounts for 15 per cent of the calories, is responsible for over 26 per cent of the thiamine, and of this total pork provides almost 22 per cent alone. The energy yielded by the vegetables is only 8.8 per cent, but the proportion of the total vitamin B<sub>1</sub> is high, namely 21.5 per cent. The fruits provide 4 per cent of the calories and 9 per cent of the thiamine. Corresponding to the total daily energy intake of 2,500 calories is a total vitamin B<sub>1</sub> intake of about 0.8 milligram.

The Food and Nutrition Board of the National Research Council has given 1.8 mg of thiamine as the daily requirement of the adult. The data of Williams

<sup>1</sup> Lane R. L., John O., Elizabeth and William R. R. J. Nutrition 23: 613 (June) 1942.

<sup>2</sup> Stiebeling H. K. and Phipard E. F. Circular 507 U. S. Dept. Agr. 1939.

and his co-workers indicate that the thiamine content of the average diet, such as was consumed by the middle two thirds or three fourths of the American people prior to the advent of enriched bread, would be considered inadequate at present. If enriched bread replaced the white bread in the diet under consideration, the vitamin B<sub>1</sub> would be raised to an intake of 1.3 milligrams a day, a value approaching a satisfactory level.

The foregoing discussion emphasizes the importance of bread, milk and meat as sources of thiamine in the average American diet. It adds support to various earlier contentions that our national diet is likely to be inadequate in this respect and demonstrates the possibility of bringing the intake of vitamin B<sub>1</sub> into the adequate range through the use of enriched flour.

## Current Comment

### USE OF SACCHARIN FOR SWEETENING

Sugar rationing and new emphasis on weight reduction have doubtless increased the use of saccharin for sweetening purposes. Renewed interest in the possible harmful effect of this substance is an apparent corollary. Earlier investigations of saccharin, however, have failed to reveal dangerous side-actions except from extremely large doses. Likewise the evidence does not reveal any reason why saccharin cannot be used continuously in average sweetening doses for an indefinite period. Many patients have taken saccharin for years without harmful effect.<sup>1</sup>

### DEATH RATE CONTINUES TO DECLINE

Provisional mortality rates issued on July 3 by the Bureau of Census show that there was an actual decline in the number of deaths in the United States in 1941 as compared with the previous year, in spite of an increase in population. The total deaths in 1941 were 1,395,907, which is 21,362 less than the number reported for the registration area in 1940. Since 1933 all states have been included in the registration area, which lends a completeness to these figures that makes them more significant. Although it was generally true, with some important exceptions, that the states included latest were those with higher mortality, which tends to give an unfavorable bias to long time trends based on the registration area, this report shows that the death rate in the states included in this area has declined from 17.2 per thousand of population in 1900 to 10.5 in 1941. The highest death rate, 12.8, in 1941, was in cities of between 10,000 and 100,000 population. In cities of over 100,000 it was 11.7 and in rural districts 9.2. Death rates of less than 9 per thousand were found in Arkansas, North Dakota, South Dakota, Utah, Idaho, Oklahoma, Wyoming and North Carolina. The census

report says of these rates "The differences in crude death rates between states do not necessarily indicate corresponding differences in health conditions. The age, sex and racial composition of the population differ between states, and these factors, among others, affect the crude death rate."

### FIRST AID INSTRUCTORS ASSOCIATION

The members of a class for first aid instructors conducted by the U. S. Bureau of Mines at McPherson, Kan., in 1938 established an organization to promote first aid instruction in the petroleum industry. This organization has now grown into the Munsch National First Aid Instructors Association with chapters in Kansas, Oklahoma, Texas, New Mexico and Arkansas. Additional objects of the organization include the achievement of safety in the petroleum and allied industries, promotion of cooperation among employees and other organizations with similar objectives and dissemination of instruction on first aid and safety. The Bureau of Mines was not able to hold first aid classes among all or even a small percentage of employees in these widely scattered, small plants. The Munsch First Aid Instructors Association has trained six thousand, two hundred and forty employees for three hundred and forty-one companies, which far exceeds the number that the Bureau of Mines can reach under any other plan with the same number of instructors. The association has a national council, which is the governing body, state councils and district chapters. There are no dues. Each member aims to teach a first aid class each year. He organizes his own class regardless of company affiliations. Any person may become a member of the district chapter organization who has a U. S. Bureau of Mines first aid instructors card. The national association has adopted a constitution, insignia, lapel pins and merit bars, and awards in the form of bars have been planned by the national council. The esprit de corps among the members is high. The association has been valuable to its members, to the Bureau of Mines and to the many small oil companies. In some communities the chapters enter into civic and school activities, cooperate with the police in accident prevention programs, and make safety talks in schools and clubs. The members of one chapter built an emergency trail, equipped with first aid supplies and have conducted radio programs in their community in first aid and accident prevention. The instructors have carried out this training without remuneration, and those attending the classes do so at their own expense. Thus the work of the Munsch National First Aid Instructors Association must be limited. The association hopes, however, that the value of its work will be recognized and that donations of funds will be made to the national council. The U. S. Director of Civilian Defense has urged communities to spread knowledge of first aid as far as possible among the people. Last year the American Red Cross had more than thirty-five thousand first aid instructors throughout the country and during the year instructed a million persons in first aid.

<sup>1</sup> Wilcox, R. W. The Therapeutics of Benzodisulphimide, M. Rec. 98:595 (Oct. 9) 1920.



# MEDICINE AND THE WAR

*In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession*

## STATE HOSPITAL OFFICERS APPOINTED

The Medical Division of the Office of Civilian Defense announces the appointment of state hospital officers in coastal states to direct the hospital program of the Emergency Medical Service under the state chiefs of Emergency Medical Service. The following have received full time civil service appointments in the U S Public Health Service for these positions:

California Mr. Thomas I. Clark, executive secretary, California Hospital Association, San Francisco  
Connecticut Mr. William O. Sweeney, administrator, Windham Community Memorial Hospital, Willimantic  
Massachusetts Mr. Oliver Pratt, administrator, Salem Hospital, Salem  
Pennsylvania Major Roger A. Greene, administrator, Pottsville Hospital, Pottsville  
Virginia Mr. M. Haskins Coleman, secretary, Richmond Hospital Service Association, Richmond  
Fourth Civilian Defense Region Mr. John W. Rankin, Durham, North Carolina

The following hospital officers have been appointed consultants in the Public Health Service for part time duty:

Maine Mr. C. K. Lermond, Thomaston  
Maryland and District of Columbia Mr. J. Douglas Colman, executive director, Associated Hospital Service of Baltimore  
New Hampshire Mr. Donald Steele Smith, administrator, Mary Hitchcock Memorial Hospital, Hanover  
New Jersey Dr. Emil O. Frankel, division of statistics and research, State Department of Institutions and Agencies, Trenton  
Oregon Mr. Ralf Couch, chairman, Hospital Service Council, Portland  
Rhode Island Dr. George Matteson, Providence, general surgeon  
Vermont Mr. Laurence Campbell Barre, hospital trustee and a trustee of the New England Hospital Assembly

The duties of these hospital officers will be to survey rural hospital facilities suitable for use as emergency base hospitals, to supervise personnel arrangements for the base hospitals and reception centers for evacuated civilians, to collaborate with state chiefs of the Emergency Medical Service in controlling movements of medical and nursing staffs as well as of casualties in any situation affecting emergency base hospitals and to perfect arrangements for transporting patients evacuated from casualty receiving hospitals.

## RECRUITING BOARDS—SULFANILAMIDE—STUDIES OF WORLD AREAS

War Secretary Stimson told his press conference that every American soldier going into a theater of operations will be provided with a package of 5 Gm. of crystalline sulfanilamide to sprinkle on wounds in addition to twelve sulfanilamide tablets for internal use. He said the Army is increasing the number of medical department officers' recruiting boards to supply the need for additional doctors. Two additional boards have been authorized in New York, Pennsylvania and California and one additional board in Massachusetts, Ohio and Illinois, while one board is functioning in each of the other states. A medical officer from the army air forces has been added to each of the twenty-nine recruiting boards to obtain doctors for the air service and a dental officer has been assigned to each board to assist in obtaining dentists. The recruiting boards may be located through local medical societies or the Surgeon General, Washington, D. C.

The Division of Medical Intelligence, Preventive Medicine Service, Office of the Surgeon General, has prepared a series of studies covering four general world areas on health, sanitation and climatic conditions. These instructions are being issued to military attaches and members of military missions, as well as to medical officers of overseas forces, to protect the health of U. S. soldiers sent to those regions. Subjects treated include water consumption safety precautions, protection against mosquitoes and other insects that carry disease, prevention of diseases indigenous to the various regions, bathing precautions, care

of the skin and feet, selection of suitable clothing, prevention of sunstroke, energy conservation and health maintenance under desert or tropical conditions, prevention of illness from food spoilage or contamination and many other hygienic precautions.

Secretary Stimson said that the Women's Army Auxiliary Corps now has two contract nurses and as the corps increases, female medical officers may be inducted into the corps or will be contracted at the rate of five for every thousand women.

## WIDESPREAD RESPONSE OF PHYSICIANS IN NEW YORK

A survey by the New York State Medical Society made public July 5 covering 98 per cent of the population of the state gave assurance that the medical needs of every community will be protected. The survey disclosed the number of doctors already in active military service and the number of others who have been commissioned and are awaiting orders. The process of obtaining this personnel and at the same time of protecting the local communities offers assurance that the needs of the government will be met. The survey was made by direction of the Council of the New York State Medical Society and was conducted by the Medical Preparedness Committee. The chairman, Dr. Louis H. Bauer, pointed out that the setup under which they are working is for local medical societies to determine who is and who is not essential. Physicians are not taken into the service until released by the community in which they live. The survey showed that a total of 6,000 have already been released by these county committees in addition to those now in active service.

## EMPLOYMENT OF HANDICAPPED WORKERS

Since the establishment of the War Manpower Commission in April, conferences have been held by the U. S. Office of Education, the U. S. Employment Service and the Division of Industrial Hygiene to consider the employment of physically handicapped persons in the war industries. Recommendations have been made to the War Manpower Commission, and a letter to employers calling for review and revision where necessary, of existing physical standards for employment, awaits the signature of the commissioner. The policy enunciated in this letter would require the employment of many thousands of persons with minor or major disabilities and would make the preemployment physical examination an effective tool for the proper placement of all workers.

## FILM STORY ABOUT NAVY PHYSICIAN

According to news reports from Hollywood (Brady Thomas F. New York Times, June 28) the life and recent experiences of Dr. Corydon M. Wassell, naval medical corps, will be used as the basis for a new moving picture. Dr. Wassell it will be recalled, was individually named for his heroic work in the battle of Java in a radio broadcast by President Roosevelt. The movie, it is said, will emphasize Dr. Wassell's work between February 4, the date of the action by the *Marblehead* and the *Houston* and March 13, when he and eight wounded men arrived in Australia on board the last small ship out of Java. It has been announced that the Navy Relief Society has already received a \$50,000 advance against an undisclosed percentage of the gross rentals of the picture.

**MORE NURSES' AIDES NEEDED**

As of June 20, 25,905 nurses' aides have been enrolled toward the goal of 100,000. The Office of Civilian Defense has asked its regional office representatives to work out plans for stimulating the recruitment of nurses' aides to meet war demands. A recent memorandum reveals that some hospitals are reported to be accepting volunteer workers without training and permitting them to carry out many of the tasks usually performed by nurses' aides. Such a practice, it was said, militates against the establishment of a reliable disciplined corps of workers and deters enrolment of nurses' aides.

Nurses' aides are recruited by the American Red Cross in cooperation with the local civilian defense volunteer offices. The training course includes eighty hours of instruction presented in seven weeks, the first half being given in the Red Cross headquarters and the other half in hospitals selected as training centers. Nurses' aides agree to give one hundred fifty hours of service in each calendar year, but, in case of need for war service, they must be prepared to serve locally in emergency for as long as needed. The goal of 100,000 trained nurses' aides must be reached. The medical division of the Office of Civilian Defense declared that in no other branch of service can women be of greater value to the war effort.

**STATE CIVILIAN DEFENSE MEDICAL OFFICIALS COMMISSIONED IN PUBLIC HEALTH SERVICE**

To facilitate the emergency program being developed by the Medical Division of the Office of Civilian Defense and the U S Public Health Service, physicians who are state and deputy state chiefs of Emergency Medical Service in most of the coastal states have been commissioned in the Public Health Service Reserve so that they may exercise both state and federal responsibilities. Where a state chief of Emergency Medical Service is unable to give full time to this activity, his commission is to remain on an inactive status and he is provided with a deputy commissioned in the active reserve who is called immediately to full time service. These officers will have as their first duty the stimulation and guidance of local chiefs of Emergency Medical Service in the organization of casualty receiving hospitals and field casualty services. They will serve also as responsible agents of the states and of the medical division of the Office of Civilian Defense and of the Public Health Service for the organization of emergency base hospitals. These officials will determine, in collaboration with the local military and the state evacuation authorities, the lines of evacuation and means of transport of civilian casualties and other hospitalized persons from local casualty receiving hospitals to emergency base hospitals. These officers also will review and certify bills to be submitted to the Public Health Service for payment for the hospital care of civilian casualties.

As of July 1, the following have been commissioned in the active reserve of the Public Health Service as state or deputy state chiefs of Emergency Medical Service to carry out this program:

Alabama Dr John Newdorp, Montgomery, deputy state chief  
California Dr Charles F Sebastian, Los Angeles, state chief  
Connecticut Dr Ralph E McDonnell, New Haven, deputy state chief  
Florida Dr Gilbert S Osmeup, Orlando, state chief  
Georgia Dr Edwin R Watson, Atlanta, deputy state chief  
Maryland Dr Arthur J Lomas, Baltimore, deputy state chief  
Massachusetts Dr Andre W Reggio, Chestnut Hill, deputy state chief  
New Jersey Dr Gerald W Sinnott, Jersey City, deputy state chief  
North Carolina Dr Sylvester D Crug, Winston Salem, deputy state chief  
Oregon Dr Vernon A Douglas, Salem, state chief  
South Carolina Dr H Grady Cullison, Columbia, deputy state chief  
Washington Dr Arthur E Lewis, Seattle, deputy state chief

In New York Dr Randolph A Wyman, Brooklyn, has been commissioned to serve as deputy city chief.

In certain cases state chiefs on part time duty have been appointed consultants in the Public Health Service. Thus far these include:

New Hampshire Dr Charles H Parsons, Concord  
Delaware Dr Meredith I Samuel, Wilmington  
Virginia Dr Edgar C Harper, Richmond

Mr Lee Mailler, New York, chairman of the State Health Preparedness Commission, under which the Emergency Medical Service of New York State has been developed, has been appointed a special consultant.

**MEDICAL RECRUITING BOARD**

In conjunction with the Office of Procurement and Assignment for the District of Columbia, a Medical Recruiting Board has been established at the headquarters of the District of Columbia Medical Society, 1718 M Street NW, Washington D C. The board consists of Lieut Col Willard C Goley M C, U S Army, and Major Wilham H Phillips of the infantry, representing the adjutant general. Dr Francis A McGovern is procurement and assignment officer for the District. Letters have been sent to four hundred physicians up to the age of 45 in the District who have been considered available for military service, requesting them to come to the medical society building for interviews concerning commissions in the Medical Corps of the Army. This method of recruiting of physicians has been resorted to in view of the immediate need of the armed forces for more medical officers.

**CONSULTANTS ON BLOOD AND PLASMA PROGRAM**

Under the program launched by the Medical Division of the Office of Civilian Defense and the U S Public Health Service to provide plasma for the treatment of civilians injured in warfare, regional consultants have been appointed to advise hospitals on technical problems related to the establishment of blood and plasma banks.

Dr Fred Bryan, Rochester, N Y, is the consultant for the first and second civilian defense regions and a part of the third region. Dr John Elliott, Salisbury, N C, will serve in the fourth and eighth regions and the remainder of the third. Dr Emeric Dobos, Senior Surgeon (R), U S Public Health Service, is on active duty in the ninth region. Dr Elmer L DeGowin, Iowa City, is acting as technical consultant on special problems. The blood and plasma bank program is at present confined to vulnerable areas within 300 miles of the ocean and gulf coasts. The Subcommittee on Blood Substitutes, Division of Medical Sciences, National Research Council, serves in an advisory capacity to the Medical Division of the Office of Civilian Defense, as it does to the medical departments of the Army and Navy and the American Red Cross.

**NEW YORK HOSPITAL UNIT**

The trustees of Cornell University and the governors of the Society of the New York Hospital gave a dinner, July 14, at the Hotel Roosevelt in New York City to the physicians and nurses who were inducted the following day as the staff of a general hospital of the U S Army. These physicians and nurses were from the staffs of the New York Hospital and Cornell University Medical College. The military hospital will bear the same number as the New York Hospital unit in the first world war. About two hundred persons attended the dinner. The speakers were Lieut Col Ralph F Bowers, director of the hospital unit, who was a member of the surgical staff of the New York Hospital, Langdon P Marvin, acting president of the Society of the New York Hospital, and Roger William, trustee of Cornell University, who said that New York Hospital has a long record of service to the wounded, its first patient having been soldiers of General Washington's army admitted July 12, 1776 after the bombardment of the battery in New York City. New York Hospital also cared for soldiers in the War of 1812, for soldiers in the Civil War and for a unit to Puerto Rico in the Spanish-American War.

**CHEMICAL WARFARE TRAINING CENTER**

The War Department has announced, according to the *and Navy Journal*, that a chemical warfare training center is to be established in the South on a 30,000 acre site. The accommodations will be for five thousand men, which may be increased if necessary. After completion of the center at the training center the men will be assigned to chemical warfare units throughout the Army.

**"GUIDES TO THERAPY FOR MEDICAL OFFICERS"**

A technical manual for medical officers has just been issued by the Government Printing Office in Washington, entitled "Guides to Therapy for Medical Officers." The material on which the text of the manual is based was furnished largely by the various committees and subcommittees of the Division of Medical Sciences of the National Research Council with the assistance of other consultants. A preliminary note gives the names of all the various specialists who cooperated in producing this book. The final editing was done by Dr. R. N. Nye of the Committee on Information of the Division of Medical Sciences of the National Research Council. The book is divided into seven sections covering a general consideration surgical emergencies medical emergencies diagnosis and treatment of venereal diseases chemotherapy and serotherapy in certain infectious diseases treatment and control of certain tropical diseases and the rickettsial diseases. Here in outline form is a compilation of the very latest information available on the subjects discussed as standardized for use under Army conditions. The book constitutes, therefore, an invaluable reference work for the Army medical officer and will be found most valuable by any physician under any circumstances. Copies of the book are available from the Superintendent of Documents Washington, D. C. The price is 25 cents.

**MASONS PRESENT AMBULANCES TO RED CROSS**

At a ceremony held, on account of inclement weather, in the New York City council chamber on June 27 the Masonic order of New York State presented eleven ambulances and a check for \$25,343 to the American Red Cross, which was accepted by its chairman Hon. Norman H. Davis. The mobile units were inspected by Mr. Davis, Major La Guardia and Masonic officers. In his speech Mr. Davis disclosed that negotiations were then pending for the operation of a 'mercy ship' in the Pacific Ocean to carry under the supervision of the International Red Cross Committee, food clothing and other needed articles to United States prisoners of war and civilians interned in Japan and elsewhere in the Far East. Mr. Davis said that some parcels had already been dispatched to the prisoners of war in Japan.

**GRADUATES IN AVIATION MEDICINE UNDER NEW SYSTEM OF TRAINING**

The course of instruction in aviation medicine for aviation medical examiners is now divided into two parts: the didactic portion being conducted at one field and the practical portion at three army air forces classification centers. The first class to graduate under this new system of training was graduated on July 2. Appropriate exercises were held in each of the centers. The list of graduates follows:

**ALABAMA**

John H. Lary, Captain Huntsville  
Reuben J. Maxwell, 1st Lieut. Sulligent

**ARKANSAS**

Byron Z. Binns, 1st Lieut. Monticello  
Coy C. Kaylor, 1st Lieut. Van Buren

**CALIFORNIA**

Donald C. Collins, Major Beverly Hills  
Hille O. Hall, 1st Lieut. Beverly Hills  
William F. Harding, Captain Sacramento  
John T. Klausner, Captain Los Angeles  
Francis B. O. Morris, 1st Lieut. Santa Barbara  
Albert D. Phillips, Major Sacramento

**COLORADO**

George A. Peabody, 1st Lieut. Denver  
Lerry G. Pratt, Captain Denver  
Charles E. Walker, Major Denver

**CONNECTICUT**

Harold I. Harvey, 1st Lieut. New Britain  
Gerald Krosnick, 1st Lieut. New Haven

**DELAWARE**

Joseph S. McDaniel, 1st Lieut. Dover

**DISTRICT OF COLUMBIA**

Nicholas F. Atria, Captain Washington  
L. Rander Braswell, Major Washington  
Robert S. Brua, Major Washington  
John M. Collins, Captain Washington  
Richard I. Crone, Captain Washington  
Donald H. Earl, Captain Washington  
Everett C. Freer, Captain Washington  
Wendell P. Harris, Captain Washington  
Aubrey L. Jennings, Major Washington  
Russell S. Leone, Major Washington

John J. Mearns, Captain Washington

Franklin I. Spruin, Captain Washington

**GEORGIA**

James W. Merritt Jr., 1st Lieut. Gainesville  
Fred E. Murphy, 1st Lieut. Jessup  
Glenn W. Pennington, 1st Lieut. Mathews

**ILLINOIS**

Donald W. Anderson, 1st Lieut. Chicago  
Leon J. Armalavage, 1st Lieut. Chicago  
Robert E. Bowen, 1st Lieut. Chicago  
Milton J. Loring, 1st Lieut. Chicago  
Robert J. Stephen, 1st Lieut. Joliet  
Anthony J. Sweeney, 1st Lieut. Chicago

**INDIANA**

Paul A. Clouse, 1st Lieut. Evansville  
John M. Palm, Captain Brazil

**IOWA**

Vance J. Elliott, Captain Knoxville  
Elmer M. Smith, Captain Granger

**LOUISIANA**

Chester S. Fresh, Major, New Orleans

**MASSACHUSETTS**

Arthur J. Hadler, 1st Lieut. Boston  
Jonathan I. Morrison, 1st Lieut. Newton

**MICHIGAN**

Cecil D. Conrad, 1st Lieut. Ypsilanti  
James E. Forsyth, 1st Lieut. Albion  
Roelof Lanting, 1st Lieut. Gladwin  
Alexander Vida, Captain Detroit

**MINNESOTA**

Kenneth E. Bray, Captain Brwabik  
William P. Gjerde, 1st Lieut. Staples

**MISSOURI**

Anthony V. Benincasa, 1st Lieut. St. Louis  
Williston P. Bunling, 1st Lieut. Kansas City  
Earl E. Miller, Captain Kansas City

**MONTANA**

Thaddeus F. Bush, 1st Lieut. Butte  
Raymond O. Lewis, 1st Lieut. Roundup

**NEBRASKA**

John H. Easley, Captain Lincoln  
Richard H. Schaefer, Captain Omaha

**NEW JERSEY**

Sam Lemkin, 1st Lieut. Newark  
William D. O'Gorman, Captain Jersey City

**NEW YORK**

Louis L. Amato, Captain New York  
Charles A. R. Connor, 1st Lieut. New York  
Alfred H. Dobrak, 1st Lieut. Buffalo  
Frederic Lewis, Captain New York  
Edmund F. Longworth, 1st Lieut. Pelham  
Hubert S. Senne, 1st Lieut. Glen Dale  
Charles S. Yavdow, 1st Lieut. Mount Vernon

**OHIO**

Edwin E. Ash, 1st Lieut. Forest  
Attilio D. Puppel, 1st Lieut. Ashley  
Herman M. Turk, Captain Euclid

**OREGON**

Max W. Hemingway, Captain Bend  
Herbert D. Lewis, Captain Hood River  
Richard W. Lyman, 1st Lieut. La Grande  
Charles P. McKim, 1st Lieut. Baker  
Weldon T. Ross, 1st Lieut. McMinnville

**PENNSYLVANIA**

Frank L. Bracken, 1st Lieut. Westmont  
Robert M. Laughlin, 1st Lieut. Pittsburgh  
Joseph W. Mendoza, Captain Harrisburg  
Paul H. Rankin, Captain Sharpsville  
Howard M. Seull, 1st Lieut. Langehorne  
George C. Wassell, Captain Pittsburgh

**SOUTH CAROLINA**

James E. Lipcomb, Captain Greenville

**SOUTH DAKOTA**

Lindeay J. Ervin, 1st Lieut. Montrose  
Ryland M. Jacobus, 1st Lieut. Letcher

**TENNESSEE**

Willard D. Bennett, 1st Lieut. Nashville  
Melvin M. Simmons, 1st Lieut. Nashville  
Jehu C. Walker, Captain Savannah

**TEXAS**

Sam H. Druden, Captain Abilene  
Earl K. Cill, Major Corpus Christi  
Carl F. Goeth, Captain San Antonio  
Samuel H. Haigler, 1st Lieut. Austin  
Haskell D. Hatfield, Major El Paso  
Benjamin B. Hutchinson, 1st Lieut. Lubbock  
Ulen G. Medford, 1st Lieut. Lufkin  
William C. Smith, 1st Lieut. Lockhart  
Afton N. Wilkins, Captain Conroe

**UTAH**

Clarence C. Hetzel, Captain Ogden  
Rulon F. Howe, 1st Lieut. Murray  
Vernal H. John, Captain Ogden

**VIRGINIA**

Charles P. Alexander, Captain Richmond

**WASHINGTON**

Louis D. Fox, Captain Seattle

**WISCONSIN**

Edward H. Loveroo, Captain Superior  
Mancel T. Mitchell, Captain Eau Claire  
Oscar C. Olson, Captain Madison  
Julius A. Roth, Captain LaCrosse

**WYOMING**

Paul F. Miner, 1st Lieut. Laramie.  
CUBA  
Roberto Covas y Coro, 1st Lieut. Havana  
Risley F. Haines, 1st Lieut. Bayamo

# ORGANIZATION SECTION

## MEDICAL LEGISLATION

### MEDICAL BILLS IN CONGRESS

**Changes in Status**—H R 7378, the Revenue Act of 1942, has been passed by the House of Representatives. The normal tax rate on individuals, it is proposed, will be 6 per cent instead of 4 per cent as under existing law. The surtax will start at 13 per cent instead of 6 per cent for the first \$2,000 surtax net income, with a constant increase in the rate for incomes in the higher brackets. The personal exemption for a single person will be \$500, for a married person \$1,200. Deductions for dependents will remain as in the existing law at \$400. A new provision authorizes an additional deduction for persons in the military or naval service by exempting from taxation so much of the amount received during the present war by an individual in the military or naval forces as salary or compensation in any form from the United States for active service in such forces as does not exceed \$250 in the case of a single person and \$300 in the case of a married person. The bill proposes no change in the earned income credit. No authorization is made for the deduction of expenses incurred for medical care as had been recommended by the Treasury Department, nor does the bill provide for the taxation of certain income of charitable and other exempt corporations, as had also been suggested by the Treasury Department. The bill does provide for relief in the manner of the treatment of income accruing on the death of a taxpayer. Heretofore, accounts receivable on the books of

the taxpayer at the time of his death have been accrued for income tax purposes for the year in which death occurred, resulting in inequitable burdens on the estates of the deceased taxpayers who had reported their incomes on a cash receipts and disbursements basis. The pending bill proposes that such accounts will be taxable as collected, the tax to be paid by the persons who actually receive the money. H R 7239 has passed the House, authorizing the Director of the Census to issue certifications of birth records.

**Bills Introduced**—S 2654, introduced by Senator Pepper, Florida, proposes to authorize the Federal Security Administrator to establish and maintain a system for recording the dates and places of birth of individuals within the United States. H R 7379, introduced by Representative Allen, Louisiana, proposes that the United States shall, in addition to hospitalization and medical care now authorized by law, provide vocational training for all disabled veterans at public expense. H R 7396, introduced by Representative Gearhart, California, provides for vocational rehabilitation and return to civil employment of disabled persons discharged from the military and naval forces. H R 7398, introduced by Representative Costello, California, proposes to authorize an appropriation not to exceed the sum of \$2,600,000 to construct a fireproof marine hospital for the accommodation of approximately 300 bed patients in or near Los Angeles.

## WOMAN'S AUXILIARY

### Colorado

The Woman's Auxiliary to the Boulder County Medical Society, which was organized in 1940, now has a paid membership of thirty. The members are from Boulder, Longmont, Louisville and Frederick. Four *Hygeia* subscriptions have been placed in Boulder County rural schools. All members of the auxiliary are busy with some form of Red Cross work.

### Illinois

The Adams County auxiliary has been placed in charge of the Blood Donor Service in the county by the American Red Cross. The women of the auxiliary also assist a mobile unit which is sent to Quincy from St. Louis.

### Iowa

Sixty-eight members attended a meeting of the Woman's Auxiliary to the Polk County Medical Society, March 3, at which Dr. Thomas A. Burcham of Des Moines spoke on "The Work of the Iowa Industrial and Defense Commission." A contribution to the Nurses Student Loan Fund was voted. The auxiliary decided also to provide hostesses twice a month for the U S O Recreation Center in Des Moines and to serve refreshments.

The auxiliary to the Waterloo Medical Society met at the home of Dr. and Mrs. John E. O'Keefe in Waterloo. Twenty-six members were present. Mrs. William R. Hornaday of Des Moines, state president, spoke on the Nurses Student Loan Fund.

### New York

The Oswego County auxiliary gave a \$50 donation to the Red Cross, the proceeds from the fashion show.

At a recent meeting of the Queens County auxiliary a \$10 donation was given to the Red Cross War Fund Drive.

### West Virginia

Mrs. B. D. Smith presided and twelve members attended a recent meeting of the Logan County auxiliary. Dr. E. W. Smith, secretary for Foreign Mission, addressed the group on "Mexico."

Mrs. Traul, chairman, reported on the recent benefit bridge party. A total of \$97.74 was raised for the Red Cross fund.

The Woman's Auxiliary to the Marion County Medical Society held an all day health institute recently in Fairmont. During the morning Mrs. Howard Jones and Mary Jane Minnis, R.N., spoke on "Prenatal Clinics", H. S. Burnette, D.D.S., on "Dental Hygiene", Mrs. W. A. Walton, Marguerite Hays, R.N., and Ethel Elfenbein, R.N., on "Well Baby Conference", Dr. C. F. McClintic on the "State Department of Health", Dr. A. M. Price on "Communicable Diseases", Dr. J. W. Davis on "Marion County Health Program" and Mr. W. B. Kirchman on the "City Water Department".

After luncheon, Dr. K. Y. Swisher, president of the Marion County Medical Society, Miss Mabel W. Perry of the State Bureau of Nutrition and Dorothea Campbell, director of the Bureau of Health Education, spoke on "Pooling Our Resources for Health Education", Dr. Justus Pickett on "Public Health", Florence Kneisel and May Gribble, R.N., on "Red Cross Nursing", and Mr. Floyd Prunty on "Marion County Board of Health Education". "White Battalion," a movie, was shown by the Fairmont General Hospital and a first aid demonstration was given by the Koppers Coal Company first aid team.

Dr. Swisher presided at dinner, after which Dr. I. C. Leplace, chief, Department of Pediatrics, Jefferson Medical College of Philadelphia, spoke on "The Art of Growing Up".

The auxiliary placed health exhibits in the public room of the hotel. More than five hundred persons attended the institute and the exhibits.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDI G FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS CE ERAL INTEREST SUCH AS RELATE TO SOCIETY ACTI VITIES NEW HOSPITALS EDUCATION AND PUBLIC HEALTH)

### CALIFORNIA

**Grant for Research in Ophthalmology**—The Columbia Foundation, San Francisco, has given \$20,000 to finance a research project in ophthalmology at the Mount Zion Hospital Research Laboratories, San Francisco, under the direction of Drs. Frank H. Rodin and Charles Weiss. The work will include a study of bacteriology and immunology of the eye. First it is planned to study the flora of the normal eye and of the common eye diseases. Later the study of special problems will be undertaken. The Columbia Foundation was established in 1940 in the interest of educational, cultural and philanthropic activities, internationally.

### COLORADO

**State Society Cancels Annual Meeting at Colorado Springs**—A telegram signed by Drs. Guy C. Carr and Ralph S. Johnston, president and president-elect, respectively, of the Colorado State Medical Society, announces that the board of trustees has voted unanimously to cancel the annual session of the society which was scheduled to be held in Colorado Springs, September 23-26. This action was taken in view of the governmental request for curtailment of all travel not vital to the war effort and in view of the fact that many of the physicians who would have attended the annual session will be in the military service while those not in military service must remain close to their civilian duties. The house of delegates of the Colorado State Medical Society, however, will meet in Denver September 23 to transact the necessary annual business and coordinate medical military activities in Colorado.

### CONNECTICUT

**Personal**—Ira V. Hiscock, CPH, was elected president of the New Haven Board of Health at a meeting on June 17 to succeed the late Mrs. Edward G. Buckland. Mrs. Samuel C. Harvey and Dr. William C. McGuire have been named members of the board to succeed Mrs. Buckland and the late Dr. James D. Trask.

**State Medical Election**—Dr. George M. Smith, Pine Orchard, was named president-elect of the Connecticut State Medical Society May 20, and Dr. Roy L. Leak, Middletown, was inducted into the presidency. Dr. Creighton Barker, New Haven, was reelected executive secretary. New Haven was selected as the place of the next annual session in May 1943.

**Physicians Honored**—Physicians from Norwalk, Stamford, Danbury and Bridgeport gave a dinner in Westport recently to honor Dr. William S. Stone, who was presented with a gold plaque on behalf of the Norwalk Medical Society. The inscription on the plaque stated that the testimonial was "in deep appreciation of his humanitarian and scientific efforts on behalf of this community." The new Louis I. Mason Memorial Nurses' Home at the Windham Community Memorial Hospital, Willimantic, was opened with appropriate ceremonies recently. The home was given by the widow of Dr. Mason as a memorial to him. Dr. Mason died in 1930, aged 64.

### ILLINOIS

**Society News**—At its recent annual meeting in Chicago on May 9 the Illinois Psychiatric Society elected Drs. Francis J. Gerty, president, Franz G. Alexander, vice president and Eugene I. Falstein, secretary-treasurer. All are of Chicago.

#### Chicago

**Course in Electrocardiography**—Michael Reese Hospital will offer a full time course in electrocardiography August 17-29 under the direction of Dr. Louis N. Katz, director of cardiovascular research. Additional information may be obtained from the hospital. There will be sessions on interpretations of electrocardiograms, and emphasis will be placed on chest leads and on the importance of the electrocardiogram in coronary sclerosis and myocardial infarction.

**Dr. Fred Adair to Retire as Professor**—Dr. Fred L. Adair, chairman of the department and Mary Campau Ryerson professor of obstetrics and gynecology, University of Chicago School of Medicine and chief of service at the Chicago Lying-In Hospital, will retire on October 1, having reached the age of

retirement. He will be succeeded by Dr. William J. Dieckmann, associate professor in the department. Dr. Adair, who was born in Iowa in 1877, graduated at Rush Medical College in 1901. He became associated with the University of Minnesota in 1905, serving there as professor of obstetrics and gynecology from 1926 to 1929. He was secretary of the Section on Obstetrics and Gynecology of the American Medical Association from 1928 to 1931 and chairman from 1931 to 1932. In 1922 Dr. Dieckmann graduated at Washington University School of Medicine, St. Louis. He later served in various capacities in the department of obstetrics, resigning in 1929 to join the Chicago faculty.

### KANSAS

**New Psychiatric Group**—The Kansas Psychiatric Society was organized at an informal meeting April 9, at the Hotel Kansas, Topeka. At the first regular meeting April 22 Dr. Robert P. Knight, Topeka, was elected president and Dr. Edward D. Greenwood, Topeka, secretary-treasurer. The new society will have about thirty charter members and will hold quarterly meetings.

**Changes in Health Personnel**—Dr. David D. Carr, formerly a member of the Utah State Board of Health, Salt Lake City, has been named full time health officer of Topeka, effective June 1. Dr. Carl W. Plowman, Jewell, has been appointed health officer for Jewell County, succeeding the late Dr. Spencer B. Dikes, Esbon. Dr. Denman T. Gammell, Ulysses, has been named health officer of Grant County.

### MICHIGAN

**Beaumont Room in Detroit**—The Wayne County Medical Society, Detroit, has set aside a room in its headquarters to be developed as the Beaumont Room. The lectureship foundation committee, which for a number of years has been arranging the annual Beaumont lectures for the society, is collecting material to be displayed permanently in the room and it is planned to hang there a painting of Beaumont which is now being made by Dean Keller. The painting is to be a replica of the one which hangs in the Cushing Library at Yale University School of Medicine, New Haven, Conn. It is hoped that when the next Beaumont lectures are delivered probably early in 1943 the portrait will be hung and Beaumont memorabilia will be ready for exhibition. The committee has already received a first edition of Beaumont's book, two editions of Pares' Opera, and some other valuable items from an anonymous donor. The committee has been authorized by the society to accept any gifts which interested persons may wish to donate to the collection.

### NEW JERSEY

**Radiologists Choose Officers**—The Radiological Society of New Jersey chose the following officers at its recent annual meeting: Dr. William J. Marquis, Newark, president; Dr. Herbert A. Vogel, Elizabeth, vice president; Dr. Harry J. Perlberg, Jersey City, secretary; and Dr. Charles P. Oderr, Westfield, treasurer.

### NEW YORK

**Society Limits Rounds of House Calls**—The Cayuga County Medical Society has announced a policy, aimed at conserving fuel and rubber, which limits the calls of its members to two regular rounds of house calls, one in the morning and one in the afternoon. Emergency calls will be taken care of at any hour, but routine visits will be reduced to these two calls, according to newspaper reports May 19.

**Physician Honored**—Dr. Irving W. Potter, Buffalo, was honored on July 7 when a bronze plaque was unveiled in the new obstetric wing of the Millard Fillmore Hospital, Buffalo. The speakers at the ceremony included Drs. James E. King, professor emeritus of gynecology at the University of Buffalo School of Medicine, Charles J. Reynolds, who for thirty-five years has served as anesthetist to Dr. Potter, and George A. Himmelsbach, Buffalo. Dr. Potter is a past president of the Medical Society of the County of Erie and the Buffalo Academy of Medicine and formerly served as chief of the obstetric department of the hospital.

#### New York City

**Personal**—Dean Sage, Jr., attorney, has been appointed executive vice president of the United Hospital Fund of New York. Dr. Luthero Vargas of Brazil was guest of honor at a dinner given on June 29 at the New York Academy of Medicine under the auspices of the members of the Inter-American Division of the Academy and of America Clinica. Dr. Vargas has been visiting various hospitals throughout the United States in recent months to assemble ideas to include in



his new wing of orthopedics for the treatment of school children at the Centro Medico Pedagogico Oswaldo Cruz of Rio de Janeiro—Dr Robert L. Dickinson, formerly president of the American Gynecological Society, has recently been appointed a life fellow of the association.

**A Million for Public Health Research**—The Public Health Research Institute of the City of New York, Inc., will receive \$100,000 a year for ten years for its researches on public health, according to authorization of the board of estimate announced in the *New York Times*. The city and the institute, a nonprofit scientific institution, have entered into a contract which went into effect July 1 and is automatically renewable for similar periods of ten years unless previously abrogated. The money is to be used by the institute to carry on fundamental medical research by a staff of competent scientists under the direction of a research council composed of authorities in the fields of medicine, biology, physiology, nutrition, public health and related fields. The contract was signed after the legislature passed a bill authorizing cities to enter such contracts with nonprofit scientific institutions to carry on "research into matters pertaining to public health." Under the contract, the services to be rendered by the institute include the following:

Research and investigation into the control of diseases such as influenza, poliomyelitis, arthritis, degenerative diseases and general physiologic problems such as nutrition.

Generally to engage in laboratory experimentation and research in order to develop better and more economical biological products and improved technical procedures for use in combating diseases and epidemics.

To aid and assist the director of the bureau of laboratories of the department of health in matters involving public health research.

The city, on its part, agrees "to permit the institute to use and to make available for such use part of the premises now occupied by the bureau of laboratories of the department of health at the William Hallock Park Laboratory, or any other building or premises owned, leased or controlled by the city suitable or proper for laboratory investigation and research, during the term of this agreement or its renewal, without any charge for rent, water, heat, light, janitorial services and maintenance. The annual payments of \$100,000 for the ten year period will be paid in quarter annual payments each year. The results of the institute's research "shall be the property of the city." Any discoveries of products or methods shall belong to the city as soon as made, for which there shall be no compensation. All patents issued to the city or to any of its employees shall be assigned immediately to the city, for which there shall be no compensation. David M. Heyman is president of the board of directors of the institute. Other members include the mayor, the controller, Health Commissioner John L. Rice, David Rockefeller, vice president, Edwin F. Chinlund, treasurer, and David Morse, secretary. The research council, in charge of all scientific programs, will be directed by Dr. Thomas M. Rivers of the Rockefeller Hospital. Other members are Dr. Eugene L. Opie, Dr. Henry L. Sherman, Dr. George Baehr, Michael Heidelberger, Ph.D., and Dr. Ralph S. Muckenfuss, director of the bureau of laboratories.

## OHIO

**Fifty Years of Practice**—The Tuscarawas County Medical Society gave a dinner in New Philadelphia, June 11, in honor of Drs. Clarence D. Kurtz, New Philadelphia, and George B. Kistler, Newcomerstown, who have completed fifty-one and fifty years, respectively, in the practice of medicine. Other members of the society who have completed fifty years in the practice of medicine and who bring the total to seven are Drs. Elliott D. Moore, New Philadelphia, fifty-five years, James M. McCollam, Uhrichsville, fifty-three years, Joseph Blickensderfer, New Philadelphia, fifty-two years, Byron G. Anderson, Uhrichsville, fifty-five years, and George A. Henry, Tuscarawas, fifty-one years.—Dr. Mark Millikin, Hamilton, was guest of honor at a dinner, May 27, given by the Butler County Medical Society to observe his completion of fifty years in the practice of medicine. He was presented with a gold watch by the society. The speakers included Dr. Wilmer E. Griffith, Hamilton, secretary emeritus of the society, and Dr. Martin H. Fischer, Cincinnati.

**Physicians Seek to Incorporate Medical Care Plan**—Nine physician members of the Academy of Medicine of Cleveland have submitted to the secretary of state papers for incorporation of a medical care plan to be known as the Cleveland Medical Service Association, according to the *Cleveland Plain Dealer*, June 20. The physicians are Drs. Harry V. Paryzek, former president of the state medical association, John E. Rauschkolb, president of the academy, Richard Dexter and Jacob E. Tuckerman, former presidents, Edward F. Kieger and William E. Hill, directors of the academy, Demba M. Spicer, Lakewood, a member of the academy's committee on economics, Milton B. Cohen, and Dwight S. Spreng, chairman of the

economics committee. The newspaper pointed out that since a recent vote by the academy on a medical care plan lost by only five votes and it was obvious there was a strong feeling that Cuyahoga County citizens should have a medical care plan, these physicians as individuals assumed leadership in that direction. The purpose of the plan is "to establish, maintain, and operate a voluntary, nonprofit medical care plan within the limits of Cuyahoga County whereby professional service will be provided to such persons as shall become subscribers to such plan." The most recent medical care plan worked by the economics committee, approved by the academy directors and rejected by the members of the academy, will be used as a working basis after incorporation, it was stated. The plan will probably be checked by state insurance and medical boards. Then, according to law, it will have to receive the support of 51 per cent of physicians residing in and actively practicing in the county. How Cleveland physicians now in military service will figure in the plan is another technicality which will have to be ironed out, it was said.

## OREGON

**Society News**—Physicians and dentists of Klamath and Jackson counties met jointly with the Southern Oregon Medical Society, June 13, to hear, among others, Dr. Leo Eloesser, San Francisco, discuss "Treatment of Compound Fractures in War Time" and Henry Cline Fixott, D.M.D., Portland, "Plangraphy of the Teeth and Head."—Dr. Eugene R. Kellersberger, New York, spoke on "Tropical Diseases" before the Multnomah County Medical Society, Portland, April 24.

**Personal**—Ralph E. Jackson, Salem, former claim supervisor of the Oregon State Industrial Accident Commission has been named general manager of the Multnomah Medical Service Bureau. This is the first time the bureau, which carries the approval of the state medical society and the Multnomah County Medical Society, has employed a full time general manager.—Dr. Harold B. Stout, formerly of Patuxent, Wash., has been appointed health officer for Douglas County.—Florence Peebles, Ph.D., since 1935 professor of biology at Chapman College, Los Angeles, has been appointed director of the biologic laboratory of Albany College, Portland.

## PENNSYLVANIA

**District Meeting**—The Eighth Council District of the Medical Society of the State of Pennsylvania was addressed at Conneaut Lake, July 15, among others by Drs. Irwin M. Pochapin, Pittsburgh, on "Medical Aspects of Chemical Warfare" and Roy R. Snowden, Pittsburgh, "Recent Advances in Our Knowledge of Hypertension." On behalf of the state society, Dr. Walter F. Donaldson, Pittsburgh, secretary of the state society, presented fifty year testimonial certificates to Dr. Robert W. Brown, Greenville, John F. Rutherford, Haverhill, and Owen M. Shreve, Erie.

## Philadelphia

**Personal**—George W. Patterson, Ph.D., assistant professor in bacteriology and director of athletics, Philadelphia College of Pharmacy and Science, has been elected president of the Alumni Association of the college. Dr. Jack I. Lemmon has been appointed a member of the teaching staff, succeeding Dr. Edward A. Mullen, assistant professor in pharmacology, on leave of absence and serving as commander in the U.S. Navy.

## TEXAS

**University and Foundation Cooperate in Medical Center**—An agreement between the Southwestern Medical Foundation and Baylor University to set up a medical center in Dallas was approved at a special meeting of the executive committee of the Baptist General Convention on July 7. The project has been under consideration for eight months. Under a first year contract the medical and dental schools of the university will be moved, as soon as buildings are provided to a tract along Hines Boulevard and including Parkland Hospital. Under the contract one million dollars will be expended in foundation for buildings for medical teaching construction start within a period of not less than two years after removal of priority restrictions. Parkland Hospital will be enlarged to become an integral part of the center, its facilities to be in connection with the medical and dental college. The center is within a few blocks of a large group of hospitals, including the Children's Hospital of Texas, the Rite Hospital for Crippled Children, Hope Cottage Memorial Hospital for Babies and Freeman Memorial Hospital. The agreement places the two schools under the joint board including three members from the university and two from Baylor. The university, which has been

vision of the executive board of the Baptist General Convention will be conducted on a nonsectarian basis. Development of the medical center will be in cooperation with the city county hospital board administering Parkland Hospital where the first run of the medical foundation will be to improve clinical facilities. A dispensary will be the first unit in the new construction program. In addition to providing the buildings, the foundation will also furnish money for teaching. The medical school will continue to receive income from endowment, but Baylor University will retain the endowment fund. All student fees will go into the fund for teaching.

### WISCONSIN

**Full Time Tuberculosis Secretary**—Dr. Oscar Lotz, Milwaukee since 1939 part time executive secretary of the Wisconsin Anti-Tuberculosis Association, has been appointed to a full time basis. Dr. Lotz has been serving on a part time basis since the death of Dr. Hoyt E. Dearholt, for many years secretary of the association. He plans to give up his private practice.

**Physician Observes Ninety-Sixth Birthday**—Dr. John G. Meachem, Racine, a life member of the State Medical Society of Wisconsin, recently celebrated his ninety-sixth birthday. Dr. Meachem graduated at Rush Medical College in 1865. For many years he served as a member of the municipal board of health of Racine. In 1932 he donated a chapel and library to St. Luke's Hospital, Racine, of which he with his father, Dr. John G. Meachem Sr., was one of the incorporators. The chapel is a memorial to his wife, and the library commemorates three generations of his family who have been physicians. His son, Dr. John G. Meachem III, died in 1926.

**Society News**—The Milwaukee County Medical Society was addressed on May 8 by Drs. Walter P. Blount, Milwaukee, and Philip S. Hench, Rochester, Minn., on "The Kenny Treatment of Poliomyelitis" and "The Management of Rheumatoid Arthritis," respectively. Dr. John E. Gonce, Jr., Madison, discussed "Some Aspects of Urinary Infections in Infants and Children" on May 21 before the Racine County Medical Society. At a joint meeting of the Winnebago County Medical and Dental societies on May 7 in Oshkosh, Dr. Kenneth W. Penhale, Chicago, spoke on "Traumatic Injuries to the Face." Dr. Philip Levine, Newark, N. J., discussed "Isomunization: Practical and Theoretical Considerations" before the University of Wisconsin Medical Society in Madison recently.

### GENERAL

**Grants for Research on Infantile Paralysis**—The National Foundation for Infantile Paralysis, Inc., has given a total of \$325,841.25 to twenty-six institutions in the United States and Canada to carry on virus and after-effect research work and education in the campaign against infantile paralysis. The funds were taken from the proceeds of the foundation's programs observing the President's birthday. The grantees and the amount of each grant follows:

#### For After-Effects Research

|  |             |
|--|-------------|
| State University of Iowa College of Medicine Iowa City                                 | \$11 200 00 |
| University of Rochester School of Medicine and Dentistry Rochester N. Y.               | 9 200 00    |
| University of California Medical School San Francisco                                  | 5 050 00    |
| The Children's Hospital Boston   | 4 250 00    |
| Massachusetts General Hospital Boston  | 4 200 00    |
| Michael Reese Hospital Chicago   | 3 000 00    |
| University of Toronto School of Hygiene Toronto Canada                                 | 1 000 00    |
| New York Society for the Relief of the Ruptured and Crippled New York                  | 1 000 00    |
| University of Southern California School of Medicine Department of Anatomy Los Angeles | 890 00      |

#### For Virus Research

|   |           |
|---|-----------|
| The Johns Hopkins University Baltimore  | 59 244 00 |
| University of Michigan School of Public Health Ann Arbor                            | 40 000 00 |
| University of Minnesota Medical School Minneapolis                                  | 13 255 25 |
| Michigan Department of Health Lansing   | 13 210 00 |
| University of Wisconsin Madison   | 12 200 00 |
| Connaught Laboratories University of Toronto Toronto Canada                         | 10 860 00 |
| University of Michigan Ann Arbor  | 7 000 00  |
| University of Chicago Chicago   | 6 090 00  |
| Wayne University College of Medicine Detroit  | 4 700 00  |
| National Institute of Health Bethesda Md.   | 3 300 00  |
| University of Pennsylvania Philadelphia   | 2 500 00  |
| Harvard Medical School and Surgical Research Laboratory Boston City Hospital Boston | 1 500 00  |

#### For Education

|   |           |
|---|-----------|
| Georgia Warm Springs Foundation Warm Springs                                | 50 120 00 |
| National Organization for Public Health Nursing New York                    | 31 100 00 |
| National League of Nursing Education New York                               | 16 000 00 |
| Harvard Infantile Paralysis Commission Boston                               | 5 000 00  |
| Frances Payne Bolton School of Nursing Western Reserve University Cleveland | 9 775 00  |

### FOREIGN

**Public Health Under Hitler's Rule**—A few hundred cases of smallpox were verified recently in Paris, and those engaged in public positions have been required to be vaccinated according to the *Göteborgs Handels- och Sjöfarts-Tidning* of April 7. French physicians unanimously state that illness is much more prevalent in France as a result of the present dietary restrictions. An increase has occurred in the number of operations for hernia, nephroptosis and organic disorders peculiar to women, owing, it is said, to the loss in weight and the consequent reduction in fatty tissue which normally holds the organs in their proper position. Fractures of bones have been extremely common, especially in old people who are not getting enough calcium, phosphorus and vitamin D in their food to maintain adequately the bone structure. More cases of rickets are being reported. Convalescence following operations is delayed. Many surgeons complain that operative wounds do not heal as readily as formerly, they have difficulty in stopping hemorrhage following operations, infections are more common because of lack of antiseptics, operating rooms cannot be adequately heated and bandage material is getting low.

According to the *Berliner Borson-Zeitung* of April 24, the general picture in public life is one of nervousness and short temper. Everywhere, it is said, one has to witness rows. To appreciate the meaning of politeness one need only witness how the fuhrer receives and takes leave of his guests at his front door.

The *Vir* of Sofia, April 15, stated that the Directorate of National Health has ordered that all products used as substitutes for coffee or tea, such as soy beans, chick-peas, almonds and carrots, must be sold under their proper names and that it is forbidden to use the word "substitute."

J. Lhost in *Le nouveau journal*, April 21-22, writes about the housing conditions. In addition to the fits of nostalgia suffered by the Belgian workers in Germany, there is the more or less comfortless home life which they endure. The reich is suffering from a great lack of housing accommodation. Circumstances have not permitted the construction of suitable houses to be carried out on the same scale as the terrific influx of foreign workers. The present conflict has interrupted Hitler's plan for the erection of workmen's dwellings, and the Germans themselves find it difficult to obtain accommodation. In order to satisfy the most pressing needs the Germans have had hurriedly to put up provisional barracks and in some of the larger towns to commandeer whole hotels to furnish lodgings for the workers. These emergency measures and overpopulation have resulted in a sort of local bottleneck the result of which is an unpleasantly crowded communal life, collective kitchens and a kind of intermittent camp life. Such drawbacks are not very serious in themselves and the workers do not exaggerate them, but, taken in conjunction with the effects of the general nostalgia, they produce results which the German labor front is doing everything in its power to avoid.

### Government Services

#### Course in Occupational Dermatoses at National Institute of Health

The U. S. Public Health Service will give a course in occupational dermatoses at the National Institute of Health, Bethesda, Md., stressing the war industries, July 27-August 5. The course will consist of six days of lectures, four hours daily, and six days of visits to six plants which manufacture war materials. The number of applications received for taking the course completely fills this present class, but if there is a demand from a sufficient number of dermatologists it is possible that another course may be given. Applications for the course should be sent to Dr. Louis Schwartz, medical director, Dermatoses Investigations Section, National Institute of Health, Bethesda, Md.

### CORRECTION

**Dr. Arthur D. Munger**—In THE JOURNAL, July 4, page 812, second column, third line from the bottom, the name Dr. Arthur D. Munger, Lincoln, Neb., should have been Dr. Arthur D. Munger, Lincoln, Neb. At the June 12 meeting of the Section on Urology of the American Medical Association, Atlantic City, Dr. Munger was elected vice chairman of the section.

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 13, 1942

Lives Saved by Iron Table Shelters

The latest form of shelter against bombing is an iron table capable of sustaining many tons. In a recent raid the value of the shelter was shown by the escape of an adult and two children in a home demolished by a direct hit. This occurred in spite of the fact that the shelter was hurled 46 feet over an outdoor shelter and into a first floor room of another house. When assisted from the shelter the adult and one child were found to be injured and were taken to a hospital, where they are recovering. The other child was unhurt. In another case, as the result of a direct hit, the debris of a two story building completely buried a table shelter on the ground floor. When rescuers arrived five persons were helped out, shaken but uninjured. In a third case in which the house was demolished, the shelter was lifted sideways 6 feet and upward 4 feet onto debris. The shelter held four persons, who were unhurt. A report of the experts of the Ministry of Home Security on thirty-nine bombing incidents in which the table shelters were involved shows that they have stood up well to severe tests. Of one hundred and nineteen persons in these shelters only four were killed, seven were seriously injured, fourteen were slightly injured and ninety-four escaped uninjured.

Casualties of the British Empire in the First Two Years of the War

In the House of Commons Mr Attlee, secretary of state for the dominions, gave the casualties in the armed forces of the British Empire from Sept 3, 1939 to Sept 2, 1941 (excluding deaths from natural causes) as

|                  | Officers | Other Ranks | All Ranks |
|------------------|----------|-------------|-----------|
| Killed           | 6,206    | 42,677      | 48,973    |
| Wounded          | 4,061    | 42,299      | 46,360    |
| Prisoners of war | 3,374    | 55,081      | 58,455    |
| Missing          | 953      | 28,803      | 29,756    |
| Total            | 14,687   | 168,860     | 183,547   |

New System for Hospital Outpatients

Before the war the need for a scheme to curtail the long period of waiting for patients attending the outpatient department of Guy's Hospital was recognized. The fact that many of these patients are now engaged in work of national importance and can ill afford to wait long hours has made the problem urgent. Under the previous system the waiting period extended to three or four hours. A new system has been introduced under which appointments are made in hourly blocks, so that one batch of patients attends from 9.30 to 10.30, the next from 10.30 to 11.30 and so on. Thus no patient has to wait more than an hour and many much less. The number of patients booked for each hour varies in different clinics. It has been found that physicians deal with 2 to 4 new cases an hour or 8 old cases, but surgeons see 6 new cases an hour. An unavoidable disadvantage of the scheme is that patients who are booked may fail to attend and make a gap in the sequence of cases. This sometimes can be filled by other patients, but on occasions the physician has to wait for the next patient. On the whole the new scheme has proved advantageous. It relieves the congestion of the outpatient department and succeeds in its main object of relieving the waiting period. It permits the nurse to prepare more efficiently for the management of the session.

The Head Louse and Modern Hairdressing

The managing director of a well known firm of hair dressers has written to the Times suggesting that, contrary to common belief, permanent waving is conducive to hair hygiene and elimination of the head louse. This led to a reply from Kenneth Mellanby of Sheffield University, who recently made a report of an investigation, undertaken on behalf of the Board of Education and the Ministry of Health, into the incidence of the head louse. He wrote "Modern styles of hairdressing are, unfortunately, likely to favor an increase of the number of head lice. I have heard of frequent cases of young women with long permanently waved hair which is apparently never disturbed for weeks and which forms an ideal breeding ground for parasites." He has since learned that the reason these women do not comb their hair is not the permanent wave. Two processes are involved in producing an elaborate coiffure. First, if the hair is straight its structure is deformed to produce a result like natural waviness. This change is permanent and will survive brushing and washing. The second process consists in "setting" the hair, which may be arranged in any type of bizarre confection. This "set" is a delicate structure, easily disturbed, and its production requires time, patience and skill. Mellanby says that the hairdressers will do much to reduce the incidence of the head louse if they can persuade women to avoid elaborate "sets," which, because of the difficulty of replacing them, are often left uncombed and unwashed for long periods. Further, the shorter the hair the less liable it will be to louse infestation.

Effects of the War on Human Fertility

The birth rate has fallen to a level which in the near future means a decline of population. The number of persons in this country between the ages of 14 and 64 is 33 million, and two thirds of them are engaged in the war effort, whether in the armed forces, civil defense or war industries. No country has ever before mobilized its man power to the extent we have. The effect of the war on the birth rate is interesting. Except as it causes a temporary loss of births by separation of man and wife and a permanent loss of potential fathers and mothers by violent deaths, it seems that the war may have a favorable effect on fertility in the long run by bringing about a change in values and removal of some of the deterrents to childbearing. There has been a remarkable increase in marriages. This is in part due to the large number of girls reaching the ages of 19 and 20 owing to the high birth rate which followed the last war. But more important are the allowances provided for the wives of the fighting men. The birth rate for the first quarter of 1942 was higher than for any other first quarter since 1931, in spite of the disruption of family life produced by the war, including the bombing of our cities and their evacuation on a large scale.

Demand for Further Measures in Prevention of Venereal Diseases

At a meeting of the Medical Society for the Study of Venereal Diseases a discussion on the need for further measures to deal with sources of infection, contacts and derelicts was opened by Major S. M. Laird. He pointed out that a person is free to have venereal disease and to communicate it as much as he chooses and is not obliged to be treated or to continue treatment until cured or rendered noninfective. He is under no obligation to assist in tracing his infective contacts who is free to refuse examination and treatment. In the absence of notification no accurate knowledge of the prevalence of these diseases exists. Control is prevented in the first place by three factors—technical imperfection of the notification system, the defaulting patient and the untraced sources of infection and their contacts. Venereal diseases should be dealt with

by practitioners who have successfully passed through post-graduate instruction in them. The defaulter rate is high, in 1935 only 17.5 per cent of patients completed treatment and tests of cure at the treatment centers. The corresponding figure for Sweden was 97.5 per cent. The New York commission which in 1936 studied antivenereal methods in Britain and Scandinavian countries reported in favor of the compulsory powers in use in the latter. The cases of syphilis reporting for the first time in Stockholm in 1935 were only 5 per cent of those in 1919. In Liverpool the corresponding figure was 37 per cent. The British minister of health should without delay arrange for survey of the venereal disease problem in this country with a view to a trial of notification and compulsory measures. There was also need for intensive education of the public as to venereal diseases.

In the discussion there was general agreement as to the demand for compulsory powers. The resolution was passed unanimously 'that in the opinion of this meeting of the Medical Society for the Study of Venereal Diseases further measures, legislative and administrative, in the treatment and prevention of venereal diseases are required to deal with defaulters, sources of infection and contacts.'

### The Collection of Medicinal Plants

Before the war we imported most of the medicinal plants we required, as we did most of our food and of many other things. But the need to devote as much shipping as possible to purposes of the war has compelled us to develop and use our home resources. In normal times many hundreds of tons of medicinal plants which could be gathered from the countryside were imported. Even such common plants as dandelions and stinging nettles were imported for the manufacture of drugs. This year the collection of medicinal plants is being organized on wide lines. Herb committees have been set up in forty-eight counties to arrange the collection, drying and dispatch to the manufacturers. Schools and youth organizations are helping in the collection. Among the wild herbs now being collected are buckthorn, red poppy petals, elder flowers, comfrey, coltsfoot, horse radish, hyscop, hemlock, henbane, foxglove, dandelions and stinging nettles.

### The Immunization of Children Against Diphtheria

The Ministry of Health has issued a memorandum drawing attention to an increase in the dosage of alum precipitated toxoid for the production of artificial immunity against diphtheria which experience has shown to be desirable. At the end of 1940 the ministry undertook to provide gratuitously this prophylactic. The laboratories responsible for the distribution were informed that as a result of large scale trials a Schick conversion rate of about 98 per cent had been obtained with two doses of 0.1 and 0.3 cc respectively at an interval of not less than four weeks. This dose was generally adopted. But it was soon found that one preparation of alum precipitated toxoid, though satisfying the regulations yielded a much lower Schick conversion rate than 98 per cent and its issue was stopped. Further tests showed that the unsatisfactory results were not due to small doses employed but to a fundamental defect in antigenic potency.

It has been realized for some time that the assessment in the laboratory of the antigenic potency of alum precipitated toxoid presents considerable difficulty and that the tests laid down by the Therapeutic Substances Act may need revision. A more satisfactory method of preparing alum precipitated toxoid has recently been published and is available to all manufacturers. Tests carried out with the product have yielded satisfactory results with a dose of 0.1 and 0.3 cc. at four to six weeks interval. Nevertheless certain considerations suggest an increase of the dose to widen the margin of safety.

Therefore it is recommended that doses should be raised to 0.2 and 0.5 cc. The increase in the first dose is recommended mainly on practical grounds. The full quantity of antigen may not be introduced owing to an imperfectly calibrated syringe or to an escape of some of the inoculum. Another reason may be lack of uniformity of the inoculum, owing to neglect to shake the bottle thoroughly or to sedimentation in inoculating successive children. In issuing this memorandum the ministry takes the opportunity to emphasize that the immunization of children between the ages of 5 and 15 years will not alone suffice to reduce materially the incidence of diphtheria. This can be achieved only if a majority of the children of preschool age also are immunized. Children thus protected early should receive a supplementary dose of 0.5 cc. on beginning school life.

### Mass Radiography for the Detection of Tuberculosis in Recruits

The minister of labor and national service has presented to Parliament a report of his medical advisory committee, of which Lord Horder is chairman, on mass miniature radiography in the detection of pulmonary tuberculosis in recruits for the services. Requests were made by the National Association for the Prevention of Tuberculosis and by the Standing Advisory Committee on Tuberculosis that this method should form a normal part of the examination of recruits. Some two hundred recruits can be dealt with in an hour, but the photographs must afterward be processed and interpreted by tuberculosis specialists. The committee has no doubt of the value of the method and repeats an opinion previously expressed that its addition to the clinical examination of all recruits and to the radiologic examination by specialists of suggestive cases would be ideal. But for various reasons it is not practicable. The medical examination of recruits is done at two hundred centers and there are neither the machines nor the staffs available for all these boards.

The best alternative would be radiologic examination to the greatest number practicable after entry into the services, when recruits can be concentrated for the purpose at suitable depots. The committee commends steps already taken in this direction. The navy has examined many thousands by mass radiography, and active pulmonary tuberculosis was discovered in 0.3 per cent. The naval experience shows that it is far more important to examine trained men than recruits, as the majority of nonsymptomatic carriers of tubercle bacilli are found after they have been some time in the service rather than at the time of joining. In the air force the percentage of tuberculous found after joining was 0.2 and in the army 0.1. Measures already adopted by civilian medical boards have resulted in the rejection of about 1 per cent on account of pulmonary tuberculosis. This corresponds roughly with what is believed to be the incidence in the general population. The experience of the service examinations is that the number of cases of tuberculosis which the civilian boards failed to detect is between 1 and 2 per thousand. Thus the problem is of small magnitude.

### Cancer Research

The eighteenth annual report of the British Empire Cancer Campaign deals with the carcinogenic activity of many new synthetic compounds. British laboratories have led the way in the study of cancer producing and cancer inhibiting substances. In the research institute of the Cancer Hospital a research has been undertaken on seventy compounds, mostly new chemical substances synthesized for the purpose. The results support the view that there is an association between molecular structure and carcinogenic action. An attempt has been made to determine the occurrence of carcinogenic factors in the body. By subcutaneous injection of extracts of human liver obtained from cases of cancer seventeen sarcomas have been produced.



in mice. Attempts are being made to identify the active constituent of these extracts. The results so far obtained are difficult to interpret but form an encouraging basis.

The possibility that wood smoke, much used for food preservation, might contain carcinogenic substances has been investigated at the Cancer Research Laboratory, Newcastle-upon-Tyne, with negative result. At the Oxford University research center of the campaign investigations have been carried out on the striking augmentation of carcinogenesis when croton oil acts on mouse skin in conjunction with a dilute solution of benzpyrene. This effect has been traced to a croton resin in the oil. It has also been shown that this resin can convert a preneoplastic into a neoplastic lesion. The fact that this can be brought about by substances not themselves carcinogenic may have important clinical implications.

The clinical cancer research committee of the campaign is investigating the records of 15,000 cases. This year uterine cancer is the object of detailed study. Dr Percy Stocks of the General Register Office has made some interesting observations on the statistical significance of these returns. The liability to cancer of the cervix is greater at every age among married and widowed than among single women, especially between the ages of 45 and 65, when it is about seven times as great. But liability to cancer of the corpus uteri is somewhat less among married and widowed women than among single women. Only 26 per cent of patients suffering from uterine cancer consulted a physician within the first month of noticing the first symptoms, and only 45 per cent within the first three months. In 75 per cent of the cases the physicians made an examination promptly and referred the patient to the hospital.

#### IRRADIATION OF MALIGNANT TISSUES

The reaction of normal tissues following irradiation by surface doses of the order of 300 to 400 roentgens per minute was found to be less intense than from the same quantity and quality of radiation given at a dosage rate of 20 roentgens per minute. But the reactions of malignant tissue to high intensity was earlier and greater than that produced at lower dosage rates. The enforced use of radon for radium has raised the question whether the same physical dose of the gamma rays has the same biologic effect. No difference could be found experimentally or clinically. At St Bartholomew's Hospital work is being done with the million volt apparatus. A difference from the results of treatment of cancer of the rectum treated with the 200,000 volt apparatus is that temporary disappearance of the growth was more often observed.

#### A Register of Civilian War Dead

The Imperial War Graves Commission, which was established after the last war to take care of the graves of the many thousands of killed, has in this war made contact with the relatives of 67 per cent of the civilian war dead. Of these forty-two thousand were killed in Britain from the beginning of the war to the end of September 1941. The commission has obtained personal details for inclusion in a register which is being prepared. In order to make this as complete as possible a special appeal is being made to relatives or friends who have not replied to the commission's letter. The value of a personal communication was shown when a man from the East End of London called after receiving the usual letter concerning his daughter. He was able to supply details of more than twenty members of his family who had been killed. The ages of the civilian war dead range from 11 hours to 100 years.

#### University Adopts Health Tests for Students

As previously reported in *THE JOURNAL*, the routine medical examination of the young on leaving school, particularly x-ray examination of the chest for the detection of tuberculosis, is advocated. This procedure has now been adopted at one university, that of Sheffield. At first the examination was optional

and the number of students who availed themselves of it was small—not more than 20 per cent. It has now been made compulsory. In other faculties than medicine it will not include x-ray examination of the chest. The medical student will not only undergo radiologic examination of the chest on entrance but have a second one, with a sedimentation test, when he begins his clinical work, and a third one at the end of his second clinical year. The object of this repeated examination of the chest is not only to benefit the student but to prevent him from conveying infection to the patients with whom he will be in contact.

#### New Portable Machine for Administering Anesthetics

The first two hundred machines which will simplify emergency operations in the field and in air raids was presented by Lord Nuffield, the automobile magnate, to the director general of Air Force Medical Service. The machine is the Oxford vaporizer which, contained in a vermin proof case about the size of a portable phonograph, will take the place of the cumbersome gas cylinders formerly used to administer anesthetics. In future a medical officer carrying this small case, which weighs 30 pounds, and a small bottle of liquid ether will have all the anesthetic equipment he needs. The vaporizer is the result of several years' research in the Nuffield Department of Anesthetics at Oxford University under the direction of Group Captain R. R. Mackintosh.

Liquid ether is vaporized inside the machine, and the patient inhales the gas. The vaporizer is foolproof and can be worked by any one with expert direction. In hot climates anesthetics evaporate as soon as they are poured on the face mask, often before the patient has time to inhale them. The vaporizer does away with this difficulty. Special experiments are being conducted with sand from the Libyan desert, so that filters can be fitted to prevent sand from affecting the machine.

#### Decree of Nullity of Marriage Obtained by Blood Test

For the first time in this country a blood test has been used in the law courts to disprove paternity. On June 15, 1940 a man cohabited with a woman, who told him a few days later that she was pregnant. He married her in August and left her soon afterward. On Jan. 8, 1941 she bore a full term child. Medical evidence established that the child could not possibly have been conceived in the previous June. The husband sued for a declaration of nullity of marriage on the ground that the woman was pregnant by another man at the time of the marriage. Dr. G. Roche Lynch, the government analyst, gave evidence that he had grouped the blood of the husband, wife, and child. The husband's was OM, the wife's BM and the child's ABN. Therefore the factors A and N in the child's blood were not accounted for and the husband was not the father. The judge declared that the husband's case was established and pronounced a decree of nullity of the marriage.

## Marriages

WILLIAM MASSIE SMETHIE, Richmond, Va., to Miss Lee Harrington of Rocky Mount, N. C., in Chapel Hill, April 4.

HILTON DRUMMOND HAINES, Greenwich, Conn., to Martha Ledbetter of Rockingham, N. C., April 25.

GUY HEWITT BRANAMAN, Waynesboro, Va., to Miss Virginia Ferrell in Ronceverte, W. Va., April 18.

HENRY ST. GEORGE TUCKER JR., Richmond, Va., to Mary Grasty Bell of Staunton, April 25.

GERALD WATTS SCURRY, Columbia, S. C., to Miss Jordan Thomas in Charleston in April.

CHARLES W. HOCK, to Miss Margaret Henkle in Winston-Salem, N. C., April 30.

LEE BRAYTON, Indianapolis, to Miss Louise Kano in Chicago, Ill., April 4.



## Deaths

Leon Kahn Baldauf, Waltham Mass, Johns Hopkins University School of Medicine Baltimore, 1905, member of the Massachusetts Medical Society and the American Association of Pathologists and Bacteriologists, professor of pathology at the Middlesex University School of Medicine at one time professor of pathology and bacteriology at the University of Louisville (Ky) School of Medicine formerly on the staff of the Cambridge City Hospital, aged 64, died recently in the New England Baptist Hospital, Boston

William Aubrey Poole @ Lexington, Ky, St Louis University School of Medicine, 1906, member of the American Academy of Ophthalmology and Otolaryngology, specialist certified by the American Board of Otolaryngology, past president of the Henderson County Medical Society, major in the medical corps of the U S Army during World War I, at one time health officer of Henderson, aged 60, died, June 2, of injuries received in an automobile accident in March

Elmer Douglas Osmun, Allegan, Mich, University of Michigan Homeopathic Medical School Ann Arbor, 1892, member of the Michigan State Medical Society, served in the medical corps of the U S Army during World War I, for many years served on the board of education and as county coroner, examiner for the Selective Service System, aged 73, died, April 23

Howard Kenneth Glidden, Swampscott, Mass (licensed in Massachusetts in 1899) veteran of the Spanish-American War, formerly member of the board of health of Swampscott and school committee, aged 67 died, May 30, in the Massachusetts General Hospital, Baker Memorial, Boston, of heart disease, hypertension and arteriosclerosis

Louis Dorpat, Milwaukee, Milwaukee Medical College 1905, member of the State Medical Society of Wisconsin, formerly deputy state health officer, health officer of Ironwood, Mich, from 1924 to 1931, formerly superintendent of the South View Hospital, aged 70, died, May 25, in the Milwaukee County Hospital of coronary occlusion

John Henry Ramey, Rock Camp, Ohio Miami Medical College, Cincinnati, 1897, president of the board of education of Lawrence County, served in the medical corps of the U S Army during World War I aged 69 died, May 28, in the Lawrence County General Hospital, Ironton of left bundle branch block

Carl Gustav Fahndrich @ Battle Creek Mich, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1920 member of the American College of Chest Physicians, medical director of the Calhoun County Public Hospital, aged 47, died, May 31, in a hospital in Chicago

Andrew Cornelious Dorminy, Hoboken Ga Atlanta College of Physicians and Surgeons, 1911 member of the Medical Association of Georgia also a druggist, served during World War I aged 61, died March 19 in the Veterans Administration Facility, Lake City, Fla of cirrhosis of the liver

George Washington Billig @ Chicago Bennett College of Eclectic Medicine and Surgery Chicago, 1898, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois 1901, on the staff of Swedish Covenant Hospital, aged 65, died, June 7, of cerebral hemorrhage

Arthur Leil Leeds, Phoenix, Ariz Hahnemann Medical College and Hospital, Chicago 1902 College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois 1904 for many years associated with the Indian Service aged 72 died May 7 of aneurysm of the aorta

Frank M Tracy Kansas City Kan College of Physicians and Surgeons Medical Department, Kansas City University, Kansas City 1899, formerly county coroner and member of the city council aged 84 died May 3 in St Margaret's Hospital of coronary sclerosis and hypostatic pneumonia

Gavin Hamilton, Houston Texas McGill University Faculty of Medicine, Montreal Que Canada, 1894 fellow of the American College of Surgeons formerly on the staffs of the Memorial and Hermann hospitals aged 70, died May 26 of heart disease

Gustus Brinton Hepp Denver Northwestern University Medical School Chicago, 1891, member of the Colorado State Medical Society on the staffs of St Luke's St Joseph's and St Anthony's hospitals, aged 76 died, May 26 of cerebral hemorrhage

Thomas B Snoddy, Pala, Calif, College of Physicians and Surgeons, Little Rock, 1911, for many years physician in the Indian Service, aged 65, died May 1, in the Mercy Hospital San Diego, of pneumonia, diabetes mellitus and tuberculous meningitis

Horace Shaughnessy E Root, New York, Queen's University Faculty of Medicine, Kingston, Ont, Canada, 1924, until recently was employed by a construction company in Honolulu, Hawaii, aged 40, died suddenly, May 5, of coronary occlusion

William Thomas Harvell, Oakland, Tenn, Memphis (Tenn) Hospital Medical College, 1899 served during World War I, aged 66, died, May 6 in the Veterans Administration Facility, Memphis, of encephalomalacia of the occipital lobes

William A Cotton, Escanaba, Mich, University of Michigan Homeopathic Medical School Ann Arbor, 1889, member of the board of directors of the Pinercrest Sanatorium, Powers, aged 78 died, May 26, in St Francis Hospital

Edward LeRoy Barnett @ New York, Columbia University College of Physicians and Surgeons New York, 1899, formerly on the staff of the Hospital for Ruptured and Crippled, aged 68, died, June 7, of coronary thrombosis

Philip Schmitt, Milwaukee, Jefferson Medical College of Philadelphia 1883 member of the State Medical Society of Wisconsin aged 82, died, May 26, in the Milwaukee Hospital of carcinoma of the left tonsil

Bryant Hooper Trewyn @ Peoria Ill, St Louis University School of Medicine, 1925 president of the local board of education, on the staff of St Francis Hospital aged 41, died, June 9 of heart disease

Adolph Noha, New Orleans, Medical Department of Tulane University of Louisiana New Orleans, 1890, member of the Louisiana State Medical Society, aged 80, died, May 29, of chronic nephritis and uremia

Benjamin Victor Howard, Knoxville Tenn, Vanderbilt University School of Medicine, Nashville 1912, formerly member of the state board of nurses examiners, aged 53, died May 24 of coronary occlusion

Henry Worst Sweigart, Lewistown Pa University of the City of New York Medical Department, New York 1890, member of the Medical Society of the State of Pennsylvania, aged 76 died May 18

George Chauncey Wrigley @ Sonora, Calif College of Physicians and Surgeons of San Francisco, 1909, served during World War I, aged 57, died, May 1 of a skull fracture received in a fall

Alexander W Burch Lincolnton, Ga, University of Georgia Medical Department, Augusta 1889 for many years member of the board of education and city council, aged 76, died, April 17

William Henry Weed Hinds, Milford N H, Boston University School of Medicine, 1895 member of the New Hampshire Medical Society, aged 74, died March 10, in Wilton

Andrew Wesley McClennan, Toronto Ont, Canada, University of Toronto Faculty of Medicine 1907 formerly on the staff of the Toronto Western Hospital where he died, May 9

Harold J Hoover, Grand Ledge Mich, Saginaw Valley Medical College Saginaw 1903 aged 67 died, May 4 of chronic nephritis hypertension and angina pectoris

George Clinton Kilgore, Gloucester City N J Baltimore Medical College 1895 aged 73, died May 11, of laryngeal carcinoma

Charles Edward Windeler, Chicago Medical College of Ohio, Cincinnati, 1900 aged 64 died May 9 of organic heart disease

## DIED IN MILITARY SERVICE

Frederick Talmadge Rice @ Major U S Army retired registrar at the new U S Army Hospital (Hoff General Hospital) Santa Barbara Calif Hahnemann Medical College and Hospital, Chicago 1907 entered the medical corps of the U S Army as a captain in 1920 and retired with rank of major in 1929 for disability in line of duty served during World War I recalled to active duty May 7 1941 aged 61 was killed May 7 in an automobile accident

## Bureau of Investigation

## MISBRANDED PRODUCTS

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States  
Department of Agriculture

[EDITORIAL NOTE—These Notices of Judgment are issued under the Food, Drug and Cosmetic Act and in cases in which they refer to drugs and devices they are designated D D N J and foods, F N J. The abstracts that follow are given in the briefest possible form (1) the name of the product, (2) the name of the manufacturer, shipper or consigner, (3) the date of shipment, (4) the composition, (5) the type of nostrum, (6) the reason for the charge of misbranding and (7) the date of issuance of the Notice of Judgment—which is considerably later than the date of the seizure of the product and somewhat later than the conclusion of the case by the Food and Drug Administration.]

**Anti Poison**—Anti Poison Medicine Company, Springfield, Mo. Oct 11, 1939 Composition essentially extracts of plant drugs including an astringent alcohol (121 per cent by volume), water and a trace of an ammonium compound. Misbranded because label falsely represented the product as an effective treatment and cure of chills, malaria, eezema, scrofula, cholera morbus reptile and insect bites, rheumatism, lung hemorrhages, asthma, female troubles, la grippe, coryza, "blood poison of every description," tumorous cancer, stomach and bladder diseases and many other disorders. Further misbranded because represented to contain 20 per cent of alcohol and to be an anti poison, anti septic and "the best blood medicine on the market"—[D D N J, F D C 304, November 1941]

**Coston's 6 and 3 Herb Compound**—C S Coston, Lockwood, Tenn. Jan 17, 1940 Composition essentially plant drugs including a bitter (aloe), an alkaloid bearing drug, a laxative drug, a trace of sodium benzoate, sugar and water. Misbranded because falsely represented on the label to be a stomachic, diuretic and laxative and a remedy for stomach, liver, kidney, blood and nervous disorders, rheumatism and some other things.—[D D N J, F D C 306, November 1941]

**Deane's Adhesive Bandage**—Deane Plaster Company, Yonkers, N Y. June 29, 1940 Misbranded because of following false and misleading claims in labeling "First aid for minor cuts. Wounds. Apply the gauze pad directly over the wound. Will afford complete protection from the cut or wound" whereas specimen examined was found to be contaminated with viable micro organisms. Further misbranded because label did not bear the name and address of the manufacturer, picker or distributor.—[D D N J, F D C 320, November 1941]

**Diabet-Tea**—Diabet Tea Company, Scranton, Pa. Sept 11, 1940 Composition ground *hypericum perforatum*, commonly called St. John's wort. Misbranded because of false statement on label "Nature's Good Diabet Tea for Diabetes. The contents of this package has been carefully prepared for the use of those who suffer from diabetes" and because label did not bear the common or usual name of the drug which comprises the preparation.—[D D N J, F D C 307, November 1941]

**Dr Seth Hart's Croup Syrup**—Parker Medicine Company, Athens, Ohio. Jan 8, 1940 Composition essentially sugar, water, extracts of plant drugs and 3 per cent of alcohol. Not efficacious for coughs, croup, acute bronchitis, pleurisy or inflammation of the lungs as represented, and hence misbranded.—[D D N J, F D C 311, November 1941]

**Fru-Lax**—Fru-Lax Company, Chicago. Between April 8 and July 9, 1940 Composition essentially purging tissues of cassia, senna leaf and carob bean. Misbranded because label falsely represented that it was not habit forming, that it would restore health and relieve ailments caused by poisons absorbed from the bowels, that it was an effective treatment of rheumatism neuritis, stomach disorders, gallbladder trouble, headaches, certain skin ailments, colds, hemorrhoids high blood pressure and some other things that it was an ideal neutralizer" which would make the body disease proof and that it possessed rejuvenating and restorative properties.—[D D N J, F D C 340, March 1942]

**Kotalko**—Kotalko Sales Company, New York. Feb 20, 1940 Composition not stated. Labeled in part "For the Scalp—Kotalko—For the Hair". Misbranded because misrepresented as to net weight of contents and because container was deceptive.—[D D N J, F D C 315, November 1941]

**Lenmar Company's Infra Red Lamp**—Lenmar Company, Los Angeles. July 26 1939 Description a heating element screwed into a table type lamp base. Misbranded because label falsely represented the lamp as giving forth "healing rays from the sun" that penetrate deep into the flesh, stimulating the nerves and causing greatly increased circulatory action, which destroys infectious rebuilds diseased tissue and promotes bodily health and vitality, will relieve suffering from asthma, neuritis, stiff swollen joints, sinus trouble and rheumatism. breaks up congestion indicated by acute pain and poor circulation. Women experiencing trouble at menstruation will find comforting relief by using this. Infra Red rays are also very beneficial in the treatment of inflammation of the gall bladder, hysterical nervous diseases, inflammation of the various bones, membranes and inflammation of the joints"—[D D N J, F D C 299, November 1941]

**Lightning Hot Drops**—Herb Medicine Company, Springfield, Mo. Jan 2, 1940 Composition ether, chloroform and alcohol. Misbranded because ingredients present in smaller amounts than those declared on the label as "Each fluid ounce contains 48 minims of chloroform, minims of ether, alcohol 60% by volume"—[D D N J, F D C 318, November 1941]

**Maurice Le Bell's Formula No 7**—Hollywood Formulas, Inc., Los Angeles. Sept 11, 1940 Composition tablets containing Irish rhubarb root seaweed, parsley leaf, cranberry fruit and leaves reducing celery. Misbranded because of false statements on the label such as "As recommended by Hollywood's famous Dr Maurice Le Bell D C reducing specialist" and in booklet, "Instructions contained in this booklet are a vital part of your reducing program" and "simplified form of the famous reducing methods used by Dr Maurice Le Bell D C, in his many years of private practice"—[D D N J, F D C 341, March 1942]

**Miracle Lotion**—Martinsville Laboratories Inc, Martinsville, Va. July 1, 1940 Composition isopropyl alcohol 60 per cent by volume, salicylic acid, benzoic acid, water, perfume and a green coloring material. Misbranded because label falsely represented that the product was good for scalp diseases dandruff falling hair and skin disorders in general such as itch ringworm and pimples, and, in addition, aching joints muscles and some other conditions. Further misbranded because amount of the ingredients not accurately declared on labeling nor was quantity or proportion of alcohol correctly stated.—[D D N J, F D C 298, November 1941]

**Odell's Quinine for the Hair**—Odell Company, Newark, N J. Nov 19 1940 Composition not reported. Misbranded because name falsely represented that the product contained quinine, which it did not further misbranded because label did not bear common names of the active ingredients or a statement as to amount or proportion of alcohol present.—[D D N J, F D C 297, November 1941 C N J, F D C 31, January 1942]

**Oster Massagett**—John Oster Manufacturing Company, Racine, Wis. Jan 18, 1940 Description "an electric motor so constructed as to vibrate when it revolved, and fitted with an attachment whereby it vibrated clamped to the back of the hand". Misbranded because label falsely represented that this device would be efficacious for development and preservation of good health, stimulate blood circulation eliminate congestion and banish localized pain, would give some relief in acute types of arthritis and delay the progress of chronic arthritis, would be of great value in the treatment of sprains and bruises by restoring the blood circulation, would ease stiff joints and separate adhesions therefrom would penetrate deeply into the stomach and intestines with sufficient force to help normalize the natural functions of the digestive organs and be effective in mental fatigue, headache, nervousness, insomnia and nerve prostration and many other disorders.—[D D N J, F D C 309, November 1941]

**Purity Pine Disinfectant**—Wilco Laboratories, Inc, New York. Sept 29, 1939 Composition soap, water and pine oil. Misbranded because falsely represented in labeling as effective in the treatment of minor cuts and wounds.—[D D N J, F D C 310, November 1941]

**Samson Therapeutic Lamp**—Samson United Corporation, Rochester, N Y. Between Nov 25, 1939 and Jan 2, 1940 Description a table type lamp fitted with a heating element. Misbranded because of following false and misleading claims in accompanying circular "Excellent for relief of arthritis, lumbago, cramps, colds, sprains etc. Designed by prominent engineers and approved by outstanding local authorities, this therapeutic lamp, used a few minutes daily, brings health, beauty and vitality. Care of hair. General application of therapeutic rays every night will keep scalp healthy and improve circulation. Colds. Apply rays to back of neck and down along spine to relieve congestion. Cramps. rheumatism. menstrual pains. insomnia. backache. skin ailments. Therapeutic rays stimulate pores, eliminate all impurities and sterify tissues. Invaluable in treatment of acne, corns feet, dry skin, chapped wrinkles blemishes, etc"—[D D N J, F D C 300, November 1941]

**Slendotabs**—Keneo Products, Elmira, N Y. May 18, 1940 Composition in each tablet, approximately 1/2 gram of phenolphthalein in addition to a resinous drug such as leptandra resin, compounds of equivalent to 0.088 gram of iodine per tablet and alkaloidal resin including strychnine. Misbranded because falsely represented on label to reduce excessive fat effectively, to be a scientifically balanced reduction method and to help eliminate waste matter and accretions from the body, further misbranded because label failed to state the presence of strychnine or to declare the amount thereof, and the user that the product might be dangerous to health in cases of appendicitis and might cause skin eruption and other on laxatives.—[D D N J, F D C 342, March 1942]

**Wittone**—Wittone Sales Agency of United Distributors Inc, Louisville, Ky. About May 1940 Composition essentially a solution of epsom salt with almost negligible amounts of iron and citrate and the salicylate, phosphate and bicarbonate of sodium and a flavoring material. Misbranded because label falsely represented that it be efficacious for the health to help one eat and sleep well, banish spells dizziness headaches sour stomach and other orders and keep the system free from impurities. Further misbranded because among other things the "tone" part of the name gave the false impression that the product acts as a tonic. Further misbranded because label did not warn against use of the product by children, to whom its use might be dangerous. Further misbranded because continued use, which might establish dependence on it.—[D D N J, F D C 344, March 1942]

## Correspondence

### AVERAGE AGE OF PHYSICIANS AT DEATH

*To the Editor*—The analysis of the statistics obtained from the obituary list of *THE JOURNAL* (Deaths of Physicians in 1941 editorial June 13 p 565) reminds me of an interesting finding gleaned from that section some time ago. Weekly review of that column never failed to arouse my curiosity as to the average age of the physicians whose deaths were reported at the top of the list compared to that of those at the bottom.

It seemed an unusual opportunity to determine what price success or probably, more correctly prominence. From this information the life span of the physicians who attained position and prestige could be compared to that of those who appear to have lived under less stress among their patients.

To satisfy this curiosity, our resident, Dr Mortimer Canuel averaged the age of the first and the last ten of each column of thirty successive issues of 1939. On compilation of these figures we learned that the average age of those high in the list was 64.6 years as against 69.3 years for the lowermost ten—a difference of 4.7 years.

RICHARD A. RENDICH, M.D., Brooklyn

### ARTERIOSCLEROSIS AND VARICOSE VEINS

*To the Editor*—In the paper on arteriosclerosis and varicose veins by Drs Lake, Pratt and Wright (*THE JOURNAL*, June 27 p 696) appears the statement "Although years of study by numerous workers have been devoted to this great enigma of biology, it can be fairly stated that today it is not known whether arteriosclerosis should be considered as a disease or as a purely degenerative process."

The arterial lesions that are discussed in this paper are largely due to atherosclerosis after primary spasmodic processes and the minor Monckeberg's sclerosis are excluded. Atherosclerosis is not a "purely degenerative process." It is a complex disease as specific in character as the infectious diseases. Unlike so-called senile sclerosis a negative condition due to passive dilatation of weakness of arterial walls, atherosclerosis is an active disease of positive quality which may even be characterized as an aggressive disease when it kills robust boys in the twenties with the highly selective process coronary sclerosis.

The only criteria that we have for demonstrating the causative relation of a given agent to a disease are Koch's postulates applied to infectious diseases. They require that the agent shall be found constantly in the lesions of the disease, shall be isolated in pure culture and shall reproduce the lesions of the disease when introduced into susceptible animals. We have been compelled to make compromises with Koch's laws in some infections because we cannot cultivate the suspected agent, or susceptible animals cannot be found or for other reasons.

Cholesterol visible under the polariscope is normally limited to the adrenal cortex, myelin sheaths, interstitial testicular cells and sometimes corpora lutea. Visible cholesterol in other sites in the body is associated with disease. It is excess cholesterol. Ester cholesterol can be identified in the tissues by its specific crystals more readily than can bacteria. It has been demonstrated that excess cholesterol is an irritant comparable to a degree with silica. Visible cholesterol is always present in the lesions of atherosclerosis. It is the distinguishing mark of this form of arteriosclerosis. It can be extracted from the atherosclerotic lesions. When fed to rabbits in adequate dosage it will reproduce the lesions of human atherosclerosis with more

exactness than can the lesions of many infectious diseases be reproduced by the introduction into susceptible animals of the accepted bacterial causes of these diseases (*Arch Path* 32 507 [Oct] 1941). No compromises with Koch's postulates are necessary in determining the causative relation of excess cholesterol to atherosclerosis.

Atherosclerosis, the important form of arteriosclerosis, is a specific disease due to excess cholesterol.

TIMOTHY LEARY, M.D., Boston

### "RADIATION THERAPY OF PROSTATIC CARCINOMA"

*To the Editor*—In the able survey of the present day therapy in cancer of the prostate there appears to have crept into the Query and Minor Note of March 7 at least one inaccuracy. The author of the answer says "once the clinical diagnosis of carcinoma of the prostate has been made it is technically impossible to do any sort of surgical procedure that would effect a cure." As far as the surgical cure of this highly malignant disease is concerned that has been answered by Drs Hinman, Lowsley and Young in their communications of June 20. As far as irradiation goes I have reported two authenticated five year cures proved by pathologic specimen before treatment (by radon needles) and proved carcinoma free at autopsy five years later (*J Urol*, March 1942).

In the same article I reported that of 352 patients 21 (6 per cent) lived more than five years, apparently free from carcinoma for periods between five and nineteen years: 5 for five years, 6 for six years, 1 for seven years, 2 for eight years, 2 for nine years, 1 for ten years, 1 for twelve years, 1 for thirteen years, 1 for sixteen years and 1 for nineteen years. In but 10 of these cases was the diagnosis made pathologically. In 3 cases the diagnosis was by aspiration biopsy, and in 8 cases the diagnosis was made clinically.

Aspiration biopsy is a decided step in advance whereby to prove pathologically the presence of early carcinoma. This method stressed for many years at the Memorial Hospital has been largely neglected by urologists. It has proved in our hands a valuable method of diagnosis not always succeeding, but when positive serving as an important means of early diagnosis.

Orchiectomy as advanced by Huggins marks a milestone in progress. He has shown that 5 out of 45 patients with advanced prostatic carcinoma with metastasis are apparently free from disease the longest having gone some thirty-two months after this operation.

BENJAMIN S. BARRINGER, M.D.,  
Memorial Hospital  
New York

### PURKINJE AND THE ORIGINS OF OPHTHALMOSCOPY

*To the Editor*—To your editorial Purkinje and the Origins of Ophthalmoscopy in *THE JOURNAL* May 23 page 348 I object that you spell Purkyně's name in three different ways: Purkinje, Purkine and Purkyně, the last one being correct.

John Evangelist Purkyně was born in 1787 in Bohemia of Czech parents and died in 1869 as a professor of the Charles University in Prague. He was the founder of the modern Czechoslovak medicine.

Although the American textbooks spell his name Purkinje, the correct spelling of his name is Purkyně and the correct pronunciation is Poor-ki-ne.

Otherwise I thank you for giving proper credit to my great countryman.

KARLIL JAROMIR NEUMAN, M.D., Schenectady, N.Y.

## Council on Medical Education and Hospitals

### CONTINUATION COURSES FOR PRACTICING PHYSICIANS

In accordance with the plan of the Council on Medical Education and Hospitals, advance information concerning continuation courses for practicing physicians available in the various centers is published quarterly. The following list consists of courses

beginning during the period July 20-Oct 20, 1942. It is hoped that this material will be useful to the practicing physician who is planning to take postgraduate work but does not have a ready means of knowing when and where the subjects in which he is interested will be taught. Since many of the classes are necessarily limited, those who contemplate enrolling in any of the courses are urged to communicate as early as possible with the proper executive officer.

H. G. WEISKOTTEN, M.D.,  
Secretary, Council on Medical  
Education and Hospitals

#### Continuation Courses for Practicing Physicians, July 25-October 25, 1942

| Institution  | Dates and Length of Course                                   | Title of Course   | Number of Students Accepted | Registration Fee and/or Tuition          | For Detailed Information Write to  |
|--|--|---|-----------------------------|--|--|
| <b>ALLERGY</b> —See also Dermatology and Syphilology<br>University of Pennsylvania Graduate School of Medicine   | Arranged, 4 weeks, about 40 hours                            |   | Individuals <sup>1</sup>    | \$150                                    | Dr. R. C. Buerki, Dean, Graduate School of Medicine, The Medical College, 237 Medical Laboratories, Philadelphia, Pennsylvania         |
| <b>ANATOMY</b> —See also Gynecology, Orthopedics, Otolaryngology, Psychiatry & Neurology, Surgery<br>New York Medical College, Flower and Fifth Avenue Hospitals | Arranged, 60 hours   | Applied anatomy of the ear, nose and throat             |                             | \$150 <sup>2</sup>                       | Dr. J. A. W. Hetrick, Dean, New York Medical College, Flower and Fifth Avenue Hospitals, 5th Avenue at 10th Street, New York, N. Y.    |
|  | Arranged, 90 hours   | Applied anatomy of pelvis and abdomen                   |                             | \$250                                    |  |
|  | Arranged, 60 hours   | Applied anatomy of the urogenital system                |                             | \$150 <sup>2</sup>                       |  |
|  | Arranged, 100 hours  | Surgical anatomy <sup>3</sup>                           |                             | \$250                                    |  |
| <b>ANESTHESIOLOGY</b><br>Harvard University Medical School   | Monthly days and hours arranged                              | Clinical anesthesia                                     | 8                           | \$30 <sup>4</sup>                        | Dr. Frank R. Ober, Assistant Dean, Courses for Graduates, Harvard University Medical School, 23 Shattuck Street, Boston, Massachusetts |
| Columbia University Faculty of Medicine  | Any Monday when a vacancy occurs, full time for 2 or 3 weeks | General course  | 1 <sup>1</sup>              | \$100 <sup>5</sup><br>\$150 <sup>6</sup> | Director of the School, New York Postgraduate Medical School, 303 East 47th Street, New York, N. Y.                                    |
|  | Arranged, 12 sessions  | Regional anesthesia                                     | 24 <sup>1</sup>             | \$75 <sup>5</sup>                        |  |
| New York Polyclinic Medical School and Hospital  | 1st of any month, 6 weeks or 3 months                        | General laboratory procedures, special courses arranged | 4                           | Arranged                                 | Dr. F. H. Dillingham, Executive Officer, New York Polyclinic Medical School, 335 West 50th Street, New York, N. Y.                     |
| <b>BACTERIOLOGY</b> —See also Gastroenterology and Public Health<br>Columbia University Faculty of Medicine  | October, mornings for 1 month                                | Bacteriological service in medicine and surgery         | 520                         | \$50 <sup>5</sup> <sup>6</sup>           | Director of the School, New York Postgraduate Medical School, 303 East 47th Street, New York, N. Y.                                    |
| <b>BASIC SCIENCES</b> —See Dermatology and Syphilology<br><b>BIOCHEMISTRY</b><br>Harvard University Medical School   | Arranged   | Research in biological chemistry                        |                             | Arranged <sup>4</sup>                    | Dr. Frank R. Ober, Assistant Dean, Courses for Graduates, Harvard University Medical School, 23 Shattuck Street, Boston, Massachusetts |
| <b>BRONCHOESOPHAGOLOGY</b> —See Otolaryngology<br><b>CARDIOLOGY</b><br>Michael Reese Hospital  | Aug 17-29, full time for 2 weeks                             | Electrocardiography                                     |                             |  | Cardiovascular Department, Michael Reese Hospital, 29th and Erie Aves., Chicago, Illinois  |
| Harvard University Medical School  | August, 6 mornings, 4 afternoons a week for 1 month          | Combined course   | 1020                        | \$150 <sup>4</sup>                       | Dr. Frank R. Ober, Assistant Dean, Courses for Graduates, Harvard University Medical School, 23 Shattuck Street, Boston, Massachusetts |
| Tufts College Medical School   | Sept 28-Oct 2, 1942  | Electrocardiography                                     |                             | \$25 <sup>4</sup>                        | Dr. Samuel Proger, Chairman, Postgraduate Department, Tufts College Medical School, 30 Bennett St., Boston, Massachusetts              |
| Columbia University Faculty of Medicine  | Sept 28-Oct 2, Oct 6-29, 9.5 daily                           | Electrocardiography                                     | Minimum 4                   | \$50 <sup>5</sup> <sup>6</sup>           | Director of the School, New York Postgraduate Medical School, 303 East 47th Street, New York, N. Y.                                    |
| New York Medical College, Flower and Fifth Avenue Hospitals  | Arranged, 16 bi-weekly sessions                              | Clinical course   |                             | \$100                                    | Dr. J. A. W. Hetrick, Dean, New York Medical College, Flower and Fifth Avenue Hospitals, 5th Avenue at 10th Street, New York, N. Y.    |
| University of Pennsylvania Graduate School of Medicine   | Weekly, 5 days, about 30 hours                               | Electrocardiography and cardiac roentgenology           | Individuals <sup>1</sup>    | \$60                                     | Dr. R. C. Buerki, Dean, Graduate School of Medicine, The Medical College, 237 Medical Laboratories, Philadelphia, Pennsylvania         |
| <b>CYSTOSCOPY</b> —See Gynecology, Urology<br><b>DERMATOLOGY AND SYPHILOLOGY</b><br>Harvard University Medical School  | Arranged, 2 mornings a week for 2 months                     | Clinical mycology                                       | 6                           | \$50 <sup>4</sup>                        | Dr. Frank R. Ober, Assistant Dean, Courses for Graduates, Harvard University Medical School, 23 Shattuck Street, Boston, Massachusetts |
|  | October 1-12, full time for 1 year                           | General course  | Limited <sup>7</sup>        | \$300 <sup>4</sup>                       |  |
|  | Arranged, full time  | General course, Elective Skin ward work                 | Limited <sup>8</sup>        | Arranged <sup>4</sup>                    |  |
|  | Monthly, every morning                                       | Practical course in dermatology                         |                             | \$10 <sup>4</sup>                        |  |

## Continuation Courses for Practising Physicians, July 25-October 25, 1942—Continued

| Institution  | Date and Length of Course                            | Title of Course  | Number of Students Accepted | Registration Fee and/or Tuition | For Detailed Information Write to  |
|--|--|--|-----------------------------|---------------------------------|--|
| <b>DERMATOLOGY AND SYPHILOLOGY—Continued</b>               |  |  |                             |                                 |  |
| Columbia University Faculty of Medicine                    | Oct 1 1942—<br>May 2, 1943                           | Basic science in their relation to dermatology and syphilology                               | Limited 1                   | \$75.00                         | Director of the School New York Post Graduate Medical School 303 East 20th Street New York N. Y.                                   |
|  | When a vacancy occurs 6 weeks or months              | Clinical dermatology and syphilology   | 20 per section              | \$40<br>\$1.00                  |  |
|  | When a vacancy occurs 6 weeks or 6 months            | Diagnosis and treatment of syphilis  | 6 per section               | \$25.00<br>\$10.00              |  |
|  | Oct 1 1942—<br>May 2, 1943                           | Pathological histology of diseases of the skin   | Limited 1                   | \$75.00                         |  |
|  | When a vacancy occurs 6 weeks or 3 months            | Practical instruction in dermatologic allergy and immunology                                 | 3 1                         | \$10.00<br>\$75.00              |  |
|  | When a vacancy occurs 6 weeks or 3 months            | Practical instruction in diagnosis and management of syphilis                                | 3                           | \$10.00<br>\$75.00              |  |
|  | Arranged 6 weeks or 3 months                         | Practical instruction in minor dermatologic surgery  | 2 1                         | \$40.00<br>\$75.00              |  |
|  | Arranged 6 weeks or 3 months                         | Practical instruction in mycology and animal parasitology as related to diseases of the skin | 3 1                         | \$40.00<br>\$75.00              |  |
|  | When a vacancy occurs 3 months 6 months or 1 year    | Practical instruction in pathological histology of diseases of the skin                      | 12 1                        | \$75.00<br>\$100.00<br>\$175.00 |  |
|  | When a vacancy occurs 6 weeks or 3 months            | Practical instruction in physical therapy as applied to diseases of the skin                 | 3                           | \$40.00<br>\$75.00              |  |
| University of Pennsylvania Graduate School of Medicine     | Oct 7 1942—<br>May 29 1943<br>full time for 8 months | Basic course   |                             | \$300.00                        | Dr R C Buerki Dean Graduate School of Medicine The Medical-Chirurgical College 237 Medical Laboratories Philadelphia, Pennsylvania |
| <b>ELECTROCARDIOGRAPHY—See Cardiology</b>                  |  |  |                             |                                 |  |
| <b>ENDOCRINOLOGY—See Gynecology Medicine</b>               |  |  |                             |                                 |  |
| <b>ENDOSCOPY—See Gynecology Surgery</b>                    |  |  |                             |                                 |  |
| <b>GASTROENTEROLOGY</b>                                    |  |  |                             |                                 |  |
| Columbia University Faculty of Medicine                    | Arranged 2 months                                    | Gastroscopy  | Individuals 1               | \$5.00                          | Dean of the Faculty of Medicine Columbia University 670 West 16th Street New York N. Y.  |
| New York Medical College Flower and Fifth Avenue Hospitals | Arranged 10 sessions                                 | Gastroscopy  |                             | \$100.00                        | Dr T A W Hetrick Dean New York Medical College Flower and Fifth Avenue Hospital 5th Avenue at 10th Street New York N. Y.           |
|  | Arranged 5 sessions                                  | Peritoneoscopy   |                             | \$50.00                         |  |
| Hahnemann Medical College                                  | Arranged   | Bacteriological technique  |                             | Arranged                        | Dr William A Pearson Dean Hahnemann Medical College 235 North 15th Street Philadelphia Pennsylvania                                |
|  | Arranged   | Duodenal Biliary Drainage  |                             | Arranged                        |  |
|  | Arranged   | Gastroscopy  |                             | Arranged                        |  |
|  | Arranged   | Intestinal Bacteriology  | Individuals                 | Arranged                        |  |
|  | Arranged   | Microscopy of Bile   |                             | Arranged                        |  |
| University of Pennsylvania Graduate School of Medicine     | Arranged 16 weeks about 500 hours                    | Clinical course  | Individuals 1               | \$400                           | Dr R C Buerki Dean Graduate School of Medicine The Medical-Chirurgical College 237 Medical Laboratories Philadelphia Pennsylvania  |
| <b>GASTROSCOPY—See Gastroenterology Otolaryngology</b>     |  |  |                             |                                 |  |
| <b>GYNECOLOGY—See also Obstetrics Pathology</b>            |  |  |                             |                                 |  |
| Harvard University Medical School                          | Oct 1 1942—<br>Jan 1 1943<br>12 or 20 exercises      | Clinical gynecology  | 4 11                        | \$50.00<br>\$30.00              | Dr Frank R Ober Assistant Dean Courses for Graduates Harvard University Medical School 25 Shattuck Street Boston Massachusetts     |
|  | August—<br>September 12<br>1 month                   | General course   | 4 11                        | \$75.00                         |  |
|  | Monthly 10 exercises                                 | Gonorrhea in women   | 3                           | \$20.00                         |  |
| Columbia University Faculty of Medicine                    | When a vacancy occurs 15 sessions                    | Cystoscopy and endoscopy   | 6                           | \$75.00                         | Director of the School New York Post Graduate Medical School 303 East 20th Street New York N. Y.                                   |
|  | Monthly 10 sessions                                  | Diagnosis and office treatment   | 6                           | \$10.00                         |  |
|  | Monthly 15 sessions                                  | Diagnosis and office treatment   | 6                           | \$50.00                         |  |
|  | Monthly when classes formed 8 weeks                  | Gynecological endocrinology  | 4 8                         | \$100.00                        |  |
|  | Arranged 4 weeks or more                             | Gynecological pathology  |                             | Arranged 5                      |  |



## Continuation Courses for Practicing Physicians, July 25-October 25, 1942—Continued

| Institution   | Dates and Length of Course                       | Title of Course  | Number of Students Accepted | Registration Fee and/or Tuition  | For Detailed Information Write to  |
|---|--|--|-----------------------------|----------------------------------|--|
| <b>GYNECOLOGY—See also Obstetrics, Pathology—Continued</b>  |  |  |                             |                                  |  |
|   | Oct 5, 1-1, 2 or 3 months                        | Seminar  | 46                          | \$125 50<br>\$225 50<br>\$300 50 |  |
|   | Monthly, Sept June, 4 weeks                      | Surgical anatomy as applied to operative gynecology                              | 23 1                        | \$200 50                         |  |
| University of Pennsylvania Graduate School of Medicine  | Oct 5, 1942<br>May 29, 1943, full time, 8 months | Basic course in gynecology and obstetrics  |                             | \$800 70                         | Dr R C Buerki, Dean, Graduate School of Medicine, The Medical-Chirurgical College, 237 Medical-Laboratory Philadelphia, Pennsylvania         |
| <b>HEMATOLOGY—See also Surgery</b><br>New York Medical College, Flower and Fifth Avenue Hospitals | Arranged, 16 sessions                            | Physical diagnosis and hematology, especially in diseases of the thoracic organs |                             | \$100                            | Dr I A W Hetrick, Dean, New York Medical College, Flower and Fifth Avenue Hospitals, 5th Avenue at 10th Street, New York, N Y                |
| <b>INFANTILE PARALYSIS</b><br>Georgia Warm Springs Foundation                                     | July 20-23, 12 1 week                            | Poliomyelitis during acute and convalescent periods                              | 50 12                       | \$25                             | Director, Graduate School of Physical Therapy Warm Springs Foundation Warm Springs, Georgia  |
| University of Minnesota Center for Continuation Study   | Sept 21-26, Aug 10-15                            | Kenny technique for management of acute phase                                    | Limited 14                  | \$25                             | Dr William A O'Brien, Director, Department of Postgraduate Medical Education, The Medical School, University of Minnesota, Minneapolis, Minn |
| <b>LARYNGOLOGY—See Otolaryngology</b>   |  |  |                             |                                  |  |
| <b>MEDICINE</b>   |  |  |                             |                                  |  |
| American College of Physicians  | September 2 weeks                                | Allergy  | Limited 40                  | \$40 41                          | E R Loveland, Executive Secretary The American College of Physicians, 4200 Pine Street, Philadelphia, Pa                                     |
|   | September 2 weeks                                | General course   | Limited 40                  | To be announced 42               |  |
|   | September 2 weeks                                | Internal medicine  | Limited 40                  | To be announced 42               |  |
| Yale University School of Medicine Connecticut Clinical Congress                                  | Sept 29 Oct 1, daily                             | General subjects   |                             | \$2                              | Dr Herbert Thoms, Secretary, Connecticut Clinical Congress, 789 Howard Avenue, New Haven, Connecticut  |
| Harvard University Medical School   | 8-10 and/or 11 a m daily                         | Diabetes   | Physicians welcome          | None                             | Dr Frank R Ober, Assistant Director Courses for Graduates Harvard University Medical School, 25 Shattuck Street, Boston, Massachusetts       |
|   | Aug, Sept 1-5 days a week for 1 to 4 months      | General course   |                             | \$150 4 per mo                   |  |
|   | Aug 3-15   | Selected subjects in endocrinology and metabolism                                | Minimum 10                  | \$80 4                           |  |
| Tufts College Medical School  | Oct 3-30   | Internal medicine  |                             | \$50 4                           | Dr Samuel Proger, Chairman Postgraduate Department, Tufts College Medical School, 30 Bennett Street, Boston, Massachusetts                   |
| Michigan State Medical Society  | September  | Institute Practice of medicine in total war                                      | Limited 43                  | To be announced                  | Mr William Burns, Executive Secretary Michigan State Medical Society, 220 Olds Tower Lansing, Michigan                                       |
| Kansas City South West Clinical Society   | Oct 5-8  | Annual fall clinical conference  |                             | \$5 44                           | E Leas Clover, Executive Secretary Kansas City South West Clinical Society 208 Shubert Building, Kansas City, Missouri                       |
| Omaha Mid West Clinical Society   | Oct 26-30 full time                              | Refresher course   |                             | \$5                              | Dr J D McCarthy, Secretary District of Clinics Omaha Mid West Clinical Society, 1936 Medical Arts Building Omaha Nebraska                    |
| University of Buffalo School of Medicine  | Sept 21-26                                       | Annual postgraduate course   |                             | \$5 per day                      | Dr Frank Myers, Secretary, Committee for Postgraduate Courses, The University of Buffalo School of Medicine 24 High Street, Buffalo N Y      |
| Columbia University Faculty of Medicine   | Arranged   | Medical statistics Treatment of clinical and laboratory data                     | 8                           | \$30                             | Dean of the Faculty of Medicine Columbia University 630 West 168th Street New York, N Y  |
|   | Oct 12-16  | Arthritis and allied rheumatic disorders   | Minimum 4                   | \$35 50                          | Director of the School, New York Postgraduate Medical School 301 East 4th Street, New York, N Y  |
|   | Oct 5, 1-1 or 2 months                           | Seminar in internal medicine   | 4-10                        | \$125 50 10<br>\$200 50 10       |  |
| New York Medical College, Flower and Fifth Avenue Hospitals                                       | Arranged 9 sessions                              | Endocrine and metabolic disturbances including diabetes mellitus                 |                             | \$100                            | Dr I A W Hetrick, Dean New York Medical School, Flower and Fifth Avenue Hospitals, 5th Avenue at 10th Street New York, N Y                   |
| New York Polytechnic Medical School and Hospital  | Arranged full time                               | Course for general practitioners   |                             | \$100                            | Dr F H Dillingham, Executive Officer New York Polytechnic Medical School 335 West 50th Street New York N Y                                   |
| Duke University School of Medicine  | 1 week or more throughout the year               | Practical work in clinics and wards  |                             | None                             | Dr George W Cooper, North Carolina State Board of Health Raleigh N C   |
| University of Pennsylvania Graduate School of Medicine  | Arranged, 24 weeks, 75 hours                     | Diabetes mellitus  | Individuals 1               | \$150                            | Dr R C Buerki, Dean Graduate School of Medicine The Medical-Chirurgical College 237 Medical-Laboratory Philadelphia Pennsylvania             |
|   | Oct 5, 1942 May 29 1943 full time 8 months       | Basic course in internal medicine  |                             | \$800 70                         |  |
| <b>MILITARY MEDICINE</b>  |  |  |                             |                                  |  |
| Training Division, War Department   | Monthly 170 hours                                | Basic Course for Officers  | 500 10                      | None                             | Training Division, Office of The Surgeon General War Department Washington D C   |
|   | Monthly, 1 month                                 | Exemplary course   | 150 10                      | None                             |  |

## Continuation Courses for Practicing Physicians, July 25-October 25 1942—Continued

| Institution  | Dates and Length of Course                                       | Title of Course  | Number of Students Accepted | Registration Fee and/or Tuition | For Detailed Information Write to  |
|--|--|--|-----------------------------|---------------------------------|--|
| <b>MILITARY MEDICINE—Continued</b>   |  |  |                             |                                 |  |
|  | 1 month<br>14 hours  | Maxillofacial and plastic surgery                                      | 12 <sup>16</sup>            | None                            |  |
|  | 17 months  | Officer pool 14 general hospitals                                      | 700 <sup>16</sup>           |                                 |  |
|  | Undetermined   | Officer pool Gulf Coast Air Corps Training Center                      | 200 <sup>16</sup>           | None                            |  |
|  | Undetermined   | Officer pool Medical Field Service School                              | 100 <sup>16</sup>           | None                            |  |
|  | 1-3 months   | Officer pool Medical Replacement Training Centers                      | 200 <sup>16</sup>           | None                            |  |
|  | Undetermined   | Officer pool Medical Supply Depots and Medical Sections General Depots | 50 <sup>16</sup>            | None                            |  |
|  | 2 weeks<br>96 hours  | Photoroentgenology   | 20 <sup>16</sup>            | None                            |  |
|  | 4-6 weeks<br>192 hours   | Roentgenology  | 40-80 <sup>16</sup>         | None                            |  |
|  | Monthly<br>170 hours   | Special course for Division Officers                                   | \$100 <sup>16</sup>         | None                            |  |
|  | Continuous   | Specialized Surgical Team Training                                     | Varies <sup>17</sup>        | None                            |  |
|  | 2514 hours   | Tropical Medicine  | 30 <sup>16</sup>            | None                            |  |
| Bureau of Medicine and Surgery<br>Navy Department  | 6 times a year full time<br>8 weeks                              | Aviation Medicine  | Limited <sup>18</sup>       | None                            | Bureau of Medicine and Surgery Navy Department Washington D C  |
|  | Every 3 months full time 3 months                                | Aviation Medicine (qualifying for flight surgeon)                      | Limited <sup>18</sup>       | None                            |  |
|  | 6 times a year full time 8 weeks                                 | Basic Instruction  | Limited <sup>18</sup>       | None                            |  |
|  | Twice a year full time 6 months                                  | Deep Diving  | 412 <sup>18</sup>           | None                            |  |
|  | Twice a year full time 6 months                                  | Epidemiology   | 820                         | None                            |  |
| Library of the Institute for Psychoanalysis  | Oct 5-16<br>MWF after noon                                       | Clinical discussions of war neuroses                                   | 50 <sup>19</sup>            | None                            | Institute for Psychoanalysis 43 East Ohio Street Chicago Illinois  |
| Harvard University School of Medicine  | To be announced full time 2 weeks                                | Military medicine and surgery  | Limited <sup>9</sup>        | None                            | Dr Frank R Ober Dean Courses for Graduates Harvard University Medical School 25 Shattuck Street Boston Massachusetts                       |
| University of Buffalo School of Medicine   | To be so announced   | War gases  | Limited <sup>1</sup>        | To be announced                 | Dr A H Aaroe Chairman Department of Postgraduate and Continuation Work University of Buffalo School of Medicine 24 High Street Buffalo N Y |
| New York University College of Medicine  | 1 week<br>Repeated for 6 weeks or longer                         | Medical aspects of chemical warfare agents                             |                             | Arranged                        | Dr John H Mulholland Assistant Dean New York University College of Medicine 477 First Avenue New York N Y                                  |
| University of Cincinnati College of Medicine   | Arranged Full time for 3 days                                    | Condensed course for senior gas officers                               | Limited <sup>4</sup>        | Arranged                        | Dr Stanley E Dorst Dean University of Cincinnati College of Medicine Eden and Bethesda Avenues Cincinnati O                                |
|  | Arranged Full time for 1 week                                    | Chemical warfare casualty  | Limited <sup>4</sup>        | Arranged                        |  |
| <b>NEUROLOGY—See Psychiatry and Neurology</b>  |  |  |                             |                                 |  |
| <b>OBSTETRICS—See also Gynecology Pathology</b>  |  |  |                             |                                 |  |
| The Chicago Maternity Center   | September 17-4 months  | Practical obstetrics   |                             | \$10                            | Dr Beatrice L Tucker Medical Director The Chicago Maternity Center 1336 South Newberry Avenue Chicago Ill                                  |
| Harvard University Medical School  | Monthly 1 month or more  | Clinical obstetrics  | 811                         | \$125 <sup>4</sup>              | Dr Frank R Ober Assistant Dean Courses for Graduates Harvard University Medical School 25 Shattuck Street Boston Massachusetts             |
| Columbia University Faculty of Medicine  | Monthly Jan Oct full time 3 months                               | Internship training  |                             | \$350                           | Dean of the Faculty of Medicine Columbia University 650 West 166th Street New York N Y   |
|  | Monthly 1 month  | Observation course   | 2                           | \$100                           |  |
| Duke University School of Medicine   | Weekly full time 3 days  | Obstetrics and pediatrics  | 4-6 <sup>3</sup>            | None <sup>24</sup>              | Dr C M Cooper Director Maternal and Child Health Service North Carolina State Board of Health Raleigh North Carolina                       |
| <b>OPHTHALMOLOGY—See also Radiology American Academy of Ophthalmology and Otolaryngology</b> |  |  |                             |                                 |  |
|  | Surgery Oct 12-14 Mornings Annually for 9 months starting Sept 1 | Glaucoma   | Limited <sup>43</sup>       | \$0                             | Clare M McCovern Registrar The American Academy of Ophthalmology and Otolaryngology 5 East Washington Street Chicago Illinois              |
|  |  | Home study course  | 50 <sup>3</sup>             | \$100                           |  |
| Columbia University Faculty of Medicine  | Arranged 10 sessions   | Embryology histology and pathology of the eye                          | Limited <sup>1</sup>        | \$75                            | Director of the School New York Postgraduate Medical School 303 East 29th Street New York N Y  |
| New York Eye and Ear Infirmary School of Ophthalmology and Otolaryngology                    | Monthly Part time for 1 to 3 months                              | General course   | 48 <sup>5</sup>             | \$40<br>\$100 <sup>48</sup>     | Mabel R Stewart Registrar School of Ophthalmology and Otolaryngology New York Eye and Ear Infirmary 215 Second Avenue New York N Y         |

## Continuation Courses for Practicing Physicians, July 25-October 25, 1942—Continued

| Institution   | Dates and Length of Course                          | Title of Course   | Number of Students Accepted | Registration Fee and/or Tuition               | For Detailed Information Write to   |
|---|---|---|-----------------------------|---|---|
| <b>OPHTHALMOLOGY</b> —See also Radiology                            |   |   |                             |   |   |
| New York Polyclinic Medical School and Hospital                     | Monthly, 6 weeks                                    | Refraction  | 6                           | \$100   | Dr F H Dillingham, Executive Officer, New York Polyclinic Medical School, 335 West 50th Street, New York, N Y                             |
| University of Pennsylvania Graduate School of Medicine              | Oct 5, 1942<br>May 29, 1943,<br>full time, 8 months | Basic course  |                             | \$800 <sup>7 9</sup>                          | Dr R C Buerki, Dean, Graduate School of Medicine, The Medical College, 237 Medical Laboratory Philadelphia, Pennsylvania                  |
|   | Arranged, 6 weeks, 120 hours                        | Ocular refraction   | Individuals <sup>1</sup>    | \$270   |   |
|   | Arranged 8 weeks, 96 hours                          | Ophthalmic histology and pathology                                      | Individuals <sup>1</sup>    | \$200   |   |
| <b>ORTHOPEDICS</b> —See also Surgery                                |   |   |                             |   |   |
| Columbia University Faculty of Medicine                             | Oct 12<br>Nov 12, 10 sessions                       | Functional anatomy in relation to orthopedics                           | 6 15                        | \$40 <sup>5 6</sup>                           | Director of the School, New York Polyclinic Medical School, 335 East 4th Street, New York, N Y  |
|   | Oct 12<br>Nov 6, MWI after noons                    | Orthopedics in general practice   | 10 20                       | \$50 <sup>5 6</sup>                           |   |
| University of Pennsylvania Graduate School of Medicine              | Oct 5, 1942<br>May 29, 1943,<br>full time, 8 months | Basic course  |                             | \$800 <sup>7 9</sup>                          | Dr R C Buerki, Dean, Graduate School of Medicine, The Medical College, 237 Medical Laboratory Philadelphia, Pennsylvania                  |
| <b>OTOLARYNGOLOGY</b> —See also Radiology                           |   |   |                             |   |   |
| Harvard University Medical School                                   | Surgery<br>Arranged daily for 2 weeks               | Bronchoscopy and esophagoscopy  | Limited <sup>1</sup>        | \$150 <sup>4</sup>                            | Dr Frank R Ober, Assistant Director of Courses for Graduates Harvard University Medical School, 25 Shattuck Street, Boston, Massachusetts |
|   | Oct March, full time, 6 months                      | Clinical laryngology  | 5 1 11                      | \$50 <sup>4</sup>                             |   |
|   | Monthly, except April or August full time           | Clinical otology  | 2                           | \$50 <sup>4</sup>                             |   |
|   | Arranged, except in April, 2 weeks                  | Physiology of the cochlea and vestibular apparatus                      | 2                           | \$50 <sup>4</sup>                             |   |
|   | Arranged  | Technic of submucous resection of the nasal septum                      | Limited                     | \$75 for 5 exercises <sup>4</sup>             |   |
| Columbia University Faculty of Medicine                             | When a vacancy occurs                               | Diagnostic procedures in otolaryngology                                 | 6 <sup>5</sup>              | \$30 <sup>5</sup>                             | Director of the School, New York Polyclinic Medical School, 335 East 4th Street, New York, N Y  |
| Columbia University Faculty of Medicine                             | Arranged, except in July and August                 | Dissection of the head and neck   | Minimum                     | Arranged <sup>5</sup>                         | Director of the School, New York Polyclinic Medical School, 335 East 4th Street, New York, N Y  |
|   | Arranged 15 sessions                                | Embryology, histology and pathology of the ear, nose and throat         | Limited <sup>1</sup>        | \$75 <sup>5</sup>                             |   |
|   | Arranged except in July and August                  | Surgical anatomy as applied to otology (cadaver)                        | 2 6 <sup>1</sup>            | Arranged <sup>5</sup>                         |   |
|   | Arranged except in July and August                  | Surgical anatomy as applied to rhinology and laryngology (cadaver)      | 2 6 <sup>1</sup>            | Arranged <sup>5</sup>                         |   |
|   | Arranged, Oct 1942<br>April 1943, 3 weeks           | Instruments and technic of bronchoscopy                                 |                             | \$250   | Dean of the Faculty of Medicine Columbia University, 630 West 168th Street, New York, N Y   |
| New York Eye and Ear Infirmary, School of Ophthalmology and Otology | 12 days<br>Full time or 2 days a week for 6 weeks   | Bronchoesophagology   | 4 <sup>5</sup>              | \$250 <sup>4 8</sup>                          | Mabel R Stewart, Registrar School of Ophthalmology and Otology, New York Eye and Ear Infirmary, 215 Avenue, New York, N Y                 |
|   | Monthly Part time for 1 to 3 months                 | General course  | 4 <sup>8</sup>              | \$40<br>\$100 <sup>4 8</sup>                  |   |
| New York Polyclinic Medical School and Hospital                     | Monthly, 6 weeks                                    | Clinical course   | 8                           | \$100   | Dr F H Dillingham, Executive Officer, New York Polyclinic Medical School, 335 West 50th Street, New York, N Y                             |
| Temple University Hospital  | Arranged, 2 weeks                                   | Broncho Esophagology, gastroscopy and laryngeal surgery                 | 12                          | \$250   | The Deann's Office, Temple University Medical School Broad and 11th Streets, Philadelphia Pennsylvania                                    |
| University of Pennsylvania Graduate School of Medicine              | Oct 5 1942<br>May 29 1943,<br>full time 8 months    | Basic course  |                             | \$800 <sup>7 9</sup>                          | Dr R C Buerki, Dean, Graduate School of Medicine The Medical College 237 Medical Laboratory Philadelphia Pennsylvania                     |
| <b>PATHOLOGY</b> —See also Gynecology                               |   |   |                             |   |   |
| Harvard University Medical School                                   | Ophthalmology                                       | Otolaryngology, Psychiatry and Neurology                                |                             |   |   |
|   | Monthly except Aug full time                        | Pathology of obstetrics and gynecology <sup>26</sup>                    | 2 1                         | \$125 <sup>4 5</sup>                          | Dr Frank R Ober, Assistant Director of Courses for Graduates Harvard University Medical School, 25 Shattuck Street Boston Massachusetts   |
|   | Aug 10 22 5 days a week                             | Pathology of tumors <sup>26</sup>                                       | 8 <sup>8</sup>              | \$50 <sup>4</sup>                             |   |
|   | Arranged Monthly, hours arranged                    | Research in Pathology Special staining methods, autopsies <sup>26</sup> | 4                           | Arranged <sup>4 27</sup><br>\$40 <sup>4</sup> |   |
| Columbia University Faculty of Medicine                             | Sept 14<br>Oct 30<br>MWI after noons                | Gross and microscopic pathology   | 3 6                         | \$50 <sup>5 6</sup>                           | Director of the School New York Polyclinic Medical School, 335 East 4th Street, New York, N Y   |

Continuation Courses for Practicing Physicians July 25 October 25, 1942—Continued

| Institution   | Dates and Length of Course                        | Title of Course   | Number of Students Accepted | Registration Fee and/or Tuition | For Detailed Information Write to   |
|---|---|---|-----------------------------|---------------------------------|---|
| <b>PEDIATRICS</b> —See also Obstetrics<br>Children's Memorial Hospital  | Oct 5-31<br>4 weeks                               | Medical pediatrics<br>surgical specialties  |                             | \$100 <sup>0</sup>              | Dr. C. A. Aldrich, Chief of Staff, The Children's Memorial Hospital, 707 Fullerton Avenue, Chicago, Illinois  |
| Columbia University Faculty of Medicine   | October 12<br>4 weeks                             | Clinical course   | 39                          | \$40 <sup>5</sup>               | Director of the School, New York Postgraduate Medical School, 303 East 20th Street, New York, N. Y.   |
|   | Oct 5-1<br>full time<br>4 weeks                   | Seminar   | 312                         | \$125 <sup>5</sup>              |   |
| Southern Pediatric Seminar  | July 20<br>Aug 1                                  | Diagnostic, prevention<br>and treatment   |                             | \$25                            | D. Leese, Smith, M.D., Registrar, In-fants and Children's Sanitarium, Saluda, North Carolina  |
| University of Pennsylvania Graduate School of Medicine  | Oct 5, 1942<br>May 29, 1943<br>full time 8 months | Basic course  |                             | \$500 <sup>70</sup>             | Dr. R. C. Buerki, Dean, Graduate School of Medicine, The Medico-Chirurgical College, 237 Medical Laboratories, Philadelphia, Pennsylvania                                     |
| Vanderbilt University School of Medicine  | July 20<br>Aug 15                                 | Medicine and pediatrics   | Limited <sup>5</sup>        | \$50 <sup>7</sup>               | Registrar, Vanderbilt University School of Medicine, Nashville, Tennessee   |
| <b>PERITONEOSCOPY</b> —See Gastroenterology<br><b>PHYSIOLOGY</b> —See also Psychiatry and Harvard University Medical School | Neurology<br>Aug 10<br>Sept 19                    | General course  |                             | \$75 <sup>47</sup>              | Dr. Frank R. Ober, Assistant Dean, Courses for Graduates, Harvard University Medical School, 25 Shattuck Street, Boston, Massachusetts  |
|   | Arranged  | Research in physiology and Syphilology  |                             | Arranged <sup>4</sup>           |   |
| <b>PHYSIOTHERAPY</b> —See also Dermatology<br>American Congress of Physical Therapy   | Sept 9-12<br>part or full time                    | 21st Annual scientific and clinical session   |                             | \$215                           | Executive Director, American Congress of Physical Therapy, 31 North Michigan Avenue, Chicago, Illinois  |
| Harvard University Medical School   | Sept 8<br>6 months                                | Emergency defense course  | Limited <sup>5</sup>        | \$200 <sup>4</sup>              | Dr. Frank R. Ober, Assistant Dean, Courses for Graduates, Harvard University Medical School, 25 Shattuck Street, Boston, Massachusetts  |
| New York Polyclinic Medical School and Hospital   | Monthly<br>4 weeks                                | General course  | 6                           | \$100                           | Dr. F. H. Dillingham, Executive Officer, New York Polyclinic Medical School, 335 West 50th Street, New York, N. Y.  |
| <b>PROCTOLOGY</b> —See also Surgery<br>University of Pennsylvania Graduate School of Medicine                               | Oct 5, 1942<br>May 29, 1943<br>full time 8 months | Basic course  |                             | \$500                           | Dr. R. C. Buerki, Dean, Graduate School of Medicine, The Medico-Chirurgical College, 237 Medical Laboratories, Philadelphia, Pennsylvania                                     |
| <b>PSYCHIATRY AND NEUROLOGY</b> —See Harvard University Medical School  | also Military<br>Arranged                         | Medicine<br>General psychiatry or special fields                                      | Individuals                 | Arranged <sup>4</sup>           | Dr. Frank R. Ober, Assistant Dean, Courses for Graduates, Harvard University Medical School, 25 Shattuck Street, Boston, Massachusetts  |
|   | Arranged  | Neuro-anatomy, neuro-physiology, neuro-pathology, clinical neurology or neuro-surgery |                             | Arranged <sup>430</sup>         |   |
|   | Arranged  | Research in neuro-pathology, Elective research on cerebro-spinal fluid                |                             | Arranged <sup>4</sup>           |   |
| Columbia University Faculty of Medicine   | Oct 5-11<br>Dec 11                                | Clinical sociological and educational survey  | Limited <sup>1</sup>        | \$100 <sup>200</sup>            | Dean of the Faculty of Medicine, Columbia University, 630 West 163rd Street, New York, N. Y.  |
|   | Monthly<br>Oct-May<br>1 month or more             | Clinical neurology  | 1-6                         | \$50 per month <sup>5</sup>     | Director of the School, New York Postgraduate Medical School, 303 East 20th Street, New York, N. Y.   |
|   | Oct 5-31<br>full time 4 weeks                     | Neurology and psychiatry in general practice  | 46                          | \$100 <sup>55</sup>             |   |
| New York Academy of Medicine  | Oct 12-23<br>full time                            | 15th Graduate Fort night Disorders of the nervous system                              |                             | \$5 <sup>34</sup>               | Dr. Mahlon Ashford, Executive Secretary, New York Academy of Medicine, 2 East 103rd Street, New York, N. Y.   |
| University of Pennsylvania Graduate School of Medicine  | Oct 5, 1942<br>May 29, 1943<br>full time 8 months | Basic course  |                             | \$500 <sup>70</sup>             | Dr. R. C. Buerki, Dean, Graduate School of Medicine, The Medico-Chirurgical College, 237 Medical Laboratories, Philadelphia, Pennsylvania                                     |
|   | Arranged<br>8 weeks 240 hours                     | Clinical psychiatry   | Individuals <sup>1</sup>    | \$160                           |   |
|   | Arranged<br>10 weeks 200 hours                    | Clinicobiologic neurology and psychiatry  | Individuals <sup>33</sup>   | \$100                           |   |
| <b>PUBLIC HEALTH</b><br>Loyola University School of Medicine  | Every quarter<br>Sept-June                        | Courses in administration, laboratory education, mental hygiene and sanitation        | Individuals                 | Arranged                        | Miss McGowan, Secretary, Department of Preventive Medicine, Public Health and Bacteriology, Loyola University School of Medicine, 766 South Wolcott Avenue, Chicago, Illinois |
| Massachusetts Institute of Technology   | July 27<br>Sept 12<br>6 hours a week              | Health education  | 30                          | \$40                            | Department of Public Health, Massachusetts Institute of Technology, Cambridge, Massachusetts  |
|   | Sept 23, 1942<br>Feb 6, 1943<br>3 hours a week    | Health education  | 30                          | \$40                            |   |
|   | July 27<br>Sept 12<br>16 hours a week             | Public health bacteriology  | 30                          | \$55                            |   |
|   | Sept 23, 1942<br>Feb 6, 1943<br>6 hours a week    | Public health bacteriology  | 30                          | \$65                            |   |

## Continuation Courses for Practicing Physicians, July 25-October 25, 1942—Continued

| Institution   | Dates and Length of Course                        | Title of Course   | Number of Students Accepted | Registration Fee and/or Tuition        | For Detailed Information Write to  |
|---|---|---|-----------------------------|--|--|
| <b>PUBLIC HEALTH—Continued</b>                                      |   |   |                             |  |  |
| Albany Medical College and New York State Department of Health      | Sept 28, 1942<br>Feb 6 1943,<br>8 hours a week    | Public health engineering   | 30                          | \$95                                   | Extension Course Office, Albany Medical College, New Scotland Avenue, Albany, N. Y.  |
|   | July 27<br>Sept 12,<br>10 hours a week            | Sanitation  | 30                          | \$60                                   |  |
|   | Arranged, varies <sup>34</sup>                    | Extension course  | Limited <sup>35</sup>       | \$30 <sup>36</sup>                     |  |
| <b>RADIOLOGY—See also Cardiology, Military Medicine</b>             |   |   |                             |  |  |
| Harvard University Medical School                                   | Monthly   | General roentgenology   | Limited <sup>8</sup>        | \$50 <sup>4</sup>                      | Dr. Frank R. Ober, Assistant Director of Courses for Graduates, Harvard University Medical School, 25 Shattuck Street, Boston, Massachusetts |
|   | Monthly, full time                                | General Roentgenology<br>Observation of routine work  | 2 <sup>8</sup>              | \$100 <sup>4</sup>                     |  |
|   | Monthly   | General Roentgenology<br>Diagnosis as interpreted from radiographic film and fluoroscope screen | 3 <sup>11</sup>             | \$100 <sup>4</sup>                     |  |
|   | October 12 exercises<br>Monthly, 3 days a week    | Radiological physics<br>Roentgenology in diseases of the eye ear and accessory sinuses          | 3                           | \$10 <sup>4</sup><br>\$35 <sup>4</sup> |  |
| Columbia University Faculty of Medicine                             | Sept 28<br>Dec 18<br>full time                    | Basic diagnostic roentgenology and technique  | 48 <sup>1</sup>             | \$250 <sup>5 0 0</sup>                 | Dean of the Faculty of Medicine, Columbia University, 630 West 168th Street New York, N. Y.  |
|   | Sept 28<br>Dec 18<br>5 days a week                | Clinical roentgenology  | Limited <sup>1</sup>        | \$250 <sup>0 0</sup>                   |  |
| New York Eye and Ear Infirmary, School of Ophthalmology and Otology | Monthly, 3 mornings a week for 6 weeks            | Roentgenology for ophthalmologists  | 2 <sup>8</sup>              | \$40 <sup>48</sup>                     | Mabel R. Stewart, Registrar School of Ophthalmology and Otology, New York Eye and Ear Infirmary, 218 West 41st Avenue, New York, N. Y.       |
| New York Polyclinic Medical School and Hospital                     | Monthly, except Aug., 3 months                    | Advanced course in diagnostic roentgenology and radiotherapy                                    | 6 <sup>1</sup>              | \$300                                  | Dr. F. H. Dillingham, Executive Officer, New York Polyclinic Medical School, 335 West 50th Street New York, N. Y.                            |
|   | Monthly, except Aug., 6 weeks or 3 months         | Practical roentgenological interpretation and technique   | 6                           | \$150                                  |  |
| University of Pennsylvania Graduate School of Medicine              | Oct 5 1942<br>May 29, 1943<br>full time, 8 months | Basic course  |                             | \$800                                  | Dr. R. C. Buerki, Dean Graduate School of Medicine, The Medico-Chirurgical College, 237 Medical Laboratory Philadelphia, Pennsylvania        |
| <b>RHINOLOGY—See Otolaryngology</b>                                 |   |   |                             |  |  |
| <b>SURGERY—See also Special Headings</b>                            |   |   |                             |  |  |
| New Haven Hospital  | Weekly starting Sept 29<br>3 days                 | Traumatic surgery   |                             | To be announced                        | Dr. S. C. Harvey, New Haven Hospital, New Haven, Connecticut   |
| Harvard University Medical School                                   | Monthly, mornings                                 | Clinical orthopedic surgery   | 1 or more                   | \$50 <sup>4</sup>                      | Dr. Frank R. Ober, Assistant Director of Courses for Graduates, Harvard University Medical School, 25 Shattuck Street, Boston, Massachusetts |
|   | Monthly except Aug., 5 days a week                | Endoscopy   | 2                           | Arranged <sup>4</sup>                  |  |
|   | October, November 12 mornings for 1 month         | Genito Urinary surgery  | 4 <sup>11</sup>             | \$75 <sup>4</sup>                      |  |
|   | Monthly mornings                                  | Major Genito Urinary Surgery<br>Clinical urology  | Limited <sup>11</sup>       | \$75 <sup>4</sup><br>\$75 <sup>4</sup> |  |
| Columbia University Faculty of Medicine                             | October, November 12 daily for 1 month            |   |                             | \$75 <sup>4</sup>                      | Director of the School New York Polyclinic Medical School, 335 West 50th Street, New York, N. Y.   |
|   | Arranged, 8 sessions                              | Blood transfusion, blood and plasma bank  | 18                          | \$35 <sup>5</sup>                      |  |
|   | Arranged, Sept June 12 sessions or more           | Dissection and surgical anatomy   | Minimum 2 <sup>1</sup>      | \$125 per 12 sessions <sup>5</sup>     |  |
|   | Oct 5 full time 3 months                          | Seminar in general surgery  | 48 <sup>1</sup>             | \$400 <sup>5 0 0</sup>                 |  |
|   | Oct 12 23, full time                              | Seminar in traumatic surgery  | 530 <sup>1</sup>            | \$75 <sup>5 0</sup>                    |  |
|   | Arranged except in July or August 5 sessions      | Surgical anatomy as applied to colon and rectal surgery (cadaver)                               | 2 <sup>1</sup>              | \$75 <sup>5</sup>                      |  |
|   | Arranged, except in July or August 12 sessions    | Surgical anatomy as applied to thoracic surgery (cadaver)                                       | 26 <sup>1</sup>             | \$125 <sup>5</sup>                     |  |



## Continuation Courses for Practicing Physicians July 2-October 25 1942—Continued

| Institution   | Dates and Length of Course   | Title of Course                                       | Number of Students Accepted | Registration Fee and/or Tuition | For Detailed Information Write to   |
|---|--|---|-----------------------------|---------------------------------|---|
| <b>SURGERY</b> —See also Special Headings—Continued                   |  |   |                             |                                 |   |
| New York Medical College Flower and Fifth Avenue Hospital             | Oct 5 1942<br>May 29 1943<br>full time 6 months<br>Arranged 2 weeks 5 hours<br>Arranged 3 weeks 27 hours<br>Arranged 2 weeks 10 hours<br>Arranged 10 days 20 hours | Surgical technic (dog)                                |                             | \$2.00                          | Dr J A W Hetrick Dean New York Medical College Flower and Fifth Avenue Hospital 5th Avenue at 105th Street New York N Y             |
| University of Pennsylvania Graduate School of Medicine                | Oct 5 1942<br>May 29 1943<br>full time 6 months<br>Arranged 2 weeks 5 hours<br>Arranged 3 weeks 27 hours<br>Arranged 2 weeks 10 hours<br>Arranged 10 days 20 hours | Basic course  |                             | \$4.00                          | Dr R C Buerki Dean Graduate School of Medicine The Medico Chirurgical College 237 Medical Laboratories Philadelphia Pennsylvania    |
|   |  | Bronchoesophagology gastroscopy and laryngeal surgery | Individuals 1               | \$2.00                          |   |
|   |  | Ophthalmic operations (cadaver)                       | Individuals 1               | \$2.00                          |   |
|   |  | Otologic operations (cadaver)                         | Individuals 1               | \$2.00                          |   |
|   |  | Rhinolaryngologic operations (cadaver)                | Individuals 1               | \$1.00                          |   |
| <b>SYPHILOLOGY</b> —See Dermatology and Syphilology                   |  | Venereal Disease Control                              |                             |                                 |   |
| <b>TROPICAL MEDICINE</b> —See also Military Medicine                  |  |   |                             |                                 |   |
| Tulane University of Louisiana School of Medicine                     | Fall 4½ weeks  | Tropical medicine and medical parasitology 46         | Limited 6                   | \$6.00                          | Director Department of Graduate Medicine School of Medicine Tulane University of Louisiana 1440 Tulane Avenue New Orleans Louisiana |
| Hahnemann Medical College   | Arranged   |   | Individuals                 | Arranged                        | Dr William A Pearson Dean Hahnemann Medical College 235 North 15th Street Philadelphia Pennsylvania                                 |
| <b>TUBERCULOSIS</b>   |  |   |                             |                                 |   |
| San Francisco Hospital  | Arranged full time 1 week  | Intensive course                                      | Individuals                 | None 74                         | W F Higby Executive Secretary California Tuberculosis Association 45 Second Street San Francisco Calif                              |
| City of Chicago Municipal Tuberculosis Sanitarium                     | Continuous TWFs  | General course  |                             | None                            | City of Chicago Municipal Tuberculosis Sanitarium Department of Cities 2049 Washington Boulevard Chicago, Illinois                  |
| Columbia University Faculty of Medicine                               | Oct 12 24 full time  | General course 3                                      |                             | \$2.00 6                        | Dean of the Faculty of Medicine Columbia University 650 West 16th Street New York N Y   |
| New York Medical College Flower and Fifth Avenue Hospitals            | Arranged daily for 1 month   | Diagnosis and treatment                               |                             | \$100                           | Dr J A W Hetrick Dean New York Medical College Flower and Fifth Avenue Hospitals 5th Avenue at 105th Street New York N Y            |
| Trudeau School of Tuberculosis  | Sept 14 Oct 9 4 weeks  | General course 39                                     | 30                          | \$100 6                         | Roy Dayton Secretary Trudeau School of Tuberculosis Saranac Lake N Y  |
| State Tuberculosis Sanatorium   | 10 days or more  | Diseases of the chest                                 | Limited 3                   | None 74                         | Dr J B McKnight Superintendent and Medical Director State Tuberculosis Sanatorium Sanatorium Texas                                  |
|   | 10 days throughout the year  | Observation course                                    | Limited 3                   | None                            |   |
| <b>UROLOGY</b> —See also Anatomy Surgery                              |  |   |                             |                                 |   |
| Columbia University Faculty of Medicine                               | Arranged   | Short courses in special subjects                     | Individuals 1               | Arranged                        | Director of the School New York Post Graduate Medical School 303 East 20th Street New York N Y                                      |
| University of Pennsylvania Graduate School of Medicine                | Oct 5 1942<br>May 29 1943<br>full time 8 months<br>Arranged 6 weeks 36 hours   | Basic course  |                             | \$5.00 9                        | Dr R C Buerki Dean Graduate School of Medicine The Medico Chirurgical College 237 Medical Laboratories Philadelphia Pennsylvania    |
|   |  | Cystoscopy chromo ureteroscopy and pyelography        | Individuals 1               | \$300                           |   |
| <b>VENEREAL DISEASE CONTROL</b> —See also Dermatology and Syphilology |  | Gynecology  |                             |                                 |   |
| Medical Center United States Public Health Service                    | Sept 23 Oct 21   | General course  | 20                          | None                            | Austin V Deibert P A Surgeon Medical Officer in Charge United States Public Health Service Hot Springs National Park Arkansas       |

1 Specialists who have had adequate preliminary training and experience

2 If two or more students register for the course at the same time a reduction in the fee will be made

3 Special parts may be taken

4 A registration fee of \$3 covers all courses taken within the year

5 Grants may be made from a scholarship fund

6 Register two to six weeks in advance

7 A temporary license to practice medicine in the state is required

8 Physicians who have had adequate preliminary training and/or are approved by the postgraduate department

9 Arrangements may be made to take individual sections of the course at a reduced fee

10 If taken in conjunction with the next course above/below (Gastroscopy/Peritoneoscopy) the fee for the combined course will be \$125

11 Male physicians only

12 Repeated at intervals throughout the year

13 Ten physicians twenty nurses and twenty physical therapy technicians

14 For representatives of the chapters of the National Foundation for Infantile Paralysis and others who may be qualified

15 Preference is given to those registering for the longer course

16 Officers in the Medical Department on active duty

17 Officers on active duty at one of the hospitals

18 For officers of the United States Army or Navy or the United States Naval Reserve on active duty

19 Interns house officers and senior medical students who may become medical officers in the armed forces

20 Medical Reserve Officers United States Army

21 Physicians attached to the Emergency War Service of Western New York

22 Given at separate hospitals for white and Negro physicians

23 General practitioners licensed to practice in the state

24 Per diem and/or maintenance provided

25 Longer sessions arranged in units of 12 sessions each

26 Microscope required

27 Plus a nominal laboratory fee

28 Holders of Commonwealth Fellowships and a limited number of other qualified physicians

29 Course open only to those who intend to enter Government hospitals

30 Assistantships internships residencies available in the fields named

31 May be taken mornings or afternoons only at half the fee

32 Fellows of the academy registered without fee

33 A faculty course for staff members of mental institutions

34 Assigned reading monthly conferences one week of instruction in residence

35 Registered physicians of New York State who wish to qualify as Health Officers Grade II

36 Plus \$10 for the required textbook

37 Supplementary to course completed at the Trudeau School of Tuberculosis on October 9 1942

38 Physicians who have completed the course at Trudeau have already paid their fees

39 Includes tuition for a supplementary 2 week course sponsored by Columbia University Faculty of Medicine

40 For members of the American College of Physicians and qualified doctors seeking membership or certification in the American Board of Internal Medicine

41 Given in New York City

42 Given in Boston Mass Philadelphia Pa Rochester Minn and Minneapolis Minn

43 For members of the society

44 No tuition charge to interns residents and students

45 Physicians selected by the National Office of Civilian Defense

46 Venereal disease clinicians in Alabama a few out-of-state physicians may be accepted

47 Tuition travelling expenses or maintenance provided by the state board of health

48 Plus a matriculation fee of \$10

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, July 18, page 969

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS *Part I* Various centers, Sept 14-16 Exec Sec, Mr Everett S Elwood, 225 S 15th St, Philadelphia

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY *Written Part I* Various centers, Feb 4 Final date for filing application is Nov 6 Sec, Dr Paul M Wood, 745 Fifth Ave, New York

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY *Oral Groups A and B* Cleveland, Jan 14-15, 1943 Final date for filing application is Dec 7 *Written* Various centers, Nov 16 Final date for filing application is Oct 5 Sec, Dr C Guy Lane, 416 Marlboro St, Boston

AMERICAN BOARD OF INTERNAL MEDICINE *Written* Oct 19 Final date for filing application is Sept 1 Asst Sec, Dr William A Werrell, 1301 University Ave, Madison, Wis

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Written Part I* Various centers Feb 13 *Oral Part II* May 1943 Sec, Dr Paul Titus, 1015 Highland Bldg, Pittsburgh

AMERICAN BOARD OF OPHTHALMOLOGY *Oral All Groups* Chicago, Oct 8-10 Sec, Dr John Green, 6830 Waterman Ave, St Louis

AMERICAN BOARD OF ORTHOPAEDIC SURGERY *Oral and Written* Chicago Jan 9-10 Final date for filing application is Nov 1 Sec, Dr Guy A Caldwell, 3503 Prytania St, New Orleans

AMERICAN BOARD OF PATHOLOGY *Oral and Written* Richmond, Va, Nov 9-10 Final date for filing application is Sept 1 Sec, Dr F W Hartman, Henry Ford Hospital, Detroit

AMERICAN BOARD OF PEDIATRICS *Written* Locally, Sept 18 *Oral* New York, Dec 5-6 Final date for filing application is Aug 1 Sec, Dr C A Aldrich, 707 Fullerton Ave, Chicago

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY New York, December Final date for filing application is Oct 1 Sec, Dr Walter Freeman, 1028 Connecticut Ave NW, Washington, D C

AMERICAN BOARD OF RADIOLOGY *Oral* Chicago, Nov 27-29 Final date for filing application is Sept 30 Sec, Dr Byrl R Kirklin, 102 110 Second Ave, S W, Rochester, Minn

AMERICAN BOARD OF SURGERY *Part I* Oct 7 Final date for filing application is Aug 22 Sec, Dr J Stewart Rodman, 225 S Fifteenth St, Philadelphia

AMERICAN BOARD OF UROLOGY February 1943 (tentative) Sec, Dr Gilbert J Thomas, 1409 Willow St, Minneapolis

Connecticut March Report

The Connecticut Medical Examining Board reports the written examination for medical licensure held at Hartford, March 10-11, 1942 The examination covered 7 subjects and included 70 questions An average of 75 per cent was required to pass Thirty-seven candidates were examined, 13 of whom passed and 24 failed The following schools were represented

| School   | PASSED | Year Grad      | Number Passed |
|--|--------|----------------|---------------|
| Northwestern University Medical School   |        | (1941)         | 1             |
| University of Maryland School of Medicine and College of Physicians and Surgeons |        | (1940)         | 1             |
| Boston University School of Medicine   |        | (1940)*        | 1             |
| Harvard Medical School   |        | (1940), (1941) | 2             |
| Columbia University College of Physicians and Surgeons                           |        | (1941)*        | 1             |
| University of Rochester School of Medicine and Dentistry                         |        | (1939)         | 1             |
| Temple University School of Medicine   |        | (1941),*       | 2             |
| University of Pennsylvania School of Medicine                                    |        | (1940)         | 1             |
| University of Vermont College of Medicine  |        | (1940)         | 1             |
| Universite de Paris Faculte de Medecine  |        | (1937)         | 1             |
| Ludwig Maximilians Universität Medizinische Fakultät, München                    |        | (1938)         | 1             |

| School   | FAILED | Year Grad   | Number Failed |
|--|--------|---|---------------|
| Georgetown University School of Medicine   |        | (1941, 2)   | 2             |
| University of Maryland School of Medicine and College of Physicians and Surgeons |        | (1941)  | 1             |
| Columbia University College of Physicians and Surgeons                           |        | (1934)  | 1             |
| Cornell University Medical College   |        | (1908)  | 1             |
| Syracuse University College of Medicine  |        | (1941)  | 1             |
| McGill University Faculty of Medicine  |        | (1937)  | 1             |
| Karl Franzens Universität Medizinische Fakultät, Graz                            |        | (1922)  | 1             |
| Medizinische Fakultät der Universität Wien                                       |        | (1924), (1925), (1932), (1935), (1936), (1937, 2), (1938) | 8             |

|   |  |                |   |
|---|--|----------------|---|
| Schlesische Friedrich Wilhelms Universität Medizinische Fakultät, Breslau |  | (1925)         | 1 |
| Magyar Királyi Pazmany Petrus Tudományegyetem Orvosi Fakultása, Budapest  |  | (1928), (1938) | 2 |
| Regia Università degli Studi di Bologna Facoltà di Medicina e Chirurgia   |  | (1937)         | 1 |
| Regia Università degli Studi di Roma Facoltà di Medicina e Chirurgia      |  | (1937)         | 1 |
| Regia Università di Napoli Facoltà di Medicina e Chirurgia                |  | (1937)         | 1 |
| Osteopaths †  |  | (1937)         | 2 |

Nineteen physicians were successful in the oral examination for endorsement applicants held at Hartford on March 24 or May 13 The following schools were represented

| School   | PASSED | Year Grad | Endorsement      |
|--|--------|-----------|------------------|
| Yale University School of Medicine                     |        | (1932),*  | (1936)* N B M Ex |
| George Washington University School of Medicine        |        | (1934)    | N B M Ex         |
| State University of Iowa College of Medicine           |        | (1938)    | 1                |
| Johns Hopkins University School of Medicine            |        | (1926)*   | Marly            |
| Boston University School of Medicine                   |        | (1939)*   | N B M Ex         |
| Harvard Medical School                                 |        | (1939)    | N B M Ex         |
| Tufts College Medical School                           |        | (1938)*   | Marly            |
| Albany Medical College                                 |        | (1937)    | N B M Ex         |
| Columbia University College of Physicians and Surgeons |        | (1909)*   | N B M Ex         |
| Cornell University Medical College                     |        | (1929)*   | N B M Ex         |
| Long Island College of Medicine                        |        | (1939)*   | N B M Ex         |
| University of Pittsburgh School of Medicine            |        | (1937)    | Per 1            |
| University of Western Ontario Medical School           |        | (1940)    | N B M Ex         |
| University of Montreal Faculty of Medicine             |        | (1927)    | Marly            |

\* Licenses have not been issued  
† One examined in medicine and one in surgery

Minnesota April Report

The Minnesota State Board of Medical Examiners report the written examination for medical licensure held at Minneapolis, April 21-23, 1942 The examination covered 12 subjects and included 60 questions An average of 75 per cent was required to pass Forty-seven candidates were examined, 13 of whom passed Three physicians were licensed to practice medicine by reciprocity and 1 physician so licensed on endorsement of credentials of the National Board of Medical Examiners The following schools were represented

| School   | PASSED | Year Grad                       | Number Passed |
|--|--------|---------------------------------|---------------|
| University of California Medical School                |        | (1941)                          | 1             |
| Yale University School of Medicine                     |        | (1940)                          | 1             |
| Northwestern University Medical School                 |        | (1941) (1941 2)*                | 3             |
| Rush Medical College                                   |        | (1934), (1941)                  | 1             |
| Indiana University School of Medicine                  |        | (1939)                          | 1             |
| Tulane University of Louisiana School of Medicine      |        | (1939 2)                        | 1             |
| Johns Hopkins University School of Medicine            |        | (1938), (1939), (1940)          | 3             |
| University of Michigan Medical School                  |        | (1938)                          | 1             |
| University of Minnesota Medical School                 |        | (1939), (1941, 15),* (1942, 4)* | 1             |
| Washington University School of Medicine               |        | (1940)                          | 1             |
| Columbia University College of Physicians and Surgeons |        | (1939), (1940)                  | 1             |
| Cornell University Medical College                     |        | (1938)                          | 1             |
| Ohio State University College of Medicine              |        | (1940)                          | 1             |
| Temple University School of Medicine                   |        | (1940), (1941)                  | 1             |
| University of Pennsylvania School of Medicine          |        | (1938), (1939), (1940)          | 3             |
| Baylor University College of Medicine                  |        | (1940)                          | 1             |
| University of Texas Faculty of Medicine                |        | (1939)                          | 1             |
| Medical College of Virginia                            |        | (1937)                          | 1             |

| School                                     | LICENSED BY RECIPROCITY | Year Grad | Reciprocity |
|--|-------------------------|-----------|-------------|
| University of Illinois College of Medicine |                         | (1941)    | 1           |
| Harvard Medical School                     |                         | (1939)    | 1           |
| University of Minnesota Medical School     |                         | (1940)    | 1           |

| School               | LICENSED BY ENDORSEMENT | Year Grad | Endorsement |
|----------------------|-------------------------|-----------|-------------|
| Rush Medical College |                         | (1939)    | 1           |

\* These applicants received the M B degree and will receive the degree on completion of internship

Colorado April Report

The Colorado State Board of Medical Examiners report the written examination for medical licensure held at Denver, 8-10, 1942 The examination covered 8 subjects and included 64 questions An average of 75 per cent was required to pass One candidate was examined and passed The following schools were represented

| School                                 | PASSED | Year Grad | Number Passed |
|--|--------|-----------|---------------|
| Northwestern University Medical School |        | (1941, 2) | 2             |

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Medical Practice Acts Accused Entitled to Bill of Particulars**—An information filed against the petitioner charged that he "did wilfully, knowingly, and unlawfully practice medicine within the State of Montana without first having obtained a certificate to practice as provided by law. The petitioner filed a motion for a bill of particulars, which was denied. He therefore applied to the Supreme Court of Montana for a writ of supervisory control directing the district court to grant an order requiring the state to furnish such bill.

The petitioner contended that the information did not sufficiently apprise him of the nature of the accusation to enable him to prepare his defense and that the refusal to grant him a bill of particulars was a violation of his constitutional rights to demand and be informed of 'the nature and cause of the accusation'. The respondents contended that there was no statute in Montana authorizing or giving a court a right to require the state to furnish a bill of particulars in a criminal case. The Supreme Court said, however, that it had previously recognized the existence of such a right and stated the general rule to be that when an indictment does not clearly set forth the charge against the accused he may move for a bill of particulars for specification of the acts on which the prosecution intends to rely and such motion will be granted whenever it appears to be necessary to enable the defendant to meet the charge against him.

The respondents next contended that the information did in fact sufficiently apprise the petitioner of the charge against him. The medical practice act provides that it shall be a misdemeanor to practice medicine or surgery without a license and then states disjunctively numerous acts the doing of which constitutes the practice of medicine. The Supreme Court pointed out that the offense could thus be committed in a number of ways and said that the accused was entitled to know what the state was relying on as constituting the practice of medicine. So far as the right of the accused to a bill of particulars is concerned, the court pointed out, a prosecution under the medical practice act is analogous to one for violating the traffic regulation statute. A person can be guilty of a misdemeanor by doing any one of twenty-two different acts regarding the use of the highways and each act would be a distinct and separate offense. Certainly an accused in a prosecution under that statute would be entitled to know what particular subdivision of the statute he was accused of violating. In the opinion of the court, the petitioner in this case was entitled to a bill of particulars in order to ascertain which act or acts the state was relying on as constituting the practice of medicine, or at least which portion of the statute he was accused of violating. By pleading not guilty the petitioner did not waive his right to a bill of particulars.

The writ of supervisory control requiring the furnishing of a bill of particulars was accordingly granted—*State ex rel Hong Sun v. District Court of First Judicial District in and for Lewis and Clark County*, 113 P. (2d) 996 (Mont., 1941).

**Statute Authorizing Commitment of Criminal Sexual Psychopathic Persons Constitutional**—A Michigan statute (Act 165 Public Acts of 1939) which defines a criminal sexual psychopathic person as any person not insane or feeble-minded, suffering from a mental disorder coupled with criminal propensities to the commission of sex offenses authorizes the attorney general or the appropriate prosecuting attorney when any such person is charged with a criminal offense to file with the clerk of the court in the same proceeding wherein the person stands charged with such criminal offense a statement in writing setting forth facts tending to show that the defendant is a criminal sexual psychopathic person. The trial court is then

to appoint two qualified psychiatrists to examine the accused and to file with the court a report in writing as the results of their examination together with their conclusions and recommendations. The court subsequently is to hold a hearing to determine whether or not the accused is a criminal sexual psychopathic person and, if such a finding is made, the court is then to commit the accused to the state hospital commission to be confined in an appropriate state institution under its jurisdiction until the accused has permanently recovered from such psychopathy. The defendant Chapman, was charged with an act of gross indecency but before trial on the charge the appropriate prosecuting attorney filed a petition with the court alleging that the defendant was a criminal sexual psychopathic person and the trial court appointed two psychiatrists to examine him as contemplated in the statute referred to. The psychiatrists reported in substance to the court that, while there were many suggestive signs and symptoms of schizophrenia in the defendant they would not make a diagnosis of actual psychosis (insanity) at that time. However, they did state that the defendant had a psychosexual deviation was homosexual and had suggestive symptoms of simple schizophrenia. They stated that his psychosexual deviation was likely to assume "a much more ominous manifestation, that of pedophilia." The trial court subsequently, after a hearing determined that the defendant was a "criminal sexual psychopathic person" and committed him to the state hospital commission to be confined in an appropriate institution. The defendant then appealed to the Supreme Court of Michigan, questioning the constitutionality of the statute under which he was committed.

The defendant contended that the trial court was without jurisdiction to determine that he was a criminal sexual psychopathic person because the report of the psychiatrists found him to be insane and that, if he was insane under the statute he could not be committed as a criminal sexual psychopathic person. If the defendant, said the court had been found to be insane, he would not have been subject to commitment. The report of the psychiatrists, however stated that, while there were many suggestive signs and symptoms of schizophrenia, a diagnosis of actual psychosis (insanity) was not made at that time and that further observation might establish the presence of that mental disorder. The report indicated long indulgence by the defendant in perverted sexual behavior, lack of inhibitions, peculiarities, flights of fancy, numerous abnormalities and symptoms of schizophrenia. While these symptoms are indicative of a psychopathic personality they do not constitute a finding that the defendant was insane.

The court did not agree with the next contention of the defendant that the trial court was without jurisdiction to commit him as a criminal sexual psychopathic person because the psychiatrists report did not make a finding that he was not insane, which finding he claimed, was required under the statute. The purpose of the psychiatrists' report said the court, was to inform the trial court whether or not it was reasonable and proper to proceed with the hearing in order to determine whether or not the defendant was a criminal sexual psychopathic person. The report served that purpose. It was then for the trial court, with or without a jury, to determine whether the defendant was a criminal sexual psychopath. The trial court concluded that the evidence adduced satisfactorily established that fact. The proceedings in this case in many respects are analogous to proceedings for the commitment of a person alleged to be insane. The question of insanity is factual and the finding of the trier of facts is binding on appellate courts if there is evidence to support such a finding. That same rule of law, in the opinion of the court, applies to the instant situation, and the court concluded that the trial court had jurisdiction to conduct the proceedings and to make the order of commitment.

The defendant next contended that the statute in question denies the equal protection of the laws guaranteed by the Michigan and federal constitutions because it limits the class of criminal sexual psychopathic persons who might be brought within its provisions only to those who are charged with a criminal offense and that such classification makes the statute unconstitutional as class legislation. It is well recognized

answered the court, that the legislature may make classifications of persons provided such classifications are based on substantial distinctions and are in accord with the aims sought to be achieved. Such classification, however, must be neither arbitrary nor capricious but must rest on reasonable and justifiable foundations. Was there a sound and logical basis for the legislature in enacting the act in question to restrict its operation to "criminal sexual psychopathic persons charged with a criminal offense?" It is reasonable to presume that the legislature concluded that the need for such restraint as the statute imposes was greatest among that group of criminal sexual psychopathic persons apparently predisposed to transgressions against society, that is, those persons charged with other violations of the criminal law. We believe it is a reasonable and justifiable assumption that the class of sexual psychopathic persons most dangerous and most likely to commit sex crimes is that class which engages in other criminal conduct. The legislature, in the exercise of its state police power and in its efforts to afford protection, could limit the scope of a legislative act to the eradication of evil where presumably the need is greatest, even though it might constitutionally have extended the operation of its enactment to a larger class. In support of this conclusion the court quoted as follows from the opinion of the Supreme Court of the United States in *State of Minnesota ex rel Pearson v Probate Court*, 309 U. S. 270, 60 S. Ct. 523, in which a Minnesota statute providing for certain restraints for a "psychopathic personality" did not deny such a person equal protection of the laws.

The question, however, is whether the legislature could constitutionally make a class of the group it did select. That is, whether there is any rational basis for such a selection. We see no reason for doubt upon this point. Whether the legislature could have gone farther is not the question. The class it did select is identified by the state court in terms which clearly show that the persons within that class constitute a dangerous element in the community which the legislature in its discretion could put under appropriate control. As we have often said, the legislature is free to recognize degrees of harm, and it may confine its restrictions to those classes of cases where the need is deemed to be clearest. If the law 'presumably hits the evil where it is most felt, it is not to be overthrown because there are other instances to which it might have been applied."

In the present statute, continued the Supreme Court, the legislature restricted its application to that class of criminal sexual psychopathic persons who have been charged with a criminal offense, thereby restricting such act to cases where the need is deemed to be clearest and where the evil is most apparent. Such statute should not be overthrown because there may have been other instances in which it might have applied.

The court next dismissed as without any merit a contention by the defendant that the statute by a provision that at the hearing before the trial court it shall be competent to introduce evidence of the commission by such person of any number of similar crimes violated a provision of the Michigan constitution prohibiting the legislature from passing any ex post facto law. The prohibition against the enactment of an ex post facto law, the court pointed out, applies only to criminal statutes. The statute here in question is not a criminal statute nor are the proceedings under it criminal in nature but rather are analogous to civil inquests for the determination of questions of insanity.

For the reasons stated, the order of the trial court committing the defendant to the state hospital commission to be confined in an appropriate institution under the commission's jurisdiction was affirmed.—*People v Chapman*, 4 N. W. (2d) 18 (Mich., 1942).

**Malpractice Death of Patient from Eclampsia, Alleged Abandonment**—The plaintiff engaged the defendant physician to attend his wife during childbirth. The wife died and in a subsequent suit for damages the plaintiff alleged that the death was caused by the negligent and improper treatment rendered by the defendant. From a judgment for the defendant on a directed verdict, the plaintiff appealed to the Court of Appeals of Kentucky.

The defendant was called to the plaintiff's home on the morning of Aug. 16, 1938. When he arrived there at about 7:30 a. m. he found the patient in a convulsion and was advised that

she had already suffered two previously. He immediately administered a hypodermic, examined the patient's heart, took her blood pressure and said that he "found no trouble there" but believing that the patient's condition was very serious he suggested that another physician be called. Before the second physician arrived the patient had another convulsion, and magnesium sulfate was administered intramuscularly. Labor was progressing, but the two physicians agreed that more dilatation was necessary and thytuitary was administered. During the delivery the assisting physician used forceps while the defendant administered chloroform to prevent a recurrence of the convulsions. After the birth, the defendant took charge of the mother, administered pituitary to control bleeding and to regulate contraction of the uterus and remained with the patient and examined her periodically, according to his testimony, for about an hour and a half during which time the patient was unconscious. Before the defendant left he administered a heart stimulant, which he testified could not have been repeated for three or four hours, told the family where he could be reached and suggested that "if there was anything they didn't understand to call him." When he was called later he hurried back, but the patient had already died. It was agreed that the cause of death was shock and convulsions due principally to eclampsia.

The plaintiff's chief contention seemed to be that the patient's death was due to the fact that the defendant left precipitately without making suitable arrangements for the care of the patient. But, said the court, there was no evidence to indicate that the defendant precipitately left the patient. He remained at least forty-five minutes after the delivery, according to the plaintiff's own testimony. The defendant testified that he remained twice that long and that when he finally had to go to see another patient he left word as to how he could be reached. Also, the defendant testified, "Had we remained at her bedside we could not have saved her or prolonged her life, we had already done everything that medical science knew. We left nothing undone. In this he was corroborated by the physician who was called in to assist him. The expert witness called by the plaintiff admitted that in childbirth cases, where the mother has convulsions, "they die in spite of all the doctor can do." This witness also stated that the procedure adopted in delivering the baby and the question of what drugs to administer, how to administer them and with what frequency were entirely up to the attending physician in each individual case.

The Court of Appeals pointed out that a failure to effect a cure raised no presumption of want of proper care, skill or diligence on the part of a physician. No proof was found by the court to show that the death was caused by anything except shock coming at a time when the patient's condition was such as to be able to meet it. Before the plaintiff is entitled to recover, the court said, it must be shown that the defendant was negligent and that his want of skill or neglect to do something which a physician of ordinary skill would have done resulted in death or injury. No such showing was made in this case, and the judgment for the defendant was therefore affirmed.—*Williams v Tarter*, 151 S. W. (2d) 783 (Ky.), 1941.

## Society Proceedings

### COMING MEETINGS

- American Association of Obstetricians, Gynecologists and Allied Surgeons, White Sulphur Springs, W. Va., Sept. 10-12. Dr. J. R. Bloss, 418 Eleventh St., Huntington, W. Va., Secretary.
- American Association of Railway Surgeons, Chicago, Sept. 10-11. Raymond B. Kepner, 547 West Jackson Blvd., Chicago, Sec. 91.
- American Congress of Physical Therapy, Pittsburgh, Sept. 9-11. Richard Kovacs, 2 East 88th St., New York, Secretary.
- Idaho State Medical Association, Sun Valley, Sept. 16-19. Dr. J. Jeppesen, 105 North 8th St., Boise, Secretary.
- National Medical Association, Cleveland, Aug. 17-21. Dr. J. T. Givens, 1108 Church St., Norfolk, Va., General Secretary.
- Oregon State Medical Society, Portland, Sept. 9-11. Dr. J. Montague, 1020 S. W. Taylor St., Portland, Secretary.
- Utah State Medical Association, Provo, Aug. 27-29. Dr. D. G. McIntyre, 610 McIntyre Bldg., Salt Lake City, Secretary.
- Washington State Medical Association, Spokane, Aug. 17-19. Dr. J. Spickard, 1305 Fourth Ave., Seattle, Secretary.
- Wisconsin State Medical Society of Milwaukee, Sept. 15-17. Charles H. Crownhart, 110 East Main St., Madison, Secretary.
- Wyoming State Medical Society, Cheyenne, Aug. 16-18. Dr. J. Keith, Capitol Bldg., Cheyenne, Secretary.

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 15 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk ( \* ) are abstracted below.

#### American Journal of Pathology, Ann Arbor, Mich 18 363-554 (May) 1942

- Studies on Leukocytes. III. Hourly Determinations of the Maturity of Neutrophils of Normal Rabbits. G. H. Reifstein and M. F. Hilfinger Jr. Syracuse N. Y.—p. 63.
- Id. IV. Neutrophilic Maturity Following Intravenous Injection of Supernatant Fluid from a Sterile Exudate (Rabbit). G. H. Reifstein, J. H. Ferguson and H. C. Weiskotten. Syracuse N. Y.—p. 369.
- \*Malignant Lymphoma. Clinicopathologic Survey of 618 Cases. E. A. Gall and T. B. Mallory. Boston—p. 381.
- Fibrous Connective Tissue of the Artificially Induced Maternal Placenta in the Rat with Particular Reference to Relationship Between Reticulum and Collagen. T. M. Wolfe and A. W. Wright. Albany N. Y.—p. 431.
- Experimental Blastomycosis in Mice. R. D. Baker. Durham N. C.—p. 463.
- Tissue Reactions in Human Blastomycosis. Analysis of Tissue from Twenty Three Cases. R. D. Baker. Durham N. C.—p. 479.
- Pathology and Pathologic Diagnosis of Radiation Lesions in the Gastrointestinal Tract. S. Warren and N. B. Friedman. Boston—p. 499.
- Lesions Produced in the Gastrointestinal Tract by Irradiation. General Review with an Illustrative Case Report. R. M. Mulligan. Denver—p. 515.
- Synovial Sarcomatoidoma (Sarcoendothelioma). H. R. Fisher. Philadelphia—p. 529.

**Malignant Lymphoma**—Gall and Mallory point out that many generic terms have been utilized to designate diseases of the lymphatic system characterized by progressive tumor-like enlargement of lymphoid tissue with eventual fatality, and histologically by multiplication of one or more of the elements normally present in lymph nodes to the point of destruction of the nodal architecture. Malignant lymphoma seems to have won most general usage in this country and has the advantage of being noncommittal as to pathogenesis. In recognition of the complexity of the problem the American Association of Pathologists and Bacteriologists established a Registry of Lymphatic Tumors and in 1934 set the seal of the registry's approval on the schematization and terminology employed. This represented an essential fusion of three classifications: (1) cytologic based on morphologic recognition of component proliferating cells; (2) gross anatomic depending on the distribution of the process throughout the organs of the body; and (3) clinical contingent on physical signs and hematologic manifestations. The authors offer a somewhat different classification because attempts to apply the registry's terminology convinced them that it is not practical for routine use. They present a cytologic classification of malignant lymphomas and show its advantages in a clinicopathologic survey of 545 cases (73 cases of the 618 studied histologically lacked adequate clinical data). They demonstrated by multiple examinations at significant time intervals that the cytologic type is remarkably constant although a few cases show a progressive failure of differentiation as the disease progresses. In contrast in a classification based largely on distribution such features as the presence or absence of leukemia, generalization versus localization and sarcomatous growth were considered important. These have been shown to be inconstant and changeable thereby requiring variation in classification from time to time in order to fit the stage of the disease. The vast majority of the 618 cases from which histologic material was available could be readily divided into seven categories: stem cell lymphoma, clasmatoctytic lymphoma, lymphoblastic lymphoma, lymphocytic lymphoma, Hodgkins lymphoma, Hodgkins sarcoma and follicular lymphoma. This differs from accepted classifications primarily in the subdivision into two types of what has generally been grouped under the heading reticulum cell sarcoma, one

in which the cells are highly undifferentiated and resemble lymphoid stem cells, for which the authors have proposed the name stem cell lymphoma, and a second in which the cells show recognizable features of differentiation in the direction of tissue phagocytes, which they have termed clasmatoctytic lymphoma. It has also proved useful to divide the tumors showing clear evidence of belonging to the lymphocyte series of cells into lymphoblastic and lymphocytic types depending on whether the immature or the mature cells predominate. Hodgkins disease too has appeared divisible into lymphomatous and sarcomatous types. Follicular lymphoma has been shown to be a form of malignant lymphoma and not, as has been claimed, merely an inflammatory process. The value of this classification was put to the test of clinical correlation and, although considerable overlapping was observed, sufficiently constant differences were found in the age of onset, duration of the disease, maximal frequency or involvement of various organs and tissues, tendency to localization or generalization, the development of leukemia and the degree of radiosensitivity to delineate a series of recognizably different clinical syndromes.

#### Am J Roentgenol & Rad Therapy, Springfield, Ill 47 507-664 (April) 1942

- \*Pneumoconiosis in the Talc Industry. F. W. Porro, J. R. Patton and A. A. Hobbs Jr. Ogdensburg N. Y.—p. 507.
- Calcified Tuberculoma of the Brain. L. M. Weinberger. Chicago and F. C. Grant. Philadelphia—p. 525.
- Roentgenologic Diagnosis of Tumors of Bone. C. G. Sutherland, Rochester, Minn.—p. 534.
- Atypical Giant Cell Tumor. B. L. Coley and L. E. Miller. New York—p. 541.
- Roentgenologic Aid in Differentiation of Organic from Nonorganic Nitral (Flint's) Murmurs. B. S. Epstein. Brooklyn—p. 549.
- \*Cardiovascular System of American Roentgenologists Beyond the Age of Forty Five Years. W. Raab. Burlington Vt.—p. 555.
- Significance of Psammoma Calcification in Roentgen Diagnosis of Papillary Tumors of the Ovary. J. R. Lingley. Boston—p. 563.
- The Meniscus Complex in Roentgenologic Diagnosis of Ulcerating Carcinoma of the Stomach. B. R. Kirklin. Rochester, Minn.—p. 571.
- Stellate Impression in the Cardiac End of the Stomach Simulating Tumor. F. M. Hodges, L. O. Snead and R. A. Berger. Richmond Va.—p. 578.
- \*Diverticula of the Duodenum. L. M. Rankin. Upper Darby Pa.—p. 584.
- Platybasia, Klippel Feil Syndrome and Sprengel's Deformity. W. Furst and H. W. Ostrum. Philadelphia—p. 588.
- Chorioepithelioma in the Male and Female as Observed Roentgenologically. J. Arendt. Chicago—p. 591.
- \*Hodgkins Disease. Five Year Survival Rate. Value of Early Surgical Treatment. Notes on Four Cases of Long Duration. D. P. Slaughter and L. F. Craver. New York—p. 596.
- Present Status of Radium Therapy. D. Quick. New York—p. 607.
- Leaded Resinous Applicator for Intraoral and Extraoral Radium Therapy. J. E. Pratt, A. F. T. Bruder, W. J. Manion and G. E. Ward. Baltimore—p. 613.
- Use of Radon Ointment as Means of Differentiation Between Radionecrosis and Recurrent Carcinoma. E. Uhlmann and A. Grossman. Chicago—p. 620.

**Pneumoconiosis in the Talc Industry**—Porro and his co-workers attempt to correlate the dusty occupation of talc mining and milling with a definite morbidity. During the last ten years one of the authors has noted that talc workers examined at chest clinics presented diffuse pulmonary changes believed to be at least partly due to exposure to dust. Since 1937 when the New York State compensation laws became effective medical consultants of the New York State Department of Labor have rendered decisions that disability was produced in this industry. The authors report 15 cases in which a history of exposure to talc dust was chronologically related to the onset of symptoms. From Dreesen's analysis it appears that the dust responsible for the disabling pneumoconiosis must be talc itself in the form of tremolite or soapstone or both since free silica or other dust in high concentration was not found. The symptoms are those characteristic of disabling pneumoconiosis: dyspnea, cough, chest pain and weakness. Vital capacity was extremely low. The gross pulmonary changes in all cases are stiffening of the lungs, poorly outlined grayish bands and nodules appearing in the parenchyma and moderate enlargement of the tracheobronchial lymph nodes. Emphysema is universally present but is not grossly recognized in the mild case. In all except the least involved case extensive intrapleural adhesions are found and in all advanced cases there is a cor pulmonale. Microscopic changes consist chiefly in irregular areas and bands of cellular fibrosis surrounding the



vessels and bronchi and producing thickening of the alveolar walls. Histiocytes and fibroblasts are numerous in proportion to collagen fibers. Asbestosis bodies are frequently present in the lesions. This implies a degree of similarity between asbestosis and pneumoconiosis due to talc. While tuberculosis or other complication may be present, pneumoconiosis in itself is a reaction of living tissue to injury and therefore an inflammatory disease resembling other chronic inflammation. Diffuse haziness is the most constant roentgen abnormality and is probably the earliest detectable change. The general background of the pulmonary field may have a fine indefinite reticulation of lines. The appearance suggests that the haziness due to interstitial fibrosis has been modified by a fine emphysema. Another manifestation is usually general nodulation. Confluence of lesions and haziness usually begin in the areas of distribution of the lower lobe trunks. The diagnosis is made on the history of an adequate exposure and on the roentgen signs. If disability is present the characteristic symptoms are significant. If uncomplicated, the symptoms of talc pneumoconiosis are so unlike those of pulmonary tuberculosis that a differential diagnosis is comparatively easy. In uncomplicated talc pneumoconiosis the onset of symptoms marks the beginning of a disability from which recovery appears to be impossible. It is desirable to withdraw the worker from exposure prior to this time. There are roentgen changes before the onset of dyspnea or other subjective symptoms. The determination of vital capacity may be an effectual routine procedure in selecting workers that should be more thoroughly studied as potential subjects for withdrawal from further exposure. Standard exercise tests for the objective periodic determination of dyspnea may aid in the discovery of early pulmonary fibrosis. Measures to reduce the dust concentration should be instituted.

#### Cardiovascular System of American Roentgenologists

—The answers Raab obtained to a questionnaire from 344 American and Canadian roentgenologists more than 45 years of age suggest a blood pressure level slightly below the normal for all age groups. Peripheral vascular disease of a major degree and severe nephrosclerosis seemed to be relatively uncommon. The incidence of coronary disease without and with thrombosis was high. The majority of these persons were heavy smokers. Whether or not the results concerning blood pressure and peripheral vascular disease are attributable to prolonged roentgen "spray" effects on the cardiovascular system cannot be decided, but they do not seem to be incompatible with the working hypothesis that such exposure may exert a certain protective effect against an exhausting and ultimately destructive overactivity of the adrenal hormones and related substances within the myocardial and arterial muscular tissues.

**Diverticula of the Duodenum**—Rankin cites a case of a diverticulum of the duodenum which presented three unusual observations: the large diverticulum was diagnosed roentgenologically before operation, it contained a gallstone, and the stone was the largest on record, about 2 inches (5 cm) in diameter. The stone and the diverticulum were removed and the abdomen was closed. The patient made satisfactory postoperative progress for several days, but after a week her condition became retrogressive, the urinary output gradually decreased and renal dysfunction ensued in spite of treatment, the patient dying of uremia thirteen days after the operation.

**Hodgkin's Disease**—From 1918 through 1935, 265 patients with Hodgkin's disease proved by biopsy were treated at the Memorial Hospital. Of the group, 26 are living, 28 have been lost to follow-up and are considered dead, and all but 1 of the others died of the disease. The study enables Slaughter and Craver to regard certain cases of Hodgkin's disease in a slightly more optimistic light than heretofore. The prognosis in a certain type of case appears more favorable than in others. This has little to do with the micropathologic picture of the disease but depends rather on anatomic location and extent. Such a case would be defined as one with only one accessible node group involved, no deep adenopathy and no systemic symptoms as evidence of hidden disease. If irradiation alone is employed in such a case, "obliterative" irradiation would be better than light palliative doses. Surgical extirpation would be justified in such a case and should be tried in the future (followed by irradiation within the limits of cutaneous tolerance)

at least until enough cases are available for a reevaluation of the role of surgery in the disease. The average survival period for the 265 patients from the time of beginning therapy was 33.8 months. The average survival time for the 211 who died was 24.6 months. Of the patients 17.7 per cent survived five years following treatment and 3.4 per cent more than ten years.

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**Brain Injury in War**—Kennedy presents a routine procedure for the treatment of cerebral injuries of war. Brown has demonstrated experimentally that a head injury to produce unconsciousness must accelerate the movement of the brain to not less than 28 feet per second. Such acceleration usually does not occur if the skull is penetrated by a missile fragment traveling at a high speed. Therefore a man injured in this manner becomes unconscious immediately, and usually has not been made unconscious by the impact of the missile. The missile having ploughed through such extensive area of cerebral tissue as to make recovery extremely unlikely. On the other hand, a nonpenetrating blow on the head will often cause immediate unconsciousness without necessarily having destroyed or even permanently injured any cerebral area. Today, because of the sulfonamide derivatives, if cerebral injuries are treated early it is possible to prevent their infection. The procedure presented is as follows: The hair is clipped, the scalp is washed with soap and water and local anesthesia induced. Mordant should not be used. Large bleeding vessels are caught with hemostats or by rubber tubing placed around the vessel. Wounds should be filled with sulfanilamide or sulfapyridine. Debridement should be as thorough as possible. Antitetanic serum should be given. Treatment for shock is to be instituted immediately and operation delayed for twenty-four to thirty-six hours, so that patients can be sent back to a place where facilities for roentgen study are available. Such a "head shot" should be as near the front area as is militarily possible. It is now possible to treat such patients with a closed operation. If a blood clot in the track of the missile is sucked out and the wound irrigated with warm saline solution. A rubber catheter is placed in the wound for exploration. Any wound big enough to be explored with a finger is hardly worth exploring. The track should be explored with sulfanilamide powder before it is closed. The track should be removed if accessible bone or metal fragments may do so. If the wound was done by the enemy who put them in, the procedure, sulfonamide drugs should be continued. Penicillin therapy should be started at once and continued for at least 10 days more. If the wound has not been treated with penicillin.

hours it must be treated as an infected open wound. Increased pressure and acute cerebral edema are dealt with by dehydration. In the care of nonpenetrating head injuries shock is treated by intravenous injection of 100 cc of a 50 per cent solution of hypertonic dextrose or blood serum. Lumbar puncture should be performed for diagnosis and treatment and the hypertonic dextrose solution repeated to reduce increased intracranial pressure. Caffeine with sodium benzoate, rectal taps, elevation of the head of the bed, operative procedures for suspected meningeal hemorrhage, antimeningococcus serum in suitable cases, antitetanus serum for all patients with a scratch, right subtemporal decompression for comatose patients who do not respond to the foregoing procedures within three days and elevation of uncomplicated depressed fractures of the skull are employed after the acute stage of shock has passed. Surgical intervention for this group of patients may often be safely postponed for many days.

**Potentialization of Sulfonamide Derivatives by Oxidants in Local Therapy of Wounds**—Goldberger states that his experience in 884 cases leads him to believe that the most effective local antibacterial agent is represented by a combination of sulfanilamide and sulfathiazole with an oxidant. Depending on the nature of the wound or infection a choice of powder, ointment, paste, jelly, solution or impregnated gauze can be used. The activating agent varies with the vehicle for the powder form zinc peroxide is favored, for the ointment and the paste azochloramide and zinc peroxide, and for solutions iodine, azochloramide and potassium permanganate. Regardless of the form of the medication used, a local excess of sulfonamides must be made constantly available for absorption by the tissues and to make up for that lost through excretion. The addition of a wetting agent such as sodium tetradeceyl sulfate, will enhance the effectiveness of the suspensions and ointments. The combination of a sulfonamide, an oxidizing agent and a wetting agent comprises the most effective local antibiotic mechanism. The combination of sulfanilamide and sulfathiazole is more effective than either alone. Idiosyncrasy to local therapy is rare. Potentiated sulfonamides are also antibacterial and antibiotic to other unicellular organisms, amebas, paramoebias, trichomonads, spermatozoa and certain fungi. Clinical and laboratory studies indicate that their action depends on a direct attack on the bacterial cells by oxidation, thus approximating the ideal surgical antiseptic, which is harsh to bacteria and kind to tissues.

**Endometriosis in Scars**—Wyrens and Randall collected 31 cases of true endometriosis in postoperative scars from the 1916 to 1941 records of the Mayo Clinic. The endometriosis was proved by microscopic study of the specimens in 15 it followed uterine suspension operations, in 4 cesarean section, in 4 salpingectomy, in 2 hysterectomy, in 2 myomectomy, in 1 simple appendectomy, in 1 drainage of an appendiceal abscess, in 1 inguinal herniorrhaphy and in 1 some type of pelvic operation performed elsewhere. In most of the cases the lesion followed operations performed on the uterus or fallopian tubes, but in the performance of most of them the lining of these organs was not exposed. A few of the tumors seem to have originated from exposed portions of endometrium and to have invaded the abdominal wall secondarily, but others were separated from the uterine lining. The best evidence for the etiology of this condition, which is unknown, points toward transplantation or invasion (migration) of endometrium from the lining of the uterus. The endometriomas in question resemble endometrium microscopically and in 1 an unabsorbed suture was presented which may or may not represent the contaminating vehicle during the original operation. In many cases in which the condition followed ventral suspension of the uterus the round ligaments were involved in endometriosis at the points at which they were sutured to the anterior abdominal wall. Pain worse at the menstrual period, and a palpable nodule, were the most common complaints. Few of the tumors discharged a bloody fluid at the menstrual period. In a few cases there were no symptoms. The differential diagnosis includes keloids, desmoids, fibromas, neuromas, incarcerated omental hernias and uterine or tubal fistulas. If the condition is uncomplicated cure may be obtained by wide excision. One recurrence was encountered, undoubtedly caused by inadequate excision at the first operation.

**Acute Cholecystitis**—McLanahan and his associates review the records of 140 patients with acute cholecystitis who were operated on by twenty-seven operators at the Union Memorial Hospital between September 1923 and November 1940. Sixty-three per cent of the patients were between 30 and 60 years of age. 34 were more than 60. Nausea or vomiting or both occurred in 85 per cent. Pain was almost a universal symptom. Jaundice was present in 20 per cent of the 96 with definite records. There were twelve deaths, seven occurred among the 28 undergoing drainage of the gallbladder and five among the 112 undergoing cholecystectomy. The gallbladders of the 7 patients who died following cholecystostomy were gangrenous, five of them had perforated. Of the 5 dying after cholecystectomy, the gallbladders of 3 were gangrenous and those of 2 were acutely inflamed without gangrene. Approximately half of the patients had had symptoms for more than a week. The mortality (three deaths) was highest among the 14 patients operated on in the first twenty-four hours, it became high again only after a week. Some postoperative complication developed in 31 per cent of the patients. The complications were pulmonary, myocardial, peritoneal, hemorrhagic or vascular.

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- Surgical Aspect of Congenital Absence of the Gallbladder. Report of Two Cases. G. G. Finney and J. K. Owen, Baltimore.—p. 736
- Anatomy of the Attachments of the Diaphragm: Their Relation to Problems of Surgery of Diaphragmatic Hernia. J. D. Rives and D. D. Baker, New Orleans.—p. 745
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- Use of the Cutis Graft in Repair of Certain Types of Incisional Hernias and Other Conditions. J. E. Cannaday, Charleston, W. Va.—p. 775
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- \*Acute Hematogenous Osteomyelitis. H. Maborner, New Orleans and A. P. Crain, Jr., Shreveport, La.—p. 790
- Splenectomy. A. O. Singleton, Galveston, Texas.—p. 816
- \*Use of Estrogenic Substances in Preoperative and Postoperative Treatment of Hypertyroidism: Further Observations. A. H. Storck and J. Sabatier, New Orleans.—p. 821
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**Intestinal Obstruction from Gallstones**—Foss and Summers report 10 personally observed cases and review 140 most significant records of the past two decades of similar cases. The relative incidence of intestinal obstruction from gallstones varied from 1 to 5 per cent. There were 130 women and 20 men, a ratio of 6.5:1. This corresponds to the relative incidence of cholelithiasis in the two sexes. The majority of patients were in the sixth and seventh decades of life. A gallstone large enough to cause intestinal obstruction rarely passes by way of the common duct, the most common route being a fistula between the fundus of the gallbladder and some portion of the duodenum. The sequence of events usually is cholelithiasis, ulceration and erosion of the gallbladder wall, pericholecystitis and the formation of a fistulous tract. Twenty-three of the 150 patients had no history suggestive of disease of the gallbladder, and 48 gave a history of epigastric pain interpreted as being associated with the process of perforation. A stone that enters the small intestine may pass spontaneously, but more often it produces characteristic intermittent symptoms of obstruction. The most frequent site for the stone to lodge is in the terminal portion of the ileum. Only early surgical intervention will lower the high mortality rate. The finding of a faceted stone at operation may be indicative of possible multiple stones.

**Acute Hematogenous Osteomyelitis**—Mahorner and Crain compare a series of 66 cases of primary acute hematogenous osteomyelitis admitted to Charity Hospital between 1937 and 1940 with a series of 112 cases admitted between 1930 and 1936. In the 66 the mortality was 66 per cent as contrasted with 24 per cent for the 112 cases. The important features responsible for the higher mortality were unjustified emergency operations without proper preoperative preparation, failure to reestablish preoperatively a normal physiologic state by fluid and electrolyte replacement and blood transfusions. New chemotherapeutic measures and immunotherapy have undoubtedly had a favorable influence. The study showed that operation performed after preparation is not a deleterious factor in itself and that opening the bone after preparation is no more harmful than incision and drainage. Evacuation of pus by simple incision or osteotomy would seem to be a favorable therapeutic measure. Osteotomy apparently does not influence the extent of osseous involvement. A measure of extreme importance from the operative point of view is vein ligation for patients with a persistent positive blood culture. Immobilization in a plaster encasement deserves wider application.

**Estrogenic Substances in Hyperthyroidism**—Storck and Sabatier report 11 cases of hyperthyroidism treated preoperatively with estrogens. The average basal metabolic rate for the group was +47.7 per cent, 4 of these were iodine fast and 4 manifested such toxicity as to be considered to require multiple stage operations. The response to preoperative treatment and operation of this group is compared with corresponding observations made in 11 cases of hyperthyroidism in which estrogenic therapy was not employed. The patients who received estrogen therapy looked and felt better than did the control group. This difference was most pronounced during the immediate postoperative period. An average preoperative lowering of pulse rate equal to that which occurred in the control group was observed in the estrogen treated patients even though more of them were iodine fast at the time of admission. The average peak pulse rate of the first postoperative day in the cases in which estrogen was administered was lower than the average peak pulse rate on the same day in the control group. No crisis occurred in the estrogen group. Estrogen therapy may be of value both in the prevention and in the treatment of thyroid crisis, especially following a first stage lobectomy. Small doses of estrogenic substances are as effective as large doses, if not more so. Estrogen therapy is most effective when administered for from four to seven days preceding the operation when subtotal thyroidectomy is performed. It seems advisable to continue estrogen therapy for several days following the first stage and to reinstitute estrogen therapy preceding the second stage, especially if there is a lapse of more than a week between operations. Estrogen therapy is valuable only as an adjunct in the surgical treatment of hyperthyroidism. No significant difference has been observed in the response to estrogen by patients with toxic diffuse goiter and those with toxic nodular goiter. The number of cases in which estrogen therapy has been employed is too small to be statistically significant.

**Treatment of Trichomonas Vaginalis Vaginitis with Lactobacillus**—Brady and Reid treated vaginitis due to *Trichomonas* by introducing viable lactic acid forming bacilli into the vagina. Sterile skim milk is inoculated with a culture of *Lactobacillus bulgaricus*. After forty-eight hours' incubation, 1,000 cc of this culture is mixed with 325 Gm each of XXXX sugar and milk sugar. This is thoroughly dissolved in the milk, and the mixture is spread in layers on enamel pans and dried in a vacuum oven at 37 C. The mixture is scraped from the pans, broken into bits and replaced in a drier to complete desiccation. When completely dried, 6 cc of white liquid petrolatum and 38 Gm of starch are added. The mixture is then pressed into tablets. The finished tablets weigh 13 Gm and represent 125 cc of original culture. A bivalve speculum is introduced, the vagina is dried with cotton and two lactobacillus tablets are inserted high in the posterior fornix. The vaginal orifice is then plugged with a tampon of nonabsorbent cotton. The next day the tampon is removed, material is taken from the vagina for microscopic study and the treatment is repeated daily for

from four to six days. The patient is then told to insert one lactobacillus tablet high in the vagina each night and to take douches only if she becomes uncomfortable from unabsorbed particles coming out of the vagina and causing irritation. A white vinegar douche (5 per cent acetic acid) is recommended in a strength of from 2 to 4 tablespoons to 2 quarts of water. Two douches a week are sufficient. This home treatment is continued from three to six weeks and longer if necessary. If the organisms promptly disappear, the tablets need be used only every other night. It is especially important that they be used while the patient is menstruating, as that is the time when the vaginal defenses against the trichomonads are weakest. In a series of 50 patients thus treated all showed immediate improvement and in many instances the organisms disappeared at once. Nevertheless treatment was continued from three to six weeks and, when necessary, longer. Six patients who had been thought cured had recurrences, perhaps in some instances these were reinfections. The recurrence cleared up more rapidly than did the first infection. Forty-eight of the series now have negative smears and are asymptomatic. Many of these patients have now been followed for six months.

**Acoustic Tumors**—Nielsen analyzes the late results of Olivecrona's series of acoustic tumors. In this series of 139 patients with surgically verified acoustic neurinoma the youngest patient was 18 years of age and the oldest 68. The acoustic nerve was involved in 99.2 per cent, nystagmus was present in 96.2 per cent, choked disks were found in 90.8 per cent and roentgenograms were positive in 81.5 per cent, as evidenced by changes at the internal acoustic meatus. Improved operative technic has lowered the mortality rate to 11.1 per cent in the group of complete extirpations during 1937 to 1939. Complete removal of the tumor is the operation of choice because recurrences are rare, the danger of secondary hemorrhage is much less than in incomplete removal and the presence of scar tissue in secondary operations increases the danger and makes saving of the facial nerve almost impossible. Radical removal should be attempted in all cases except those in which the tumor is cystic or the saving of the facial nerve imperative. If the saving of the facial nerve is imperative an almost complete extirpation may still be possible by leaving a bridge of tumor tissue covering the facial nerve from the internal acoustic porus to the pons. The facial nerve may be saved in practically all cases of intracapsular enucleation. In the group of subtotal extirpation, improved technic has made saving of the facial nerve possible in the majority of instances. When complete extirpation was performed the facial nerve was spared in 15, or 65 per cent, of 23 cases. The morbidity as expressed in inability to work has been lowered to 12.4 per cent in the group of complete extirpations. Of the 103 survivors followed up, 78, or 75.7 per cent, had full or diminished earning power, exclusive of the convalescent patients.

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- Sclerotic Areas in Skulls Affected with Paget's Disease B Orban Chicago—p 607
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- Role of Parate Pigment (Ferrichemic Acid) in Production of Leions in Malaria W A D Anderson St Louis and D B Morrison Memphis Tenn—p 677
- Synovialoma Case Report P Gross and D W Cameron Pittsburgh—p 687
- Syphilitic Aneurysm of the Superior Mesenteric Artery Case Report C H Binford Detroit—p 691
- Simultaneous Soap Wax Dehydration and Infiltration of the Human Heart Method for Permanent Preservation R J Lechowicz F A Opps and L Proctor Gloversville N Y—p 696
- Dissecting Aneurysm of the Aorta S Sailer Cincinnati—p 704

## Bulletin of Johns Hopkins Hospital, Baltimore

70 335-398 (April) 1942

- Electroencephalogram in Addison's Disease W C Hoffman R A Lewis and G W Thorn Baltimore—p 335
- Relation Between the Chemical Structure of Fats and Their Ability to Produce Gastric Inhibition H C Tidwell Dallas Texas and Eugenia S Cameron Baltimore—p 362
- Isolation and Identification of the Gonococcus R D Reid Baltimore—p 370
- \*Oral Treatment of Hay Fever with Ragweed Pollen Elizabeth H Iliff and L N Gay Baltimore—p 378
- Further Observations on Treatment of Intractable Bronchial Asthma by Bilateral Resection of Pulmonary Plexus L N Gay and W M Rienhoff Baltimore—p 386

**Oral Treatment of Hay Fever**—Iliff and Gay observed 62 patients with hay fever who took ragweed pollen orally before the season started and 20 during the season. The beginning dose was 500 Noon units. This was increased according to a definite schedule until daily totals varying from 60,000 (at the sixteenth dose) to 240,000 units were reached. In pre-seasonal treatment the dose was given soon after a meal two or three times a week and increased to daily intake with the onset of symptoms. In coseasonal treatment it was given daily or in a few cases three times a day until the maximal dose was reached. Of the patients treated pre-seasonally 3 obtained almost complete relief, 10 good relief, 25 fair results, 21 were not benefited and 3 stopped treatment because of reactions. Of the 20 treated coseasonally 14 were mildly benefited, 4 obtained no relief and 2 stopped treatment. For comparison, of 37 patients treated perennially or pre-seasonally by hypodermic administration during the same season 13 had excellent, 11 good, 9 fair results and 4 failed to obtain any benefit. An analysis of the factors involved in the 25 who failed to obtain benefit from oral treatment revealed that 1 had pansinusitis during the season, 11 gave definite evidence of other allergy or of psychogenic factors, 2 were treated coseasonally too late, 3 had received previous injection treatment without benefit and in 8 there were no contributory factors. Studies of the reagent content of the serum of 7 patients failed to show any change. Reactions in 33 patients were for the most part not severe and were fairly readily controlled. Almost all were gastrointestinal.

## Connecticut State Medical Journal, Hartford

6 317-404 (May) 1942

- Faith versus Fear C C Burlingame Hartford—p 324
- Anesthesia and Analgesia in Obstetrics With Report on Use of Etypal Soluble H Thoms and H C Taylor New Haven—p 327
- Physiotherapy in Fractures E D O'Donnell New Haven—p 332
- From Consumption to Tuberculosis in Connecticut D R Lyman Wallingford—p 335

## Journal of Experimental Medicine, New York

75 465-566 (May) 1942

- Localized Action on the Spinal Cord of Intramuscularly Injected Tetanus Toxin G H Acheson E D Ratnoff and E B Schoenbach Bo ton—p 465
- Copper and Cobalt Related Hemoglobin Production in Experimental Anemia Freida S Robscheit Robbins and G H Whipple Rochester N Y—p 481
- Red Cell and Plasma Radioactive Copper in Normal and Anemic Dogs H Yokikawa P F Hahn and W F Bale Rochester N Y—p 489
- \*Antibody Response of Human Beings Following Vaccination with Influenza Viruses G K Hirst E R Rickard L Whitman and F L Horsfall Jr New York—p 495
- Arterial Hypertension in Rats I Methods H A Schroeder New York—p 513
- Id II Effects on the Kidneys H A Schroeder and C Neumann New York—p 527
- Toxemia of Pregnancy in the Guinea Pig E J Foley Notre Dame Ind—p 539
- The Hypophysis and Secretion of Insulin B A Houssay A C Foglia F S Smith C T Rietti and A B Houssay Buenos Aires Argentina—p 547

**Antibody Response to Influenza Vaccination**—Hirst and his collaborators used eleven different preparations of influenza virus to vaccinate approximately 150 human beings with each one. The antibody response to these vaccines was measured by the in vitro agglutination inhibition test. The comparison of the geometric mean titers of serums taken two weeks after vaccination showed that: 1 There was a wide individual variation in the antibody response of human beings to the same preparation of influenza virus administered subcutaneously. The amount of antibody produced by a group with a low prevaccination antibody level was nearly the same as that produced by groups with higher initial levels. 2 The use of the X strain or distemper virus in the influenza vaccine did not enhance the antigenicity of the influenza virus present. 3 Within certain limits the mean antibody response increased according to the amount of virus injected. When the amount injected was large the magnitude of the antibody response was the same as that which follows actual infection. 4 When the vaccine was prepared from allantoic fluid there was no significant difference in the antibody response to active virus formaldehyde inactivated virus heat inactivated virus or virus inactivated by the drying process. 5 Ground infected chick embryos, when diluted with infected allantoic fluid, gave a greater antibody response than allantoic fluid alone (when the virus remained active). The antigenicity of such a preparation was diminished when the virus was inactivated by formaldehyde. 6 The antibody level six and nine weeks after vaccination dropped from the two week postvaccination level. In a small group the level at five months was still further reduced. Individuals who had higher titers tended to lose the antibodies faster than did those who had lower levels.

## Journal of Nat. Cancer Inst., Washington, D C

2 403-530 (April) 1942

- Penetration of Ultraviolet Radiation into Skin as Factor in Carcinogenesis J S Kirby Smith H F Blum and H G Grady—p 403
- Methods for Separation of Epidermis from Dermis and Some Physiologic and Chemical Properties of Isolated Epidermis J P Baumhager A Sontzeff and E A Cowdry—p 413
- Effect of Certain Sulfur Containing Compounds on the Initiation of Mito in Ameba Proteus H W Chalkley—p 425
- Effect of Low Cystine Diet on Growth of Various Strains of Mice Florence R White and J White—p 449
- Extraction and Ultracentrifugation of Mammary Tumor Inhibitor of Mice W R Bryan H Kahler M B Shimkin and H B Andervont—p 451
- Apparatus for Milking Mice H Kahler—p 457
- Production of Gastric Leion in Rats by Fasting Partial Inanition and Deficiency of Certain Dietary Constituents H P Morris and S W Lippincott—p 459
- Transplantable Malignant Hemangioendothelioma of the Liver in the Mouse J E Edward H B Andervont and A J Dalton—p 479
- Disappearance of Intravenously Injected Methylcholanthrene in Mice of Different Susceptibility to Pulmonary Tumors E Lorenz and M B Shimkin—p 491
- Factors Influencing the Induction of Pulmonary Tumors in Strain A Mice by Carcinogenic Hydrocarbons M B Shimkin and E Lorenz—p 499
- Distribution of Acid and Alkaline Phosphatase in Tumors Normal Tissue and the Tissues of Tumor Bearing Rats and Mice J P Greenstein—p 511
- Titration of Liver Catalase Activity of Normal and of Tumor Bearing Rats and Mice J P Greenstein—p 525



**Journal of Neurophysiology, Springfield, Ill.**

5 169-244 (May) 1942

- Impedance Changes in Frog's Muscle Associated with Electrotonic and "Endplate" Potentials B Katz, Sydney, Australia—p 169
- Some Physiologic Aspects of Audiogenic Seizures in Rats D B Lindsley, F W Finger and C E Henry, Providence, R I—p 185
- Responses During Refractory Period at Myoneural Junction in Isolated Nerve Muscle Fiber Preparation S W Kuffler, Sydney, Australia—p 199
- Effect of Eserine on Neuromuscular Transmission J C Eccles, B Katz and S W Kuffler, Sydney, Australia—p 211
- Excitability of Cerebral Cortex in Infant Macaca Mulatta Margaret A Kennard and W S McCulloch, New Haven, Conn—p 231
- Effects of Presynaptic Volleys on Spread of Impulses over the Soma of the Motoneuron B Renshaw, New York—p 235

**Kentucky Medical Journal, Bowling Green**

40 159-200 (May) 1942

- Treatment of Anemia M F Beard, Louisville—p 161
- What Progress Has Been Made in Cancer? L W Frank, Louisville—p 165
- Peritoneoscopy An Additional Diagnostic Method J A Vesper Jr, Newport—p 169
- Sinusitis and Its Relation to General Systemic Disease A L Bass, Louisville—p 172
- Some Observations by the Army Doctor on Physical and Mental Defects Found in the Selective Service Men Sent for Duty at Fort Knox C D Holmes, Fort Knox—p 176
- Experiences of a State Medical Officer W N Lipscomb, Louisville—p 180
- Experience and Impressions of a Rural Examining Physician E S Dunham, Edmonton—p 181
- Draft Board Examinations in 1917 to 1918 and in 1940 to 1941 J C Graham, Greensburg—p 183
- Management of Acute Middle Ear Infection A L Juers, Louisville—p 190

**Medical Annals of District of Columbia, Washington**

11 125-166 (April) 1942

- From Civilian Practice to Military Service D L Borden, Washington—p 125
- Diseases of the Pancreas I Acute Diseases R J Coffey, Washington—p 131
- \*Histamine in Treatment of Raynaud's Disease and Acrocyanosis I Shulman, Washington—p 137
- Management of Psychoneuroses I Rodis, Washington—p 143
- Intramyocardial Bullet Localized by Roentgenkymography Report of Case M Silverman, Washington, and A M Cove Brooklyn—p 146

**Histamine in Raynaud's Disease and Acrocyanosis—** Histamine by iontophoresis was employed by Shulman in the treatment of 10 patients with Raynaud's disease and in 2 with acrocyanosis limited to the upper extremity. The average blood flow before iontophoresis as measured by the Hewlett plethysmograph was 797 cc. Following treatment there was an average increase in 11 of the 12 patients of 351 cc, or 44 per cent. The extremes were 110 and 871 cc. One patient showed no change. The hand capacity volume following iontophoresis increased to an average of 1218 cc as compared to an average of 826 cc during the resting state before treatment. The patient who had no change in rate showed a decrease of 22 cc in capacity volume. Symptomatically the patients have been afforded much relief, and the frequency and duration of the attacks (in Raynaud's disease) was decreased.

**Missouri State Medical Assn Journal, St. Louis**

39 131-158 (May) 1942

- \*Intraspinous Protrusion of Intervertebral Disks Observations on Diagnosis R M Klemme, W Scott and R D Woolsey, St. Louis—p 131
- Strangulated Hernia Successful Reduction and Repair After Thirteen Days Case Report H T Burkwall St. Joseph—p 132
- Diverticula of Duodenum J H Hershey, St. Louis—p 134
- Volvulus of Stomach Report of Case C A W Zimmermann, Cape Girardeau—p 139
- Fifty Years Ago Surgery at the Time the St. Louis Surgical Society Was Founded R E Schlueter, St. Louis—p 141

**Intraspinous Protrusion of Intervertebral Disks—** Klemme and his associates believe that a positive diagnosis of protruded intervertebral disk can be made only when definite fluoroscopic evidence is obtained by the intraspinal use of iodized oil. The iodized oil can be injected and then removed at

the conclusion of the fluoroscopy. They describe a special type of needle which facilitates the procedure. The needle has a second opening on the back just above the bevel. This allows a free flow of fluid when the usual opening may be closed by a nerve root or arachnoid. The most important single feature of the entire procedure is to introduce the needle in the exact midline. Its position is checked fluoroscopically, and if it is not in the midline it is reintroduced. The iodized oil must be maneuvered into every part of the spinal subarachnoid space that is to be investigated. The filling defect must be constant on repeated examinations and must persist with the patient in different positions. The iodized oil must be kept together in one single mass as it is followed past each set of nerve roots, and the sheaths are allowed to fill. Any filling defects should be recorded with anteroposterior and oblique spot films. At the fluoroscopy the iodized oil is maneuvered beneath the needle by tilting the table and is removed by suction applied to the needle.

**Pennsylvania Medical Journal, Harrisburg**

45 673-768 (April) 1942

- Diagnosis and Treatment of Pituitary Disease M A Goldzieher, New York—p 687
- Fertility in Male Study of 132 Consecutive Cases H K Sarin, Philadelphia—p 694
- Management of Idiopathic Ulcerative Colitis A A Elsom Philadelphia—p 697
- Problems in Surgery of Large Bowel D C Geist, Philadelphia—p 701
- Treatment of Compound Fractures Involving Joints J W Levin, Abington—p 705
- \*Intestinal Manifestations of Milk Allergy in Newborn Period W. Rubin, Philadelphia—p 711
- Staphylococcus Aureus Meningitis R H Peters, S S Spector, L I Porter and H Pleasants Jr West Chester—p 715
- Malignant Tumors of Accessory Nasal Sinuses N S Wemmer, Sayre—p 719
- Diagnosis of Giardia Intestinalis Infestation by Means of Intestinal Intubation Treatment with Atabrine and Follow Up Studies Sixty Eight Cases Elizabeth Pennock Maris and Sarah Bush Philadelphia—p 724

**Milk Allergy in Newborn—**Rubin describes a syndrome in newborn infants which is a manifestation of milk allergy. In each of his patients there was a strong parental history of allergy, cow's milk feeding was started immediately or within a few days of birth, but hunger, or what the mother thought was hunger, was a constant complaint. This "hunger" probably represented abdominal discomfort manifested as "colic." Despite the abdominal distress, weight gain was not impaired. The "colic" first appeared about three weeks after feeding with cow's milk was begun and became progressively worse. Within a few days after its onset loose stools appeared, soon to contain mucus and bright red blood. The amounts of blood varied from small pinhead size clots to profuse hemorrhage containing fecal matter. The blood disappeared from the stools within forty-eight hours after cow's milk was withdrawn from the diet. The mucus in the stools and the "colic" disappeared shortly afterward. In most of the infants diathetic eczema developed within a few months after the onset of the intestinal syndrome, and 2 infants have also had asthma. All except 1 infant tolerated goat's milk. Eggs, orange juice and cod liver oil, given in the early period, may also be offenders.

**Texas State Journal of Medicine, Fort Worth**

37 761-836 (April) 1942

- Results of Treatment of Various Cardiac Mechanisms D G M Decherd Jr and G R Herrmann Galveston—p 761
- Air Embolism Its Cause and Treatment S McDermott, Houston—p 770
- Clinical Experiences with Coronary Thrombosis G Grainger, Houston—p 773
- Iodized Oil in Chest Diagnosis H R Hoskins San Antonio—p 776
- Use of Wangenstein's Suction Apparatus and Enterotomy in Abdominal Surgery B B Smith, Houston—p 776
- Use of Contrast Mediums in Uterus and Tubes V. J. Smith, Abilene—p 780
- Postnatal Fibroma F P Schuster and S A Schuster Ft. Worth—p 783
- Benign Mixed Tumor of Pharyngomaxillary Space Report of Case B Woodson, Temple—p 785
- Evaluation of Child Health Conference H Woodson, Temple—p 785



## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## Brain, London

65 1-114 (March) 1942

- Structure of Neurohypophysis with Special Reference to Nerve Endings  
E Vazquez Lopez—p 1  
Systemic Nervous Affinity of Triorthocresyl Phosphate (Jamaica Ginger  
Pilex) C D Aring—p 34  
Anatomy and Physiology of Cutaneous Sensibility Critical Review  
F M R Walshe—p 48

## British Journal of Dermatology and Syphilis, London

54 99-128 (April) 1942

- Moles and Malformations of the Skin in Their Relationship to Inheritance  
and Phylogenesis (New and Old Investigations) I Conditions That  
Determine the Formation of Moles and Malformations of the Skin  
E Meironsky—p 99  
Cause of Hologynic Inheritance of Ichthyosis Vulgaris T Davies and  
D McGrogan—p 121

## British Medical Journal, London

1 377-402 (March 21) 1942

- Technic for Filtration of Human Plasma and Serum for Transfusion  
R G MacFarlane J C Macsween D R S Mainwaring and H J  
Parish—p 377  
Thrombocytopenic Purpura Complicating Arsenobenzene Therapy S M  
Laird—p 381  
\*Treatment of Fractured Ribs D J N Smith—p 383  
Cardiac Massage J C Nicholson—p 385

**Treatment of Fractured Ribs**—Smith relieved the pain of fractured ribs in 12 cases by injecting nupercaine around the fracture. Usually the sharp stabbing pain disappeared at once, in only 3 instances one other, and in 1 two other injections were required. The immediate disappearance of the sharp stabbing pain confirms the fact that it has its origin in the fracture. The patient was usually left with the less localized dull ache. The sharp pain did not return, although the action of the anesthetic could hardly have lasted more than twelve to twenty-four hours. However, the dull ache persisted for about ten days. In treating fractured ribs by this method injury to other structures or the development of a pleural effusion or hemothorax must not be overlooked. As the pain is relieved by one injection, some permanent change must take place probably the relief of spasm, allowing the fractured surfaces to resume a normal position.

1 403-428 (March 28) 1942

- Rehabilitation in the Royal Air Force R Watson Jones—p 403  
Staphylococcus Albus Septicemia with Reactions of 150 Strains of  
Staphylococci Case Mary Barber—p 407  
Presence of Diffusing Factor Among Metabolites of Aerobic Micro-  
Organisms J Ungar and A L Bacharach—p 409  
\*Sterilization of Surgical Rubber Gloves D A Sanford and H A  
Cookson—p 412

**Sterilization of Rubber Gloves**—The elimination of air from the sterilizing chamber, Sanford and Cookson find, with the steam at atmospheric pressure (0 pound) might effectively sterilize rubber gloves with less deterioration to them than under pressure. The cutting the pressure down to atmospheric level would subject the gloves to physical conditions similar to those of sterilization by boiling and yet the gloves would be dry at the end of the process.

1 429-458 (April 4) 1942

- Child Health in Holland England and Scotland Sixty Years of  
Progress C McNeil—p 429  
Treatment of Phosphorus Burns E W Godding and H E F Nutton  
—p 433  
Relative Needs of Young Male and Female Rats for Vitamin A Katha-  
rine H Coward—p 435  
Puerperal Cerebral Thrombophlebitis Treated by Heparin F R Stans-  
field—p 436

**Treatment of Phosphorus Burns**—Godding and Nutton propose the following first aid treatment for phosphorus burns (after experiments in rats), which can be included as part of the soldier's standard equipment. First stage. Remove the bulk of the free phosphorus and superficial acid with alkali powder (formula 2, 10 per cent of heavy magnesium oxide, 5 per cent of borax and 85 per cent of sodium carbonate). Under

no circumstances must liquid suspected of containing phosphorus be dabbed with a handkerchief or other dry material. If water has been used to extinguish the phosphorus, sprinkle the powder on to the wet surface, add more water if necessary, and work up to a medium thick paste covering the whole of the burn and the surrounding area if contamination is suspected. Wash or wipe off and reapply as long as effervescence continues. Drying must be avoided at this stage. The advantages claimed over the official treatment are greater concentration and osmotic effect and the prevention of displacement of unignited phosphorus to other parts of the body or clothes. Second stage. Immobilize the whole of the remaining free phosphorus by the use of glycerin copper sulfate paste (formula 3 or 4, 22.5 per cent of copper sulfate, 67.5 per cent of glycerin, 5 per cent of starch and 5 per cent of water or 20 per cent of copper sulfate, 40 per cent of glycerin, 7.5 per cent of starch, 1 per cent of sodium tauroglycocholate and 31.5 per cent of water). Apply sparingly but thoroughly, and rub well in. Remove by washing or wiping as soon as no smell of phosphorus is perceptible in the wound. The advantages claimed over the official treatment are concentration, rapidity, osmotic effect and completeness of action. Third stage. Neutralize the deep seated penetration of acid with alkaline powder (formula 2a). Reapply the powder work up to a paste with water, bandage and dampen the bandage occasionally. Do not allow bandages to dry. The importance of this stage has apparently not been previously recognized. Fourth stage. Remove to hospital labeled "phosphorus burn" where subsequent treatment should avoid all forms of coagulation therapy (tannic acid, picric acid, silver nitrate) in view of the obvious necessity for not "sealing in" the acid products. The painful nature of phosphorus burns and their tendency to delayed healing may possibly result from the inadequate treatment of the concentration of acid, and the alkalinity of the tissues may not be sufficient to deal with it. Therefore the continued treatment should be alkaline and might consist ideally of the envelop treatment with sodium hypochlorite solution.

## Edinburgh Medical Journal

49 145-208 (March) 1942

- Surgery of the Hypopharynx Pharyngeal Pouch J M Graham—  
p 145  
Id. Postericoid Carcinoma J M Graham—p 164  
Popular Misconceptions in Connection with the Ees H M Traquair  
—p 179  
On Ossification and Vitamin D Action J P McGowan—p 190  
Studies in Method and Standardization of Blood Examination IX Size  
and Site of Sample in Differential Leukocyte Count S Hay—p 200

## Lancet, London

1 373-404 (March 28) 1942

- Army Physical Development Center F Howitt and A Wesson—p 373  
Prognosis of Mental Instability—Adolescent and Service Cases S B  
Hall and Muriel Barton Hall—p 376  
Salvaging of Fracture of Femoral Neck R Whitman—p 378  
\*Minimal Requirements of Nicotinic Acid—White versus Wholemeal  
Bread E Kodicek—p 380  
Autodeloxication of Stilbestrol During Pregnancy B Zondek and  
Y M Bromberg—p 381  
Staphylococcal Food Poisoning Due to Contaminated Soup G C  
Dorling—p 382  
Lumbar Sympathectomy in Treatment of Popliteal Aneurysm R L  
Richards and J R Learmonth—p 383  
External Genital Hypertrophy in Infancy H Poston and A H Barber  
—p 384

**Minimal Requirements of Nicotinic Acid**—The minimal requirement of nicotinic acid sufficient to prevent pellagra in man is about 8 to 10 mg daily. This amount, Kodicek points out, may not be enough to prevent subdeficiencies. White bread has little nicotinic acid, and the average current diet containing white bread furnishes a mean daily intake of about 9 mg. A diet with wholemeal bread would increase the daily intake to about 12.3 mg. The substitution of wholemeal or 85 per cent wheatmeal for white bread would thus render the supply adequate. Pellagra has been reported in northern Ireland.

## Tubercle, London

23 1-24 (Jan) 1942

- Rehabilitation and Care of the Tuberculous Fifth Report of the  
Employment Committee of the Joint Tuberculosis Council P  
Edwards G Jessel D P Sutherland F R G Heaf and J B  
McDougall—p 1

**Schweizerische medizinische Wochenschrift, Basel****71 1573-1604 (Dec 20) 1941 Partial Index**

- Impairment of Growth by Steroids and Hormone Specific Action Problem of Spontaneous Tumors W von Mollendorff—p 1573
- \*Pneumoperitoneum After Laparotomy R Imbach—p 1574
- Toxic Polyneuritis Caused by Sulfamethylthiazole O Gsell—p 1576
- \*Treatment of Diabetes Mellitus with Gonadal Preparations Anita Saurer—p 1577
- Roentgenologic Diagnosis of Early Exulcerated Primary Gastric Cancer and of Cancerous Degeneration of Ordinary Gastric Ulcer in the Early Stage E Walder—p 1585
- \*Improvement of Carbohydrate Tolerance by Testosterone Propionate L Feil—p 1601

**Pneumoperitoneum After Laparotomy**—In the course of laparotomies air enters the abdominal cavity and some of it remains in the peritoneal cavity after closure of the abdomen. This air, according to Imbach, can be demonstrated clinically by a complete or partial obliteration of the hepatic dulness and roentgenologically by the presence of a crescentic shadow between the diaphragm and the liver. In the case of pressure changes in the abdomen this air exerts a tension stimulus on the sensory receptors of the phrenic nerve in the diaphragm and may elicit subjective sensations such as pain in the shoulder, piercing pain in the chest and a feeling of pressure under the sternum. These harmless manifestations may be mistaken for pulmonary infarct, particularly if a mild dyspnea exists, which is elicited by elevation of the diaphragm. Knowledge of the possibility of the presence of a pneumoperitoneum after laparotomy will clarify the significance of certain postoperative sensations in the region of the thorax and shoulder and give reassurance as to their harmlessness.

**Gonadal Preparations for Diabetes Mellitus**—Diabetic disturbances frequently concur with disorders in the gonadal function. Saurer observed that, when gonadal preparations are administered to diabetic women passing through the menopause, not only do their menopausal symptoms improve but their carbohydrate metabolism is favorably influenced. She administered synthetic gonadal preparations to 17 patients with diabetes mellitus between the ages of 47 and 75. Men were treated with testosterone propionate and women with endocrine preparations of either sex. In cases in which regulation of menstruation is aimed at, estrogens are preferable, but in cases in which termination of the menopause is desired androgens may be given. In 15 cases medication with gonadal preparations was followed by an improvement in sugar tolerance. This was evidenced by a decrease in blood sugar values and by a lowering of the maximal elevation of the curves plotted from the results of oral dextrose tolerance tests (50 Gm by mouth). The simultaneous control of the excretion of sugar in the urine likewise revealed a decrease in most cases. The curves of insulin tolerance tests (10 units subcutaneously) usually were lower after the treatment. The intravenous tolerance tests (8 Gm of dextrose) resulted in almost normal curves. The carbohydrate metabolism of normal persons was not influenced by the administration of gonadal substances. There were no undesirable secondary effects. Cases exhibiting menopausal disturbances were improved by gonadal substances. In two cases abnormally high metabolic rates were reduced. High blood pressure, however, was never modified. The author suggests that gonadal hormones act on the carbohydrate metabolism of the diabetic probably by way of the anterior lobe of the pituitary. The gonadal substances are indicated particularly for diabetic patients of the menopausal age. In adolescent diabetic patients the action of hormones is not so well explained and undesirable secondary effects are possible. Oral medication of diabetes mellitus seems possible in some cases. Perlingual medication or perhaps implantation of crystals of the synthetic gonadal preparations are other possibilities in the future treatment of diabetes mellitus.

**Improvement of Carbohydrate Tolerance by Testosterone Propionate**—Feil reports a case in which symptoms of hypertrophy of the prostate had been present for two years and diabetes for fifteen years. When the patient, a man aged 63, was given injections of testosterone propionate to counteract the prostatic symptoms, it was found not only that the urinary disturbances were benefited but that the carbohydrate tolerance showed likewise a surprising improvement.

**Munchener medizinische Wochenschrift, Munich****88 1001-1028 (Sept 12) 1941 Partial Index**

- Continued Traction on Fetal Head by Means of Weight as Aux Force in Obstetrics A Döderlein München—p 1003
- Scalp Forceps in Treatment of Arrested Delivery E Engelhart S Koehler—p 1005
- Female Psyche and Conception B Belonoschkin—p 1006
- \*Action of Vitamin K in Menorrhagia and Metrorrhagia R De—p 1009

**Action of Vitamin K in Menorrhagia and Metrorrhagia**—Dietz reports observations on 17 women with menorrhagia or metrorrhagia treated with vitamin K. So-called juvenile hemorrhages were present in 6 cases, in 5 of which good reaction occurred to vitamin K treatment in the first case, however, menorrhagia recurred during the following menstrual period but was again successfully combated with vitamin K. In the second group there were 7 cases of polymenorrhea, 6 of which reacted favorably and 1 did not. The third group comprised 4 women with metrorrhagia in all of whom vitamin K counteracted the hemorrhages. On each of the first two days the women were given an intramuscular injection of 10 mg of a vitamin K preparation, and this was followed by 2 tablets daily by mouth for five days. In view of the limited number of cases and of the fact that the prothrombin level was not determined, the remarkable effect (only one failure in 17 cases) justifies further trials with this method.

**88 1081-1100 (Oct 3) 1941 Partial Index**

- Trauma and Nutritional Disturbances as Cause of Chronic Disease of Bones and Joints H Augerer—p 1081
- \*Action of Sulfathiazole on Artificial Fever H Nicolai—p 1085
- Experiments on Serologic Demonstration of Trichinosis and Their Clinical Significance W Schulz—p 1085

**Action of Sulfathiazole on Artificial Fever**—Nicolai demonstrated that sulfapyridine exerts a central fever depressing effect. He found in recent experiments that sulfathiazole has practically no such effect. He concludes that it is not the decline after the administration of sulfathiazole, it indicates that the micro-organisms have been definitely counteracted.

**Zentralbl. f. Gewerbehyg. u. Unfallverhütung, Berlin****28 57-88 (March) 1941**

- Results of Serial Physical Examinations in Industrial Concerns II Card Index of Health Department of German Labor E Zipel—p 57
- \*Danger from Benzene to Vulcanizers in Tire Repair Shops K Humperdinck—p 66

**Danger to Vulcanizers in Tire Repair Shops**—Humperdinck describes the procedure in tire repair shops and draws particular attention to the solvents and rubber solutions. These, as a rule, are specialties of different firms. Analysis of a rubber solution revealed 93 volumes per cent of aliphatic hydrocarbons and 7 volumes per cent of aromatic hydrocarbons. Another rubber solution was found to contain 67 volumes per cent of aliphatic and 37 volumes per cent of aromatic hydrocarbons. The solvents used were a special benzene, 90 per cent commercial benzene and pure benzene. The special benzene contains up to 14 per cent of aromatic hydrocarbon. 90 per cent commercial benzene contains from 80 to 85 per cent of benzene and benzene homologues (xylene and toluene). The author investigated 9 different tire repair shops in order to determine to what extent the vulcanizers and helpers are endangered by benzene in their contact with rubber and solvents. Although well developed chronic benzene poisoning was not encountered, workers most exposed to benzene exhibited predisposition to hemorrhages, a relative leukocytosis and high absolute lymphocyte values in addition to considerable subjective complaints. The investigation led to better results in shops using special benzene. The following recommendations were made for the protection of the workers: Special benzines should be used instead of benzene. The rooms should be suitable and the work should be properly arranged, the workers should be subjected to regular medical examinations, and care should be taken that the workers are adequately, particularly with regard to vitamin C, supplied.

## Book Notices

**The Treatment of Burns** By Henry N. Harkins M.S. M.D. 1911  
Associate Surgeon Henry Ford Hospital Detroit Cloth Price \$6.00  
Pp 437 with 117 illustrations Springfield Illinois C. Baltimore  
Charles C. Thomas Publisher 1942

Dr Harkins has written a remarkably good book on burns. In this monograph the author covers practically every phase of this difficult subject in a scholarly fashion. In correlating clinical practices with experimental studies he has reviewed the literature exhaustively. His discussions of the voluminous research and experimental work on burns are presented in an orderly and critical but impartial manner. The bibliography will be most valuable to any one interested in the study of burns. The author quotes from the literature so freely that the book is not always easy reading. The impartial reporting of apparently conflicting views of other authors may be confusing to some readers. There will, of course, be differences of opinion as to whether the author has always given credit and emphasis fairly in his surveys as to the progress of knowledge on this complex subject. This however does not impair the value of his book.

Part I discusses the burn and its effects giving an introduction followed by chapters on pathology, chemical changes, blood concentration, burn shock, the adrenal glands, fluid loss, the role of toxins, the role of bacteria, early complications of burns, Curling's ulcer and late complications of burns. In general, the discussions in this part of the book are excellent. The chapter on pathology is interesting and instructive as likewise are the chapters on shock, the role of the adrenal glands and the role of bacteria. The voluminous complications of burns are presented in an orderly manner. There is little to criticize. It does seem that more could be said in the chapter on blood chemical changes. These are extremely variable in burns, but there is evidence in the literature that many of these conflicting findings may be explained on the simple hypothesis that blood chemical changes in severe burns will vary depending on the amount and the character of the fluid given and how the patient is handling it. Strangely, the book gives no discussion of this important consideration. Similarly, the chapter on the role of fluid loss seems not to include all the recent advance in knowledge on disturbances of fluid balance in burns. Concerning the role of toxins the author discusses the well known fact that some patients, especially young children, whose burns do not appear dangerously extensive will die rapidly with a peculiar intoxication which for a want of a better term has been called "acute toxemia." Dr Harkins gives an excellent review of this problem, emphasizes the fact that modern therapy has not solved it, and leaves the subject open.

**Communicable Disease Nursing** By Theresa I. Lynch R.N. Ed.D.  
Instructor in Education New York University New York Cloth Price \$3.75  
Pp 678 with 161 illustrations St. Louis C.V. Mosby Company 1942

This substantial book is intended not only to present the technical phases of communicable disease nursing as taught and practiced today in modern hospitals but also to show the part the nurse may play in the community in aiding in the prevention and control of such disease. The author who was formerly director of instruction and then superintendent of nurses at the Willard Parker Hospital in New York City and who is now instructor of education at New York University has had a considerable teaching experience and has also apparently had the advantages of the advice and assistance of many well informed people in the preparation of this book. As a result, a book of much value has been achieved.

The six chapters of part I are devoted to general discussions which will help to orientate a nurse to the nursing of communicable diseases. Then follow chapters discussing some six or seven infectious diseases, brief discussions being given of the respective illnesses and more extended accounts of the nursing care. A useful chapter on home care follows together with a number of appendices and a glossary. Each chapter has an appended list of references usually textbooks. The volume is profusely illustrated with photographs largely of nursing procedures, almost redundantly so. For instance

there is a series of thirty-eight half page photographs of the Willard Parker Hospital nurses' gown technique a technique which has been changed in some details since these photographs were taken. Five colored plates are borrowed from other textbooks one supposed to illustrate the eruption of scarlet fever showing a most typical involvement of the face.

It is doubtful whether pupil nurses will find the descriptions of the diseases sufficiently informative for their needs so that the book will probably prove more valuable as a reference book than as a textbook. As is bound to occur in all new books a number of outdated items have crept in, such as the table on page 163 worked out by Park a number of years ago. In the glossary, the definition of virus as "any toxic agent capable of producing disease a micro organism or its toxin" is hardly acceptable. The infectious period of chickenpox is considered on page 137 as approximately two weeks although most public health authorities now believe it is not much longer than a week. On page 119 we read that, because Broadhurst's inclusion bodies are abundant even on the fourteenth day of the disease, carriers may play a part in measles transfer a statement that might well have been omitted. Throughout the paragraphs on differential diagnosis amount only to lists of possibly similar illnesses. On the whole however, the book is valuable and should be available to all student nurses.

**Surgery of the Ambulatory Patient** By L. Krazer Ferguson A.B. M.D. F.A.C.S. Lieut. Commander Medical Corps United States Naval Reserve. With a section on Fractures by Louis Kaplan A.B. M.D. F.A.C.S. Associate in Surgery University of Pennsylvania Philadelphia Cloth Price \$10 Pp 923 with 645 illustrations Philadelphia Mouton Street C. London J.B. Lippincott Company 1942

There has long been a need for a textbook on the treatment of surgical conditions in ambulatory patients. The need has now been fulfilled by this author in more than an adequate and satisfactory manner. On the basis of a large personal experience, he discusses thoroughly the surgical conditions most frequently encountered that can be treated in a physician's office or in an outpatient surgical clinic without hospitalizing the patient. The book is divided into three parts. The first part covers general surgical problems, principles and lesions such as equipment, anesthesia, infection, foreign bodies, preparation and conduct of operations, postoperative care, foreign bodies and the treatment of wounds. The second part deals with regional surgery. In this section are considered the common surgical conditions of the various parts of the body and the methods of their treatment. In the third part Dr. Louis Kaplan, the author's associate, excellently covers the subject of fractures and dislocations and their modern treatment. The book is written in clear language and is easy to read. It is concise yet contains a vast amount of useful and practical information. In the treatment of the various conditions the methods and techniques are described with distinct details. The steps leading to success as well as possible errors and dangers are pointed out. A large number of photographic reproductions, diagrams and line drawings enhance the clarity of the text. On the whole it is an excellent book which is a valuable addition to the surgical textbooks and literature. It is highly recommended for study and reference to the younger men and general practitioners for whom this work is intended.

**Perineopelvic Anatomy from the Proctologist's Viewpoint** By R. V. Gerschlager A.B. M.D. Adjunct Professor of Proctology New York Polytechnic Medical School and Hospital New York Cloth Price \$5 Pp 298 with 157 illustrations New York Telford Company 1941

This monograph on the anatomy of the perineum and pelvic organs is an attempt to provide a good anatomic background for clinical problems in this special field. The author feels that a more thorough understanding of the anatomy will lead to more rational and better therapy. The perineum including muscles and fascias are described and profusely illustrated by means of diagrams and dissections. The anatomy of the anus, rectum and sigmoid is illustrated in detail by the use of histologic and gross preparations. Some attempt is made to show the relationships between these structures and other environmental viscera, such as the reproductive organs but more stress could be placed on this relationship. The lymphatic nerve and blood vessel supply of the pelvic structures is well presented. This volume is a valuable addition to the library of the proctologist and gynecologist.

**Schweizerische medizinische Wochenschrift, Basel****71 1573-1604 (Dec 20) 1941 Partial Index**

- Impairment of Growth by Steroids and Hormone Specific Action Problem of Spontaneous Tumors W von Mollendorff—p 1573
- \*Pneumoperitoneum After Laparotomy R Imbach—p 1574
- Toxic Polyneuritis Caused by Sulfamethylthiazole O Gsell—p 1576
- \*Treatment of Diabetes Mellitus with Gonadal Preparations Anita Saurer—p 1577
- Roentgenologic Diagnosis of Early Exulcerated Primary Gastric Cancer and of Cancerous Degeneration of Ordinary Gastric Ulcer in the Early Stage E Walder—p 1585
- \*Improvement of Carbohydrate Tolerance by Testosterone Propionate L Feil—p 1601

**Pneumoperitoneum After Laparotomy**—In the course of laparotomies air enters the abdominal cavity and some of it remains in the peritoneal cavity after closure of the abdomen. This air, according to Imbach, can be demonstrated clinically by a complete or partial obliteration of the hepatic dulness and roentgenologically by the presence of a crescentic shadow between the diaphragm and the liver. In the case of pressure changes in the abdomen this air exerts a tension stimulus on the sensory receptors of the phrenic nerve in the diaphragm and may elicit subjective sensations such as pain in the shoulder, piercing pain in the chest and a feeling of pressure under the sternum. These harmless manifestations may be mistaken for pulmonary infarct, particularly if a mild dyspnea exists, which is elicited by elevation of the diaphragm. Knowledge of the possibility of the presence of a pneumoperitoneum after laparotomy will clarify the significance of certain postoperative sensations in the region of the thorax and shoulder and give reassurance as to their harmlessness.

**Gonadal Preparations for Diabetes Mellitus**—Diabetic disturbances frequently concur with disorders in the gonadal function. Saurer observed that, when gonadal preparations are administered to diabetic women passing through the menopause, not only do their menopausal symptoms improve but their carbohydrate metabolism is favorably influenced. She administered synthetic gonadal preparations to 17 patients with diabetes mellitus between the ages of 47 and 75. Men were treated with testosterone propionate and women with endocrine preparations of either sex. In cases in which regulation of menstruation is aimed at, estrogens are preferable, but in cases in which termination of the menopause is desired androgens may be given. In 15 cases medication with gonadal preparations was followed by an improvement in sugar tolerance. This was evidenced by a decrease in blood sugar values and by a lowering of the maximal elevation of the curves plotted from the results of oral dextrose tolerance tests (50 Gm by mouth). The simultaneous control of the excretion of sugar in the urine likewise revealed a decrease in most cases. The curves of insulin tolerance tests (10 units subcutaneously) usually were lower after the treatment. The intravenous tolerance tests (8 Gm of dextrose) resulted in almost normal curves. The carbohydrate metabolism of normal persons was not influenced by the administration of gonadal substances. There were no undesirable secondary effects. Cases exhibiting menopausal disturbances were improved by gonadal substances. In two cases abnormally high metabolic rates were reduced. High blood pressure, however, was never modified. The author suggests that gonadal hormones act on the carbohydrate metabolism of the diabetic probably by way of the anterior lobe of the pituitary. The gonadal substances are indicated particularly for diabetic patients of the menopausal age. In adolescent diabetic patients the action of hormones is not so well explained and undesirable secondary effects are possible. Oral medication of diabetes mellitus seems possible in some cases. Perlingual medication or perhaps implantation of crystals of the synthetic gonadal preparations are other possibilities in the future treatment of diabetes mellitus.

**Improvement of Carbohydrate Tolerance by Testosterone Propionate**—Feil reports a case in which symptoms of hypertrophy of the prostate had been present for two years and diabetes for fifteen years. When the patient, a man aged 63, was given injections of testosterone propionate to counteract the prostatic symptoms, it was found not only that the urinary disturbances were benefited but that the carbohydrate tolerance showed likewise a surprising improvement.

**Munchener medizinische Wochenschrift, Muni****88 1001-1028 (Sept 12) 1941 Partial Index**

- Continued Traction on Fetal Head by Means of Weight as Auxiliary Force in Obstetrics A Döderlein München—p 1003
- Scalp Forceps in Treatment of Arrested Delivery E Engelke S Koehler—p 1005
- Female Psyche and Conception B Belonoschkin—p 1007
- \*Action of Vitamin K in Menorrhagia and Metrorrhagia R D—p 1009

**Action of Vitamin K in Menorrhagia and Metrorrhagia**—Dietz reports observations on 17 women with menorrhagia or metrorrhagia treated with vitamin K. So far, juvenile hemorrhages were present in 6 cases, in 5 of which a good reaction occurred to vitamin K treatment, in the case, however, menorrhagia recurred during the following menstrual period but was again successfully combated with vitamin K. In the second group there were 7 cases of menorrhagia, 6 of which reacted favorably and 1 did not. The third group comprised 4 women with metrorrhagia in whom vitamin K counteracted the hemorrhages. On each of the first two days the women were given an intramuscular injection of 10 mg of a vitamin K preparation, and this followed by 2 tablets daily by mouth for five days. In view of the limited number of cases and of the fact that the thrombin level was not determined, the remarkable effect (only one failure in 17 cases) justifies further trials with this method.

**88 1081-1100 (Oct 3) 1941 Partial Index**

- Trauma and Nutritional Disturbances as Cause of Chronic Disease of Bones and Joints H Augerer—p 1081
- \*Action of Sulfathiazole on Artificial Fever H Nicolai—p 1084
- Experiments on Serologic Demonstration of Trichinosis and Their Clinical Significance W Schulz—p 1085

**Action of Sulfathiazole on Artificial Fever**—Nicolai demonstrated that sulfapyridine exerts a central, fever depressing effect. He found in recent experiments that sulfathiazole has practically no such effect. He concludes that, if it declines after the administration of sulfathiazole, it indicates that the micro-organisms have been definitely counteracted.

**Zentralbl f Gewerbehyg u Unfallverhütung, Berlin****28 57-88 (March) 1941**

- Results of Serial Physical Examinations in Industrial Concerns II. Card Index of Health Department of German Labor Service E Zapel—p 57
- \*Danger from Benzene to Vulcanizers in Tire Repair Work K Humperdinck—p 66

**Danger to Vulcanizers in Tire Repair Shops**—Humperdinck describes the procedure in tire repair shops and draws particular attention to the solvents and rubber solutions. These, as a rule, are specialties of different firms. Analysis of a rubber solution revealed 93 volumes per cent of aliphatic hydrocarbons and 7 volumes per cent of aromatic hydrocarbons. Another rubber solution was found to contain 63 volumes per cent of aliphatic and 37 volumes per cent of aromatic hydrocarbons. The solvents used were a special benzine, 90 per cent commercial benzene and pure benzene. The special benzine contains up to 14 per cent of aromatic hydrocarbons. 90 per cent commercial benzene contains from 80 to 85 per cent of benzene and benzene homologues (xylene and toluene). The author investigated 9 different tire repair shops in order to determine to what extent the vulcanizers and helpers are endangered by benzene in their contact with rubber solutions and solvents. Although well developed chronic benzene poisoning was not encountered, workers most exposed to it exhibited predisposition to hemorrhages, a relative leukocytosis and high absolute lymphocyte values in addition to considerable subjective complaints. The investigations showed better results in shops using special benzine. The following recommendations were made for the protection of the workers: Special benzines should be used instead of commercial benzene. Rooms should be suitable and the work should be properly arranged, the workers should be subjected to regular medical examinations, and care should be taken that the ventilation is adequate, particularly with regard to ventilation and especially to vitamin C.



## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT HOWEVER REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS BUT THESE WILL BE OMITTED ON REQUEST.

### ARSENICAL PREPARATIONS AND MALARIA

To the Editor—For years my associate and I have controlled malaria in syphilitic patients with the injection of neoarsphenamine. I had 1 patient with chronic malaria nonsyphilitic with a large spleen who had taken quinine for ten or twenty years with recurrent attacks which was cleared up by two intravenous injections of arsenicals. I have noticed in the literature all sorts of articles on the treatment of malaria with quinine but never any with the arsenicals. Is it possible that the treatment of malaria with arsenicals is not generally known to the profession?

M D California

ANSWER—For more than a quarter of a century physicians have tried arsenical preparations as antimalarials, especially for quinine resistant patients. All clinical authorities on the subject (American, British, Dutch, German, French) are agreed that arsenicals per se apparently have little, if any, plasmodicidal action even in benign tertian malaria for which these drugs have at times been enthusiastically advocated. The record has been similar with solution of potassium arsenite, sodium cacodylate, arsphenamine, acetarsone, neoarsphenamine and mapharsen. Arsenicals have proved entirely useless in quartan and falciparum malaria, but they have been reported to have malaricidal properties against the tertian parasite. In conjunction with cinchona derivatives or atabrine arsenicals have probably been useful adjuvants in providing clinical cure for patients suffering from chronic malaria.

As far as it is possible to provide an evaluation the efficacy of arsenicals in malaria is confined to their tonic action. Together with the feeding of absorbable iron to build up hemoglobin, adequate nourishment and a stimulating climate the administration of arsenicals in conservative amounts may help the patient to develop an adequate defense mechanism against the reservoirs of malaria parasites in the spleen, bone marrow and other centers not always reached by quinine or atabrine.

It may be concluded that the hopes that arsenicals might prove to be satisfactory alternatives for quinine in their direct action on the malaria parasites have not been fulfilled. Their action is adjuvant, and as such their usefulness should neither be minimized nor overrated.

### BRONCHIECTASIS

To the Editor—A white man aged 54 had a rib resection in 1916 for abscess of the right middle lobe. From the history I believe this also perforated into the bronchus. Since that time he has been well except for attacks of coughing which are accompanied by considerable sputum and bright blood. At present he has been coughing for about two months. The cough is productive mostly at night and blood is present almost all the time. Roentgenograms show no evidence of tuberculosis or other gross lesion. Sputum is negative for tubercle bacilli but is described as characteristic of bronchiectasis. One chest man feels that iodized oil should be injected and then roentgenograms taken. Another feels that this is contraindicated because of the probable diagnosis of bronchiectasis. Should this be done? Is bronchoscopy indicated? Your opinion will be appreciated.

M D New York

ANSWER—If one assumes that this patient had an abscess of the lung, it is reasonable to assume now that he has a bronchiectasis in the site of the former abscess. This is a common sequence of events, and this probability is strengthened by the fact that his coughing comes in attacks and that the roentgenograms do not show evidence of any gross lesion. Bronchiectasis is one of the few lung conditions which can produce symptoms without important x-ray apparatus. The only way of being sure of the diagnosis of bronchiectasis would be by taking roentgenograms after the injection of iodized oil into the affected area. This is a safe procedure and appears to be definitely indicated. Bronchography is routine in cases suggestive of bronchiectasis. The presence of blood in the sputum is common. In a man 54 years of age it always leads one to think of cancer. Occasionally cancer develops on the basis of some chronic bronchial or pulmonary disease although the long history and the absence of gross x-ray appearances are against cancer. A small intrabronchial lesion could conceivably be present. Bronchoscopy, on the other hand, is a safe and simple procedure and in this case would be of additional value

in determining precisely from which bronchial units the pus and blood come.

Operations are commonly performed on a mistaken diagnosis of lung abscess. This was much more common in 1916 than it is today. One of the common conditions mistaken for lung abscess is a localized empyema which has broken into the bronchus. If this fails to heal completely following drainage, the patient may continue to cough and expectorate pus from a small chronic empyema cavity for many years without showing any signs of sepsis. Other rare causes of chronic cough and expectoration are collections of pus beneath the diaphragm, either in the liver or in the subdiaphragmatic space, which have penetrated the diaphragm and broken into the lung. When this happens there are often no important pulmonary or pleural findings, and the conditions may become very chronic and persist for many years.

In this case bronchiectasis seems to be the most probable diagnosis. Bronchography is indicated and perhaps bronchoscopy. Both are likely to give important information, and neither is likely to do harm.

### RECURRING PLANTAR WARTS

To the Editor—I am a physician aged 29, I am in excellent health and have no complaints except plantar warts. Since 1938 when my warts started while I was a medical student I have been under active treatment by competent dermatologists. The first single wart was on my right heel and was treated with radium. It disappeared for several months and then returned. It was next treated with a massive dose of radium—so large a dose that a small piece of skin and tissue sloughed out. In 1939 the same wart returned—each one being the same "black seedy" type. While I was interning another dermatologist used roentgen rays repeatedly and the wart disappeared again, only to reappear a few months later but this time in a different place and almost a "crop." Another dermatologist recommended injections of a bismuth compound and another by mouth and this was tried for several months until my stomach revolted from the bismuth. This didn't help so for several months 20 per cent salicylic acid plasters were used without success. At the present time they have spread to the bottoms of both my feet and walking is becoming difficult. The dermatologist is now injecting a bismuth compound into the base of each wart and this also has been unsuccessful, in fact from my handling them I now have a wart on the margin of my thumbnail and I'm afraid that perhaps by cleaning my fingernails I'll spread warts to all my fingers. My dermatologist and I would greatly appreciate any other suggestions. M D Utah

ANSWER—Although the great majority of warts yield to comparatively mild treatment, histories such as this are heard too frequently for the complacency and self esteem of the dermatologist. In certain cases even after rigorous treatment such as the radium attack recorded in the query, or deep cauterization, the wart may recur. The reason for this great variation in susceptibility to treatment is not known. The thickness of the epidermis on the soles is one factor and perhaps the daily irritation of walking. Similarly incorrigible warts are encountered on the palms and on other parts with still thinner epidermis, but rarely. The new "almost a crop" during the internship was of course not a recurrence but the result of a new infection. This and the one on the thumb are evidence that insufficient precautions have been taken against autoinfection. In all manipulation of the infected areas, surgical precautions must be observed. Oozing of serum or blood from the warts should be avoided whenever possible, and if it does occur it should be regarded and treated as infectious. The results of such infections are very slow to appear, seldom being seen within a month and sometimes delaying for many months. Cleansing the thumb nail in the vicinity of the wart must be done with surgical precautions against infection, the instrument employed being sterilized before being used elsewhere. Picking at warts is strictly forbidden.

A recent contribution to the literature of the subject is by Karp and Frank (Electrosurgical Removal of Plantar Warts, *Arch Dermat & Syph* 45:328 [Feb] 1942), who use a specially small cutting loop, made by twisting a larger one until the loop is reduced to 2 mm in diameter and has a stem 8 mm long. Under procaine and epinephrine anesthesia, this is inserted into the sole so deeply that the loop is wholly buried, then it is rotated on its axis a half turn, 180 degrees and withdrawn through the linear cut of insertion. Surgical precautions against infection are observed. Bleeding is slight and pain is minimal, in fact, preexisting pain disappears in most cases. During the eleven years in which it has been in use, this method of treatment has succeeded in 19 of 21 cases. This percentage of success is about that of other methods. The exponents of this method acknowledge that their operation does not remove all infected material. The 2 cases in which it failed were previously treated by other methods without success. This is in accord with the failures after other methods of treatment.

In a case such as the one cited in the query, in which all methods have failed the chief desideratum is the comfort of



the patient. Protection against autoinfection is also important. Mild treatment, such as superficial cauterization once every week or two with reduction of the lesions enough to prevent pain from pressure, is just as likely to result in cure as energetic attacks, and much less likely to cause pain and incapacitation. Further irradiation with roentgen rays or radium should be avoided, certainly on the heel on which the severe reaction occurred.

If the patient can be kept comfortable and free from further infection, the warts may disappear at some time in the future.

### SALYRGAN IN ACUTE NEPHRITIS OF CHILDREN

*To the Editor*—A boy aged 4, with acute nephritis of two days' duration following a mild upper respiratory infection, developed edema of the eyelids, scrotum and lower extremities. There was marked ascites, vomiting, a temperature of 102 F and inability to flex the spine. The patient had a similar attack four months previously, at which time a twin brother afflicted with the same disease died. The patient was seen at 11 a. m. and was given ammonium chloride solution by mouth and 0.5 cc of salyrgan intravenously. The ampule of salyrgan was covered with cotton and placed on the table. The patient was seen again at 9 p. m., at which time stupor had disappeared, the swelling had slightly decreased and the patient appeared to be improved and was continuously requesting water. However, urine passed since the intravenous injection was less in amount than previously and contained a considerable amount of pus. The remainder of the ampule of salyrgan, which amounted to 1.5 cc, was given to the patient intravenously. Immediately after removal of the needle, the patient had a tonic convulsion and died. Epinephrine into the heart and artificial respiration with a mechanical resuscitator were of no avail. Postmortem showed the kidneys to have fetal lobulations and to be enlarged in size, the capsule stripped with great facility, the pelvis contained purulent exudate. The abdomen contained about 2 quarts of yellow ascitic fluid. Although salyrgan is contraindicated in acute nephritis, it was given in this case for the ascites. Did death result from an overdose of salyrgan, from some toxic quality of the salyrgan standing in an open ampule for nine hours, or because it was contraindicated in this type of disease? If death was due to salyrgan should its result be so immediate?

M D, Arizona

*ANSWER*—It is not possible to judge from the history given whether or not this patient actually had an acute hemorrhagic nephritis of the postinfectious type, as there was no mention made of blood in the urine. Assuming that it was that disease, however, one would not ordinarily expect salyrgan to be efficacious in its treatment. There are several cases reported in which this identical sequence of events has happened, namely, after one injection of salyrgan with no difficulty, a second or third injection caused death. As far as is known, death in such instances is due to sensitivity to the drug. The death probably did not result from an overdose of salyrgan, or from any toxic quality following standing. The contraindications to the drug in this type of disease are that it is ineffective and that it sometimes causes this sort of accident.

### HYPERTENSION AND INCREASED METABOLISM

*To the Editor*—An automobile mechanic aged 32 was turned down by the draft board because of high blood pressure. He had been working every day and did not know that he was sick. His height is 5 feet 10 inches (178 cm.) weight 231 pounds (105 Kg). He has not lost weight recently. His past history is negative except for a sickness in childhood which left a valvular lesion of the heart. The heart is well compensated and has never caused him any trouble. Blood pressure reading on an aneroid instrument was approximately 340 systolic and 160 diastolic. This was checked with two mercury instruments. A week later a reading of approximately 400/180 was obtained. Ten minutes after a dose of 1/100 grain (0.00065 Gm) of glyceryl trinitrate the reading was 280/115. The basal metabolic rate is plus 42. He eats and sleeps well. The urine is normal. There are no other symptoms of hyperthyroidism. I am attaching a newspaper clipping which the patient brought to my office for my opinion. I would like your comment on it, as well as your suggestions for the treatment of this patient. He is taking iodine and a vasodilator and is in bed.

D W Davis, M D, Akron, Ohio

*ANSWER*—The occurrence of an elevated basal metabolic rate with obesity is far more common than is generally realized, for the usual "textbook" picture of hyperthyroidism places weight loss among the most characteristic symptoms. Excessive food consumption is frequently secondary to the appetite stimulation of hyperthyroidism, if this exceeds the catabolic increase, weight is gained. Eating to excess also becomes a habit to quiet the nervous tension and apprehension too typical of the syndrome. Eating is a sedative. These overweight patients may or may not show hypertension. Rarely is the diastolic tension conspicuously elevated unless there is pre-existing or coincident hypertensive disease etiologically independent of the thyroid disorder. The response of the diastolic tension to vasodilatation with glyceryl trinitrate indicates that the hypertension is relatively recent or greater arteriolar

rigidity would have been observed. The one determination ten minutes after the administration of glyceryl trinitrate, does not necessarily reveal the full extent of the fall in pressure. Many and frequent postvasodilator determinations are necessary to be assured that the minimum diastolic tension has been actually observed. Such extreme variations in tension as are mentioned in the query suggest some acute vasodepressor causation.

Before it is possible to make sound therapeutic suggestions for this patient it is necessary that further diagnostic study be carried out. Repetition of a vasodilator test either with glyceryl trinitrate or with amyl nitrite (Stieglitz, E J. Evaluation of the Prognosis in Arterial Hypertension, *Arch. Int. Med.* 46:227 [Aug.] 1930) is indicated. Thorough study of the renal functional capacity, data on the blood picture, closer study of the heart and recheck of the basal metabolic rate are all needed. In view of the youth of the patient and the apparently adequate compensation of his heart, the possibility of coarctation of the aorta should be ruled out. This is readily accomplished by determining the arterial tension in the legs (popliteal fossae), a pressure lower in the legs than in the arms is pathognomonic of aortic coarctation. Unilateral renal disease with ureteral obstruction or polycystic kidneys may exist though a voided specimen of urine is "normal", further investigation of such a possibility should most certainly be undertaken. Despite the present absence of headaches and conspicuous neurologic symptoms, there remains the possibility of a brain tumor as a source of the hypertension. Because logical therapy to control must be highly individualistic and the program of management depends largely on specific etiologic factors, more thorough diagnostic study must precede formulation of treatment.

The therapeutic use of radioactive iodine, as mentioned in the newspaper clipping, is still purely experimental. Though this approach appears to offer some hope for the future in controlling certain metabolic disorders, it is far too early to venture predictions either as to its value or as to its hazard. Without adequate and careful control, administration of activated compounds is unwarranted. It is doubtful whether the elevated metabolism (as evidenced by a single uncorroborated determination) is a major etiologic factor in this patient's severe arterial hypertension. Adrenal neoplasm is a very rare but is a more probable cause than the hyperthyroidism.

### A PROBLEMATIC POST-TRAUMATIC CEREBRAL SYNDROME

*To the Editor*—Many varied symptom complexes follow brain injury. Recently a local Selective Service board was ordered by superior authority to classify a selectee as I-B (qualified for limited military service) because of "post-traumatic cerebral syndrome." I can find no reference to such a clinical entity in the medical literature at my command. I detailed physical and neurologic examination by four medical members and one dental member of the board failed to reveal any abnormal physical signs or symptoms. No evidence of psychoneurosis or psychosis was found. The man indulges in strenuous physical activity daily. He had a skull fracture in 1939 from which he apparently has recovered completely. He states that he is now sound and well. Please supply the available information.

Paul D. Luckey, M D, Connelleville, Pa.

*ANSWER*—By "post-traumatic cerebral syndrome" is usually meant a rather constant group of symptoms which infrequently follow craniocerebral injuries. The most prominent of these symptoms are headache and giddiness, which are frequently precipitated by physical exertion or by stress. In addition these patients are often irritable and complain that their memory is poor, that they are unable to concentrate and that use of their eyes, as for reading or in a motion picture show, produces a feeling of "eyestrain" and headaches.

The condition is largely subjective, and it is not uncommon for detailed physical and neurologic examinations to reveal no significant abnormalities. This condition has been described in two recent books (*Diagnosis and Treatment of Head Injuries* by S W Gross and William Ehrlich, New York: Paul Hoeber, 1940, and *Injuries of the Skull, Brain and Spinal Cord*, edited by Samuel Brock, Baltimore, William Wilkins Company, 1940).

It is difficult to understand how any one could have a diagnosis of "post-traumatic cerebral syndrome" or "post-traumatic syndrome" on a man who presented no symptoms of a syndrome but who, on the contrary, is "sound and well" and indulges in strenuous physical activity daily. The mere fact that he sustained a fracture of his skull in 1939 is not sufficient basis which to entertain such a diagnosis.

If the facts as stated in this inquiry are accurate and complete, the patient in question does not suffer from a post-traumatic cerebral syndrome.

## DRUGS FOR ARTHRITIS

To the Editor—I should like to have a fairly complete list of the drugs that are being used for the treatment of arthritis and an opinion as to the worth of each

M D Kansas

ANSWER—Scores of drugs are being used in the treatment of various types of arthritis. Many of them have little or no rationale. Some of them are designed to relieve pain others (for example sulfur vitamin) have been prescribed to correct some supposed (but unproved) deficiency still others (for example gold salts) are being used to kill some supposed (but unidentified) type of infection. The sulfonamides have been found to have no beneficial effect in cases of rheumatic fever or in rheumatoid arthritis or osteoarthritis. The use of sulfonamides should be confined to the treatment of the specific arthritides of known bacterial origin (gonorrheal, staphylococcal hemolytic streptococcus and so on). Vitamins in massive doses have not been proved to be of any notable value in cases of chronic arthritis, despite advertising balldhoo. Acetylsalicylic acid continues to be the safest and generally the most effective analgesic drug and should be prescribed fairly generously provided patients receiving it do not rely on it alone, thereby omitting other more important remedies. Opinions as to the use of gold salts for rheumatoid arthritis continue to differ notably. Some physicians of wide experience consider chrysotherapy the remedy of choice, others use it only when other remedies have failed still other physicians have concluded that its toxic reactions outweigh its therapeutic value. A synopsis of current opinions on the worth of these and many other drugs for arthritis and rheumatism will be found in the Eighth Rheumatism Review (*Ann Int Med* 15 1002 [Dec] 1941).

## AIRPLANE 'DOPE' AND ERYTHEMA NODOSUM

To the Editor—A woman aircraft worker aged 35 employed in painting dope on the wings of airplanes has had lesions characteristic of erythema nodosum for two weeks. This substance is applied by brushing. The lesions have been on the right hypothernar eminence both thighs and the midpretibial regions. Those on the hand and thighs have disappeared. The question has arisen whether or not this woman's occupation has anything to do with the skin condition. Certain drugs are known to cause similar lesions. So-called dural poisoning is common knowledge among the workers themselves. Do you have any explanation for this condition?

M D California

ANSWER—"Dope" consists of cellulose nitrate, solvents and plasticizers. The solvents when applied to the skin in sufficient quantity and for a sufficient length of time as they would be if the hands are continuously immersed in them, would cause dermatitis of the parts exposed but would not pick out one particular small area such as the right hypothernar eminence.

The U S Public Health Service has made a study of dermatitis among airplane workers (Schwartz, Louis and Russell John P. Skin Hazards in Airplane Manufacture *Pub Health Rep* 56 1581 [Aug 8] 1941 reprint 2300) and found that the name dural poisoning was applied by workers to an cutaneous disorder from which they suffered. Patch tests were performed with duralumin and with Dow metal. They were found to be nonirritating. It is common practice for workers to put the blame on their occupation for any cutaneous disorder which they may have for instance, rubber workers have rubber itch brass workers have brass itch and fur workers have fur itch. Schwartz and Russell describe all skin hazards in airplane manufacture as the result of examinations of workers and working conditions made in nine airplane factories. They do not state that any such condition was found such as that described.

## LEAD PENCIL MARKINGS ON FOOD PRODUCTS

To the Editor—What are the possible deleterious effects of the use of an indelible pencil in marking food products directly on the product itself? For instance if on a turnip the weight should be placed on the product and was not removed during the cooking process what if any ill effect is possible or probable? It you can I would like to have a formula of the ingredients used in the so called indelible lead.

Ralph H Wheeler M D Chicago

ANSWER—There are many formulas for the indelible lead of pencils a typical one being methyl violet 33 per cent graphites 47 per cent gum tragacanth 3 per cent and china clay 17 per cent. Practically all violet indelible pencils utilize methyl violet. For other colors such as red or yellow there may be employed magenta and aurimine as the pigment agent with other constituents remaining much the same. In the case of methyl violet it is well known that fairly serious injuries of the eye may result from puncture wounds or lacerations, but the quantity involved in the mere writing on food products is insignificant and negligible. This is equally true of other constituents men-

tioned regardless of their properties under other circumstances and in grossly larger quantities. It is well known that the governmental stamp of inspection on meats is done with methyl violet ink and this imprint is not necessarily removed prior to cooking. It is probable that this dye is otherwise used on food products under governmental sponsorship. While no harm is anticipated, this dye is not included in the list of coal tar dyes which are regarded as harmless and suitable for use in foods, drugs and cosmetics after certification as required by the Food, Drug and Cosmetic Act.

## PROBABLE RAGWEED DERMATITIS

To the Editor—A man aged 39 has had weeping dermatitis resembling eczema over his face and eyelids for eighteen years. This condition makes its appearance in early August and clears up with the first frost in the fall. He has some lacrimation and stuffiness in his nose. One summer and fall he was in the state of Washington and had complete relief from it. He does not have this condition in Canada either. He is a salesman on the road and works the southern half of Minnesota. I gave him a complete cutaneous testing routine using Bartos intradermal tests for foods and epidermols and also tested him with the powdered pollen extracts put up by R V Ellis of the University of Minnesota for hay fever (scratch tests). I also tested him for the ten common spores put up by the Abbott Laboratories (skin tests). Of all these he reacted only slightly (1 plus) to house dust and clam. He is anxious to find the offending substance. What further could you suggest in testing or treatment of this skin condition? In the other months of the year the patient's face is clear and the eruption occurs only on the face and eyelids when it does appear.

D E W Ellis M D Elgin Minn

ANSWER—This appears to be a plain case of ragweed dermatitis caused by pollen rather than by exposure to the plant itself. Evidence of this conclusion is the date of onset and termination of symptoms, also the fact that symptoms were absent in areas where ragweeds are absent.

None of the tests mentioned could be expected to give positive reactions because the affliction is caused by the oil (lipoid) fraction of the pollen rather than the water soluble portion, which causes whealing of the skin and symptoms of inhalant allergy. If lacrimation and stuffiness of the nose are synchronous with the dermal symptoms, the association would seem to be purely accidental. Successful diagnosis can be carried out only by twenty-four hour patch tests with ragweed oil (obtained by alcoholic or ether extraction of ragweed leaves or ragweed pollen).

## References

- Milford E L. Studies in Allergy. I. The Specific Activity of Pollen Oil. *J Allergy* 1 351 (May) 1930.  
Brown Aaron Milford E L and Coca A F. Studies in Contact Dermatitis. I. The Nature and Etiology of Pollen Dermatitis. *ibid* 2 301 (July) 1931.  
Brunting L A and Anderson C R. Ragweed Dermatitis. A Report Based on Eighteen Cases. *THE JOURNAL* Oct 27 1934 p 1285.  
Brunting L A and Williams D H. Ragweed (Contact) Dermatitis. Observations in Forty Eight Cases and Report of Unsuccessful Attempts at Desensitization by Injection of Specific Oils. *ibid* May 2 1936 p 1533.  
Huber H L and Harsh G F. A Summer Dermatitis Caused by a Common Weed. *J Allergy* 3 578 (Sept) 1932.  
Brunting L A and Bailey R J. Ragweed (Contact) Dermatitis. Produced Experimentally in the Guinea Pig. *ibid* 6 547 (Sept) 1935.  
Fischer Frances and Sulzberger M B. Ragweed Dermatitis. *Arch Dermat & Syph* 28 223 (Aug) 1933.

## POSSIBLE ACHRESTIC ANEMIA

To the Editor—A woman with anemia that does not yield to iron by mouth to liver or iron injections or to rest and diet has been subjected to an exploration of the abdomen. Every abdominal organ was found to be normal. All tests were negative including the Wassermann. The blood picture is that of pernicious anemia but there is acid in the stomach. From my reading in the journals I would call this an achrestic anemia. May I ask the cause treatment and prognosis? I would appreciate a reply because the woman's blood is dropping rapidly her hemoglobin is 42 and the red cells number 2 150 000.

Mary L. Rosenstiel M D Freeport Ill

ANSWER—The "color index" is about 1 in this patient, so that the anemia is primarily not of the iron deficiency type. If the red blood cells have an average diameter of 7.5 microns, one should consider aplastic anemia or the anemia associated with chronic kidney disease. If the red blood cells are larger than normal cirrhosis of the liver or myxedema must be considered, although the former would no doubt have been noted at the operation. It is evidently not pernicious anemia. In true plastic anemia the bone marrow, obtained by sternal puncture would show but little cell growth. In chronic kidney disease the marrow would show active growth of the leukocytes but decreased growth of the red blood cells. In achrestic anemia the marrow would be hyperplastic. For treatment, blood transfusion appears to be indicated. The prognosis depends on the cause and it is more hopeful if this can be corrected.

## SOLIDIFIED CARBON DIOXIDE FOR CARCINOMA OF SKIN

To the Editor—1 I should like to ask whether carbon dioxide ice or snow is considered good therapy and if it actually destroys basal cell malignant growths if the lesion is small, i. e., by a freezing cauterization of the lesion. Are there any reports of such permanent cures of actual basal malignant growths as proved by biopsy? I have seen it used by others with apparent good results. I have used it myself, apparently successfully, on small cutaneous horns and types of benign epitheliomas. I might ask parenthetically whether it has ever been used successfully on small epidermoids. What could be considered medical uses of carbon dioxide snow or ice? 2 Would you discuss the best therapy for Bowen's disease.

M. C. Hanson, M.D., Loveland, Colo.

ANSWER—1 Solidified carbon dioxide may be used in some types of small superficial basal cell epitheliomas, though it is not recommended for such use. It is much more effective for removing the keratosis which often precedes the formation of cutaneous horns and some epitheliomas. Other uses for solidified carbon dioxide include the treatment of hemangiomas, some kinds of hairy and pigmented nevi and some telangiectases.

2 Bowen's disease is an intraepidermal carcinoma. It should be treated as a definite form of malignant growth of the skin. Each dermatologist favors some method, each method properly used and chosen for the peculiar circumstance gives comparable results. In each method the entire growth should be removed. It does not make a great deal of difference in the end whether the method is surgical, radiologic or combinations, provided the entire growth is removed. Of course, certain methods are more suitable in one circumstance or another and this is a matter of judgment in each case.

## CONSTRICTION IN THE FIELDS OF VISION FOLLOWING NEOARSPHENAMINE THERAPY

To the Editor—In routine work on the perimeter with patients who have syphilis and are taking neoarsphenamine I find that the field becomes very narrow. Will you tell me where I can get data showing this to be true and the treatment to restore the field to normality? The patients have no papillitis, the arteries and veins are normal, the retina is normal, the macula and fovea are well seen, the media are perfectly clear and there are no corneal opacities, in fact, the fundus is normal in every respect. The patients had a normal field before the arsenic treatment.

R. Marshall Faver, M.D., Miami, Fla.

ANSWER—It is not the usual thing to find constriction in the fields following the use of neoarsphenamine by patients who originally had normal fields and vision before treatment was started. Unless the patient is susceptible to arsenic or there is already an optic atrophy present, neoarsphenamine should have no effect on the eye or the visual fields. The conditions described are apparently normal though the color of the disks is not mentioned. It may be that there was a beginning optic atrophy.

We know of no publication concerning peripheral fields before and after neoarsphenamine in normal eyes. Any limitation of fields is a definite contraindication to the use of any pentavalent arsenicals, and some authorities say any arsenicals. These patients are usually given malaria or other form of fever therapy. Certainly the drug should be stopped immediately if there should be any constriction of the field of vision, as this is a definite indication of neurosyphilis involving the optic nerve. Fever therapy should be resorted to under these circumstances.

## LOSS OF WEIGHT AND OCCUPATION

To the Editor—A white man aged 40 complains of a loss of weight of 14 pounds (6.4 Kg.) in the past six weeks. Six weeks ago he began to work in a chemical laboratory with crystal urea, formaldehyde, rayon cellulose acetate and various dyes, of which some are vegetable and some are aniline. These chemicals are processed so that the resulting product is a fine powder. He is exposed to this powder at frequent intervals. His appetite has not been affected and his mode of living has not changed. Can the loss of weight be associated with the exposure to these chemicals? Physical examination is essentially negative.

M.D., New Jersey

ANSWER—Any reply to this query must be accepted as speculative. In any active laboratory the number of potential exposures always is greater than shown in a casual list such as is here furnished. Loss of weight is associated with many occupational diseases as from dinitrophenol or carbon bisulfide. Urea in large doses (4 Gm. three times a day) will induce weight loss through dehydration, but this degree of intake in a laboratory may not be expected. The diagnostic dictum "Always doubt the significance of a single manifestation" applies particularly to occupational diseases, including the present instance. Loss of weight from industrial substances ordinarily will not arise as the exclusive feature of injury. If

dinitrophenol, common to many laboratories that process dyes, might be assumed to be the cause of weight loss, damage to the liver and nervous system or evidences of other injury will coincide with diminution of weight. If loss of weight is other than from apprehension over a new job or from hard work at a new job, full examinations should be made as to possible incipient psychosis, toxic goiter, neoplasm or infectious processes. So far, from the information at hand there is no basis for any linkage with occupation.

## RESUSPENDED ERYTHROCYTES FOR TRANSFUSION

To the Editor—In Red Cross blood banks red blood cells remain after the plasma has been removed from the whole blood by centrifuging. If the latter should be diluted with isotonic solution of sodium chloride could this mixture be used for transfusion purposes in cases in which there is a definite indication for red blood cells? Would it be of any value?

Colman Lopatin, M.D., New Haven, Conn.

ANSWER—Erythrocytes separated by centrifugation of whole blood for the preparation of plasma can be used for transfusion, for example, in anemia, provided certain precautions are taken. First of all, the cells must be used not too long after the blood is drawn, since after storage for a week or longer in citrate solution the survival time of the transfused erythrocytes in the patient's circulation is considerably reduced. Second, the blood samples must be centrifuged individually, because pooling bloods of different groups, as is done by some workers, for example J. M. Hill and E. E. Muirhead, in order to absorb out the isoagglutinins, renders the red blood cells unsuitable for use. Finally, when the erythrocytes and plasma are separated, care must be taken that the centrifugation is not carried out at too high a speed or for too long a time, since excessive packing of the cells damages them and renders them unsuitable for transfusion.

## HEMOGLOBIN PREPARATIONS

To the Editor—I would appreciate references to confirm my opinion that hemoglobin preparations are of little or no value in the treatment of anemias.

M.D., Mexico City, Mexico

ANSWER—Truly "organic iron," combined with heme, is not available for hemoglobin production, as it is not released by peptic or tryptic digestion (Best, C. H., and Taylor, N. B. *The Physiological Basis of Medical Practice*, ed. 2, Baltimore: William Wood & Co., 1939, p. 94). Organic iron compounds of the type of hemoglobin are without pharmacodynamic effect (Starkenstein, E. *Die derzeitigen pharmakologischen Grundlagen einer rationalen Eisentherapie*, *MWchnschr.* 7:217 [Jan. 29] 267, [Feb. 5] 1928). After the ingestion of hemoglobin, the iron containing constituents can be recovered quantitatively in the stools (Haurowitz, F. D. *Abbau des Blutfarbstoffes im Verdauungstrakt des gesunden Menschen*, *Arch. f. Verdauungschr.* 50:33 [Aug.] 1931).

## SENSITIVITY TO DUST AND VACUUM CLEANERS

To the Editor—In the issue of May 23, 1942, in answer to the query concerning vacuum cleaners for dust sensitive people, permit me to call to your attention the fact that the cleaner named "Rexair" permits little or no dust dispersion, as the air intake is passed through a small tank of water. We have one in my own home, and no matter how frequently it is used and fresh water put in each time, the water is a thick sludge after each using. I do not know whether this machine is still being produced or on the market, but I assure you that for persons sensitive to dust it is most useful.

Frederick A. Stenbuck, M.D., Mount Vernon, N. Y.

To the Editor—Regarding the query in *Queries and Minor Notes*, May 2, entitled "Sensitivity To Dust and Vacuum Cleaners," by a New York M.D. I would suggest the "Rexair" cleaner, made by Rexair, Inc., 1023 First Building, Detroit. The machine contains water in its base and all dust is collected in it, the machine doing several duties, cleaning and conditioning at the same time. It draws all dust particles from the vicinity of the cleaner. Pine oil can also be added to the water to give a pleasant pine odor to the rooms being cleaned.

Frederick William Meng, M.D., Philadelphia, Pa.

## ABORTING A COLD

To the Editor—Referring to the query published in *The Journal*, April 12, concerning the aborting of a cold, I would state that according to my own experience, which I repeatedly had a chance to corroborate in a laboratory experiment during last year, an incipient coryza can be aborted by the use of iodoform powder as a snuff. Leo I. Holloy, M.D., Fort Belvoir, Wash.

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## WHAT'S WRONG WITH MODERN THERAPEUTICS?

CHAIRMAN'S ADDRESS

WALLACE M. YATER, M.D.

WASHINGTON, D. C.

Is anything wrong with modern therapeutics, that is, with therapeutics as practiced today? There is no question of a tremendous improvement in methods of treatment since the turn of the century, the result of the remarkable progress made in the so-called medical sciences and the great elevation in standards of medical education. There is, of course, much to be learned, since there are still many diseases the cause and cure of which remain unknown, and improvement in the treatment of many of the other diseases is possible. What I am concerned with now, however, is whether it is not possible to better the work we are doing with the present knowledge we have. Periodic self-examination is worth while, even though it exposes defects one may not be proud of. Such examination has revealed many shortcomings, some of which I shall discuss together with their causes.

In the first place, as to the causes, our interns are thrown early into contact in many hospitals with busy and older practitioners who have developed their idiosyncrasies of therapeutics. Interns often adopt their peculiarities of practice and their pet and often empirical prescriptions, forgetting or abandoning some of the fundamentals of therapeutics they were so carefully taught in medical school. I have often observed interns ordering polypharmaceutic prescriptions that I know they never learned in school. They seem quickly to forget such things as that digitalis should be used only for congestive heart failure and certain arrhythmias and that "tonic" doses are of no value. Usually such things are the result of imitation of the bad practice of older men.

In the second place, practitioners often finally become so busy that they do not keep abreast of therapeutic advances published in good medical journals or do not properly evaluate them and eventually come to rely on advertising matter for their therapeutic knowledge. Fortunately the better pharmaceutical manufacturers are now rather careful about their claims and no great harm is done. However, some preparations are still being recommended for almost every ailment, from athlete's foot to nervous dyspepsia. When one considers the rapid advances in treatment, there is little wonder at the bewilderment of the busy and tired practitioner over conflicting reports and varying opinions. In one issue

of a journal one may read of the great value of a treatment, in the next issue of its lack of value. The periodic reviews of the literature on certain diseases or groups of diseases that appear in some journals are excellent for orientating the practitioner but unfortunately they are often not read by those who need them most. Also the reports of the Council on Pharmacy and Chemistry of the American Medical Association are excellent summaries of the known value of new remedies. Private practitioners should wait for these reviews before using new drugs or new forms of treatment.

In the third place, patients force physicians to prescribe many remedies which they have heard of or read about even though they may not be indicated. This is particularly true of vitamins, endocrine products and so-called tonics. Many of my own patients have asked "Doctor, wouldn't vitamin B help me?" and I must confess that at times I have replied "Possibly, at least it wouldn't hurt you", usually the patient has decided he would like to try it.

### SOME OF OUR SPECIFIC FAILINGS

With regard to the use of those preparations that require laboratory control tests for proper use, such as the sulfonamides, thiocyanate and thyroid I have found two large schools of practitioners: those who neglect the laboratory controls and those who use them excessively. There is, of course, a smaller middle group who use them properly. With regard to those physicians who neglect to use proper controls, I am not certain whether it is because they do not realize the necessity for them, whether they are trying to save expense for their patients or whether they merely practice medicine in a slovenly manner.

Many prescriptions are still written mainly for placebos. The day of the placebo is past. General intelligence is such that I consider it unfair and improper to present the patient with a prescription for a remedy simply to appease him and delude him into the belief that a mysterious drug or compound will cure him when such is not the case. I do not mean by this that nerve sedatives are taboo. They have a definite and important place in medical practice, but when used they should be proffered as a crutch to tide the patient over a difficult period, and this fact should be frankly explained. Their continued use otherwise is an insult to the intelligence of the patient and an indication that the physician hasn't either the time or the wisdom to treat the patient psychotherapeutically. Frankness is essential in modern medical practice, and far better results are obtained thereby.

Many prescriptions are still written in Latin. Although educated in a period when a great deal of Latin and a modicum at least of Greek were considered



essential to the preparation for the study of medicine, I believe the day has passed when Latin should be used in prescription writing simply to keep the contents of the prescription a secret from the patient. The patient should know what he is getting. The psychologic value of the mysterious today is not great. For that matter, however, the commonly used chemical names are sufficiently mystifying. To some it no doubt is heresy for me to state my belief that all prescriptions should be written in plain English, and I fear my old Latin teacher, Percival Padgett, is writhing in his grave at this very moment. Furthermore, the names and amounts of simple sedatives and hypnotics should be written on the labels of the containers in order that the patient may be sure what he is taking when he opens the container. It seems senseless to me that boxes and bottles of costly drugs should accumulate in the medicine chest and be of no value later because their contents are unknown. Often drugs are duplicated in this way. At times they may be taken by mistake.

Our double system of weights and measures for prescriptions remains a serious flaw in modern therapeutics. Something must be done about it. Recently a prominent man in my community met death because a prescription written in one system was filled by a "reliable" pharmacist in the other system, and the patient received fifteen times the dose intended. The same remarks apply to the double system of centigrade and fahrenheit methods of recording temperature.

The frequent introduction of some new sedative or hypnotic to swell the already large number of closely related drugs has added confusion but no great harm. Barbitol derivatives constitute the large majority of these drugs. An important question is whether physicians are prescribing them too freely. It was certainly an important step forward that was made when restrictions on their use were established. Drugs with such potentialities for harm should certainly not be dispensed except on order of a physician. Such restriction often inconveniences the busy doctor whose patients are forever phoning him for new prescriptions, but the necessity of prescribing anew makes him think of the advisability of allowing the patient to continue the use of the drug indefinitely. There is no question of the great value of these drugs when used to tide the patient over a difficult period.

I have often wondered whether the danger of chronic addiction to these drugs has not been exaggerated. My own experience of their administration to hundreds of patients has revealed very few who have desired to continue their use beyond the time I prescribed. Most of them have themselves discontinued using the drug before I suggested it. As to the question of the increasing use of these drugs for suicidal purposes, that is not so much a problem of the promiscuous prescription of the drugs as it is of the trend of modern living and of our failure to treat potential suicides properly.

In this connection I believe our greatest failure has been in the realm of psychotherapy. Most practitioners appear to be too busy not only to learn this important form of treatment in a scientific way but to practice any but the most desultory form of psychotherapy, depending on the old witch doctor's methods of incantation and mysticism. Hence the multiplicity of sedatives prescribed. Psychoanalysis is out of the question, of course, and perhaps it is just as well, but a form of practical therapeutics, which often is sufficient, could readily be mastered by any intelligent doctor. The

day of pure symptomatic treatment has passed. Intelligent explanation combined with the frank and judicious use of drugs should be the order of the day.

Not all the blame for faulty therapeutics can be placed at the physician's door, however. There still remain the dishonest advertising, the well meaning but often erroneous and falsely hope raising newspaper articles, and the great amount of self medication. I believe that the advertising of drugs and treatments should be subjected to the severest censorship. I believe that news articles of therapeutic discoveries should be most cautiously portrayed and that news stories of medical subjects should be of the simplest nature. Such reform naturally will be difficult of attainment. As far as self medication is concerned, that also cannot easily be eliminated except by means of public education. Fortunately, today most self medication is relatively harmless except as it may cause delay of proper treatment.

Few realize the extent of self medication. According to *Drug Trade News*, June 2, 1941, of total drug sales for 1940 (\$1,612,000,000), only 13.9 per cent of the total drug sales (\$225,022,143) were sold on prescription. A somewhat similar percentage holds true for other years. As far as vitamins alone are concerned, however, according to Dr. W. H. Sebrell of the National Institute of Health, about 50 per cent of the retail sales value of vitamin preparations are sold on physicians' prescriptions. According to the same source, the retail sales value of vitamin prescriptions amounted to approximately \$50,000,000 in 1937 and \$100,000,000 in 1938. It appears that the vitamin business has almost doubled every year since 1937. How much of this expenditure is justified?

The vitamin problem is an important one, since both the profession and the public are being educated to believe that practically everybody suffers from vitamin deficiency. That being the case, vitamin preparations are prescribed for almost every complaint. This is understandable, because patients have so many bizarre and functional complaints, because physicians are taught there are so many cases of subclinical vitamin deficiency and because it is only natural that those who spring eternal for a panacea for all ailments that the human flesh is heir to. Until more definite indications for the use of vitamins are established, we must expect their increasingly inordinate use.

The endocrines are also greatly abused, especially in female patients, for much the same reasons. This abuse will continue until physicians are convinced that there are at present only a few definite indications for their administration.

The use of iron is also overdone, and some physicians are still giving it parenterally. Many expensive combinations of iron, liver and other preparations, including vitamins, are being prescribed ad libitum and have taken the place of many old fashioned tonics such as those of iron, quinine and strychnine. The so called adjuvants, such as potassium iodide, have been practically abandoned except when proper indications exist.

The use of a multiplicity of drugs prevents appraisal of their use in cases in which a therapeutic test might be of diagnostic value. I have observed this even in a teaching hospital, for instance, both in liver have been used from the start in cases of pernicious anemia in which it was not at once clear whether it was pernicious anemia or an iron deficiency anemia.

I never could understand why so many physicians appear to be wary of treating patients with



mellitus since it is such a common disease and we know how to treat it so exactly. Perhaps the fault lies in our teaching. Perhaps we make the subject too complicated, in fact I believe that we scare our students by individualizing the diets too much a thing that is desirable of course, but not necessary. If they understand that the diet formula in all but the mildest cases should be constant from day to day as long as there is no complication and should therefore be measured the problem of diet is a simple one. If for adults a basic diet is adopted of, say 225 or 250 Gm of carbohydrate and 75 Gm of protein, then the remainder of the calories thought desirable could be made up with fat. After that the number of units of protamine zinc insulin necessary can easily be determined by taking two-thirds the average number of grams of dextrose excreted in the urine in twenty-four hours. Such simple rules will be adequate for the majority of patients, although more exact methods are advisable and easily acquired. One still sees physicians using some oral form of insulin, or using insulin without reference to a measured diet or making the statement that because a patient has diabetes he is a poor operative risk. Let us hope that these fallacies will eventually die out.

Fads and fallacies in the realm of dietetics are legion. The most common ones are those concerned with weight reduction, hypertension, arthritis and chronic gallbladder disease. Such fads are remnants of old superstitions combined often with the ingenuity of laymen who have something to sell. Weight reduction requires not only a low calory diet of as near normal content as possible with the addition of calcium and the fat soluble vitamins in which such a diet is deficient, but a maintenance diet of relatively low caloric content after the desired amount of weight has been lost. The elimination of red meat from the diet of patients with hypertension not only is not necessary but often makes the patient unhappy. There is no diet that will alleviate the symptoms of nongouty arthritis. The elimination of all foods of high fat content for patients with chronic gallbladder disease is unwise since uncooked fats such as butter and cream, are well tolerated and contain the important vitamins A and D.

#### PHYSICAL THERAPY

A few words concerning physical therapy may be apropos. This important form of therapeutics is slowly coming into its own and is gradually being wrested from the cultists. Even so, many physicians still do not appreciate the importance of physical medicine as a daily therapeutic aid in such conditions as atrophic arthritis and peripheral vascular diseases. With regard to the latter, simple home methods of physical therapy are the most important therapeutic modalities.

#### THE COST OF THERAPEUTICS

There remains finally the question of the cost of therapeutics to the patient. To consider only one phase, that of drugs, there is great room for improvement. I speak only from a knowledge of what my own patients pay for drugs. The cost of the simplest preparations is often astounding, and I know that many times the cost of the medicine is more than the physician's fee. Here is a sad state of affairs and one that the individual physician is powerless to remedy except so far as he may prescribe the simplest and least expensive preparations of similar action and therapeutic value. No one will gainsay the druggist a fair profit, but patients often wonder if the profit is fair.

#### CONCLUSION

What's wrong with modern therapeutics goes back to the source of most failures, namely lack of knowledge and the weaknesses of human nature. That being the case it will be many a day before most of our shortcomings in the field of therapeutics will be remedied. In the meanwhile, more and better education of both medical men and the public will shorten the time to the therapeutic millennium.

Georgetown University Hospital

### EDUCATIONAL NEEDS IN THE FIELD OF INDUSTRIAL HEALTH

WITH EMPHASIS ON MEDICAL POSTGRADUATE  
INSTRUCTION

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NEW YORK

Educational needs in the field of industrial health may be considered from three standpoints: (1) the education of the worker himself with reference to his health; (2) the education of management and labor as to the needs and values of health and medical work in industry; and (3) the education of those who render professional services to industry, particularly the medical practitioner or specialist. In this presentation I shall refer only to the last mentioned, with emphasis on postgraduate education.

The Council on Industrial Health of the American Medical Association has expressed its willingness to assist in the development of intensive training in industrial health for full time and part time industrial physicians through its organization of committees on industrial health in state medical societies. The Council already has acquired information on all major medical agencies interested in employee health and the available facilities for undergraduate and postgraduate industrial medical training in the United States, as well as other data of potential value in an industrial health program as a part of our wartime efforts. Speaking as a member of the Council, which is a standing committee of the Board of Trustees of the American Medical Association, I welcome the cooperation of the Associated State Postgraduate Committees of the State Medical Societies in all matters pertaining to the advance of postgraduate industrial medical education in the United States. I particularly would emphasize the value of cooperative relationships of committees (a) on industrial health and (b) on postgraduate medical education in the state medical societies.

#### WARTIME NEEDS

There are approximately fifty million wage earners in the United States. Among these workers it has been found that over four hundred million days are lost yearly on account of absenteeism due to sickness, with a resulting yearly cost of over three billion dollars. We must do everything possible to save this time lost from sickness as a part of our contribution to winning the war. Neither metal nor rubber, money nor manpower but time shows the greatest shortage! Our present needs require a strengthening and broadening of the

entire industrial health program all along the line from private industry to local, state and federal jurisdictions. As emphasized by Surgeon General Parran of the United States Public Health Service, "Industrial hygiene must keep pace with the needs arising from high speed assembly lines, which will employ some fifteen million men and women within the year. Great Britain learned that it is urgently necessary to have the full time services of a trained industrial physician in every large plant. Less than one seventh of our workers have that service now."

As a further indication of the need for promoting more adequate health services for wartime workers is the fact that in 1941 there was a 12 per cent increase in disabling cases of sickness and nonindustrial injuries among male employees of various industries as compared with the mean for the last ten years. Lost time from work on account of sickness, under present conditions, is a potential form of unintentional sabotage. This hidden waste must be brought under better control as a part of our war efforts. As recently stated by Mr. Paul V. McNutt, "Although modern warfare depends on industry just as much as on armed forces, measures to maintain the health and morale of defense workers are far inferior." Moreover, it has been said that, "in time of peace, industrial hygiene is a tool, in time of war, we must make it a weapon!"

One of the chief and immediate needs in connection with the national emergency calls not only for more and better undergraduate instruction in industrial health in our medical schools but also for the organization of short postgraduate courses or institutes in strategic centers throughout the United States. One result of the advance in the development of bureaus of industrial hygiene in state and local governments has been an increased demand for trained personnel which it has been difficult to meet. Many war production industries also are finding it difficult to obtain the services of properly qualified medical personnel. With the practical exhaustion of the supply of competent industrial physicians, we must depend largely on physicians active in community practice.

#### RECENT DEVELOPMENTS

During the past few years, industry has been making more and more use of medical knowledge and service. Some of the larger companies recently have enlarged their employee health programs, also it is now being recognized that health supervision and medical services for employees of smaller plants and business concerns should be further developed, particularly in war production industries.

One of the most significant recent developments in relation to the organized interest of business management in the health of the worker was the creation of an Advisory Health Committee of the Insurance Department of the Chamber of Commerce of the United States, which held its first meeting in March 1942. This committee will consider the possible development of an industrial health program to be carried on by the chamber in cooperation with affiliated trade associations. It represents a broadening of the health work of the chamber, which for many years has promoted more adequate city and rural health administration through annual interchamber health conservation contests.

Prior to 1936 there were in the United States only five state departments of health and two or three state

departments of labor conducting industrial hygiene activities, and even these activities were of limited nature. As of 1942, a total of thirty-six state, four city, two county and two territorial industrial hygiene bureaus have been established, mostly in departments of health.

All these recent developments will require larger numbers of physicians adequately trained for work in the field of industrial health. Many of the state medical societies have been increasing their activities in this direction through the creation of committees on industrial health, which are cooperating closely with the Council on Industrial Health of the American Medical Association.

#### TEACHING OF INDUSTRIAL HEALTH

As compared with the rapid developments in the organization of industrial medical and health activities in various industries and official departments of health there has been a definite lag in the teaching of industrial health in our educational institutions. In a study<sup>1</sup> which I made in 1934 it was found that only thirteen of eighty-five medical and public health schools in the United States and Canada gave separate courses on industrial hygiene or industrial medicine. Several medical schools included one or two lectures on this subject in their general course on preventive medicine and public health, while a majority of such schools gave no attention whatever to this important and growing subject. Thus a wide range of practice in the teaching of industrial health has been followed among various medical and public health schools. Some advances have been made during the past few years. As indicated by Seeger,<sup>2</sup> a review of this subject by the Council on Industrial Health in 1938 showed that fifty-two medical schools reporting some attention to the subject averaged five hours of instruction on industrial health in their four year curriculums. A more recent study shows a further slight increase in the number of hours devoted to this subject. It is hoped that added impetus will be given by (a) the teaching syllabus and (b) the recently developed outline on the Teaching of Industrial Health, prepared by the Council. A few medical schools recently have established short courses in industrial health for local community groups. These have been organized either independently by the medical school or in cooperation with local industries, state bureaus of industrial health and other public agencies.

As of interest in the field of education in industrial health was the creation in 1941 of a joint committee made up of representatives of (a) the American Association of Industrial Physicians and Surgeons and (b) the Section on Preventive and Industrial Medicine and Public Health of the American Medical Association to consider and possibly to draw up a plan for certifying industrial practitioners. Based on regulations governing the organization of certifying boards already laid down by the Council on Medical Education and Hospitals of the American Medical Association and the Advisory Board for Medical Specialties, it is hoped that eventually an American Board for Industrial Practice may be created and become operative.

The Council on Industrial Health of the American Medical Association recently published a report<sup>3</sup>

<sup>1</sup> Bristol, L. D. The Teaching of Industrial Health. J. A. M. A. 990 995 (March 31) 1934.  
<sup>2</sup> Seeger, S. J. Education in Industrial Health. J. A. M. A. 1017 1019 (March 21) 1942.

**Teaching of Industrial Health**<sup>3</sup> This report, prepared jointly by committees representing the American Association of Industrial Physicians and Surgeons and the Council includes an outline of a course of instruction based on the three major constituents of medical service to employed groups, namely (1) industrial health administration, (2) industrial hygiene and toxicology and (3) industrial medicine and traumatic surgery. This outline, while intended primarily for undergraduate teaching can be used with suitable modifications for the organization of continuation or postgraduate study either of the introductory or of the refresher type under (a) medical society or (b) medical school sponsorship or both. The underlying arguments for improved teaching of the essential factors in industrial health have been submitted to the Council on Medical Education and Hospitals, which in turn has acknowledged the urgent necessity for calling existing deficiencies strongly to the attention of medical educators and the profession at large, and for the submission of suitable recommendations aimed at their correction.

#### POSTGRADUATE INSTRUCTION

A well rounded plan for the teaching of industrial health involves (a) medical undergraduate teaching, including required and elective courses, (b) postgraduate instruction or continuation study, including opportunities for practicing physicians to attend organized classes or brief refresher courses or institutes and (c) extended graduate study intended particularly to prepare physicians for full time specialty practice in industrial health. While undergraduate teaching and extended graduate study in industrial health are best carried on by university medical departments, postgraduate continuation study lends itself particularly well to the leadership and administration of state, county and local medical societies, with the cooperation of official health agencies. In the further development of adequate medical training in industrial health, priorities should be assigned at this time to postgraduate instruction for practitioners of medicine as an urgently needed wartime program. As far as possible, this should not be allowed to decrease our efforts to provide more and better undergraduate instruction on this subject in our medical schools.

Depending somewhat on the length of time available and on local conditions and facilities, the content of a postgraduate course, continuation study or institute in industrial health should cover (1) employee relations, (2) management relations, (3) medical relations and (4) public health relations. The first two involve the demand or need for industrial health services, the last two the supply of such services. Among the specific subjects which should be included are (a) common industrial health problems, including dust hazards, industrial dermatitis and other industrial diseases of local bearing or interest, (b) control of tuberculosis, syphilis and other nonoccupational diseases among industrial workers, (c) emergency care of major and minor industrial injuries, (d) the industrial hygiene survey with demonstrations of methods and apparatus, (e) medicolegal aspects of industrial health and (f) industrial health and the general practitioner, including methods and procedures regarding administration and physical examinations.

One of the outstanding examples of postgraduate education in industrial health is that which was carried on last year through brief regional institutes in nine Iowa communities based on cooperative efforts between the state and county medical societies and the state department of health. About twelve hundred physicians attended these institutes the purpose of which was to stimulate and correlate the interests in industrial medicine of general practitioners, industrial physicians and industrial managers. Details of this successful series of educational institutes on industrial health are given in an editorial of *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*.<sup>4</sup>

According to recent information supplied by the secretary of the Council on Industrial Health based on a questionnaire to state medical societies out of thirty-seven states reporting to date, programs of postgraduate education have been developed covering (a) industrial medicine and surgery in nine states, (b) industrial hygiene and occupational disease control in eleven states, and (c) medical organization in industry in seven states. In fourteen states, relationships have been established between state committees on industrial health and committees on postgraduate medical education. Thirteen state societies have sections on industrial health in their scientific assemblies. In nine state societies educational services have been developed through county medical societies and in ten states such educational services have been organized through state medical journals. Ten state societies have arranged for exhibit material on industrial health at their annual meetings, and in seventeen states papers on industrial health subjects are included in current programs of state medical society meetings. From these figures it is evident that in the United States we at present are doing very much less than we might be doing in postgraduate medical education in industrial health. May we not accept this as a challenge to greater efforts and accomplishment in this important field so vital to winning the war?

Quoting the federal director of Defense Health and Welfare Services, "Of all defense health and welfare services, industrial hygiene can make—must make—the most direct contribution to winning the war. As in modern warfare, the strategy of industrial health service is team work." It would seem logical, therefore, to do everything possible better to prepare medical students and practitioners of medicine for leadership in industrial health through more adequate undergraduate and postgraduate instruction. Our objectives in the teaching of industrial health may best be attained through active team work of medical schools and organized medical societies, particularly of postgraduate and industrial health committees of the latter, in cooperation with the Council on Medical Education and Hospitals and the Council on Industrial Health of the American Medical Association and the Associated State Postgraduate Committees of the state medical societies. A 33 per cent or even a 50 per cent performance in any field is not conducive to winning this war. Immediate steps should be taken to stimulate and implement a complete, well integrated program of postgraduate medical education on industrial health at a high administrative level.

195 Broadway

<sup>3</sup> Report of Council on Industrial Health. *The Teaching of Industrial Health* J. A. M. A. 118 731-733 (Feb. 28) 1942.

<sup>4</sup> Postgraduate Education in Industrial Health editorial J. A. M. A. 118 622-623 (Feb. 21) 1942.

## BASAL TEMPERATURE VERSUS BASAL METABOLISM

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Basal temperature is defined here as the body temperature taken under conditions which are usually considered as necessary for determining basal metabolism. That is to say, the individual should have had a good night's rest, no food for twelve hours and no exercise or excitement. Unless the patient is in the hospital or the test is run in the home a true basal metabolic rate is not obtained, for the exercise of dressing and going to the laboratory will have an appreciable influence on the oxidative rate. The half hour or hour rest is a poor compromise for basal conditions. This is not the most serious criticism of the determinations of basal metabolism, however. Many more errors are made when the patient is unable to relax because of nervous tension. Although the normal person would not be excited by such an examination, the person needing such a test is not normal and many of them are unable to relax after repeated tests. A single example will illustrate what has repeatedly been observed.

A freshman from the School of Commerce had been referred by the personnel office because of a failure in English and insubordination to one of the teachers. His physical examination and subnormal temperature left no doubt that his metabolism should be subnormal. During his first test it was obvious that he was not relaxed, although he did not move and the curve was fairly smooth. At the end of this test he was assured that the machine would not bite and was then told a funny story. A hearty laugh helped him to relax, and a second test was run within five minutes. The result of the original test figured +16 per cent and that of the second one —24 per cent.

This is the most extreme case yet encountered but illustrates what happens repeatedly in the basal metabolism determination.

Thus, nervous tension will also elevate the body temperature, as illustrated by the following case.

A football player suspected of having hypothyroidism took his temperature before getting out of bed and found it to be 96.1 F. While he was resting in the laboratory for his metabolism test, a thermometer was again placed in his mouth for ten minutes and it registered 96.4 F. A five minute metabolism test was run and the temperature again taken. It was 96.9 F. Thus without any exercise the excitement of the metabolism test was sufficient to raise the temperature 0.5 degree. The temperature at the end of the metabolism test was 0.8 degree higher than under basal conditions before arising.

It has been known for many years that the basal metabolic rate goes up as the body temperature rises. Hence it seems obvious that the result of this metabolism test was higher than it should have been, although it was found to be —18 per cent.

Because of these objections a search has been made for many years for a more accurate method of determining thyroid function. The blood cholesterol has been extensively used by some investigators but has been found useless in the present study. Since most of the present observations were carried out on college students, the failure of a correlation between metabolic rate and cholesterol content of the blood may be due to the age of the patient. Further work would be necessary to prove this point. The pulse rate has been sug-

gested by some authors, but in college students many rapid pulses have slowed down on thyroid therapy. No single symptom has been found which would apply to every person with low metabolism. Some have fatigue, some have cutaneous disorders, some have dry skin, some have nervousness, some have menstrual difficulties, some have dry hair and some have other symptoms, but none of these signs could be considered reliable in all cases.

In over 1,000 cases in which the basal metabolic rate has been found subnormal, the body temperature has never been found up to normal unless an infection was present. Often at the time of physical examination these highly excited patients may have oral temperatures of 99.0 to 99.2 F. These patients, however, will tell you that their temperatures are usually subnormal and subsequent visits to the office, when they are not excited, confirm their reports. Thyroid therapy in this large group of cases of subnormal metabolic rates has without exception led to an elevation in body temperature. These clinical observations merely confirm what has been known experimentally for many years. The cretin rabbit, produced by total thyroidectomy, has a subnormal body temperature. The temperature goes up as thyroid is administered, and if the dosage is excessive the temperature goes above normal. That a similar effect is produced in the human being is illustrated by the following case.

A physician's daughter was placed on a reducing diet for obesity and given 2 grains (0.13 Gm.) of thyroid daily for a subnormal basal metabolic rate and a low temperature. Two grains was adequate to maintain a normal temperature. She foolishly thought she would hasten the loss of weight and for two weeks took 7 grains (0.45 Gm.) of thyroid daily. (She gained 2 pounds [0.9 Kg.]) The typical symptoms of hyperthyroidism developed, and her temperature was 0.6 degree above normal. Her symptoms and elevated temperature promptly subsided when the dose was reduced to 2 grains.

It is well established clinically that the hyperthyroid patient has an elevated body temperature. Thus it appears from the experimental data and from clinical observations that body temperature might serve as an index of thyroid activity in hypothyroidism.

There is considerable disagreement in the literature as to whether all patients with low metabolic rates are hypothyroid. There is no doubt that starvation will lower the metabolic rate. This must be taken into consideration when malnutrition is so prevalent even in our own country. The extreme effect of starvation on metabolism is illustrated by Benedict's patient who fasted thirty-one days. The metabolism fell 30 per cent. It is interesting to note that the body temperature remained relatively constant during this entire period. Hence it seems that body temperature might well distinguish between cases of inanition and those of hypothyroidism. Other instances in which the metabolic rate goes down have not been followed, but at present it seems that the body temperature cannot be safely used.

The present group includes some patients with neurasthenia, chronic nervous exhaustion, arthritis and other diseases which are not generally considered to occur with hypothyroidism. The initial low temperature and the improvement seen when the temperature is elevated by thyroid therapy indicate that further work should be done in this field. No attempt will be made at present to decide whether or not the body temperature



hypothyroid. Very few patients with subnormal temperature fail to respond to thyroid therapy, both as to relief of symptoms and as to elevation in temperatures. Kleitman's observations<sup>2</sup> that efficiency parallels diurnal variations in body temperature indicate that further studies should be done in this field. Preliminary observations indicate that the person with subnormal body temperature is perceptibly improved in his performance, whether in industry in the class-room or on the athletic field by bringing his body temperature up to normal.

Another group of cases in which body temperature would be useful is illustrated by the following:

A woman aged 22 had been very nervous and underweight for several years. She suffered from palpitation of the heart, had a pulse rate of 110, blood pressure of 155 systolic and 100 diastolic, a fine tremor of the hands and hyperactive reflexes. Prior to entrance in the university her basal metabolic rate was +18 per cent, and she had been advised to have a thyroidectomy. She had refused the operation. Her body temperature was 97.6 F. The basal metabolic rate was found to be +8 per cent. The curve was smooth, but observations during the test left no doubt that she was not relaxed. She was given phenobarbital,  $\frac{1}{2}$  grain (0.03 Gm.) three times a day for one week and the metabolic rate was then found to be -8 per cent. She was started on thyroid therapy  $\frac{1}{2}$  grain daily and seen at weekly intervals. The dose was gradually increased to 2 grains (0.13 Gm.) daily. Over a period of six weeks the blood pressure gradually fell to 115 systolic and 85 diastolic, the pulse rate came down to 84 and the hyperactive reflexes became normal. The body temperature gradually rose. The nervousness and tremor of the hands improved.

The therapeutic results would leave no doubt in the mind of the physician or the patient that what had appeared to be a classic hyperthyroid syndrome was in reality hypothyroid in causation. The body temperature was the only criterion on which a correct diagnosis might have been made.

That such cases are not rare is indicated by 6 additional cases that I have observed during the past twelve months. In 5 of these an operation had been performed, and the subsequent history left no doubt of a mistaken diagnosis. In the other case, operation was delayed by a consultant surgeon who preferred to wait a year if possible because of the patient's age. The high metabolic rate observed in each case can be explained on the basis of nervous tension and inability to relax. The rapid pulse can be explained in some cases by a tendency for the circulation to collapse as a result of fatigue or exhaustion. The extreme of this is seen in surgical shock, in which circulatory collapse occurs resulting in the rapid, feeble pulse. In some cases the extreme nervousness resulting from chronic fatigue gives an elevated pulse rate and a pseudohypertension similar to that seen in the case illustrated. The low body temperature is incompatible with hyperthyroidism experimentally or clinically, and hence its use would have avoided the wrong diagnosis, the operation and the resultant aggravation of symptoms.

No serious objection to the use of body temperature as an indication for thyroid dosage has been raised in numerous conferences with competent physicians and physiologists. It seems unlikely that one could do damage to the heart or other organs with thyroid unless the body temperature goes above normal. However, no patients with organic heart disease have been treated in spite of subnormal body temperatures since the circulation load in hypothyroidism is definitely lighter

than in the normal person. This well known fact has led to total thyroidectomy for congestive heart failure. Hence it seems unwise to increase the load of a damaged organ. No evidence has been encountered, however, to indicate that the normal heart is damaged by raising the body temperature to normal. On the other hand, the benefits derived by normal circulation seem to outweigh any theoretic damage to the normal heart.

The procedure followed at present for the diagnosis of subnormal body temperature is as follows. The patient places a thermometer and book by his bedside. When he awakens in the morning the thermometer is left in the mouth without interruption for ten minutes by the clock (the use of the book is obvious). It will be found that in the absence of a cold or other infection the daily variation in one's temperature is comparatively slight. The menstrual cycle causes about 1 degree variation with the low point at the time of ovulation and a gradual rise to a peak occurring a day or two before menstruation.<sup>3</sup> It will be necessary to determine the basal temperature in a large number of cases before setting a standard. Hence the tentative standard set here may be modified slightly by more data, but it will serve as a safe working range for the present. It is based on observations on patients without symptoms as well as on patients with symptoms which were relieved by adequate doses of thyroid over long periods. For the male the basal temperature seems to be near 98.0 F. For the female the average for the entire period has been found to be about 98.0 F. with the low point at the time of ovulation at 97.5 and the peak near 98.5.

When the subnormal temperature is elevated with thyroid therapy, few unpleasant symptoms are experienced if the dosage is increased gradually. It has been found that most patients will tolerate 1 gram (0.065 Gm.) of U. S. P. thyroid<sup>4</sup> as an initial dose. The entire dose is taken at breakfast time solely to form the habit and avoid divided doses later in the day. The initial dose is continued for four weeks and the basal temperature rechecked for two or three mornings. If the temperature is still subnormal, the dosage is raised 1 gram and continued for another four weeks. The basal temperature is again checked and a third gram added if necessary. This is the maximum dose used in this series of 1000 patients and the majority have had normal temperatures within six months. Patients will be encountered requiring more, but if the dose is raised gradually, as here outlined, and the temperature followed closely at monthly intervals, probably no great harm will be done. The patient usually asks how long he must continue therapy. It is significant that the first patient given thyroid began in 1891 and stopped in 1919, when she died at the age of 74. (It is also historically noteworthy that Dr. Murray<sup>5</sup> observed in this case a subnormal temperature of 95.6 to 97.2 F. and that on thyroid therapy the temperature rose to 98.2.) The medication can be stopped when the patient's requirement is reduced to meet the capacity of his own thyroid gland. There is a gradual reduction in requirement with advancing years. A safe procedure would seem to be to continue the dosage required to maintain a normal temperature for one year. An attempt might then be made to decrease the dose by 1 gram for six days. By this time the gland should pick up the defi-

3 Rubenstein, B. B. The Relation of Cyclic Change in Human Vaginal Smears to Body Temperatures and Basal Metabolic Rate. *Am J Physiol* 119: 635 (July) 1937.

4 Armour's has been used exclusively in this series.

2 Kleitman, Nathaniel. Sleep and Wakefulness. Chicago University of Chicago Press, 1939.

5 Murray, G. R. The Life History of the First Case of Myxedema Treated by Thyroid Extract. *Brit M J* 1: 359 (March 13) 1920.



ciency if it is capable of meeting the emergency. If the temperature is found subnormal at that time and symptoms have recurred, it would seem worth while continuing the former dose for another year. Yearly reduction of 1 grain under these circumstances should avoid any unpleasant reactions. It is well to advise the patient on his first visit at the time he is concerned about his symptoms that his medication may have to be continued for many years. Otherwise he is likely to improve, become careless about taking his thyroid and develop new symptoms different from those previously experienced, and as a result he may change physicians. It is well to have the patient report his basal temperature, at least by telephone, once each month, by so doing he is far more likely to continue his therapy. The physician likewise is reassured that the dosage is not excessive. The routine taking of temperatures in an active practice reveals many that are subnormal. The etiology of this large group is now under investigation, and apparently a simple explanation can account for them.

## SUMMARY

1 From a study of over 1,000 cases the results indicate that subnormal body temperature is a better index for thyroid therapy than the basal metabolic rate.

2 The differential diagnosis between hypothyroidism and hyperthyroidism is sometimes difficult. In 7 cases reported the diagnosis was wrong, in 5 of which an operation had been performed. The temperature was subnormal in each case.

# REPORT ON ACUTE ILLNESS AMONG RURAL MATTRESS MAKERS USING LOW GRADE, STAINED COTTON

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This report deals with an acute illness among workers in rural mattress making projects using low grade cotton. The history of the outbreaks of illness, distribution of cases, estimated number of persons involved, nature of the illness and description of the investigations undertaken to determine the cause of the illness are presented.

Numerous reports of sudden outbreaks of acute illness occurring among workers on rural mattress making projects were received by the U. S. Public Health Service throughout the period from March to December 1941. Outbreaks of a similar illness were also reported in one cotton mill and in several cottonseed processing plants. Illness invariably followed the use of a very low grade, dusty, stained cotton of the 1940 crop.

The rural mattress making projects, sponsored by the U. S. Department of Agriculture, were part of a program designed to reduce the cotton surplus and to

benefit farm families. Rural families in the low income groups who wished to make mattresses for home use were supplied with 50 pounds of cotton and 10 yards of cotton ticking for each mattress. Participating families in a community made their mattresses cooperatively at the same work center. Contact with the cotton was limited to the time allowed each family to make its quota of mattresses.

The mattress making procedure involved opening bales, fluffing or carding the cotton, filling and closing the mattresses and beating the mattresses to secure uniformity of surface. All of these operations were extremely dusty when the low grade, stained cotton was used. Illness occurred among workers exposed to high dust concentrations, and the severity of the illness varied with the degree of exposure.

Illness began from one to six hours after work was begun. Initial symptoms were fatigue and generalized aches, followed by anorexia, headache, nausea and vomiting, the latter lasting six to nine hours in some cases. About six hours after exposure a sense of chilliness supervened, followed usually by frank chills, fever and headache. In several patients an oral temperature in excess of 102° F. was noted. Anorexia and nausea extended beyond the acute phase. Fatigue and generalized aches lasted from forty-eight hours to four or five days. Many complained of abdominal pains, cramps and of substernal discomfort or pressure, varying in intensity and duration, so that the person was unable to take a deep breath. Neither age nor sex seemed to influence the incidence of the disease.

These mattress making projects have been in operation since February 1940, but no outbreak of illness was reported prior to March 1941. According to information supplied by Mrs. Ola Powell Malcolm of the extension service of the U. S. Department of Agriculture, there were 2,832,885 families engaged on rural mattress making projects in forty-six states during 1941. During the years 1940 and 1941 a total of 3,944,400 mattresses and 1,119,376 comforters, using 500,000,000 pounds of cotton, were made in rural mattress making centers. Twenty-five states reported scattered outbreaks of illness in the course of these projects. The actual number of cases of this illness occurring during the year 1941 cannot be determined. However, it is known that there were many more than 700 cases in one state alone.

On receipt of the first reports of illness all state health departments were requested to submit (a) reports of cases of illness among workers in low grade cotton projects, (b) samples of cotton incriminated in the outbreak, and (c) whenever possible (c) nose and throat swabs and other specimens for examination. The majority of the mattress making projects were located in relatively inaccessible rural districts, so that it was impossible to obtain the desired information and samples immediately after the occurrence of an outbreak. It was recommended to officials of the U. S. Department of Agriculture that gauze masks be worn by persons exposed to the cotton dust until the low grade, stained cotton could be replaced. Outbreaks of illness did not occur among workers when these recommendations were followed.

## INVESTIGATION INTO CAUSE OF OUTBREAK

The following samples of cotton and cotton ticking were received from thirteen states:

Fifty-eight samples of low grade cotton and cotton ticking from projects in the course of which illnesses had been reported.

From the Division of Industrial Hygiene, National Institute of Health.

A. R. Monico and S. W. Jones acted as controls in the human exposure experiments. J. W. Long and R. W. Kolb cooperated in the bacteriologic and serologic studies. J. W. Crosson of the West Virginia State Department of Health and officials of other state health departments and the U. S. Department of Agriculture assisted in obtaining epidemiologic data. R. W. Webb and H. C. Slade of the Agricultural Marketing Administration, U. S. Department of Agriculture, classified the cotton samples implicated in outbreaks of illness and supplied various grades of cotton for comparative purposes.

Three control samples, two of which were high grade, normal cotton and the third a much lower grade specifically reported not to have caused illness.

Six samples of dust two of which were collected in a cotton mill in which cases of acute illness had occurred following the use of stained cotton.

Intensive laboratory investigation of these samples included physical chemical mycologic, bacteriologic, serologic and biologic examinations.

#### PHYSICAL EXAMINATION OF COTTON SAMPLES

All the samples of low grade cotton ranged from a light yellow to a dirty brown and contained varying amounts of plant debris. Handling the samples produced a cloud of dust.

The majority of these samples were classified within official grades for tinged and stained cotton by graders of the U S Department of Agriculture. Many of these samples were described as bolly.<sup>1</sup> The samples of low grade cotton reported to have caused illness will be referred to hereafter as "stained" cotton.

Two of the control samples of normal cotton were white and free of foreign matter, the third contained numerous particles of plant debris. None of these control samples were noticeably dusty when fluffed. These samples will be referred to as "normal" cotton.

The crystallographic microscope was used to make a search for particulate matter under mountants of different indexes of refraction, i e water glycerin and piperine. The particulate material was small in amount and apparently of organic rather than of inorganic nature.

#### CHEMICAL EXAMINATION OF COTTON SAMPLES<sup>2</sup>

Several possible sources of chemical toxicity were considered, namely insecticide contamination, and various fractions of the cotton as protein, lipid (particularly gossypol) and histamine.

**Insecticide Contamination**—A sufficient number of samples of stained cotton were examined to warrant the statement that the illness caused by this cotton was not due to insecticides or to toxic gases.

**Presence of Toxic Fractions in Cotton**—The toxicity of aqueous, isotonic sodium chloride and ether extracts from several 10 Gm samples of stained cotton and normal cotton was determined by intraperitoneal injection of 2 cc of each extract into experimental animals. No abnormalities were noted following these injections. After two weeks had elapsed the experiments were repeated to see whether sensitization had occurred. The results were negative.

Nitrogen determinations were made on aqueous, isotonic sodium chloride and organic solvent extracts of stained cotton that had caused illness and of normal cotton that had not caused illness. The nitrogen content of the extracts of stained cotton was about ten times that of the normal cotton.

Examination of a 100 Gm sample of the stained cotton for histamine, with the method described by Prausnitz,<sup>3</sup> was negative as far as could be judged by the ordinary laboratory procedures and in direct comparison with known quantities of histamine. It should be pointed out, however, that in the experimental work

described by Prausnitz large amounts of cotton dust were used, whereas in the experiments previously indicated the raw cotton was used because large amounts of cotton dust were not available.

Ultraviolet absorption spectrums of ether extracts of equal quantities of stained cotton, sterilized stained cotton and normal cotton were obtained by P A Cole of this laboratory. Selective absorption in the range of 2 600-2,900 angstroms was demonstrated in the case of extracts of stained cotton and sterilized stained cotton, but not in the case of extracts of the normal cotton. The selective absorption of the sterilized, stained cotton was about one half that of the unsterilized stained cotton.

#### MYCOLOGIC EXAMINATION OF COTTON SAMPLES

Because of the discoloration of the cotton, its moldy odor and the temperature and humidity incident to storage conditions, it was suspected that molds pathogenic for human beings might be present.

All samples of stained cotton submitted were examined for molds, and representative cultures were submitted to senior mycologist C W Emmons, Division of Infectious Diseases National Institute of Health, for tentative identification. He reported various strains of *Alternaria*, *Mucor*, *Rhizopus*, *Fusarium*, *Sporotrichum*



Fig 1—Micro-organisms within stained cotton fiber Gram's stain

and *Aspergillus niger*. *Coccidioides* was not found. Charles A Thom, principal mycologist, Bureau of Plant Industry, U S Department of Agriculture, reported the presence of strains of *Alternaria* and *Cladosporium*, *Aspergillus* and *Penicillium* in samples of stained cotton implicated in the outbreaks of sickness. He did not find *Aspergillus fumigatus*. Dr Thom and Dr Emmons expressed the opinion that the low incidence of fungi and the infrequent occurrence of pathogenic types of fungi would preclude this class of micro-organisms as the causative agents of this unnamed illness.

#### BACTERIOLOGIC AND SEROLOGIC STUDIES

A microscopic examination of fibers of the stained cotton in moist preparations demonstrated the presence of micro-organisms in mucilaginous clumps along the sides of the individual cotton fibers.

Fibers of stained and of normal cotton were stained by Gram's method and mounted in balsam. Microscopic examination demonstrated that the fibers of stained cotton were thin walled and contained many short, rod-shaped bacteria within the lumen, whereas the fibers of normal cotton were thick walled and free of bacteria.

The stained preparations of cotton fibers were also examined by E E Berkley, cotton technologist, Bureau of Plant Industry and Agricultural Marketing Administration, U S Department of Agriculture. He concurred in the opinion that the stained bodies or cells, considered to be micro-organisms, were definitely within

1 United States Department of Agriculture Bureau of Agricultural Economics The Classification of Cotton miscellaneous publication 310 Washington D C May 1938

2 The chemical investigations were performed by L T Fairhall S W Jones and E D Palmes of this laboratory.

3 Prausnitz Carl Investigations on Respiratory Dust Disease in Operatives in the Cotton Industry report issued by the Medical Research Council Special Report Series 212 London 1936

the lumen of the fiber and were not a part of the fiber wall structure

A quantitative bacteriologic examination was made of all samples of cotton and cotton materials received for investigation. Potato-carrot-dextrose agar<sup>4</sup> was employed as the plating medium. The plates from all samples of stained cotton showed a heavy growth of

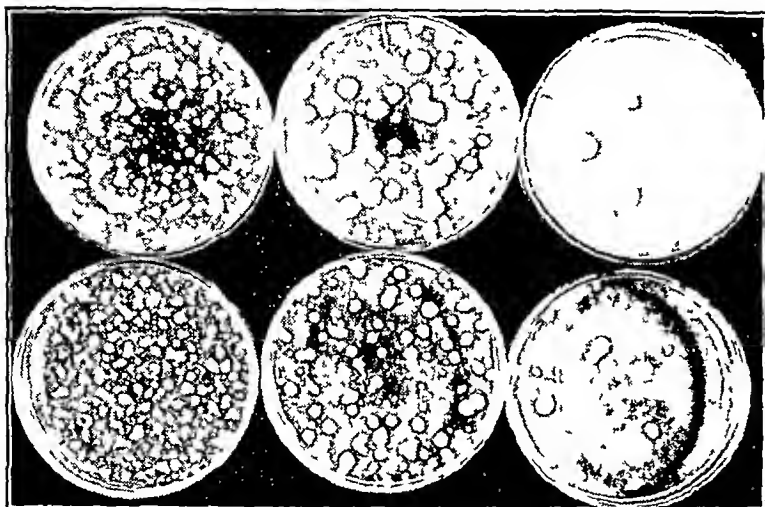


Fig 2—Incidence of mucoid bacterium in dilutions of 1 1,000,000 (at left), 1 10,000,000 (in center) and 1 100,000,000 (at right) from two samples of stained cotton (sample 1, top row, sample 2, bottom row)

large, mucoid, spreading colonies, colorless to pale yellow. This medium was fermented with a yeasty odor, and gas was produced by subsurface colonies. Microscopic examination of isolated colonies showed a gram-negative rod averaging 2 microns by 0.7 micron, heavily encapsulated and having 1 to 4 polar flagella. The organisms were actively motile in hanging drop preparations.

This organism was found in stained cotton in numbers varying from three million to well over a billion per gram of sample. The plate counts on the 58 samples of stained cotton averaged 840,000,000 per gram of sample. This organism occurred to the exclusion of any significant numbers of other types of organisms. Figure 2 shows the incidence of this micro-organism on potato-carrot agar plates from high dilutions of 2 samples of stained cotton.

The mucoid organism was not recovered from the control samples. The plate counts of miscellaneous micro-organisms on the 2 high grade control samples were 13,000 and 110,000 per gram respectively. The low grade control sample showed a plate count of 79,000,000 miscellaneous organisms per gram. According to the U. S. Department of Agriculture,<sup>5</sup> three million organisms per gram of cotton is the maximum plate count to be expected from normal cotton. Prindle<sup>6</sup> has reported that numbers of bacteria in raw cotton range from one million to one hundred million per gram.

Figure 3 shows the incidence of miscellaneous bacteria on potato-carrot agar plates from low dilutions of 2 samples of normal cotton.

Two samples of dust from a cotton mill in which several cases of illness had occurred revealed the incidence of the mucoid organisms to be 1 billion 200 million and 16 billion organisms per gram. The 4 samples of dust from North Carolina cotton mills in

which this unnamed illness had not been reported but in which cases of mill fever had occurred did not show an incidence of the mucoid organism in excess of 1 million per gram.

The examination of a sample of cotton collected in 1938 from a cotton mill in which an outbreak of "mill fever"<sup>7</sup> had occurred revealed that this cotton three years after collection, contained this micro-organism in excess of 3 million per gram of cotton.

In order to determine the distribution of the mucoid organisms in different types of cotton, 17 samples representing practically all grades of white, tinged and yellow stained cotton, were obtained from the U. S. Department of Agriculture. The presence of the mucoid bacterium was demonstrated in all grades of yellow stained cotton and in only 1 sample of low grade, tinged cotton. The incidence of this micro-organism ranged from 5 thousand to 670 million per gram. It has not been demonstrated in any of the grades of white cotton or in the better grades of tinged cotton examined. The results of these examinations indicate a possible wide distribution of the mucoid bacterium in low grade, tinged and yellow stained types of cotton.

The biochemical reactions were determined on representative cultures from each sample of cotton and cotton dust examined. Cultures of the mucoid micro-organism which gave identical biochemical reactions were isolated from 54 of the 58 stained cotton samples and from all the 6 samples of dust. On the basis of its morphologic characteristics and its ability to ferment sugars, this micro-organism may be tentatively placed in the genus *Aerobacter*. This micro-organism will be referred to in this paper as the "cotton bacterium".

The cotton bacterium was never isolated from blood cultures obtained from persons who had contracted the illness nor from nose and throat swab cultures except in a limited number of cases in which the swabs were taken during or immediately after the illness.

It was thought that the cotton bacterium might be pathogenic for cotton plants. However, infection of cotton seedlings<sup>8</sup> could not be induced. The organism could not be recovered from the leaves of seedlings

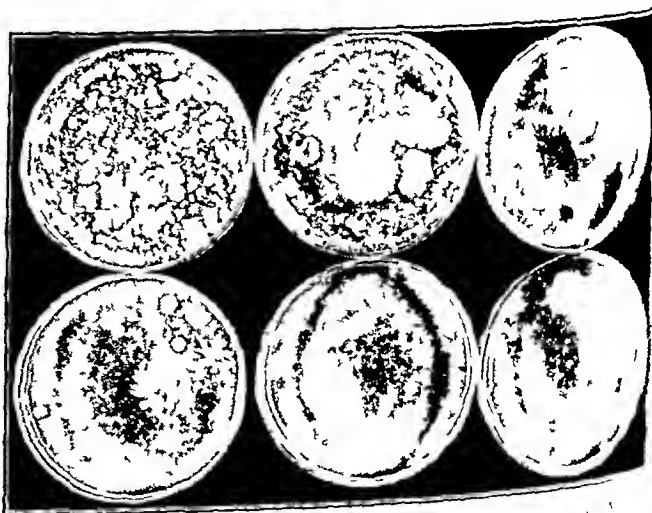


Fig 3—Incidence of miscellaneous organisms in dilutions of 1 1,000 (at left), 1 10,000 (in center) and 1 100,000 (at right) from two samples of normal cotton (sample 1, top row, sample 2, bottom row)

a month after inoculation. It was recovered from soil three months after inoculation.

A series of experiments was carried out in order to ascertain the pathogenicity of the cotton bacterium.

<sup>4</sup> Formula: Potatoes 2,000 Gm, carrots 500 Gm, dextrose 200 Gm, magnesium sulfate 3 Gm, calcium carbonate 2 Gm, agar agar 150 Gm and water 10 liters, pH adjusted to 6.8.

<sup>5</sup> United States Department of Agriculture. Personal communication to the authors.

<sup>6</sup> Prindle, B. The Microbiology of Textile Fibers. I. Cotton Fiber. Textile Research (Boston) 4: 413-428 (July), 463-478 (Aug.) 555-569 (Oct.) 5: 11-31 (Nov.) 1934.

<sup>7</sup> Trice, M. F. Cardroom Fever. Textile World J. 90: 1940.

<sup>8</sup> Cotton seed free of micro-organisms as kindly supplied by the U. S. Bureau of Plant Industry, Clemson, S. C.

and the toxicity of filtrates obtained from broth cultures of this organism and from saline extracts of stained cotton

Berkefeld filtrates of seven day tryptose broth cultures of the cotton bacterium and of a saline extract of stained cotton were injected intravenously into rabbits. One to 2 cc of these filtrates was the minimum quantity required to kill 15 to 2 Kg rabbits. The intravenous injection of much larger quantities of filtrates from saline extracts of normal cotton and of sterile tryptose broth caused no toxic manifestations in rabbits.

Intranasal application of the cotton bacterium in several species of animals did not produce any ill effects. The subcutaneous injection of the cotton bacterium in rabbits caused abscess formation from which the cotton bacterium was isolated. Massive doses of cotton bacterium cultures and culture filtrates were required to kill mice and guinea pigs when injected intraperitoneally.

The Dolman<sup>9</sup> and Hammon<sup>10</sup> tests for enterotoxin were employed for testing Berkefeld filtrates of saline extracts of stained cotton and of seven day tryptose broth cultures of the cotton bacterium.

These tests demonstrated that filtrates of these substances contained heat stable toxic material capable of inducing vomiting and diarrhea in cats. Similar filtrates of saline extracts of normal cotton gave negative results.

An extensive series of Schwartzman<sup>11</sup> tests was employed to determine whether or not a local cutaneous reactivity would be produced by the toxic substances liberated by the cotton bacterium.

The materials tested included heated and unheated Berkefeld filtrates from tryptose broth cultures of the cotton bacterium, heated and unheated filtrates from saline extracts of stained cotton and filtrates from saline extracts of normal cotton. Sterile tryptose broth and sterile isotonic solution of sodium chloride were employed as control solutions. A typical positive Schwartzman reaction is shown in figure 4.

These experiments revealed the following: (a) A heat stable endotoxin-like substance is liberated by the mucoid cotton bacterium, (b) a similar toxic substance is present in filtrates from saline extracts of stained cotton incriminated in outbreaks of illness, (c) this endotoxic substance is not present in filtrates from saline extracts of normal cotton. It was also demonstrated by the Schwartzman reaction that homologous immune serums prepared through rabbit immunization with cultures of the mucoid cotton bacterium and with filtrates from saline extracts of stained cotton contained antibodies capable of neutralizing the endotoxin-like substance present in these materials.

Agglutination and precipitation tests were employed to determine whether antibodies were present in human or animal serums in response to the introduction into the body of the viable or killed cultures of the cotton bacterium, filtrates of broth cultures (endotoxin) of the bacterium and filtrates from saline extracts of stained cotton.

The serums tested were as follows: (a) human serums obtained from persons in several states who had had acute illness twenty-four hours to several weeks prior to the time the serums were obtained, (b) serums obtained from 4 baboons at known intervals after a

seven hour exposure to stained cotton, (c) serums obtained from rabbits given repeated intravenous injections of saline suspensions of viable and killed organisms, Berkefeld filtrates from twenty-four and forty-eight hour and seven day tryptose broth cultures of these micro-organisms and filtrates of saline extracts of stained cotton, (d) control serums obtained from persons not known to have had the illness, from 1 baboon not exposed to stained cotton, from a rabbit injected with a filtrate of a saline extract of normal cotton and from a normal noninjected rabbit.

The antigen used for agglutination tests consisted of a filtered uniform saline suspension of eighteen to twenty-four hour potato-carrot agar slant cultures of the bacterium isolated from cotton samples which had been implicated in outbreaks of the acute illness.

All human serums, including the controls, and all baboon serums contained low titer agglutinins for the cotton bacterium. The explanation for this fact is unknown. However, it would seem to indicate that because the cotton bacterium is closely related to certain types of bacteria commonly found in the intestinal tract of primates it may be agglutinated by their antibodies. It would also indicate that an increased production of antibodies in the blood is not stimulated by exposure to the cotton bacterium under the conditions described.



Fig 4—Necrotic areas denote positive Schwartzman reactions produced by Berkefeld filtrates from forty-eight hour and seven day tryptose broth cultures of the cotton bacterium.

herein. No significant decrease in the titer of human or of baboon serums was observed.

Identical antibodies were produced in rabbit blood by all saline suspensions of viable and killed organisms, by Berkefeld filtrates from twenty-four and forty-eight hour and seven day tryptose broth cultures and by filtrates from saline extracts of stained cotton. No agglutinins for the cotton bacterium were produced by those rabbits injected with filtrates of saline extracts of normal cotton, nor were such agglutinins present in the blood serum of normal, nonimmunized rabbits. There was a tendency for the titer of the serum to decrease gradually with increasing length of time after the last injection of the antigen. These rabbit immune serums were utilized to separate the cultures isolated from the cotton samples into a number of serologic groups. The majority of the cultures fell within the same serologic group.

Although the cotton bacterium is of the same general morphologic type as *Proteus vulgaris* (strain X 19), a serologic relationship could not be demonstrated between the two organisms.

Two precipitinogens were used in the precipitation tests. One was prepared from an eighteen hour tryptose broth culture of the cotton bacterium by Lancefield's<sup>12</sup>

<sup>9</sup> Dolman C E, Wilson R J and Cockcroft W H. A New Method of Detecting *Staphylococcus Enterotoxin*. *Canad Pub Health J* 27: 489-493 (Oct.) 1916.

<sup>10</sup> Hammon W McD. *Staphylococcus Enterotoxin*. An Improved Cat Test. *Chemical and Immunological Studies*. *Am J Pub Health* 21: 1191-1198 (Nov.) 1931.

<sup>11</sup> Schwartzman Gregory. *Phenomenon of Local Tissue Reactivity and Its Immunological, Pathological and Clinical Significance*. New York: Harper & Brothers 1937.

<sup>12</sup> Lancefield R C. A Serological Differentiation of Human and Other Groups of Hemolytic *Streptococci*. *J Exper Med* 57: 571-595 (April) 1933.



method, the other was prepared from an isotonic sodium chloride extract of stained cotton by filtration through a Berkefeld N candle and concentration by vacuum distillation at 30 to 32 C.

Most of the human serums, including the controls, gave positive precipitation tests in low dilutions with both precipitinogens. Rabbit serums from normal non-immunized animals and from the animal injected with filtrates from a saline extract of normal cotton did not show any significant precipitin titer. All other rabbit serums gave positive precipitation tests with both precipitinogens. These precipitation tests indicated that the stained cotton contained an extractable substance which is precipitated by serums from rabbits immunized with the cotton bacterium.

#### ANIMAL EXPERIMENTS

Hamsters, guinea pigs, rabbits, kittens, monkeys and baboons were exposed to various cotton dusts. Cotton

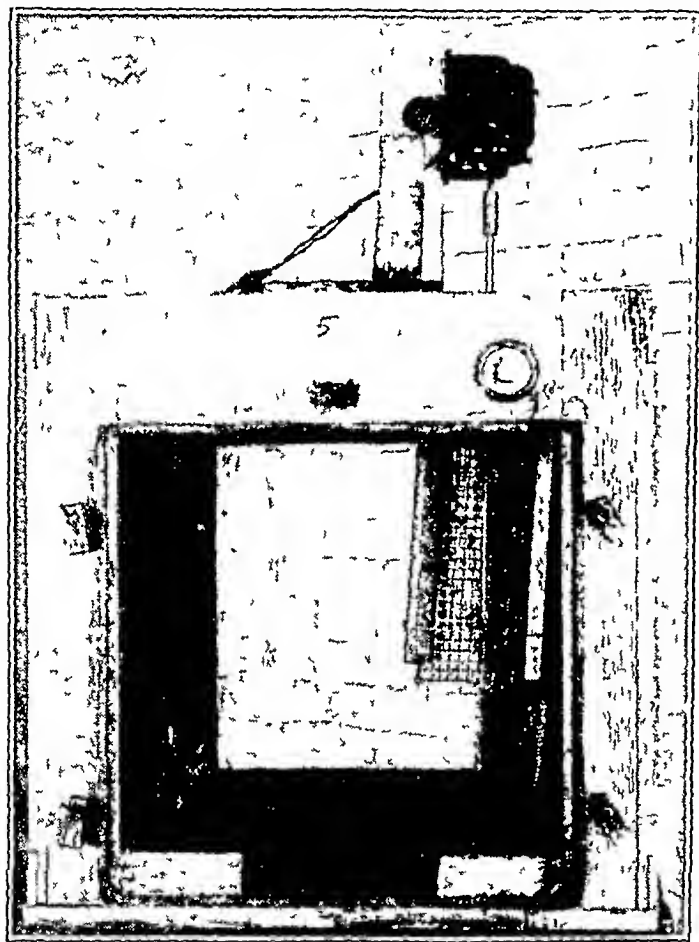


Fig 5—Cotton dust exposure chamber showing carding device

dusts tested were (a) stained cotton sterilized at 185 C for twelve hours, (b) unsterilized stained cotton, (c) unsterilized normal cotton, (d) normal cotton contaminated with a seven day tryptose broth culture and with a twenty-four hour tryptose broth culture of the cotton bacterium. The presence or absence of the cotton bacterium was determined in all cotton samples before use for animal exposure.

**Exposure Apparatus**—All animals were exposed in 2 foot square compartments constructed with windows on two sides to facilitate observation of the test animals. Each compartment was fitted with a cylindric 0.25 inch mesh wire cage 16 inches high with an electrically motor driven propeller suspended in the center. Each cage was filled with the cotton material being tested about five times during the exposure period. This crude carding device saturated the atmosphere with cotton dust. The exposure compartments are illustrated in figure 5.

All animals were carefully examined and observed prior to, during and after the exposure period. Records were kept as to the weight, temperature, pulse rate, respiratory rate and other physical signs. All animals were usually exposed for a continuous period of several hours.

Eight guinea pigs and 3 rabbits were exposed to dust from stained cotton for seven hour periods over a period of five days. Fifteen additional rabbits were exposed to stained cotton dust for two and one half days. Irritation of the mucous membranes in guinea pigs was evidenced by nose pawing immediately after they were placed in the exposure chamber. In none of the animals did any symptoms of illness develop and all were in good condition a month after the experiment.

**Monkeys**<sup>13</sup>—Four monkeys were given a seven hour inhalation exposure, i. e. 1 monkey to each type of cotton. In none of these animals did any definite symptoms of illness develop. The same 4 monkeys were reexposed to the same materials on two other occasions at intervals of twelve days. In none of the animals did symptoms develop on reexposure.

**Baboons**—Four baboons were given a seven hour inhalation exposure, i. e. 1 baboon to each type of cotton. One nonexposed baboon was retained as a control. Three of the exposed baboons did not show any abnormal symptoms. The baboon that was exposed to untreated stained cotton exhibited some degree of discomfort as if experiencing difficulty in breathing. Its breath sounds were somewhat harsh. Increasing symptoms of illness developed and the animal died five days after exposure. The gross autopsy findings were essentially negative. However, the microscopic examination indicated that the animal died from bronchopneumonia. Cultures obtained from the nose, trachea, heart and intestine at autopsy were negative for the cotton bacterium.

In a second series of similar baboon exposure experiments 2 baboons used in the first test and 1 new animal were exposed to unsterilized stained cotton dust. The fourth baboon was reexposed to normal cotton dust which had been contaminated with a seven day tryptose broth culture of the cotton bacterium. The fifth animal was again retained as a control. Two of the baboons that were exposed to the unsterilized stained cotton exhibited definite symptoms of illness during the last two hours of the exposure period. These symptoms were irregular respiration, difficulty in breathing, listlessness and indifference to food. However, all symptoms subsided within a few hours after the termination of exposure. The other animal employed in this test failed to show any symptoms of illness.

**Kittens and Hamsters**—Four kittens and 8 hamsters were exposed for seven hours to each of the four types of cotton respectively. One nonexposed kitten was retained as a control. None of these animals exhibited any abnormalities either during or after exposure to any of the types of cotton tested. The gross autopsy findings and cultures taken at autopsy from the animals by chloroform were essentially negative.

**Summary**—Five baboons, 4 kittens, 30 hamsters, 8 guinea pigs, 4 monkeys and 18 rabbits were exposed to various types of cotton dusts for one or more hour periods. In 3 of the baboons exposed to unsterilized stained cotton mild symptoms of illness

<sup>13</sup> F. W. von Oettingen, D. D. Donahue and J. W. D. this laboratory carried out the exposure studies with monkeys.



developed. None of the other animals exhibited any symptoms. It must be concluded from the results of all animal exposure tests, that none of the common experimental animals are very susceptible to this unnamed illness.

#### HUMAN EXPERIMENTS

The foregoing bacteriologic and serologic studies indicated that a short, gram-negative rod shaped bacterium, or its products, isolated from stained cotton was the agent probably responsible for the illness under study. Since it could not be definitely produced in any of the species of laboratory animals tested, human exposure experiments were undertaken.

**Cotton Material Tested**—This consisted of (a) normal cotton free from the cotton bacterium, (b) normal cotton contaminated with a saline suspension of a twenty-four hour potato-carrot agar slant culture of the cotton bacterium (1 million per gram of cotton)

examination which included roentgenograms of the chest, a complete blood picture and urinalysis. Nose and throat cultures were taken before and after each exposure. Records were kept of the temperature, pulse rate, respiratory rate, changes in blood picture and development of symptoms in each person during each exposure experiment, and each person was examined by a physician following each exposure and at intervals throughout each experiment.<sup>14</sup>

**Exposure to Normal Cotton**—The 3 test subjects did not show any signs or symptoms after exposure to normal cotton. The 2 control subjects, who were repeatedly exposed to normal cotton dust under the same conditions, showed no signs or symptoms incident to such exposure.

**Exposure to Sterilized Stained Cotton**—There were no abnormal signs or symptoms during the exposure except slight irritation of the mucous membranes of the eyes and nose. Swab cultures taken from the nose and

TABLE 1—Symptoms of Experimental Illness in Order of Frequency and Intensity \*

| Symptoms                | Exposure to Sterilized Stained Cotton |   |    | Exposure to Contaminated Normal Cotton |    |     | Exposure to Stained Cotton |     |     | Exposure to Toxic Culture Filtrate |
|-------------------------|---------------------------------------|---|----|--|----|-----|----------------------------|-----|-----|------------------------------------|
|                         | Test Subjects                         |   |    | Test Subjects                          |    |     | Test Subjects              |     |     | Test Subject B                     |
|                         | A                                     | B | C  | A                                      | B  | C   | A                          | B   | C   |                                    |
| Headache                | +                                     |   | +  | ++                                     | ++ | +   | +                          | +++ | +++ | ++                                 |
| Cough                   | +                                     |   | +  | ++                                     | ++ | +   | ++                         | ++  | ++  | +                                  |
| Generalized aches       | +                                     |   |    | ++                                     | ++ | ++  | ++                         | ++  | +++ | +++                                |
| Dryness of throat       |                                       | + | +  | +                                      | ++ | ++  | ++                         | +   | ++  | +++                                |
| Joint pains             | +                                     |   |    | +                                      | ++ | ++  | +++                        | ++  | ++  | +++                                |
| Tightness of chest      | +                                     |   |    | +                                      | ++ | +++ | ++                         | ++  | ++  | +++                                |
| Weakness                |                                       |   | ++ |  | ++ | ++  | ++                         | ++  | +++ | +++                                |
| Drowsiness              |                                       |   | +  |  | ++ | +   | ++                         | ++  | ++  | +++                                |
| Muscle pain             |                                       |   |    |  | ++ |     | +++                        | +++ | +++ | +++                                |
| Chills                  |                                       |   |    | ++                                     |    |     | +++                        | ++  | +++ | +++                                |
| Conjunctival irritation |                                       |   |    |  | ++ | +   |                            | +   | ++  | ++                                 |
| Hot sensation of face   |                                       |   |    |  | ++ | ++  | +                          | ++  | ++  | +++                                |
| Fatigue                 |                                       |   |    |  | ++ | ++  |                            | ++  | ++  | +++                                |
| Nausea                  |                                       |   |    |  |    | +   | ++                         | +   | ++  | +++                                |
| Dyspnea                 |                                       |   |    |  |    | +   | +                          | +   | ++  | ++                                 |
| Irritability            |                                       |   |    |  | ++ | +   |                            | ++  | +   | ++                                 |
| Brassy voice            |                                       |   |    |  |    |     | +                          | +   | +   | +                                  |
| Sneezing                |                                       |   |    | +                                      | +  |     | ++                         | ++  |     | +                                  |
| Insomnia                |                                       |   |    |  |    |     | ++                         | ++  |     |                                    |
| Vertigo                 |                                       |   |    |  |    |     | ++                         | ++  | ++  |                                    |
| Bad taste in mouth      |                                       |   |    |  |    |     | ++                         | +   | ++  |                                    |
| Anorexia                |                                       |   |    |  |    |     | ++                         |     | +   |                                    |
| Burning urination       |                                       |   |    |  |    |     |                            | +   | ++  |                                    |
| Nervousness             |                                       |   |    |  |    | ++  |                            |     | ++  | ++                                 |
| Palpitation             |                                       |   |    |  |    | +   | +++                        |     | ++  |                                    |
| Muscle tremor           |                                       |   |    |  |    |     |                            | ++  |     |                                    |
| Abdominal discomfort    |                                       |   |    |  |    |     |                            |     | ++  | ++                                 |
| Increased sweating      |                                       |   |    |  |    |     |                            |     | ++  | ++                                 |
| Frequent urination      |                                       |   |    |  |    |     |                            | +   |     |                                    |

\* No symptoms of illness developed in the test subjects after exposure to normal cotton dust or in the control subjects after repeated exposures to normal cotton dust.

and a Berkefeld filtrate from a seven day tryptose broth culture of the same organism, (c) stained cotton sterilized at 175 to 180 C for two hours on two successive days, (d) unsterilized stained cotton containing 800 million of the cotton bacterium per gram of cotton, (e) filtrate from a seven day tryptose broth culture of the cotton bacterium and (f) sterile tryptose broth. The presence or absence of the mucoid cotton bacterium was determined in all cotton samples before use for human exposure.

**Exposure Apparatus**—Human inhalation experiments were carried out in the compartments described under animal exposure experiments (fig 5).

Three test subjects (A, B and C) were exposed for ten minutes to each type of cotton dust during these studies. Two control subjects (D and E) were exposed to normal cotton dust for ten minutes on every occasion when the test subjects were exposed to other types of cotton. A week or more was allowed between the exposures to each type of cotton material. Prior to each exposure the subjects were given a complete physical

throat of all 3 persons were negative for the cotton bacterium immediately after this exposure. Eight hours after the exposure A complained of slight headache, slight generalized aches, some cough and some tightness of the chest. B had no symptoms other than a slight dryness of the throat. C complained of slight headache, generalized aches, weakness, dizziness and cough (table 1). All symptoms had disappeared twenty-four hours after exposure. It is thought that these mild symptoms were due to minute quantities of the heat stable endotoxin which were not destroyed by sterilization. The oral temperatures, the pulse rates, the total leukocyte counts and differential counts were normal throughout this period.

**Exposure to Contaminated Normal Cotton**—A, B and C were exposed to normal cotton contaminated with pure cultures of the cotton bacterium and its toxic filtrates. During the exposure there were no symptoms other than irritation of the mucous membranes of the

<sup>14</sup> R. F. Sievers and E. C. Thompson of this division performed the physical examinations and the hematologic determinations respectively.

eyes and throat Swab cultures taken from the nose and throat before exposure were negative, but similar cultures taken immediately after exposure revealed the presence of the cotton bacterium (fig 6) Symptoms of illness in the 3 persons began two to three hours after exposure These symptoms were approximately the same in all 3, varying somewhat in intensity (table 1)

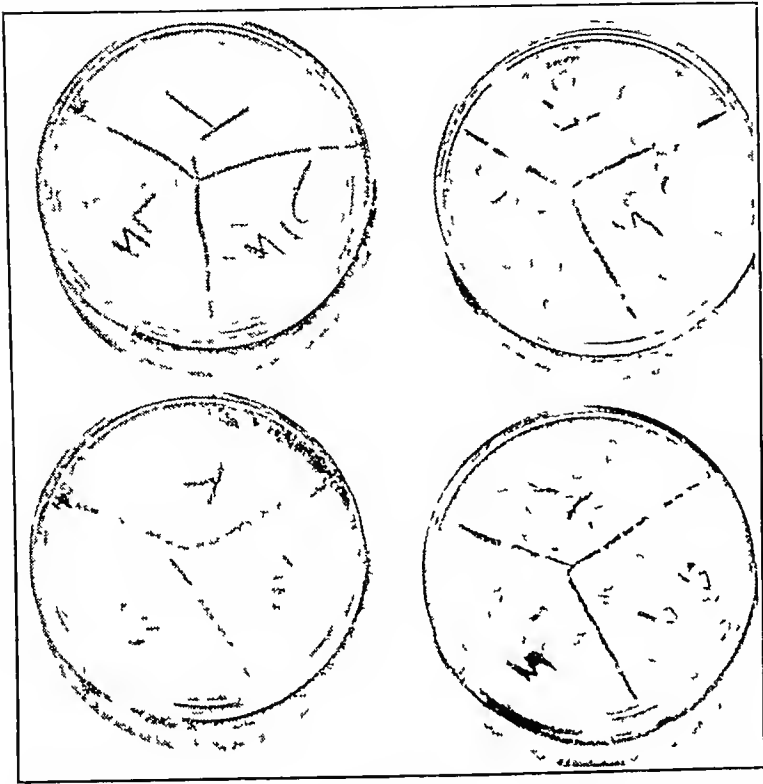


Fig. 6—Nose and throat swab cultures before and after exposure to stained cotton dust

There was a slight elevation of temperature and an increase in pulse rate beginning within four to seven hours after exposure and lasting about eight hours in all 3 cases A significant leukocytosis, characterized by an increase in segmented cells and bands, developed within five and one-half hours after exposure (table 2) Within thirty hours after exposure the total leukocyte count had returned to normal Other than these conditions, the physical examinations of all 3 subjects were essentially negative The test subjects were asymptomatic and normal within twenty-four to forty-eight hours after the exposure Roentgenograms of the chest after exposure were negative in all 3 cases

*Exposure to Stained Cotton*—During this exposure the 3 subjects experienced decided irritation of the mucous membranes of the eyes, nose and throat Swab cultures taken from the nose and throat of each subject immediately preceding the exposure did not show the presence of the cotton bacterium, but similar cultures taken immediately after the exposure were heavily contaminated with the organism (fig 6) This contamination persisted for twenty-four hours in the case of B, while cultures from the other 2 subjects were negative at this time

The same symptoms of illness as those noted after exposure to contaminated normal cotton began in all 3 subjects within one and one-half hours after exposure However, the symptoms were much more severe, as will be noted in table 1, and each subject complained of nausea Within three to four hours after exposure in all 3 cases there was an increase in pulse rate and pronounced leukocytosis (table 2) Within five hours after exposure A's temperature had increased from

36.7 C to 39.3 C (98.1 to 102.7 F), B's from 37.2 C to 38.4 C (98.9 to 101.1 F) and C's from 37.1 C to 38.5 C (98.7 to 101.3 F) Twelve hours after exposure the temperatures and pulse rates had returned to normal All 3 cases showed an increase in bands and segmented cells The leukocyte counts gradually returned to normal within thirty to fifty hours

*Exposure to Berkefeld Filtrate of Seven Day Tryptose Broth Culture of the Cotton Bacterium*—B was exposed for one minute to a fine mist of a sterile Berkefeld filtrate from a seven day tryptose broth culture of the cotton bacterium several weeks after exposure to the stained cotton dust Symptoms of illness began within forty-five minutes Signs and symptoms were identical in type, severity and duration with those noted after exposure to the dust from stained cotton As a control test, A, B, C and E were exposed for one minute to a fine mist of sterile tryptose broth of the same type as that employed for toxin production by the cotton bacterium This exposure did not produce any signs or symptoms of illness

Physical findings other than those already described remained normal in all the human subjects There were no changes in the erythrocyte counts hemoglobin values, urinary findings and roentgenograms of the chest, nor was there evidence of any sequelae

Five cases of illness have occurred in this laboratory following accidental exposure to the cotton dust or to spray mists from broth cultures of the cotton bacterium The symptoms were the same as those already described The cotton bacterium was isolated from the respiratory tracts in 2 of the cases

*Patch Tests*—All the materials noted were used in patch tests on A, B and D before and on A, B, C, D and E after the inhalation experiments No significant positive reactions resulted

*Intradermal Injections*—One tenth cc of the following materials was injected intradermally into the forearms of subjects A, B, C, D and E (1) filtrate from seven day tryptose broth culture of the cotton bacterium, (2) filtrate from saline extract of stained cotton, (3) filtrate from saline extract of normal cotton, (4) sterile tryptose broth and (5) sterile isotonic solution of sodium chloride All tests were observed at least twice a day for a period of four days

TABLE 2—Changes in Leukocyte Counts During Experimental Illness

| Test Material              | Test Subject | Leukocyte Count |   |
|----------------------------|--------------|-----------------|---|
|                            |              | Before Exposure | Leukocyte Count (thousand per cubic mm) |
| Contaminated normal cotton | A            | 6,100           | 11,400                                  |
|                            | B            | 10,000          | 14,000                                  |
|                            | C            | 9,200           | 13,000                                  |
| Stained cotton             | A            | 7,000           | 9,000                                   |
|                            | B            | 7,800           | 11,000                                  |
|                            | C            | 9,400           | 10,000                                  |
| Culture filtrate           | B            | 8,800           | 10,000                                  |

Berkefeld filtrates from broth cultures of the cotton bacterium and from the saline extract of stained cotton caused severe cutaneous reactions and systemic symptoms within three hours in the subjects who had been exposed to normal cotton dust as well as in the subjects who had experienced attacks of illness The reactions were characterized by severe erythematous lesions which were extremely painful on pressure and

15 Formula Bacto tryptose 20 Gm., Bacto-dextrose 2 Gm., sodium chloride 5 mg., disodium phosphate 2.5 Gm., distilled water 100 cc. Autoclave twenty minutes at 15 pounds pressure

in size from 5 by 5 cm to 15 by 7 cm. All subjects except D complained of headache and generalized muscular pains within about ten hours. B, C and E had a severe lymphangitis and lymphadenitis of the arm lasting about thirty hours. All evidence of the injections disappeared within four days. It is to be noted that subject E, who had not had the illness, showed as severe a reaction as did subjects A, B and C. The nature of the cutaneous reactions denoted a definite intoxication rather than a sensitization to the substances injected. None of the 5 subjects had any significant reaction at the site of the intradermal injections of sterile tryptose broth, sterile isotonic solution of sodium chloride or the filtrate from the saline extract of the normal cotton.

It is evident that the illness following these exposures was caused by the cotton bacterium or its products. The symptoms of this illness were similar to those reported in outbreaks of illness occurring in rural mattress making centers, one cotton mill and three cottonseed plants in which stained cotton was processed.

#### COMMENT

The subjective symptoms encountered in acute illness among rural mattress makers except for much greater severity are almost identical with those of the so-called mill fever and Monday fever found in cotton mill workers.<sup>16</sup> These diseases follow the inhalation of dusty cotton. According to the literature, cotton mill workers, while engaged in the initial stages of cotton processing, are subject to frequent illness due to a special and complex cause which has not been completely elucidated but which has been considered to be both allergic and mechanical.

The Departmental Committee on Dust in Cardrooms in the Cotton Industry in 1932<sup>17</sup> reported that the symptoms of the illness among cotton cardroom operatives were due to the action of the dust on the mucous membranes of the respiratory passages. According to this report, there was no evidence of aspergillosis or other similar disease of the lung due to inhalation of fungus mycelia, conidia or spores. The committee reported the presence of large numbers of gram-negative bacilli in the cotton dust. However, no importance was attributed to these bacteria, since no factor common to the bacteriology of the dust and the patients' sputum was found. In an appendix to this report<sup>17</sup> Matland and his associates reported the presence of histamine in cotton dust and suggested the possibility of histamine being a causative factor in cotton mill illness.

The desirability of following up this clue led the Medical Research Council of Great Britain to institute a study of illness in cotton mills. The results of this investigation are given in the report by Prausnitz.<sup>3</sup> He concluded that histamine, although present in cotton dust, was not the cause of the illness. On the basis of particle size determinations and animal experiments with cotton dust however, Prausnitz formulated the following conception of the pathogenesis of the cotton mill illness: "1. Irritating soluble proteins of the cotton dust penetrate into the alveolar tissue and gradually produce thickening of the alveolar walls. 2. Simultaneously, or perhaps even before that supersensitive-

ness is acquired. 3. Superficial irritation of the bronchial mucous membrane by the dust leads to chronic bronchitis, cough and ultimately to emphysema."

In connection with this illness among cotton card room operatives, the British Parliament in 1940<sup>18</sup> passed 'an Act to provide for the payment of compensation by employers of male workmen who are certified to have been employed for periods amounting in the aggregate to not less than twenty years in cotton card rooms or other specified parts of factories engaged in the spinning of raw cotton and to have died from or become totally and permanently incapacitated for work as the result of, the respiratory disease known as byssinosis'.

From the results of the work in this laboratory it seems logical to assume that the cotton bacterium or its toxin, responsible for illness among rural mattress makers, may also be the etiologic agent responsible for illness among cotton mill workers. As far as can be determined, there is no permanent pulmonary injury following several attacks of the illness as it occurred in this laboratory. However, if a person had repeated attacks of this illness over a period of years, there is a possibility that permanent pulmonary changes would occur.

The illness among rural mattress makers also resembles heckling fever, reported in workers inhaling flax dust, mill fever in workers inhaling jute dust and grain fever in workers inhaling grain dust. It is possible that these diseases may be caused by the cotton bacterium or a related species of organism.

Further studies on the relationship of the cotton bacterium to Monday fever and to byssinosis, on the normal habitat and distribution of the cotton bacterium, its development on cotton, on the isolation and identification of the endotoxin and on methods for the protection of workers are needed. This is especially true in view of the fact that reports of outbreaks of illness in the upholstering industry and in cottonseed processing plants are being received continually. Other reports dealing with the technical phases of this investigation are being prepared for publication.

#### SUMMARY

This report deals with an acute illness occurring among workers in rural mattress making projects, in a cotton mill and in cottonseed processing plants in which the workers were exposed to high concentrations of stained cotton dust. Hundreds of cases of this illness occurred during the spring and summer of 1941. Outbreaks of this disease ceased when protective respiratory apparatus was used by the workers or when the use of the low grade, stained, dusty cotton was discontinued. Reports of outbreaks of this illness are being continually received from upholstering and cottonseed processing plants in which stained cotton is used.

Fifty-eight samples of stained cotton known to have caused illness, 3 control samples of cotton not known to have caused illness and 6 samples of dust from cotton mills in which illness had occurred were submitted to physical, chemical, mycologic, bacteriologic, serologic and biologic studies.

All samples of cotton incriminated in outbreaks of illness consisted of low grade dusty, stained cotton. Chemical examination of the samples did not reveal any

16 Collis E. L. Investigation into Present Health of Cardroom Strip pers and Grinders in the Annual Report of the Chief Inspector of Factories for 1908. London pp. 203-205. Industrial Pneumonomiases with Special Reference to Dust Phthisis. Milroy Lectures. 1915. Public Health 28: 252-263. (Aug.) 1915. Prausnitz<sup>3</sup> Report of Departmental Committee<sup>17</sup>. Trice<sup>1</sup>.

17 Report of the Departmental Committee on Dust in Cardrooms in the Cotton Industry. Great Britain Home Office. London. 1932.

18 Workmen's Compensation and Benefit (Byssinosis) Act 1940. Workmen's Compensation Acts 1925 to 1940. Acts of Parliament Ch. 56. 3 and 4 Geo. 6 1940.

chemical substance capable of producing the disease. The low incidence of fungi and the infrequent occurrence of pathogenic types of fungi precluded this class of micro-organisms as the cause of the illness.

Bacteriologic examination of all samples of stained cotton and stained cotton dust known to have caused illness revealed an incidence of gram-negative, rod shaped bacteria ranging from 3 million to more than 10 billion per gram. These organisms occurred to the exclusion of any significant numbers of other types of bacteria on potato-carrot-dextrose agar. The micro-organism could be demonstrated on the outside of and within the lumen of individual cotton fibers. This organism was not recovered from the high grade or normal cotton. The characteristics of this organism tentatively place it in the genus *Aerobacter*.

The bacteriologic examination of 17 additional control samples representing practically all grades of cotton did not reveal the cotton bacterium in the various grades of white cotton. However, the cotton bacterium was recovered from all grades of yellow stained cotton and from one grade of tinged cotton.

Positive Shwartzman, Dolman and Hammon tests demonstrated the presence of a toxic substance in filtrates of extracts of the stained cotton and in filtrates of broth cultures of the organism isolated from it. Serologic studies demonstrated that homologous antibodies could be produced in rabbits through injection with cultures and culture filtrates of the cotton bacterium and with filtrates from extracts of stained cotton. A significant antibody titer could not be demonstrated in the blood serum from human beings and animals exposed to stained cotton under the conditions described herein.

Six species of experimental animals exposed by inhalation to stained cotton dust for several daily seven hour periods did not develop any significant symptoms of illness. The micro-organism had a low pathogenicity for experimental animals.

The same type of disabling illness was produced experimentally in human beings by inhalation of (a) dust from normal cotton contaminated with the cotton bacterium and its culture filtrates, (b) dust from stained cotton containing a high incidence of the cotton bacterium and (c) a fine mist of a sterile filtrate from cultures of the cotton bacterium. Similar exposures of persons to dust from normal cotton and to a mist of sterile tryptose broth failed to produce any signs or symptoms of illness.

The cotton bacterium was recovered from nose and throat swabs only in a limited number of cases. Blood cultures were negative in all cases.

Intradermal injections of the filtrates of stained cotton extracts and culture filtrates of the cotton bacterium in man were primarily toxic, producing severe, inflammatory lesions. Patch tests with various cotton samples and with chemical fractions of these samples were negative.

The clinical manifestations developed experimentally in human beings were the same as those reported in rural mattress makers and in workers in a cotton mill and in cottonseed processing plants. The clinical syndrome of this illness is similar to that of an acute intoxication.

This illness is characterized by its sudden onset, one and one-half to three hours after exposure, and its short duration, i. e. twenty-four to forty-eight hours. The subjective symptoms are headache, cough, general-

ized aches, dryness of the throat, joint pains, tightness of the chest, weakness, drowsiness, chills, conjunctival irritation, fatigue, nausea, vomiting, diarrhea, dyspnea, irritability, brassy voice, sneezing, insomnia, vertigo, anorexia, burning on urination, nervousness, palpitation, muscle tremor and abdominal discomfort. These subjective symptoms are accompanied by an elevation of temperature, increased pulse rate and sudden high leukocytosis, with a moderate increase in band and segmented cells.

This illness resembles mill fever, Monday fever and gin fever in cotton mill workers. It is possible that the cotton bacterium or its toxic products may be responsible for these diseases. It is also possible that repeated exposure over a period of years to this organism or its products contained in cotton dust may be a contributing factor in byssinosis.

#### CONCLUSIONS

The acute illness among rural mattress makers is caused by the inhalation of a gram-negative, rod shaped micro-organism or its products contained in or on dust from stained cotton. The severity of the symptoms and physical manifestations in this illness are dependent on the presence and concentration of the cotton bacterium or its products in the cotton dust inhaled and on the duration of exposure.

## OBSTETRIC SIGNIFICANCE OF BARBITURATES AND VITAMIN K

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It is well known that various types of hemorrhage in the newborn account for a considerable percentage of stillbirths and neonatal deaths. Bundesen and others<sup>1</sup> reported that there were 237 deaths from intracranial hemorrhage among 2,260 neonatal deaths in 1936 and 1937. In an endeavor to decrease the percentage of stillbirths and to decrease mortality and maldevelopment in the newborn, we have studied the effect of vitamin K administered in various ways to women in labor or administered directly to the newborn.

In a previous article<sup>2</sup> we reviewed the history of vitamin K and appended an extensive bibliography. The cases cited in that article are included in this report. The methods of determining the prothrombin were the same for the whole series, namely a modification of the Smith bedside technic for determination of prothrombin in maternal and cord blood and the micro method of K<sub>1</sub> and Poncher for determinations on infants' blood obtained by heel puncture.

One hundred and fifty-seven women had prothrombin determinations made during labor. The aver-

All the vitamin K used in this study was furnished by the Laboratories, North Chicago, Ill.

From the Department of Obstetrics, Cook County Hospital, Department of Obstetrics and Gynecology, Northwestern University Medical School.

This study was made possible by a grant for research arranged by Dr. Herman N. Bundesen, president of the University of Chicago.

1. Bundesen, H. N., Fishbein, W. I., Dahms, O. A., Fox, F. J. and Volke, Walter. Factors in Neonatal Deaths. *J. A. M. A.* 114: 134-141 (July 9) 1938.

2. Fitzgerald, J. E. and Webster, Augusta. Effect of Vitamin K Administered to Patients in Labor. *Am. J. Obst. & Gynec.* 40 (Sept.) 1940.

was 97.1 per cent of normal. The same 157 mothers had determinations done at the time of delivery. The average then was 96.7 per cent of normal, so it is apparent that labor has no influence on the maternal prothrombin.

The average prothrombin of the babies of these 157 mothers was 130.6 per cent of the adult normal. The determinations were all done on cord blood by the technic used on the maternal blood. The comparative elevation in the cord blood prothrombin was noted in each group discussed in this article (chart 1).

Three hundred mothers were then given vitamin K orally with 10 grains (0.6 Gm.) of bile salts during labor. Of these 88 were given a vitamin K concentrate (from alfalfa) in peanut oil (klotogen) in doses of 4,000 Almquist units and 212 were given the synthetic product menadione (2-methyl-1, 4-naphthoquinone) in doses of 8 mg., 41 in a compressed tablet and 171 in sesame oil in a gelatin perle. The type of medication made no difference in the results. The maternal prothrombin on entrance averaged 98.3 per cent of normal. The average maternal prothrombin at delivery was 114.3 per cent, showing a definite rise for the treated patients. The time of administration varied from fifteen minutes to twenty-seven hours before delivery. The maternal prothrombin seemed to be definitely affected even if the medication was given shortly before delivery, since to 28 women the drug was given one hour or less before delivery and the prothrombin still averaged 110.3 per cent. To 9 of these women the medication was given thirty minutes or less before delivery, and the prothrombin was 100 per cent of normal, indicating that such late oral administration is without value. The prothrombin time for 12 patients to whom the vitamin was given from fourteen to twenty-seven hours before delivery averaged 110.2 per cent, showing that there is a prolonged effect.

The average cord blood prothrombin for the babies whose mothers received oral medication averaged 161.4 per cent, showing a percentage gain of 23.5 as compared with the value for the babies whose mothers were untreated.

Two hundred and twenty-four mothers were then given the synthetic vitamin K 2-methyl-1, 4-naphthoquinone-3 sodium sulfonate in doses of 32 mg., equivalent to 2 mg. of menadione, during labor. Of these, 72 received the vitamin intramuscularly and 152 intravenously. For the group receiving the vitamin intramuscularly, the prothrombin averaged 95.8 per cent before medication and 112.4 per cent at delivery. For those receiving the vitamin intravenously it averaged 97.4 per cent on entrance and 115 per cent at delivery. The time of administration varied from fifteen minutes to twenty-four hours before delivery. With this type of administration, late medication was even more effective. For 22 mothers given the vitamin fifteen to thirty minutes before delivery, the prothrombin at delivery averaged 110.7 per cent, and the rise was maintained in patients treated twelve to twenty-four hours before delivery. The babies of these mothers showed a uniformly high cord blood prothrombin content. The prothrombin of the babies whose mothers were given the preparation intramuscularly averaged 158.6 per cent, and that of the babies whose mothers were treated intravenously averaged 160 per cent.

Forty-three mothers to whom  $7\frac{1}{2}$  grains (0.5 Gm.) of sodium pentobarbital orally or 1 Gm. of sodium amyl

bromoalyl barbiturate rectally was given as a first stage analgesic were then studied. Before the administration of the drug the prothrombin averaged 97 per cent of normal. At delivery the maternal prothrombin averaged 84.5 per cent, showing a definite decrease in the blood coagulability in patients so treated.

The babies of these 43 mothers showed an average prothrombin of 90 per cent, a level considerably below that of babies whose mothers had had no such medication.

Twenty-two mothers given these barbiturates as analgesics were also given vitamin K while in labor. On entrance the prothrombin of these mothers averaged 96.8 per cent of normal, and at delivery it averaged 106 per cent of normal, suggesting that the drop in prothrombin content due to barbiturates can be prevented by the use of vitamin K during labor.

The babies of these mothers showed an average cord blood prothrombin of 140 per cent, which is about the reading for babies whose mothers had no medication at all and a striking increase over the reading for babies whose mothers had the barbiturates without vitamin K.

The effect of barbiturates on postpartum women was then investigated. One hundred and one women had prothrombin determinations after delivery. The aver-

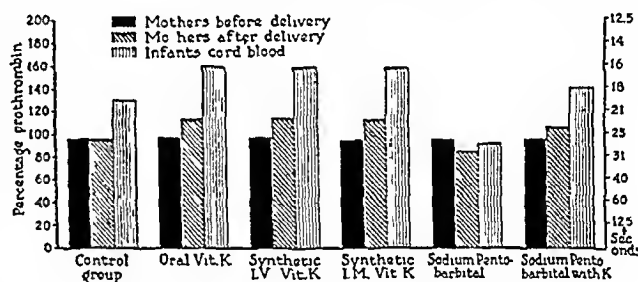


Chart 1—Average prothrombin readings in each group studied

age value was 98.9 per cent of normal. These women were given 3 grains (0.18 Gm.) of sodium pentobarbital on their first postpartum night, and their prothrombin levels were checked the next morning, when the average had fallen to 87.8 per cent. A similar group of 64 averaged 98.5 per cent at delivery and were given 6 grains (0.36 Gm.) of sodium pentobarbital their first postpartum night. The next morning their average prothrombin was 84.7 per cent of normal. Thus, three separate groups of women were treated with barbiturates. Each group showed approximately the same prothrombin level before medication, and each group showed a definite decrease in the prothrombin level a few hours after medication. The infants born to mothers of one of these groups showed a striking decrease in cord blood prothrombin when compared with babies born to mothers who did not receive barbiturates.

We then studied the prothrombin curve of babies of various groups for six days after birth. The first day readings for all these babies differed decidedly from the cord blood readings. This difference may be accounted for by three factors: 1. The determinations were made on heel blood drawn about twelve hours after birth. 2. The determinations were all done by the micro method of Kato and Poncher instead of by the modification of the Smith bedside technic used on the mothers' blood and on the cord blood. 3. The blood used in the



micro method must be oxalated before the determination is made, while in the macro method whole untreated blood is used

To establish a daily normal for babies by the micro method of Kato and Poncher, the blood of 50 babies was checked at the end of each of the first six days of life by this method. The average for the six days was 73.8, 59.1, 59.5, 67.3, 75.0 and 78.9 per cent (chart 2)

For 32 babies whose mothers had vitamin K orally the average was 87.7, 89.3, 87.8, 94.0, 94.7 and 99.8 per cent

For 54 babies whose mothers had synthetic vitamin K intravenously or intramuscularly the average was 86.5, 84.7, 91.5, 94.1, 98.7 and 103.6 per cent

For 28 babies whose mothers had barbiturate analgesics with no other medication the average was 53.1, 38.6, 38.0, 51.4, 72.1 and 75.0 per cent (chart 3)

For 12 babies of mothers who had barbiturate analgesics but who were also given vitamin K during labor the average was 86.4, 87.6, 91.4, 95.4, 98.0 and 101.0 per cent

Many observers have noted that the prothrombin of infants drops from the second day of life until the fifth or sixth, when it gradually becomes normal

made before the baby was given the vitamin. The daily averages were 75 (before), 95.4, 96.3, 102.0, 103.7 and 106.3 per cent, which shows rather conclusively that the drop in prothrombin of such infants can be prevented by intramuscular injection of vitamin K after birth (chart 4)

The neonatal drop in the prothrombin is more striking than the figures alone show. Three babies of untreated mothers were dropped from the control series because of clinical evidence of bleeding plus a low prothrombin, which made immediate administration of vitamin K seem necessary. One of these had coffee ground vomitus on the second day, and the prothrombin was 56 per cent. Vitamin K was administered to the baby, and the next day the prothrombin was 87 per cent and the symptoms had disappeared. The other 2 had continuous bleeding from the heel puncture. 1 on the third day, with a prothrombin of 15 per cent and the other on the fourth day, with a prothrombin of 19 per cent. Vitamin K was administered, and the next day the symptoms subsided and the prothrombin had risen to 80 per cent and 87 per cent, respectively.

Of 30 control babies of mothers who had barbiturate for analgesia, 5 were withdrawn on various days because

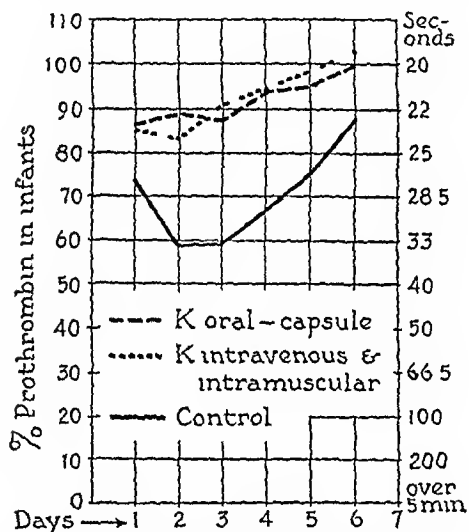


Chart 2—Average daily prothrombin of babies from mothers with no medication and from mothers who had vitamin K orally or parenterally

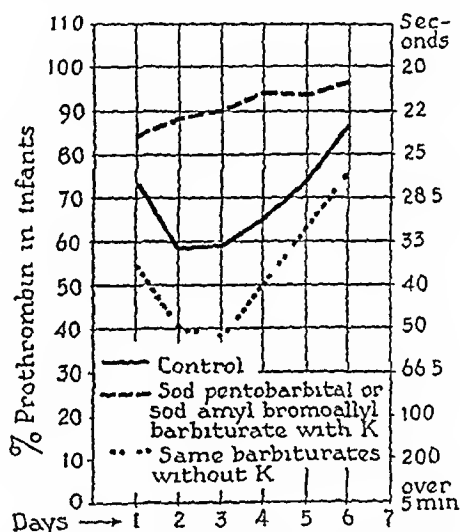


Chart 3—Average daily prothrombin of babies from mothers who had sodium pentobarbital or sodium amyl bromoalyl barbiturate as first stage analgesic

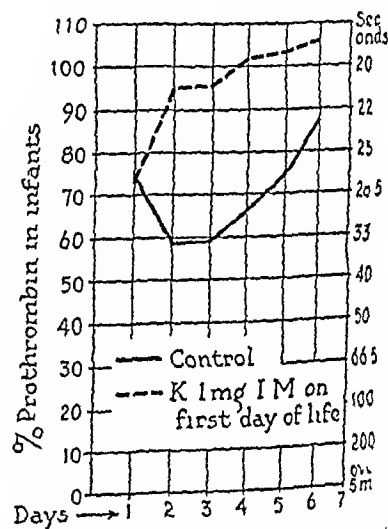


Chart 4—Average daily prothrombin of babies given vitamin K after birth

Our figures tend to bear out their observations. It is also generally known that true hemorrhagic disease of the newborn begins during this period. Many milder forms of this tendency may occur and be unrecognized during the same time. Under these circumstances it may seem wise to prevent the lowering of the prothrombin, since this can be accomplished easily by the administration of vitamin K to the mother up to a short time before delivery. This procedure seems even more reasonable in cases in which the mother has been given sodium pentobarbital as an analgesic when the prothrombin of the mother and of the baby at delivery are depressed and the prothrombin of the baby after birth remains strikingly below that of a baby whose mother has had no such analgesic.

In an effort to discover whether we could prevent the neonatal decrease in prothrombin in cases in which the mother has not been given vitamin K during labor, we gave 50 babies of such mothers 1 mg. of synthetic vitamin K intramuscularly during the first day of life. Daily readings were made for six days by the micro method of Kato and Poncher, the first reading being

of hematoma and continuous oozing at the site of the heel puncture. The mothers of 4 of these had received sodium pentobarbital and the mother of 1 had received sodium amyl bromoalyl barbiturate. All these babies improved promptly after the administration of vitamin K, the prothrombin rose rapidly and the rise was maintained.

Seven other babies were called to our attention because of bleeding. These infants were not included in the series originally. All were babies of untreated mothers, and the prothrombin was not determined until after the onset of symptoms. One baby on the third day was bleeding from the nostrils and had conjunctival hemorrhages, coarse tremor of the extremities and severe cyanosis of the face. There was no rise in five minutes. The diagnosis made by the department of pediatrics was hemorrhagic disease of the newborn with possible cerebral hemorrhage. One milligram of synthetic vitamin K was given to the baby intramuscularly, and one hour and fifteen minutes later the prothrombin time was one and one-half minutes (prothrombin percentage, about 20), but the nasal hemorrhage

controlled. Another milligram of synthetic vitamin K was administered, forty-five minutes later the prothrombin was 63 per cent of normal, and there was no further bleeding. The following day the prothrombin level was 90 per cent and there were no symptoms. One baby showed vaginal bleeding and jaundice on the third day, with a prothrombin of 35 per cent. One had coffee ground vomitus on the third day, with a prothrombin of 36 per cent. One baby on the fourth day showed a large fluctuant bluish mass on the right cheek, numerous petechial hemorrhages on the palate, a small bluish area on the left cheek and a prothrombin of 10 per cent. A diagnosis of hemorrhagic disease of the newborn was made by the department of pediatrics. One baby showed evidence of intracranial damage on the fifth day, with a prothrombin of 21 per cent. Another showed palatal bleeding on the fifth day (trauma?) and a prothrombin of 10 per cent. One showed coffee ground vomitus on the fifth day, with a prothrombin of 15 per cent. All showed a marked increase in the prothrombin and cessation of bleeding promptly after the administration of vitamin K intramuscularly.

It is interesting to note that in none of the 641 babies whose mothers had vitamin K during labor was there any evidence of neonatal hemorrhage.

#### SUMMARY

Evidence is presented from a large series of cases to show that

- 1 The administration of vitamin K, either the original alfalfa extract or the synthetic product, to a mother in labor increases the percentage of prothrombin of both mother and child. The vitamin may be given orally or parenterally.

- 2 Such medication also prevents the drop in the prothrombin level of the baby which normally occurs from the second to the fifth day.

- 3 The administration of sodium pentobarbital or sodium amyl bromoalyl barbiturate as an analgesic definitely decreases the prothrombin level in mother and child.

- 4 The decrease can be prevented by the administration of vitamin K to the mother during labor.

- 5 It is apparent that even small doses of barbiturates effect the prothrombin level.

#### CONCLUSIONS

- 1 It seems reasonable to assume that hemorrhage is more likely to occur in the presence of a low prothrombin level.

- 2 There is a normal depression of the prothrombin level of the newborn from the second to the fifth day. This depression is much greater when certain analgesics are administered to the mother during labor.

- 3 This depression can be prevented by the administration of nontoxic vitamin K to the mother while she is in labor.

- 4 Such medication should prove effective in lowering the incidence of hemorrhage of the newborn.

- 5 It seems particularly desirable that vitamin K should be administered when barbiturate analgesics are used.

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## THROMBOPHLEBITIS IN THE FOOT

### A LITTLE KNOWN LOCALIZATION

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Thrombosis of the veins in the foot were found with great frequency by Neumann<sup>1</sup> in his recent anatomic study. In fully 71 per cent of his patients with positive manifestations in the veins of the lower extremities (100 out of 165 unselected cases coming to surgery) there was also evidence of involvement of the venous channels in the foot either alone or in combination with a similar process in more proximal regions.

These anatomic figures are striking, especially in the absence of clinical reports on the subject. Although there undoubtedly are many instances of so-called silent thrombi in the foot (as well as elsewhere) which produce neither signs nor symptoms, the paucity of clinical reports cannot be explained on this basis.

In the past eighteen months, however, since our interest has been focused on the condition the diagnosis of thrombophlebitis in the foot has been made in 10 instances.

#### REPORT OF CASES

CASE 1—C. H., a woman aged 63, who had diabetes and advanced peripheral vascular disease of the arteriosclerotic type, had been confined to her wheelchair for many months. She complained of severe pain in the right foot which came on suddenly and persisted for about four weeks before an explanation for it could be found. In the midtarsal region of the right foot there was an infiltrated, tender, cordlike structure along the course of the lateral plantar venous arch. Outlining its course in the skin was a linear bluish discoloration. The surrounding area was puffi and red and the entire right foot was warmer than the left. There was no edema present and no signs of an ascending thrombosis. Large superficial varicosities were present in the right calf.

CASE 2—M. M., a woman aged 25 because of a severe attack of grip had been confined to bed for five weeks. As soon as she started to walk, pain and swelling of both feet developed. Examination revealed a hot, infiltrated, tender area 3 inches by 3 inches (7.5 by 7.5 cm.) over each instep. At subsequent examinations when signs of acute inflammation had subsided, a cordlike structure could be felt running parallel to the long axis of the foot.

CASE 3—M. B., a woman aged 63, had had a corn on the sole of her foot removed by a chiropodist four months before admission. A mild inflammatory reaction persisted for about a week when she suddenly experienced pain on the inner side of her right ankle. This had persisted since and was increased with walking. The inner aspect of the ankle was warm and swollen. Pitting edema was present in the lower leg. There was great tenderness over the internal malleolus, especially along the course of the posterior tibial vein. Surrounding this region was an area of inflammation about 3 inches in diameter. Tenderness was present in both calves, but there were no other signs of venous involvement. As the signs of acute inflammation subsided a cordlike structure could be clearly outlined behind the internal malleolus.

CASE 4—F. K., a man aged 59, known to have polycythemia vera, had been seen repeatedly by several physicians who could give no adequate explanation for the pain he complained of in the sole of his right foot especially since arch supports proved of little benefit to his flat feet. The pain was present on and off for at least four years becoming more severe on weight

From the Montefiore Hospital  
1 Neumann R. Ursprungszentren und Entwicklungsformen der  
Benthrombose. Virchows Arch. f. path. Anat. 301: 708-735, 1930.

bearing or walking. Pitting edema of both legs had been noticed for a long time. The superficial veins of the right foot and leg were distended. Infiltrated, cordlike structures could be palpated, not only in the foot but in the calf and the thigh as high up as the fossa ovalis. The whole foot varied from a dusky red to a purplish hue, depending on the position of the limb.

CASE 5—E. R., a woman aged 45, who was actively engaged in business, had a severe respiratory infection which kept her in bed for several weeks. Shortly after resuming her usual activities she noticed pain in both her feet. On the left the pain was present in the entire foot as well as in the lower calf. It was especially severe on walking. Behind the medial malleolus a tender cordlike structure about 3 inches in length could easily be palpated, this was outlined on the skin by a purplish discoloration. Extension into the left calf was not demonstrable.

CASE 6—N. H., a woman aged 60, gave a history of having had pain in both legs for many years, relieved by wearing arch supports for her flat feet. Three weeks prior to our examination great pain in her right foot developed. This radiated up to the calf, making walking difficult. On examination, slight pitting edema of both feet and lower legs was present, more on the right. The dorsum of the right foot was puffy, and there was an area of redness and superficial tenderness on the tarsus 2 to 3 inches in diameter. The bones in the foot were not tender on pressure. There was tenderness in the region of the midcalf, and a deep cordlike structure could be felt in it. Local examination was otherwise negative. Interestingly enough, the patient gave a history of bilateral phlegmasia alba dolens many years before during pregnancy.

CASE 7—F. G., a woman aged 65, had a history of long-standing peripheral vascular disease due to arteriosclerosis and diabetes mellitus. One leg had already been removed at the midcalf on the right side. She had been confined to a wheelchair for at least four months when tenderness was noticed along the course of the left saphenous vein in the thigh. This was diagnosed as thrombophlebitis. Pain and some induration persisted for about two months. She then began to complain bitterly of severe pain in the left foot posterior to the metatarsal arch. Tenderness was present and a cordlike infiltration could be felt in the region of the instep extending upward behind the medial malleolus into the calf. Within the next two weeks this tenderness had extended upward along the course of the saphenous vein to the region of the midthigh.

CASE 8—E. McC., a man aged 36, an employee of the hospital, had injured his foot the day before in tripping. The skin on the medial aspect of the instep was red and warm over an area 2 inches in diameter. A cordlike vein running from this point to the medial side of the foot could be felt. There was great tenderness on pressure. The next day the thrombosis had spread even higher to involve the region of the calf.

CASE 9—G. P., a man aged 65, had undergone two major operations in the past four months. Shortly after he was permitted up swelling of the right foot developed. Although the swelling was considered at first to be a strain, medical advice was sought after it had persisted for more than three weeks. Examination showed varicosities in both lower legs, although they had been injected several years previously. There was swelling of the entire right foot and ankle. Varicose eczema was present in the lower leg. There was tenderness on pressure over the inner side of the foot along the course of the medial plantar arch. Thrombosed veins could not be felt because of the edema. The entire right foot was warmer than the left.

CASE 10—M. G., a girl aged 17½ years, had experienced pain in both feet for almost three months. Examination revealed marbleization of both lower extremities and moderate swelling of the feet and ankles. Over the lateral aspect of the left ankle there were patches of brownish, scaly, varicose eczema. Extreme tenderness was caused by pressure over the deep veins in the left sole, as well as along their course behind the medial malleolus and up to the left calf. In this region, a cordlike structure was easily palpable. The same areas in the right

lower extremity were also tender but to a much less degree. The peripheral arterial pulses were patent, although the skin was cold. There was moderate pes planus bilaterally.

#### COMMENT

It is not our intention in this paper to draw up statistical figures or make generalizations from an admittedly small group of cases. However, thrombosis of the veins in the foot is obviously not a rare occurrence, neither does there appear to be anything peculiar about its etiology. In the cases presented, one can discern some of the usual agents responsible for the condition—gripping infections, trauma and systemic diseases such as polycythemia vera. The inevitable conclusion is that the diagnosis is not made simply because the possibility of a venous thrombosis in this region is not considered. As a result, the symptoms are attributed either to muscle or tendon strain or to other injuries, to inflammations of the bursae or tendon sheaths, to acute static disturbances like flat feet, to gout and even to the pressure of neurofibromas.

Many patients have flat feet, so that their presence provides a ready pitfall in diagnosis. It is likely, however, that weak or flat feet may favor phlebothrombosis by causing an alteration in the architecture of the veins of the foot. In connection with this, Wright<sup>2</sup> has observed 5 instances of phlebitis of the dorsal foot veins of persons who lace their shoes too tightly. He feels that obstruction and trauma to the venous arches in this region is the probable cause.

Most persons had been confined to bed for other illnesses just prior to the appearance of symptoms in the feet. This fact had been reemphasized by Hunter<sup>3</sup> as being too frequent to be considered a coincidence. Inactivity, especially in older persons, disturbs the return flow of blood and favors thrombus formation.

Another point about diagnosis which must be stressed is that inflammatory processes starting in the veins of the foot seem at first to be diffuse processes of cellulitis. This is because the thick skin covering the sole masks individual landmarks. Occasionally, edema may be the only presenting sign. With subsidence in the inflammatory reaction, and with the disappearance of the edema, the thrombosed veins may frequently be felt as cordlike structures in the subcutaneous or deeper tissues.

The diagnosis becomes quite definite if the process spreads upward to the ankle or calf. Occasionally, in the more superficial veins, a discoloration of the skin, perhaps of linear outline, can be seen over the involved area. In such cases<sup>4</sup> the clinical appearance is certainly characteristic.

It is most important to make a correct diagnosis because the veins of the foot, like other veins in the extremities, or the prostatic or pelvic network of veins, are frequently a source of malignant but clinically unexplainable embolization. In such instances proper therapeutic measures<sup>5</sup> might prevent or retard the development of these complications.

#### SUMMARY AND CONCLUSIONS

Ten cases of thrombophlebitis of the veins of the foot were seen and diagnosed within a period of 2½ and a half. The condition has hitherto been

2 Wright, I. S. Personal communication to the author.  
3 Hunter, W. C., Sneed, V. D., Robertson, T. D., and G. A. C. Thrombosis of the Deep Veins of the Leg. *Am J Surg* 68: 117 (July) 1941.  
4 Barker, N. Thrombophlebitis in Stroud's Diseases of the Heart and Circulation. Philadelphia: F. A. Davis Co., 1940, vol. 2.  
5 Homans, John. Varieties of Thrombophlebitis of the Lower Extremity. Origin, Course and Treatment. *Am J Surg* 44: 3 (Apr) 1952.

mentioned clinically, although the frequency with which it was found at postmortem examination is well known. The diagnosis is comparatively easy, provided of course the possibility of its existence is kept in mind. On its proper diagnosis rest all the attempts for directing therapeutic efforts.

Gun Hill Road near Jerome Avenue

## Clinical Notes, Suggestions and New Instruments

### CARCINOMA OF THE PROSTATE TREATED WITH DIETHYLSTILBESTROL

#### HISTOLOGIC ALTERATIONS

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The observations recorded here are of interest because of the histologic changes that occurred in the prostate gland during the administration of diethylstilbestrol.

W. E. H., a white man aged 59, entered the Presbyterian Hospital on April 8, 1941 complaining of intermittent hematuria, difficulty in urination, backache, leg pains, loss of appetite, loss of weight and fatigue. These symptoms had become gradually worse during the past two years, and for the past six weeks he had relieved his urinary retention by daily catheterizations.

Three years before a transurethral resection was done in another hospital for the relief of urinary obstruction. He had had an increasing amount of pain in the lower lumbar region associated with sharp pains down the right thigh for the past seven months, and the intensity of these pains had increased to such an extent that it had become difficult for him to get around. During the past three weeks he had lost 20 pounds (9 Kg.), and the present weight was 149½ pounds (68 Kg.). There were no other details of consequence in the past history.



Fig. 1—Section of the prostate gland before treatment.

The patient was thin, poorly nourished and anemic. Rectal examination revealed a firm, large, nodular prostate characteristic of carcinoma.

He had a well defined secondary anemia. The hemoglobin amounted to 8.8 Gm. per hundred cubic centimeters by the Dick-Stevens electric method, and the red blood cell count was 2,900,000 and the white count 8,000. The total nonprotein

nitrogen was 34 mg. per hundred cubic centimeters of blood. A Wassermann reaction was negative. His blood pressure was 130 systolic, 82 diastolic. The urine was turbid from pus cells. He had 400 cc. of residual urine when admitted to the hospital.

The retention of urine was treated with an indwelling urethral catheter for a week, and then a transurethral resection was done. Previous to the operation a blood transfusion of 500 cc.

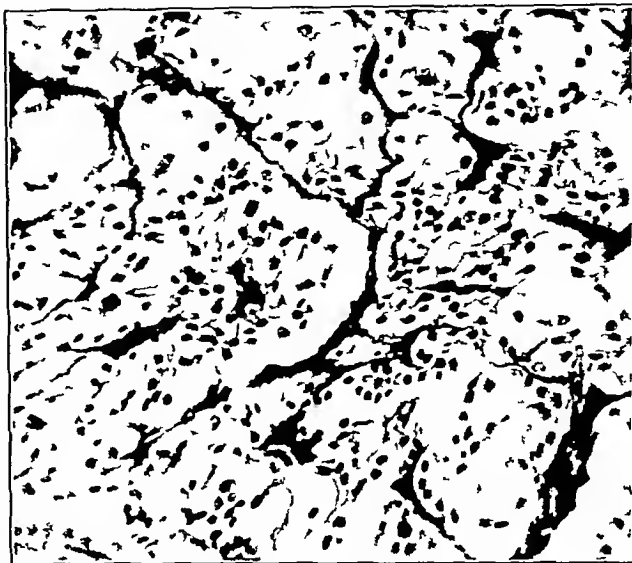


Fig. 2—Section of the prostate gland after patient had received 1,546 mg. of diethylstilbestrol in two hundred and twenty-three days.

was given. Eight days after the operation he left the hospital. He had no difficulty in voiding, and there was no residual urine.

The microscopic study of the tissue removed from the prostate gland showed adenocarcinoma grade 3, as shown in figure 1. The following histologic report was by Dr. C. W. Apfelbach, pathologist. In pieces of tissue removed from the prostate gland there was widespread epithelial neoplasm, a portion of which grew diffusely through smooth muscle and fibrous tissue without any definite pattern. In other regions the tumor had a definite organoid pattern, consisting of small alveolar structures. In one section there was hyperplasia of the acinar elements.

Three weeks after leaving the hospital the patient was put on daily doses of diethylstilbestrol, beginning with 3 mg. and increasing up to 12 mg. Within ten days he began to show decided clinical improvement. His appetite improved, he gained in weight, his leg and back pains disappeared and his anemia improved. At the end of six months his weight had reached 175 pounds (79 Kg.), and this he has maintained. The induration of the prostate and the periprostic region appeared to be much softer on rectal examination. While he had no urinary symptoms, his urine continued to show a few pus cells.

At the end of two hundred and twenty-three days, during which time he had received 1,546 mg. of diethylstilbestrol, he was readmitted to the hospital for two days and pieces of prostatic tissue were removed by transurethral resection for a comparative study. The histologic report by Dr. Apfelbach was as follows: In pieces of tissue removed from the prostate gland there was widespread alteration in the neoplastic cells, characterized chiefly by hydropic degeneration and vacuolation (Fig. 2).

#### COMMENT

It is difficult to explain how the histologic changes that occurred in the prostate gland could be due to anything except the administration of the diethylstilbestrol. The patient had no other form of therapy. His general clinical improvement and the fact that the prostatic cancer as determined by numerous rectal examinations, gradually became softer while the patient was under treatment would fit in with the histologic changes that occurred in the prostate gland.

122 South Michigan Avenue.

The diethylstilbestrol was supplied by the Upjohn Company, Kalamazoo, Mich.

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## RENAL INFARCTION OF TRAUMATIC ORIGIN

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Renal infarction in itself is not unusual. Its occurrence as the direct result of trauma is rare. Of 376 cases, in the great majority of which renal infarction was secondary to cardiac disease, in only 2 was it due to trauma. In Aschner's review,<sup>1</sup> von Recklinghausen is quoted as reporting the autopsy of an 8 year old boy who died eight days after a severe fall. The left renal artery showed a circular injury in the wall. Distal to this there was extensive thrombosis of all branches, and there was complete necrosis of the kidney. Barney and Mintz,<sup>2</sup> in their study of Massachusetts General Hospital protocols, found a similar instance of a man who died eight days after a fall on his back. The clinical picture was that of ruptured kidney, with shock, hematuria and the finding in the right flank of a mass. At autopsy a large infarct of the right kidney was found, secondary to thrombosis of all vessels of the kidney.

## REPORT OF CASE

**History**—H. C., a white man aged 48, a CCC employee, brought to the station hospital at 3 p. m. on Dec. 2, 1941, complained of severe left costovertebral angle pain and hematuria.

Three days previous to his entry, he sustained a back injury when the truck in which he was riding turned over. He fell for a distance of about 3 feet, landing on his left side. There was no loss of consciousness, but severe pain occurred in his left flank and costovertebral angle which persisted throughout the next few days. Four hours after the injury he urinated bright red blood. He was admitted to the CCC Hospital and observed. The pain in his flank continued, and a mass appeared. The blood in the urine persisted, and the patient was transferred to this hospital.

**Examination**—On admission the patient appeared quite ill and in considerable pain. His temperature was 99.8 F., his pulse rate 104 and his blood pressure 138 systolic and 88 diastolic. There was no evidence of cyanosis or pallor, but the patient was perspiring freely. The cardiovascular system was essentially normal. Posteriorly at the bases of the lungs, most pronounced on the left, were many coarse sticky rales. There were no changes in percussion resonance. In the left flank, extending posteriorly from the twelfth rib to the crest of the ilium, was a large firm fixed mass, excruciatingly tender. The skin over this area was considerably abraded. There was no suprapubic swelling or tenderness. Some dried blood was noted on the external genitalia. The prostate gland was normal.

On admission, the red blood cell count was 4.1 million, with 85 per cent hemoglobin. Repeated urinalyses revealed several pus cells and innumerable red blood cells. An abdominal flat roentgenogram revealed normal renal and psoas shadows on the right, but both renal and psoas shadows were obscured on the left. Considerable gas distended the bowel.

**Course**—The patient was observed carefully for two days. The blood count did not vary from the admission level. He continued to have gross hematuria. The mass appeared to be somewhat larger and more indurated. The blood pressure began to drop slowly until on December 4 it was 112 systolic and 68 diastolic. The temperature rose to 101.2 F. On December 4 an intravenous urogram was done, which revealed excellent contours and function of the right kidney. The left kidney was not visualized and no dye was secreted in thirty minutes. A diagnosis of ruptured kidney with interference of the renal blood supply was made, and the patient was operated on.

Immediately after spinal anesthesia the patient's pulse became imperceptible and the blood pressure could not be recorded. Intravenous fluids and restorative measures brought the blood pressure up to 108 systolic and 60 diastolic and the operation

was continued. The usual modified Israel kidney incision was made. The perinephric space was found considerably indurated with fluid and blood. The tissues were very friable. Large clots were found about the hilus. The kidney was freed with difficulty and removed. The pedicle was found to be intact. There was a considerable area of hemorrhage about the hilus and peripelvic fat. In one area over the cortex a small tear was noted, but the organ itself presented no laceration of consequence. The kidney had the diffuse dusky mottled appearance of infarction. The incision was closed in layers, sulfanilamide powder being used in the wound. The patient received an indirect transfusion of 500 cc. of whole blood and returned to the ward. The postoperative course was exceptionally good. The temperature returned to normal on the eighth day. The blood pressure remained at a fairly constant level averaging 140 systolic and 80 diastolic. On the eighteenth postoperative day the patient was up, and he was discharged on the twenty-eighth day.

**Gross Pathology Examination**—The specimen consisted of a slightly enlarged kidney, which had been previously sectioned and attached pedicle. The capsule and fragments of attached fatty connective tissue were somewhat hemorrhagically discolored. The most hemorrhagic staining, however, existed in the supporting tissues of the renal pedicle. The capsule stripped readily, revealing a slight rent in the anterior surface 1 cm. in diameter. The subcapsular surfaces were smooth and marked by several circumscribed pale gray areas, the largest 3 cm. in diameter. These on section were broadest in the cortex and tapered down toward the pelvis. The intervening surface everywhere were reddish pink to deep brick red.

**Microscopic Pathologic Examination**—In ten sections cut from different portions of the kidney normal tissue was not found at all. Various degrees of necrosis were seen from the earliest tendency toward poor staining and cytoplasmic swelling to complete loss of cellular and nuclear structure. The latter change predominated. Hemorrhage was evident, though patchy, masses of cells being found in interstitial spaces, tubules and glomeruli. A small amount of polymorphonuclear infiltration was also evident. The blood vessels were interesting, there being few, from small to large, that did not contain well formed thrombi. Section through the stump of the renal artery revealed early necrosis, with failure of the nuclei to take the stain well, fragmentation of the intima and underlying elastic lamellae. A fragment of thrombus was present in the lumen.

## COMMENT

The literature is uniform in its agreement on the difficulty in differential diagnosis between renal infarction and other surgical conditions of the kidney, whether due to stone or other causes. Various authors point out that local or systemic findings, urinalysis, cystoscopy and urography are usually unreliable in establishing the diagnosis and that only the detection of a primary cardiac lesion will direct attention toward renal infarction when due to embolism in such instances. However, when the cause of the infarction is local, as in our case, the factor of trauma points to rupture of the kidney, differential diagnosis seems impossible even in retrospect. The clinical signs and symptoms of the latter, i. e. history of trauma over the flank, local tenderness, fever, gross hematuria and absence of renal function as shown by the intravenous urogram were all present in this case. Granted that, through experience, suspicion of the presence of infarction may be aroused in similar cases in the future, differentiation of the two conditions is still not possible short of surgical intervention. Wood<sup>3</sup> has indicated that an intravenous urogram should not be made in all traumatic cases as soon as possible after injury and that a temporary anuria may occur in the first twelve hours. In the case reported the anuria was present on the fourth day following injury. Retrograde study is inadvisable because of the danger of secondary infection and embolism.

This case is presented because of the rarity of renal infarction of traumatic origin and because of the signs and symptoms which suggested ruptured kidney.

<sup>1</sup> Aschner, P. W. *Am. J. M. Sc.* 164:386 (Sept.) 1922.

<sup>2</sup> Barney, J. D., and Mintz, E. R. *Infarcts of the Kidney*, *J. A. M. A.* 100:1 (Jan. 7) 1933.

<sup>3</sup> Wood, A. H. *J. Urol.* 37:457 (April) 1937.



## Special Article

### PRIMER ON ARTHRITIS

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#### INTRODUCTION

The American Committee for the Control of Rheumatism, cooperating with the Committee on Scientific Exhibit of the American Medical Association, published the first Primer on Rheumatism in 1934. Now additions to the scientific knowledge of the rheumatic diseases necessitate a thoroughgoing revision if it is to continue to serve as an accurate introduction to the subject.

One of the principal difficulties encountered by the clinician in the management of chronic arthritis has been the lack of understanding of the important points of differential diagnosis and insufficient knowledge of the pathologic and physiologic factors involved. In this discussion rheumatic fever and tuberculous arthritis have been omitted. After publication in *THE JOURNAL*, the Second Primer on Arthritis will be available in pamphlet form at a cost of fifteen cents.

#### HISTORY

Among the first of the disease entities of which there are any records is the syndrome of arthritis. Evidences of its ravages are to be seen in the small Triassic dinosaurs of 200,000,000 years ago. Throughout the ages arthritis is evident in fossil remains of succeeding geologic eras down to and including the age of manimals and the advent of man. It affected the ancient Egyptians and was one of the reasons for the extensive baths which the Romans built throughout their empire. Thus there has been ample opportunity to recognize the importance of the disease and to initiate steps to prevent or cure it.

#### INCIDENCE AND SOCIAL PROBLEMS

A recent survey, under the auspices of the United States Public Health Service, of the calculated incidence of certain diseases revealed that "rheumatism" affects, in any one year, a greater number of persons than are affected by heart disease or arteriosclerosis.

Tables 1 and 2 are instructive.

The number of persons disabled by rheumatic disorders during each year exceeds those affected by diabetes in a ratio of nearly ten to one, tuberculosis ten to one, cancer and tumors seven to one. From the standpoint of days lost from work, arthritis surpasses injury from accidents. The data for other countries is comparable to those for the United States. Among the working population of Berlin the number of days of disability from arthritis in 1927 was 3.4 times greater than that from tuberculosis. In England rheumatism causes one sixth of the total industrial disability, and one sixteenth of all moneys paid out by England for pensionable invalidity is devoted to rheumatic diseases. These figures take no account of persons other than

the insured population. Among chronic disorders in the United States, rheumatism is second only to mental and nervous diseases as a cause of days lost from work. The estimated cost of medical care alone for these cases exceeds \$100,000,000 annually. To this large sum there should be added an inestimable amount due to losses in production and education occasioned by disability among workers and students. While these disorders affect persons in all economic groups, it may be noted that over 50 per cent of the total number of days lost from work was accounted for by families with incomes of less than \$1,000 annually. During the first world war there was an estimated incidence of chronic arthritis alone in the United States Army of 60,000 cases a year for an army the size of ours at the end of hostilities. Among ex-service men 35,000 are disabled by arthritis at the present time and receive compensation to the extent of \$10,000,000 annually.

TABLE 1—*Estimated Prevalence of Specified Chronic Diseases in the United States (1937)*

| Disease  | Number of Cases |
|--|-----------------|
| Rheumatism   | 6 850 000       |
| Heart disease  | 3 700 000       |
| Arteriosclerosis and high blood pressure               | 3 700 000       |
| Hay fever and asthma                                   | 3 450 000       |
| Hernia   | 2 100 000       |
| Hemorrhoids  | 2 000 000       |
| Varicose veins   | 1 750 000       |
| Chronic bronchitis                                     | 1 700 000       |
| Nephritis and other kidney diseases                    | 1 550 000       |
| Nervous and mental diseases                            | 1 450 000       |
| Goiter and other thyroid diseases                      | 1 200 000       |
| Sinusitis  | 1 150 000       |
| Cancer and other tumors                                | 930 000         |
| Diseases of female organs                              | 720 000         |
| Tuberculosis all forms                                 | 680 000         |
| Diabetes mellitus                                      | 660 000         |
| Diseases of gallbladder and liver                      | 640 000         |
| Other diseases of the circulatory system               | 440 000         |
| Chronic tonsillitis and other throat disorders         | 380 000         |
| Ulcers of stomach and duodenum                         | 330 000         |
| Diseases of bladder and urethra                        | 270 000         |
| Chronic diseases of the skin                           | 270 000         |
| Anemia   | 240 000         |
| Chronic appendicitis                                   | 170 000         |
| Chronic diseases of the eye                            | 150 000         |
| Chronic diseases of the ear                            | 100 000         |
| Chronic pleurisy                                       | 90 000          |
| Diseases of the prostate and male genitourinary organs | 80 000          |

From Preliminary Reports the National Health Survey, Sickness and Medical Care Series Bulletin No. 6 U. S. Public Health Service Washington D. C. 1938

Perhaps the first organized attempt at study of the syndrome began in England with the Cambridge Committee for the Study of Special Diseases. Unfortunately this effort was curtailed by the outbreak of the first world war. The next step in development was the establishment in 1920 of the *Ligue Internationale contre le Rhumatisme*. This organization, then composed chiefly of European representatives, encouraged the formation in a number of countries of groups interested in the problem and qualified to study it. This movement extended to the United States, where there was formed in 1928 the American Committee for the Control of Rheumatism. This committee entered on active efforts to arouse the interest of the profession in the magnitude of the sociologic problem presented and to extend knowledge concerning it by means of publications and, especially, of extensive exhibits in connection with the Scientific Exhibit of the American Medical Association. In 1930 the desirability became apparent of organizing a national society for the study and control of rheumatic disorders and

the American Rheumatism Association was, therefore, founded. It consisted of a larger group of physicians interested in and qualified to study the syndrome of arthritis and allied topics. This society holds yearly meetings for the presentation of scientific papers and discussions, sponsors an extensive review of English and American literature, and in various other ways promotes wider interest and more extensive interchange of information concerning the problem. There are now also available to the profession, several journals devoted exclusively to the problem presented by rheumatic disease.

Under the auspices of the Ligue Internationale contre le Rhumatisme six international congresses have been held, the last of which was in England in 1938.

Among the various lines of progress in the field of rheumatic disease, one of the most encouraging is the

TABLE 2—Estimated Annual Number of Days Lost from Work or Other Usual Pursuits by Reason of Specific Chronic Diseases (United States, 1937)

| Disease  | Annual Number of Days Lost |
|--|----------------------------|
| Nervous and mental diseases                            | 132,500,000                |
| Rheumatism   | 97,200,000                 |
| Heart disease  | 95,200,000                 |
| Arteriosclerosis and high blood pressure               | 56,900,000                 |
| Tuberculosis, all forms                                | 41,400,000                 |
| Cancer and other tumors                                | 36,300,000                 |
| Nephritis and other kidney diseases                    | 28,400,000                 |
| Diseases of the female organs                          | 26,800,000                 |
| Hay fever and asthma                                   | 21,900,000                 |
| Diseases of gallbladder and liver                      | 20,000,000                 |
| Diabetes mellitus                                      | 19,200,000                 |
| Ulcers of the stomach and duodenum                     | 13,600,000                 |
| Hernia   | 13,600,000                 |
| Chronic diseases of the skin                           | 10,300,000                 |
| Anemia   | 8,500,000                  |
| Diseases of the bladder and urethra                    | 8,200,000                  |
| Chronic bronchitis                                     | 8,000,000                  |
| Chronic appendicitis                                   | 7,600,000                  |
| Goiter and other thyroid diseases                      | 7,600,000                  |
| Other diseases of the circulatory system               | 6,600,000                  |
| Sinusitis  | 6,000,000                  |
| Varicose veins   | 5,900,000                  |
| Chronic tonsillitis and other throat infections        | 5,400,000                  |
| Hemorrhoids  | 5,100,000                  |
| Chronic pleurisy                                       | 4,200,000                  |
| Chronic diseases of the eye                            | 4,200,000                  |
| Chronic diseases of the ear                            | 3,300,000                  |
| Diseases of the prostate and male genitourinary organs | 3,300,000                  |

From Preliminary Reports, the National Health Survey, Sickness and Medical Care Series Bulletin No. 6, U. S. Public Health Service, Washington, D. C., 1938.

greater attention now paid to the problem in the medical schools of the United States. There is a growing number of special clinics, research units and hospitals devoted to the care and study of patients with rheumatic diseases. Better evaluation of methods of treatment and a fuller understanding of the basic nature of the disease are being realized in these centers, but much still remains to be accomplished. Great significance attaches to arousing in the public mind appreciation of the disease as a social problem, the value of adequate treatment in the early stages and the importance of providing adequate institutional care for sufferers from it, not only in the late stages but throughout the disease.

CLASSIFICATION OF ARTHRITIS

Arthritis occurs in a number of different forms, depending on various etiologic agents. Some of the groups are characterized by certain pathologic and clinical features which make their differentiation compara-

tively easy. In other instances only the most careful study will determine the identity of the articular disorder.

Arthritis may occur in either an acute or a chronic form. However, almost any type of acute arthritis may pass into a subacute or chronic form, and many cases of chronic arthritis are subject to acute exacerbations.

The classification of arthritis would be much simplified if one knew the etiology of all the various types. Unfortunately this is not the case. Indeed, in the majority of cases the etiology of the particular disease cannot be definitely determined.

Roughly speaking, the great majority of the cases of arthritis fall into one or another of five groups: (1) the frankly infectious cases caused by a specific micro-organism, (2) cases that are probably infectious of unproved etiology, (3) the degenerative form of joint disease which in Europe are often spoken of as arthroses, (4) arthritis resulting from physical injury to the joint by trauma, (5) gouty arthritis. These are the five common divisions of arthritis, and under these main groups there are certain subdivisions. In addition to these five prevalent varieties, however, there are certain rare forms of arthritis, such as the tabetic joint and intermittent hydrarthrosis, which should be included.

1 *Infectious Arthritis of Proved Etiology*—This general heading includes all cases of arthritis due to infection in which the specific microbic cause can be proved. The individual arthritides are named according to the particular micro-organisms and joints concerned, e. g., pneumococcal arthritis of the left shoulder, tuberculous arthritis of the right knee, gonococcal arthritis of the knees and the like.

The micro-organisms most commonly responsible are the pyogenic cocci, the tubercle bacillus and *Treponema pallidum*, but many others may occasionally act as a cause of articular infection. Of the pyogenic cocci the hemolytic streptococcus, pneumococcus and staphylococcus usually cause a frankly suppurative arthritis which occurs during the course of septicemia or as other severe systemic infection caused by the agent.

2 *Probably Infectious Arthritis, Etiology Unproved*—Two of the main divisions of arthritis come under this heading: the arthritis of rheumatic fever and rheumatoid arthritis. Under rheumatoid arthritis one may include such clinical variants as Still's disease and ankylosing arthritis of Marie-Strumpell.

Rheumatic fever is still classified as a disease of unknown origin. However, authorities are pretty well agreed that the disease is due to infection, and many students are convinced that it is closely associated with hemolytic streptococcus infection.

Rheumatoid arthritis is probably a chronic infectious disease, but the specific agent has not yet been determined. Under this heading are included a majority of the cases of chronic progressive polyarthritis for which a specific cause cannot be discovered. The disease is characterized in its early stages by transient stiffness and swelling of the joints and in its later stages by deformities and ankylosis.

3 *Degenerative Joint Disease or Osteoarthritis*—Osteoarthritis represents a degenerative process involving both the cartilage and the adjacent bone. It is entirely different from the arthritis caused by actual infection of the joint. Some authorities regard degenerative arthritis as an arthrosis, and it

sion is quite general that the changes which occur in the cartilage and bone often result from prolonged or oft repeated trauma. Osteoarthritis may appear in a generalized or localized form. The disease is much commoner in middle-aged or elderly persons, though occasionally it is encountered (particularly in women) in the thirties.

4 *Arthritis Resulting from Physical Injury to the Joint by Trauma*—Injury may occur to the synovial membrane, the cartilage or any one of the ligaments. The ordinary sprained ankle is a good example of the trauma which can lead to this form of arthritis. If the results of trauma are not properly handled, the

TABLE 3—Classification of Arthritis

|   |   |
|---|---|
| Arthritis due to infection  | Specify joint and organism when known as                |
| Of spine due to tuberculosis  |   |
| Of knee due to gonococcal infection   |   |
| Of wrist due to pneumococcal infection  |   |
| Of hip due to syphilis  |   |
| Arthritis due to rheumatic fever  | Record Rheumatic fever as primary diagnosis in anam.    |
| Arthritis rheumatoid of   | Specify as  |
| Arthritis rheumatoid multiple (proliferative arthritis atrophic arthritis chronic infectious arthritis Still's disease)                             |   |
| Arthritis rheumatoid of spine (Marie Strumpell arthritis)   |   |
| Arthritis due to direct trauma of   | Specify joint and trauma as                             |
| Of knee due to contusion  |   |
| Of elbow due to habitual dislocation  |   |
| Neurogenic arthropathy (Charcot joint)  | Specify joint as  |
| Tabetic arthropathy of knee   |   |
| Arthritis due to gout   | Specify joint Record Gout as primary diagnosis in anam. |
| New growths of joints   | Specify joint and neoplasm as                           |
| Synovialoma of knee   |   |
| Degenerative joint disease multiple due to unknown cause osteoarthritis (hypertrophic arthritis degenerative arthritis chronic senescent arthritis) |   |
| Hydrarthrosis intermittent of   | Specify joint   |
| Periarticular fibrositis  | Specify joint   |
| Disease in which arthritis arthropathy or arthralgia is frequently associated (diagnose disease list joint manifestation as symptom)                |   |
| Acromegaly  |   |
| Acute disseminated lupus erythematosus  |   |
| Cyst of meniscus of knee  |   |
| Dermatomyositis   |   |
| Drug intoxication   | Specify drug when known                                 |
| Erythema multiforme exudativum  |   |
| Erythema nodosum  |   |
| Hemophilus  |   |
| Hysteria  |   |
| Ochronosis  |   |
| Osteochondritis dissecans   |   |
| Osteochondromatosis   |   |
| Periarthritis nodosa  |   |
| Psoriasis   |   |
| Raynaud's disease   |   |
| Reiter's disease  |   |
| Scleroderma   |   |
| Serum sickness  |   |
| Purpura various types   |   |

traumatic arthritis may become chronic, but usually the condition heals rapidly.

5 *The Arthritis of Gout*—Gout is a disease of unknown origin, though it is commonly defined as a disturbance of purine metabolism. It is characterized by acute recurrent attacks of arthritis, each of which is followed by a complete remission. Later on, however, the arthritis may become chronic. In late gout deposits of sodium urate crystals, the so-called tophi, are frequently found in articular, periarticular and subcutaneous tissues. At least 95 per cent of gouty patients are men, and in many there is a history of gout in some other member of the family.

Many classifications of arthritis are already in use, both in this country and abroad. The classification given in table 3 has been approved by the Nomenclature Committee of the American Rheumatism Association and for inclusion in the Standard Nomenclature of Disease

## OTHER DISTURBANCES OF JOINTS

- I Disturbances of the joints secondary to abnormal postural strain
- II Disturbances of the joints secondary to lesions of bone
- III Primary neoplasms of the joints (e.g. cyst, xanthoma, hemangioma, giant-cell tumors, synoviomia)
- IV Disturbances of the joints associated with loose bodies
- V Disturbances of the joints secondary to functional or psychogenic causes

## RHEUMATOID ARTHRITIS

## ETIOLOGY

The cause of rheumatoid arthritis remains unknown. Although many theories (infectious, metabolic, endocrine, circulatory and neurogenic) have been proposed, not one of them has been generally accepted.

Many of the clinical features of rheumatoid arthritis (fever, tachycardia, leukocytosis, increased sedimentation rate, inflammation of the articular tissues, exudative characteristics of the synovial fluid and enlarged regional lymph nodes) suggest that it is an infectious disease. However, similar clinical features may be observed in gouty arthritis, which is presumably a metabolic disease.

Adherents to the infectious theory have considered protozoa, viruses and bacteria as possible causative agents. The protozoan theory, advanced some years ago, has had few proponents and is rarely mentioned in current literature. The evidence favoring the virus theory has been of an indirect nature, not confirmed by many workers. No one has claimed to have isolated the causative virus.

Various theories have been proposed to explain the manner of production of rheumatoid arthritis by bacteria. Some have considered the disease the direct result of bacterial invasion. Others contend that specific bacterial toxins emanating from an infected focus spread to the joints. Still others postulate that bacterial allergens, products of one or more bacterial species, react with hypersensitive tissues and thereby produce the disease. Many micro-organisms have been incriminated. Recently some investigators have held *Streptococcus hemolyticus* alone as responsible, on the basis of indirect bacteriologic evidence. It has been demonstrated that many patients with rheumatoid arthritis possess serum agglutinins to *Streptococcus hemolyticus* in high titer. The same patients may possess serum precipitins to the carbohydrate and protein fractions of the same organism. Further investigation is necessary to determine whether or not *Streptococcus hemolyticus* infection occurs in patients with rheumatoid arthritis, and if so whether it plays any role in the production of the disease. Final conclusions concerning the bacterial theory must be deferred until adequate proof is at hand.

Those who favor the metabolic theory contend that bacteria play either no role or only a minor one. Some type of disturbed alimentation has frequently been considered a cause of the disease. However, regularly occurring physiologic or pathologic alteration of the gastrointestinal tract has not been demonstrated. Although the various metabolic theories are supported by evidence as unconvincing as that for the infectious theories, they will be presented in brief.

A disturbance of protein metabolism has at times been considered of etiologic significance. Lacking factual data, this theory is entirely hypothetical. Current workers believe it had its origin at the time the true nature of gout was recognized.

Alterations in carbohydrate metabolism have been considered by some to be involved in the disease. Although to date the exact relations of these alterations to the disease are unknown, the majority opinion is that they are not causally related to the arthritic process.

A lowered cystine content of the finger nails of some patients with rheumatoid arthritis has been thought by some to indicate the existence of a sulfur deficiency. The abnormality, however, is probably the result of a lowered serum globulin content and not indicative of a disturbed sulfur metabolism. The blood glutathione content and the sulfur metabolism of patients with rheumatoid arthritis have been shown to be normal. Parenteral administration of colloidal sulfur causes increased excretion of sulfur and exerts no beneficial effect on the disease.

The increased calcium and phosphorus excretion observed in some patients with rheumatoid arthritis is no greater than is seen in consequence of disuse. Fasting serum calcium, phosphorus and phosphatase values are always normal. The plasma cholesterol may be lowered. The increased plasma globulin sometimes observed remains unexplained. Rheumatoid arthritis due to food allergy must be rare, because most students of the disease have never observed it.

In a vitamin conscious age, it is not surprising that deficiency of almost every vitamin has been considered the cause of the disease. The demonstrated vitamin C deficiency is not understood. It is not specific for rheumatoid arthritis. The administration of large amounts of ascorbic acid does not alter the course of the disease, although the deficiency may be corrected. The same can be said of vitamin A. Vitamin B deficiency is not specific for rheumatoid arthritis. Despite the claims and exploitations of certain pharmaceutical firms concerning vitamin D, the Council on Pharmacy and Chemistry of the American Medical Association has never accepted such preparations for the treatment of arthritis.

No type of endocrine disturbance has been shown to be causally related to rheumatoid arthritis.

The abnormal peripheral circulation does not alone explain the cause.

The clinical abnormalities which favor the neurogenic theory are probably the result of the disease or caused by the same agent responsible for the articular changes.

Various factors, such as climate, fatigue, emotional strain, trauma or acute infections, may precipitate initial or recurrent attacks of rheumatoid arthritis but they cannot as yet be accepted as the causative agents.

The cause of rheumatoid arthritis being unknown, future workers should continue to search for hitherto undetected metabolic factors as well as organisms.

#### PATHOLOGY

Although rheumatoid arthritis is invariably described as a systemic disease of unknown cause, most writers rarely mention pathologic changes in systems other than the skeletal. This serious omission should be corrected.

Scudamore, as early as 1827, pointed out that rheumatoid arthritis was essentially a disease of dense white fibrous tissue. More recently it has been emphasized that the disease affects primarily the ground substance of the mesenchyme. This ground substance

is a colloidal, jelly-like material existing in the interstices between cells and fibers of mesenchymal origin. With this concept in mind it is not difficult to understand why the lesions of rheumatoid arthritis are widespread.

The articular lesions vary greatly with the extent and severity of the disease. Gross examination early in the disease may reveal severe periarticular swelling and edema, little or no synovitis, and a normally slightly increased amount of synovial fluid. Occasionally the disease may remain confined largely to the periarticular tissues. In such instances considerable impairment of joint function may result from the ensuing fibrosis of the periarticular structures with little or no demonstrable intra-articular change. In most cases intra-articular alterations are present. Early in the disease, excessive proliferation of the synovial cells causes thickening of the synovial lining. It appears edematous and is grayish or pinkish red. The number and size of the synovial villi are greatly increased. In this stage of the disease, the synovial fluid content is increased and the cartilage has usually lost its normal luster and may show superficial ulcerations. As the disease progresses, the changes in the articular cartilage become more obvious. It appears grayish white, softer and may contain larger ulcerations. If the proliferation of the synovial lining tissue continues, it will eventually extend on to the articular cartilage and finally envelop it completely. When the opposing articular cartilages are both enveloped with such inflammatory granulation tissue (pannus), fibrous tissue ankylosis is apt to occur. The advancing pannus not only smooths the underlying cartilage, it actually invades it. Such invasion may be so extensive as to destroy completely the articular cartilage, and bony ankylosis may follow. The proliferating connective tissue seen in the articular chondral marrow spaces is the result of invasion of the pannus penetrating from the articular surface. Gross examination of a severely afflicted joint often reveals adherence of all articular structures in consequence of the pannus formation and the resulting fibrous tissue ankylosis and adhesions. In such cases no articular cartilage may be visible, if seen, its surface is greatly altered. Late in the disease the bony cortex of the adjoining bones is reduced in thickness, the trabeculae are fewer in number and the bone marrow is more vascular.

In the active phase of the disease, microscopic examination discloses inflamed synovial lining. There is pronounced proliferation of the synovial cells, increased vascularity and varying grades of cellular infiltration which may or may not be perivascular. The majority of the cells are lymphocytes. Local collections of lymphocytes, whether perivascular or not, are one of the characteristics of the disease. Fibrosis is not always seen, however. Similar cellular infiltration may be observed in the bone marrow. The microscopic changes, especially in the first stages of the disease, are so ill defined that an absolute diagnosis is impossible.

The subcutaneous nodules of rheumatoid arthritis constitute the one most characteristic pathologic feature of the disease. Although they are similar to those of rheumatic fever, differentiation is usually possible because of predominance of one or more of the pathologic alterations. Exudation of plasma and cellular constituents is a prominent feature of the rheumatic fever nodules. In addition, small focal areas of Aschoff nodules are frequently seen. In the

rheumatoid arthritis proliferation and degeneration predominate, Aschoff-like nodules are rarely if ever seen and exudation is not a prominent feature. The vascular changes seen in such nodules vary from perivascular infiltration of inflammatory cells to diffuse inflammation and degeneration of the entire wall. Thrombosis is observed more commonly in the nodule of rheumatoid arthritis. Similar vascular lesions may occur in the myocardial and renal vessels.

Other visceral changes have been noted. The pleura and the pericardium may be involved. Adherent pericarditis is occasionally encountered. Future studies must determine whether or not there is a specific cardiac lesion in rheumatoid arthritis. Muscle, nerve and fibrous tissue involvement occur frequently.

#### ONSET AND SYMPTOMATOLOGY

*Prodromes*—Many authors refer to prodromal symptoms but, as the onset of the disease is frequently insidious, it is impossible to determine whether these symptoms do not actually constitute a part of the disease itself. In many instances the initial complaints are those of fatigue, exhaustion, lassitude, vasomotor disturbances, numbness and tingling in the extremities, loss of weight and general debility. Since similar symptoms become more pronounced in later stages of the disease, it is probable that the onset has already occurred by the time these symptoms have appeared. In a certain proportion of cases the disease appears to follow an infection, especially an infection of the upper respiratory tract. In other cases such events as emotional stress and strain, severe nervous shocks and various psychic traumas appear to exert a precipitating influence.

The onset of the disease itself may be acute, subacute or insidious. The majority of cases begin insidiously. One or more joints gradually become swollen and painful, and the disease slowly and progressively spreads to involve other articulations. In these cases there may be comparatively little systemic reaction during the early stages. In other instances the onset is more subacute in character. There may be repeated mild attacks of polyarthritis, accompanied by pain, swelling and redness of the affected joints, together with constitutional disturbances such as slight fever, tachycardia and a mild leukocytosis. Finally, in a certain proportion of cases the disease begins as an acute polyarthritis with high fever and leukocytosis. Some of these cases follow an acute infection of the upper respiratory tract and, in their initial stages, simulate rheumatic fever.

*Symptomatology*—In typical cases the articular involvement shows a tendency toward a symmetrical distribution and displays an inclination to proceed from the peripheral joints toward the trunk. The smaller joints of the fingers are particularly prone to be affected, especially the proximal interphalangeal joints of the hands. The involvement of these joints produces the fusiform enlargement of the fingers which is so characteristic a feature of the disease in its early stages. For some reason the terminal interphalangeal joints usually escape. In this respect it usually differs from osteoarthritis. Next in order of frequency come the metacarpal phalangeal joints followed by the wrists, knees, elbows, ankles, shoulders and hips. In severe cases practically every joint in the body may become involved.

*Clinical Features of the Articular Lesions*—A typical rheumatoid joint presents a characteristic appearance

As a rule, swelling, pain and limitation of movement are present but the nature of the swelling is quite distinctive. Owing to the thickening of the periarticular tissues and the atrophy of the muscles above and below, the joint presents a spindle-shaped appearance. On palpation it is evident that the swelling is largely due to thickening and edema of the periarticular structures. The adjacent bursae and tendon sheaths are frequently involved, but there is rarely as much increase in synovial fluid within the joint as might be expected.

While rheumatoid arthritis may become arrested or quiescent at any stage, it usually proceeds to a more chronic condition. The periarticular swelling gradually subsides and contractures begin to develop. The resulting deformities constitute one of the most distressing, disabling and painful afflictions known in any disease. The changes are likely to be particularly apparent in the hands, wrists, knees and elbows, but almost every joint in the body may be involved. In the hands the most common types of deformity are (1) simple flexion of the proximal interphalangeal joints, (2) atrophy of the interossei with thickening of the metacarpal and phalangeal joints and flexion of the terminal joints, (3) simple ulnar deviation at the metacarpal phalangeal joints. In advanced cases fibrous and bony ankylosis may occur, accompanied by subluxation or dislocation of the affected joints. The knee frequently becomes fixed in a position of partial flexion, which is one of the most distressing deformities encountered in arthritis.

*Muscular Weakness and Atrophy*—Muscular weakness and atrophy are prominent in rheumatoid arthritis and in some cases constitute the most striking features of the entire symptomatology of the disease. Atrophy usually is particularly noticeable in the muscles of the hands, but it also occurs in all the muscles of the extremities and contributes to the fusiform appearance of the joints. In the opinion of the majority of observers the muscular atrophy is an integral part of the disease and is not attributable to disuse alone.

*Cutaneous Changes*—The skin of the extremities frequently becomes smooth, glossy and atrophic, and there may be redness of the thenar and hypothenar eminences. The hands are usually cold and clammy but occasionally they are warm and moist—the so-called hot-house palms. In either case the contrast to the drier and coarser skin present in osteoarthritis is usually definite. Changes in pigmentation are occasionally seen including a peculiar bronzing which is particularly distinct over the face and on the extremities. In addition, vitiliginous patches are sometimes observed. Psoriasis occurs in about 3 per cent of cases. This association has long been recognized and has occasioned much speculation.

*Subcutaneous Nodules*—Characteristic subcutaneous nodules occur in 15 to 20 per cent of cases. The nodules are usually found in the region of the elbows and less frequently over other bony prominences. They vary in size from scarcely palpable seedlike particles to lesions the size of an olive. They are not painful except when their position exposes them to undue pressure. Subcutaneous nodules are more frequently observed in severe cases and may persist for years.

*Constitutional Symptoms*—Fever. There is no uniformity to the degree of pyrexia which may occur in rheumatoid arthritis. In many cases the temperature is slightly elevated in the early and more active stages but it may reach no higher than 99 or 99.5 F. In other cases there may be a temperature of 100 to 101 F.



for several weeks or even months with frequent remissions and exacerbations. In still other and more fulminating cases a spiking temperature of 103 to 104 F may be maintained for week after week. Examples of this sort are more frequently seen in the rheumatoid arthritis of children (Still's disease).

**Pulse** A moderate tachycardia is the rule even in cases unattended by fever. Persistent tachycardia is often a striking feature.

**Peripheral Circulation** There is diminished peripheral circulation in this disease. The cold clammy hands, the thin atrophic skin and the cutaneous pigmentation are possibly expressions of this altered physiologic state.

**Blood Picture** The blood picture presents wide variations. A definite degree of anemia is the rule, the average hemoglobin reading being in the neighborhood of 70 per cent with a corresponding diminution in the red cells. In severe but relatively rare cases a more extreme grade of anemia may develop with hemoglobin determinations of 40 to 60 per cent and red cell counts of 2.5 to 3 million.

The white cell count varies considerably in different cases. In the majority of instances it is within normal limits or only slightly elevated. In the acute and active stages, however, counts of 12,000 to 20,000 may be observed, while in long-standing chronic cases a definite leukopenia often develops.

The differential count shows corresponding variations. An increase in the polymorphonuclear leukocytes is the rule in the active stage of more acute cases, and this persists as a shift to the left in the more chronic cases. The platelets are normal.

**General Nutrition** The general nutrition suffers severely in rheumatoid arthritis. Partly because of the disease itself and partly because of secondary consequences, the general state of the bodily functions is greatly impaired. Although muscular atrophy is the most pronounced feature, all the connective tissue structures are affected in greater or less degree. In severe cases profound cachexia may develop.

**Gastrointestinal Disturbances** Various expressions of abnormal gastrointestinal physiology are often seen. They may be secondary to the chronic debilitating nature of the disease. Achlorhydria occurs in about 20 per cent of cases, but this incidence is not significantly greater than in many other diseases in the same age period. Viscerospasm, stasis and atony of the colon are observed in a certain proportion of cases but only rarely do they produce symptoms.

**Visceral Manifestations** Enlargement of Spleen and Lymph Nodes. Splenic enlargement occurs in between 5 and 10 per cent of cases. Usually only the tip of the spleen can be felt, but occasionally the margin may extend half way to the umbilicus. Such a degree of splenomegaly may be associated with a severe secondary anemia, leukopenia and cutaneous pigmentation. These cases are sometimes referred to as "adult Still's disease" or "Felty's syndrome." Enlargement of the lymph nodes is commonly observed. Usually the enlargement is of only moderate degree, but occasionally large firm nodes are present in the axillary and inguinal regions.

**Carditis** Carditis is observed in a proportion of cases of rheumatoid arthritis, but in these instances the presence of a previous or concurrent rheumatic fever must be considered. Pericarditis with effusion is occasionally seen in rheumatoid arthritis in children and adhesive pericarditis in adults.

**Iritis** Iritis, often of an intractable nature, occasionally accompanies rheumatoid arthritis.

**Prognosis** In spite of the vast amount of crippling and deformity to which rheumatoid arthritis leads, the prognosis is by no means as unfavorable as is generally supposed. It is not sufficiently appreciated that a certain proportion of patients recover more or less completely from the effects of the disease. More frequently, however, the process becomes arrested and quiescent at some stage in its course and the patient is able to carry on activities with only a small amount of difficulty. In a smaller proportion of cases the disease pursues a cruel and inexorable course, leaving the patient a helpless and hopeless cripple.

The prognosis depends on a number of factors. At all times it is extremely difficult or even impossible to forecast the turn of events in an individual patient. In the most favorable case a severe relapse may occur at any time, while on the other hand the most malignant example of the disease may suddenly become arrested. In general, those cases in which the onset is slow and insidious and in which fresh joints are involved from time to time present a more unfavorable outlook than those in which the onset is more acute. Unfavorable signs are (1) the development of severe muscular atrophy, cutaneous changes and subcutaneous nodules, (2) the persistence of a high sedimentation rate, (3) the development of constitutional symptoms such as general debility, loss of weight, anemia and tachycardia, (4) depression of spirits and loss of morale.

Few accurate statistics on the natural course of the disease are available, but in general it may be said that fewer than one fourth of the patients "recover," half "improve" or the disease becomes "quiescent," and the remaining one fourth become progressively worse. Prognosis therefore in an individual must be guarded. It is particularly important that these facts should be borne in mind when one is assessing the value of a therapeutic regimen.

#### LABORATORY OBSERVATIONS

**Roentgenologic Observations** — The roentgen pictures vary so much in different stages of the disease that it is convenient to describe the early and late stages separately.

**Early** Early cases may show no roentgen changes but gradually characteristic changes appear. The most uniform of these is a generalized demineralization which affects the skeleton as a whole. As a result of the superimposed factor of disuse, the demineralization usually appears more prominently in the region of the affected articulations, but all the joints in the body participate in the process. Periarthritic soft tissue swelling is the rule, but in later stages it may be replaced by atrophy of soft tissue. Effusion within the joint is a prominent feature. When present it appears roentgenographically dense, sharply defined and fusiform.

**Late** As the disease progresses, destruction of cartilage, with narrowing of the joint space, and small areas of cortical erosion appear. The latter, as areas of atrophic bone destruction, often referred to as "punched out areas," are a prominent feature in rheumatoid arthritis and must be considered in differential diagnosis with gouty arthritis. In the latter, however, the areas are much larger in the latter stages. In advanced cases the articular surfaces may be obliterated through fibrous or bony ankylosis. Not infrequently there may be subluxations or dislocations.

out destruction of the ends of the bones. Coincidentally with these changes there may occur some degree of bone production, lipping and osteophytes. Such changes are, however, of a secondary nature and usually present a different appearance from the corresponding changes in osteoarthritis.

**Sedimentation Rate**—The sedimentation rate of the erythrocytes constitutes one of the most distinctive fea-

TABLE 4—Essential Features of Rheumatoid Arthritis and Osteoarthritis

|  | RHEUMATOID ARTHRITIS   | OSTEOARTHRITIS   |
|--|--|--|
|  | Atrophic arthritis<br>Proliferative arthritis<br>Chronic infectious arthritis  | Hypertrophic arthritis<br>Degenerative arthritis<br>Menopausal arthritis<br>Senile arthritis   |
| CLINICAL DIFFERENTIATION                           |  |  |
| Geographic distribution                            | Most common in temperate climates; rare in the tropics   | Climate not a factor   |
| Family history                                     | Often a history of rheumatic fever or rheumatoid arthritis in an immediate member of family  | Frequently a history of a similar form of arthritis in one or both parents   |
| Past history                                       | Occasionally a history of rheumatic fever frequently of tonsillitis or sinusitis   | Not characteristic; sometimes a history of trauma or faulty body mechanics   |
| Age at onset                                       | Any age over 80 per cent between 20 and 50   | Rare before 40   |
| Mode of onset                                      | Rarely acute usually subacute or insidious often accompanied by migratory pains  | Insidious not accompanied by migratory pains   |
| Patient's general condition                        | Usually undernourished, anemic and chronically ill; frequently slight fever (99+ F) and slight leukocytosis  | Well nourished frequently obese not anemic; no fever, no leukocytosis  |
| Involvement of joints                              | Symmetrical and generalized proximal interphalangeal joints especially involved  | Usually weight bearing joints: spine, hips, knees, distal joints of fingers (Heberden's nodes)   |
| Appearance of joints                               | Early periarticular swelling in uniform fingers; Late ankylosis, extreme deformity, ulnar deviation  | Early slight articular enlargement; Late more pronounced articular enlargement, limitation of motion usually slight, never ankylosis; Heberden's nodes   |
| Muscular atrophy                                   | Often pronounced particularly in later stages  | Not characteristic   |
| Cutaneous changes                                  | (1) Extremities frequently cold and clammy; skin atrophic and glossy; redness of thenar and hypothenar eminences<br>(2) Psoriasis occasionally present | No characteristic features   |
| Subcutaneous nodules                               | Present in 15 to 20 per cent of cases  | Not present  |
| LABORATORY DIFFERENTIATION                         |  |  |
| Agglutination reaction with hemolytic streptococci | Positive in about 50 per cent of typical cases   | Never definitely positive  |
| Sedimentation rate                                 | Usually greatly increased tends to return to normal as patient improves  | Normal or only slightly increased  |
| Roentgenologic appearances                         | Early osteoporosis, periarticular swelling and joint effusion<br>Late narrowing of joint space, bone destruction, ankylosis and deformities            | Early no osteoporosis, slight lipping at joint margins<br>Late marked lipping, osteophytes, narrowing of joint space, deformation of articular bone ends |

tures of rheumatoid arthritis. In the majority of cases it is greatly increased and, although exceptions occur, the increase is usually proportional to the severity and extent of the disease. By the Westergren technic the sedimentation rate in active cases usually varies from 30 to 100 mm in an hour (normal 8 to 10 mm), but values above 100 mm are occasionally encountered. The rate tends to become slower as activity of the disease subsides and in the "burnt-out" stages of the disease normal values are commonly observed. Exacerbations are usually attended by an increase in the rate and

remissions by a decrease. While there are exceptions to these generalizations, the test is sufficiently reliable to yield information of definite clinical value. In particular it is frequently of assistance in distinguishing cases of rheumatoid arthritis from osteoarthritis and "nonarticular rheumatism" in which conditions the sedimentation rate is usually within normal limits. The test also serves as a guide in determining the efficacy of therapeutic measures that may be employed. On the other hand, it should be emphasized that the test is of no value in distinguishing rheumatoid arthritis from a great variety of other conditions, such as rheumatic fever, acute infections and acute gout, in which diseases the sedimentation rate is usually also elevated.

**Immunologic Tests**—A test of considerable theoretical importance in rheumatoid arthritis is the hemolytic streptococcus agglutination test. Unfortunately, however, the test is technically difficult and its usefulness is therefore limited. In about 40 to 50 per cent of cases the serums of rheumatoid arthritis patients agglutinate strains of hemolytic streptococci of Lancefield's group A in a characteristic manner. In order to be significant, agglutination should occur in a titer of 1:160 or higher and should be especially well defined in lower dilutions. With singularly few exceptions this phenomenon is not found in other diseases, and a positive test confirms the diagnosis with reasonable certainty. The test is of particular value in distinguishing rheumatoid arthritis from other forms of arthritis in which positive agglutinations are rarely encountered.

**Antistreptolysin and Antifibrinolysin Titers**—The antistreptolysin and antifibrinolysin titer in rheumatoid arthritis serums are not characteristic. In this respect they differ from rheumatic fever serums, which usually show elevated values.

**Other Laboratory Observations**—Other laboratory tests, such as the basal metabolic rate, gastric analysis, blood calcium, cholesterol and uric acid, do not give characteristic results in rheumatoid arthritis.

#### DIFFERENTIAL DIAGNOSIS

Criteria for diagnosis of rheumatoid arthritis have now been well established, and it is possible to distinguish this disease in most instances from other forms of arthritis. From the clinical picture and the laboratory aids, the typical case offers but little difficulty in diagnosis and only the early or atypical case will cause trouble.

In any doubtful case, aspiration of the joint exudate should not be neglected. Such a procedure carefully made is not attended with danger. The joint exudate in rheumatoid arthritis is sterile, and the finding of pathogenic micro-organisms gives the diagnosis of any specific bacterial arthritis. On the other hand, the physical appearance of the exudate is not typical of any one form of arthritis.

The differentiation between rheumatoid arthritis and osteoarthritis is most important, since numerically these two groups account for approximately two thirds of all cases of chronic arthritis, and there is a great difference in their prognosis and treatment.

The essential features of each of these diseases are arranged in tabular form.

Gonococcal arthritis may be clinically confused with rheumatoid arthritis, especially if more than one joint is involved, and if a recent attack of gonorrheal urethritis is concealed or not recognized by the patient. Both of these diseases present rapid sedimentation rates of the erythrocytes. The diagnosis of gonorrheal

arthritis is confirmed by culture of the gonococci from the joint exudate, a positive gonococcus fixation test or the therapeutic response to sulfonamide derivatives or artificial fever.

Typical rheumatic fever does not present any problem in diagnosis, but there is a chronic type of rheumatic infection very similar to that of rheumatoid arthritis. The patient is usually afebrile. It is important to recognize this form of rheumatic infection, as the prognosis at least as far as the joints are concerned is much better than that of rheumatoid arthritis. The differential diagnosis is made by the laboratory. The blood in rheumatic fever presents significantly high antistreptolysin titers, and the streptococcus agglutination test is negative as a rule.

The clinical picture of acute gout will sometimes be similar to that of atypical rheumatoid arthritis. Usually in such a case the roentgenogram is not conclusive. A high blood uric acid or a therapeutic response to colchicum will serve to substantiate the diagnosis. Also in acute gout the joints return to normal between attacks.

A multiple arthritis can be associated with venereal lymphogranuloma. This occurs more commonly in Negroes and usually is milder than rheumatoid arthritis and responds to rest. The Frei test is specific for venereal lymphogranuloma.

Tuberculous arthritis is usually monoarticular, and after a few months the roentgenogram of the joint shows readily identifiable changes. Injection of the joint exudate into a guinea pig is of value.

Syphilitic arthritis is rare and usually not confused with rheumatoid arthritis. One or only a few joints are involved. A positive Wassermann reaction with response to antisiphilitic treatment settles the diagnosis.

There is a type of arthritis often indistinguishable from rheumatoid arthritis which seems associated with focal infection such as chronic tonsillitis, dental abscesses, sinus infection and the like. Usually one or only a few joints are involved. This is a controversial subject, but a sufficient number of cases are encountered in which there seems to be a relationship between cause and effect, so that the subject cannot be dismissed.

The following four types of arthritis, while called by other names, clearly cannot be separated from rheumatoid arthritis, and until their exact etiology is discovered they will probably be classified by most observers under the general heading of rheumatoid arthritis.

1 Still's disease is a term applied to rheumatoid arthritis of children, as a rule these cases do not give a positive streptococcus agglutination test. The joints have the same appearance as in rheumatoid arthritis. The patient may have the typical subcutaneous nodule.

2 Felty's syndrome has been applied to cases of rheumatoid arthritis in which the liver and spleen are enlarged and leukopenia is present. A high percentage of these patients have positive streptococcus agglutination tests, and they may show the typical subcutaneous nodule. There is no valid reason for a separate grouping of these cases.

3 Psoriasis arthropathica is usually regarded as rheumatoid arthritis presenting psoriatic lesions. Psoriasis occurs in about 3 per cent of cases of rheumatoid arthritis. Here also separate grouping has not been definitely established.

4 Rheumatoid spondylitis (Marie-Strumpell arthritis, von Bechterew arthritis, spondylitis ankylopoietica) is

regarded by many as rheumatoid arthritis of the spine, though the relationship is not clear, and this may be a separate entity. The sex incidence is ten or more males to one female, which is in sharp contrast to the more common type of rheumatoid arthritis.

#### TREATMENT OF RHEUMATOID ARTHRITIS

Although at the present time there is no specific cure, it seems possible to control the disease and to change its clinical picture much as one controls a severe case of tuberculosis. Certain factors must be borne in mind in evaluating results of therapy.

1 Rheumatoid arthritis is a systemic disease, the patient must be treated as a whole, rather than have local treatment of his joints alone.

2 The disease is subject to spontaneous relapses and remissions.

3 Certain patients recover fairly quickly, and the last therapy used is often given the credit.

Realizing the difficulty of evaluating therapeutic claims, one should not be too dogmatic in stressing the value of any single measure. In general, however, therapeutic agents may be divided into three groups.

1 Those which rest on sound principles and are of proved value.

2 Those about which optimistic reports have been published but the value of which is still unsettled.

3 Those which are of questionable value or useless.

The first group consists of measures directed toward improving the patient's general health.

1 *Measures of Proved Value*—(a) rest—general, local, (b) general nutrition—cod liver oil, (c) transfusions—iron, (d) removal of infections, (e) drugs—salicylates, barbiturates, (f) sunshine in an equatorial climate, (g) prevention and correction of deformities, (h) physical therapy and occupational therapy, (i) psychotherapy.

(a) Rest. Rest is the most important measure in the treatment of this disease—rest for the body as a whole and rest for the inflamed joints in particular. But, in prescribing rest, intelligence and insight are necessary. Many patients state that all they do is rest. Examination of such patients, however, will frequently show that they are tense and that their muscles are in more or less constant spasm. Many of them have only fitful hours of sleep; they are completely exhausted physically and mentally. The amount of rest varies from complete confinement to bed with hospitalization from six weeks to one year for the severe to bed rest for the day with a two hour rest period for the mild. Each case must be considered on its own merits. Local rest, suitable splints are of great assistance.

(b) Nutrition. The majority of patients are underweight, undernourished and chronically ill. Every effort should therefore be made to maintain their nutrition in the best possible state. A well balanced and nourishing food is essential. In addition, liberal quantities of cod liver oil may be given.

(c) Transfusions. Hypochromic (secondary) anemia is common in this disease, and two or three transfusions of 400 cc at regular intervals may be of distinct benefit.

(d) Removal of Infections. The patient with rheumatoid arthritis has as much right to the removal of abscessed teeth, diseased tonsils, or other infection as any other person under the care of a physician. The treatment of such infection is for the general health. Wholesale extraction of

tonsils or gallbladders and sinus operations should be discouraged. On the other hand, recent articles decrying the removal of foci of infections are apt to swing the pendulum too far in the other direction. A careful and conservative attitude is indicated.

(c) *Drugs* Salicylates constitute the one group of drugs which are of symptomatic value. Iron in available form also may be administered. Occasionally it is necessary to resort to other drugs, such as barbiturates for rest and sleep.

(f) *Climate* Two facts seem to be well established with regard to climate: (1) the disease rarely occurs in the tropics and (2) the incidence diminishes as one goes south. Once the disease is established, the effect of climate is not so clearcut, no satisfactorily controlled experiments having been made. Almost all one can definitely say is that other factors being equal, it seems wise for rheumatoid patients to avoid the northern winters when possible.

(g) *Prevention and Correction of Deformities* In no disorder of the joints is the prevention of deformities of greater moment. The deformities are too often due to neglect and, to a great extent, can be obviated. The advantages of correct posture, suitable splints and intelligent exercises can be fully learned only by experience in an arthritis clinic, or from the orthopedist. If ankylosis occurs, it is of the utmost importance that the affected joint become ankylosed in the optimal position for use. There is an enormous difference in function between a stiff knee flexed more than 20 degrees and one more nearly straight, between a hip joint and thigh fixed in more than 5 degrees of abduction, 10 degrees of adduction or 10 degrees of flexion and a hip in a nearly straight position, between a wrist and hand in plantar flexion and pronation and one in middorsal flexion half way between pronation and supination, between an elbow ankylosed in extension and one flexed at slightly more or less (depending on occupation) than a right angle, between an arm glued to the side of the body because the scapulo-humeral articulation has been arthrodosed by the disease in this position and an arm abducted from 50 to 70 degrees which can move up or down with the scapula. In rheumatoid spondylitis, a suitable brace may prevent the spine from becoming rigid in a faulty position. The flexion deformities of the hands can usually be prevented by a simple splint which is worn for part of each day. In general, when stiffness and pain are severe, weight bearing should be restricted. When weight bearing is allowed, suitable shoes should be prescribed and worn consistently.

When deformities due to ankylosis have occurred, surgical measures may be of great value. Synovectomies may be useful. Such surgical procedures should be done only by the skilled orthopedist and usually when the activity of the disease has subsided.

(h) *Physical Therapy* Physical therapy and spa therapy are useful for many types of arthritis. Baths and exercises in warm pools are sometimes helpful. Heat in the form of poultices, melted paraffin baths, baking lamp or diathermy is often comforting but is not curative. In fact, in the acute case local heat sometimes is not well tolerated. The most useful forms are generally stimulating treatments, as cabinet baths, massage and muscle exercises.

(i) *Psychotherapy* The importance of psychic factors in this disease is great but has not been clearly defined. It is clear, however, that the attitude of the

physician to the patient is most important. Encouragement to the patient and an optimistic interest in his illness will often help him to carry out his routine, whereas the reverse attitude will permit the patient simply to sit and develop deformities.

*2 Measures Which Have Had Optimistic Reports But of Which the Value is Still Undetermined* (a) chrysotherapy, (b) vaccine therapy (nonspecific), (c) foreign protein therapy.

(a) *Chrysotherapy* The use of gold salts has recently attained considerable vogue, more particularly in France and England. At the present time they are being given wide therapeutic trial in the United States. So many favorable reports have appeared that one cannot deny their beneficial effect. Most authors claim improvement in from 48 to 80 per cent of cases. Of these perhaps 10 per cent can be regarded as cures. Many preparations of gold have been used. Some of these are used intramuscularly and some intravenously. It is now recognized that the salts of gold, like those of most of the other heavy metals, are not without danger. Unfortunately the danger from the administration of gold salts has been considerable. Several deaths and other serious complications have been encountered, even in the hands of those most skilled in the use of gold salts. The incidence of important toxic reactions is about 17 per cent. The most frequent complication is dermatitis which varies from pruritus and simple erythema to a severe exfoliative dermatitis. Fever, stomatitis, neuritis, diarrhea, vertigo, albuminuria, purpura hemorrhagica, granulocytopenia and aplastic anemia have been reported. The drug is usually given at weekly intervals in courses of ten injections, and the patient should be examined carefully before each injection for evidence of toxicity. The results, as far as cures are concerned, are far from miraculous, but in view of the large number greatly relieved a continuance of trial of this form of treatment under controlled conditions is both desirable and justifiable.

(b) *Vaccine Therapy* The value of vaccine therapy remains unproved. The results reported vary widely. Probably the greatest value of this therapy lies in the weekly observation of the patient or in its psychologic effect. The vaccines most commonly used are autogenous vaccines, vaccines made of the common organisms of the upper respiratory tract or mixed hemolytic streptococcus vaccines.

(c) *Foreign Protein Therapy* The value of foreign protein injections in the form of milk, typhoid vaccine and the like has not been definitely proved. Some observers are convinced that they are of definite value.

*3 Measures Which Are of Questionable Value or Useless*—(a) vitamins in massive doses, (b) drugs as specifics, (c) endocrine preparations, (d) dietary fads, (e) fever therapy, (f) sulfur, (g) vaccines as a specific curative procedure, (h) bee venom therapy, (i) sulfonamide derivatives.

At the present time therapy with large doses of vitamin D should be regarded as of doubtful, if any, value. There are no specific drugs. Beneficial reports with endocrine preparations, dietary fads and colloidal sulfur have not been substantiated. Good results from fever therapy are likely to be only temporary. Bee venom injections probably have an effect similar to foreign protein, at least the most recent experiments indicate that such injections are of no value. While it was hoped that sulfonamide derivatives might give a new approach, so far results have been disappointing.



OSTEOARTHRITIS (HYPERTROPHIC,  
DEGENERATIVE)

## ETIOLOGY

*Primary osteoarthritis* is essentially a disease of late adult life and is especially prone to occur in weight bearing joints and in joints in which a considerable amount of motion takes place. It is also prone to occur in the short, heavy, so-called herbivorous type of individual. Observation on postmortem material by various investigators has shown that before the age of 40 degenerative changes are relatively slight but that after the age of 40 they are increasingly common. As a result of these and similar observations on animals there is at present a rather widespread belief that the changes which comprise the pathologic picture of the disease are the result of the normal wear and tear of everyday use and that it is a natural phenomenon for the joints of man and of other animals to develop these changes as age advances.

However, there are certain characteristics of the disease which are not explained by this theory. One of these is the fact that occasionally the disease is well developed in patients who are relatively young—that is, in their middle thirties—while other people reach relatively advanced age and yet their joints show only slight osteoarthritic changes on clinical and roentgenographic examination. It is thus evident that, if the disease is due to wear and tear and nothing else, certain persons must be born with an articular joint structure which is definitely subnormal. In support of this theory

the disease at times tends to be relatively frequent in families and it may be so frequent that a definite hereditary tendency is suggested. Also against the pure wear and tear theory is the fact that one of the most frequent sites of the development of the disease is the terminal interphalangeal joint of the fingers, that is, the so-called Heberden's node. Not only is this a frequent site in which the disease cannot be explained by excessive use, but these Heberden's nodes frequently develop on the fingers of those who have done practically no manual work.

Removal of foci of infection has no influence on uncomplicated degenerative joint disease. Furthermore, the pathologic changes incident to this condition are not similar to those present in various forms of infection of joints. Consequently, the infectious theory has been almost entirely abandoned. Another theory is that of intoxication, it being believed that certain toxins were absorbed either through the gastrointestinal tract or possibly from foci of infection and that these toxins exerted a malign influence on the articular structures and caused the degeneration which resulted in the arthritic changes. This theory has been abandoned by most observers because of lack of any evidence to support it. It is now generally believed that arteriosclerosis is not the cause of the arthritic changes but is merely incidental because the disease tends to develop in people who are in the arteriosclerotic age.

Many still believe that there are other causes which tend to precipitate and to accelerate the progress of the disease. Since the primary change is degeneration of the articular cartilage, it is believed that in some way the nutrition of the cartilage is interfered with and that diet and endocrine factors may be responsible. It is probable that, with advancing years, persons of a stocky type tend to develop the disease more frequently than the tall, slender, so-called carnivorous type of persons.

No adequate explanation has been offered of the fact that a person may have advanced pathologic changes in various joints over a period of years and have no clinical symptoms, and then suddenly and apparently without warning and without any undue injury to the joint the clinical disease may develop in a particular joint and may persist with pain, swelling and disability over a considerable period of time.

*Secondary osteoarthritis* differs from the primary disease in that it affects single joints or occasionally joints on both sides which have been subjected to similar insults. It results from gross skeletal deformity, fractures and ligamentous injuries which produce abnormal strain or incongruity of the joint surfaces, and from long continued successive trauma to a given joint. The development of the hypertrophic changes is dependent on the continued use of the injured joint.

## PATHOLOGY

The disease affects primarily the weight bearing joints, and the first pathologic change is a softening of the articular cartilage. On gross appearance the involved area has lost its bluish white, shiny translucent appearance, has become dull, and its surface is finely granular in appearance. Should pressure be made on such an area it will be found that this involved portion is softer than is the normal articular cartilage. It is to be noted that these primary areas of degeneration tend to occur in the central portions of the weight bearing joints—that is, far from the articular margins where it is believed that the nutrition is better because of the periarticular plexus of vessels—and also at the point where the articular surface receives the maximum amount of pressure.

Microscopically this soft area of cartilage is beginning to disintegrate. The surface tends to peel off in small flakes and the deeper layers of the cartilage tend to be fibrillated, being split into columns. It is believed that this peeling off and fibrillation of the articular cartilage is due to the lack of or deterioration in the quality of the cement substance which binds together the fibrous bundles which make up the cartilage matrix. When the surface of the cartilage flakes off and when the deeper layers become fibrillated so that the surface resembles the pile of velvet, many of the cartilage cells become necrotic.

In addition to necrosis of the cells which border the clefts in the cartilage and which border the surface, there is a tendency to proliferation of cells in the vicinity if the lacunae are still intact and there results an irregularity in the cellular structure, the dead cells disappear while neighboring living cells proliferate and form cell nests. As a result of the continued function of the joint with pressure and friction on the articular surface, the disintegrating cartilage is gradually worn away.

The change in the underlying subchondral bone consists of a proliferation of the bone-forming elements, so that the haversian canals are narrowed and the trabeculae are thickened and the subcortical bone becomes more dense, invading the cartilage to a variable degree. Hence when the cartilage disappears the joint surface is composed of dense eburnated bone.

Concomitant with the changes in the surface of the articular cartilage and the subchondral bone there occur changes around the margins of the joint. These changes are proliferative in character, both of the cartilage and of the subchondral and subperiosteal bone.



New bone is formed and tends to invade the cartilage over it or to form excrescences around the margins of the cartilage. At the same time there is a tendency to proliferation of the cartilage cells so that cell nests are formed, and there is probably a variable amount of metaplasia into cartilage of the adjacent connective tissues where the synovial and periosteal tissues merge gradually into the articular cartilage.

As a result new tissue is formed the surface of which is cartilage and the base and interior of which are cancellous bone. These are the so-called osteophytes, or marginalipping or hypertrophy, which give to the joints their characteristic roentgen appearance. There also may occur irregularities on the articular surface due to ecchondroses, or thickening of the articular cartilage, which in turn are supported by thickening of the subchondral bone. The interarticular fibrocartilages, such as the semilunar cartilages, and the interarticular ligaments, such as the cruciate ligaments and certain tendons which are in intimate relation to the joints, also show degenerative changes with lack of cement substance, fibrillation of their structures and necrosis of their cells to a variable degree.

In some instances the synovial membrane becomes thickened and hypertrophied and may exhibit rather extensive villus formation and a considerable increase in vascularity. However, the proliferation of the synovial surface cells and the infiltration of subsynovial areas which are characteristic of rheumatoid arthritis and of arthritides which are due to specific infections of various types do not occur. In certain instances cartilage may be laid down in the synovial membrane. In others there is a fibrosis of parts of this structure and there may be considerable arteriosclerosis of the vessels in the deeper layers of the synovial surface. As a rule, the synovial fluid is normal in amount and in cellular content. However, this fluid may be increased in amount and contains slightly more cells than normal.

Since the exposed area of the subchondral bone is dead and contains no living cells and since there is no formation of granulation tissue, ankylosis between the opposing articular surfaces does not occur except rarely in the spine. However, limitation of motion in joints may occur as a result of the encroachment of formations of new bone around the margins of the articular surfaces. This is particularly true in the hip and spine and also in the ankle and fingers.

At the present time little is known as to the cause of the pain in osteoarthritic joints. Not only is the pain present in the articulations, but not infrequently the pain is present around the joint and may extend for considerable distances along the bone. This is especially true of the knee and it is not infrequent for the pain and tenderness to extend down along the inner aspect of the tibia for a considerable distance below the attachment of the ligaments of the knee joint. It is to be noted that, in people with osteoarthritis, laboratory examinations of blood and urine reveal nothing abnormal. The sedimentation rate of the erythrocytes is not usually increased, the blood picture and the blood chemistry are normal, except that in certain persons the cholesterol content is elevated. In elderly patients arteriosclerosis is common.

A not rare and quite crippling type of arthritis is that of the hip known as *malum coxae senilis*. This is really a severe type of osteoarthritis in which the head of the femur tends to become deformed while new bone is produced around the acetabulum with the result that the head no longer fits the socket, and not

only is the patient handicapped by limitation of movement in the hip but the joint is painful after use. The changes in the joint of *malum coxae senilis* are like those of osteoarthritis, except that these changes not infrequently occur in persons in whom the other joints are essentially normal. They may occur at a relatively early age and in many instances they are due to incongruities of the joint or the result of either congenital anomalies or of injury or of disease in childhood especially Legg-Calve-Perthes disease, or of slipping of the femoral epiphysis or deepening of the acetabulum.

#### CLINICAL FEATURES

**Onset**—Osteoarthritis may exist entirely without symptoms. As a rule, its onset is gradual and insidious and its course chronic. It is estimated that 97 per cent of the people who live beyond middle life develop characteristic joint changes with or without symptoms. In many, perhaps, most patients, there seem to be few gross physiologic disturbances.

**Symptoms**—The early symptoms vary. Locally stiffness of one or more joints may be noticed, especially after rest, with improvement on moderate use during the day, but worse again the next morning, discomfort, even pain, in joints, produced by overuse or trauma and relieved by rest, fixation and heat, numb sensations in the fingers, especially the little fingers and hypersensitivity of the joints to any blow. Easy fatigability on exertion may be one of the general complaints.

Common early signs are slight enlargement of the joints of the fingers, knees and toes. These overgrowths on the margin of the joints, when they occur in terminal phalanges of the fingers, are called Heberden's nodes.

As time goes on, the disalignment of the joints results from the irregular degeneration and loss of cartilage. This is especially noticeable in the fingers, knees, hips and toes (*hallux valgus*).

Sometimes soft tissue swelling develops, because the chondro-osseous ridges cause joint irritation when used. There is rarely any joint effusion.

**Natural History**—The natural history or clinical course of the disease depends on heredity, age, diet, obesity, circulatory disturbances, occupational strain and trauma, accidental injury and probably faulty body mechanics—all factors that basically underlie the disease and cause the remissions and exacerbations. As time goes on without treatment, more joints are involved. Great disability and pain may result if the spine, hips and knees are injured. Ankylosis does not occur except in the spine, where exostoses may fuse with one another. Motion decreases as these enlarging painful bone growths impinge.

**Late Symptoms**—The changes in the spine may cause irritation and pressure on nerve roots in all parts of the spine (occipital, cervical, brachial, intercostal, inguinal, anterior crural, sciatic). The nerves may be painful but are not usually sensitive to touch, as in neuritis.

**Roentgenologic Appearance**—Early in the disease little may be seen in the roentgenograms except sharpening of the margins of the joints. The hands usually show these minute changes first and are good guides to the nature of the disease process. The toes, knees and cervical bodies may show early spurring. As the disease progresses, the degenerative process in the articular cartilage increases and the chondro-osseous overgrowth at the joint margins shows more clearly. The joint space is narrowed by the degeneration of the

articular cartilage. The articular ends of the bone become deformed by the loss of cartilage, and the joint lines are changed by the overgrowths of bone masses. Flattening or mushrooming of the ends of the bones takes place. In the spine, "beaks" grow from the margins of the bodies and may impinge or unite. In the knees these exostoses may break off and form calcified loose bodies in the joint cavity. Sometimes cystlike cavities in the cancellous bone ends appear near the thin ebonized surface. Roentgenograms should always be taken of the hands even if they are symptomless, because they reveal early changes and are easy to interpret.

*Laboratory Observations*—There are no characteristic abnormalities which can be determined by laboratory methods.

The blood is usually normal. Anemia is unusual. The sedimentation rate is normal except in the mixed types of arthritis. Agglutinins for hemolytic streptococci are absent in contradistinction to rheumatoid arthritis.

The metabolic rate is often lowered. The dextrose tolerance curve is not infrequently diabetic in type, as in rheumatoid arthritis.

*Differential Diagnosis*—The diagnosis of osteoarthritis in its early stages is not difficult and is of great importance. The points of significance to remember are

1 Even without important symptoms the history of a similar type of arthritis in the parents

2 The age after 40 at about the time of the menopause in women

3 The frequent history of trauma and the presence of faulty body mechanics

4 The insidious onset of stiffness and vague joint pains

5 The well-being of the patient without increased sedimentation rate, anemia, fever or other illness

6 The involvement of weight bearing joints and the presence of typical Heberden's nodes

7 The minute characteristic chondro-osseous growths seen in the roentgenograms

Later the loss of motions, irregular deformities and actual marginal exostosis leave no doubt as to the nature of the type of arthritis with which one is dealing.

The differential diagnosis is sometimes complicated by evidences of mixed rheumatoid arthritis and osteoarthritis in the same person. The soft tissue swelling in cases of rheumatoid arthritis may obscure the Heberden's nodes and bony exostoses which are seen in the roentgenogram. Differential diagnosis must be made between osteoarthritis, gout and other pathologic conditions of the bones and joints, such as osteitis deformans (Paget's disease), Charcot's joints, osteitis fibrosa, neoplasms and chronic osteomyelitis (Brodie's abscess). Osteoarthritis may of course be found in conjunction with all these. Osteoarthritis in such cases may be considered nature's attempt to repair damage to the margins of the joints.

*Principles of Treatment*—Treatment must be divided into general and local types. Osteoarthritis is a constitutional disease. From the constitutional angle but little can be done to change the hereditary tendency except by anticipation. Environmental factors are, however, susceptible to change, such as habits of living, type of exercise and work, overexertion, bad habits of posture, dietary faults and fatigue. Faulty postural habits are important in causing trauma of the weight bearing joints.

Treatment includes

(a) The correction of body mechanics (posture) by proper rest positions, by corrective exercises for the body and by orthopedic braces and supports.

(b) The maintenance of good circulation. The blood supply of the joints must be increased by all possible means if the permanent joint tissue changes are to be minimized. Rest and freedom from worry are important.

(c) Dietetic errors, overexertion and gastrointestinal dysfunction all require steady care.

Vitamin deficiencies must be controlled and the patient restored to the highest state of well-being of which he is capable. The principle in treatment beyond this is the removal of exciting causes to prevent the progress of the disease and the relief of pain and limitation of motion in the joints.

Overfatigue must be avoided. A conservative attitude should be taken toward the removal of foci of debatable significance.

Glandular therapy may have a place in the treatment as sometimes a low metabolism is found and the judicious use of thyroid may be indicated. Its use, however, should be carefully controlled.

The diet should be well balanced, containing adequate though not excessive calories in order that the patient may not gain weight, as weight adds to the traumatic strain on the joints. Consequently concentrated starches and sweets as a rule should be decreased and the diet should be adequately balanced. There is no specific diet for osteoarthritis.

Vaccines seem to have no place in the treatment of osteoarthritis.

Pain may be controlled by the use of acetylsalicylic acid or other salicylates.

The local treatment of joints is aimed to reduce pain. Heat and massage with moderate voluntary exercise are useful in improving the local blood supply. One should, however, avoid massage of the tender osteoid tissue covering bony growths at the margins of the joints, as it is apt to cause more irritation and so increase their size and sensitiveness. Voluntary exercise is much better than passive exercise for this reason though passive exercise may decrease the stiffness. Excessive exercise increases the stiffness. Local counterirritants may be used to relieve pain and cause hyperemia, such as analgesic balm and oil of wintergreen. Roentgen treatments have been used with reported relief of the pain in some joints, particularly the knees or the hips. They do not, however, change the bony exostosis but through the relief of pain may increase the range of motion if the chondro-osseous edges are no longer sensitive.

Osteoarthritic joints require protection. Rest is essential, and, since this is a nonankylosing type of arthritis, complete rest in casts may be given without danger of permanent stiffness. Usually the joints are more limber after rest in bed or after the removal of plaster splints than before the rest was given. The hip may become flexed and abducted, the shoulders may lose their excursion in abduction and the spine may become bowed, but, in general, the deformation of joints that occurs in osteoarthritis is due to the changes in the articular bone ends or of the sockets of the hips and the shoulders. Correction of deformities requires orthopedic appliances such as foot supports, which make walking more comfortable, laced elastic knee braces, knee braces to relieve painful knees, and belts to

special corsets and back braces with abdominal supports, which often relieve backache and sciatic pain.

Surgery may play a small part in the region of the knees and hips. The removal of loose bodies (joint mice) is usually confined to the knees and may give relief from pain and instability, particularly when they have been caught between the joint surfaces.

Operations on the hip, such as the removal of the superior ridge of the acetabulum and the vitallium cap for the hip, have been used in order to relieve the pain. Arthroplastic operations are not particularly indicated except in involvement of the hip in which limited motion and adduction cause pain and deformity as in "morbus coxae senilis." The surgical removal of bony overgrowth is to be discouraged, for its relief is only temporary. Forcible manipulations are contraindicated, for, although greater freedom of motion and relief of pain may be gained for a few weeks, larger overgrowth and disability eventually result.

**Prognosis**—The prognosis for the relief of symptoms of the joints and the control of the generalized disease is good. It is not inevitably a progressive disease. The hyaline articular cartilage, once destroyed, does not regenerate completely. Long-standing bony or calcareous deposits about the joints cannot be made to disappear, though their sensitive osteoid caps may shrink in size and become almost painless. However, there remains the permanent handicap of more or less imperfect joints, but imperfect joints may be made less painful by treatment. It is often surprising as the disease is controlled and support afforded to observe how slight is the handicap imposed by the joints in which roentgen examination reveals such extensive changes as to suggest disturbance of function and almost complete disability. An arrested generalized disease protective appliances and disciplined observance of instructions make possible a life that is often entirely satisfactory to the patient.

### GONOCOCCIC ARTHRITIS

Gonococcic arthritis is a common type of specific infectious arthritis. Until the advent of artificial hyperthermia and the sulfonamides, gonococcic arthritis crippled at least one fourth of its victims. Such crippling can be prevented if the disease is recognized early and treated adequately.

#### INCIDENCE

The articular complications of gonorrhea occur most frequently during the third decade, the period when gonorrhea is at its peak, however, no age group is exempt. Approximately 2 per cent of those with gonorrhea have arthritis, men being afflicted twice as frequently as women. This higher sex incidence is due in part to the anatomic differences of the genito-urinary tracts and the higher incidence of gonorrhea in males.

#### ETIOLOGY

The responsible etiologic agent for this type of arthritis is the gonococcus. It is frequently isolated from the primary focus, less commonly from the articular structures (25 per cent of the cases) and least of all from the blood stream. In most patients the arthritis begins two to four weeks after the appearance of the initial infection, therefore one is usually able to isolate gonococci from the original focus. In adults the primary focus is generally found in the genito-urinary tract, in children in the conjunctivas and the vaginal and rectal mucous membranes. From these sites the infection spreads by way of the lymphatics and venous channels

into the blood stream. A bacteremia results and, if the organisms are not killed by phagocytosis or the natural occurring bactericidal antibodies of the blood, they may localize in various tissues, showing the most evident affinity for the mucin-containing structures such as the joints, tendon sheaths, bursae and eyes.

#### PATHOLOGY

The acute phase of the disease is characterized by a diffuse hyperemia, edema and infiltration of the synovial tissues with inflammatory cells, predominantly polymorphonuclear leukocytes. In the severe forms the synovial fluid becomes infected and septic, the synovial lining tissue proliferates and may extend on to the margins of the articular cartilage, the surface of which may show areas of destruction in consequence of enzymatic action. With subsidence of the infection, complete resolution may take place or scar tissue may replace the granulation tissue. In the mild and sub-acute types the inflammatory reaction is less severe, the joint fluid is rarely infected, and the articular cartilage escapes destruction. These pathologic changes are similar to those seen in any type of pyogenic arthritis excepting that due to the tubercle bacillus. At present there is no evidence to support the hypothesis that gonococcic infections are ever responsible for a chronic, progressive type of arthritis such as rheumatoid arthritis.

#### SYMPTOMATOLOGY

The acute onset is frequently preceded by a chill or chilly sensations. Acute genitourinary trauma caused by instrumentation, prostatic massage, sexual overactivity, pregnancy and injudicious self treatment may be the cause of the initial invasion of the blood stream. During and following the bacteremic phase there is a moderate intermittent fever, the temperature rarely going above 102 F. Metastatic phenomena such as iritis and petechiae may be observed. The arthritis is at first polyarticular and migratory in nature. This phase lasts from three to seven days. The infection finally localizes in one or more of the large joints. No joint is exempt, although the knee, ankle, shoulder, wrist and hip, in the order named, are most commonly involved. Ligamentous and tendinous involvement is frequent. The tendons about the wrists and ankles and the ligamentous attachments of the os calcis and patella are most commonly involved. In many patients acute and chronic joint trauma favor the final localization of the organisms. The resulting pain, swelling, redness and heat are often more intense than the febrile reaction and leukocyte count would indicate.

#### ASSOCIATED FEATURES

Conjunctivitis may be encountered in gonococcic arthritis and has been reported as being present in from 10 to 20 per cent of the cases. Iridocyclitis, a serious complication in that permanent impairment of vision may result, is observed. Keratoderma blennorrhagica, acute hemorrhagic glomerulonephritis, pyelonephritis and pyelitis are rare complications. Gonococcic endocarditis and meningitis, other rare complications, were almost always fatal before the advent of chemotherapy.

#### LABORATORY OBSERVATIONS

**Blood**—Leukocyte counts varying from 8,000 to 30,000 are observed, they are usually between 10,000 and 15,000. Except for a moderate degree of secondary anemia in the severer infections, the red blood cells and hemoglobin show no changes.

**Bacteriology**—Recent experience reveals that cultures are superior to smears, especially in subacute and chronic infections, both, however, should be made from material obtained from the primary focus and the synovial fluid. The most satisfactory medium is blood ascitic fluid agar incubated at 36 C in an atmosphere of 20 per cent carbon dioxide.

**Serologic Tests**—A positive gonococcus complement fixation reaction is presumptive evidence that the arthritis is due to the gonococcus and may be the first intimation of the true nature of the disease. Although the first test may be negative, repeated tests show positive results in 90 to 98 per cent of patients with gonococcic arthritis.

**Sedimentation Rate**—During the active stage of arthritis the sedimentation rate of erythrocytes is considerably increased but frequently returns to normal within three to six weeks after the institution of adequate treatment with sulfonamides.

**Synovial Fluid**—A pronounced reduction of the fasting synovial fluid sugar content suggests that the fluid contains organisms. Leukocyte counts, done with a blood leukocyte pipet with isotonic solution of sodium chloride as the diluent, are under 30,000 in sterile fluids but in fluids with positive cultures are usually above 30,000 with 90 per cent or more polymorphonuclear leukocytes.

**Roentgenologic Examination**—Soft tissue swelling and joint widening are the only abnormalities observed during the first eighteen days of the disease. Following this, bone atrophy becomes apparent in the roentgenograms of the moderately and severely involved joints. Bone destruction may occur in the severe untreated cases. Periostitis adjacent to infected joints is seen in approximately one fourth of the cases. Except for the rapidity and extensiveness of the bone destruction, there is little to distinguish gonococcic arthritis from other forms of septic arthritis.

#### DIFFERENTIAL DIAGNOSIS

Only when the cultures of the synovial fluid, genital tract and blood are negative as well as the complement fixation tests is the diagnosis difficult. It may be necessary to differentiate it from rheumatic fever, atypical rheumatoid arthritis, gout, tuberculous joint disease and other forms of specific infectious arthritis. Careful evaluation of the history, a detailed physical examination, the results of therapeutic trials with salicylates, the presence or absence of electrocardiographic changes, uric acid determination of the serum, careful bacteriologic studies, animal inoculation when indicated and the clinical course of the disease will enable one to make the correct diagnosis in most instances.

#### COURSE AND PROGNOSIS

The duration and severity of the arthritis depend on the virulence of the particular strain of gonococcus and the resistance of the host. If the infection localizes in the periarticular structures and the synovial fluid remains sterile, complete recovery without residual joint change is highly probable. If specific therapy is not administered early to patients who have infected synovial fluids, permanent joint destruction, with or without ankylosis, will occur in a high percentage. Specific therapy should be instituted as soon as the diagnosis is made because bone destruction may appear within three weeks, and once this has appeared permanent joint damage cannot be prevented.

#### TREATMENT

Specific therapy is of two types: fever treatment and sulfonamide compounds. Sulfonamide derivatives require less apparatus and are less dangerous for general use and are much less expensive than is fever therapy. The only contraindication to their use is a hypersensitivity to the drugs. Proper administration of one of these drugs will sterilize an infected synovial fluid within twenty-four to seventy-two hours. The highest percentage of cures is obtained when these drugs are given in adequate amounts. This can be achieved readily if the drug is administered every four hours day and night and the fluid intake kept constant (approximately 2,000 cc per twenty-four hour period). Adequate blood levels must be maintained for the particular derivative employed. In most cases striking improvement is noted within twenty-four to seventy-two hours. Further study is necessary to determine which of these sulfonamide compounds is most effective. If chemotherapy does not bring about a cure, fever therapy alone or in conjunction with one of the sulfonamide derivatives can be employed.

#### GOUT AND GOUTY ARTHRITIS

Gout is a disease of unknown etiology characterized by (1) an arthritis which is at first acute and recurrent but which later may become chronic, (2) a supposed abnormality in purine metabolism evidenced by the abnormal disposition of uric acid, (3) hyperuricemia, which is often transient at first but later generally becomes chronic, (4) eventual deposition of sodium urate crystals in articular, periarticular and subcutaneous tissues, sometimes also in the kidneys and urinary tract, and (5) frequent terminal vascular lesions in the kidneys, less often in the heart and brain.

More than 90 per cent of gouty patients are men, they are usually more than 30 years of age. Many, but by no means all, gouty patients are of more than average weight, many do ingest excessively meats and alcoholic drinks, but gout may affect vegetarians and teetotalers. Although excessive intake of purines and alcohol may provoke attacks of gouty arthritis in those who already possess the fundamental (unknown) cause of the disease, purines and alcohol are no more the cause of the underlying gout than are sugars and carbohydrates the cause of diabetes.

#### DESCRIPTION OF AN ACUTE ATTACK OF GOUTY ARTHRITIS

Most patients do not notice prodromes to an acute attack, others notice nausea, indigestion or dyspepsia, melancholia, nocturia or polyuria, irritability or vague muscular symptoms, others experience euphoria or a ravenous appetite. The first articular symptoms may occur at any hour. Sometimes the patient may be awakened with pain in the early hours of the morning (2 to 4 o'clock), but more often pain is first noted on awakening in the morning the patient first notices his foot or other affected joint. Within a few hours the affected joint or joints usually become red or dusky, swollen and exquisitely tender to touch. Jarring of the bed may provoke an intense paroxysm of pain. Walking or bearing is impossible in the more severe attacks. The pain is often worse at night. Moderate fever may or may not be present. In early attacks usually only one joint is affected, in about 50 per cent of cases the first tarsophalangeal (bunion) joint of a great toe is affected initially, but other toes or regions of the foot or hands, knees, hands, wrists or elbows are commonly affected.

joints of the spine hips and shoulders are rarely involved. If the attack is untreated or not treated as gout it may last several days or weeks but if properly treated it may subside rapidly. Swelling and discoloration subside, pain tenderness and stiffness disappear and the joint becomes normal.

#### DIAGNOSIS OF GOUT AND GOUTY ARTHRITIS

*Characteristic Pattern of Gouty Arthritis*—In contrast to most other forms of arthritis, articular function is recovered completely between attacks. As time goes on, the severity and frequency of the attacks of acute arthritis often increase, in some cases late in the disease the arthritis becomes chronic.

*Provocatives*—Attacks are often induced by unusual exercise, surgical operations, dietary and alcoholic indiscretions or excessive use of fats, also by the use of certain medicines—liver extract, ergotamine tartrate (gynergen), dehydrocholic acid (decholin), thiamine hydrochloride (vitamin B<sub>1</sub>) in excessive amounts, mersalyl (salyrgan). When acute arthritis develops after such experiences or medication gout should be suspected.

*Blood Uric Acid*—An increase in the content of urates in the blood is one of the most characteristic findings in gout, but in some cases hyperuricemia is not present until several attacks have occurred. The diagnosis of gout must be considered seriously in any case in which the concentration of uric acid is more than 5 mg per hundred cubic centimeters of whole blood, especially if one or more short attacks of acute arthritis have occurred, however, hyperuricemia alone is not diagnostic of gout.

*Tophi*—Tophi containing sodium urate crystals are found only in gout. They occur most often about the margins of the ears and in the olecranon region, less often around peripheral joints. To certify that a tophus is truly present, its contents should be removed, smeared on a glass slide and examined under the microscope for the typical needle-like crystals. The murexide (chemical) test can be used for confirmation.

*Roentgen Examination*—During the early stages of the disease roentgenograms of affected joints may reveal nothing abnormal but, as attacks recur, osseous tophi make their appearance and are noted as punched out areas in juxta-articular bones of the fingers and toes especially.

*Therapeutic Test*—Colchicine, if given in sufficient doses, will usually relieve spectacularly the acute manifestations of gouty arthritis. Other forms of arthritis are unaffected by colchicine.

#### TREATMENT OF GOUTY ARTHRITIS

The underlying condition, the gout per se, is not curable at present. But certain treatments can relieve rather promptly the acute attacks, and other measures can be used in an attempt to reduce the number and severity of subsequent attacks.

*Acute Attacks*—Colchicine, the active ingredient of colchicum, is "specific" for acute attacks. Colchicum is preferable to the wine and tincture of colchicum, which often vary in potency and tend to deteriorate. To obtain relief full doses of colchicine must be used: an initial dose of 2 tablets (each  $\frac{1}{100}$  to  $\frac{1}{120}$  grain, or 0.65 to 0.53 mg) followed by 1 tablet every one or two hours until the pain is relieved and/or gastrointestinal symptoms (nausea, vomiting or diarrhea) appear. Then the administration of colchicine should be stopped.

The local application of hot water packs or warm glycerin packs helps to relieve pain, a few patients obtain more relief from cold packs or an ice bag.

Acetylsalicylic acid (60 to 80 grains, or 4 to 5.2 Gm) or sodium salicylate (60 to 100 grains, or 4 to 6.6 Gm) also should be prescribed daily during the attack, not only to aid in relieving pain, but to reduce the hyperuricemia. If colchicine and salicylates do not give adequate relief, cinchophen ( $7\frac{1}{2}$  grains, or 0.5 Gm, three or four times a day) should be used in place of the salicylates for a few days.

The diet during attacks should be free of purines, high in carbohydrates and purine free proteins (milk, eggs, cheese) and low in fats.

#### TREATMENT FOLLOWING THE ACUTE ATTACK

Few patients are able to avoid recurrences of gouty arthritis unless a definite "interval program" is persistently followed.

*Diet*—This should be low in purines, high in carbohydrates adequate in vitamins and protein (especially the purine-free proteins—milk, eggs, cheese) and low in fat. Chicken, fish and nonglandular meats are relatively low in purines and can be prescribed once a day. Other meat should be served only three or four times a week. Alcohol should be avoided entirely if at all possible. Purine-free foods can be eaten freely.

*Purine-Free Foods*—These include fruits of all kinds, milk, eggs, cheese, bread (except whole grain), vegetable soups (made without meat), caviar, shad roe, artichokes, beets, broccoli, Brussels sprouts, cabbage, carrots, celery, corn, cucumber, eggplant, endive, lettuce, okra, parsnips, potatoes, pumpkin, rutabagas, sauerkraut, string beans, summer squash, Swiss chard, tomato, turnips, hominy, macaroni, noodles, spaghetti, cereals which do not contain whole grain and pies (except mincemeat).

*Foods to Be Avoided at All Times*—These include sweetbreads, anchovies, sardines, calf and beef liver, beef kidneys, brains, meat extracts, gravies and meat soups.

*Medication*—Acetylsalicylic acid (60 to 80 grains, or 4 to 5.2 Gm) or sodium salicylate (80 to 100 grains, or 5.2 to 6.6 Gm) should be used daily for three consecutive days each week indefinitely in an attempt to control hyperuricemia. Such medication is usually fairly effective, if it is not, cinchophen ( $7\frac{1}{2}$  grains, or 0.5 Gm, three times a day) may be used instead, three consecutive days a week, but there is some danger of cinchophen toxicity. To prevent precipitation of excess urates as gravel in acid urine enough alkali should be given daily to keep the urine slightly alkaline: sodium bicarbonate (20 to 35 grains, or 1.3 to 2.3 Gm) or potassium citrate (15 to 30 grains, or 1 to 2 Gm) three times a day generally suffices.

*Exercise*—Mild, customary exercise is permissible but undue physical stress such as may be involved in vacation trips may provoke an acute attack.

*Tophi*—Large tophi may ulcerate, occasionally they become infected. These eventualities can be avoided by the early excision of tophi in which ulceration is impending. When debridement is done thoroughly prompt healing occurs.

#### COMMENT

Joint pain coming on shortly after an operation, unusual exercise, dietary and alcoholic indiscretions or excessive use of fats should make one suspect gouty



arthritis. Recurring arthritis with symptom-free intervals is of great diagnostic help. Before 1928 gout was considered a rare disease in America, but since then many cases have been recognized.

#### SUMMARY

In the foregoing discussion an attempt has been made to avoid controversial points while at the same time presenting the essential features of the more common forms of chronic arthritis.

A clear understanding of the therapeutic problems requires as a prerequisite accurate differential diagnosis, understanding of etiologic and pathogenic factors involved and patience and time, since most forms of arthritis are chronic in nature and require long continued treatment in the same manner as does tuberculosis, syphilis or diabetes.

### *Special Clinical Article*

## AVIATION MEDICINE IN THE ROYAL CANADIAN AIR FORCE

CLINICAL LECTURE AT ATLANTIC CITY SESSION

G. E. HALL, M.D.

Wing Commander, Royal Canadian Air Force  
OTTAWA, ONT.

Perhaps no other branch of medicine has advanced as rapidly and with the same degree of productiveness as has aviation medicine. The foundations for its spectacular advance were laid on necessity and, today, from an obscure sideline, aviation medicine has assumed the role of a new medical specialty which, in its most practical form, is simply the practice of industrial medicine in relation to personnel engaged in the business of flying aircraft.

The effectiveness of an aircraft is definitely limited by the least efficient member of its crew. Such effectiveness can be assured initially only by adequate selection of aircrew personnel.

The navigator, the pilot, the air gunner, the wireless operator, all have specific duties to perform while in the air, consequently the standards, medical (including psychologic), educational and so on are different for the different aircrew trades. The medical standards for fitness for flying have been laid down, not arbitrarily, but as a result of experience and investigation, and in all cases are based on service requirements of the aircrew.

#### SELECTION AND TRAINING

Although the medical examination is supposedly a rigid one, over 75 per cent of applicants are successful. Selection of the aircrew goes far beyond this single stage of medical examination and includes many special selection procedures, the discussion of which is outside the scope of this paper. However, as a result of such special selection, mentally and physically healthy young men are started on their training program. It is again the responsibility of the medical officers to maintain them in this condition throughout their service careers. Thus it is that aviation medicine may best be divided into two main divisions: selection and maintenance.

That selection and maintenance cannot be entirely separated is obvious, since the effectiveness of selection reflects itself in the non-combat wastage during training and operations. Again the problems which are evident from a maintenance point of view become more or less important, depending on the degree of consideration which any one aspect may have received at medical selection boards in the selection of the aircrew for specific duties. Therefore a balance has to be maintained between availability of personnel, selection procedures and operational requirements. For instance, it may be possible to select, with a high degree of accuracy, personnel who are capable of withstanding relatively high altitudes. By other procedures it may be possible to select personnel who have excellent night visual capacity. But the latter individuals may not be in the group with high altitude tolerance. Thus selection procedures within previously selected groups for special factors must be carried out. This is selection based entirely on operational requirements.

It must be remembered that the training program is an intensive one, courses start and are completed on schedule so that the next course of trainees may follow in rapid succession. It is obvious that many healthy, normal young men will not become successful pilots or navigators, just as obvious as is the fact that there are many persons who train as lawyers, as doctors, many who would like to be farmers or good golfers but who just haven't got that something which is necessary to make a success in a special type of work.

There is, again, a tremendous difference between learning to fly an aircraft for pleasure and being capable of flying a service aircraft in combat—just as much difference as there is in learning to play golf for pleasure and being expert enough to play tournament golf for a livelihood. To say that a pilot trainee is a failure because he has had his training discontinued is not only unfair but stupid.

Almost all whose training is interrupted are remunerated for other aircrew duties and most of them do well in their new courses. The medical officers play an important role in the readjustment and successful retraining of these men.

The problems of selection are numerous, the importance of selection is apparent. Our responsibilities follow in maintaining the effectiveness initiated through adequate selection.

#### MAINTENANCE

One aspect of the main division of maintenance of air force personnel is that concerned with public health and preventive medicine. In the Royal Canadian Air Force, as in all other branches of the services in almost all countries, inoculations and vaccinations prevent the great morbidity and mortality experienced in campaigns and wars prior to the war of 1914-1918. It is interesting to note that, in all Royal Canadian Air Force personnel since the beginning of the war, only 2 cases of typhoid have developed and no cases of tetanus have occurred in spite of training accidents.

All Royal Canadian Air Force personnel are given Dick and Schick tests. It was found that 30 per cent of personnel were Dick positive and 50 per cent were Schick positive. All who are Dick and Schick positive receive immunization inoculations. Immunization against diphtheria has been spectacularly successful.

In order to control, as well as possible, tuberculosis in the service, no enlistment or appointment is made unless the routine 6 foot roentgenogram is

a satisfactory chest condition. Admitting that the x-ray technic is not infallible in diagnosis, nevertheless tuberculosis of the chest has been reduced, at the moment at least to a negligible problem. Roentgenograms of the chest are again taken on all personnel who are retired or discharged from the service.

The seriousness of the venereal disease-gonorrhea problem cannot be underestimated, and our figures show that there are 2 new cases of venereal disease-gonorrhea per thousand men monthly. With the advent of sulfonamide drug therapy the treatment has been greatly simplified, but it requires that all men who have been treated be prohibited from flying since, among other things, a decrease in the oxygen saturation of the blood usually occurs. This may be sufficient to produce anoxia at an altitude otherwise safe without the use of oxygen equipment.

Since the personnel in large operational aircraft almost always work together as a crew, sickness constitutes a relatively more serious situation in the air force than in the other services. This is particularly true in the case of preventable illnesses, such as venereal disease, wherein the individual fails in his responsibility not only to himself but to other members of his crew. As far as the Royal Canadian Air Force is concerned, venereal disease is not a moral issue, it is a clinical disease, and its prevention and treatment constitute a medical problem in the same manner as does the contagious common cold.

Many preventive measures for the control of disease have been instituted. Most of the control measures have been eminently successful but still 40 per cent of admissions to station hospitals and 25 per cent of days care is accounted for by nonspecific respiratory infections for which there appears to be no specific treatment. On the other hand, injuries account for only 7.5 per cent of all admissions and 10 per cent of all hospital days, a great proportion of which are occasioned by nonflying accidents.

Considerable use has been made of electrocardiology, and the practical application of electroencephalography, instituted as a routine procedure in April 1940, has proved to be of considerable significance not only in selection but in maintenance as well.

The relationship of aniseikonia to flying performance in the landing of aircraft has been investigated over the past eight months. Two groups were studied. In the first group were trainees who ceased training because of landing difficulties, and in the second group there were experienced pilot instructors. The amounts of aniseikonia were found to be very trivial, and no practical correlation to performance could be ascertained in the groups studied.

#### RESPONSIBILITIES OF THE MEDICAL SERVICE

The concept of the duties and responsibilities of the medical services in association with aviation have undergone many changes—changes which are logical and which have resulted in increased efficiency of the flying personnel. Let us consider some of the responsibilities. Simply because a ration is laid down, either planned or abstracted from books or journals on paper, it cannot be assumed that adequate nutrition will be supplied to the personnel consuming those particular rations. Why is this? Because (1) the men may not be receiving the exact ration as planned or (2) the loss of nutritional elements in cooking may be tremendous, in either case an inadequate diet is consumed. That

these two conditions are actually encountered has been amply demonstrated and subsequently corrected.

Records of previous wars and campaigns have indicated that vitamins A and C are particularly apt to be available in inadequate amounts for normal health and efficiency. Of course, vitamin B<sub>2</sub>, riboflavin, was an unknown identity then, but the distribution of this vitamin in foods indicates that unless milk is provided in fairly large quantities there will be an inadequacy.

In modern mechanized warfare (navy, army and air force) it has been found that the optimal requirements of certain vitamins is probably in excess of that ordinarily considered adequate for normal civilian occupations. One is apt to consider the study of such a problem in relation to the abnormal environments to which certain personnel are exposed and neglect it as a problem of general health and efficiency of personnel. This type of work has become a phase in the newer concept of aviation medicine.

Any air force is composed not only of the aircrew, to which the glamour is attached, but also of the highly important and skilled ground crew. Therefore the problems of the ground crew trades must not, as they too frequently are, be neglected. The remarkable changes in aircraft design which have occurred since the last war have led to changes in methods of construction and of materials used. At the present time potential health hazards are involved in the servicing of aircraft which were not encountered previously. Dopes, cleaning solvents and spray paints are some of the factors which necessitate an appreciation of the principles and practices of industrial hygiene and constitute another phase of our responsibility in aviation medicine. Nor does this aspect close with a consideration of possible toxic effects of these materials on the ground crew; the prevention is also a responsibility of the medical services.

In a similar manner we must consider the so-called carbon monoxide problem. Unfortunately most of our flying personnel are inclined to be carbon monoxide conscious and in many instances carbon monoxide has been tagged as the causative factor in aircraft accidents without adequate proof of its presence in dangerous concentrations in the blood of the personnel involved. It is well known that man can tolerate fairly high concentrations of carbon monoxide, but its significance in relation to aviation medicine is increased by the fact that it materially lowers the oxygen saturation of the blood. The oxygen saturation of the blood is the all important physiologic factor in altitude flying, and when carbon monoxide has decreased this value anoxia may result at an otherwise tolerated altitude.

Although the correction of the defects in the aircraft which may be responsible for the contamination of the cockpit air by carbon monoxide is purely an engineering problem, the medical officer has a distinct responsibility and must cooperate with the aeronautical engineers in order to safeguard the health and efficiency of the personnel.

A few years ago few people would have admitted that the development of flying clothing and other protective ancillary equipment was in a large measure the responsibility of the medical personnel of the air force. Consider the problem from this point of view. The heat regulation of the body is purely a physiologic function, the body being able, within limits, to compensate for changes in environmental temperatures. However, beyond these certain limits the heat production and heat loss are no longer maintained in

equilibrium, and physiologic, mental and physical disturbances result. Adequate protective clothing will supply the additional thermal insulation necessary to maintain adequate heat regulation. This is true only as a generalization. As one increases the altitude the temperature, in general, decreases at the rate of approximately 3 degrees F per thousand feet until an altitude of some 30 to 35 thousand feet is reached, at which time the temperature has decreased to about  $-67^{\circ}\text{F}$ . On the other hand, ground temperatures which are encountered by the aircrew may vary from  $-60^{\circ}\text{F}$  in northern Canada and Alaska to  $120^{\circ}\text{F}$  or more in tropical regions. Add to that the fact that the inside temperature of a metal aircraft, standing in the sun in a tropical country, may be, because of reflection, as high as  $140^{\circ}\text{F}$ . The aircrew must in many instances climb into an aircraft under these hot conditions clad in clothing which, in a relatively few minutes, will protect him from the extreme cold of high altitudes.

Another consideration which is too frequently neglected is that the degree of thermal insulation required for different areas of the body differ considerably. In order adequately to protect an individual from cold, this fact must be taken into consideration. For instance, if the hands and feet are maintained at slightly higher temperature than the rest of the body, a vasodilatation takes place which produces excess sweating over the whole body, thus increasing heat loss and after several hours producing considerable fatigue. This indicates that the problem of designing adequate flying gloves and flying boots must be done in connection with the development of flying suits.

From statistics on the incidence of frost bite in the Royal Canadian Air Force during the past winter we find that among Canadians the fingers are most commonly affected, whereas with the Royal Air Force, New Zealand and Australian, and Americans from the Southern states the ears, hands and feet are also affected. The latter individuals are affected chiefly because of a lack of respect for cold, sunny Canadian winter days, which is gained with a few weeks experience. The effect on the fingers, though, is a problem. It is caused by two different factors, both of which can be remedied.

In the first instance certain members of the aircrew must, in order to carry out their specific duties, remove their heavy flying gloves. A few minutes exposure, while taking an astial sight, at  $20$  below zero, is sufficient to produce frostbite. The solution appears obvious. Supply them with a thin, light pair of inner gloves. What work goes into the development of adequate flying gloves? What materials are available? Silk? No. Are substitute materials available? What is the relative degree of thermal insulation, the flash resistance, snag resistance? Does the material perish in the presence of gas fumes, perspiration? Does it launder well? These are but a few of the considerations necessary before a material can be selected. Then the styling specifications must be laid down on the basis of the specific duties which the aircrew must perform.

The same general development work must be completed before specifications can be drawn up for helmets, life jackets, underwear and flying suits. The purpose? Simply to provide adequate protection for the personnel—accomplished scientifically through the cooperation of textile experts, physicists, physiologists and engineers, always keeping in mind the purpose

of the article of clothing, aircraft design and as always the maintenance of efficiency of the personnel—surely a medical responsibility.

Oxygen equipment is provided to flying personnel so that they may be maintained in as nearly perfect efficiency as possible while operating at altitudes above which the efficiency would be otherwise impaired. The altitude at which oxygen is used varies in different countries and under different operational conditions. The basis of the use of oxygen is obviously physiologic. The amount of oxygen consumed by any particular individual varies with the degree of physical effort, the altitude, the temperature and several other factors. The development of oxygen equipment, naturally, must be directed toward meeting the physiologic requirements of the individual under all circumstances. Inspiratory resistances, expiratory resistances, relation between pressures and rates of flow, the thickness of regulator diaphragms—these among others are all physiologic considerations in the development of oxygen equipment. Another aspect wherein the medical personnel must cooperate actively with the engineers, the instrument designers and the production personnel is a specific responsibility and another aspect to be written into the province of aviation medicine.

How much vibration of the navigator's table, the instrument panel, the gun mountings, may be allowed in order to prevent visual and general fatigue from developing in the personnel during long flights? How large should a gun turret be? Should it be engineered purely from an aerodynamic point of view? The turret is useless unless a man, an average young adult man, can efficiently use the guns in that turret. He must wear adequate flying clothing, he must have oxygen equipment, intercommunication equipment and he must have an even chance of getting out of the turret in a hurry in case abandonment of the aircraft is necessary. There is here, in the field of aircraft design, a specific field of endeavor opening itself to advice from medical personnel.

Decompression sickness, blackout, night vision, air sickness, glare, noise and vibration, fatigue, cold, heat, nutrition, oxygen equipment, clothing—these are but a few more of the many maintenance problems which present themselves in training, in operations, in aircraft design and even in tactics.

To appreciate that our efforts can no longer be confined to purely so-called medical aspects in the field of aviation, it is only necessary to remember again that the effectiveness of an aircraft is definitely limited by the least efficient member of its crew.

One cannot conclude any general discussion on aviation medicine without referring to the work of Dr. Col. Harry Armstrong—not that he pioneered the field that was done by Bert, Haldane, Flack, Bazett, Booth, Schneider, Drinker and a host of others—but through his own researches he came to realize the extraordinary amount of work which had been conducted through the years, collected those works, analyzed the multitude of reports, confirmed or refuted many theories, told the world and after several years presented to the English-speaking world the first comprehensive treatise on aviation medicine. Today his book, even in spite of the tremendous advances in knowledge which have been made since its publication, remains as a standard reference textbook and an inspiration to every medical man in the air services not only in Canada, the United Kingdom, Australia and New Zealand but in the rest of the world as well. Truly a monumental contribution.

brought aviation medicine as a specialty to the attention of the medical profession in particular and in general to the world at large

It should not be considered that medical personnel are attempting to conduct research work and investigations into engineering or production fields. It is simply that advantage is being taken of the fundamental training of selected medical and scientific persons in attempting to solve, on a cooperative basis many of the problems which affect the health and efficiency of the air force personnel. That the medical branch must lead in many of these developments is because the problems are of a physiologic, physical and medical nature and have been, for too long, neglected by those who have perhaps not realized that maintenance of personnel is as important as selection of personnel and that these two great divisions comprise aviation medicine as it is practiced today

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION  
OF THE FOLLOWING REPORTS

H. A. CARTER Secretary

### HOLDER'S ULTRA SHORT WAVE H F CONDENSATOR NOT ACCEPTABLE

Manufacturer "Holder's H F Condensator Company, 315 Victoria Avenue Windsor Ont Canada, and 217-218 Hammond Bldg, Detroit Michigan

In the literature advertising 'Holder's Ultra Short Wave H F Condensator,' it is said that the device 'Generates FLUID Electricity with Cellular Massage—Not Diathermy' The apparatus was presented for the Council's consideration by its originator, W. E. Holder described in the advertising as "Medical Electrologist Inventor Author, Fellow International Faculty of Sciences (London England)"

Following is the firm's description of the device "The whole mechanical equipment is installed in a solid walnut cabinet. The top indicator panel is of high grade bakelite. To the cover is attached a suitable handle making the outfit portable. A suitable drawer has been installed for the purpose of placing the gas-filled electrodes, ozone generating induction pad, electrode handle and other attachments. The size is 17 inches wide, 12 inches deep 17 inches high. Weight with complete equipment is about 45 pounds. It is equipped to operate on 110 volts A C or D C current. Peak output 50 000 volts. Megacycle 100 to 28 consumption 2 Amps 20 watts DISROBING UNNECESSARY. Free from shock, sparks burns, etc or unpleasant feeling"

Three booklets were submitted by the firm, their titles are (1) 'The Common Cold' 'Sinusitis—and their aftermath—Successfully Combated by Holder's Ultra Short Wave Condensator Generating 'Fluid' Electricity with Cellular Massage' (2) 'Facts Speak Louder Than Theories—Over One Thousand International Medical and Non-Medical Practitioners Testify to the Remarkable Results Obtained by Holder's Ultra Short Wave Condensator' (3) and a booklet giving directions for using the apparatus. Each of the booklets lists a long series of diseases and conditions said to be benefited by the use of the Condensator and also carries a great number of unsigned testimonials from persons who in the main seem to be 'Naturopathic Physicians'. These 'Doctors' have apparently treated with the apparatus innumerable conditions including cataract glaucoma deafness high blood pressure, old age poliomyelitis cirrhosis of the liver and cancer

Among the specific claims made for the apparatus are the following taken from the advertising

By this current with its tremendous voltage and enormous oscillations we are able to mechanically induce the most powerful contractile response within the deepest tissues without other effect or sensation, except those inherent to such mechanical

stimulation. It is an equalizer of the nervous forces and as a decongestive agent and tonic in the most chronic conditions it is unequalled

"It hastens the elimination of waste products such as urea, carbon dioxide etc., and causes a dilatation of the cutaneous vessels. It has powerful penetrative decongestion

"It will remove early induration, thereby establishing circulation with restoration of function in processes which are the seat of local stasis. Removal of local inflammatory stasis by means of the pulsatory action of cellular massage so penetratingly induced in the tissues by the application of the glass gas-filled electrode is entirely physiological and clinically indicated, as it thereby obviates or at least minimizes other possible chronic sequelae

'Holder's Ultra Short Wave Currents are counter-irritant, tropically tonic and institute cellular massage internally, thereby acting on all cell tissue, but such would not exercise gross muscular action. Its nutritional value is beyond all question as recording instruments verify'

No critical evidence has been presented to the Council to substantiate these statements. Since the statements are garbled, it is difficult to determine just what is meant by such terms as 'institute cellular massage internally' "tropically tonic," "powerful penetrative decongestion" and "dilatation of the cutaneous vessels"

The advertising matter includes the following reference to the Council on Physical Therapy in several places. "Now while on this subject of discussing ultra short-wave diathermy it is as well after almost ten years of this controversy to quote the findings of the Council on Physical Therapy, who confirmed my statements, by the following article in the American Medical Association Journal of April 3, 1937

#### "LIMITATIONS OF SHORT WAVE DIATHERMY

"Much of the work of the Council the past year has been confined to the consideration of So-Called short wave diathermy machines. In view of the deliberations, the Council believed it was justifiable to state based on the present available evidence, the following conclusions

'1 There is no specific biologic action of high frequency currents

'2 There is no specific bactericidal action

"3 The therapeutic effect is due to the heat produced"

'Elaborating on these three conclusions the Council felt that the general practitioner would understand that when he buys a short wave diathermy machine he is simply purchasing an apparatus capable of producing heat only in the light of available evidence, it has absolutely no other specific action. The Council felt that, if this point were understood by the physician in general practice he might hesitate before purchasing an expensive apparatus because simpler mechanical means for the production of heat are available and are as efficacious in many cases

'The short wave diathermy machine is a useful therapeutic agent but in the light of the present day evidence its therapeutic effects is that of HEAT and HEAT ONLY

"(The above findings are not the work of one or two men as there are no less than 52 names of scientific investigators who undertook to find out the true facts as to the claims of what they term SO-CALLED SHORT-WAVE DIATHERMY)"

"Having now given the findings of the American Medical Association I will revert back to the activities of my opponents in England in the operation of my clinic which was doing exceptionally well, in fact I had to employ four assistants to keep pace with the work

The foregoing reference to the Council is misleading in that it is made to seem that the Council denounces the use of diathermy as a therapeutic agent. In its findings the Council reports that diathermy is useful in producing deep tissue heat. In its investigation of Holder's Condensator the Council found that, since the power of the instrument was insufficient to light a 25 watt incandescent lamp to full brilliance, it is apparent that the ability of the device to heat tissues is insufficient to meet the Council requirements. The manufacturer claims that the apparatus is therapeutically useful for purposes



other than producing heat, namely "Generates 'Fluid' Electricity" and gives "Cellular Massage." These purposes are meaningless and are unsubstantiated by any scientific evidence.

Claims are also made for the ozone produced by the apparatus. The following statements are taken from the advertising: "Ozone is considered the most effective oxidizing, germicidal, disinfecting and deodorizing agent known, and for this reason is being increasingly employed in the successful treatment of disease for disease germs cannot live in an ozonized atmosphere."

There is no question whatever that fluid electricity is generated by the Condensator, also ozone, which is designated as 'oxydul' when coming in contact with Oxygen. Of 50,000,000 to 100,000,000 oscillations per second, of 60,000 volts at 20 watts combined with the germicidal agent of 'OXYDUL' Combats the Cause of the 'Cold' Immediately, Instantaneously Relieves Sinus Pains, Banishes Hay Fever Without Heating or Burning, Shocks or Sparks, Is Soothing and Comforting."

The Council, in previous reports on ozone producing units (THE JOURNAL, April 27, 1940, p 1632, May 17, 1941, p 2268, Jan 21, 1939, p 239) has stated that ozone is ineffective as an oxidizer and that, regardless of where or how it is generated, ozone has little effect on bacteria except in strong concentrations which are harmful to human beings as well.

Apparently Holder advocates his device for the treatment of poliomyelitis, since several cases in which cures are claimed are reported in the advertising. Following is a statement taken from the advertising: "as the disease will not respond to chemical warfare there is great prospect of it responding to Ultra Short Wave H F Currents in Condensation, which not only activates the whole of the body but imparts nutritional value." The 2 cases reported are presented in a rambling and incoherent manner and cannot be considered critical evidence.

In the files of the Bureau of Investigation of the American Medical Association is a report of the commission appointed by the legislature for the investigation of cancer remedies in the province of Ontario in which Holder and his Condensator are mentioned. Following is the commission's report:

Mr Holder who manufactures and sells an electric short wave machine, appeared before the Commission and explained the theory of his treatment, and filed a copy of a pamphlet in connection with the same. He claims to have invented and perfected this machine in England and now manufactures them in Toronto. They are said to sell at \$300 each.

He advocates their use in various ailments. His treatment is what he calls the "disintoxication treatment." Contemporaneously with the use of the machine the patient goes on a diet consisting in a large part of distilled water, fruit juices, fruits and vegetables, as explained by him for a period of some two months.

While he claims to have treated cases of cancer in England by this method since coming to Canada, something over two years ago, he has not himself treated any cases.

Mr Holder's evidence before the Commission referred particularly to the treatment of cancer by this method. In his pamphlet on treatment by his invention known as "diastatic Ultra Short Wave Condensator, with Cellular Massage" or "Holder's Mystery Ray" he cites thirty nine different ailments successfully treated but cancer is not mentioned.

In his publication entitled "The Hidden Menace" he elaborates on aluminum as a cause of cancer and many other ailments, but exhaustive investigations have failed to show that the use of aluminum containers and other articles made of the metal produce any injurious effects on the human body.

In the opinion of the Commission the evidence submitted would not support a finding that Mr Holder's suggested treatment had any merit as a remedy for cancer.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Sept 9, 1939, carried a report of the Bureau of Investigation titled "Thermo-Magnetic Cushion Fraud—W E Holder's Device is Debarred from the Mails." The Thermo-Magnetic Cushion was a rubber chair cushion containing an electric unit with connections. It was represented in some of the advertising as "The Natural Method of 'Rejuvenation'" and was said to "stop the cry of those irritated nerves responsible for the pains of menstruation, of enlarged prostate, kidney and bladder troubles, lumbago, sciatica, etc." Also this "new and simple method applies deep soothing heat to the organs of the pelvis and abdomen." The Post Office Department issued a fraud order against the concern on Dec 23, 1938 debarring from the mails the Chicago Thermo-Magnetic Cushion Company, Ruby E Morgan, Secretary, Holder's Health Aids, Inc, W E Holder, President, and their officers and agents as such.

Since the power of the Holder so-called ultra short wave high frequency condensator is insufficient to light a 25 watt incandescent lamp to full brilliance, it is obvious that, in view of the studies of the Council on Physical Therapy, the ability of the device to heat tissue cannot meet the Council's requirements.

Although the manufacturer states that this unit is not a diathermy apparatus, actually it is, according to the terminology employed by the Council on Physical Therapy. It is a spark gap type of diathermy of such low output that there is a negligible amount of heating produced in the tissues. Because the Council's investigations indicate that the only proved clinical effect of short wave high frequency currents results from the heating which is produced, and because this particular high frequency apparatus produces a negligible amount of heating, no beneficial physiologic effects can be expected to be obtained from it. Evidence submitted by Mr Holder fails to substantiate the therapeutic claims made for the appliance.

Furthermore, the literature submitted by the manufacturer in support of his claims is misleading. Recently this manufacturer in conjunction with his promotion of the "Condensator," has promoted a method for prevention of radio interference which he claims for his own. Inspection of the literature describing his screening method of prevention of radio interference indicated that he is merely employing an ordinary screened enclosure for this purpose. This method of preventing radio interference is common knowledge among all radio engineers.

In view of the aforementioned, the Council on Physical Therapy voted not to include the Holder's Short Wave H F Condensator in its list of accepted devices.

#### TENTATIVE STANDARD PROCEDURE FOR EVALUATING THE PERCENTAGE OF USEFUL HEARING LOSS IN MEDICOLEGAL CASES

IN 1938 THE LACK OF UNIFORMITY IN ESTIMATING THE PERCENTAGE LOSS OF USEFUL HEARING AS POINTED OUT BY COURTS OF LAW, INSURANCE COMPANIES, COMPENSATION COURTS AND OTHERS CAUSED THE CONSULTANTS ON AUDIOMETERS AND HEARING AIDS OF THE COUNCIL ON PHYSICAL THERAPY TO FORMULATE A METHOD FOR THE CONSIDERATION OF OTOLOGISTS AND PHYSICIANS. THE HOUSE OF DELEGATES AT ITS ANNUAL MEETING IN 1939 APPROVED THE ACTION OF THE CONSULTANTS FOR THE STANDARDIZATION OF TESTS AND THE PREPARATION OF A METHOD FOR ESTIMATING THE PERCENTAGE LOSS OF HEARING.

THE FOLLOWING METHOD HAS BEEN PREPARED BY THE CONSULTANTS AND ADOPTED BY THE COUNCIL ON PHYSICAL THERAPY AND THE SECTION ON LARYNGOLOGY, OTOLGY AND RHINOLOGY AT THE ANNUAL MEETING OF THE AMERICAN MEDICAL ASSOCIATION IN 1942 AND BY THE HOUSE OF DELEGATES AT ITS ANNUAL MEETING IN ATLANTIC CITY IN JUNE 1943.

THE COUNCIL ON PHYSICAL THERAPY WISHES TO EXPRESS ITS APPRECIATION FOR THE VALUABLE ASSISTANCE RENDERED IN THE PREPARATION OF THIS REPORT TO DR. C. C. BUNCH (DECEASED), GEORGE M. CHASE, EDWIN P. FOWLER, W. E. GROVE, ISAAC H. JONES, DOUGLAS MALFORD, C. STEWART NASH, HORACE NEWHART, PAUL E. SARINE, BLAIR R. SHURLY AND WILLIAM P. WHERRY, (DECEASED).

HOWARD A. CARTER, Secretary

1 Since the pure tone audiometer is the best available instrument for determining the loss of acuity of hearing, the procedure recommended herein is based on measurements of hearing loss with an accepted standard audiometer. Since, in the present state of knowledge, it is not possible to arrive at quantitative evaluation of hearing impairment except by audiometric measurements, no consideration is given to other than audiometric findings in setting up this basic procedure.

2 The recommended procedure is based only on the measurements of acuity of hearing for air conducted hearing.

3 The following decibel losses, as measured by an accepted standard audiometer, represent 100 per cent loss of hearing.

|     |     |     |       |       |       |            |
|-----|-----|-----|-------|-------|-------|------------|
| 128 | 256 | 512 | 1,024 | 2,048 | 4,096 | cycle/1000 |
| 65  | 80  | 85  | 95    | 95    | 90    | decibels   |

4 Percentage losses corresponding to measured hearing in the octave intervals are shown on the accompanying chart.

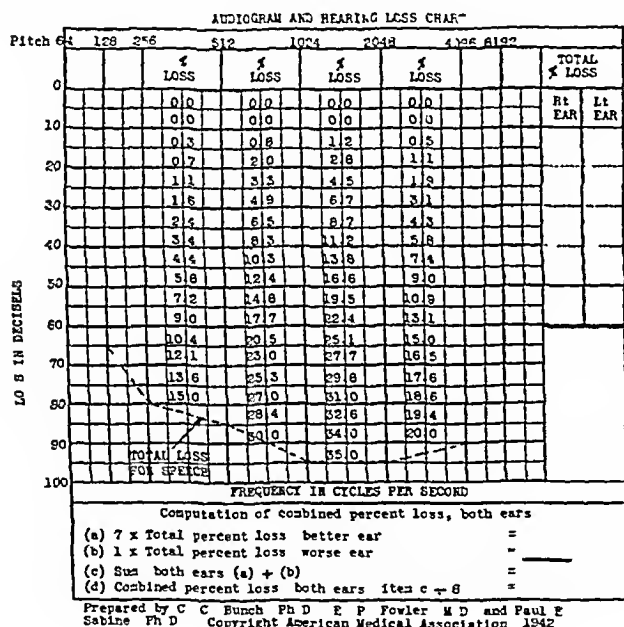


These percentages are based on existing data bearing on the relative values of the different portions of the auditory range for intelligibility of direct speech

5 In using the accompanying chart for evaluating percentage loss of hearing, the procedure is as follows

Measured hearing losses at the different frequencies for each ear are plotted in the usual manner. Successive points are connected by straight ruled lines. The percentage loss to be assigned to each octave interval is the figure in the space immediately above the straight line drawn in that octave. (When two or more spaces are intersected the average of the figures in the intersected spaces is to be taken.) The figures for the four octaves for each ear are set down in their respective columns headed Right Ear and Left Ear at the right of the chart. The sum of the figures in the column headed Right Ear is the total percentage loss of hearing for the right ear, and similarly for the left ear.

6 Computation of combined hearing loss for both ears. This computation is indicated at the bottom of the chart. The weighting of percentage loss shown by the better ear as compared with that by the worse ear of 7 to 1 represents the



Audiogram and hearing loss chart

composite judgment of the committee based on both clinical experience and practical considerations. The percentage loss of hearing is the average of the losses for the two ears taken separately weighted in the ratio of 7 to 1.

7 The percentages shown on the accompanying chart were arrived at from quantitative data to be found in the following references

- Bunch C C Usable Hearing *Ann Otol Rhin & Laryng* 49 3:9 (June) 1940
- Fletcher Harvey Speech and Hearing New York D Van Nostrand Company Inc 1929 pp 158 and 136
- Fowler E P Hearing Standards for Acceptance Disability and Discharge in the Military Services and in Industry *Tr Am Otol Soc* 1941
- Knudsen V O *Physical Review* 21 January 1923
- Sabine P E Estimating the Percentage Loss of Useful Hearing *Tr Am Acad Ophth & Otolaryng* March-April 1942
- Steinberg H C and Gardner M B The Auditory Significance of Hearing Loss *J Acous Soc America* 11 270 [No 3] 1940

The foregoing is recommended as a tentative standard procedure based on present knowledge of the relation between the audiometrically measured acuity of hearing and the ability to interpret direct speech in a familiar language.

This procedure is subject to revision when further authoritative data on the problem become available.

## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

ALSTIN E SMITH, M.D., Acting Secretary

**LIVER AND STOMACH PREPARATIONS** (See New and Nonofficial Remedies, 1941, p 328)

The following product has been accepted

**THE UPJOHN COMPANY, KALAMAZOO, MICH**

**Liver Liquid Extract Oral** 8 ounce bottle. A solution of the water soluble fraction extracted from mammalian liver. Each 45 cc (1½ fluidounces) represents 1 U S P oral unit.

**NORMAL HUMAN SERUM AND NORMAL HUMAN PLASMA** (See THE JOURNAL Sept 13, 1941 p 935, and the Revised Supplement to New and Nonofficial Remedies, 1941, p 30)

The following products have been accepted

**CUTTFR LABORATORIES, BERKELEY, CALIF**

**Normal Human Serum** 50 cc and 250 cc bottles. 1-10 000 sodium ethylmercuri-thiosalicylate is used as a preservative.

**Normal Human Plasma** 50 cc and 250 cc bottles. 1-10 000 sodium ethylmercuri-thiosalicylate is used as a preservative.

**SAMUEL DEUTSCH SERUM CENTER, MICHAEL REESE HOSPITAL, CHICAGO**

**Normal Human Serum** 250 cc. bottle. Merthiolate 1-10 000 is used as a preservative.

**Normal Human Serum (Diluted)** 250 cc bottle. Diluted with 250 cc of isotonic solution of sodium chloride. Merthiolate 1-10 000 is used as a preservative.

**Normal Human Plasma (Citrate)** 300 cc bottle. Merthiolate 1-10 000 is used as a preservative.

**Normal Human Plasma (Citrate) (Diluted)** 300 cc bottle. Diluted with 250 cc of isotonic solution of sodium chloride. Merthiolate 1-10,000 is used as a preservative.

**TINCTURE DIGITALIS** (See New and Nonofficial Remedies 1941 p 212)

The following dosage form has been accepted

**THE WY S MERRELL COMPANY, CINCINNATI**

**Tincture Digitalis** 1 ounce, 4 ounce, pint and gallon bottles

**SULFANILAMIDE** (See New and Nonofficial Remedies, 1941, p 503)

The following dosage form has been accepted

**CIBA PHARMACEUTICAL PRODUCTS, INC., SUMMIT, N J**

**Tablets Sulfanilamide** 0.5 Gm

**SULFAPYRIDINE** (See New and Nonofficial Remedies, 1941 p 508)

The following dosage form has been accepted

**CIBA PHARMACEUTICAL PRODUCTS, INC., SUMMIT, N J**

**Tablets Sulfapyridine** 0.5 Gm

**PHENOBARBITAL** (See New and Nonofficial Remedies, 1941 p 142)

The following dosage forms have been accepted

**SMITH-DORSEY COMPANY, LINCOLN, NEB**

**Tablets Phenobarbital** ½ grain, ¼ grain and ½ grain

**EPHEDRINE HYDROCHLORIDE** (See New and Nonofficial Remedies, 1941, p 245)

The following dosage form has been accepted

**GEORGE A BREON & COMPANY, INC., KANSAS CITY, MO**

**Solution Ephedrine Hydrochloride** 3% 1 ounce and 1 pint bottles. 0.5 per cent chlorobutanol added as preservative.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, AUGUST 1, 1942

## JAUNDICE FOLLOWING YELLOW FEVER VACCINATION

At his press conference in Washington on July 24, Secretary of War Henry L. Stimson reported that 28,585 cases of jaundice had developed among army personnel between January 1 and July 4 apparently from the use of vaccination against yellow fever. Of those affected, 24,057 were among troops in the United States and 4,528 among personnel abroad. The ratio of deaths was 1 for every 461 cases, or a total of 62 deaths in all. The information supplied did not state what proportion of those injected failed to develop jaundice. A report in the Washington, D. C., *Post* states that "in one camp 700 cases developed out of 15,000 men who were given the vaccine." Actually between two and two and a half millions of men have been inoculated.<sup>1</sup> The peak of incidence was in the week ended June 20, when 2,997 cases were reported in hospitals, whereas the week ended July 4 showed only 2,575 cases. In the meantime, as pointed out by Surg. Gen. James C. Magee, the form of the vaccine against yellow fever has been modified, the Surgeon General is confident that this change will eliminate the difficulty. Inquiry at the Office of the Surgeon General of the United States Navy indicated that the proportion of cases in the Navy was not as high as in the Army. Indeed so few as to be negligible.

In THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for July 18 an official release from the public relations bureau of the United States Army stated that there had been numerous admissions to Army hospitals on account of jaundice which had the characteristics of catarrhal jaundice but that the total number of cases in the entire army had not been enough to increase appreciably the admission rate for all diseases. Assurance was given further that the condition concerned was not yellow fever and should not be considered dangerous to the general public. In this connection physicians should be aware that the vaccination against yellow fever utilizes a living virus which

has been made innocuous by the usual techniques and which has the virtue, scientifically established, of building a defense against yellow fever.

The charge has been made by the *Chicago Tribune* that the medical department of the United States Army, and thereby our government has been "guilty of a grievous error of judgment." The *Tribune* asks "How did it happen that wholesale vaccinations were undertaken with a vaccine which quite obviously had not been thoroughly tested in advance?" The statement in the *Chicago Tribune* is unwarranted. Testing had been adequate. The vaccine had been tested in hundreds of thousands of cases. The procedure is, however, a new one and, as with all procedures in the field of medicine, the use of any new technic in the field may yield information which is quite different from that obtainable on preliminary testing. There is every reason to believe that vaccination against yellow fever is warranted and that the occurrence of 62 deaths and some 28,000 cases of jaundice associated with the vaccination of millions of men is far less serious than would be an epidemic of virulent yellow fever among soldiers sent to the tropical areas in which our army is now engaging the enemy.

In its editorial statement the *Chicago Tribune* says that "an inquiry is plainly indicated." That statement presupposes a stupidity on the part of medical science which is wholly unjustified. From the very moment when cases of jaundice first appeared in association with inoculation against yellow fever, the best medical talent available in the United States was concentrated on this question. In its study of epidemic and other diseases, the Army Medical Department does not depend exclusively on its peacetime personnel. It has engaged the facilities and the talent assembled by the Division of Medical Sciences of the National Research Council and it has established a consulting staff of physicians from civil life which represents the very best that the nation can supply.

The American Army has always been the most healthy army in the world. Its sickness and death rates today are, even with the temporary invalidism associated with the vaccination, far less than those of similar age groups in civilian life. This fact warranted the statement published in THE JOURNAL on July 18 that "the total number of cases in the entire army has not been enough to appreciably increase the admission rate for all diseases." By the type of editorial that has been printed in the *Chicago Tribune* has done a disservice to American medicine. Certainly by the fears it may create among soldiers now being inducted into our armed forces will injure morale and make more difficult the assembling the type of force that must be assembled to meet the challenge of our enemies. The hysteria which the editorial must have been prepared to create made impossible the kind of scientific investigation which charges such as the *Tribune* has made can be based

<sup>1</sup> See Yellow Fever Vaccination, p. 1114

## CURRENT NEEDS FOR MEDICAL AND HEALTH PERSONNEL

In an effort to determine just how large a medical personnel may be required in health departments and hospitals G St J Perrot and Harold F Dorn<sup>1</sup> of the Division of Public Health Methods, National Institute of Health, sent out a questionnaire to all such institutions. About 80 per cent, or 1,036 of the 1,272 health departments to which questionnaires were sent, reported that they now employ 16,921 technically trained full time paid persons and have existing vacancies for 1,093 persons. Needed to provide services made necessary by wartime activities is an additional 3,908 persons. If the 20 per cent of health departments which did not reply need proportionately as many persons, an estimated total of slightly more than 6,000 employees will be required by health departments. Forty per cent of these are public health nurses and 9 per cent physicians.

Private and nonfederal governmental hospitals reported that at present nearly 20,000 nonmedical professional and technical persons are needed and that planned expansion will require as many more. Forty-five per cent of these are graduate nurses and 21 per cent student nurses. "Many hospitals report that the difficulty of obtaining interns, residents and service and maintenance personnel is fully as great as the difficulty of obtaining technically trained persons. This shortage of personnel is partially the result of an increased demand for hospital service arising from the higher income of wage workers and, in certain areas, from a rapid increase in population because of the expansion of war industries. Equally important, however, is the loss of personnel, some of whom have been taken by the armed forces or governmental and military agencies needing trained persons, while others have left because higher wages and shorter hours could be obtained from employment in various war industries."

The report concludes that "the needs for personnel shown in the tables will increase as the armed forces expand, and as more and more persons are required for the expansion of war industries. With the exception of physicians, dentists and nurses, the armed forces are now training an appreciable proportion of their own requirements for technical health personnel. However, men of military age will continue to be taken for military service unless present policies are changed."

Probably no other problem of the war is as difficult from the sociologic, economic and other points of view as the problem of personnel. The training of great numbers of persons in excess of peacetime requirements may mean considerable unemployment after the war. Speeded education is likely to be incomplete and likely to result also in the appearance of many unqualified practitioners in all the professional fields when the emergency ends. Nevertheless the needs, as far as con-

cerns the protection of the public health and the provision of medical care for persons in mushroom towns and boom town areas, must be met. The problem is definitely one for the medical and public health professions. The Procurement and Assignment Service for Physicians, Dentists and Veterinarians should be able, with the complete cooperation of the medical profession, to take care of the medical aspects. During the period of the war physicians must be willing to dislocate themselves in order to meet these war needs exactly as they must be willing to volunteer for service with the armed forces as those forces require additional enlistments. If the medical profession can answer these calls as they should, the problem of postwar adjustment, with the retention of all the factors that make American medicine what it is today, is more likely to be solved suitably.

## SIGNIFICANCE OF THE LABILE METHYL GROUP

One of the more recent contributions of research is the elucidation of the part played in the mammalian organism by the "labile methyl" group, a chemical radical which is labile in the sense that it can, if need be, be transferred *in vivo* from one organic substance to another. This simple grouping has been found to be involved in lipid and in carbohydrate, as well as in protein, metabolism. Labile methyl is indispensable to the animal body and must be provided in the diet. Fortunately, the radical is found in a number of substances, including the amino acid methionine.

Much of our knowledge concerning the essential transferable methyl group has been gained from studies on the production and prevention of fatty livers. Thus it has been found that the accumulation of excess fat in the liver which occurs under particular experimental conditions may be counteracted more or less effectively by choline and by betaine, as well as by methionine or by protein containing this amino acid<sup>1</sup>. Study of the chemical makeup of these lipotropic substances reveals that they all possess one chemical group in common, namely the methyl group. Not all materials which contain this chemical grouping are, however, lipotropic. The methyl group to be effective must be capable of participation in transmethylation reactions. Ingenious experiments in which deuterium was used as an identifying element have revealed that the methyl group of methionine may be used by the rat for the synthesis of both choline and creatine<sup>2</sup>. Similarly, choline has been found to make possible the methylation of homocystine to methionine in the animal body<sup>3</sup>. A dietary deficiency of choline and of other sources of labile methyl produces in young rats a pathologic state char-

<sup>1</sup> Treadwell C R, Groothuis Marjorie and Eckstein H C *J Biol Chem* 142 653 (Feb) 1942. Griffith and Mulford.  
<sup>2</sup> du Vigneaud Vincent, Chandler J P, Cohn Mildred and Brown G B *J Biol Chem* 134 787 (July) 1940.  
<sup>3</sup> du Vigneaud Vincent, Chandler J P, Moyer A W and Keppel Dorothy M *J Biol Chem* 131 57 (Nov) 1939.

<sup>1</sup> Perrot G St J and Dorn H F *Pub Health Rep* 57 997 (July 3) 1942.

acterized by hemorrhagic degeneration of the kidneys. This condition may be prevented by choline, methionine or betaine.<sup>4</sup> The transferable methyl radical is also of importance in detoxication mechanisms in the organism. For example, the intoxication and the inhibition of growth effected by the administration of pyridine to rats may be counteracted by the inclusion of methionine or of choline and homocystine in the diets of the animals.<sup>5</sup> In the course of its detoxication, pyridine is apparently methylated to form methyl pyridinium hydroxide.

Recent research activity has already enhanced our estimate of the significance in nutrition of substances, such as choline and methionine, which bear a labile methyl radical. Further developments relating to the problem of the transferable methyl group will be awaited with interest.

## Current Comment

### "SHAM RAGE" IN MAN

The term "sham rage" has been suggested by Cannon and Britton<sup>1</sup> to describe spontaneous outbursts of motor activity in cats resembling fear and rage, resulting whenever the cortex of a cat is disconnected from the lower centers and the animal is allowed to emerge from anesthesia. This reaction, therefore, occurs in the absence of cortical and, presumably, in the absence of psychic elements. This and other evidence leaves little doubt that the integration of the processes concerned in the emotional expressions of rage and fear occurs centrally in the hypothalamus. However, the evidence available does not decide whether direct stimulation of the hypothalamus or allowing the hypothalamus to act in uninhibited fashion gives rise to the actual experience of fear, rage or any other affect as such in the human being. Now Wortis and Maurer<sup>2</sup> present 2 cases of "sham rage" in human beings, one following insulin hypoglycemia, the other following carbon monoxide poisoning. In neither case was the rage purposeful and at no time did the patients attempt to untie their restraints, strike the examiners or escape painful stimuli. In both cases there was apparent involvement of the higher centers, and the "sham rage," these workers believe, is the result of uninhibited hypothalamic discharge. They conclude also that the expression of emotion does not necessarily mean that the individual is experiencing emotion. There seems no reason, however, to accept the idea that the hypothalamus is the "emotional center" of the body. Affects and emotions are highly complicated psychosomatic processes which require, among other things, a functioning cerebral cortex.

<sup>4</sup> Griffith, W. H., and Mulford, D. J. *J. Nutrition* **21**: 633 (June) 1941.

<sup>5</sup> Stekol, J. A., and Conway, W. J. *Abstr. Atlantic City Meeting of American Chemical Society, Division of Biological Chemistry*, September 1941, p. 13.

<sup>1</sup> Cannon, W. B., and Britton, S. W. *Studies on the Conditions of Activity in Endocrine Glands*. *Am. J. Physiol.* **72**: 283 (April) 1925.

<sup>2</sup> Wortis, Herman, and Maurer, W. S. "Sham Rage" in Man, *Am. J. Psychiat.* **98**: 638 (March) 1942.

### MEDICAL CARE IN CONNECTICUT

The medical society of the state of Connecticut has recently issued a booklet entitled "This Is Medical Care in Connecticut."<sup>1</sup> This planographed pamphlet of forty-eight pages sets forth in pictures and brief notations the story of medical care in Connecticut. Such subjects as safer childbirth, supervision of well babies, hospital care, modern diagnostic methods, control of milk borne epidemics, recreation, reeducation of the mentally ill, measures against cancer, prophylaxis against infection of minor wounds, pneumonia, industrial health and accident hazards, transfusion, blood banks and plasma, antepartum service including father-classes, and health of the individual over 50 comprise its content. The theme of the book, on page 1, is shown by a picture of a physician making a home call and the legend "Your Doctor Makes Connecticut a Healthy State." On the last page are the dates 1792 and 1942 and the statement "For one hundred and fifty years the physicians of the Connecticut State Medical Society have protected the health of the people of Connecticut." With its cover in full color bearing the state flag of Connecticut and the seal of the state medical society, its attractive pictorial handling with a minimum of text, and a map showing the distribution of hospitals in Connecticut, this booklet should enlighten Connecticut people as to what their doctors have done for them. Such interpretation of medical care by those who give it for those who receive it helps to promote understanding between doctor and patient.

### CONSERVATION OF DRUGS AND MEDICAL SUPPLIES

Elsewhere in this issue appears a statement developed by the Subcommittee on Hospital and Medical Supplies and by the Committee on Drugs and Medical Supplies of the Division of Medical Sciences of the National Research Council relative to the conservation of important materials used in medical practice. Eventually a shortage may occur, because the supply of many materials is beginning to be restricted. Obviously the supply of all materials depending on steel, aluminum, nickel, rubber, alcohol, glycerin, quinine, zinc or other similarly important elements is likely to be restricted because these are the materials that find such special purposes in the production of the instruments of warfare. There are innumerable ways in which the staffs of hospitals and physicians in their offices may conserve such materials—most important, however, being the avoidance of wastage. Far too often doctors and nurses are careless in their use of adhesive tape, withdrawing from spools more material than is actually going to be needed. Alcohol may be wasted by pouring away materials that can be easily reclaimed. Rubber gloves with the proper attention will outlast by double the length of their usual life. The American Hospital Association and staffs of various institutions should aid in such a campaign in every way possible. Posters may be prepared by such organizations and by manufacturers of such products which, distributed and posted throughout the hospital, will serve as a constant reminder to users of the necessity for careful conservation.

<sup>1</sup> This Is Medical Care in Connecticut. New Haven: Connecticut State Medical Society, copyright 1942.

# MEDICINE AND THE WAR

*In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession*

## CONSERVATION OF MEDICAL SUPPLIES

The medical profession and hospitals of the country must practice the most severe economy possible in the use of supplies containing materials essential to the conduct of the war. Rubber, metals, fixed equipment, chemicals and drugs must be conserved to the utmost to make the supply last for the duration of the war. Rubber gloves, when torn, should be patched, rubber drainage material should be resterilized and used again. Adhesive plaster contains rubber. Two pieces should not be used when one will suffice. Better yet, none at all should be used if a cotton bandage will be an adequate substitute. Unnecessarily large dressings should be avoided. Catgut must be conserved. Alcohol and other chemicals should be used as sparingly as possible.

It is expected that hospital supplies will be available in sufficient amount to meet the needs of civilian patients, but only if those needs are reduced to a

minimum. Enormous quantities must be supplied to the military hospitals and to our allies, despite the fact that the materials from which most of the articles are made are in demand for other purposes. Waste, however slight, must be scrupulously avoided.

This program has the endorsement of the Health Supplies Branch of the War Production Board.

### Committee on Drugs and Medical Supplies

W W Palmer, Chairman, Perrin H Long, Vice Chairman, Morris Fishbein, Evarts A Graham (ex officio), Ernest E Irons, E F Kelly, George W Merck, O H Perry Pepper (ex officio), John G Searle

### Subcommittee on Hospital and Surgical Supplies

Evarts A Graham, Chairman, C W Munger, Mont R Reid, Edward J Sovatkin, G W Wallerich

## PROCUREMENT AND ASSIGNMENT SERVICE FOR PHYSICIANS, DENTISTS AND VETERINARIANS

### QUESTIONS FREQUENTLY ASKED WITH ANSWERS OFFICIALLY RELEASED BY THE BOARD

FRANK H LAHEY, CHAIRMAN

#### GRADUATES OF FOREIGN MEDICAL SCHOOLS

1 Q What can a graduate of a foreign medical school (aged 33 citizen) do to obtain a commission in some branch of the defense effort? What can he do to avoid being drafted as a private?

A If such a man is willing to be dislocated for war effort, his best opportunity would be in industrial medicine and surgery or in some of the areas in which the department of public health is seeking to locate physicians. He might be able to obtain a commission with the Army if he complies with the recently formulated conditions for class B medical school graduates.

MEN OVER 45—OVER 60

2 Q What is the program for men of 60 years of age? For those between 45 and 60?

A Men over 60 will be best utilized to take up the additional local load caused by the departure of younger men. Those between 45 and 60 would serve in this same fashion except in instances of specialists whose training makes them particularly desirable for the Army and who can obtain commissions granted for these special purposes.

#### OFFICE LEASES AND OTHER OBLIGATIONS

3 Q What happens to office leases? Payments on installment purchases? H O L C obligations?

A The Soldiers and Sailors' Civil Relief Act has been enacted by Congress to free persons in military service from harassment and injury to their civil rights during their terms

of service and thus to enable them to devote their entire energy to the defense needs of the nation. The present law, however, does not apply to office leases; it applies to leases of property used for household purposes. Pending legislation does provide a method by which office leases may be canceled. Protection is afforded in the case of installment contracts, mortgages, insurance premiums, taxes and the like. The law does not relieve you from liability but prevents the enforcement to your detriment of the terms of your agreement while you are in service. A detailed outline of the present law was published in THE JOURNAL, Jan 24 1942, page 306. The pending legislation which has already passed the House of Representatives will further safeguard the civil rights of persons in military service.

#### SELECTED APPOINTMENTS

4 Q Can one select service under a certain doctor?

A No, but one may ask for service in a certain outfit and will have to run his chances of getting it.

#### CALLED BY SELECTIVE SERVICE

5 Q What happens if a man has given his name to Procurement and Assignment? and his name is drawn by the draft but he has not been called by Procurement and Assignment?

A This man should appeal to his state Procurement and Assignment chairman to intervene on his behalf.

#### ENROLMENT AND ENLISTMENT

6 Q Is the word 'enrolment' interpreted as an 'enlistment' in the terms of the act?

A No.

#### PLACES FOR SPECIALISTS

7 Q For this emergency you speak of there are many of us between 37 and 45 who are willing to go at once if needed.



but are not certified with any board as specialists but are nevertheless capable Should we then wait for the Procurement and Assignment service to place us?

A Procurement and Assignment cannot place men Such men should request commissions, giving their professional qualifications, and they may ask that the state chairman of Procurement and Assignment write a confirmatory letter for them

INTERNSHIPS OF TWO YEARS

8 Q What is attitude toward the intern in hospitals where two years' internship is regular appointment?

A Deferment for one year's internship is all that is allowed at the present time

RESIDENTS

9 Q What will be the disposition of residents in teaching hospitals connected with medical schools?

A Procurement and Assignment is making efforts to preserve enough residents in teaching hospitals to carry on the hospital service and to assure a continuing supply of specialists

ESSENTIAL TEACHERS

10 Q I want to get into active military service, but my medical school where I am teaching says that I am necessary for that school What shall I do? Will I be looked on as a shirker if I stay at home when my associates go and risk their lives?

A This man should stay home unless he can provide his medical school with some one capable of taking his place and thus be released as available

ASSISTANT TO A SURGEON

11 Q In what way does the Procurement Board evaluate one who has been assistant to a surgeon for eight years in his total practice?

A The Procurement Board would consider such a man suitable for service with a station hospital as assistant surgeon or ward surgeon

ESSENTIAL ON HOSPITAL STAFF

12 Q On what basis do you call a man essential at a hospital? What yardstick do you use to call men essential to the hospital staff? What should the man who is 48 years of age and is on the essential list of a hospital do as to volunteering to the government service?

A Each hospital is supposed to make its own list of essential men, which is submitted to the state chairman of Procurement and Assignment If he agrees, they are considered essential, if he does not, the hospital will be required to modify its list Men on the essential list over 45 years of age should not volunteer except for highly special service

REASSIGNMENT OF MEDICAL OFFICERS IN ADMINISTRATIVE POSITIONS

Several hundred Medical Corps officers, currently engaged in such administrative posts as adjutants, inspectors and mess officers, will be reassigned "to posts in which their professional medical training can be utilized to the fullest extent," Mr Stimson said in a recent interview Medical Administrative Corps officers will replace the reassigned doctors The new move, he stated, "is part of a comprehensive plan by which the Army seeks to fill the need for about twenty thousand additional doctors by the end of 1942" and "supplements a previously announced recruiting program throughout the nation by which most of the doctors are to be obtained"

YELLOW FEVER VACCINATION

A review of the work of the Rockefeller Foundation for 1941 by the president, Raymond B Fosdick, states that in 1936 the laboratories of the International Health Division of the foundation developed a vaccine which provides active immunity against yellow fever after a single injection As a result of the war emergency the demand for this vaccine has been so great that, in order to produce it in the quantities required,

PHYSICAL QUALIFICATIONS OF MEDICAL STUDENTS

13 Q Should students who are not physically up to the army and navy standards be admitted to medical schools?

A Yes Failure to meet physical standards should not exclude promising young persons from medical education Furthermore, this type of student may be highly important in the next few years to carry on hospital and teaching work

OBSTETRICIANS

14 Q What should men doing obstetrics do?

A Men doing obstetrics should conform to the general requirements of their age group laid down for the rest of the profession

FAILURE OF PHYSICIANS TO APPLY FOR COMMISSION

15 Q If a doctor has been notified through Procurement and Assignment service that he had been selected and to apply for a commission, is it compulsory that he apply immediately? What if I don't answer questionnaire and enrolment blanks?

A It is not compulsory Certainly it is expected that physicians will cooperate, if they fail to do so, they are not doing what they should to aid our nation in meeting our great emergency

LIMITED SERVICE

16 Q—Do you wish applicants who have physical defects but could work under limited strain?

A Yes, if they can meet the requirements for limited service

SPECIALTY SERVICES

17 Q I had intended going into a specialty this summer and have been taking postgraduate work in that direction with the intention of taking a residency in that specialty this summer Is there any way in which I can possibly get into that specialty through the armed forces—such as taking courses or a residency in one of the government hospitals?

A If a man is commissioned in the Medical Corps of the Army he may request assignment to positions where he could pursue a specialty, but there is no obligation, of course, on the Medical Corps to meet his request

WAIVERS OF PHYSICAL DEFECTS

18 Q If I have a physical defect and sign a statement to that effect in applying for a commission in the Army, do I thereby waive any benefits to which I might be justly entitled?

A No The statement or affidavit does not constitute a waiver of any benefits It is merely an acknowledgment of the existence of a physical disability which would, unless waived by the Army, preclude the granting of a commission to you The statement you sign forms a basis of action by the Adjutant General's Office looking toward the waiver of your disability so that you may be accepted for military service

the foundation has had to double both its laboratory space and the number of its technicians  
The distribution of yellow fever vaccine manufactured by the foundation in New York in 1941 was as follows

|                                     | Number of Doses |
|-------------------------------------|-----------------|
| United States Army                  | 959 300         |
| United States Navy                  | 960 000         |
| United States Public Health Service | 3 000           |
| Panama Canal Zone                   | 4 000           |
| Virgin Islands                      | 12,000          |
| Total for United States government  | 1 928 300       |
| West Africa                         | 152 000         |
| South Africa                        | 158 000         |
| East Africa                         | 1,662 380       |
| Total for Africa                    | 1 972 380       |
| India                               | 1 000 000       |
| Brazil                              | 2 000 000       |
| Singapore                           | 1 000 000       |
| Grand total                         | 4 892 680       |

In addition to these amounts the United States Army and Navy have asked the foundation to supply them with 10 million doses more during 1942 In all cases, however, abroad, the vaccine is, of course, furnished without charge

SELECTIVE SERVICE REGISTRANTS IN TENNESSEE QUALIFIED  
FOR LIMITED MILITARY SERVICE

With Attention to Remediable Defects

JOE W FENN, M D

Major Medical Corps U S Army  
Chief Medical Division

HARRISON J SHULL, M D

Major Medical Corps U S Army

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State Commissioner of Health  
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Nashville, Tenn

Early in the operation of Selective Service in Tennessee it was realized that the information regarding physical findings of the examined registrants would be of value for a study of the nature and extent of the health and medical problems in Tennessee and for administrative purposes in the conduct of the program. Accordingly a procedure was developed for the analysis of each registrant's report of physical examination (Selective Service Form 200), which was completed by the local Selective Service boards during the period from Feb 15, 1941 to Jan 1, 1942. The study included also a further analysis of causes of rejections of those registrants who were sent to the Army induction stations during this period.

The purposes of the present report are twofold: namely (1) to show the nature of defects found on examination with the frequency of occurrence of these defects and (2) to present a reasonable estimate of the number of registrants qualified for limited military service who may be qualified for general military service by institution of corrective medical, surgical or dental procedures for rehabilitation.

All diseases and conditions have been coded under a detailed diagnosis code of three hundred and one title numbers for diseases and conditions. Personnel already carefully trained in coding physical defects were used to code all defects found on the report of physical examination. All coding was checked by a second coder to insure accuracy. The coded data were then transferred to especially prepared punch cards, from which tabulations were prepared.

In the tabulations for this report all diseases and conditions were divided into two groups, namely (1) diseases and conditions which may be remediable and (2) diseases and conditions which probably are not remediable. In general, the so-called remediable defects are those which can probably be corrected for a high percentage of the registrants and the registrants made available for military service. The list of remediable defects conforms in important and practical aspects to those defects considered remediable by Standards of Physical Examinations during Mobilization (MR 1-9, March 15, 1942).

The data included in the report were obtained from the physical examinations made under the jurisdiction of one hundred and thirty-three local Selective Service boards located in the ninety-five counties of Tennessee and from examinations of Tennessee selectees at Fort Oglethorpe, Georgia and Camp Forrest, Tennessee, Army induction stations. These local board examinations were made by six hundred and twenty-five civilian physicians of whom the majority were general practitioners and by specialists of varying interests both as

local board examiners and as medical advisory board members. This report includes a relatively small number of selectees (375) whose defects were first determined by army physicians without the men having been examined completely by the local board examiners.

The registrants have been classified in three groups: I-A, qualified for general military service, I-B qualified for limited military service, and IV-F, disqualified for military service.

A large proportion of the registrants classed I-A have been sent to induction stations, and if no disqualifying defects were discovered they have been inducted into the Army. Since the program was modified during the year to exclude registrants 28 years and over, some of the men 28 years and over classed

TABLE 1—Classification of 47 880 Registrants by Local Boards and Induction Stations by Color

| Color   | Total   | Classification   |             |  |             |   |             |
|---------|---------|--|-------------|--|-------------|---|-------------|
|         |         | I A<br>Qualified<br>for General<br>Military<br>Service |             | I B<br>Qualified<br>for Limited<br>Military<br>Service |             | IV F<br>Disqualified<br>for Military<br>Service |             |
|         |         | Num<br>ber   | Per<br>Cent | Num<br>ber   | Per<br>Cent | Num<br>ber                                      | Per<br>Cent |
| Total   | 47 880* | 25 181*  | 52.6        | 11 809*  | 24.8        | 10 890*   | 22.6        |
| White   | 36 795  | 20 196   | 54.9        | 7 793  | 21.2        | 6 801   | 23.9        |
| Colored | 11 075  | 4 984  | 45.0        | 4 009  | 36.7        | 2 022   | 18.3        |

\* Total includes 10 registrants of unknown color of whom 4 were accepted for general military service and 2 for limited military service and 4 were disqualified.

I-A by local boards were not sent to induction stations during the period of this study, and thus it is not known whether or not they would have been rejected.

During the period physical examination forms were received for 4 650 registrants (2,956 white and 1,694 colored registrants) classed IV-F, rejected for military service because of lack of educational qualifications. Since 3,734 of these registrants were not given a physical examination, they have not been included in this analysis. As these forms were requested for only part of the period, this cannot be said to be the entire group of registrants who lacked the required educational qualifications.

In considering the rehabilitation of registrants through correction of physical defects, probably these men who were rejected because of the lack of educational qualifications should also be considered as possible manpower for the Army. Since the physical examinations of these selectees have not been completed the number who are otherwise acceptable for military service is not known. Through educational courses many of these men may gain sufficient knowledge of elementary school work to carry through their work in the Army satisfactorily. Nearly all of these regis-

From Tennessee Selective Service Headquarters and Tennessee Department of Public Health. Acknowledgement is made to Brig Gen T A Frazier, State Director of Selective Service for his interest and cooperation.

tants may have had either no opportunity or a very limited opportunity to attend school

The classifications by local boards and induction stations of the 47,770 registrants included in this analysis are shown in table 1. Slightly over half (52.6 per cent) of these registrants were considered qualified for general military service. Of the 22,696 registrants not qualified for general military service, 20,497 were rejected by local boards and 2,199 by induction stations.

The defects found on the examination of these registrants have been studied and are shown in table 2. Some of the registrants had outstanding disqualifying defects, for instance, patients in tuberculosis hospitals or mental institutions, so that they were not examined for other conditions. Since the prevalence of diseases and conditions other than the disqualifying conditions among these men was not known, these registrants are included only in the total number examined for the disqualifying defect or condition in the study of preva-

lence of these conditions. Also some of the registrants rejected had more than one defect and all defects are considered in this table.

The most common defect or disease observed in the group of registrants examined was syphilis, which was found in 3,555 (8.3 per cent) of those examined. In the group of registrants examined for syphilis 3,502, or 8.1 per cent, were found to have syphilis other than cerebrospinal, cardiovascular or visceral syphilis and for this reason were classified as I-B. An additional 53, or 0.1 per cent, were found to have the disease in the form of cerebrospinal, cardiovascular or visceral syphilis and for these reasons were classified as IV-F. Syphilis was found to be nearly ten times as prevalent among colored as among white registrants. The second most common among these diseases or conditions was musculoskeletal defects, with 3,234 (7.4 per cent) of the men examined for these defects classed as I-B or IV-F. Other very prevalent causes of rejection were dental defects, eye defects and defects of the cardiovascular system.

TABLE 2—Results of Examinations of Each System and for Certain Diseases by Local Boards and Induction Stations, and Classification of Defect as Disqualifying or for Limited Service, by Color

| System or Disease      | Total *        |                     |          |                   |          | White          |                     |          |                   |          | Colored        |                     |          |                   |          |
|------------------------|----------------|---------------------|----------|-------------------|----------|----------------|---------------------|----------|-------------------|----------|----------------|---------------------|----------|-------------------|----------|
|                        | Total Examined | I B Limited Service |          | IV F Disqualified |          | Total Examined | I B Limited Service |          | IV F Disqualified |          | Total Examined | I B Limited Service |          | IV F Disqualified |          |
|                        |                | Number              | Per Cent | Number            | Per Cent |                | Number              | Per Cent | Number            | Per Cent |                | Number              | Per Cent | Number            | Per Cent |
|                        |                |                     |          |                   |          |                |                     |          |                   |          |                |                     |          |                   |          |
| Eyes                   | 43,205         | 2,004               | 4.6      | 585               | 1.4      | 33,036         | 1,689               | 5.1      | 489               | 1.5      | 10,159         | 314                 | 3.1      | 96                | 0.9      |
| Ears, nose and throat  | 43,113         | 414                 | 1.0      | 867               | 2.0      | 32,978         | 368                 | 1.1      | 798               | 2.4      | 10,125         | 46                  | 0.5      | 61                | 0.6      |
| Mouth                  | 43,037         | 713                 | 1.7      | 464               | 1.1      | 32,915         | 545                 | 1.7      | 379               | 1.2      | 10,112         | 168                 | 1.7      | 55                | 0.5      |
| Teeth                  | 43,135         | 2,329               | 5.4      | 697               | 1.6      | 32,988         | 1,850               | 5.6      | 527               | 1.6      | 10,137         | 479                 | 4.7      | 140               | 1.4      |
| Skin                   | 42,884         | 154                 | 0.4      | 96                | 0.2      | 32,788         | 132                 | 0.4      | 81                | 0.2      | 10,086         | 22                  | 0.2      | 13                | 0.1      |
| Varicose veins         | 42,868         | 239                 | 0.6      | 151               | 0.4      | 32,772         | 207                 | 0.6      | 119               | 0.4      | 10,086         | 51                  | 0.5      | 39                | 0.4      |
| Hernia                 | 42,887         | 1,705               | 4.0      | 145               | 0.3      | 32,784         | 1,215               | 3.7      | 100               | 0.3      | 10,093         | 490                 | 4.9      | 45                | 0.4      |
| Hemorrhoids            | 42,846         | 108                 | 0.3      | 28                | 0.1      | 32,753         | 81                  | 0.2      | 18                | 0.1      | 10,083         | 27                  | 0.3      | 10                | 0.1      |
| Genitourinary          | 42,889         | 532                 | 1.2      | 325               | 0.8      | 32,784         | 420                 | 1.3      | 251               | 0.8      | 10,095         | 112                 | 1.1      | 41                | 0.4      |
| Feet                   | 42,913         | 621                 | 1.4      | 407               | 0.9      | 32,806         | 509                 | 1.6      | 317               | 1.0      | 10,097         | 112                 | 1.1      | 60                | 0.6      |
| Musculoskeletal        | 43,938         | 1,040               | 2.4      | 2,198             | 5.0      | 33,672         | 878                 | 2.6      | 1,832             | 5.4      | 10,246         | 138                 | 1.5      | 45                | 0.5      |
| Abdominal viscera      | 42,869         | 129                 | 0.3      | 190               | 0.4      | 32,772         | 109                 | 0.3      | 156               | 0.5      | 10,087         | 20                  | 0.2      | 4                 | 0.0      |
| Cardiovascular         | 42,920         | 347                 | 0.8      | 1,888             | 4.4      | 32,817         | 260                 | 0.8      | 1,441             | 4.4      | 10,098         | 87                  | 0.9      | 41                | 0.4      |
| Tuberculosis           | 43,067         | 27                  | 0.1      | 616               | 1.5      | 32,925         | 24                  | 0.1      | 514               | 1.6      | 10,132         | 3                   | 0.0      | 129               | 1.3      |
| Lungs, other diseases  | 42,871         | 211                 | 0.5      | 249               | 0.6      | 32,773         | 175                 | 0.5      | 189               | 0.6      | 10,088         | 36                  | 0.4      | 61                | 0.6      |
| Nervous system         | 43,006         | 181                 | 0.4      | 1,851             | 4.2      | 33,435         | 155                 | 0.5      | 1,627             | 0.5      | 10,161         | 26                  | 0.3      | 231               | 2.3      |
| Endocrine disturbances | 42,874         | 123                 | 0.3      | 312               | 0.7      | 32,778         | 100                 | 0.3      | 268               | 0.8      | 10,086         | 23                  | 0.2      | 41                | 0.4      |
| Syphilis               | 43,034         | 3,502               | 8.1      | 53                | 0.1      | 32,888         | 861                 | 2.6      | 30                | 0.1      | 10,136         | 2,640               | 26.0     | 21                | 0.2      |
| Gonorrhea              | 42,870         | 1,062               | 2.5      | 29                | 0.1      | 32,762         | 236                 | 0.7      | 15                | 0.0      | 10,090         | 826                 | 8.2      | 11                | 0.1      |
| Height                 | 43,204         | 1                   | 0.0      | 77                | 0.2      | 33,032         | 1                   | 0.0      | 59                | 0.2      | 10,162         | 1                   | 0.0      | 12                | 0.1      |
| Weight                 | 42,950         | 1,023               | 2.4      | 434               | 1.0      | 32,842         | 937                 | 2.9      | 302               | 1.2      | 10,098         | 86                  | 0.9      | 47                | 0.5      |
| General diseases       | 43,204         | 125                 | 0.3      | 259               | 0.6      | 33,032         | 106                 | 0.3      | 209               | 0.6      | 10,162         | 19                  | 0.2      | 21                | 0.2      |
| Illiteracy             | 43,204         |                     |          | 916               | 2.1      | 33,032         |                     |          | 679               | 2.1      | 10,162         |                     |          | 21                | 0.2      |

\* Totals include 10 of unknown color

† Less than 0.05 per cent

lence of these conditions. Also some of the registrants rejected had more than one defect and all defects are considered in this table.

The most common defect or disease observed in the group of registrants examined was syphilis, which was found in 3,555 (8.3 per cent) of those examined. In the group of registrants examined for syphilis 3,502, or 8.1 per cent, were found to have syphilis other than cerebrospinal, cardiovascular or visceral syphilis and for this reason were classified as I-B. An additional 53, or 0.1 per cent, were found to have the disease in the form of cerebrospinal, cardiovascular or visceral syphilis and for these reasons were classified as IV-F. Syphilis was found to be nearly ten times as prevalent among colored as among white registrants. The second most common among these diseases or conditions was musculoskeletal defects, with 3,234 (7.4 per cent) of the men examined for these defects classed as I-B or IV-F. Other very prevalent causes of rejection were dental defects, eye defects and defects of the cardiovascular system.

Since according to the physical standards of the Selective Service regulations the registrants classed IV-F are

considered to have "deviations from normal function of structure causing unconditional rejection for active military service," the defects of these registrants are not considered in the following discussion of rehabilitation. However, the registrants with diseases or conditions causing them to be classed I-B (qualified for limited military service) can be considered as men who might be available for service after corrections have been made.

It was pointed out earlier in this report that many general practitioners and specialists cooperated in the examination of registrants. This must be kept clearly in mind in the following discussion, since the remediability of a defect in a given registrant depends on the findings and opinion of the examiner. Thus it can be seen that not necessarily all defects classed here as remediable would be so classified if the determination were made solely on that basis by an army examination team. Allowing for these discrepancies, it is felt that with a fair degree of accuracy a rough estimate of the number of men who may be made available for military service can be obtained.

In discussing availability for general military service of registrants qualified for limited military service, the length of time for treatment should be considered. With present methods of treatment with the sulfonamide men with gonorrhea may be reclassified for active service within six weeks or less after discovery. With for those with syphilis the course of treatment is considerably longer. In Tennessee the treatment of gonorrhea and syphilis for those registrants unable to get private physicians is being carried on by the health departments in counties with full time health officers. In the group of registrants being studied 11,869 classed I-B (qualified for limited military service) are shown in table 1. Since these registrants may have one or more diseases or conditions causing them to be I-B, the possibility of remediability is considered in relation to the number of defects severe enough to cause classification. Of these 11,869 registrants 9,445 (79.6 per cent) were found to have only one defect.

(17.9 per cent) two defects and 304 (2.6 per cent) three or more defects causing classification I-B. These data are given in detail by color in table 3.

The defects of the 9,443 registrants with one defect causing classification I-B have been divided into two

TABLE 3—Number of Defects Causing Rejection Among Registrants Qualified for Limited Military Service by Color

| Number of Defects Causing Rejection of Registrants | Total  |          | White  |          | Colored |          |
|--|--------|----------|--------|----------|---------|----------|
|  | Number | Per Cent | Number | Per Cent | Number  | Per Cent |
| Total registrants                                  | 11,899 | 100      | 6,197  | 100      | 4,000   | 100      |
| One defect   | 9,443* | 79.6     | 6,197  | 79.5     | 3,944   | 79.7     |
| Two defects  | 2,122  | 17.9     | 1,416  | 18.2     | 706     | 17.4     |
| Three defects                                      | 206    | 2.2      | 162    | 2.1      | 101     | 2.6      |
| Four defects                                       | 36     | 0.3      | 22     | 0.3      | 14      | 0        |
| Five defects                                       | 1      | †        | 1      | †        |         |          |
| Six defects  | 1      | †        |        |          | 1       | †        |

\* Total includes 2 men of unknown color.  
† Less than 0.05 per cent.

groups, remediable and nonremediable. The nature of the remediable defects of this group are shown in table 4. In all, 6,476 (68.6 per cent) were considered to have remediable defects as defined earlier in the report. Primary, secondary and latent syphilis was the one defect found for 2,211 (23.4 per cent) of these men with one defect. The percentage of these men with primary, secondary or latent syphilis was much higher for the colored (52.5 per cent) than for the white men (8.2 per cent). The second, third and fourth most common among the defects classed remediable were defective and deficient teeth, hernia and gonorrhea.

In considering rehabilitation of registrants with two or more defects causing classification I-B, it was necessary to select only men with all defects remediable. For this reason the number of men with two or more defects with these defects remediable was proportionately smaller than the proportion among men with one defect. In table 5 are given the number of white registrants with two or more defects, the number of these registrants with all defects remediable and the nature

TABLE 4—Nature of Remediable Defects Among 9,443 Registrants Qualified for Limited Military Service Because of One Defect by Color

| Nature of Remediable Defects           | Total  | White | Colored |
|--|--------|-------|---------|
| Total registrants                      | 9,443* | 6,197 | 3,244   |
| Total with remediable defects          | 6,476* | 3,609 | 2,866   |
| Primary, secondary and latent syphilis | 2,211* | 597   | 1,703   |
| Defective and deficient teeth          | 1,201  | 1,083 | 218     |
| Hernia                                 | 1,015  | 763   | 252     |
| Gonorrhea                              | 647    | 145   | 502     |
| Underweight                            | 429    | 406   | 23      |
| Pyorrhea                               | 150    | 132   | 27      |
| Varicocele                             | 136    | 115   | 21      |
| Varicose veins                         | 104    | 80    | 9       |
| Obesity                                | 75     | 60    | 15      |
| Undescended testicle                   | 64     | 49    | 15      |
| Hemorrhoids                            | 57     | 43    | 14      |
| Recent wounds                          | 53     | 45    | 8       |
| Other                                  | 220    | 166   | 59      |

\* Total includes 2 men of unknown color, 1 with a remediable defect and the other with a nonremediable defect.

of the remediable defects. Of the 1,601 white registrants 548 (34.2 per cent) may be considered to have remediable defects. The defects of these 548 men totaled 1,149, of which defective and deficient teeth and pyorrhea were the most common.

Similar data for colored registrants with two or more defects are given in table 6. For these colored men,

primary, secondary and latent syphilis and gonorrhea are the most common remediable defects.

The total number of registrants qualified for limited military service with remediable defects are given in table 7, by color. In all 7,543 (63.6 per cent) of the 11,869 registrants qualified for limited military service have remediable defects, and through correction and treatment these men may be made fit for military duty. The percentage of these colored registrants with

TABLE 5—Remediable Defects Among 11,149 Registrants Qualified for Limited Military Service with Two or More Defects Disqualifying for General Military Service

|  | Total  | Number of Defects |           |           |           |
|--|--------|-------------------|-----------|-----------|-----------|
|  |        | 2 Defects         | 3 Defects | 4 Defects | 5 Defects |
| Registrants qualified for limited military service | 11,149 | 1,416             | 162       | 22        | 1         |
| Registrants with remediable defects                | 515    | 401               | 42        | 4         | 1         |
| Total remediable defects                           | 1,149  | 1,002             | 126       | 16        | 5         |
| Primary, secondary and latent syphilis             | 401    | 110               | 17        | 3         | 1         |
| Defective and deficient teeth                      | 306    | 201               | 33        | 2         |           |
| Hernia   | 105    | 121               | 11        | 3         |           |
| Gonorrhea  | 4      | 38                | 4         | 1         |           |
| Underweight  | 80     | 79                | 6         |           |           |
| Pyorrhea   | 180    | 163               | 21        | 4         | 1         |
| Varicocele   | 34     | 31                | 3         |           |           |
| Varicose veins                                     | 39     | 32                | 5         | 2         |           |
| Obesity  | 20     | 17                | 2         |           | 1         |
| Undescended testicle                               | 13     | 11                | 1         | 1         |           |
| Hemorrhoids  | 11     | 7                 | 4         |           |           |
| Recent wounds                                      | 4      | 4                 |           |           |           |
| Other  | 100    | 79                | 19        |           | 2         |

TABLE 6—Remediable Defects Among Colored Registrants Qualified for Limited Military Service with Two or More Defects Disqualifying for General Military Service

|  | Total | Number of Defects |           |           |           |
|--|-------|-------------------|-----------|-----------|-----------|
|  |       | 2 Defects         | 3 Defects | 4 Defects | 5 Defects |
| Registrants qualified for limited military service | 825   | 766               | 104       | 14        | 1         |
| Registrants with remediable defects                | 510   | 473               | 43        | 3         |           |
| Total remediable defects                           | 1,037 | 946               | 129       | 12        |           |
| Primary, secondary and latent syphilis             | 401   | 362               | 36        | 3         |           |
| Defective and deficient teeth                      | 159   | 127               | 29        | 3         |           |
| Hernia   | 143   | 123               | 10        |           |           |
| Gonorrhea  | 21    | 213               | 15        | 3         |           |
| Underweight  | 6     | 2                 | 3         |           |           |
| Pyorrhea   | 74    | 47                | 24        | 3         |           |
| Varicocele   | 3     | 3                 |           |           |           |
| Varicose veins                                     | 15    | 11                | 4         |           |           |
| Obesity  | 3     | 2                 | 1         |           |           |
| Undescended testicle                               | 5     | 5                 |           |           |           |
| Hemorrhoids  | 6     | 5                 | 1         |           |           |
| Recent wounds                                      | 4     | 4                 |           |           |           |
| Other  | 37    | 31                | 6         |           |           |

remediable defects (83.2 per cent) was found to be higher than that of the white registrants (53.3 per cent).

The nature of the 8,712 remediable defects of these 7,543 registrants is shown in thirteen groups in table 8. Primary, secondary and latent syphilis was the most common with 2,752, or 31.6 per cent of these defects, in this group. Defective and deficient teeth were the defects of 1,796 registrants and hernia of 1,293. Gonorrhea was stated for 921 registrants. The nature of the remediable defects differed considerably for white and colored registrants.

The classifications of the whole group of 47,880 registrants included in this analysis have been studied in view of availability for military service and rehabilita-

TABLE 7—Number and Percentage of Registrants Qualified for Limited Military Service with Remediable Defects, by Color

|  | Total      |             | White      |             | Colored    |             |
|--|------------|-------------|------------|-------------|------------|-------------|
|  | Num<br>ber | Per<br>Cent | Num<br>ber | Per<br>Cent | Num<br>ber | Per<br>Cent |
| Total for limited military service           | 11,869*    | 100 0       | 7,708      | 100 0       | 4,069      | 100 0       |
| Total with remediable defects                | 7,543*     | 63 6        | 4,157      | 53 3        | 3,385      | 83 2        |
| With one defect                              | 6,470*     | 54 6        | 3,609      | 40 3        | 2,866      | 70 4        |
| With two or more defects                     | 1,067      | 9 0         | 548        | 7 0         | 519        | 12 8        |
| Total with one or more nonremediable defects | 4,326*     | 36 4        | 3,641      | 40 7        | 684        | 16 8        |

\* Total includes 2 registrants with color unknown, 1 with one remediable defect and the other with a nonremediable defect

tion (table 9) In addition to the 25,184 classed available for general military service (52 6 per cent), 7,543 registrants available for limited military service (15 8 per cent) may have remediable defects, while

TABLE 8—Nature of Remediable Defects of 7,543 Registrants Qualified for Limited Military Service, by Color

| Nature of Defects                      | Total      |             | White      |             | Colored    |             |
|--|------------|-------------|------------|-------------|------------|-------------|
|  | Num<br>ber | Per<br>Cent | Num<br>ber | Per<br>Cent | Num<br>ber | Per<br>Cent |
| Total defects                          | 8,712*     | 99 9        | 4,758      | 99 9        | 3,953      | 99 9        |
| Primary, secondary and latent syphilis | 2,752*     | 31 6        | 647        | 13 6        | 2,104      | 53 2        |
| Defective and deficient teeth          | 1,796      | 20 6        | 1,419      | 29 8        | 377        | 9 5         |
| Hernia                                 | 1,293      | 14 8        | 898        | 18 9        | 395        | 10 0        |
| Gonorrhea                              | 921        | 10 6        | 388        | 8 0         | 533        | 13 5        |
| Underweight                            | 520        | 6 0         | 491        | 10 3        | 29         | 0 7         |
| Pyorrhea                               | 422        | 4 8         | 321        | 6 7         | 101        | 2 6         |
| Varicocele                             | 173        | 2 0         | 149        | 3 1         | 24         | 0 6         |
| Varicose veins                         | 158        | 1 8         | 134        | 2 8         | 24         | 0 6         |
| Obesity                                | 98         | 1 1         | 80         | 1 7         | 18         | 0 5         |
| Undescended testicle                   | 82         | 0 9         | 62         | 1 3         | 20         | 0 5         |
| Hemorrhoids                            | 74         | 0 8         | 54         | 1 1         | 20         | 0 5         |
| Recent wounds                          | 61         | 0 7         | 49         | 1 0         | 12         | 0 3         |
| Other                                  | 362        | 4 2         | 266        | 5 6         | 96         | 2 4         |

\* Total includes 1 registrant with color unknown

15,153 (31 6 per cent) were disqualified (IV-F) or have defects considered nonremediable Thus in considering possible manpower for military service, after correction and treatment possibly around two thirds of

TABLE 9—Classification of 47,880 Registrants According to Availability for Military Service with Correction of Remediable Defects, by Color

|         | Available for General Military Service |          | Available for Limited Service and with Remediable Defects |          | Nonremediable Defects and Disqualified |          |
|---------|--|----------|---|----------|--|----------|
|         | Total                                  | Per Cent | Total   | Per Cent | Total                                  | Per Cent |
| Total   | 47,880*                                | 52 6     | 7,543*  | 15 8     | 15,153*                                | 31 6     |
| White   | 36,795                                 | 54 9     | 4,157   | 11 3     | 12,442                                 | 33 8     |
| Colored | 11,075                                 | 45 0     | 3,385   | 30 6     | 2,706                                  | 24 4     |

\* Total includes 10 of unknown color, of whom 4 were accepted for military service and 1 for limited service with remediable defects and 5 have nonremediable and disqualifying defects

the registrants in Tennessee may be made available The proportion of colored men (approximately three fourths) appears to be higher than that of the white men (two thirds)

In view of the need for manpower for military duty, the group of registrants rejected from general military service who have defects which are considered remediable represents a large force which can be restored to service for the country This group of men with remediable defects represents American citizens on whom rests no less responsibility for military service than on their fellow citizens found to be physically acceptable Facilities are now being made available under the plan adopted by Selective Service for rehabilitating men with remediable defects in order that they may take their proper place during this national emergency and also that these men may be made physically stronger for life as healthy citizens

Summary

1 The results of examinations of 47,880 registrants by the examining physicians of the local boards in Tennessee between Feb 15, 1941 and Jan 1, 1942 and the rejections of any of these men sent to induction stations during this period have been studied

2 Slightly over one half (52 6 per cent) of the registrants were considered qualified for general military service Of the 22,696 registrants not qualified for general military service, 20,497 were rejected by local boards and 2,199 by induction stations

3 Among the 43,034 registrants on whom serologic tests were made, 8 3 per cent were found to have syphilis, with the percentage of colored men (26 3 per cent) nearly ten times that of white men (2 7 per cent) The second most common among these diseases and conditions was musculoskeletal defects, causing 7 4 per cent of these men to be classed I-B or IV-F Other very prevalent defects were teeth defects, diseases of the eyes and diseases of the cardiovascular system

4 The registrants with diseases or conditions considered them to be classed I-B (qualified for limited military service) have been considered as men who might be suitable for service after correction Their defects have been studied, and the nature of the so-called remediable defects are shown Although all defects classed "remediable" may not be considered to be correctable it is felt that a fairly accurate estimate may be made of the number of men who might be available for military service through rehabilitation

5 Of the 11,869 registrants classed I-B (qualified for limited military service), 9,443 (79 6 per cent) were found to have only one defect causing classification I-B, 2,122 (17 9 per cent) two defects causing classification I-B and 304 (2 6 per cent) three or more defects causing classification I-B

6 In all, 7,543 (63 6 per cent) of the 11,869 registrants classed I-B may have remediable defects and through correction and treatment may be prepared for general military duty

7 The nature of the 8,712 remediable defects of these 7,543 registrants was determined Primary, secondary or latent syphilis was the most common defect, 2,752 (31 6 per cent) of these defects in the group Defective and deficient teeth were the defect in 1,796 registrants, hernia for 1,293 and gonorrhea for 921

8 In addition to the 25,184 registrants classed I-A (available for general military service) 7,543 registrants who were qualified for limited military service may have remediable defects Thus in considering possible manpower for military service through correction and treatment, approximately two thirds of the registrants in Tennessee may be made available



## HARPER HOSPITAL UNIT DEPARTS

According to the *Detroit Medical News* the 'sons and daughters' of Harper Hospital, Detroit witnessed a ceremony on July 13 at which the Harper Hospital Unit, General Hospital No 17, received its colors. The hospital unit has since left for camp for training. The speakers at the ceremony were introduced by Dr Louis I Hirschman, the colors were presented by the superintendent of Harper Hospital, Dr Stewart Hamilton and were accepted by the director of the Seventeenth General Hospital Unit, Col Henry R Carstens. During World War I the Harper Hospital Unit was Base Hospital No 17. Among those who had been on the staff of both units in the two wars are Colonel Carstens, Lieut Col Edward D Spalding, Majors Clair L Douglas and Harold B Fenech, and J Donald Mabley. The roster of General Hospital No 17, as given by the *Detroit Medical News*, is as follows:

COLONELS  
Carstens Henry R  
LIEUTENANT COLONELS  
Ashley L Byron  
Spalding Edward DMAJORS  
Callaghan Thomas T  
Cook William A (D C)  
Donald Douglas  
Douglas Clair L  
Fenech Harold B  
Harris Herbert W  
Horan Thomas N  
Lemmon Charles E  
Mabley J Donald  
Meyers Solomon G  
Perkin Frank S  
Price Alvin E  
Tulloch John C  
Warren Wadsworth  
Wilcox Leslie FCAPTAINS  
Becker Abraham  
Beckwith Morris  
Fuller Hugh M  
Hollister John P

Larerge James M  
Lauppe Frederick A  
McClure Robert W  
McKean G Thomas  
Murphy John M  
Nielsen Aage E  
Schoenfeld John B  
Schroeder Carlisle F  
Speck Conrad F (D C)  
Steinberg Irvin H (D C)  
Stockwell Benjamin W  
Trombley Joseph J  
Watts Frederick B  
Weed Ralph M

LIEUTENANTS  
Belanger William G  
Dixon Ralph C  
Eno Laurel S  
Mollin Edward L  
Nigro Norman D  
Reader Zar A (D C)  
Roche Andrew M  
Shumaker Edward J  
Summers William A  
Wessels Robert R  
Wun ch Richard E

worn by some of the old officers of the Army, is red edged with black but nobody on the active list of the Army has this ribbon.

Six persons at the Medical Field Service School, Carlisle Barracks Pa are entitled to the Army of Occupation of Germany Medal. In alphabetical order they are: 1 Master Sergeant Edward J Austin, sergeant major of the 32d Medical Battalion, who served in Germany as a corporal, medical department attached to the 4th Division at Neuviwed and other stations on the Rhine. 2 Col Emmett M Connor, Infantry, liaison officer at the Medical Field Service School, who served in Germany as a second lieutenant, 9th Infantry, at Coblenz. 3 Col Edgar Erskine Hume, Medical Corps, who served as a lieutenant colonel, Medical Corps, with the army of occupation in Hungary. 4 Col Albro Lefils Parsons, Medical Corps, who served as a major, Medical Corps, and member of the American military mission in Berlin. 5 Col Earl D Quinell, Medical Corps served as a captain Medical Corps 5th Division, near Luxembourg. 6 Col Archie F Reed, Infantry, who served as a second lieutenant, 30th Infantry, 3d Division, at Andremach and Mayen on the Rhine.

## AMICUS MEDICI

To keep in touch with colleagues in the military services Bronx Hospital, New York, has begun publishing a little journal under the editorship of Dr Joseph Felsen, with Dr William Wolarsky as associate editor. They hope that the pages of *Amicus Medici* will consist largely of contributions from staff members who are now serving their country. In the first issue is a letter from Lieut Isidore Bernstein giving his impressions of northern Ireland, as well as greetings from Louis Altschul, president of the board of directors of the Bronx Hospital, and from Dr Meyer Rosensohn, president of the medical board. The following physicians from this hospital are now serving in the military services:

Jules Alkoff  
David Arbuse  
Lionel S Auster  
Alfred J Bernstein  
Isidore Bernstein  
Michael H Gould  
Paul E Gutman  
Joseph H Hillman  
Paul A Kaufman  
Charles Klein  
Benjamin E Krentz  
Louis Levinstein  
Ben Lewis  
Samuel Lipschitz  
Julius K Littman  
Edward Mandell  
Leo Nadvorney  
Harry Orlov  
Abraham B Pemsler  
Saul J Reisman

Isidore Rothstein  
Manuel Scham  
Sydney Shapiro  
Jerome Silverman  
Ahner Stern  
Samuel Tripler  
Louis Weinstein  
Leo Wilson  
Emanuel Blumenfeld  
Arnold Teitlebaum  
Marvin Linick  
Daniel K Adler  
Edward J Alderman  
Harold S Kaufman  
Samuel R Manelis  
Morris R Rapoport  
Leon Singer  
Arnold Breecher  
Mervyn Schacht  
Harold H Sage  
Theodore Rosenberg

## CHICAGO PHYSICIANS LEAVE FOR THE SOUTHWEST

Dr John West, executive officer of Provident Hospital, Chicago, is reported to have resigned that position in order to accept a commission as major in a medical unit on duty in one of the Southwestern states. Dr Harold Thatcher, head of the department of dermatology at the Provident Hospital, also a major has already left for the unit. Dr Arthur Thomas has been commissioned captain, and Drs Ronald Jefferson, Earl Sheppard and E V Williams have been commissioned first lieutenants in the same hospital unit.

## MEDICAL AND SURGICAL RELIEF COMMITTEE OF AMERICA

During June supplies valued at nearly \$11,000 were shipped to first aid posts, hospitals and casualty stations in America and its possessions and to allied countries by the Medical and Surgical Relief Committee of America, 420 Lexington Avenue, New York City. The shipments included twenty-four emergency medical field sets, seven operating sets, two cases of assorted instruments, twenty-one cases of assorted drugs, three cases of laboratory equipment and one case of concentrated foods.

## MOUNT SINAI HOSPITAL UNIT CALLED INTO SERVICE

U S Army General Hospital No 3 has been ordered into service and will soon be sent to a training center. The hospital unit has been organized and equipped by Mount Sinai Hospital, New York, thus perpetuating a tradition of military service by Mount Sinai dating back to the Civil War. In the first world war the Mount Sinai Unit was Base Hospital No 3 of the American Expeditionary Forces, which during its location at Vauclaire, France, accommodated 2000 patients. The entry of the Mount Sinai Hospital Unit into active service will raise to several hundred the number of doctors, nurses, employees and trustees who have been called to active duty. Several physicians trained at Mount Sinai were serving on Bataan Peninsula and Corregidor and were reported missing. Last month Dr Goodell G Klevan, member of the staff of Mount Sinai, was lost at sea through enemy action.

## BADGE OF ARMY OF OCCUPATION OF GERMANY AWARDED

By act of Congress a new army decoration has been created known as the Army of Occupation of Germany Medal, which is being awarded to all persons who served in the United States Army at any time from the armistice until the declaration of peace and who rendered service in Germany or Austria-Hungary as a member of the army of occupation or in connection with other official duty. On account of the need for bronze the actual medal will not be struck until the war is over, but in the meantime the War Department has issued the corresponding ribbon which may now be worn by persons entitled to this decoration.

The ribbon of the Army of Occupation of Germany Medal consists of a wide central stripe of black edged with white borders, which recalls the colors of Prussia. The whole is edged with narrow stripes of red and blue separated by a wavy line. It is also the only ribbon containing black now worn by personnel of our army. The Indian Wars Campaign Badge,

# ORGANIZATION SECTION

## MEDICAL LEGISLATION

### MEDICAL BILLS IN CONGRESS

*Changes in Status*—S 2248 has been reported to the House, proposing to amend the law relating to the care and custody of insane residents of Alaska. S 2368 has passed the House and Senate, proposing to eliminate the mandatory requirement that medical statements be furnished to inductees under the Selective Training and Service Act of 1940 on their discharge. S 2454 has been approved by the President, prescribing the relative rank of members of the Navy Nurse Corps in relation to commissioned officers of the Navy. H R 7273 has passed the House, proposing to authorize an appropriation not to exceed \$20,000 for maintenance and replacements of government owned reproducers for sound reproduction records for the blind. H R 7311 has been reported to the House, proposing to grant domiciliary care and medical and hospital treatment to the veterans of World War II on a parity with veterans of other wars.

*Bills Introduced*—S J Res 155, introduced by Senator Bone, Washington, proposes to direct the chairman of the War Manpower Commission to take certain steps to speed up the utilization in suitable employment of the abilities and aptitudes of all employable handicapped persons. S 2676, introduced by Senator Gillette, Iowa, for Senator Walsh, Massachusetts, and H R 7438, introduced by Representative Vinson, Georgia, propose to provide for medical care and funeral expenses for certain members of the Naval Reserve Officers' Training Corps. H R 7411, introduced by Representative Coffee, Washington, proposes to amend the Social Security Act to enable states to provide medical care for recipients of public assistance. H R 7415, introduced by Representative Celler, New York, proposes benefits for the injury, disability, death or enemy detention of

civilians and for the prevention and relief of civilian distress arising out of the present war. H R 7432, introduced by Representative Durham, North Carolina, proposes to establish a Pharmacy Corps in the Army, appointments to be made in the grade of second lieutenant from pharmacists between the ages of 21 and 32 years who are graduates of recognized schools or colleges of pharmacy requiring four years of instruction for graduation.

### DISTRICT OF COLUMBIA

*Bills Introduced*—S 2673, introduced by Senator Clark, Idaho, for Senator McCarran, Nevada, in defining the real property exempt from taxation in the District of Columbia, provides, among other things, for the exemption of hospital buildings belonging to and operated by organizations which are not organized or operated for private gain and for the exemption of school, college and university buildings belonging to and operated by institutions not organized or operated for private gain and embracing the generally recognized relationship teacher and student. H R 7406, introduced by Representative Hunter, Ohio, deals also with the exemption of real property from taxation and provides exemption for all real property used for religious, charitable, educational, scientific, hospital, clinic, orphanage, library, literary, art gallery, cemetery or other benevolent purposes when such property is used by any institution, corporation, association, trust, community chest, fund or foundation having as its objective and purpose the accomplishment of any one, or any combination, of the purposes mentioned. Exemption will be granted only if no part of the net earnings inures to the benefit of any private shareholder or individual.

## WOMAN'S AUXILIARY

### Indiana

The history of Allen County pioneers in medicine has been started by Mrs E M Van Buskirk. For the Red Cross the auxiliary is making a cross file of all persons who have qualified in junior, standard and advanced first aid. The index of names is being filed by streets, precincts and townships, so that in case of need it will be a simple matter to rush the nearest person qualified in first aid assistance to the victim. Four auxiliary members will be in the Red Cross office each half day until the work is completed. Mrs E A King has been named chairman of the Allen County Nutrition Council for Defense. Dr Jessie C Calvin, another member of the auxiliary, also has been named to the council. The March meeting of the auxiliary was a dessert-supper meeting at the Methodist Hospital. The program consisted of a symposium on "Nutrition for Defense."

"The Big Family" was the book reviewed by the LaPorte librarian at the meeting of the Woman's Auxiliary to the LaPorte County Medical Society.

### South Dakota

The annual Doctor's Day Dinner was held, March 28, at Sioux Falls. Mrs Anton Hyden, auxiliary president of the Seventh District Medical Society, introduced Eleanor Tenold, who played some piano selections, after which the Ament children did tap dancing. Dr E S Stenberg, president of the Seventh District Medical Society, spoke.

The advisory board meeting of the Woman's Auxiliary to the South Dakota State Medical Association was held in March at the home of the state president, Mrs F C Nilsson, Sioux Falls. Despite war conditions, the auxiliary reported a gain in membership of approximately 20 per cent. The state convention was held at Sioux Falls May 13-15.

The South Dakota state medical auxiliary held its annual meeting at Sioux Falls, May 13-15. The following officers were elected for the ensuing year: president, Mrs J C Hall; Miller, president-elect, Mrs D Baughman, Madison; vice president, Mrs G S Adams, Yankton; second vice president, Mrs E A Rudolph, Aberdeen; recording secretary, Mr Edwin S Stenberg, Sioux Falls; corresponding secretary, Mrs E Trent Stout, Pierre. A luncheon and show followed the business session. In the afternoon there was a tea at the home of Mrs E E Gage, Riverview Hotel, followed by a banquet at the Coliseum in conjunction with allied professional groups.

### Ohio

The annual meeting of the Woman's Auxiliary to the Ohio State Medical Association was held in Columbus on April 29 and 30. The president, Mrs W W H Curtiss, introduced Mrs Ralph W Hoffman, convention chairman. Dr I D J McCormick, now president of the Ohio State Medical Association, gave a talk on medicine—past, present and future. Mrs Dale P Osborn, now president of the woman's auxiliary, reported that Ohio had thirty-one counties organized with a membership of one thousand, six hundred and seventy. The treasurer's report was as follows: receipts \$1,919.59; expenditures \$1,125.09; scholarship fund \$411.24; sinking fund \$42.11; in checking account \$298.26. It was voted to establish a ship loan fund for nurses. Other officers elected were: Mrs R B Poling, Youngstown, vice president; Mrs M E Kishman, Lorain, secretary and treasurer; Mrs J Stevens, Mansfield, president-elect. It was voted to urge the national auxiliary to take some action at Atlantic City regarding the dues of wives whose husbands are in the service.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS EDUCATION AND PUBLIC HEALTH)

### CALIFORNIA

**Geiger Award in Public Health**—Miss Grace Louise Ivanhoe MS El Cerrito, who recently completed work in parasitology and tropical medicine at Tulane University of Louisiana School of Medicine, New Orleans has been awarded the Geiger Medal for an outstanding thesis in the field of public health and sanitation. The Geiger Medal has for a number of years been presented to a graduate student on a public health problem of interest to the Southern states or countries contiguous to these states. Miss Ivanhoe's research work was largely concerned with amebiasis.

### COLORADO

**Society News**—Dr Leo L J Hardt Chicago, discussed 'Gastroscopic Findings in Far Advanced Pulmonary Tuberculosis' before the Denver Sanatorium Association, May 19.—The theoretical and practical basis of blood transfusions was discussed by Drs William A H Rettberg and Edward R Mugrage both of Denver, before the Medical Society of the City and County of Denver recently. The society was addressed, June 2, by Drs Paul J Connor and Robert P Johnston, both of Denver on 'Tropical War Medicine' and 'Treatment of Fracture of Neck of Femur by Osteosynthetic Tube' respectively. Dr Guy C Cary Grand Junction president of the state medical society, also spoke.—The Northeast Colorado Medical Society was addressed on May 21 in Sterling by Dr John W Amesse Denver who spoke on 'Primitive Medicine in the Philippines' and Mr Harvey T Sethman Denver, 'Needs of the Army for Medical Men and Its Present Day Streamline Method of Selection'.

### CONNECTICUT

**Psychiatrists Elect Officers**—Dr Daniel P Griffin, Bridgeport, was elected president of the Connecticut Society for Psychiatry and Neurology at its recent annual meeting. Dr Francis M Shockley, Stamford, was chosen vice president and Dr Harry M Tiebout Greenwich, secretary-treasurer.

**Community Hospital Receives \$150,000**—Under the will of the late E Frank Bugbee, the Windham Community Memorial Hospital, Willimantic, has received a bequest of \$150,000 the income from which may be used for the general running expenses of the hospital. In addition a bequest of \$100,000 has been provided for the hospital at the death of Mrs Bugbee. Mr Bugbee was a former president of the board of directors of the hospital.

**Crippled Children Clinic**—The state department of health has opened a new state crippled children clinic at the Charlotte Hungerford Hospital, Torrington in accordance with a recommendation of the Crippled Children Technical Medical Advisory Committee of the state medical society. The first clinic was held on July 14 and subsequent clinics will be conducted on the second Tuesday of each month. The new clinic will serve children from the neighboring towns of Avon, Barkhamsted, Burlington, Canaan, Canton, Colebrook, Cornwall, Goshen, Granby, Harwinton, Hartland, Litchfield, New Hartford, Norfolk, North Canaan, Plymouth, Salisbury, Sharon, Thomaston, Torrington, Watertown and Winchester.

### INDIANA

**Abandon Serum Centers for Pneumonia**—The state department of health recently decided to close its serum centers located in different sections of the state and distribute serum instead directly from the state board of health. Under the new plan the serum will be available on request, and it is believed that the change will not interfere with prompt delivery. The new decision was made on the basis of a survey and the opinion of the pneumonia control committee of the state medical association.

**District Meetings**—Dr Howard Allison Miller Marion addressed the Eleventh Councilor District Medical Society recently in Flora on "Nonsurgical Treatment of Pelvic Conditions" and Dr James O Ritchey Indianapolis Nontuberculous Lesions of the Chest.—At a meeting of the Second Councilor

District Medical Society in Washington, June 2, the speakers were Drs James N Collins and Cyrus J Clark, Indianapolis, on 'X-Ray Films and Their Diagnosis' and 'The Cardiac as a Surgical and Obstetric Risk' respectively.

### LOUISIANA

**New State Health Officer**—Dr David E Brown, New Orleans has been appointed state health officer and president of the Louisiana Board of Health to succeed Dr Christopher L Mengis. New Orleans. Dr Mengis will continue his association with the board as assistant state health officer and director of the division of local health service in accordance with an early agreement. The latter position had been open since the resignation of Dr Ford S Williams. New Orleans to report for duty with the U S Public Health Service. Dr John S Anderson had been acting director of the division of local health service but resigned to enter private practice. Dr Brown graduated at the Memphis Hospital Medical College in 1907.

### MAINE

**Attorney Locke Elected First Nonmedical Member**—Herbert E Locke, attorney of Augusta and legal counsel for the Maine Medical Association for many years, was elected an honorary member of the association during its annual meeting in Poland Spring June 21. This is the first nonmedical membership the association has conferred.

### MARYLAND

**Three Hundred Thousand Dollars for Infantile Paralysis Study at Johns Hopkins**—The National Foundation for Infantile Paralysis has given a \$300,000 grant to Johns Hopkins University, Baltimore, for a long time study of the disease. This is the largest single grant made by the foundation since it was organized in 1938. The money will be used to establish and conduct a Center for the Study of Infantile Paralysis and Related Viruses at the medical school and will be allocated over a five year period. Work at the center will be under the direction of Dr Kenneth F Macey, professor of epidemiology in the school of hygiene and public health. Three members of the staff who will be named to assist Dr Macey include Dr Howard A Howe and Dr David Bodian, formerly of the department of anatomy in the medical school and Robert C Mellors, PhD, a biochemist from Western Reserve University School of Medicine, Cleveland. These persons have already started work. In setting up the center adequate laboratory space and facilities have been provided and resources of the new grant will permit the investigators to carry on their studies in the field as well as in the laboratory as opportunity may be presented. The ultimate objective is to gain a more complete understanding of the spread of the poliomyelitis virus not only within the human body but in the community, from one individual to another. Much additional knowledge is necessary before it will be possible to devise effective measures for the suppression of the disease.

### MASSACHUSETTS

**Faculty Changes at Tufts**—Dr Elmer W Barron a member of Tufts College Medical School Boston, since 1911 and professor of pediatrics since 1929, has been made professor emeritus of pediatrics according to the *New England Journal of Medicine*. Other changes announced include the following promotions:

Dr James M Baty, professor of pediatrics  
Dr Francis C McDonald, clinical professor of pediatrics  
Dr Richard Wagner, assistant professor of pediatrics  
Dr Bernard Appel, assistant professor of dermatology  
Dr Francis P McCarthy, lecturer in dermatology  
Harry H Powers, PhD, associate professor of biochemistry

**Headquarters for Medical Service Plan**—The Massachusetts Medical Society has established capital funds necessary to start the Massachusetts Medical Service in business and headquarters have been opened at 230 Congress Street Boston. The service is a medical care plan approved by the state society at its recent annual meeting and expected to be available to the public about September 1. Dr James C McCann, Worcester, was elected president of the Massachusetts Medical Service at the first meeting of the board of directors in Boston, June 23. The state charter was granted on May 27.

**Medicolegal Conference**—The Massachusetts Medico-Legal Society and the department of legal medicine of Harvard Medical School will cooperate in a conference at the Mallory Institute of Pathology, Boston City Hospital on September 30. The department of legal medicine will sponsor a postgraduate course October 1 to 3 and 8 to 10 to cover





## OREGON

**Dr Baird Named Acting Dean of Medical School**—Dr David W. E. Baird Jr., associate dean and associate clinical professor of medicine of the University of Oregon Medical School, Portland, has been appointed acting dean of the school during the absence of Dr Richard B. Dillehunt, who has been in poor health. During the coming year Dr Dillehunt will study and rest having recently been granted a sabbatical leave by the state board of higher education. Dr Dillehunt is also clinical professor and head of the division of orthopedic surgery at the school.

**Director of Mental Hygiene Appointed**—Dr Gerhard B. Haugen, Portland, who has just completed a year of post-graduate work at Johns Hopkins University School of Hygiene and Public Health, Baltimore, is the director of the division of mental hygiene which was established last year under the supervision of the U. S. Public Health Service. The new unit was set up by Dr Curtis R. Chaffin, Portland, of the public health service, who has been acting director and who has been transferred to the U. S. Marine Hospital, Ellis Island, New York, to engage in clinical work in the neuropsychiatric division of the hospital there. Dr Haugen graduated at the University of Oregon Medical School, Portland, in 1935.

## PENNSYLVANIA

**District Meeting**—The Fifth Councilor District of the Medical Society of the State of Pennsylvania, comprising Adams, Cumberland, Dauphin, Franklin, Lancaster, Lebanon, Perry and York counties, was addressed, among others, July 9, in Harrisburg, by Drs. William Baird Stuart, Carlisle, on 'Ureteral Calculi', Harry B. Thomas, York, 'Practical Problems in Diabetes', Charles R. Reynolds, Harrisburg, major general U. S. Army, 'Tuberculosis in the War' and Edward L. R. Bortz, Philadelphia, 'New Light on Old Folks'. A feature of the meeting was the presentation of fifty year testimonial certificates by Dr. Walter F. Donaldson, Pittsburgh, secretary of the state society, to Drs. George Alvin Harter, Mavtown, Ferdinand Shoemaker, Kansas City, Mo., Joseph E. Bogar, Millersburg, Roland Jessop, York, Louis Jordy, York, George S. Kinzer, Ickesburg, Samuel W. Miller, Lancaster, Benjamin F. Myers, Chambersburg, Charles J. Stein, Red Lion and Henry Stewart, Gettysburg.

### Philadelphia

**Faculty Changes**—Three new appointments as heads of the departments of the Hahnemann Medical College and Hospital of Philadelphia were announced in the Philadelphia newspapers, July 9. Dr. William L. Martin was named professor and head of the department of surgery to succeed Dr. Gustave A. Van Lennep who becomes professor emeritus of surgery. Dr. Newlin Fell Paxson was appointed professor and head of the department of obstetrics, succeeding Dr. Warren C. Mereer, who becomes professor emeritus of obstetrics. Dr. Henry S. Ruth was made professor and head of the department of anesthesia, succeeding Dr. James M. Godfrey, who also becomes professor emeritus. Dr. William M. Sylvius, formerly professor of anatomy, was appointed professor of surgery at the school.

## SOUTH CAROLINA

**Physician Honored**—Dr. James H. McIntosh, for forty-two years a practitioner in Columbia and formerly president of the Columbia Medical Society, was presented with a silver pitcher, May 20, in recognition of his many years of service in the community. Dr. McIntosh graduated at Columbia University College of Physicians and Surgeons, New York, in 1888. He has practiced in Columbia since 1900 and has served as president of the Seventh and Second district medical societies of South Carolina, the South Carolina State Medical Association, the Tri-State Medical Association of Virginia and the Carolinas, and the Association of Surgeons of the Atlantic Coast Line Railway.

## TEXAS

**District Meeting**—The North Texas Medical Association met in Terrell, June 2, for the following program:

- Dr. Roy L. Grogan, Fort Worth: The Role of Cesarean Section in Modern Obstetrics.
- Dr. George R. Herrmann, Galveston: Interpretation of Electrocardiogram and Coronary Artery Disease.
- Dr. Albert O. Singleton, Galveston: Distention as a Complication of Abdominal Surgery, and Surgery of the Spleen.
- Dr. Milton A. Davison, Marlin: Prenatal Care.
- Dr. Milford O. Rouse, Dallas: Diagnosis and Medical Management of the Gallbladder.
- Dr. Paul M. Ramey, Temple: Surgical Treatment of the Gallbladder.

## VIRGINIA

**Special Societies**—At a meeting of the Virginia Society of Ophthalmology and Otolaryngology in Staunton, May 16, it was voted to form an associate membership which lasts for a five year period, at the end of which time the applicant is to obtain a certificate from either the national board of ophthalmology or otolaryngology or be dropped from the roll. Dr. Emmett T. Gatewood, Richmond, was named president-elect at this meeting and Dr. Guy R. Fisher, Staunton, was installed as president. Dr. Merde C. Edmunds, Petersburg, was reelected secretary-treasurer. The Society of Chest Physicians of Virginia met in Richmond recently and elected the following officers: Drs. Frank B. Stafford, Sanatorium, president, Samuel E. Hughes, Danville, vice president, and Walter L. Nalls, Richmond, secretary-treasurer.

**Changes in Health Personnel**—Dr. Ralph G. Beachley, Arlington, since 1938 director of public welfare and health in Arlington County, has been appointed assistant chief medical and liaison officer for the metropolitan area, succeeding the late Dr. William B. King. He was recently appointed regional consultant on emergency medical service for northern Virginia. Dr. Abraham L. Gelperin, Baltimore, has been appointed venereal disease control officer of Richmond effective May 15. He succeeds Dr. Aaron Wilson Brown, Pocahontas, who resigned recently to enter private practice. Dr. Paul W. Bowden, Charlotte C. H., acting health officer of Charlotte County, has been appointed epidemiologist for Richmond. Dr. William Grossman has resigned as director of the bureau of communicable diseases of the state health department, Richmond, to accept a commission in the U. S. Army. Dr. Raymond De Van Kimbrough, Norfolk, was appointed on June 1 as state venereal disease control officer for the Tidewater Area.

## WEST VIRGINIA

**Society News**—Dr. Otis G. King, Bluefield, discussed "Treatment of Diabetes" before the Fayette County Medical Society in Oak Hill, May 19. The Kanawha Medical Society was addressed in Charleston, May 12, by Dr. William Gayle Crutehfield, Charlottesville, Va., on 'Low Back Pain and Its Association with Displaced Intervertebral Disks'. Dr. Charles A. Doan, Columbus, Ohio, addressed the Ohio County Medical Society, May 8, at Wheeling on 'Differential Diagnosis and Treatment of Disease Primarily Involving the Spleen'.

## WISCONSIN

**Surgeons' Group Changes Name**—The name of the Milwaukee Society of Clinical Surgery has been changed to the Wisconsin Academy of Surgery. Future members will be required to be either a specialist certified by the American Board of Surgery or a fellow of the American College of Surgeons. There will be three meetings a year instead of the usual five. The next meeting will be on November 19.

## GENERAL

**Roentgen Ray Society Moves Meeting to Chicago**—The American Roentgen Ray Society will hold its annual meeting at the Palmer House, Chicago, September 15-18, instead of in Atlantic City, Haddon Hall, where the meeting was to be held, has been taken over by the government.

**Dr. Rose Named Director of Red Cross in the West**—Dr. Milton Rose, professor of public health administration, University of Pennsylvania School of Medicine, Philadelphia, has been appointed director of medical and health service for the Pacific area of the American Red Cross, with headquarters in San Francisco. Dr. Rose graduated at Yale University School of Medicine, New Haven, Conn., in 1935.

**Advisory Committee for Vitamin A Industry**—An informal advisory committee for the vitamin A industry has been appointed to confer with officials of the Office of Price Administration regarding pricing and distribution problems. It was announced on July 21. The committee held its first meeting in Washington, D. C., July 27, to discuss provisions of a proposed maximum price schedule for vitamin A oils and concentrates. The advisory panel is an outgrowth of a recent industry conference held in San Francisco between the Office of Price Administration and all branches of the industry.

**Insurance Examiners Directory Not Authorized**—Information has been received by the American Medical Association concerning the Medical Directors Quarterly and the Medical Examiners Guide which have been solicited through



the mails as recent as June 23. The Association has been informed that most companies have a mechanism for appointing their examiners which they have had in force for years, obviating any valid reason for this medical guide, and that no official recognition has been given to either the Medical Examiners Guide or to the Medical Directors Quarterly. Many life insurance companies use only the American Medical Directory and the Directory of Medical Specialists, depending on the Directory Report Service, published twice a month by the American Medical Association, to supplement its regular Directory. The letter soliciting subscriptions is written on a letterhead bearing the name Medical Directors Quarterly, Starks Building, Louisville, Ky., and dated June 23, 1942. Charles D. Dunne is given as the name of the publisher.

**Smallpox Incidence Low**—Only 1,432 cases of smallpox were reported in the United States in 1941, an all time low for this disease, according to the *Statistical Bulletin* of the Metropolitan Life Insurance Company. The total compares with 2,795 registered in 1940, the previous low mark for smallpox. In Canada only 26 cases were reported, all but 1 of which appeared in the province of Saskatchewan. Nearly 500,000 cases of smallpox have been reported in the United States since 1921. Indiana alone was responsible for 37,902 cases. In the past Montana, Washington, Idaho and Oregon have generally been the states with the highest incidence. The lowest incidence is found in New England and the Middle Atlantic states, followed by states in the southeast corner of the country. That Indiana has been the outstanding exception to the rule is not surprising in view of the fact that a recent investigation by its department of health disclosed that less than 13 per cent of preschool children and not more than 53 per cent of the school children under 10 years of age had been vaccinated at the time the survey was made, the bulletin stated.

**Fellowships for Latin Americans**—The Commonwealth Fund of New York is offering through the Pan American Sanitary Bureau fifteen fellowships for one year's study of public health subjects or postgraduate medical courses to properly qualified persons who are citizens of the other American republics. Fellowships in public health will be open to physicians, sanitary officers, technicians and public health nurses. These fellows will be selected through a system of cooperation with medical and health authorities of the different countries concerned, and whenever deemed advisable they will be interviewed by traveling representatives of the Pan American Sanitary Bureau. Each fellowship will provide living allowances while the holder is in the United States, travel costs and tuition. Knowledge of the English language will be among the requirements, and also the possession of certain specific qualifications. The bureau, the international health agency of the American republics, has been for some time the recognized clearing house for medical and public health fellowships in the United States, nearly one hundred Latin Americans now being in the United States under its auspices. Application blanks giving complete information will be available through the Commonwealth Fund, 41 East 57th Street, New York, the Pan American Sanitary Bureau, Washington, D. C., or chiefs of American missions in Latin America.

**Fund for De Lee Research Fellowships in Obstetrics**—Three groups have joined together to help make the memory of Joseph B. De Lee a living force by creating the Joseph B. De Lee Memorial Trust, the income of which will be used to support research fellowships in obstetrics at the Chicago Lying-in Hospital. It is expected that the fund will be formally presented during a memorial service at the University of Chicago on October 28, Dr. De Lee's birthday. This is considered a most appropriate tribute to a man who devoted fifty intensive years to establishing institutions for the care of mothers and babies and to raising the standards of training of obstetricians. The De Lee Memorial Trust will provide the best possible obstetric training for the young doctors who will hold these fellowships.

Four groups closely associated with Dr. De Lee are especially invited to contribute to the trust fund: (1) his friends, (2) the Mother's Aid group, which was founded in 1904 to assist him and ever since has worked in the cause of better obstetrics, (3) former patients and children who owe something of their own happiness to him, (4) the hundreds of doctors and nurses who received obstetric training under his guidance.

The De Lee Memorial Trust, which will be administered by the University of Chicago, will be used exclusively for the maintenance of research fellowships in obstetrics. The principal will be kept intact with the qualification that up to 5 per cent of it may be used in any one year if this is considered wise.

## FOREIGN

**Colonel Le Souef Prisoner of War**—A letter from Lt. Col. Leslie E. Le Souef, Australian Army Medical Corps, indicates that he is a prisoner in a German prison camp. Colonel Le Souef, whose home is at Perth, West Australia, was a delegate from the Western Australian branch of the British Medical Association to the American Medical Association's annual session in St. Louis in 1939, at which time he was president-elect of his branch. His letter, dated March 2, 1942, says that he is well and earning for some of his wounded compatriots. He states that limitations on prisoner mail do not make it possible for him to write to all of his many friends in the American medical profession.

**Public Health Under Hitler's Rule**—The *Deutsche medizinische Wochenschrift* of April 10 points out that overwork, haste and restlessness are causing many cases of malaria and that the taking of sleeping medicine has become a menace to public health. Prof. F. Hoff quotes Dr. Conti as saying that "the misuse of sleeping drafts is today so widespread that it is quite unbearable." The same publication states that in Lwow the Behringwerke has equipped a new laboratory for producing typhus serum and other measures are being taken to combat typhus. All inhabitants are required to visit the delousing stations and also to observe special village wash days, and all linen must be washed under public control. According to the *Bulletin des eidgegenessischen Gesundheitsamtes*, Bern, volume 4, 1941, there were 1,103 cases of typhus in the "Wartheland" from January to June 1941, whereas from 1931 to 1939 there were only 27 cases.

According to the *Berliner Borsen-Zeitung* of May 2, Dr. Conti, health leader in the reich, declared that the German people are very healthy. He said that in the old reich there were 16 cases of typhus among Volksdeutsche and 62 cases among foreigners last year, while in the occupied areas 8 Germans, 220 foreigners and 672 Jews suffered from typhus during the same period. German prophylactic methods, Dr. Conti is reported to have said, have proved to be excellent. Influenza did not occur at all last winter. The crisis in scarlet fever has passed and diphtheria has been successfully fought. Despite the war, Dr. Conti said that only about 100,000 fewer children were born last year in greater Germany as compared with 1940. The infant mortality was no worse, and the death rate of mothers has been improved. The youth of Germany, he said, is healthy. Three thousand doctors are being turned out from the universities every year and "this is a very good thing since doctors are needed."

The Charleroi Medical Society has opposed the official established Doctors' Chamber, of which every doctor is required to become a member. The society sent a circular to its members summoning them to a meeting on May 17 at the Café de Colombophiles in Charleroi and pointing out that Rommel's decree cannot be accepted and adding that "in these dark days, some try to enslave medicine. Medicine needs its freedom to fulfil its mission." The circular was signed by Dr. Mayeur, president, and Dr. Dufour, secretary.

According to *Transocean* the police in Athens, May 1, ordered the closing of all theaters, schools, concert halls, movie houses in order to protect the public against epidemic diseases. According to *Svenska Dagbladet*, Stockholm, May 20, all "obviously insanitary persons" have been forbidden to use public vehicles, in connection with recent measures taken to check the spread of typhus.

Correspondents have reported, according to *Ny Dagbladet*, May 15, that the food situation in Helsinki is critical and will continue so for two months. Several cases of scurvy have been reported from Helsinki as having been caused by the diet. According to the *Deutsche medizinische Wochenschrift*, Leipzig, May 8, Germans who have to stay for a long period in the occupied territories are advised to be vaccinated against typhus and typhoid, and, if they have to stay in the eastern territories in the east or "in the General Government," should be vaccinated "in good time against spotted fever as well."

The Dutch Ambulance Corps, according to *Volkskrant*, Utrecht, May 8, is urging doctors and dentists and nurses to join the ambulance corps on the eastern front.

## CORRECTION

**Dr. H. Grady Callison**—In this issue of the *Journal*, 1030, in the item entitled State Civilian Defense Commission in U. S. Public Health Service, under the title of Dr. H. Grady Callison should have been Chief of Emergency Medical Service and not Chief.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

June 20 1942

#### Control of Supply of Rubber Gloves

The reduction of rubber supplies due to the occupation of Malaya by the Japanese has made necessary restriction of the supply of rubber gloves to those whose use of them is essential. The supply of gloves to hospitals and medical institutions and through them to physicians, nurses and midwives will be controlled by the Ministry of Health. These persons must apply to the local health authority entitling them to obtain gloves. Physicians and nurses can obtain only three pairs, district nurses two pairs and nurses in private practice one pair. Hospitals and clinics can obtain gloves only on certificates issued by the public health authorities. The number they can obtain will depend on the circumstances, of which the more important are the number of beds and the number of operations performed.

#### Economy in Use of Alcohol in Prescriptions

The General Medical Council has issued a fifth addendum to the British Pharmacopoeia with the main object of economizing alcohol. The minister of health has accordingly issued a 'scarce substances order' setting out approved alternatives when certain spirits and tinctures are prescribed. Physicians have the right to mark the new scarce substances with the letters "N A" meaning 'No alternative to be dispensed,' but as the Medical Research Council has agreed that the concentrated preparations of the fifth addendum with a few other preparations included in this order, present substantially the same therapeutic activity as the original spirits and tinctures, the chief difference being less alcohol, it is hoped that prescribers will generally abstain from so marking prescriptions. The following are some of the scarce substances with the authorized alternative in parentheses: Spiritus Aetheris Nitrosi (a mixture of 1 volume of Liquor Aethylis Nitritus and 7 volumes of water), Spiritus Ammoniae Aromaticus (Liquor Ammoniae Aromaticus), Spiritus Menthae Piperitae (Emulsio Menthae Piperitae), Tinctura Belladonnae (a mixture of 1 volume of Extractum Belladonnae Liquidum and 24 volumes of water), Tinctura Colchici (a mixture of 1 volume of Extractum Colchici Liquidum and 9 volumes of water).

#### The Threat of Poison Gas

Mr Churchill has warned Hitler that if he uses poison gas against the Russians our response will be gas attacks on military objectives in Germany. Precautions are being taken in view of the possibility of a gas attack on this country. The Ministry of Health has issued a circular pointing out that every one should get from the pharmacists the official bleach cream for application to splashes of blister gas on the skin. The two best known blister gases are oily liquids—mustard gas which smells like onions or garlic and lewisite which smells like geraniums. Soap and water should be used to wash the whole body so as to remove any gas which may have reached the skin directly or through the clothes. All houses must be open to persons splashed who cannot get to decontamination stations and soap and water must be provided for them. To prevent contamination of the house, visitors should be asked to take off their shoes and stockings and outer clothing before entering. If the eyes have been splashed an eye bath should not be used but a gentle stream of warm water should be directed into each eye from a faucet or from a vessel with a spout. If this is not possible the eyes should be dipped in a bowl of warm water and opened and closed under water. If the hair is splashed, the affected part should be cut off and anti gas ointment applied to the scalp.

#### No White Bread for Invalids

The abolition as the result of war conditions, of that debased cereal food white bread has been described in previous letters. It has been suggested that a special white loaf should be available for invalids or persons suffering from stomach troubles, but the government will not agree to this, as Lord Horder has advised the Ministry of Food that wheatmeal bread is perfectly suitable for those who suffer from duodenal ulcers and similar complaints. Tests carried out at St Bartholomew's Hospital showed that persons suffering from stomach troubles who had been fed on wholemeal bread thrived on it.

#### London University in Wartime

The report on the work of London University during the past year shows that in spite of financial and other difficulties due to the war it remains a valuable institution which is producing skilled men and women both for war work and for playing a useful part in reconstruction after victory. In 1938-1939 there were 14,587 internal and 10,893 external students. In 1940-1941 (the first complete war year) the figures were 8916 and 8840. The smaller diminution on the external side is explained by the fact that evacuation has not hit it as much as it has dislocated the collegiate side. Moreover, many serving members of the armed forces are pursuing courses or study as external students. The figures for 1941-1942 are not yet complete but there appears to be a slight increase in both internal and external students. In the latter it is in faculties whose work is most directly related to the war effort—science and engineering—that numbers are best maintained.

Turning to students attending schools of the university, there is a sharp distinction between the medical and nonmedical schools. In 1940-1941 medical students were nearly 90 per cent of the number for 1938-1939, while nonmedical were only 56 per cent. Before the war 63 per cent of the students at nonmedical schools were men, now the proportion is only 50 per cent. In the medical schools the proportion of 90 per cent has scarcely changed. The main new problem during the year has arisen from the government's decision to call up women for national service, which has had an immediate effect on the position of women students.

#### The British Medical Students Association

The formation of the British Medical Students Association was described in *THE JOURNAL* March 21. Further details are given in *University College Hospital Magazine*. University College Medical School has played a conspicuous part in the movement. For some years before the war there existed a Medical Faculty Subcommittee of the National Union of Students. It collapsed at the beginning of the war but from the remains a London Hospital Medical Committee, composed of the secretaries of the London Hospital Students Unions, was formed. This called a national conference of medical students, from which the British Medical Students Association arose. An interhospital debate was held at the house of the British Medical Association, at which the motion 'That the Inadequacy of Medical Education Lies in the Curriculum' was carried by a majority of nearly two to one.

The British Medical Student Association at the beginning was supported by only a minority of the students. However four or five enthusiasts and four to five thousand nominal members kept it going. Within a year it obtained a request from the medical planning commission of the British Medical Association for a memorandum on medical education. Some difficulty has arisen with the other hospitals because of the prominent part played by University College Hospital. It is therefore proposed that the British Medical Students Association should sever this connection and be established on an independent basis. It is proposed that it should cooperate with the National Union of Students in matters of general students

interest but that it should make its views on medical matters known to the profession through the British Medical Association, which is prepared to serve as a medium for the exchange of views between medical students and the profession, to consult it on matters regarded as of special interest to medical students, to grant it, if required, secretarial facilities for the conduct of its business, and indirectly to insure a certain measure of continuity, which is essential to a student body but difficult to obtain.

A fact finding subcommittee of the British Medical Students Association has scheduled a list of objects: 1 To provide an organization whereby medical students can consult on matters of common interest, such as conditions of entry into the profession, the cost of medical education, the living conditions of students and safeguards for their health, the use of material in special hospitals, the examination systems and their cost, the pay of housemen, and other matters. 2 To provide a means of exchange of views between medical and other students. 3 Postwar problems. After the war the medical services may be drastically reorganized, and it will be in the interest of medical students to have an organization representing their views. 4 In future there may be a demand for physicians with administrative ability. The British Medical Students Association could provide valuable training in committee work and knowledge of the organization of medicine as a whole. 5 A panel of experts might be invited to give advice to the newly qualified on the prospects in special branches of medicine and further training. 6 Courses of lectures, both technical and general, visits to special clinics, travel abroad and exchange visits with other students, jobs in medicine during the vacation and publication of an interhospital magazine might be organized.

### The Discovery of Symptomless Tuberculosis by Mass Radiography

The National Association for the Prevention of Tuberculosis has sent a manifesto to local health authorities reflecting the considered opinion of tuberculosis experts on the value of mass radiography in the early diagnosis of pulmonary tuberculosis. It is pointed out that the disease begins without any warning to the patient. By the time he voluntarily comes for treatment it is in an advanced stage. There are about a quarter of a million cases of pulmonary tuberculosis in the British Isles, of which about 1,500 are fatal each month between the ages of 15 and 50. To prevent the disease we must discover cases in the early stage before they have become infectious. Under war conditions the disease shows a tendency to increase, as it did in the last war. The only method of detection before symptoms are produced is by x-ray examination of the chest, which by modern methods can be carried out on large numbers of people at one time. The ideal would be for every young person to be examined on leaving school and at intervals during early adult life. Boys and girls in secondary schools, technical schools, colleges and universities are at a period of life when physical and mental strain is great and the risk of tuberculosis serious. At these age periods the disease shows a tendency to increase. Regular x-ray examinations are desirable. Under the factory acts the examining surgeons examine those who enter the industry under the age of 16. X-ray examination should be included. Finally, this course should be followed by commercial firms which have large staffs in their offices and factories.

Our existing tuberculosis services can normally deal with cases of the disease sent to them. These services have grown up almost entirely since the last war. But they deal only with those who have symptoms. An advance in the detection and prevention of tuberculosis is now needed by the examination advocated. Compulsory examination is foreign to our traditions of liberty and would fail, but the public can be educated to demand the examination in their own interest.

### The Immunization of Nurses Against Diphtheria

It has been customary in isolation hospitals for many years to immunize nurses against diphtheria. Many women commence nursing at an earlier age than heretofore, and a proportion of nurses in general hospitals have been found Schick positive. The Ministry of Health has therefore sent to health officers directions as to how to extend immunization to susceptible nurses, especially those who work among children in hospitals and nurseries. For this purpose they recommend toxoid antitoxin floccules, as it tends to give rise to less reaction than alum precipitated toxoid. Three doses of 1 cc should be injected at intervals of three weeks. Any subject reacting to the control toxin in the Schick test should not receive a first dose of more than 0.5 cc. If this causes a severe reaction the subsequent doses should be reduced to 0.5 cc or less according to the severity of the reaction. Though a Schick negative reaction affords a strong presumption that under ordinary conditions the subject is unlikely to develop diphtheria, it does not exclude such a possibility in nurses and others exposed to the risk of infection. The Ministry of Health therefore considers that there is much to be said for the practice of giving a Schick negative nurses a single stimulating dose of 0.5 to 1 cc of toxoid antitoxin floccules.

### Sir Thomas Oliver

Sir Thomas Oliver, emeritus professor of medicine in the University of Durham and a leading authority on industrial hygiene, particularly lead poisoning, has died at the age of 89 years. He was in succession assistant pathologist to the Glasgow Royal Infirmary, lecturer in physiology and pathology of medicine at the University of Durham. He served on government commissions of inquiry into industrial poisoning from various glazes used in the making of pottery, phosphorus poisoning and white lead poisoning. It was largely due to his recommendation that the government abolished female labor in the white lead industry. He showed that women were more liable to suffer than men, in the proportion of 4 to 1, and that miscarriage was a common result. He edited the valuable work "Dangerous Trades, Historical, Higher Aspects of Industrial Occupations as Affecting Health." He also published an important work "Diseases of Occupation, from the Legal, Social and Medical Points of View." This dealt with all the known dangerous trades—metals, gases, electric welding—with fatigue, parasites and rescue in mines. This book filled a gap in medical literature and went through three editions. The employment of women in industry was a great anxiety to him. He was alarmed at the possible results on future generations of the strain on so many young women in munition work and other industries in the last war.

## Marriages

- NICHOLAS FREDERICK KRECKER VINCENT, East Orange, N. J., to Miss Joyce Hinkle at Camp Bowie, Texas, May 10.  
SAMUEL EDWARD WARSHAUER to Miss Miriam M. Williams of Wilmington, N. C., at Alexandria, La., May 4.  
GRADY MILTON COLSON, Goldsboro, N. C., to Miss Norris of Wilmington in Dillon, S. C., May 16.  
LESTER R. WHITAKER, Portsmouth, N. H., to Miss L. Starbuck of White Plains, N. Y., May 2.  
HENRY STOKES MUNROE JR. to Miss Martha Plathews, both of Charlotte, N. C., May 2.  
CHARLES MATTHEW KENDRICK, Valdese, N. C., to Miss Josephine Payne of Lenoir, May 16.  
CURTIS WEAL BOWMAN, Macon, Ga., to Miss Williams in Atlanta, May 16.  
VICTOR J. BIRNBERG, St. Paul, to Miss Bernice, Minn., May 10.

## Deaths

**Milton Alexander Harrington**, Vineyard Haven Mass., University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1910, member of the American Psychiatric Association, Association for Research in Nervous and Mental Disease and the American Psychopathological Association, for four years junior assistant physician at the Bloomingdale Hospital, White Plains, N. Y., and for two years senior assistant physician at the New York State Psychiatric Institute and Hospital, New York, attending specialist at Veterans Bureau Hospital 41 for many years psychiatrist for the New York State Department of Correction, formerly director of the department of psychiatry at the Institution for Male Defective Delinquents, Napanoch, N. Y., served with the Royal Army Medical Corps in France during World War I, formerly consultant in mental hygiene at Dartmouth College, Hanover, N. H., author of 'Wish Hunting in the Unconscious: a Criticism of Psychoanalysis' and 'The Biological Approach to the Problem of Human Behavior', aged 58, died May 27, of coronary thrombosis.

**Francis Sedgwick Watson**, South Dartmouth Mass., Harvard Medical School, Boston, 1879, member of the Massachusetts Medical Society, American Surgical Association, New England Surgical Society and the American Urological Association, past president of the American Association of Genito-Urinary Surgeons and was honorary president of the International Urological Society, fellow of the American College of Surgeons, clinical instructor in genitourinary surgery from 1888 to 1893, assistant in clinical surgery from 1890 to 1894, assistant in genitourinary surgery 1893-1894, instructor in genitourinary surgery from 1894 to 1901 and lecturer on genitourinary surgery from 1901 to 1909 at his alma mater, formerly on the staffs of the Boston City, Childrens and Carney hospitals and the Boston Dispensary, aged 88, died, May 5.

**Henry Wallace Grote** ☉ Bloomington Ill., Rush Medical College, Chicago, 1894, county physician of Du Page County, Ill., from 1898 to 1901, in 1921 founder and first president of the Central Illinois Radiological Society (now Illinois Radiological Society), charter member of the Radiological Society of North America, member of the American Roentgen Ray Society, International Congress of Radiology, American Congress of Internal Medicine and the American Association for the Study of Gout, past president of the McLean County Medical Society, for many years director of the roentgen laboratory at Brokaw Hospital, Normal, Ill., aged 72, died, June 20, of carcinoma of the prostate.

**Henry Christian Galster** ☉ Hudson N. Y., New York Homeopathic Medical College and Flower Hospital, New York, 1909, secretary of the Columbia County Medical Society, was decorated with the British Military Cross for services with the British Expeditionary Forces during World War I, bank president, formerly mayor of Hudson, attending ophthalmologist and otolaryngologist, Hudson City Hospital, consultant on the staffs of the Memorial Hospital of Greene County, Catskill, New York, State Training School for Girls, Hudson, and the Columbia Sanatorium, Philmont, aged 54, died, June 8, of coronary occlusion.

**Edward Raymond Ryan** ☉ Milwaukee, Marquette University School of Medicine, Milwaukee, 1917, member of the American Academy of Ophthalmology and Otolaryngology, clinical instructor in ophthalmology at his alma mater, specialist certified by the American Board of Ophthalmology, served in the U. S. Navy during World War I, director of the eye clinic at the Milwaukee County Dispensary, aged 49, died June 7, of coronary thrombosis.

**George Washington Carr** ☉ Englewood N. J., Jefferson Medical College of Philadelphia, 1895, member of the Medical Society of the State of Pennsylvania and the American Academy of Ophthalmology and Otolaryngology, for many years consulting ophthalmologist for the Lehigh Valley Railroad, formerly on the staffs of the Wilkes-Barre General Hospital and the Mercy Hospital, Wilkes-Barre, Pa., aged 69, died, June 17, of heart disease.

**George Lincoln McBride**, Grand Rapids, Mich., M.B., University of Toronto Faculty of Medicine, 1892 and M.D., Victoria University Medical Department, Coburg, Ont., Canada, 1892, at one time dean and professor of medicine at the Grand

Rapids Medical College, formerly visiting surgeon on the staff of the Butterworth Hospital, aged 77, died, May 5, of coronary thrombosis.

**George Pierson Jessup**, Staten Island, N. Y., College of Physicians and Surgeons, New York, 1890, member of the Medical Society of the State of New York, past president of the Richmond County Medical Society, aged 77, on the staffs of the Seaside Hospital and the Staten Island Hospital, where he died, May 18, of arteriosclerosis, heart disease and bronchopneumonia.

**Reuben Thomas Johnston**, Brooklyn, Boston University School of Medicine, 1903, member of the Medical Society of the State of New York, for many years president of the Eastern District Dispensary, on the staffs of the Prospect Heights Hospital, Brooklyn, Nursery and Infants' Hospital and the Cumberland Hospital, aged 64, died, May 10, of coronary sclerosis.

**Robert John Morrison**, Brooklyn, Long Island College Hospital, Brooklyn, 1891, member of the Medical Society of the State of New York, fellow of the American College of Surgeons, on the visiting staff of the Caledonian Hospital, consulting surgeon, Brooklyn Eye and Ear Hospital, aged 85, died, June 8, of carcinoma of the tongue and cardiovascular disease.

**John Lee Summerlin** ☉ Gainesville, Fla., Atlanta (Ga.) Medical College, 1916, member of the American Academy of Ophthalmology and Otolaryngology, specialist certified by the American Board of Otolaryngology, president of the Alachua County Medical Society, served during World War I, aged 52, died, May 31, of coronary thrombosis.

**James Joseph Ryan**, Buffalo, University of Buffalo School of Medicine, 1934, member of the Medical Society of the State of New York, formerly on the staffs of the J. N. Adam Memorial Hospital, Perrysburg, N. Y., and the Ideal Hospital, Endicott, N. Y., aged 33, died, June 1, in the Millard Fillmore Hospital of cerebral hemorrhage.

**Harry Andrew Shafer** ☉ Los Angeles, Eclectic Medical Institute, Cincinnati, 1899, on the staff of the Santa Monica Hospital, formerly on the staff of the Grace Hospital, Detroit, chairman of the medical committee of the Bay Area Civilian Defense Board, served during World War I, aged 66, died, May 27, of heart disease.

**Frank Burge Kimzey**, Union City, Tenn., Vanderbilt University School of Medicine, Nashville, 1926, member of the Tennessee State Medical Association, past president and secretary of the Obion County Medical Society, served during World War I, aged 41, died, May 15, of angina pectoris.

**Charles Bernstein** ☉ Rome, N. Y., Albany Medical College, 1894, member of the American Psychiatric Association, past president of the American Association for the Study of Feeble-minded, superintendent of the Rome State School, aged 69, died, June 13, of chronic interstitial nephritis.

**William John Webster Woolgar** ☉ Lyme, N. H., Western Reserve University Medical Department, Cleveland, 1898, member of the Ohio State Medical Association, aged 78, died, May 29, of bronchopneumonia, congestive heart disease, arteriosclerosis and Raynaud's disease.

**James Frederick Williams**, Joliet, Ill., Meharry Medical College, Nashville, Tenn., 1903, member of the Illinois State Medical Society, on the staffs of St. Joseph's and Silver Cross hospitals, aged 71, died May 30, of coronary sclerosis, hypertension and chronic nephritis.

**Alfred Walter Jones**, Akron, Ohio, Queens University Faculty of Medicine, Kingston, Ont., Canada, 1896, member of the Ohio State Medical Association, at one time secretary of the Summit County Medical Society, aged 70, died May 19, of coronary thrombosis.

**Joe Hartman Schantz**, New Tripoli, Pa., Temple University School of Medicine, Philadelphia, 1930, member of the Medical Society of the State of Pennsylvania, on the staff of the Allentown (Pa.) Hospital, aged 37, died, June 7, of a self-inflicted bullet wound.

**Emil Bernard Anderson** ☉ Chicago, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903, for many years on the staff of the Englewood Hospital, aged 65, died June 2, of carcinoma of the bladder.

**David Hill McCall**, Otway, Ohio, University of Louisville (Ky.) Medical Department, 1917, served as a lieutenant commander in the U. S. Navy during World War I, aged 51, died May 29, in the Mercy Hospital, Portsmouth, of myocardial failure.



**George Mortimer Smith** Ⓢ Hartford, Conn., College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907, assistant surgical director of the Travelers Insurance Company, aged 56, died, June 1, of coronary thrombosis

**Ira Clinton Tyndall**, Berlin, Md., Baltimore University School of Medicine, 1896, member of the Medical and Surgical Faculty of Maryland, served as a major in the medical corps of the U S Army during World War I, aged 68, died in May

**James Alfred Maguire**, Boston, Tufts College Medical School, Boston, 1931, member of the Massachusetts Medical Society, assistant in medicine from 1935 to 1938 and since then instructor in medicine at his alma mater, aged 36, died, May 31

**Guy Howard Hutchins** Ⓢ Auburn, Maine, Medical School of Maine, Portland, 1899, formerly district health officer for Kennebec and Somerset counties, aged 65, died, May 9, in the Central Maine General Hospital, Lewiston, of lobar pneumonia

**P Henry O'Hara** Ⓢ Dayton, Ohio, Eclectic Medical Institute, Cincinnati, 1907, at one time coroner of Preble County, aged 63, died, June 12, in the Reid Memorial Hospital, Richmond, Ind., of coronary thrombosis and arteriosclerosis

**William Lowder** Ⓢ Maquoketa, Iowa, Medical College of Indiana, Indianapolis, 1894, past president and secretary of the Jackson County Medical Society, formerly county coroner, aged 76, died, June 3, of an injury received in a fall

**Eugene Ackerman** Ⓢ Bethlehem, Pa., Univerzita Komenskeho Fakulta Lekarska, Bratislava, Czechoslovakia, 1920, aged 48, on the courtesy staff of St Luke's Hospital, where he died, June 8, of a tumor of the spinal cord

**Edgar Albert Frauer**, Los Angeles, Bennett Medical College, Chicago, 1915, served during World War I, aged 52, died recently in the Veterans Administration Facility, Sawtelle, of gastric hemorrhage due to duodenal ulcer

**Tilden Hendricks Phipps Jr.**, Tampa, Fla., University of Oklahoma School of Medicine, Oklahoma City, 1937, appointed a first lieutenant in the medical reserve corps of the U S Army March 5, 1941, while in Australia, where he arrived April 7, 1942, was transferred to the 38th Bombardment Group Medical Corps, aged 30, was killed in an airplane accident, June 5, in the Far Eastern theater of war

**Floyd Kinsolving**, Hornersville, Mo., University of Louisville (Ky.) Medical Department, 1888, member of the Missouri State Medical Association, aged 79, died, May 5, in the Presnell Hospital, Kennett, of chronic asthma

**Oliver Miller Heartsill**, Marshall, Texas, Atlanta (Ga.) Medical College, 1882, University of Tennessee Medical Department, Nashville, 1886, member of the State Medical Association of Texas, aged 85, died, May 27

**Louis Koenig** Ⓢ Brooklyn, Long Island College Hospital, Brooklyn, 1907, specialist certified by the American Board of Ophthalmology, on the staff of the Jewish Hospital, aged 58, died, May 30, of cirrhosis of the liver

**George Philip Naum**, Cedar Grove, W Va., Ohio State University College of Medicine, Columbus, 1929, member of the West Virginia State Medical Association, aged 40, died, May 18, in a hospital at Charleston

**Charles E Pearson** Ⓢ Turlock, Calif., Kentucky School of Medicine, Louisville, 1898, formerly health officer of Turlock, on the visiting staff of the Emanuel Hospital, aged 64, died, May 30, of coronary occlusion

**James Robert Craig**, Ripley, Tenn., University of Nashville Medical Department, 1893, Vanderbilt University School of Medicine, Nashville, 1893, aged 70, was found dead in bed, May 15, of cardiovascular disease

**Victor Emmannuel Kea**, Atlanta, Ga., Emory University School of Medicine, Atlanta, 1918, member of the Medical Association of Georgia, served in the U S Navy during World War I, aged 52, died, May 20

**Eugene Rison Timmons**, Grand Junction, Tenn., Birmingham Medical College, 1915, member of the Tennessee State Medical Association, aged 49, died, May 24, of a malignant condition of the pancreas

**Otis Manly Patterson**, Bastrop, La., Memphis (Tenn.) Hospital Medical College, 1887, for many years coroner and health officer of Morehouse Parish, aged 81, died, May 1, of influenza and pneumonia

**Stephen Sylvester Stack** Ⓢ Milwaukee, Rush Medical College, Chicago, 1921, assistant professor of pathology at Marquette University School of Medicine, aged 46, died, May 1

**Charles P Leininger**, Pittsburgh, Western Pennsylvania Medical College, Pittsburgh, 1904, aged 61, died, May 20, of carcinoma of the colon with metastasis to the liver

**Josiah C Lloyd**, Platte, S D., State University of Iowa College of Medicine, Iowa City, 1882, aged 87, died, May 2, in Mitchell of bronchopneumonia and myocarditis

**Chauncey A Rood**, Brocton, N Y., University of Buffalo School of Medicine, 1878, member of the Medical Society of the State of New York, aged 87, died, May 2

**Zachary Peck Fletcher**, Ramsey, N J., New York Homeopathic Medical College and Hospital, New York, 1880, aged 79, died, May 22, of chronic myocarditis

**Emery Marcus Byers**, Genoa, Ill., College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898, aged 70, died, May 22

**William George Walker**, Houston, Texas, Keokuk (Iowa) Medical College of Physicians and Surgeons, 1897, aged 63, died, May 17, in a local hospital

**Benjamin Woloshin** Ⓢ New York, Long Island College Hospital, Brooklyn, 1915, on the staff of the Bronx Hospital, aged 49, died, May 26, of carcinoma

**Emile Ostiguy**, Montreal, Que., Canada, M B, Victoria University Medical Department, Coburg, Ont., 1887, and M D in 1889, aged 75, died recently

**Edward E Underwood**, Frankfort, Ky., Western Reserve University Medical Department, Cleveland, 1891, aged 77, died, May 31, of cardiorenal disease

**Irving Edwin Sauber**, Wallingford, Conn., George Washington University School of Medicine, Washington, D C, 1927, aged 41, died, May 11

**Warren Bassett Klinefelter**, Chicago, City, Iowa, Hering Medical College, Chicago, 1895, aged 83, died, May 18, of cerebral hemorrhage

**Loren Hoover** Ⓢ Decker, Ind., Medical College of Indiana, Indianapolis, 1892, aged 74, died, May 29, in St Mary's Hospital, Evansville

**Benjamin H Harrison**, Burlison, Tenn. (licensed in Tennessee in 1911), aged 69, died, May 14, of chronic valvular heart disease

**Frank Leroy Baker**, Fayette, Iowa, Hahnemann Medical College and Hospital, Chicago, 1904, aged 65, died, May 1, of nephritis

**Lynn Murray Jones** Ⓢ Dayton, Ohio, Ohio Medical University, Columbus, 1898, aged 71, died, May 3, of cirrhosis

**Joseph Patrick Armstrong**, Ottawa, Ont., Carleton University of Toronto Faculty of Medicine, 1927, aged 44, died, April 4

**Augustus L Craig**, Chicago, Rush Medical College, 1878, aged 88, died, May 25, of carcinoma of the stomach

**Charles E Anderson**, St Louis, American Medical College, St Louis, 1891, aged 83, died, May 23, of acute myocarditis

**George W Alexander**, Beachburg, Ont., Canadian Medical College, Toronto, 1899, died, April 6

**Richard Marion Murphey**, Belleville, Ark. (licensed in Arkansas in 1903), aged 62, died, May 8

**John C Stovall**, Turin, Ga., Atlanta Medical College, 1894, aged 72, died, April 23

#### DIED IN ARMY SERVICE



TILDEN H PHIPPS JR, M D  
1911-1942



## Bureau of Investigation

### MISBRANDED PRODUCTS

#### Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE—These Notices of Judgment are issued under the Food, Drug and Cosmetic Act and in cases in which they refer to drugs and devices they are designated D D N J and foods, F N J. The abstracts that follow are given in the briefest possible form (1) the name of the product, (2) the name of the manufacturer, shipper or consigner (3) the date of shipment (4) the composition (5) the type of nostrum (6) the reason for the charge of misbranding and (7) the date of issuance of the Notice of Judgment—which is considerably later than the date of the seizure of the product and somewhat later than the conclusion of the case by the Food and Drug Administration.]

**Alpine Tea**—Alpine Tea Company, Detroit, Sept. 2, 1949. Composition: cut dried leaves of blueberry. Misbranded because label falsely represented that the product would balance the deficiency of body minerals, stimulate the pancreatic glands, kidneys, bladder and liver, increase vitality amazingly and almost immediately help one get a good night's rest, serve as an effective aid to the diabetic person's diet and lessen the need for insulin. Further misbranded because the numerous mineral salts named with their respective alleged amounts on the label did not represent an analysis of the product itself.—[D D N J F D C 348 March 1942]

**Ancestral Oil**—Ancestral Medicine Company, Oawatomie, Kan., April 26, 1940. Composition: essentially a fish oil and turpentine. Misbranded because among other things falsely represented on label to be an effective treatment of hemorrhoids, rheumatism, hay fever, asthma, kidney ailments, tuberculosis, pneumonia and many other disorders. Further misbranded because label did not accurately state the quantities of the ingredients or give their common names.—[D D N J F D C 359 March 1942]

**Blessed Herb Tea**—Dr. Lynch A. Johnson, Memphis, Tenn., Between Jan. 4 and Jan. 16, 1940. Composition: essentially plant material including couch grass, calamus and mistletoe. Misbranded because of false representation on label that it was a remedy for Bright's disease, bloody and scalding urine and stricture.—[D D N J F D C 369 March 1942]

**Colicramp Drops**—A. G. Groblewski & Company, Plymouth, Pa., Sept. 6, 1940. Composition: essentially alcohol, ether and small amounts of peppermint, ammonia, ginger and plant extracts. Misbranded because falsely labeled to relieve pains of stomach, gas, bloated feeling after eating and pains peculiar to women.—[D D N J F D C 379 March 1942]

**Colusa Natural Oil**—C. W. Colgrove, Hollywood, Calif., May 21, 1940. Composition: crude petroleum oil. Falsely represented on labels as an effective treatment of athlete's foot, ringworm, eczema, psoriasis, acne, poison oak, burns and cuts.—[D D N J F D C 380 March 1942]. A similar action against a shipment of Colusa Natural Oil by the Swan Manufacturing Company, San Francisco, was described under D D N J F D C 381 March 1942.

**Compound Herb Tea**—Dr. Lynch A. Johnson, Memphis, Tenn., Between Jan. 4 and Jan. 16, 1940. Composition: plant material such as rosemary, saffron, chicory, red clover, senna and green leaves resembling eupatorium. Misbranded because label falsely represented it as efficacious for treating gonorrhea and leucorrhea.—[D D N J F D C 369 March 1942]

**Double Quick Liver Tablets**—Dr. Lynch A. Johnson, Memphis, Tenn., Between Jan. 4 and Jan. 16, 1940. Composition: calomel and plant materials including ginger, senna, aloë, podophyllum and buckthorn. Misbranded because labels did not declare all active ingredients (particularly the calomel) and falsely represented product as exerting quick and strong action on the liver.—[D D N J F D C 369 March 1942]

**Durets**—James Lawrence Company, Inc., New York, May 25, 1940. Composition: in each tablet theophylline  $\frac{1}{2}$  grain, methenamine, 1 grain, sodium biphosphate, 2.3 grains and starch. Misbranded because label falsely represented the product to help drive out poisonous body wastes, relieve loss of sleep, help purify the urinary passages and be efficacious in treating backache, headache, mental depression, kidney and bladder disorders, pains in the groin, rheumatic muscular pains or joint rheas due to chronic prostatitis.—[D D N J F D C 382 March 1942]

**Edwenil**—Spicer & Company, Glendale, Calif., Between Feb. 21 and April 2, 1940. Composition: a colorless liquid containing about 1 per cent of solid chiefly sodium chloride with silicates and phosphates, nitrogenous matter and water. Adulterated and misbranded because represented to possess a strength and quality sufficient to activate and fortify the natural defenses of the body against acute and chronic endotoxic infections when administered in specified doses.—[D D N J F D C 60 March 1942]

**Herb Wash**—Dr. Lynch A. Johnson, Memphis, Tenn., Between Jan. 4 and Jan. 16, 1940. Composition: essentially ground oak bark. False representation on label that the nostrum was effective in treating female disorders, gonorrhea and falling of the womb, constituted misbranding.—[D D N J F D C 369 March 1942]

**Heron's Pure Eucalyptus Oil**—Norman C. Heron, trading as N. C. Heron Company, Los Angeles, Nov. 23, 1939. Adulterated because it contained not more than 68 per cent of eucalyptol, whereas the United States Pharmacopoeia provides that eucalyptus oil shall contain not less than 70 per cent of eucalyptol and because the difference between the two in strength, quality and purity was not plainly stated on the label. Misbranded because label falsely represented the product as a pure eucalyptus oil, as an all-around family remedy and as effective for internal or external use from the youngest to the oldest, that the article when used alone or in connection with Heron's Liver Regulator has no equal in treating Bright's disease and diabetes, whooping cough, diphtheria, pleurisy, pneumonia, fever, stomach and kidney disorders and many other things. This case was the subject of a criminal prosecution and the jury declared the defendant guilty. The court imposed a fine of \$300, suspended a prison sentence and placed the defendant on probation.—[D D N J F D C 345 March 1942]

**Hunt's (Dr.) Cervical Spine Relaxer**—Albert Thurlow Hunt, Los Angeles, Jan. 3, 1940. Device consisted of a sling fitting under the chin and around back of neck and riveted to a horizontal bar operated from a block and tackle, which were manipulated to cause a stretching of operator's neck. Misbranded because statements and designs in accompanying circular falsely represented the device as practically a cure all.—[D D N J F D C 372 March 1942]. A Post Office fraud order debarring this mechanism from the mails was reviewed in THE JOURNAL, Dec. 27, 1941, page 2269.

**Kru Lax**—Oriental Laboratory, St. Louis, May 22, 1940. Composition: epsom salt, sulfur and plant material including licorice, anise and buchu. Charge of misbranding was based on false label representation that the product was an oriental herbal compound which would relieve constipation and hence obviate a good many other disorders such as heartburn, arthritis, sciatica, lumbago, gout, prostate trouble, female weakness, tape worm, appendicitis and tuberculosis.—[D D N J F D C 384 March 1942]

**Marie de Medicis Scalp Food**—Marie de Medicis Products Company, Philadelphia, Sept. 30, 1940. Composition: a perfumed brown ointment containing free sulfur, hydrous wool fat and petrolatum. Misbranded because labels falsely represented that it would make the hair beautiful and healthy, nourish the scalp and be an effective treatment for dandruff, falling hair and various scalp ailments and because labels did not list the common name of each active ingredient.—[D D N J F D C 364 March 1942]

**Natural Mineral Extracts**—Colonial Drug Company, Tulsa, Okla., Feb. 13, 1940. Composition: essentially ferric sulfate and water with small amounts of aluminum, calcium and magnesium compounds. Falsely represented on label to maintain mineral balance, give new life and overcome infections and a long list of disorders such as those of the skin, kidneys, bladder, rectum and female organs.—[D D N J F D C 385 March 1942]

**Natural Ray Mineral Water**—Natural Ray Mineral Water Company, St. Louis, Aug. 11, 1939. Composition: a slightly alkaline water whose scant mineral content consisted chiefly of calcium bicarbonate, calcium sulfate and magnesium sulfate. Misbranded because falsely represented on label as an effective treatment of rheumatism, uric acid and kidney disorders.—[D D N J F D C 386 March 1942]

**Naturzelp**—Nutro Distributing Association, Columbiana, Ohio, Jan. 1, 1940. Composition: essentially epsom salt, sodium salicylate and plant extracts including licorice. Label falsely represented it as a general purifier acting directly on the liver and relieving rheumatism, arthritis, neuritis, lumbago, besides being a tonic for various organs and removing the sugar from the urine, thus eliminating the symptoms of diabetes.—[D D N J F D C 387 March 1942]

**Noes Graduated Exercisers and Massagers**—Roy H. Noe, Memphis, Tenn., May 22, 1940. Composition: two rubber belts, one equipped with handles accompanied by an instruction book and a circular. Falsely represented in the labeling to be the fastest, wustline-reducing exercise known to build health, eliminate constipation and prove efficacious for massaging the pelvic organs, keeping the prostate gland normal, correcting gland trouble, strengthening the eyes and doing a good many other things.—[D D N J F D C 390 March 1942]

**Par A Pac Reducing Pack**—Par A Pac Company, New York, May 21, 1940. Composition: belts or pads consisting of layers of parchment, flannel and rayon. False representations that reducing pack was efficacious for spot-reducing, eliminating excess flesh on the waistline, abdomen, hips, thighs, legs, arms or shoulders, oxidizing superfluous fatty tissues and slenderizing without dieting or exercise and that heating pad would relieve chest colds, lumbago, arthritis, backache and muscular soreness.—[D D N J F D C 396 March 1942]

**Vitawine**—Interstate Laboratories, Inc., Louisville, Ky., April 3, 1940. Composition: in each fluid ounce iron and ammonium citrate, 15.56 grains, manganese citrate, 0.63 grain, sodium citrate, 5.23 grains and alcohol, 14.48 per cent. Biological examination showed that it contained 500 international units of vitamin B<sub>1</sub> per fluid ounce. Misbranded because label falsely represented that the product would assist in renewing health, restoring energy, enriching the blood, increasing metabolism and promoting normal growth, that it contained blood and body-building ingredients was indicated in any form of anemia, was a health tonic and would help prevent pellagra, inflammation of the skin, diarrhea, mental and physical nervousness and certain types of neuritis and other things.—[D D N J F D C 394 March 1942]

## Correspondence

### REQUESTS FOR REPRINTS

*To the Editor* —I fully support the statements made by Dr Richard Kovacs in his recent communication in *THE JOURNAL*. Very few physicians who ask for reprints enclose a stamped envelop with their request. However, there is an additional and more flagrant lack of courtesy. Many physicians write to ask for information on how to treat patients and data for papers they intend to write. My impression is that less than one in ten takes the trouble to thank us for the advice and information we give, even when we specifically ask to be told of the results of therapy we recommend. It seems to me that the least physicians can do is to say "thank you" for the time we spend thinking about their problems and preparing an answer.

J P GREENHILL, M D, Chicago

*To the Editor* —On page 828 of the July 4 issue, Dr Richard Kovacs condemns the practice of certain persons using a penny postcard to request a reprint. He believes that any one requesting a reprint of an author should write a personal letter and enclose postage.

I am not in accordance with his belief for the following reasons. I use my own funds to send out approximately eight hundred reprints of each of the articles I write, with the full knowledge that 90 per cent or more of these will receive no better than a casual glance before reaching the scrap basket, therefore, I feel that I can perfectly well afford to send reprints at my own expense to those who request them even by postcard.

Though no mention is made in Dr Kovacs's letter of acknowledging reprints, it is my belief that an acknowledgment is not required unless one or more of the following conditions prevail:

- 1 If the reprint is of genuine interest to the recipient
- 2 If the author is a close friend
- 3 If the author is a young doctor who has done a good piece of work and deserves encouragement

ROBERT B TAFT, M D, Charleston, S C

*To the Editor* —In *THE JOURNAL*, July 4, appears a short scathing discourse by Richard Kovacs, M D, concerning penny postcard requests for reprints. Dr Kovacs condemns this procedure and titles it as a "reprint racket."

According to his notations I suppose I should classify myself as one of the "penny postcard reprint racketeers"! Before doing this I wish to broach a few points in the defense of us "racketeers."

1 Use of the penny postcard affords a tremendous saving in paper, secretarial time and physician's time. All three are vital in these days, when a physician's time is more crowded than ever because of the shortage created by the war.

2 The physicians who request reprints are usually the ones who write scientific articles. They in turn spend funds for purchase of reprints and postage to supply requests for reprints. Therefore the outlay averages up in the long run.

3 The few dollars spent in distributing reprints for the edification of colleagues certainly will not break or even dent the purse of the physician author.

4 One doesn't request a reprint if one isn't especially interested in the subject with which the paper deals.

5 The average busy physician runs across titles of papers he would enjoy reading only at odd moments. These are found chiefly in the summaries and indexes of the Current Medical Literature printed in each issue of *THE JOURNAL*.

Because of this I, as well as many of my physician friends who do not have access to a large medical library of periodicals make a habit of having penny postcards handy. We put down requests for reprints at once and soon have the article at hand. Frequently, postponing the request until one arrives at the office the following day causes neglect in writing the reprint. Daily duties occupy the physician's mind, and the desire for the reprint is not recalled until a leisure moment at home again, and so on ad infinitum.

I for one feel greatly honored when requested for a reprint—maybe it is due to the particular type of ego I possess.

STANLEY H MACHT, M D, Crewe, Ia

### CONSTITUTIONAL INADEQUACY OR NEURASTHENIA

*To the Editor* —That was a fascinating article by Dr Walter C Alvarez in the July 4 issue. He always writes well and interestingly. Of course, all of us old practitioners recognize the class of patients to which the doctor chooses to apply a new label—constitutional inadequacy. Yes, we are all acquainted with that class of chronics who wander from office to office from clinic to clinic, and finally wind up with some quack or fall a prey to some patent nostrum.

It is with the new name, however, that I wish to take issue with the author. The label seems a bit vague, too long and hackneyed. If we can only find a simple label, of one word or of two words joined together for euphony!

I didn't have to go far. Under the heading of the Cause of the Trouble, Dr Alvarez states "Actually, in most cases it is sure the primary constitutional weakness is in the nervous system." Ah! I have it. Weakness and nervous system. Weak nerves—neurasthenia. What a discovery! And what a simple label. What you say, neurasthenia, that's an old name. Well, old or new, it fits it like a glove.

SAMUEL RALPH, M D, Brooklyn

### CARDIAC FAILURE AND RHYTHM OF THE HEART

*To the Editor* —A brief note appearing in *Tones and Notes* in *THE JOURNAL*, May 30, was entitled "Get Toned! Boys" (contributed by a "Colleague"). The contradiction in this title called attention to does have a serious as well as a more humorous aspect, and it is because of the former that I wish to publish this explanatory note. The contradiction referred to occurred in volume 4 of the *New Internist Clinics* (1941). On page 4 Keefer states that "the vast majority of patients with heart failure regardless of its cause have normal cardiac rhythm." On page 165 of the same volume Hallock, Larson and Watson state that "it is generally accepted that the majority of cases of cardiac failure are accompanied by auricular fibrillation." This statement was based on statistics of Mackenzie (1913) and Lewis (1937) with reference, however, to severe congestive heart failure. In a later sentence we were not thinking of the cases of auricular failure presenting with dyspnea alone and without signs of right heart failure, which are usually associated with the term "congestive failure." Of course, the statement made was incorrect in the broad sense because we did not specify congestive heart failure. We freely admit this and wish to take this opportunity of correcting it and of thanking the colleague who called the matter to our attention.

PHILIP HALLOCK, M D  
E A LARSON, M D  
C J WATSON, M D

## Medical Examinations and Licensure

### COMING EXAMINATIONS AND MEETINGS

**ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE**  
Chicago Feb 13-16 1943 Sec Council on Medical Education and Hospitals Dr H G Weiskotten 55 North Dearborn Street Chicago

#### NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in THE JOURNAL, July 25, page 1050

#### BOARDS OF MEDICAL EXAMINERS

**ALABAMA** Montgomery June 15-16 Sec Dr B F Austin, 519 Dexter Ave Montgomery  
**ARKANSAS** \* Medical Little Rock Nov 5-6 Sec Dr D L Owens Harrison Edictic Little Rock Nov 5 Sec Dr Clarence H Young 1415 Main St, Little Rock

**CALIFORNIA** \* Written Sacramento Oct 19-22 Oral examination (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California) Los Angeles Sept 16 Sec Dr Charles B Pinkham 1020 N St Sacramento

**DISTRICT OF COLUMBIA** \* Washington Nov 9-10 Sec Commission on Licensure Dr George C Ruhland 6150 East Municipal Bldg Washington

**FLORIDA** \* Jacksonville Nov 23-24 Sec Dr William M Rowlett Box 786 Tampa

**GEORGIA** Atlanta Oct 13-14 Sec Mr R C Coleman 111 State Capitol Atlanta

**ILLINOIS** Chicago Oct 13-15 Superintendent of Registration Mr Philip M Harman Department of Registration and Education Springfield

**INDIANA** Indianapolis Jan 13-15 Sec Board of Medical Registration and Examination Dr W C Moore 301 State House Indianapolis

**KANSAS** Kansas City Sept 15-16 Sec Board of Medical Registration and Examination Dr I F Hassig 903 N Seventh St Kansas City

**MARYLAND** Medical Baltimore Dec 8-11 Sec Dr John T O'Mara 1215 Cathedral St Baltimore Hamcapathic Baltimore Dec 8-9 Sec Dr John A Evans 612 W 40th St Baltimore

**MICHIGAN** \* Lansing Oct 14-16 Sec Board of Registration in Medicine Dr J Earl McIntyre 203 Hollister Bldg Lansing

**MINNESOTA** \* Minneapolis Oct 20-22 Sec Dr Julian F Du Bois 230 Lowry Medical Arts Bldg St Paul

**MISSISSIPPI** Jackson December Asst Sec State Board of Health, Dr R N Whitfield Jackson

**MISSOURI** Kansas City Oct 3 Sec State Board of Health Dr James Stewart State Capitol Bldg Jefferson City

**MONTANA** Helena Oct 6 Sec Dr Otto G Klein First National Bank Bldg Helena

**NEVADA** Reciprocity Carson City Aug 3 Sec Dr Frederick M Anderson 215 N Carson St Carson City

**NEW HAMPSHIRE** Concord Sept 10-11 Sec Board of Registration in Medicine Dr T P Burroughs State House Concord

**NEW JERSEY** Trenton Oct 20-21 Sec Dr Earl S Hallinger 28 W State St Trenton

**NEW MEXICO** \* Santa Fe Oct 13-14 Sec Dr LeGrand Ward 135 Sena Plaza Santa Fe

**NEW YORK** Albany Buffalo New York and Syracuse Sept 14-17 Chief Bureau of Professional Examinations Mr H L Field State Education Department 315 Education Bldg Albany

**NORTH CAROLINA** December Sec Dr W D James Hamlet

**OHIO** Endorsement Oct 6 Sec Dr H M Platter 21 W Broad St Columbus

**OKLAHOMA** \* Oklahoma City Dec 9 Sec Dr J D Osborn Jr Frederick

**TEXAS** Austin Dec 28-30 Sec Dr T J Crowe 918 20 Texas Bank Bldg Dallas

**UTAH** Salt Lake City June Dir Department of Registration Mr G V Billing 324 State Capitol Bldg Salt Lake City

**VIRGINIA** Richmond Dec 8-11 Sec Dr J W Preston 307 Franklin Rd Roanoke

**WASHINGTON** \* Seattle Aug 3-5 Dir Department of Licenses Mr Thomas Swazey Olympia

**WISCONSIN** \* Reciprocity Madison September Sec D H W Shutter 425 E Wisconsin Ave Milwaukee

**WYOMING** Cheyenne Oct 5-6 Sec Dr M C Keith Capitol Bldg Cheyenne

Basic Science Certificate required

#### BOARDS OF EXAMINERS IN THE BASIC SCIENCES

**ARIZONA** Tucson Sept 15 Act Sec Dr Robert L Nugent Science Hall University of Arizona Tucson

**CONNECTICUT** Oct 10 Address State Board of Healing Arts 1945 Yale Station New Haven

**DISTRICT OF COLUMBIA** Washington Oct 19-20 Sec Commission on Licensure Dr George C Ruhland 6150 East Municipal Bldg Washington

**FLORIDA** Gainesville Oct 31 Application must be on file not later than Oct 16 Sec Dr J F Conn John B Stetson University DeLand

**MINNESOTA** Minneapolis Oct 6-7 Sec Dr J C McInnis, 1-6 Villard Hall University of Minnesota Minneapolis

**NEBRASKA** Lincoln Oct 6-7 Dir Bureau of Examining Boards Mrs Jeannette Crawford 1009 State Capitol Bldg Lincoln

**NEW MEXICO** Albuquerque Feb 1 Sec Miss Pia Joerger State Capitol Santa Fe

**OKLAHOMA** Oklahoma City Nov 1943 Sec Dr Oscar C Newman Shattuck

**OREGON** Portland Oct 31 Sec State Board of Higher Education Mr Charles D Byrne University of Oregon Eugene  
**RHODE ISLAND** Providence Aug 19 Chief Division of Examiners Mr Thomas B Casey 366 State Office Bldg Providence  
**SOUTH DAKOTA** Sioux Falls Dec 4-5 Sec Dr G M Evans Yankton  
**WISCONSIN** Madison Sept 19 Sec Prof Robert N Bauer 3414 W Wisconsin Ave Milwaukee

### District of Columbia May Report

The District of Columbia Board of Examiners in Medicine and Osteopathy reports the written examination for medical licensure held at Washington May 11-12, 1942. The examination covered 9 subjects and included 60 questions. An average of 75 per cent was required to pass. Nineteen candidates were examined all of whom passed. Six physicians were licensed to practice medicine on endorsement of credentials of the National Board of Medical Examiners. The following schools were represented:

| School   | PASSED | Year Grad | Number Passed |
|--|--------|-----------|---------------|
| George Washington University School of Medicine (1941-19)* |        | (1940)    | 11            |
| Georgetown University School of Medicine                   |        | (1941-2)* | 2             |
| Indiana University School of Medicine                      |        | (1938)    | 1             |
| Temple University School of Medicine                       |        | (1935)    | 1             |
| University of Pennsylvania School of Medicine              |        | (1940)    | 1             |
| Medical College of Virginia                                |        | (1936)    | 1             |
| University of Toronto Faculty of Medicine                  |        | (1924)    | 1             |
| Osteopath†   |        |           | 1             |

| School  | LICENSED BY ENDORSEMENT | Year Grad |
|---|-------------------------|-----------|
| George Washington University School of Medicine           |                         | (1938)    |
| Georgetown University School of Medicine                  |                         | (1940)    |
| New York Medical College Flower and Fifth Avenue Hospital |                         | (1940)    |
| New York University College of Medicine                   |                         | (1939)    |
| University of Pennsylvania School of Medicine             |                         | (1930)    |
| McGill University Faculty of Medicine                     |                         | (1935)    |

\* Licenses have not been issued

† Examined in surgery only

### West Virginia March Report

The Public Health Council of West Virginia reports the oral and written examination for medical licensure held at Charleston, March 2-4, 1942. The examination covered 11 subjects and included 110 questions. An average of 80 per cent was required to pass. Four candidates were examined, all of whom passed. Eleven physicians were licensed to practice medicine by reciprocity. The following schools were represented:

| School   | PASSED | Year Grad | Number Passed |
|--|--------|-----------|---------------|
| George Washington University School of Medicine        |        | (1939)    | 1             |
| Western Reserve University School of Medicine          |        | (1916)    | 1             |
| Hahnemann Medical College and Hospital of Philadelphia |        | (1940)    | 1             |
| Meharry Medical College                                |        | (1940)    | 1             |

| School   | LICENSED BY RECIPROCITY | Year Grad | Reciprocity with |
|--|-------------------------|-----------|------------------|
| George Washington University School of Medicine                                  |                         | (1939)    | Vermont          |
| Rush Medical College   |                         | (1935)    | Penna            |
| University of Maryland School of Medicine and College of Physicians and Surgeons |                         | (1940)    | Maryland         |
| Tufts College Medical School   |                         | (1933)    | Kentucky         |
| Ohio State University College of Medicine  |                         | (1937)    | Ohio             |
| University of Cincinnati College of Medicine                                     |                         | (1935)    | Ohio             |
| University of Tennessee College of Medicine                                      |                         | (1925)    | Tennessee        |
| University of Vermont College of Medicine  |                         | (1933)    | Vermont          |
| Medical College of Virginia  |                         | (1929)    | Virginia         |
| University of Virginia Department of Medicine                                    |                         | (1932)    | Virginia         |

### Massachusetts Endorsement Report

The Massachusetts Board of Registration in Medicine reports 30 physicians licensed to practice medicine on endorsement of credentials of the National Board of Medical Examiners from Jan 6 through Feb 27, 1942. The following schools were represented:

| School                                   | LICENSED BY ENDORSEMENT | Year Grad                               | Number Endorsed |
|--|-------------------------|---|-----------------|
| Yale University School of Medicine       |                         | (1934) (1937)                           | 3               |
| Georgetown University School of Medicine |                         | (1937)                                  | 1               |
| Boston University School of Medicine     |                         | (1939-2)                                | 6               |
| Harvard Medical School                   |                         | (1937) (1938-2)                         | 7               |
| Tufts College Medical School             |                         | (1934) (1937) (1938), (1939-2) (1940-4) | 12              |
| New York University College of Medicine  |                         | (1938)                                  | 1               |
| Duke University School of Medicine       |                         | (1936)                                  | 1               |
| Woman's Medical College of Pennsylvania  |                         | (1940)                                  | 1               |
| McGill University Faculty of Medicine    |                         | (1938)                                  | 1               |

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Hospitals Liability for Death of Mentally Depressed Patient, Practice of Medicine by Hospitals**—The administratrix of the estate of the deceased patient sued the defendant sanatorium, the defendant physician and another for damages because of the patient's death. At the close of the plaintiff's evidence, the defendants moved the court for a directed verdict, which motion was sustained, and the jury was instructed to and did return a verdict for all the defendants. The plaintiff then appealed to the Appellate Court of Indiana, in banc. After the filing of the plaintiff's brief, the action against the defendant physician was dismissed.

The evidence showed that the patient was taken to the defendant sanatorium because he was suffering from mental depression and had twice attempted to commit suicide. When he arrived at the institution he was examined by the defendant physician, who was a resident physician at the sanatorium but who also engaged in the private practice of neurology and psychiatry. Arrangements were made for the constant guarding of the patient, and his attendant, who was on twenty-one hour duty, was informed that the patient had suicidal tendencies and that he must watch him closely. Several days after admission, at the direction of the head nurse of the sanatorium, the attendant took the patient to an office building for the purpose of having roentgenograms made. The office to which the patient was taken was located on the seventh floor of the building. While in that office, the patient suddenly jumped through a large open window and fell to the sidewalk below, the fall causing his death.

The defendant sanatorium was a private corporation operating for profit, and such a corporation, the court said, is liable in damages for injuries to its patients proximately resulting from the negligence of its officers or employees while performing administrative or ministerial acts. While a hospital or sanatorium conducted for private gain is not an insurer of its patients against self-inflicted injuries, it is required to use ordinary care. In determining what constitutes ordinary care in such cases it is proper to consider the physical and mental ailments of the patient which may affect his ability to look after his own safety. The attending physician in this case testified that the patient was his private patient, and the court thought that the evidence justified the conclusion that the patient was under the charge of this physician as an independent contractor for diagnosis and treatment of his mental condition but that he was under the charge of the sanatorium for care, protection and the customary hospitalization of an institution which treats mental and nervous disorders. The plaintiff contended that, since the physician gave an order to the head nurse of the sanatorium that the patient be taken to the office building for roentgenograms, the protection and guarding of the patient while he was in the office building and the act of the head nurse of the hospital in directing that he be taken to such a place under the charge of one attendant were all medical acts connected with the treatment of the patient by the physician and that the sanatorium or its attendant could not be liable for any negligence in the performance thereof.

When a physician, the court said, is in charge of all the medical or surgical work carried on at a hospital or sanatorium and gives orders or directions concerning the treatment of patients, it is difficult to determine when the acts of the employees of the hospital or sanatorium are medical acts assisting the physician in the treatment of his patient or administrative or ministerial acts of the hospital itself in carrying out its contract with the patient. In Indiana, the court continued, where a sanatorium or hospital has no right to engage in the practice of medicine and where physicians although employed by it cannot engage in the practice of medi-

cine as its agents, it is apparent that many anomalous situations will arise if the customary and routine acts of the hospital employees are designated as medical acts instead of administrative or ministerial acts of the hospital or sanatorium. A private hospital or sanatorium operated for profit and holding it out to the public as equipped to furnish hospital service should be liable, in the opinion of the court, for the negligent acts of its employees who are acting under its supervision and control in the performance of their routine duties. If the negligence resulting in injury to a patient was in fact that of an independent physician, the hospital in which the patient was treated not and should not be liable. In determining whether the negligence was the negligence of the hospital or sanatorium or of the physician who was treating the patient, the nature of the act performed and whether it was performed by a servant of the hospital or sanatorium or a servant of the physician should be of value in reaching a correct determination. A directed verdict to have a roentgenogram made, the court continued, is not a medical act that would cause the person giving the order to be guilty of the offense of practicing medicine without a license. The guarding and protecting of patients suffering from mental disease is not a medical act, and it is not necessary to have a license to practice medicine to perform such acts. The fact that a physician directs or orders such an act does not make it a medical act. The physician in this case was an administrative officer of the sanatorium as well as engaged in the practice of medicine. The court could see no reason why he, as an officer of the sanatorium, could not direct the performance of routine duties by its employees, and the fact that he was a physician or that the duties were connected with the care of a private patient would not necessarily make the acts of the employees medical acts.

In conclusion, the court said that the evidence was such that the minds of reasonable men could differ as to whether under all conditions and circumstances it was negligent to send the patient to the office building with only one guard, especially when there were a number of open windows in the office building and when conditions were such that the patient might be injured in attempting to escape. Also, the minds of reasonable persons could differ as to whether the attendant and the employer took proper precautions for guarding the patient while he was in the office building. The trial court, in the opinion of the Appellate Court, erred in taking the case from the jury at the close of the plaintiff's evidence and in directing a verdict for the defendants. The judgment was therefore reversed with direction to the trial court to sustain the motion for a new trial against the sanatorium and the attendant.—*Forester v. North Sanatorium*, 42 N. E. (2d) 415 (Ind., 1942).

**Malpractice Production of Hospital Records Relating to Medical Treatment Required for Patient's Inspection**—One Garrett brought an action in the Iowa courts for damages against the defendant clinic and the defendant physicians for malpractice. Subsequently, the trial court by application of an Iowa statute which authorizes a trial court to require production of any books or papers which are material to the just determination of any cause pending before it in which books or papers are under the control of the party to whom the rule is sought, entered a rule requiring the hospital wherein the defendants had treated the plaintiff to produce the charts and records relating to their treatment of the plaintiff in the hospital. The defendants sought by appropriate action in the Supreme Court of Iowa to test the validity of the rule.

Whether a rule for the production, said the Supreme Court, of hospital records will be entered rests in the discretion of the trial court. The statute providing for the production of books and papers in this connection should be liberally construed. The physician does not seriously claim that the hospital records and charts are material competent evidence for the plaintiff's case. He contends, however, that the patient's request for production of those records and charts is in effect a roving commission to ransack the entire files of the defendant physician.

hospital in question to determine whether or not the patient has a cause of action or to discover the defense of the physicians in the malpractice suit. It is quite manifest, however, that the plaintiff was not merely engaged in a fishing expedition in that the hospital records and charts will show the orders of the defendant physicians given in their medical treatment of the patient and what was done pursuant to the orders by the hospital staff and will tend to prove acts of commission or omission by the physicians during the time the relation of physician and patient existed. It is well settled that the fact that the documents may be evidence for the patient will not defeat the patient's right to their production if they tend to prove his cause of action.

The physicians next contended that the trial court erred in granting the inspection of the hospital records and charts because the hospital was not a party to the malpractice suit and the records and charts were in the possession and control of the hospital. We are satisfied, answered the court, however, that the trial court was right in deciding that the charts and records pertaining to the patient were under the control of the defendant physicians. The records show that the physicians were entitled to possession of the records pertaining to the patient's case from the hospital on request and that the hospital would not release or deliver them to third parties without the consent of the physicians. Actual possession of books and papers is not necessary. It is sufficient that those books and papers are under the control of the parties against whom the rule for production is sought. Since it satisfactorily appeared to the court that there was competent evidence in the control of the physician's material and necessary to the patient's action, the Supreme Court concluded that the trial court had not erred in entering the rule requiring the production of the hospital records and charts.—*Haughton Clinic v. District Court of Franklin County*, 300 N. W. 646 (Iowa 1941).

**Accident Insurance Death Following Unintended Intravenous Injection of Arsenical Compound by Physician as Due to "External, Violent, and Accidental Means"**—The defendant insurance company issued a policy providing certain benefits if the insured should die from "bodily injuries effected directly and independent of all other causes and solely through external violent and accidental means." The insured was treated by a physician for a severe cold or bronchitis. Shortly after his recovery from that ailment his physician for just what purpose the case does not make clear, while intending to give him an intravenous injection of a nonpoisonous drug, through inadvertence injected an arsenical compound, resulting, according to the reported case, in instant death. When the beneficiary brought suit on the policy, the insurance company denied liability. The trial court in effect dismissed the suit and the beneficiary appealed to the court of appeals of Ohio, Cuyahoga County.

The insurance company contended that death had not been caused by external violent and accidental means, within the meaning of the policy because first the force causing death was not an external force and second the drug was administered by the physician in his professional capacity in attempting to treat the insured and therefore the taking of such poison under the circumstances was voluntary on the assured's part and did not come about by accident. Thus the insurance company claimed there was an accident involved in the facts stated, such accident concerned the death itself and not the cause which brought about the death. As to the first question answered the appellate court the courts have without deviation held that death caused by the administering of poison into the system of a human being is in fact a death caused by the use of external violence and force. Although there are no cases in Ohio directly in point a close analogy is found in *United States Mutual Accident Ins. v. Hubbell*, 56 Ohio St. 516, 47 N. E. 544 which held that death caused by accidental drowning is death through external violent, and accidental means, within the meaning of a policy similar to the one here involved. Perhaps an analogy coming even closer to the facts in this case are cases in which death is caused directly and independently of

all other causes by the inhalation of poisonous gas, in which case according to 5 *Couch on Insurance*, 4038, section 1150.

Death or injury by the inhalation of poisonous or irrespirable gases without design intent or expectation on the part of the insured—that is through accident—is by external violent and accidental means, since the gas is external the result is unnatural and the cause is violent.

It seemed to the court from the plain facts of the case that the physician purely by accident and inadvertence, injected into the body of the insured a deadly poison when he thought he was using a nonpoisonous drug and that there was no question that the death was caused by accident or resulted from accidental means.

The court accordingly held that the trial court had been in error in dismissing the action reversed the judgment of dismissal and remanded the cause for further proceedings.—*Mulloff v. National Accident & Health Ins. Co.*, 37 N. E. (2d) 217 (Ohio 1941).

**Compensation of Physicians Liability of Employer in Common Law Action to Recover for Medical Services Rendered Employee**—In Indiana said the Supreme Court of Indiana, a physician who, pursuant to a contract with an employer renders medical services to a workman injured in the course of his employment may enforce his claim against the employer for the payment of his fees in a court of law, independently of any proceedings instituted under the Indiana workmen's compensation act before the industrial board. No provision in the act purports to take this right away from the physician. The act neither vests in the industrial board exclusive jurisdiction to fix fees for all medical services rendered an injured employee nor limits the recovery by the physician to a proceeding before the board. If an employer hires a physician, it is simply a matter of contract between the physician and the employer. If the amount to be paid is stipulated, the physician is entitled to that sum. If no amount is named, the physician is entitled to receive the reasonable value of his services as determined by the court and a failure to pay gives rise to a common law action that may be prosecuted in the courts.—*Hoffman v. Brooks Const. Co.*, 41 N. E. (2d) 613 (Ind. 1942).

**Optometry Practice Acts Information Not Stating Name of Person on Whom Unlicensed Defendant Allegedly Practiced Optometry Defective**—An information said the court of criminal appeals of Texas, that charges the defendant with practicing optometry without having first registered his license to practice as required by law must allege, or satisfactorily account for failure to allege the name of the person on whom the defendant allegedly practiced optometry. An information lacking in that essential is fatally defective.—*Blunberg v. State*, 161 S. W. (2d) 1082 (Texas 1942).

## Society Proceedings

### COMING MEETINGS

- American Association of Obstetricians Gynecologists and Abdominal Surgeons White Sulphur Spring W. Va. Sept. 10-12 Dr. James R. Bloss 418 Eleventh St. Huntington W. Va. Secretary
- American Association of Railway Surgeons Chicago Sept. 10-12 Dr. Raymond B. Kepner 347 West Jackson Blvd. Chicago Secretary
- American Congress of Physical Therapy Pittsburgh Sept. 9-12 Dr. Richard Kovacs 2 East 88th St. New York Secretary
- American Roentgen Ray Society Atlantic City N. J. Sept. 22-23 Dr. H. Dabney Kerr University Hospitals Iowa City Secretary
- Colorado State Medical Society Colorado Springs Sept. 23-26 Mr. Harvey T. Seithman 1612 Tremont Place Denver Executive Secretary
- Idaho State Medical Association Sun Valley Sept. 16-19 Dr. F. B. Jeppesen 103 North 8th St. Boise Secretary
- Michigan State Medical Society Grand Rapids Sept. 22-2 Dr. L. Fernald Foster 2020 Olds Tower Lansing Secretary
- National Medical Association Cleveland Aug. 17-21 Dr. John T. Givens 1108 Church St. Norfolk Va. General Secretary
- Nevada State Medical Association Reno Sept. 24-26 Dr. Horace J. Brown 120 North Virginia St. Reno Secretary
- Oregon State Medical Society Portland Sept. 9-11 Dr. John R. Montague 1020 S.W. Taylor St. Portland Secretary
- Utah State Medical Association Provo Aug. 27-29 Dr. D. G. Edmund 610 McIntyre Bldg. Salt Lake City Secretary
- Washington State Medical Association Spokane Aug. 17-19 Dr. V. W. Spickard 1405 Fourth Ave. Seattle Secretary
- Wisconsin State Medical Society of Milwaukee Sept. 16-18 Mr. Charles H. Crownhart 110 East Main St. Madison Secretary
- Wyoming State Medical Society Cheyenne Aug. 16-18 Dr. Marshall C. Keith Capitol Bldg. Cheyenne Secretary



## Current Medical Literature

### AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

### American Journal of Clinical Pathology, Baltimore

12 189-240 (April) 1942

Hemolytic Transfusion Reactions. I. Diagnosis, with Special Reference to Method of Differential Agglutination. A. S. Weiner, Brooklyn—p 189

Specific Morphology of Crystals Appearing in Urine During Administration of Sulfanilamide Derivatives. D. Lehr and W. Antopol, Newark, N. J.—p 200

Pellagra and Internal Secretion. C. A. Hellwig and L. H. Torman, Wichita, Kan.—p 210

Leukemoid Reaction (Hyperleukocytosis) in Malignancy. L. M. Meyer and S. D. Rotter, Brooklyn—p 218

Obstructive and Metastasizing Carcinoid Tumors of Ileum. G. D'Angremond, Chicago—p 223

Massive Metastasis to Brain from Primary Uterine Carcinoma Complicating an Advanced Case of Multiple Sclerosis. N. Mitchell and A. Angrist, Jamaica, N. Y.—p 232

### American J. Digestive Diseases, Fort Wayne, Ind.

9 147-180 (May) 1942

Familial Occurrence of Chronic Ulcerative Colitis (Thromboleucocytic Colitis). Report of Cases. R. J. Jackman and J. A. Bergen, Rochester, Minn.—p 147

Gastric Mucosa in Benign Adenomas. R. Schindler, Chicago—p 149

Bleeding Peptic Ulcer. Clinical Study, with Special Reference to the Meulengracht Regimen. N. W. Churkin and O. Tannenbaum, New York—p 150

Investigation of the Relationship Between Blood Sugar and General Complaints Following Subtotal Gastric Resection. A. Schwartz, I. Reingold and H. Necheles, Chicago—p 151

Occult Blood with Note on the Use of Carmine for the Marking of Stools. M. Kirschen, H. Sorter and H. Necheles, Chicago—p 154

Studies on Old Age. V. Active Pancreatic Secretion in the Aged. H. Necheles, F. Plotke and J. Meyer, Chicago—p 157

Id. VI. Blood Enzymes in the Aged. J. Meyer, H. Sorter and H. Necheles, Chicago—p 160

Effect of Magnesium Sulfate on the Sphincter of Oddi of Man. G. S. Bergh and J. A. Layne, Minneapolis—p 162

Is the Beneficial Effect of Urine Extracts on Mann-Williamson Ulcers Due to Gastric Secretory Depressant in Urine? D. J. Sandweiss and M. H. F. Friedman, Detroit—p 166

On Explanation of the Urobilinuria Present in Cases of Hematoma and New View on Origin of Urobilinogen from Bile Pigment. J. W. G. Ten Bokkel Hinnink, Tiel, Holland—p 168

Prolongation of Survival Time in Mann-Williamson Dogs by Supplementing Diets with Amino Acids. D. Shock and S. J. Fogelson, Chicago—p 173

\*Acute and Chronic Cecal Volvulus. D. C. Browne and G. McHardy, New Orleans—p 177

**Bleeding Peptic Ulcer.**—In 744 cases of peptic ulcer studied by Churkin and Tannenbaum, bleeding occurred in 101 cases, an incidence of 13 per cent. In 86 cases of bleeding peptic ulcer the treatment was medical, and in 15 it was surgical. The surgical cases are not considered in this study. The peak of incidence of bleeding peptic ulcer occurred in the third and fourth decades. Fifty-six patients with bleeding ulcer were treated by supportive measures and starvation with a mortality of 6.9 per cent. Among 30 patients receiving the Meulengracht regimen there was one death from a perforation. The feeding treatment appears to have lowered the mortality. It also shortened the average stay in the hospital from thirty-eight to twenty-eight days.

**Acute and Chronic Cecal Volvulus.**—According to Browne and McHardy, acute intestinal obstruction due to cecal volvulus is infrequent, for few such instances escape confirmatory surgery or autopsy. They add 6 illustrative case reports of acute intestinal obstruction due to cecal volvulus to the limited literature on the subject, 3 of the cases were post-operative. Their statistical study reveals an incidence of only

14 per cent among 411 cases of acute intestinal obstruction. A clinical diagnosis of acute cecal volvulus is seldom made since there are no diagnostic criteria that render a clinical diagnosis feasible. Cecal volvulus must be considered in other cases of intestinal obstruction. A mobile cecum probably can exist without clinical manifestations, because this anatomical abnormal condition is present in about 24 per cent of persons. It is likely that many an unexplained abdominal complaint due to an unrecognized chronic cecal volvulus, certain degrees of torsion permitting spontaneous rectification. Chronic recurring volvulus results in obstructive manifestations of variable severity with colicky right abdominal pain. Perhaps the therapeutic response to the removal of many a chronic appendix may be due to the resultant cecal fixation. In view of the high mortality in the acute obstructive cases it seems practical to advise cecopexy if a diagnosis of subacute or chronic cecal volvulus is made.

### American Journal of Medical Sciences, Philadelphia

203 625-780 (May) 1942

Hypertension. Electrocardiograms Experimentally Produced and Accurately Explained. I. Cor Pulmonale. Jane Sands Robb and R. C. Robb, Syracuse, N. Y.—p 625

Id. II. Left Ventricular Strain. Jane Sands Robb and R. C. Robb, Syracuse, N. Y.—p 634

Studies on the Distribution of Potential Concerned in the Formation of Electrocardiograms. C. C. Wolferth, Mary Miller Lavezey and F. C. Wood, Philadelphia—p 641

Clinicopathologic Correlation Between Hepatic Damage and the Blood Prothrombin Concentration. N. J. Sweet, S. P. Lucia and P. A. Aggeler, San Francisco—p 665

Plasma Amino Acid Levels in Health and in Measles, Scarlet Fever and Pneumonia. L. E. Farr, W. C. McCarthy and T. Friedman, New York—p 668

\*Eosinophilic Granuloma and Certain Other Reticuloendothelial Proliferations of Bone. Comparison of Clinical, Radiologic and Pathologic Features. P. Gross and H. W. Jacob, Pittsburgh—p 673

Toxicity of Fluorine in Dicalcium Phosphate. F. DeEds, San Francisco—p 687

Respiration in Myasthenia Gravis. D. Laszlo, New York and F. C. Redlich, Boston—p 693

The Intestine and Chronic Arthritis. A. Bassler, New York—p 701

Amount of Iodine in the Blood and Urine in Patients with Diabetes Insipidus. H. Blotner, Boston—p 708

Studies of the Expectant Action of Iodides. L. Tuft and N. M. L. Philadelphia—p 717

Diagnostic Value of the Takata-Arai Reaction. T. R. Waugh and F. L. McKenna, Montreal, Canada—p 722

\*Activated Sterols and Calcium Salts in Treatment of Parathyroid Tetany. E. L. Sevringhaus, Madison, Wis.—p 726

Use of Sulfathiazole in Infectious Mononucleosis. H. T. H. H. D. Lees and B. I. Comroe, Philadelphia—p 731

Improved Method of Obtaining Sustained Controlled Hyperpyrexia. Triple Typhoid Vaccine. H. A. Solomon and E. Somkin, New York—p 736

Clinical Value of Digitalis in Hypertensive Heart Failure. I. Normal Rate and Regular Rhythm. N. Flaxman, Chicago—p 741

Id. II. With Sinus Tachycardia. N. Flaxman, Chicago—p 741

**Reticuloendothelial Hyperplasias of Bone.**—Gross and Jacob state that of the various lesions under discussion of Hand-Christian's disease are the most common. Nevertheless, even the latter is so infrequently encountered that the average pathologist has little familiarity with it. It is surprising to find that this disease has been diagnosed with osteitis fibrosa, syphilitic osteitis, carcinoma, sarcoma and multiple myeloma. On the other hand, the literature contains comments which imply considerable confidence in ability to make at the correct diagnosis. Knowledge of the disease, reticuloendothelial proliferations, whether focal as in eosinophilic granuloma or solitary xanthoma, or more general as in Hand-Christian's disease or Letterer-Siwe's disease, is from complete. Biopsies should therefore be encouraged rather than discouraged. The similarity in histopathologic features of eosinophilic granuloma on the one hand and solitary xanthoma as well as Hand-Christian's disease, on the other, and warrants placing these conditions in the same case group. There does not seem to be any obvious roentgenographic or pathologic feature nor other information at present regarding any one of these lesions which their dogmatic segregation into separate diseases, and the existence of cases with features intermediate between Hand-Christian's disease and Letterer-Siwe's disease (reticuloendotheliosis) raises the question.

a sharp distinction between the lipid and the nonlipid reticuloendotheliosis is valid. Three case reports are presented which illustrate the variations in degree, stage of involvement and localization of reticuloendotheliosis.

**Activated Sterols and Calcium Salts in Parathyroid Tetany.**—Svingen states that large doses of vitamin D may serve to control in parathyroid tetany serum calcium and phosphorus levels adequately but that at current prices this entails an increase in cost to the patient of two to six times that required for similar success with the use of dihydrocholesterol. A detail in the management of the patient with chronic tetany is the choice of calcium salt for use in addition to the small calcium content of the low phosphorus diets. Calcium lactate has been used most widely. Calcium gluconate was advocated because of its solubility, ease of absorption and slightly sweet taste. Calcium phosphate is often prescribed although the rationale of adding phosphate is incorrect and in spite of the known fact that phosphates in the intestinal tract will reduce the absorption of calcium when the reaction is not acid. The optimal calcium salt is calcium chloride because this salt is very soluble in water and tends to produce a slightly acid reaction favoring absorption and because it furnishes the largest proportion of calcium per gram of salt. The chloride is four times as effective as the gluconate and twice as effective as the lactate when serving as a source of calcium. The chief drawback to its use in oral preparations has been its highly astringent effect in the mouth and pharynx. This can be masked satisfactorily by prescribing the chloride as a 25 per cent solution in a vehicle such as the standard elixir or syrup of glycyrrhiza.

### American J Obstetrics and Gynecology, St Louis

43 733-918 (May) 1942 Partial Index

- \*Serous Adenofibromas and Cystadenofibromas of the Ovary R B Scott Baltimore—p 733  
Severe Polyneuritis Due to Vitamin B Deficiency in Pregnancy L S McGoogan Omaha—p 752  
Use of Ergonovine in Placental Stage of Labor M E Davis and M W Boynton Chicago—p 775  
Clinical and Physiologic Aspects of Uterine Motility During Pregnancy and Labor C Fenning Salt Lake City—p 791  
Wound Disruption and Its Management H E Schmutz and J H Beaton Chicago—p 806  
Study of Contractions in Labor Based on Kymographic Records Obtained from an Intrauterine Balloon W Bickers Richmond Va—p 815  
Analysis of Abortion Deaths in the District of Columbia for the Years 1938 1939 1940 Beatrice Bishop Berle Washington D C—p 820  
Weight Studies in Pregnancy E G Waters Jersey City N J—p 826  
Additional Observations on Maternal Pulmonary Embolism by Amniotic Fluid C C Lushbaugh and P E Steiner Chicago—p 833  
Paraldehyde in Obstetrics with Particular Reference to Its Use in Eclampsia L H Douglass and R F Linn Baltimore—p 844  
Analysis of Late Morbidity in One Hundred Cases of Pregnancy Toxemia J O H Simrall Ann Arbor Mich—p 858  
Biologic Assay of Estrogens in Pregnancy Blood M A Goldberger and R T Frank New York—p 865  
Length of Menstrual Cycle Study of 150 Normal Women J O Hamao Brookline Mass—p 870  
Complete Inversion of Uterus Late in Puerperium F E O'Connor Kingston N Y—p 878  
Pregnancy Complicated by Acute Perforated Peptic Ulcer G W Anderson Buffalo—p 883  
Carcinoma of Bartholin's Gland E R Pund and W C Cole Augusta Ga—p 887  
Rupture of Scar of a Lower Segment Cesarean Section with Transverse Incision M W Grusetz and L H Tisdall Brooklyn—p 890  
Pregnancy Complicated by Hodgkin's Disease A H Klawans Chicago—p 895

**Serous Adenofibromas and Cystadenofibromas of the Ovary.**—Scott reports 14 cases of serous adenofibroma and cystadenofibroma of the ovary. These tumors correspond to the typical fibroma ovarii adenocysticum of Frankl-Wolfe's case in 1927 is the only 1 previously reported in English literature. The tumors were made up of two component parts, a dense connective tissue matrix in which were embedded numerous small cystic spaces lined by compact single layered cuboidal or low columnar, often ciliated epithelium. Psammoma bodies and papillary tendencies were frequent. The tumors were firm and solid with minute cystic spaces (adenofibromas) or partially cystic with at least one fourth of the mass solid (cystadenofibromas). In 2 cases the neoplasm was bilateral and in 3

the neoplasm was an incidental laboratory finding. There was no constant associated pelvic disorder of significance, although uterine myomas were found in 6 cases. Pain was the most common presenting complaint in 9 instances, and in 6 of these it could be definitely related to pressure by the tumor. No endocrinologic importance could be attached to these tumors. Five cases of abnormal vaginal bleeding were adequately explained by associated pelvic pathologic conditions. The most striking clinical feature was the age of the patients. In a total of 31 patients with tumors of this distinct group collected from the literature and including this series, 29 (93.5 per cent) were 40 years of age or over and 20 (64.5 per cent) were 50 years or over. Malignancy was not observed in spite of the fact that the potentialities in this respect would appear to be as great as in the serous cystadenomas and the fibromas. It is suggested that these tumors be classified as a special type of epithelial tumor of the ovary under the subhead of serous cystadenoma as previously suggested by Taylor.

**Polyneuritis in Pregnancy Due to Vitamin B Deficiency.**—In 1932 McGoogan reported 5 cases of severe polyneuritis following pernicious vomiting of pregnancy. Since that time 15 additional cases have been observed. Studies by a number of investigators have demonstrated that the condition is caused by vitamin B deficiency. The severe cases of polyneuritis develop early in pregnancy and are usually preceded by pernicious vomiting. The deficiency of vitamin B<sub>1</sub> in pernicious vomiting is brought about by a lack of food intake by a failure of retention of food ingested and by a high carbohydrate diet accompanied by administration of large amounts of dextrose. The usual history is one of vomiting, of attempts at high carbohydrate ingestion and the administration of dextrose with or without improvement and the onset of peripheral neuritis. The first symptoms are those of a generalized weakness, pain in the calves, numbness, tingling of the hands and feet and inability to walk. There is atrophy of muscles and skin and diminished or absent reflexes in the involved area. Retention of urine or incontinence with overflow, constipation, paralysis of the abdominal muscles, paralysis of the accessory muscles of the chest and involvement of the bulbar area with diaphragmatic paralysis, tachycardia, difficulty in phonation and deglutition occur in the order mentioned. Mental confusion of the Korsakoff type is frequently present. The author presents the clinical histories of 15 cases. The frequency of ocular symptoms is noteworthy (26.6 per cent). The author reviews 130 cases of severe polyneuritis from the literature, thus bringing the total to 145. Of these, 40 were treated with varying amounts and varying fractions of the vitamin B complex. In the total series there were 40 deaths, or a mortality of 27.5 per cent. Thirty-seven of the deaths occurred in the 105 patients receiving no vitamin B complex, an incidence of 35.2 per cent, while only 3 of the 40 patients receiving vitamin B complex died, an incidence of 7.5 per cent. From 50 to 100 mg of thiamine hydrochloride should be given daily in polyneuritis. Therapeutic abortion is definitely contraindicated and if done increases the mortality rate. Ultimate recovery is slow under the best of therapy and may require fifteen to eighteen months.

### American Journal of Orthopsychiatry, Menasha, Wis

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- Technical Problems of Social Work in Relation to Clinical Psychoanalysis E R Eisler Chicago—p 191  
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Relation of Infant's Weight and Body Build to Locomotor Development J G Peatman New York and R A Higgons Port Chester N Y—p 234  
The Young Traffic Offender L S Selling Detroit—p 241  
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Reactions of Children to Blackouts Preliminary Note J C Solomon San Francisco—p 361

## American Review of Tuberculosis, New York

45 461-594 (May) 1942

- Contralateral Lung During Pneumothorax Treatment F L Jennings, Indianapolis, and P M Mattill, Oak Terrace, Minn—p 461
- \*Causes of Death in Surgical Treatment of Pulmonary Tuberculosis R Ritterhoff, Cincinnati—p 467
- \*Endobronchial Tuberculosis Its Role in Causing Rapid Reexpansion or Atelectasis of the Lung Following Closed Pneumonolysis O C Brantigan, Baltimore, R Hoffman Henryton, Md, and D F Proctor, Baltimore—p 477
- Transpleural Intracavitary Aspiration (Monaldi) Report of Three Cases E J Des Autels, Gabriels, N Y, and J N Hayes, Saranac Lake, N Y—p 484
- Ambulatory Pneumothorax Its Role in a Program of Treatment and Prevention of Tuberculosis L B Greentree, Cleveland Heights, Ohio—p 499
- Quantitative Studies of Tuberculin Reaction III Tuberculin Sensitivity in Relation to Active Tuberculosis M L Furelow, Bethesda, Md, Barbara Hewell Cincinnati, and W E Nelson, Philadelphia—p 504
- Jaundice in Tuberculosis F J Geraghty, Baltimore—p 521
- Electrocardiography in Tuberculous Patients H J Lorge, Rutland, Mass—p 528
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- Bovine Tuberculosis Its Incidence in Bone Joint and Cervical Lymph Node Lesions in Italy P I de Gira, New York—p 576
- Bovine Tubercle Bacilli in Sputum Margaret Beattie and R Nicewonger, Berkeley Calif—p 586
- Steam Heating System as Source of Suction for Intracavitary Aspiration J V Thompson Indianapolis—p 589

**Death in Surgical Treatment of Tuberculosis**—The group of thoracoplasties reviewed by Ritterhoff includes 181 patients subjected to 408 operations. There were 21 deaths, of which 16 were early ones. Necropsies were performed on 9 of the 16 patients who died within one month following operation. These necropsies suggest that a variety of factors may be operative in the early fatalities following thoracoplasty. This is in keeping with the principle that injury to one of a group of systems anatomically and physiologically related is reflected by departures from normal in related systems. This variety of factors is particularly conspicuous in the second group of cases, in which right cardiac hypertrophy, cardiac dilatation, changes suggestive of alkalosis and fat embolism were prominent. The presence of fat embolism and focal ulcerative esophagitis and duodenitis emphasizes that, even with present surgical technique, thoracoplasty is still attended by considerable trauma. This is particularly true in revision procedures, which are usually more extensive than the primary operation. Altered thoracic aerodynamics, induced either by paradoxical respiration or by increased pulmonary circulation pressure, may result in alkalosis and tissue anoxemia. Contralateral tuberculous bronchopneumonia may result from aspiration of an empyema by way of a bronchopleural fistula or from blood stream distribution of infectious material. This complication, which is thought to be a frequent cause of death, was significant in only 2 cases.

**Endobronchial Tuberculosis and Reexpansion or Atelectasis**—Brantigan and his collaborators point out that the increasing use of bronchoscopy for tuberculous patients has revealed a significant percentage of pulmonary lesions to be complicated by endobronchial lesions. These lesions influence the course of the parenchymal disease. In the presence of an endobronchial lesion a closed pneumonolysis may be followed either by the creation of a check valve mechanism resulting in rapid reexpansion of the lung or by a complete occlusion resulting in atelectasis. The authors encountered 4 patients in whom closed pneumonolysis was followed by rapid reexpansion and obliteration of the pneumothorax space. Fluoroscopic examinations were performed three hours after the completion of the pneumonolysis, at which time almost complete reexpansion was observed. Subcutaneous emphysema was evident. Pneumothorax refills were immediately administered and repeated within four hours. The following morning complete reexpansion had occurred in 1 case, the upper and middle lobes had reexpanded

in the other 3 cases, but there was a partial collapse of the lower lobe. Along with the frequent refills there was an increasing subcutaneous emphysema. The accepted explanation for the failure of the pneumothorax space following a closed pneumonolysis is excessive leakage of air through the wounds made by the thoracoscopic instruments. The authors do not consider leakage of air per se as the cause of reexpansion of the lung. It is the mere escape of air through the puncture wounds were the cause of loss of the pneumothorax space, it should occur in all cases but does not. The presence of an endobronchial lesion in the main stem bronchus, at the orifice of the branch bronchus within the lumen of the branch bronchus explains the rapid loss of air, and subcutaneous emphysema is the result of the reexpanded lung and not the cause. Subsequent bronchoscopy in all 4 cases revealed endobronchial lesions at the orifices of the branch bronchi which had caused partial obstruction. The authors present a case history which illustrates the rapid reexpansion following a closed pneumonolysis. They admit that it is not frequent. When it does occur it offers a problem in prompt treatment, since in the case of reexpansion a successful pneumothorax is lost and in the case of atelectasis the problem of the unexpandable lung will arise. Routine bronchoscopy before the pneumonolysis is performed with local treatment of the endobronchial lesion is the procedure of choice. Lateral and/or tenacious secretions may institute the same sequence of events as does a frank endobronchial lesion.

## Archives of Internal Medicine, Chicago

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- \*Induced Thiamine (Vitamin B<sub>1</sub>) Deficiency and Thiamine Requirement of Man Further Observations R D Williams, H L Malt, B F Smith and R M Wilder, Rochester, Minn—p 721
- Duplicate Measurements of Circulation Time Made with Alpha Label Method A Lihensfeld and K Berliner, New York—p 739
- \*Neosphenamine Therapy of Bacterial Infections, with a Method of Administration to Maintain Uniform Blood Levels for Treatment of Serious Staphylococcal Infections and Subacute Bacterial Endocarditis E E Osgood, Portland, Ore—p 746
- Clinical Studies of Drug Addiction Physical Dependence, Withdrawal and Recovery C K Himmelsbach, Lexington, Ky—p 766
- Concentration of Carbon Dioxide in Expired Air P K Boyer, S. N. J., and C V Bailey, New York—p 773
- Alkalosis Complicating the Sippy Treatment of Peptic Ulcer Analysis of One Hundred and Thirty Five Episodes J B Kirsner and W F Palmer, Chicago—p 789
- Peripheral Blood Flow in Myxedema H J Stewart and W I Edwards, New York—p 808
- Effective Renal Blood Flow, Glomerular Filtration Rate and Tubular Excretory Mass in Arterial Hypertension P P Folt, W W Williams, M M Peet and Naomi L Foa, Ann Arbor, Mich—p 823
- Use of Alpha Tocopherol in Treatment of Neuromuscular Disorders A J Lubin, San Francisco—p 836
- Blood Review of Recent Literature F H Bethell, C C Smith, R A Hettig and O T Mallery, Ann Arbor, Mich—p 856

**Deficiency and Requirement of Thiamine**—Williams and his collaborators found in a previous study that restriction of thiamine was associated with irritability, apathy, serious derangement of metabolic processes, loss of weight and prostration. In the present study moderate, prolonged restriction of this vitamin, but not of food calories, was associated with states of emotional instability reflected by irritability, moodiness, quarrelsomeness, lack of cooperation, vague progression to agitation, mental depression, variable restriction of activity and numerous somatic symptoms. Detectable metabolic disturbances occurring irregularly were of variable degree of severity and were reflected in disturbance of function of various tissues of the body. In all cases of induced deficiency of thiamine, mental and physical inefficiency preceded by one or months other more objective manifestation. In previously reported studies persons maintained themselves for one hundred and forty-seven days on intakes of thiamine less than 0.07 mg for each thousand calories of the diet, lost weight and strength. In the present study persons maintained their weight on an intake of 0.22 mg for each thousand calories, but their physical and mental efficiency and degree of well-being was greatly improved when 0.5 mg of hydrochloride was provided with this number of calories. The data indicate that for persons in this study the minimum requirement of thiamine was between 0.22 and 0.5 mg for each thousand calories of a diet providing carbohydrate and fat in conventional proportions. The data also indicate that

the optimal intake was not less than 0.5 mg or more than 1.0 mg for each thousand calories of such a diet. Individual variations dependent on differences in the rate of metabolic exchanges of energy or material as well as on environmental factors, activity, diet and intestinal absorption, must receive consideration when the requirement of thiamine of the individual person is judged.

**Neosarsphenamine in Bacterial Infections**—Osgood points out that neosarsphenamine has received little attention as a chemotherapeutic agent against infection other than syphilis. Marrow culture technique permits controlled quantitative studies of the effectiveness of chemotherapeutic agents against bacterial infections in the presence of living human cells. Neosarsphenamine was proved by this method to be highly effective against staphylococci and certain groups of *Streptococcus viridans* (alpha streptococcus). Neosarsphenamine has to be present for an appreciable period from forty-eight to seventy-two hours or longer, in order to insure maximum effect. The author has made more than a hundred marrow culture experiments. Neosarsphenamine in concentrations which do not kill living human cells is effective against some strains of *Strep. viridans*, most staphylococci and some other bacteria. The effective concentration can be maintained clinically. A few patients with staphylococcal bacteremia treated with neosarsphenamine have recovered. Several patients with subacute bacterial endocarditis so treated were free from symptoms for eight to sixteen months but more patients must be followed for two years or longer before final appraisal is justified. The therapy involves risk of toxicity and should be used only in cases of serious infection and under careful supervision. Neosarsphenamine plus sulfathiazole may be more effective against certain bacteria than either alone. Of 34 unselected patients with bacterial endocarditis 4 remained free from symptoms and 12 had temporary clinical improvement with return to normal temperature. No patient treated only with drugs of the sulfonamide group showed more than temporary improvement. It is recommended that neosarsphenamine therapy be not discontinued before twenty-five days, even though there is no earlier clinical evidence of benefit. The author is now giving 100 mg of ascorbic acid and 40 mg of thiamine hydrochloride daily during neosarsphenamine therapy with the hope of decreasing toxicity. It is also thought advisable not to discontinue neosarsphenamine for mild polyneuritis or dermatitis.

### Archives of Neurology and Psychiatry, Chicago

47 707-878 (May) 1942

- Olfactory Parosmia Reflex Study of One Hundred and Fifty Patients with Disorders of the Central Nervous System. Preliminary Report. C. A. Elsberg, H. Spohnitz and E. I. Strongin. New York—p. 707.
- \*Electroencephalographic Studies on Neurosyphilis. K. H. Finley, A. S. Rose and H. C. Solomon. Boston—p. 718.
- Mixed Tumors of the Spinal Canal. L. A. French and W. T. Peyton. Minneapolis—p. 737.
- Brain in Sickle Cell Anemia. F. Wertham, N. Mitchell and A. Angrist. New York—p. 752.
- Diverticula of the Lateral Ventricles Extending into the Cerebellar Fossa. A. E. Childe and F. L. McNaughton. Montreal, Canada—p. 768.
- Leukocytosis During Various Emotional States. A. T. Milhorat, S. M. Small and O. Diethelm. New York—p. 779.
- Intracranial Blood Flow in Dementia Paralytica, Cerebral Atrophy and Schizophrenia. M. Rosenbaum, E. Rosenman, C. D. Aring and E. B. Ferris Jr. Cincinnati—p. 793.
- Factor of Hypoxia in Shock Therapies of Schizophrenia. H. E. Himwich and J. F. Pizkas. Albany, N. Y.—p. 800.
- Parapyramidal Fasciculation in the Brain Stem. J. H. Sims. Brooklyn—p. 808.
- Studies of Sensation of Vibration. II. Vibration Sensibility in the Foot Following Retrograde Sympathectomy. M. Brown and G. K. Yacorzynski. Chicago—p. 813.
- Electroencephalograms of Thiamine Deficient Pigeons. R. L. Swank. Boston and H. H. Jasper. Montreal, Canada—p. 821.
- \*Periarteritis Nodosa. Clinicopathologic Report with Special Reference to Central Nervous System. N. Malamud and D. B. Foster. Ann Arbor, Mich.—p. 828.
- Some Problems of Wartime Neurology. W. Penfield. Montreal, Canada—p. 839.

**Electroencephalographic Studies on Neurosyphilis**—The report by Finley and his associates is a preliminary analysis of electroencephalographic records obtained during the past two and one-half years on 175 patients from the neurosyphilis clinic of the Boston Psychopathic Hospital. The records were obtained

with a six channel ink writing oscillograph of the Grass type. In 124 the condition was diagnosed as dementia paralytica, in 20 as tabes dorsalis, in 11 as juvenile dementia paralytica, in 8 as optic nerve atrophy and in 12 as meningovascular neurosyphilis. The tracings are compared with records from 215 normal controls. Normal electroencephalographic tracings were found for 19 per cent of the patients (treated and untreated) and for 70 per cent of the controls. Borderline records were found for 28 per cent of the patients and for 23 per cent of the controls. Abnormal records were found for 53 per cent of the patients and for 7 per cent of the controls. Abnormal electroencephalographic tracings were as common among patients with pure tabes and those with optic nerve atrophy as among patients with dementia paralytica. The records of 73 untreated patients with dementia paralytica showed a higher percentage of borderline and abnormal patterns than the records of 63 patients who had received treatment for nine months or more. No characteristic electroencephalographic pattern was found to be associated with neurosyphilis. This indicates its insignificant diagnostic value. The 73 untreated patients with dementia paralytica presented a degree of abnormality in the electroencephalogram which corresponded roughly with the clinical severity of the disease. Follow-up electroencephalographic records on patients undergoing treatment with clinical improvement often showed concurrent improvement in the electroencephalographic tracings. Electroencephalograms with abnormally slow high voltage cycles were more likely to be found among patients with dementia paralytica who showed confusion, disorientation and profound memory loss, while rapid cycles were more common among those with euphoria or other mood disturbances and paranoid ideas without the aforementioned signs. Slow cycles indicated more serious cerebral dysfunction than did rapid cycles. The majority of abnormal patterns were similar from homologous areas of the two hemispheres. This observation together with the fact that abnormal records were as frequent in cases of pure tabes and optic nerve atrophy suggests that lesions in or near the upper portion of the midbrain and the diencephalon may have more to do with the abnormal cortical electrical potentials than the cortical lesions.

**Periarteritis Nodosa**—Malamud and Foster show that there is little information available on the involvement of the central nervous system in periarteritis nodosa. They report a case presenting multiple neurologic changes and compare their observations with those in similar cases in the literature. They emphasize that involvement of the central nervous system is not uncommon in periarteritis nodosa. Pathogenically the condition is regarded as panarteritis and the parenchymal changes as of vascular origin.

### Archives of Otolaryngology, Chicago

35 687-844 (May) 1942

- \*Otorhinogenic Meningitis. Report of Fifty Eight Cases. H. J. Burman, M. Rosenbluth and D. Burman. New York—p. 687.
- Correction of Facial Defects with Latex Prostheses. Technique. A. M. Brown. Chicago—p. 720.
- Prognosis of Laryngeal Paralysis Following Thyroidectomy. E. J. Mulligan. Baltimore—p. 732.
- Atypical Facial Neuralgia. R. C. Martin. San Francisco—p. 735.
- Local Use of Sulfanilamide and Its Derivatives in the Ear, Nose and Throat. E. S. Connell and B. C. Trowbridge. Kansas City, Mo.—p. 740.
- Neuroepithelioma in the Temporal Bone. Invasion of the Petrous and Squamous Portions with Extension into the Middle and Posterior Cranial Fossae. J. A. Tuta. Chicago—p. 745.
- Sphenoid Sinus. Safe and Simple Method of Irrigation. G. E. Tremble. Montreal, Canada—p. 755.
- Calculus of Salivary Glands. E. Tholen. Los Angeles—p. 761.
- Clinical Application of Vestibular Tests. I. K. Leasure. Indianapolis—p. 766.
- Septicemia Due to Friedlander's Bacillus. Report of Case Following Chronic Otitis Media Complicated by Sinus Thrombosis. Recovery Following Therapy with Sulfanilamide and Its Derivatives. J. W. McCall and M. S. Freeman. Cleveland—p. 772.
- Endaural Mastoidectomy. Experience in a Series of Seventy Six Cases. G. H. Woodruff, J. H. J. III and R. Henner. Chicago—p. 777.
- Sulfathiazole in Treatment of Sinusitis. R. F. Marks. San Francisco—p. 794.

**Otorhinogenic Meningitis**—Burman and his associates review 160 consecutive cases of meningitis and show a 60 per cent rate of cure in cases of otogenic and a 33 per cent rate in cases of rhinogenic meningitis. In bacterial meningitis in which



no other focus is apparent the infection should be suspected as emanating from the ear, nose or throat. The reviewed series shows that 36.2 per cent of all meningitides are of otorhinogenic origin. The incidence is probably higher, since necropsy occasionally reveals an unsuspected pathologic condition in these areas, with no other demonstrable cause. Because the sulfonamide derivatives obscure the clinical features and cause changes in the blood and in the roentgenogram, it is advisable to perform the diagnostic tests before instituting chemotherapy. The authors observed 3 cases in which no suppuration could be determined and in which the drum membrane looked normal, there was only the vaguest history of aural trouble, and yet on operation a completely broken down mastoid was revealed. Although cures have been reported from chemotherapy alone, best results have been obtained with the combination of surgical treatment, chemotherapy and administration of serum in properly selected cases. The drainage of a demonstrable or suspected focus is an accepted surgical principle. It is not safe to exaggerate the efficiency of the sulfonamides to the point of considering surgical intervention unnecessary. Operation should be carried out in every case of meningeal disease in which otologic or rhinologic involvement is suspected. The authors feel that intranasal operation on sinuses in meningitis is not as satisfactory as the external approach. They have adopted the so-called radical ethmoidophenofrontal sinus operation whenever these sinuses are involved. Subsequent to this series the authors filled the mastoid cavity with sulfamidamide powder and closed the mastoid wound. They have not attempted to do this in cases with sinus involvement. The efficacy of drug therapy depends largely on the extent of pneumatization of the mastoid, and this accounts for its relative inefficiency in the well ventilated accessory nasal sinuses, the air cavities permitting collection of infected exudate. With so many cases of recovery from meningitis one must guard against presuming that the cure was effected by chemotherapy alone. When there is bone necrosis, abscess formation or pooling of purulent material in air cavities, the sulfonamide derivatives will be ineffective unless the diseased areas are surgically evacuated.

### Cancer Research, Baltimore

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- Abnormalities in Distribution of Biotin in Certain Tumors and Embryo Tissues P M West and W H Woglom, New York—p 324
- Transplantation of an Adenocarcinoma of the Preputial Gland in Mice of the A Strain L C Strong, New Haven Conn—p 332
- Fluorescent Porphyrins in Harderian Glands and Susceptibility to Spontaneous Mammary Carcinoma in Mice F H J Figge, L C Strong, L C Strong Jr and A Shanbrom, New Haven Conn—p 335
- Reciprocal Infection of Ducks and Chickens with Tumor Inducing Viruses I Duran Reynals, with notes on histopathologic findings by H Bunting, New Haven, Conn—p 343
- Conditions Required to Produce a Prolonged Hypothermia in the Mouse F Bischoff Santa Barbara, Calif—p 370
- Cholesterol Content of Normal and Enlarged Prostates G I M Swyer, Oxford, England—p 372

### Endocrinology, Springfield, Ill

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- Ovarian Weight Increase is an Objective Measure for Assay of Prolan F Bischoff Santa Barbara, Calif—p 667
- Changes in Blood Chemistry Associated with Circulatory Failure in the Adrenalectomized Dog J W Remington, V A Drill, W Kleinberg and W W Swingle, Princeton, N J—p 692
- Conditions Modifying Effectiveness of Testosterone Testosterone Propionate and Methyl Testosterone R R Greene Chicago, M W Burrill, Summit, N J, E Oppenheimer and D Nelson, Chicago—p 734
- Further Observations on Relative Absorption Rates of Pellets of Various Crystalline Compounds Implanted Subcutaneously in Rats T R Forbes, Baltimore—p 761
- Evaluation of Various Methods for the Bioassay of Dihydrocholesterol E W McChesney and H Kocher Rensselaer, N Y—p 787
- Role of Nutrition in Response of Blood Lipids to Thyroidectomy C Entenman, I L Chalkoff, Berkeley, Calif, and F L Reichert, San Francisco—p 794
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- Prenatal Leading Cause of Infant Deaths in Hawaii Proposed Plan for Care of Premature Infants C L Wilbur Jr, Honolulu—p 247
- Dyschondroplasia (Oliver's Disease) Review of Syndrome and Report of Case R T Eklund, Pepeekeo—p 249

### Illinois Medical Journal, Chicago

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- \*Significance of the Negri Body in Diagnosis and Epidemiology of Rabies H N Johnson, Montgomery, Ala—p 382
- Role of the Pathologist in Management of Cancer J P Simon, Chicago—p 388
- Advances in Ophthalmology in 1941 D Snyder, Chicago—p 391
- Hemochromatosis Case Report H J Isaacs, H F Deleo and S E Telser, Chicago—p 394
- Role of Pathology in Medicine M H Barker, Chicago—p 396
- Internal Fixation of Femoral Neck Fractures in Psychotic Patients Preliminary Report S R Rubert, Chicago, and A Simon, Kankakee—p 399
- Prevention of Urolithiasis in the Immobilized Patient B L Stewart, Springfield—p 402
- Hypertension (Goldblatt) Clinicopathologic Interpretation B I Corbus and B C Corbus Jr, Evanston—p 405
- Management of Mentally Handicapped Children B I Beverly, Chicago—p 408
- Treatment of Friedlander's Septicemia by Sulfadiazine with Recovery G C Turnbull, Fort Bliss, Texas—p 412

**Negri Body in Rabies**—According to Johnson, Negri bodies cannot always be found in man and animals dying of rabies. It is necessary to resort to animal inoculation when the microscopic examination of a brain specimen is negative. All brain specimens received at the Georgia State Health Department in 1937 for the diagnosis of rabies were examined microscopically, and those found negative were studied by mouse inoculation. Of the 771 specimens found positive for rabies, 105 per cent were Negri negative. In an epizootic of fox rabies 10 brain specimens were positive for rabies by mouse inoculation and 94 per cent of these were microscopically negative. An analysis of 92 mouse positive brain specimens obtained in Alabama from dogs that had been vaccinated one month to a year before the onset of rabies demonstrated that 14 per cent were Negri negative. When dogs were experimentally infected with rabies by intramuscular inoculation, 39.7 per cent of the animals were negative by microscopic examination. Forty per cent of the dogs developing rabies were vicious at some time during the course of the disease. Only 21.4 per cent of these were Negri negative as compared with 52 per cent of dogs with paralytic rabies. This partially explains the discrepancy between the Negri findings in natural and experimental rabies, as the majority of routine specimens are from and biting dogs. The duration of symptoms before death is correlated to the absence or abundance of Negri bodies. Vaccinated dogs dying of rabies exhibited the same clinical picture as unvaccinated controls, and the error in microscopic examination was approximately the same in the two groups. It is suggested that rabies street virus is altered in either its manner and site of multiplication during epizootics or during the incubation period, and at this time a higher proportion of the microscopically negative dogs will be Negri negative. The rapid microscopical method of Sellers is recommended. The indications for inoculation of brain specimens are enumerated and the mouse is recommended for the purpose.



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- Cyclic Endometrial Response to Prolonged Administration of Estradiol in the Cyclic Woman C di Paola and E B del Castillo Buenos Aires Argentina—p 215
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- Ascretion of Uterine Fibromiomas with Other Clinical Conditions R C Moehlig Detroit—p 219
- Effect of Excess of Injected Carbohydrate on Cholesterol Content of Vaginal Epithelium I R Will on Ann Arbor Mich and Mabel Louise Goforth Ypsilanti Mich—p 22
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- Studies of Circulation and Respiration in Patient with Anasarca Following Administration of Cortin and Sodium Chloride M D Altshuler and N Zamecheck Boston—p 269

**Estrogens and Pigmentation**—Rocca reports disappearance of pigmentary patches of the face of a climacteric patient to whom estrogen was administered first locally and then by injection

# Journal of Clinical Investigation, New York

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- Osmometric Behavior of Normal Human Erythrocytes G M Guest and Mary Wing Cincinnati—p 257
- Excretion of Specific Fluorescent Substances in the Urine in Experimental Nicotinic Acid Deficiency A A Najjar H J Stein L E Holt Jr and Carol V Kahler Baltimore—p 263
- Study of Reflex Mechanism of Sweating in the Human Being Effect of Anesthesia and Sympathectomy R Gurney and I L Bunnell Buffalo—p 269
- Metabolism of Amino Acids in Diabetes Mellitus J A Luetscher Jr Baltimore—p 275
- \*Chemotherapy of Pneumococcal Meningitis with Special Reference to Sulfathiazole F B Cooper P Gross and M L Hagan Pittsburgh—p 281
- Comparison of Results of the Normal Ballistocardiogram and a Direct Flick Method in Measuring the Cardiac Output in Man A Cournaud H A Ranges and R L Riley New York—p 287
- In Vitro and In Vivo Effect of Sulfonamides on Streptococcal Antifibrinolysin Test W M M Kirby and L A Rantz San Francisco—p 295
- Latent Liver Disease in Persons Recovered from Catarrhal Jaundice and in Otherwise Normal Medical Students as Revealed by the Bilirubin Excretion Test A Kornberg Rochester N Y—p 299
- Vitamin A Deficiency in Laennec's Cirrhosis Relative Significance of the Plasma Vitamin A and Carotenoid Levels and Dark Adaptation Time C Haig and A J Patek Jr New York—p 309
- Effect of External Pressure on Vascular Volume of the Forearm and Its Relation to Capillary Blood Pressure and Venous Pressure C E McLennan Margaret T McLennan and E M Landis Charlottesville Va—p 319
- Effect of Epinephrine on the Volume of the Blood N L Kaltreider G R Meneely and J R Allen Rochester N Y—p 339
- Complement Activity in Pneumonia D D Rutstein and W H Walker Albany N Y—p 347
- Coagulase Test for Staphylococci and Its Correlation with Resistance of the Organisms to Bactericidal Action of Human Blood W W Spink and Jean Ferns to Vivino Minneapolis—p 353
- Calculation of Heat Production from Insensible Loss of Weight Margaret W Johnston and L H Newburgh Ann Arbor Mich—p 357
- Effects on Cardiovascular System of Fluids Administered Intravenously in Man IV Lung Volume and Pulmonary Dynamics M D Altshuler D R Gilligan and N Zamecheck Boston—p 365

**Sulfathiazole in Pneumococcal Meningitis**—Cooper and his co workers say that because the sulfathiazole content of the brain and cerebrospinal fluid is low compared to that of the blood during medication it has been claimed that sulfathiazole is of little or no value in bacterial meningitis The experimental data presented and the clinical cases collected from the literature show that the statement requires modification The authors stipulate that 1 Sulfanilamide sulfapyridine, sulfathiazole and sulfamethylthiazole are equally effective in the treatment of experimental type 2 (Binda) pneumococcal meningitis in rats 2 The sulfathiazole content of the brains of rats which received 300 mg of sulfathiazole orally in twenty-

four hours averaged 1.6 mg per hundred grams at the time the blood average was 5 to 6 mg per hundred cubic centimeters 3 Clinical pneumococcal meningitis has been successfully treated with sulfanilamide as well as with sulfapyridine 4 Other clinical data show recoveries from pneumococcal, streptococcal, staphylococcal and meningococcal meningitis, which were attributed to sulfathiazole therapy in spite of the generally recognized low concentration of this drug in the cerebrospinal fluid 5 Because of lack of decisive data at present it is not possible to judge which of the sulfonamide drugs is significantly superior in the clinical treatment of pneumococcal meningitis

# Journal of Investigative Dermatology, Baltimore

5 49-106 (April) 1942

- Studies with Antigens VIII Significance of Reactions to Intracutaneous Tests Performed with Solutions of Purified Extracts of Ragweed Pollens B G Efron and C H Boatner New Orleans—p 49
- Unilateral Reactions to Patch Tests E Epstein Oakland Calif—p 53
- In Vitro Studies on Pigmentation I Oxidation of Tyrosine by Ultraviolet Irradiation S Rothman Chicago—p 61
- Id II Influence of Ascorbic Acid on Oxidation of Tyrosine by Ultraviolet Irradiation S Rothman Chicago—p 67
- Determination of pH of Skin of Man and Common Laboratory Animals J H Druze Washington D C—p 77
- Autonomic Skin Test with Electrophoresis F Deutsch and R Nadell St Louis—p 87
- Effect of Alkalies on Stability of Keratins B Chiego and H Silver—p 95

# Journal of Lab and Clinical Medicine, St Louis

27 983-1110 (May) 1942

- The Origin and Nature of Cabot Ring Bodies of Erythrocytes E M Schleicher Minneapolis—p 983
- Treatment of Gonorrheal Urethritis in the Male with Sulfonamide Derivatives Study of 199 Cases L W LaTowsky T Knight C A W Uhle and R B Baker Philadelphia—p 1001
- Pylitis with Septicemia Caused by Shigella Paradyseuterae Edith Haynes S A Manalan and B B Harvey Indianapolis—p 1007
- Syndrome Simulating Diabetes Insipidus in Dogs Induced by Desoxy corticosterone Acetate Clinical Observation of Syndrome with Addition of Tetany R C Moehlig and L Jaffe Detroit—p 1009
- Effect of Pitressin on Renal Circulation and Urine Secretion K G Wakim J F Herrick E J Baldes and F C Mann Rochester Minn—p 1013
- Silicon in Nonsilicotic Lungs Its Relation to Apical Scars and to Nodules G J McHaffey Rochester Minn—p 1023
- Food Remnants as a Cause of Confusion in the Diagnosis of Intestinal Parasites Nadene Denison New Orleans—p 1036
- Pathologic Tissue Changes Produced by Sulfathiazole and Sulfathiazoline in Rabbits J A Kolmer Philadelphia—p 1043
- Sulfanilamide for Treatment of Gonorrhea of the Anal Canal R Turrell New York with the technical assistance of Miriam Green—p 1046
- Bacterium Coli Anaerogenes Septicemia Report of Case with Recovery H J Flax and F W Shaw Richmond Va—p 1048
- Antagonism Between Anesthetic Steroid Hormones and Pentamethylene tetrazol (Metrazol) H Selye Montreal Canada—p 1051
- Plasma Proteins in Therapeutic Fever I Kopp Boston—p 1054
- Electrocardiographic Anagrams Method of Teaching Electrocardiography J E F Risenman Boston—p 1063
- Simple Method of Evaluating Blood Platelets E W Pernokis Chicago—p 1069
- Shaking Device Used in Collection of Blood for Transfusion L W Diggs and H B Turner Memphis Tenn—p 1070
- Relationship of Plasma Proteins to the Corrected Sedimentation Rate I Kopp Boston—p 1072
- Dehydration in Embalmed Specimens Exposed to Air F L Hansen and N C Pervier Minneapolis—p 1078
- Use of SS (Shigella Salmonella) Agar for Isolation of Flexner Dysentery Bacilli from the Feces H M Rose and M H Kolodny New York—p 1081
- Note on the Black Line in Hematocrit Determinations J P Baumberger Stanford University Calif—p 1084
- A Microbiologic Assay Method for Six B Vitamins Using Lactobacillus Casei and a Medium of Essentially Known Composition M Landy and Dorothy M Dicken Chagrin Falls Ohio—p 1086
- On the Determination of Urinary Cholesterol M Bruger and Sylvia B Ehrlich New York—p 1093
- Improved Pahnometer for Blood Serum R A Mortensen Loma Linda Calif—p 1096
- Wax Resin Compositions for Moulage Making C D Clarke Baltimore—p 1098

**Sulfonamides in Gonorrheal Urethritis in the Male**—According to LaTowsky and his collaborators sulfanilamide is no longer indicated in gonococcal infections since the later sulfonamides have been introduced The sulfonamide derivatives sulfapyridine, sulfathiazole and sulfadiazine have been found to be effective in the treatment of gonorrheal urethritis in the male Of 199 patients who presented themselves for treatment at the genitourinary clinic of the Philadelphia General Hospital

during the years 1939 to 1941, 167 were followed to the completion of the study. Ninety-three and five-tenths per cent of these were cured. The rate of cure was 92 per cent for sulfapyridine, 96 per cent for sulfathiazole and 93 per cent for sulfadiazine. The average dose required was 23.5 Gm for sulfapyridine, 28 Gm for sulfathiazole and 17.5 Gm for sulfadiazine in eight days. Toxic reactions occurred in 75 per cent of cases treated with sulfapyridine, in 11.5 per cent with sulfathiazole and in 8.8 per cent with sulfadiazine. The average time for the discharge to disappear was three days with sulfapyridine, three days with sulfathiazole and four days with sulfadiazine. The average time for a bacteriologic cure based on the appearance of the first negative culture of the prostatic fluid was fifty-one days for sulfapyridine, twenty-eight days for sulfathiazole and thirteen days for sulfadiazine. The "carrier state" so called (the period from the disappearance of symptoms to the last culture of the prostatic fluid known to contain living gonococci) averaged seventeen days for sulfapyridine, seventeen days for sulfathiazole and three days for sulfadiazine. The criteria of cure in this study were strict and included as the final provocative test two or more negative smears and cultures of the prostatic fluid. Sulfadiazine is a valuable drug in the treatment of gonorrheal urethritis in the male, because it has a high cure rate and a low incidence of toxicity, it causes the prostatic fluid to become free from living gonococci sooner than any of the other sulfonamides. Sulfathiazole is very effective therapeutically and causes few toxic reactions. Sulfapyridine would better not be used in the treatment of gonorrhea in the ambulatory patient. It is effective therapeutically, but it gives rise to many and severe toxic reactions.

**Effect of Pitressin on Renal Circulation and Urinary Secretion**—Wakim and his associates describe attempts to demonstrate the alterations in the glomerular tufts of capillaries and other vessels in the frog kidney, as seen under the microscope, and the changes in renal blood flow in the dog kidney under the influence of pitressin when administered through the various possible routes under similar conditions. The preparation used was pitressin in ampules (1 cc = 20 units). The data presented justify the conclusion that the same preparation of pitressin administered under identical conditions into the same animal produces different effects on the renal blood flow, depending primarily on the route of administration. Subcutaneously administered it produces slight, if any, change in the blood flow. Intramuscular injections give variable results, possibly dependent on the vascularity and activity of the area involved and its influence on the rate of absorption. Intravenously administered pitressin invariably decreases the blood flow, caution regarding its intravenous use may aid in the prevention of untoward effects.

## Journal of Pediatrics, St. Louis

20 537-664 (May) 1942

- Classification of Eczematoid Eruptions in Children, with Special Reference to Contact Dermatitis. L. W. Hill, Boston—p. 537.
- Spontaneous Acidosis in Premature Infants. Clinical Report. A. McBryde and W. S. Branning, Durham, N. C.—p. 549.
- \*Pathogenesis of Chorea. D. N. Buchanan, A. E. Walker and T. J. Case, Chicago—p. 555.
- Sodium Sulfathiazole Clearance as Measure of Renal Function in Children. K. Kato, Chicago—p. 576.
- Oxycephaly. Results of Treatment by the King "Morcellation" Method. B. Woodhall, Durham, N. C.—p. 585.
- Bacillary Dysentery in Infants and Children. Evaluation of Three Media, Sodium Desoxycholate Citrate, S. S. and MacConkey's for the Isolation of Shigella Paratyphenteriae from Stools. M. L. Cooper, Helen M. Keller and Lillian R. B. Glesne, Cincinnati—p. 596.
- \*Renal Thrombosis in Infancy. Report of Two Cases in Male Infants Urologically Examined and Cured by Nephrectomy at Thirteen and Thirtysix Days of Age. M. F. Campbell, New York, and W. I. Matthews, Montclair, N. J.—p. 604.
- Human Milk Technology. C. A. Smith, Boston—p. 616.
- Comparison of Gentian Violet and Hexylresorcinol in Treatment of Pinworm Infestation. H. L. Evans and H. Moore, Dallas, Texas—p. 627.
- Neurofibromatosis of the Bladder in a Nine Year Old Boy. T. S. Chalklev and J. W. Bruce, Louisville, Ky.—p. 632.

**Pathogenesis of Chorea**—Buchanan and his associates examined the brains of 2 patients who died while suffering from acute rheumatic chorea. Many cases of chorea have shown at necropsy gross lesions of the basal ganglia. Such lesions have been so well circumscribed that it has been possible by

correlating the predominant clinical involvement with that of the pathologic lesion to deduce a somatotropic localization within the striatum. Such discrete involvement is rarely seen in choreas of childhood, it occurs in the arteriosclerotic senile choreas. The pathologic substrate of chorea is to be found in many different parts of the central nervous system. The authors are inclined to believe that the cerebral cortex plays a fundamental role in the production of choreic movements. In favor of this thesis is the abnormal activity of the electroencephalogram. The motor area is probably the most directly responsible for the production of the choreic movements. The changes in the brains of choreic patients, however, are not confined to the cerebral cortex. The cerebellum, its efferent pathways, the striatum and the thalamus are frequently affected. There is evidence of at least two circuits impinging on the motor cortex and playing an important part in its normal function. They are the corticopontocerebellodentatorubro-thalamocortical and the corticostriothalamocortical circuit. There is a constant stream of impulses passing through both of these nerve circuits, even when the organism appears to be at rest. At least two subcortical circuits may modulate the activity of the motor cortex. In addition, the cortex of the postcentral gyrus and of other parts of the cerebrum influence the activity of the motor area. It is thus apparent that by modifying the influence of any of these mechanisms the motor cortex may be made abnormally sensitive and responsive to what would ordinarily be subliminal stimuli. The presence of lesions in the cerebellum and its efferent pathway, the thalamus and the striatum must interfere with these modulating circuits and conceivably could make the motor cortex abnormally sensitive. It does not seem probable, however, that such lesions furnish the stimulus setting off the abnormally sensitive cortex. There must be another factor influencing the production of the motor phenomena of chorea. The authors suggest that the cerebral cortex is the level at which the movements of chorea originate, but they believe that these abnormal movements occur only when the motor cortex is hyperexcitable congenitally or because of lesions in physiologic arcs or circuits which normally modulate the activity of the cerebral cortex.

**Renal Thrombosis in Infancy**—According to Campbell and Matthews, renal thrombosis in infants and children is an exceedingly grave condition and terminates fatally in practically every case not promptly treated surgically. In infants, the colitis is the chief predisposing cause, the initial renal lesion in most cases is a massive hematogenous acute pyelonephritis. The precise factor or factors engendering the early intrarenal lesion are unknown. The authors present 2 case reports. In case 1 the prothrombin level was strikingly low (one minute and ten seconds) and there is reason to believe that the level was correspondingly low in case 2. Yet in each instance a high prothrombin level was rapidly achieved by the administration of vitamin K. The authors present the clinical manifestations and say that in a large portion of the cases adequate urologic studies should establish the urgent surgical nature of the condition. In some the correct diagnosis will be made preoperatively. When the disease is unilateral, the child not hopelessly septic, a prompt nephrectomy employed, about 75 per cent may be expected to survive. In the 2 male infants the subject of the report, cystoscopy, divided renal function tests and retrograde pyelography were carried out in the early days of the disease, shortly after the onset of the disease. Both were cured by nephrectomy.

## Journal of Pharmacology & Experimental Therapeutics, Baltimore

74 335-416 (April) 1942 Partial Index

- Action of Papaverine on Heart of Dog. S. R. Elek and I. J. Chicago—p. 335.
- Action of Phenylephrine on Preventing Induced Convulsions in Rabbits. L. J. Pollock and I. J. Chicago—p. 365.
- Activity of Derivatives of Curare as Prepared in the Laboratory. R. G. Roberts, R. A. Hecht and A. W. Jackman, Chicago—p. 375.
- Mixed Color Dithionite Method for Determination of Iodine in Medicinal Materials. E. J. Kluckner, B. J. Longley and F. L. Madison, Wis.—p. 395.
- Pharmacologic and Toxicologic Studies on Cetylpyridinium Chloride. M. R. Warren, T. J. Becker, D. G. Miller and J. Shelton, Cincinnati—p. 401.

Journal of Urology, Baltimore

47 535-750 (May) 1942 Partial Index

- Diverticulum of Ureter. Collective Review with Report of Unique Example. E. H. Richardson. Baltimore—p. 535
- Repiration Pyelography in Diagnosis of Perinephric Abscess. L. F. Pier on and F. M. Honke. Sioux City, Iowa—p. 580
- Retention of Urine of Neurogenic Origin. Relief by Subcutaneous Injection of Pilocarpine Hydrochloride. M. Scott. Philadelphia—p. 582
- Pellet Implantation of Hormones in Urethra. W. M. Kearns. Milwaukee—p. 587
- Urinary Obstruction of Vesical Neck and Posterior Urethra of Congenital Origin. C. I. Thorpe on Kocher. Minn—p. 591
- \*Clinical Study on Relation Between Renal Disease and Renal Function and Arterial Blood Pressure. R. H. Flocks. Iowa City—p. 602
- Example of Apparent Healing of Bilateral Minimal Renal Tuberculosis. C. D. Creevy. Minneapolis—p. 614
- Ketopropionic Tumor Influencing Kidneys and Ureters. T. H. Sweet. Minneapolis—p. 619
- Surgery in Polycystic Disease of Kidney. H. C. Kolmek. Chicago—p. 648
- Tuberculosis of Ureter. C. J. Cooney. Fort Wayne, Ind.—p. 651
- Adenocarcinoma of Urinary Bladder. Report of One Case. A. G. Fleishman and E. L. Mauritz. Des Moines, Iowa—p. 658
- Vesical Calculus. Clinical Study Based on 250 Cystolithotripsies and 132 Cystolithotomies. R. J. Prentiss. Iowa City—p. 664
- Late Ureterointestinal Anastomosis Complication. Case Report. L. W. Ribi. Chicago—p. 679
- Urologic Complications of Carcinoma of Cervix. W. I. Valk. Ann Arbor, Mich—p. 686
- Simplified Concept of Dehydration. I. W. Nadri. Ann Arbor, Mich—p. 692
- Urinary Calculus Associated with Pregnancy. Consideration of Management with Report of Three Cases. J. F. Biele. Indianapolis—p. 705
- Some Urologic Phases of Vesicovaginal Fistula. A. S. Counsellor. Rochester, Minn—p. 711

**Renal Disease and Arterial Blood Pressure.**—Flocks studied the urinary tracts of 38 patients with congenital hydronephrosis, infected hydronephrosis, renal stone, and hypertension by means of flat film pyeloureterogram and phenolsulfonphthalein and urea excretion from the individual kidneys. By comparing the results with normal values he estimated the amount of bilateral ischemia present. In 23 subjects there was a decided systolic and diastolic elevation of the blood pressure. The urinary tracts, from the point of view of the flat film and the pyelogram of 14 were perfectly normal. 4 presented somewhat smaller kidneys than normal bilaterally. 2 showed unilateral small kidneys. 1 showed a slight hydronephrosis on one side and slight pyelonephritis on the other. 1 showed a stone in the left kidney pelvis and 1 showed a mild hydronephrosis on the right side. Renal changes were extremely minor compared to the functional impairment. Of the 23 patients 6 showed unilateral renal ischemia, 14 bilateral renal ischemia, and only 3 normal function bilaterally with no demonstrable ischemia. Removal of the ischemic kidney of 2 patients with a relatively definite unilateral ischemia resulted in a return of the blood pressure to normal. One of the 38 patients had paroxysmal hypertension with no anatomic or functional renal abnormality. Of 8 patients with a systolic blood pressure of less than 140 and a diastolic pressure of less than 90, none had any evidence of renal ischemia. Two of the 8 showed no renal disease. 2 showed congenital hydronephrosis. 1 had bilateral branching renal calculi. 1 had extensive infected hydronephrosis bilaterally. 1 had a stone in the right kidney pelvis and 1 had a mild pyelonephritis bilaterally. Although the incidence of renal disease was higher in this group than in the group with hypertension, the impairment of phenolsulfonphthalein excretion corresponded to the anatomic damage as demonstrated by the flat film and pyelogram. The remaining 6 patients had blood pressures which ranged between 145 and 170 systolic and 80 to 95 diastolic. In only 1 of them was there definite evidence of extreme impairment of phenolsulfonphthalein excretion as compared to renal substance.

**Bilateral Minimal Renal Tuberculosis.**—Creevy reports a case of minimal bilateral renal tuberculosis proved by pyelography and guinea pig inoculation which has apparently healed on a regimen of good sanatorium care. He does not seriously propose that frankly destructive unilateral renal tuberculosis without active disease elsewhere be treated conservatively but wishes to point out that the possibility of healing exists. The

patient continues to be well eleven years after the apparent onset and ten years after the last demonstrable bacteriologic evidence of activity. Calcium has been deposited in the area of destruction on one side.

Military Surgeon, Washington, D. C.

90 481-608 (May) 1942

- Alcoholism. Some Causes and Treatment. M. Moore—p. 481
- Medical Service of a Square Division—One Year of Active Duty. L. A. Saltbury—p. 496
- \*Wound Therapy with Special Reference to Application of Carbamide Sulfonamide Mixtures to Contaminated and Infected Wounds. H. G. Holder and E. M. MacKay—p. 509
- Cause and Prevention of Weak Feet. T. Hale Jr—p. 518
- Use of Bone Grafts in Reconstructing the Mandible. R. J. Fallis—p. 535
- Ion Back Pain and the Needle. E. A. Bray and H. Sigmond—p. 545
- \*Traumatic Fat Embolism. W. H. Gerwig Jr—p. 549
- Nature's War. I. Military Effectiveness. V. Safford—p. 556
- Bacterial Warfare. Use of Biologic Agents in Warfare. I. A. Fox—p. 563

**Wound Therapy with Carbamide-Sulfonamide Mixtures.**—According to Holder and MacKay, five fundamental principles are pertinent in wound therapy: (1) control of hemorrhage, (2) rest and immobilization, (3) infection, (4) blood supply, and (5) elimination of necrotic tissue. Symmers and Kirk first used urea successfully in the treatment of infected war wounds during the first world war. Because of the unsatisfactory connotation to some of the term urea and because of the appearance of this substance in urine, the authors have chosen to use its synonym carbamide. A five year trial involving every type of contaminated and infected wound confirmed the observations of Symmers and Kirk as to the harmlessness of carbamide to normal tissues. Its use in relatively avascular tissue, as in tendon sheath infection and in primary tendon suture, demonstrated its nonirritating character. Animal experiments revealed no instance of damage to normal healthy tissue cells. The healthy quality of granulation tissue produced by carbamide therapy is especially favorable for subsequent successful skin grafting. In foul smelling infections the deodorizing effect of carbamide is important. The rate of healing is not retarded in any wound and is improved in grossly infected wounds. Carbamide action rids the wound of necrotic tissue and thus of sulfonamide inhibitors. The hypertonic action of carbamide produces a maximum cellular defense reaction resulting in diapedesis of phagocytic elements. The sulfonamide component exerts a maximum bacteriostatic action. Sulfanilamide was mixed with carbamide so as to represent 10 per cent of the mixture. The authors feel that in the treatment of traumatic wounds, especially war wounds under the difficult conditions of combat, the more simple and more efficient treatment should command attention. The carbamide-sulfanilamide mixture meets these requirements. Any one trained in first aid work may apply it. The mixture is stable, not bulky, and easily carried. It can be universally applied to all types of wounds either in crystal form or as a saturated solution for irrigation. Application of the crystals to wounds is rarely necessary more than once in twenty-four hours, thereby reducing the amount of necessary care, materials, and trauma to the wound, giving the patient the maximum of rest and comfort. The use of sterile wax paper as the first layer of a dressing still further simplifies dressings and reduces wound trauma.

**Traumatic Fat Embolism.**—Gerwig reviews the salient features of fat embolism in man and reports 9 traumatic cases from the records of the University Hospital, Baltimore. In 1 of the 9 cases death was due to a nonsaponifying mineral oil that had been instilled into the urethra to facilitate the passage of a catheter. The remainder of the cases were all instances of true fat embolism with recovery. In 2 the author believes that trauma of some sort was the causative factor in every case. He classifies the mode of production as follows: A. Traumatic. 1. Bones: (a) fractures, separations, or dislocations; (b) concussion, jarring, or operations on bone. 2. Soft tissue: (a) lacerations in fat, fatty viscera, or in the presence of oil; (b) childbirth. B. Nontraumatic. In cases of trauma presenting unexplained fever, shock, coma, dyspnea, congestion, fall in hemoglobin, and urinary changes and in all cases of fractures, especially of the long bones, fat embolism should be looked for. Diagnostic methods include staining of sputum and urine for fat hemo-

globin determination and ophthalmoscopic examination for fat in the retinal vessels. Chest roentgenograms may become valuable in the future. Prophylactic or curative treatment is not specific and is confined to symptomatic and palliative care.

### New England Journal of Medicine, Boston

226 671-706 (April 23) 1942

- \*Volkmann's Ischemic Contracture: Analysis of Its Proximate Mechanism. P. S. Foisie, Boston—p. 671.  
Cirrhosis of the Liver Complicated by Persistent Right Hydrothorax and Ascites: Report of Unusual Case. J. R. Frothingham, Boston—p. 679.  
Argyria Confused with Heart Disease. S. A. Levine and J. A. Smith, Boston—p. 682.  
Hemothorax Complicated by Infection with *Clostridium Welchii*. J. P. Lynch and J. W. Stricker, Boston—p. 685.  
Chemical Measurement and Control of Clinical Vitamin Deficiency (Concluded). W. T. Salter, New Haven, Conn.—p. 688.

**Volkmann's Ischemic Contracture**—Evidence is presented by Foisie that Volkmann's ischemic contracture is not a complication of an improperly treated supracondylar fracture of the humerus but is the result of ischemic infarction produced by segmentary arterial spasm of the main artery to an extremity, with reflex spasm of the collateral circulation. Thus a subtotal ischemia is produced and the bellies of muscles which have the greatest demand for arterial blood, and therefore are the most vulnerable to this loss, are the first affected. Gangrene of the fingertips or partial or even complete gangrene of the extremity would result if this spasm continued in sufficiently severe degree, but, when Volkmann's contracture is the only result, some improvement in the arterial supply intervenes. This vasomotor activity is controlled by the sympathetic nervous system. Initially the lesion in acute cases is one of impaired circulation. In old cases with an established deformity the normal blood supply has returned and the problem is to correct existing deformity by physical therapy, tendon lengthening, bone shortening and the like.

### New York State Journal of Medicine, New York

42 833-928 (May 1) 1942

- Treatment of Head Injuries. F. W. Geib, Rochester—p. 863.  
Treatment of Fractures of the Spine With and Without Neural Injury. J. Browder and R. Grimes, Brooklyn—p. 866.  
Treatment of Injuries to the Abdomen. F. Beckman, New York—p. 873.  
Treatment of Hypertrichosis by Electrocoagulation. C. Lerner, New York—p. 879.  
Obstetric Problems Arising from Excessive Size of the Infant. K. M. Wilson, Rochester—p. 883.  
Treatment of Ethmoiditis. J. R. Honiss, Rochester—p. 887.

### Public Health Reports, Washington, D. C.

57 553-600 (April 17) 1942

- Distribution of Health Services in Structure of State Government. IV. Venereal Disease Control by State Agencies. J. W. Mountain and Evelyn Flook—p. 553.  
New Base for Protective Ointment for Prevention of Poison Ivy Dermatitis. L. Schwartz, J. E. Dunn and F. H. Goldman—p. 578.  
Disabling Morbidity Among Industrial Workers, Final Quarter of 1941. W. M. Gafafer—p. 588.

57 601-640 (April 24) 1942

- Cadmium Poisoning. Division of Industrial Hygiene—p. 601.  
\*Epidemic of Boils in a Group of Tunnel Workers. J. Q. Gant, R. J. Owens and L. Schwartz—p. 612.  
Sanitation Activities in Southern States in Connection with National Defense. E. C. Sullivan and J. S. Wiley—p. 617.  
Frequency and Duration of Disabilities Causing Absence from Work Among Employees of a Public Utility, 1938 to 1941. W. M. Gafafer—p. 625.

**Epidemic of Boils in a Group of Tunnel Workers**—Gant and his associates state that since February 1941 there has been an epidemic of boils among the workers of the Carlton Tunnel, Cripple Creek, Colo. In about five months 22 workmen gave up work because of boils. Most of the lesions were on the wrist and neck. They were, as a rule, deep seated nodules with a fluctuant central mass and an area of erythema in the adjacent skin. Many of the lesions had broken down or had been incised by the company physician and were exuding thick, yellow pus. Several were typical carbuncles with numerous openings from which purulent material was discharging. Fourteen different jobs are involved in tunneling, but the majority of boils occurred among seven jobs entailing the greatest con-

tact with water, rock dust, perspiration and friction from working clothes. Study revealed that the cause of the outbreak was a combination of these factors, which lower the resistance of the skin to pyogenic bacteria. Prevention can be obtained by having adequate, usable bathing facilities, enforced bathing at work, daily change of work clothes, individual raincoats, rubber boots, safety hats, respirators and neck towels, daily washing of the rubber clothing, sanitary toilet facilities in the tunnel and early medical aid if boils appear in spite of these precautions, the men should not use adhesive tape on the skin, as removal pulls out the hairs and opens hair follicle, which become new ports for infection.

### South Carolina Medical Assn Journal, Florence

38 109-136 (May) 1942

- Pilonidal Cyst. D. F. Adcock, Columbia—p. 109.  
Treatment of Hypertension—Thiocyanate in a Normal Person. I. Quattlebaum, Columbia—p. 112.

### Southern Medical Journal, Birmingham, Ala.

35 425-540 (May) 1942 Partial Index

- Late Results of Plastic Surgery in Hydronephrosis. T. D. V. Memphis, Tenn.—p. 425.  
Cutaneous Tuberculosis and Related Diseases in the Southern Decade. C. B. Kennedy, J. K. Howles, V. M. Henington and M. E. Keen, New Orleans—p. 449.  
Management of Patients with Hypertension. H. M. Doles, Norfolk, Va.—p. 461.  
\*Treatment of Epidemic Meningitis (Cerebrospinal Fever). Report of 115 Cases, with Special Reference to the Fallacy of Intraspinal Therapy. C. J. Tripoli, New Orleans—p. 472.  
Study of Intestinal Parasites in Relation to Excreta Disposal Facilities in Cocke County, Tenn., 1940. C. B. Tucker, Nashville, Tenn.—p. 476.  
Pharmacology of the Sulfonamide Drugs. S. M. Rosenthal, Washington, D. C.—p. 484.  
Clinical Observations Using Certain Factors of the Vitamin B Complex as Therapeutic Agents in Ophthalmology. W. B. Clark, New Orleans—p. 489.  
Treatment of Glaucoma Simplex. C. S. O'Brien, Iowa City—p. 494.  
Subdiaphragmatic Sympathectomy for Essential Hypertension. J. V. Hendrick, Amarillo, Texas—p. 501.  
\*Glossopharyngeal Neuralgia. R. G. Spurling and E. G. Grantham, Louisville, Ky.—p. 509.  
Experiences in Treatment of Burns. J. D. Martin Jr., Atlanta, Ga.—p. 513.  
Endometriosis: Problem of Treatment. R. T. Stephenson and P. Graffagnino, New Orleans—p. 525.  
The Nicola Operation for Recurrent Dislocation of the Shoulder. Report of Twenty Six Cases. R. B. Raney, Durham, N. C., and O. Miller, Charlotte, N. C.—p. 529.  
Hypertension in Train and Engine Service. G. P. Myers, Detroit—p. 532.

**Treatment of Epidemic Meningitis**—From January 1 to July 1940, 97 cases of epidemic meningitis were treated with antiscrum, antitoxin and sulfanilamide either alone or in conjunction with one another. Tripoli reports that the effect of omitting intraspinal therapy was striking. Of 70 patients receiving intraspinal therapy of one form or another 28 died and of those not receiving intraspinal therapy only 1 died. The combined use of antitoxin and sulfanilamide gave better results than either agent alone. Serum therapy, regardless of the type of antitoxin, gave nearly as good results as either antitoxin or sulfanilamide. Of 18 patients given a sulfonamide derivative orally and antitoxin intravenously between July 1940 and October 1940, none died. Sulfanilamide was used in 4, sulfathiazole in 11, sulfapyridine in 11. Five of the 18 were treated only with sulfonamides orally. All the 18 patients recovered and were discharged after twelve to twenty-three days of hospitalization.

**Glossopharyngeal Neuralgia**—Spurling and Grantham encountered a patient with a severe neuralgia of the ninth cranial nerve. The ear with two sharply defined trigger points, one in the fossa and the external auditory canal. The trigger points indicate that the trigger points in the ear and in the throat were separately innervated, as complete cocaine anesthesia failed to change the irritability of the trigeminal nerve. Sectioning the glossopharyngeal nerve at the two strands of the vagus relieved the glossopharyngeal pain completely and permanently. This relieved the pain of glossopharyngeal neuralgia with trigeminal neuralgia of the throat and the lateral surfaces of the face relieved by a glossopharyngeal section alone.



## Southwestern Medicine, El Paso, Texas

26 103-140 (April) 1942

- Congenital Dislocation of the Hip (Its Incidence in New Mexico) F C Goodwin and D M Cameron El Paso Texas—p 105  
Correlation of the Pathology of Coronary Occlusion J P Simonds Chicago—p 108  
Stasis as Factor in Chronicity of Nonspecific Upper Urinary Tract Infections H Culver Chicago—p 113  
Psychoneurosis in General Practice J W Myers Albuquerque N M—p 116  
Hormone Therapy in Gynecology H H Brainard Tucson Ariz—p 121

## Surgery, Gynecology and Obstetrics, Chicago

74 905-1032 (May) 1942 Partial Index

- Modern Management of Cancer of the Lower Gastrointestinal Tract F W Rankin Lexington Ky—p 905  
\*Treatment of Patients with Severe Burns H S Allen and S L Koch Chicago—p 914  
Invert Sugar as Substitute for Glucose in Intravenous Therapy S E Kerr Newark Del and R J Pauls Beirut Republic of Lebanon—p 925  
Factors Influencing the End Results in Carcinoma of the Ovary Report of a Series of 138 Patients Treated from 1910 to 1935 H C Taylor Jr and A V Greeley New York—p 928  
Fractures of the Forearm Some Technical Procedures A L Murphy Halifax N S Canada—p 935  
Thoracoscopy and Pneumonolysis Observations on One Hundred Consecutive Cases L Carp and B A Kornblith New York—p 939  
\*Continuous—Serial Fractional Controllable Intermittent—Spinal Anesthesia Observation on 1000 Cases W T Lemmon and G W Paschal Jr Philadelphia—p 948  
Total versus Subtotal Hysterectomy for Benign Conditions D A McKinnon Jr and V S Counsellor Rochester Minn—p 957  
Study of the Mechanics of Bile Flow III Responses to Pharmacologic Stimuli D D Kozoll and H Necheles Chicago—p 961  
Appendical Obstruction in the Noninflamed Appendix W B Murphy New York—p 968  
Contract Mediums in Cysts and Abscesses of the Cerebral Hemisphere E A Kahn Ann Arbor Mich—p 983  
So Called Lateral Aberrant Thyroid Tumors W L M King and J deJ Pemberton Rochester Minn—p 991  
Removal of the Regional Lymph Nodes in Cancer of the Body of the Uterus H W Johnston Toronto Canada—p 1002  
Anesthesia in Cases of Poor Surgical Risk Some Suggestions for Decreasing the Risk R C Adams and J S Lundy Rochester Minn—p 1011  
Studies of the Analeptics II Metrazol R W Whitehead and W B Draper Denver—p 1020

**Treatment of Patients with Severe Burns**—According to Allen and Koch the surgical principles in treating burns are (1) to prevent and combat shock, (2) to convert the open contaminated wound into a clean wound (3) to cover the open wound by the simplest possible dressing that protects it from constant recontamination does not fix or destroy any remaining viable skin or subcutaneous tissue provides for drainage of the serum that exudes from the burned surface until this is checked by pressure or normal coagulation exerts a uniform moderate pressure over the burned area and that can be easily removed, (4) to keep the injured part at rest and (5) to secure healing in the least time and with a minimal loss of function. The initial shock is due to pain fright and overexertion it is often soon followed by secondary shock resulting from loss and shifting of body fluids. If, in spite of every effort to prevent loss of body fluid, shock and collapse develop, replacement fluids are life saving. Thirst, restlessness and a rapid pulse rate are constant and important signs of fluid loss and indicate the need for the prompt administration of plasma. The administration of oxygen, particularly to patients with burns of the face and chest is a valuable adjunct to treatment. The most important source of infection of a burned surface is from the open mouth and uncovered nose of a person working over the injured patient. Infection can be prevented almost always if the patient is seen promptly after injury and if he has not received extensive or prolonged first aid treatment. The simplest and safest method of converting an open contaminated wound into a clean wound is by gentle thorough cleansing with plain white soap and sterile water applied with gloved hands under eyes that are averted and mouth and nose that are carefully masked. After the injured surface has been cleansed it is covered with a few layers of fine meshed sterile gauze impregnated with petrolatum. This dressing does not adhere and does not fix tissue, but it permits drainage of serum and exudate into the dressings outside it. Over the petrolatum gauze a half dozen layers of flat

dry sterile gauze are laid and over this mechanic's waste or sea sponges to provide a resilient covering under retention bandage furnishing even pressure without constriction. Uninterrupted and enforced rest of injured tissues is an important and essential part in the treatment of severe burns. The authors conclude that it is neither logical nor wise to substitute for a safe and tested method an elaborate time consuming procedure which involves the use of powerful chemicals concerning whose possibilities for harm there still is doubt.

**Continuous Spinal Anesthesia**—Lemmon and Paschal present a statistical report on their first thousand cases of continuous spinal anesthesia. They used procaine hydrochloride because it is the least toxic of all drugs used in producing anesthesia by injection into the subarachnoid space. This anesthesia is maintained as long as necessary by adding subsequent small doses. Thus spinal anesthesia has been changed from the "single dose" to the "fractional dose" method and it is placed in the same category as other anesthetics administered by the continuous or fractional dose method. The operations in 970 cases were below the diaphragm and in 30 above it. The average length of the operations was fifty and four-tenths minutes with extremes of two hundred and fifteen minutes for a total gastrectomy to only about two minutes for the incision and drainage of an abscess. The average total dose of procaine hydrochloride was 2199 mg. In the operations done above the diaphragm the general average was 445 mg. The largest dose given to any patient was 2,200 and the smallest 20 mg. Various dilutions from 1 to 10 per cent solutions were used. The blood pressure was recorded every five minutes. Soon after the patient received the preliminary injection of ephedrine sulfate and procaine hydrochloride to anesthetize the skin and support the blood pressure there was a general elevation of the blood pressure. After the operation was in progress the pressure tended to become constant or to fall below that at the onset. The average high blood pressure was 129.9 and the average low 103.4. In several instances the blood pressure fell to a systolic of 40 mm. The authors rarely use vasoconstrictors in these conditions but have found that venoclysis or blood transfusion affords the best relief. The incidence of headache after spinal anesthesia was 28 per cent which approximates that seen after the single injection method. In most instances this complaint was relieved by acetylsalicylic acid or by lowering the patient's head. The incidence of urinary retention was 3.4 per cent that is, it was no more frequent than with the ordinary method of spinal anesthesia. There were 34 cases of pulmonary complications: 19 bronchopneumonia, 9 lobar pneumonia, 4 atelectasis and 2 pulmonary embolism. There were no motor or sensory disturbances, no cranial nerve palsies or other neurologic phenomena. Of the 47 patients who died (4.7 per cent) 24 had malignant growths, 9 died from diffuse peritonitis and the other contributing factors causing death were pulmonary, cardiac and renal conditions. In a total of more than 2,000 known cases there has not been a death from continuous spinal anesthesia.

## Virginia Medical Monthly, Richmond

69 235-290 (May) 1942

- \*Use of Sulfanilamide in Compound Fractures F F Davis Roanoke—p 237  
\*Diphtheria in a Nutrition Camp I Epidemiology, Immunology and Public Health Study V A Turner Staunton—p 241  
Id II Treatment of Twenty Eight Cases of Diphtheria B H Payne Staunton—p 246  
Present Day Concepts of Cancer of the Cervix J L Rawls Norfolk—p 249  
Some Aspects of Suicide P H Drewery Jr Richmond—p 252  
From the Country Side R J Walker Jr Snow Hill N C—p 256  
Obesity—Cause, Handicap and Treatment Review J Hundley Jr Lynchburg—p 261  
Syphilis of the Lung Report of Three Cases J D Kernodle Wichita Falls Texas W E Pemberton and P P Vinson Richmond—p 267  
Empyema in the Newborn Case Report M Birdsong University—p 271  
Treatment of Peripheral Vascular Disease A Bloom Richmond—p 273

**Sulfanilamide in Compound Fractures**—From Nov 1, 1940 to Nov 1, 1941 Davis and his associates treated 30 compound fractures by implantation of sulfanilamide powder and primary closure of the wounds. Injured nerves and tendons were repaired if the patient's condition permitted. No other



sutures were used except in the skin. The edges of the skin wound were approximated without the use of drains. If an accurate reduction could not be maintained, the authors did not hesitate to use internal fixation. Appliances made of vitallium were preferred whenever possible. The wounds in 28 of the 30 compound fractures have healed by primary intention. In 2 cases local infection developed. There was no systemic evidence of infection in either of these cases. In 1 case infection was confined to the soft tissues and in the other a localized osteomyelitis developed. There were no cases of gas infection. The authors conclude that the mortality and morbidity following compound fractures can be lowered if the outlined treatment is followed in a routine manner.

**Diphtheria in a Nutrition Camp**—Turner reports an outbreak of 28 cases of diphtheria in a children's nutrition camp which could not be controlled by the usual public health measures. The camp facilities and handling were known and fully approved before the outbreak (water, sewage disposal, screening, food handling, infirmary). A careful study of the outbreak was possible. 1. One hundred and sixteen (92.8 per cent) of the 125 children in this camp had previously had alum precipitated toxoid, negative Schick, or both. Twenty-six (22.4 per cent) of these contracted diphtheria. 2. The protection given by one dose of alum precipitated toxoid was less than that reasonably expected and previously noted when immunized school children have been exposed to diphtheria. 3. The negative Schick test was of little value in determining the state of immunity. The same applied whether the test was done in school one to two years previously or in camp before diphtheria developed, or both. 4. Exceptions to statements 2 and 3 were shown by all children having previously had their tonsils removed. Although there were 5 proved carriers among 25 of these children, none had diphtheria. Predisposition for tonsillar tissue was exhibited, with 1 exception of diphtheritic conjunctivitis. 5. The organism was of the "gravis-like" type. The authors believe that they were dealing with a diphtheria germ which possessed or had developed increased virulence or increased invasive properties.

### War Medicine, Chicago

2 381-542 (May) 1942

- Psychiatric Problems in Military Aviation R. B. Bigelow, Pensacola, Fla.—p. 381  
Injuries of Intervertebral Disk in Military Service J. G. Love, Rochester, Minn.—p. 403  
Sickness and Other Forms of Motion Sickness I. General Review of Literature D. McEchern, G. Morton and P. Lehman, Montreal, Canada—p. 410  
Use of Direct Heat and Indirect Heat to Increase Blood Flow to the Extremities G. de Takats and D. S. Miller, Chicago—p. 429  
Army's Nutritional Problems J. A. Tobay, New York—p. 437  
Chemotherapy of Gonorrheal Urethritis in the Male with Sulfamylamide Sulfapyridine and Sulfathiazole H. A. Zide, Fort Ord, Calif., and J. Davis, Monterey, Calif.—p. 445  
Clinical and Subclinical Lead Intoxication A. E. Abraham and J. A. Baird, Tallahassee, Fla.—p. 450  
Treatment of Penetrating Wounds of the Head, with a Critical Review of Recent Literature A. E. Walker, Chicago—p. 454  
Tilted Pelvis L. E. Zimmerman, Milwaukee—p. 465

### Western J. Surg., Obst. & Gynecology, Portland, Ore

50 225-270 (May) 1942

- Surgical Approach to Meningiomas in Region of Sphenoid Ridge Crossing Unilateral Exophthalmos S. N. Berens, Seattle—p. 225  
Management and Treatment of Pituitary Tumors L. J. Adelstein, Los Angeles—p. 230  
\*Esophagopleural Fistulas Case Report with Review of Literature W. Cohen, Portland, Ore. and E. A. Sindell, Bethlehem, Pa.—p. 233  
Transduodenal Resection of Carcinoma of Ampulla of Vater C. J. Baumgartner, Los Angeles—p. 250  
Complete Situs Inversus Associated with Cholelithiasis D. Metheny, K. K. Sherwood and B. Zimmerman, Seattle—p. 254  
Study of Neonatal Mortality at the Jewish Hospital Ten Year Study B. Hark, Philadelphia—p. 258

**Esophagopleural Fistulas**—Cohen and Sindell report the occurrence of a rupture into the esophagus of a patient undergoing treatment for a tuberculous empyema. The patient was a 30 year old white woman with tuberculosis of the left lung treated with pneumothorax for one year. The sputum became

negative and refills were stopped. Six months later an empyema developed which could not be controlled by oleothorax or aspiration and irrigation. One year after the appearance of the fistula containing tubercle bacilli a variegated bacterial flora was recovered from the pleural exudate. Yeast cells were also found. An esophagopleural fistula was demonstrated by barium meal. A thoracotomy was performed and feedings were given by a stomach tube. Signs of intraperitoneal hemorrhage with bloody drainage from the thoracotomy tube soon developed. The patient dying three and three-fourths years after the onset of the disease, one year after the empyema developed, and six months after the esophagopleural fistula had formed. Post-mortem disclosed an esophageal fistula at the level of the fourth dorsal vertebra, a healing cavity of the left upper lobe, disseminated milary tuberculosis, a chronic left tuberculous empyema, multiple recent tuberculous ulcers of the esophagus around the fistula and perforation of the left dome of the diaphragm with intraperitoneal bleeding from splenic rupture. The immediate causes of death were disseminated milary tuberculosis and intraperitoneal hemorrhage. Sixteen similar cases are reviewed from the literature. MacDonnell (1844) is credited with the first recorded case. The empyema was tuberculous in 7, nontuberculous in 6 and not stated in 4. The prognosis of esophagopleural fistula in chronic empyema is poor but in acute nontuberculous empyema it is comparatively good. Of the 17 patients 10 died, 5 were cured, 1 was living at the time of the report and in 1 the final outcome was not mentioned. Treatment consists in preventing oral contamination of the pleural space, adequate drainage and obliteration of the empyema.

### West Virginia Medical Journal, Charleston

38 167-200 (May) 1942

- Role of the Home Physician in Control and Treatment of Tuberculosis W. L. Cooke, Charleston—p. 167  
Anesthesia Operation and the Cardiovascular System J. E. Mont, University, Va.—p. 171  
Hydramnion with Unilateral Hydronephrosis of Fetus G. Gresham, Parkersburg—p. 178  
Handling of Herring Problems in General Practice C. E. Hill, Cleveland—p. 180  
Perforating Duodenal Ulcer in a Youth of Sixteen Case Report D. L. Peters, Richwood—p. 184

### Wisconsin Medical Journal, Madison

41 369-452 (May) 1942

- Late Neurologic Complications of Injury to the Nervous System H. Woltman, Rochester, Minn.—p. 385  
Cancer of Urinary Bladder Analysis of Fifty One Cases J. H. Hill and H. H. Kohler, Madison—p. 392  
Study of Two Hundred Deaths Associated with Cesarean Section 1915 to 1940 Inclusive W. C. Keettel, Madison—p. 395

### Yale Journal of Biology and Medicine, New Haven

14 443-566 (May) 1942

- Preventive Medicine and Health Promotion—Ideals or Illusions C. E. A. Winslow, New Haven Conn.—p. 443  
War Surgery of the Face and Head W. J. German, New Haven Conn.—p. 453  
Anomalous Single Azygos Hemiazygos Vein Associated with Pyloric Left Renal and Accessory Renal Veins H. B. Hamilton, New Haven, Conn.—p. 463  
Observations on Histoplasmosis Induced Infection in the Rat M. Tager and A. A. Liebow, New Haven Conn.—p. 479  
Changes in Electrical Potential of Insect Pupae Prior to Ecdysis P. V. Rogers, Clinton, N. Y.—p. 489  
Effects of Morphine on the Electrocardiogram of Man W. A. A. J. Geiger and S. T. Grzebieta, New Haven Conn.—p. 491  
Intestinal Obstruction Due to a Gallstone Report of a Case Instance S. C. Harvey and G. J. Connor, New Haven Conn.—p. 501  
Biochemistry in Relation to Psychiatry E. F. Gilman, New Haven Conn.—p. 505  
Hemolytic Streptococci Recovered During an Epidemic of Scarlet Fever P. L. Boissert and P. A. Berry, New Haven Conn.—p. 511  
Functional Results of Perineal Proctostomy C. F. Dwyer, New Haven Conn.—p. 521  
Reaction of the Adrenal Cortex to Low Atmospheric Pressure L. Langley and R. W. Clark, New Haven Conn.—p. 525  
Diethylene Glycol as Medium for Heat Sterilization of Media S. C. Harvey and J. S. Gardner, New Haven Conn.—p. 531  
Effect of Potassium on Growth of Normal and Mutant Bacteria Culture R. Tennant and A. A. Liebow, New Haven Conn.—p. 535

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Heart Journal, London

4 1-56 (Jan and April) 1942

- Two Cases of Digitalis Poisoning. K. D. Wilkinson—p. 1  
Congenital Heart Block. Report of Case. W. Stein and J. S. Uhr—p. 7  
Congenital Pulmonary Stenosis with Left Ventricular Enlargement Associated with Atrial Septal Defect. P. Wood—p. 11  
Infarction of the Cardiac Auricles (Atria). Clinical Pathologic and Experimental Studies. E. H. Cushing, H. S. Feil, E. I. Stanton and W. B. Wartman—p. 17  
\*Prognosis of Right Bundle Branch Block. Study of 104 Cases. C. A. Perera, S. A. Levine and H. Erlanger—p. 35  
Dr. Samuel Johnson's His Medical History as Recorded by James Boswell. T. East—p. 43  
Inversion of T Waves After Long Paroxysms of Tachycardia. M. Campbell—p. 49

**Right Bundle Branch Block**—Prompted by the impression that patients with right bundle branch block present a better prognosis than do those with cardiographic evidence of a left bundle lesion, Perera and his collaborators studied a group of cases of the former disorder with particular reference to the survival time following diagnosis. They present an analysis of 104 cases of right bundle branch block. They observed that reduplicated heart sounds, gallop rhythm and pulsus alternans were uncommon in this series. The two latter disorders were noted in a small group in which advanced heart disease was present. Forty per cent of the patients had no appreciable subjective discomfort from the heart. In fact some have no subjective or objective evidence of heart disease apart from the right bundle branch block. The average survival time after the diagnosis of right bundle branch block in 29 fatal cases was three years. In the 6 patients who came into the hospital more or less moribund and died within a few days are excluded, the average survival period of the fatal group was four years and five months. Of the 62 patients alive when last seen or heard from the average survival period was four years and one month. The longest survival period among the living patients was seventeen years and among the fatal cases sixteen years and seven months. The impression that patients with right bundle branch block have a distinctly more favorable prognosis than do those with a left bundle branch lesion has been sustained.

## British Journal of Ophthalmology, London

26 141-188 (April) 1942

- Oral Sep in its Relation to Ophthalmology. H. T. Roper Hall—p. 141  
Doyne's Discoid Cataract (Coppock). P. H. Adams—p. 152  
Eyelid Reflex in Emmetropia. M. Luckiesh and F. K. Mo's—p. 153  
Etiology of Pteryctenular Ophthalmia. A. Sorsby—p. 159

## British Journal of Urology, London

14 1-62 (March) 1942

- Ectopia Vesicae. D. V. Davies—p. 1  
Genitourinary Complications of Influenza. C. Morson—p. 11

## British Medical Journal, London

1 459-486 (April 11) 1942

- \*Changes in Hemoglobin Concentration and Plasma Specific Gravity Following Plasma Transfusions. J. Beattie—p. 459  
\*Changes in Blood Volume Following Transfusions of Serum or Plasma and Fate of Injected Protein. Preliminary Report. G. W. Hayward and A. Jordan—p. 462  
The Low Nail. H. A. Brittain—p. 463  
New Method of Controlling the Head Louse. J. R. Busvine and P. A. Buxton—p. 464

1 487-514 (April 18) 1942

- Management of Pulmonary Disease in the Forces. J. H. Hutchison—p. 487  
Porphyria in Trinitrotoluene Poisoning. A. M. Kennedy and J. Ingram—p. 490  
Incompatibility in Homologous Transfusion. G. C. Dockeray and H. Sachs—p. 492  
Multiple Small Gut and Large Gut Injuries. Recovery. W. R. Black—p. 494  
Pneumococci in Blood Stream Treated with Colonic Lavage and Sulfapyridine with a Note on Changes in Differential White Cell Count. H. W. Hales—p. 495

**Blood Changes After Plasma Transfusions**—Reduction in hemoglobin concentration of the blood following a rapid transfusion of a known quantity of plasma has been used as a means of calculating the pretransfusion blood volume. This method according to Beattie makes several assumptions (1)

that complete mixing of the plasma with all the circulating blood takes place, (2) that the number of red cells in circulation during transfusion and mixing remains constant and (3) that the plasma volume after transfusion and mixing is equal to the volume of plasma before transfusion plus the volume of plasma transfused. If one or more of these assumptions is incorrect the blood volumes estimated may differ considerably from the true blood volume. It has been assumed (Hayward, 1942) that when the hemoglobin concentration returns to its pretransfusion level the volume of plasma transfused has been eliminated from the blood stream. This assumption implies that the only factor which causes an increase in hemoglobin concentration is the movement of fluid from the blood. It is important therefore to examine any evidence which throws light on the validity of these fundamental assumptions. The author describes observations made during an investigation into the physical and chemical changes in the blood after transfusion of plasma. His studies were made on cats. Intravenous transfusions of plasma into anesthetized animals are followed by changes in hemoglobin concentration and plasma protein content which cannot be explained on the basis of a simple mechanical mixing of the transfused plasma with the circulating blood. The formation of surface films of plasma in capillaries opened up to receive the transfused plasma reduces the amount of plasma available for dilution of the circulating blood and leads to high hemoglobin values with consequent high estimates of blood volume. Movement of protein free fluid from the blood stream cannot account for the observed changes in plasma specific gravity and hemoglobin concentration. Movement of plasma proteins probably occurs simultaneously with this shift.

**Blood Volume After Transfusion**—Hayward and Jordan state that the widespread use of intravenous serum or plasma in recent months has aroused interest in the effect of transfusions on the blood volume and the fate of the transfused protein. They have made observations on changes in the blood volume and the fate of the serum protein in normal patients and in a series of patients with peripheral vascular disease. The importance of plasma protein in regulating blood volume has been emphasized by Chang (1932). He found that the blood volume was reduced in nephrosis and that any rise in plasma protein concentration was accompanied by a rise in plasma volume. He concluded that plasma protein concentration is one of the regulating factors of circulating volume. The fate of the injected protein is interesting. There is good evidence from animal experiment that transfused serum protein can be utilized in body metabolism and will maintain a protein fasting animal in nitrogenous equilibrium. In the present series of cases, changes in the blood volume after serum or plasma transfusion have been followed by means of estimations of the hemoglobin and hematocrit readings. The serum used was pooled serum and had a total protein content of about 7 Gm per hundred cubic centimeters. In a few cases citrated plasma was given the protein content of which varied from 4.06 to 6.25 Gm per hundred cubic centimeters. The initial blood volume of most of the patients was presumed to be normal. The hemoglobin and therefore the blood volume after transfusion of 800 to 1200 cc of serum or plasma returned to normal in from two to five days. Statistically the hemoglobin values fall immediately after transfusion and return to their pretransfusion level in three days. On the fourth and fifth days there is no significant lowering of the average hemoglobin value. The changes in the hematocrit readings confirm the results obtained from hemoglobin determinations. The hematocrit readings did not always return to their initial values when the hemoglobin had returned to normal. Such a difference, if real, must mean that while the hemoglobin content of the individual cells remains unchanged the cell volume decreases. The total protein concentration of the circulating plasma was studied in 17 cases. In no case was any significant change found to occur in the plasma protein concentration, so that the transfused fluid and protein are removed from the circulation together. The fate of the injected protein is obscure. None appeared in the urine following any transfusion. If metabolism of the excess protein occurs rapidly some change in the blood urea may be found. The blood urea was studied after eleven transfusions of serum the results revealed no consistent rise in the blood urea.

## Lancet, London

1 405-432 (April 4) 1942

- Biologic Value of the Proteins Contained in Wheat Flours Harriette Chick—p 405  
 \*Sulfonamide Resistant Streptococci in a Plastic Surgery Ward A E Francis—p 408  
 \*Late End Results of War Burns C P G Wakeley—p 410  
 Interpretation of Chemotherapy Through Nutritional Studies H McIlwain—p 412

**Sulfonamide Resistant Streptococci in a Plastic Surgery Ward**—The occurrence in a surgical ward of 13 cases of infection by a sulfonamide resistant strain of *Streptococcus pyogenes* of type 12 despite the institution of precautionary measures leads Francis to conclude that cross infection was still occurring. The precautionary measures were the local application of sulfanilamide powder, improved dressing technic, the application of spindle oil to ward floors, formaldehyde disinfection of wards vacated by infected patients, segregation of patients and the prophylactic oral administration of sulfanilamide to patients undergoing operations. The 13 cases occurred in one male ward and all but 2 in that half of the ward to which the first infected patient was admitted. This patient was treated in a bathroom at the end of a passage, from which opened successively the bathroom, a staircase, linen room, two four bed rooms, an eight bed room and four single bed rooms. In cases 3, 4 and 7 the presence of the sulfonamide resistant streptococcus did not cause any general reaction or change in the appearance of the wounds, but in each case surgical intervention was followed by a severe infection. In cases 5, 6, 9, 10 and 12 severe infection occurred without surgical intervention. It is not suggested that *Strep. pyogenes* type 12 is resistant to the sulfonamide derivatives, in fact, several sensitive strains of this type have been encountered. There is no evidence to connect them with this series of cases. A resistant strain of group A, type B 3264, has been isolated in 2 cases. The spread of the infection was recognized owing to the practice of making repeated examinations of the wound flora and of typing streptococci if a new infection was suspected. The mode of spread has not been satisfactorily explained. A "no touch" technic was not employed for dressings at the time, reliance was placed on sterile gloved hands. The gloves, put on at the beginning of a dressing round, were washed with soap and water for two minutes between dressings. Aerial dissemination of infection from blankets and dressings might have spread the infection. At the time the blankets were not treated with oil, as is now recommended. It is possible that the bath in which case 1 was treated served as the vehicle in 2 or 3 cases, but the evidence is not conclusive. The bath was disinfected after use by a method similar to that described in the Medical Research Council War Memorandum No 6, but this bath had a mixer input, covered by a riveted brass disk, which was below the surface of the water when the bath was filled, and this could not be adequately sterilized. The control and treatment of such resistant infections will probably depend on substances like gramicidin and penicillin. In case 3 the infection producing serious trouble after a grafting operation was successfully eradicated by local applications of gramicidin. In vitro experiments have shown that these sulfonamide resistant streptococci are just as easily inhibited by gramicidin as are sensitive strains.

**End Results of War Burns**—In this war, burns have been common in the services and among civilians. Given proper treatment, Wakeley points out, 90 per cent heal and do not give rise to permanent deformities or disabilities, but in about 10 per cent there is definite disfigurement or scarring. During World War I slightly more than 20 per cent were left with persistent deformities of the hands or face in spite of plastic and other operative procedures. This high incidence was due to sepsis, which still is the bugbear of the treatment of war burns and to which the majority of scarring deformities are due. In the last war the common cause of war burns was cordite, and the face and hands were the sites most frequently affected. The Admiralty adopted protective measures for all gun crews, which consisted of asbestos gauntlets and a hood over the head and shoulders. This so-called "antiflash gear" was in use at the outbreak of the present campaign. But it soon became clear that more protection was required for the face, for the ships were subjected to repeated dive bombing, from which a common type of facial burn resulted. Extra pro-

tection was given in the form of an eye shield of cellulose acetate and a small mask of "Aertex" material impregnated with a heat resisting solution. Since the introduction of this additional protection the number of burns of the face and hands has fallen considerably, but this extra protective covering is not trying in the tropics and is not always worn, and so burns still occur among men who have neglected this form of protection. To arrive at a definite final assessment of war burns, exact knowledge of the extent and depth of the primary injury is necessary. Complications can be prevented by early skin grafting, but although this is well recognized it is not undertaken as often as it should be. With war burns the medical officer who attends the initial burn rarely sees the case through the healing stages. To prevent this constant evacuation of burn centers with special wards and equipment should be established. The Ministry of Health, the Navy and the Air Force have recognized this necessity and have instituted special hospitals to which all the seriously burned are transferred as soon as possible. These burn centers are in reality research stations, and the observations of the best methods of treatment should clarify this very controversial subject. A follow-up is just as important in burns as in fractures if anything is to be learned about the best forms of treatment and their end results. Only the severely burned reach the burn centers where the final result is known, but it is equally important to have some idea of the final result of the less severely burned for comparison with the severe type. The profession tends to take little interest in a burn when once healing has occurred. This is a great pity for the follow-up of service cases has proved the great value of the continued use of hydrous wool fat. In the after treatment of extensive burns superficial roentgen therapy can play an important part, especially if there is any suggestion of a keloid, and when extensive skin grafting has been performed and there is a danger of excessive formation of collagen between the grafts. While it is important to follow up burn cases for months it is also important that these patients should not be submitted to extended hospitalization. Patients with extensive burns, especially if skin grafting has been employed, should be moved to a convalescent home as soon as healing is complete. The change of scene and company helps to sustain their morale. In the convalescent home or rehabilitation center the patients must be encouraged to exercise their minds as well as their burned parts by graded games and competitions. In some cases a man's promotion may come through while he is in hospital, and therefore the rehabilitation center must have facilities for study or instruction so that he may take his place in the service when he returns. The centers should have an outpatient clinic where patients can be seen and treatment given for part of the day while for the rest of the day they are employed in some duty at the depot, barracks or port. Many key men may have to be invalided out of the services until such facilities are forthcoming.

## Medical Journal of Australia, Sydney

1 331-362 (March 21) 1942

- Calcium and Phosphorus Content of Milk from Australian Women Beverley V Ritchie—p 331  
 Rickets in Infants Aged Under One Year Incidence in Australia Community and Consideration of Etiologic Factors F W Clifton—p 336

1 363-394 (March 28) 1942

- A Salaried State Medical Service R Cilento—p 363  
 Congenital Abnormalities of Genitourinary System M G Clifton—p 370

1 395-424 (April 4) 1942

- Some Practical Points in Reception and Treatment of Air Raids L Phillips—p 395  
 Medical Problems in Practical Flying S M I Dunstan—p 400  
 Notes on Disabilities of the Foot Seen in Regimental Air Force Lutz—p 400  
 Foot Standards for War Service D Barry—p 404  
 Industrial Dermatitis H L Kesteven—p 406

## Tubercle, London

23 25-58 (Feb) 1942

- Rehabilitation and Care of the Tuberculous Fifth Part of the Joint Tuberculosis Council F F Jessel, D P Sutherland F R G Heaf and J P M D  
 Investigation into Symptomatology of Pleural Abscess pneumothorax H P Fernandes—p 50  
 Discovery of Symptomless Pulmonary Tuberculosis Association for Prevention of Tuberculosis—p 55

## Schweizerische medizinische Wochenschrift, Basel

71 1405-1488 (Nov 22) 1941 Partial Index

- Physician and Psychotherapist G Finconi—p 1465  
\*Aseptic Necroses K Meyer Wildisen—p 1470  
Systematization of Hemorrhagic Diatheses R Jürgens—p 1473  
\*Epidemiology of Acute Epidemic Myalgia (Bornholm Disease) R Rehsteiner—p 1476  
Cervicobrachial and Lumbosacral Radiculalgia of Vertebral Origin M Monnier—p 1480

**Aseptic Necroses**—Meyer-Wildisen discusses aseptic, trophic bone disturbances which develop in the epiphyseal or apophyseal portions of the skeletal system. They involve particularly the subchondral areas of various joints, the growth zones and the articular cartilages and are found chiefly in young persons. Among these are malacia and necrosis of the os lunatum, necrosis of the os naviculare (Köhler's disease I), the analogous disorder of the second and third metatarsal heads (Köhler's disease II), chondropathia patellae and Schlätter's disease or impaired ossification of the tuberosity of the tibia. Perthes' disease (osteochondropathia coxae juvenilis) presents the best known and one of the most important diseases of the epiphyses and apophyses during the period of growth. Diseases of the vertebral column that have genetic relations to aseptic trophic bone disorders are (1) Calve's vertebra plana and (2) adolescent kyphosis (Scheuermann's disease). Secretory and constitutional factors play a part in many of these conditions. Chronic repeated slight external injuries often precede the onset. In cases in which no intervention is made, the course is generally extremely chronic. In a certain percentage of the cases of osteochondritis, traumatic influences act as an indirect cause. Traumatic cases are nearly all found in soldiers or in persons who are active in sports, they are unilateral, anatomic and functional cure is generally effected by surgical treatment. Such complete cure cannot be obtained in disorders in which constitutional and endocrine factors play a part.

**Epidemiology of Acute Epidemic Myalgia (Bornholm Disease)**—Rehsteiner reports an epidemic of acute myalgia (Bornholm disease) in a summer camp consisting of 104 boys, the majority of whom were between 12 and 15 years old. Of these 29 presented typical acute pain in the chest and abdomen, respiratory difficulties and fever. 4 were atypical cases. Some of the patients exhibited meningism, hematuria, nasal hemorrhages, vomiting and mild catarrhal symptoms of the upper air passages. The index of contagion was 32 per cent, relapses appeared in 58 per cent. The mode of infection could not be demonstrated. This epidemic of Bornholm disease remained limited to the camp; the author also cites examples of the sporadic occurrence of the disease. The epidemiologic behavior of acute myalgia closely resembles that of acute anterior poliomyelitis but it differs from it in symptomatology and must be regarded as an independent nosologic entity.

71 1605-1632 (Dec 27) 1941

- Pigment Formation and Diamine Metabolism P Robert and E A Zeller—p 1605  
Swallowers of Foreign Bodies M Tschamper—p 1607  
Actions of Irgamid and Other Sulfanilamide Preparations Which Are Specific for Certain Species of Animals R Pulver—p 1608  
Donaggy Reaction M Gukelberger—p 1611  
\*Studies on Goiter: Iodine Deficiency or Goiter Noxa. F Blum—p 1612  
Primary Tuberculosis and Metatuberculosis in Military Service. W Löffler and M Kartagener—p 1615  
\*Vitamin K in a Severe Case of Rheumatic Purpura H Schaad—p 1622

**Iodine Deficiency or Goiter Noxa**—Blum discusses the question whether goitrous enlargement is a sequel of iodine deficiency or the result of a specific noxa. If iodine deficiency were responsible for the development of goiter, the iodine supply would have to be either entirely deficient or the iodine of a type that cannot be assimilated. In the case of a goiter produced in rabbits by feeding cabbage neither of these two factors plays a part and apparently a noxa is responsible. He describes experiments in rabbits which demonstrate that there is a ratio of equilibrium between an antistrumigenic and a strumigenic diet. The primary point of attack for this noxa is not the thyroid but the liver. Under the influence of the noxa active in cabbage goiter the liver loses its capacity to split hydrogen iodide from vegetable iodine and thus cannot supply the thyroid with this substance which is essential in the iodine protein elab-

oration, whereas the thyroid itself retains the capacity to utilize potassium iodide. The blockage of the hepatic "de-iodase" for vegetable iodine produces the iodine deficiency of the thyroid, which in turn makes impossible formation of iodine protein. Whether the noxa exerts a harmful effect also on the cells of the thyroid, the author is unable to state. It does not deprive the thyroid cells of the capacity to produce iodine protein from administered potassium iodide. Considered from this point of view, prophylaxis with iodized salt attacks not the site of the primary impairment the liver, but rather the subsequent point, the thyroid.

**Vitamin K in Purpura Rheumatica**—Schaad reports the history of a man aged 51 with a severe form of rheumatic purpura. Acetylsalicylic acid, aminopyrine and intravenous administration of calcium and of vitamin C produced only temporary improvement. On a treatment with vitamin K and calcium injections the purpura rapidly subsided and a permanent cure was apparently obtained.

## Medicina Española, Valencia

6 509-610 (Dec) 1941 Partial Index

- \*Malignant Syphilis: Resistance to Arsenotherapy D F Lana Martinez—p 509  
\*Progesterone in Prevention of Abortion Following Gynecologic Operations in Pregnant Women A Clavero Nuñez—p 520  
Experimental Studies on Morphogenesis of Blood F Carlos Royo—p 526  
Renal Tuberculosis R Alcalá Santaella—p 537  
Phrenic Paralysis in Treatment of Pulmonary Tuberculosis M Lopez Sendon—p 547  
Post-Traumatic Heterotopic Ossification Around the Hip Joint J Gasco Pascual—p 556  
\*Treatment of Herpes Zoster with Vitamin B<sub>1</sub> A Zubiri—p 578

**Malignant, Arsenoresistant Syphilis**—According to Lana Martinez not only has the incidence of syphilis increased in Spain recently but its virulence is such as has not been seen since the prearsphenamine era. Patients who have undergone intensive treatment with arsenic preparations still exhibit lesions and strongly positive serologic reactions. Arsenoresistant cases of syphilis began to increase in many countries after 1927. Three factors may play a part in arsenoresistance: (1) the medicament, (2) the special reaction of the spirochete to the medicament and (3) deficiency in the defensive powers of the organism and its incapacity to break down the arsphenamine into the active form. The cause of the more severe forms of syphilis and of the greater frequency of the arsenoresistant cases must be sought in a combination of different factors. The organism and the drug must act together to effect a cure. If either fails, the therapeutic effect will not be adequate. Syphilitic waves coincide with periods of economic depression, which are accompanied by increase in prostitution, laxity of morals and decline of restraints. As a result a larger number of persons come in contact with the spirochete than is the case ordinarily. The more frequent, rapid and shorter passages are conducive to a greater virulence. Buschke and Joseph recommend for the treatment of malignant and arsenoresistant syphilis bismuth compounds, mercurials, iodine, iodides, gold salts and autohemotherapy. The organism may be influenced by injections of sodium nucleate, milk, turpentine sulfur and hyperthermy. Alcohol and tobacco are to be discouraged, gymnastics, baths and life in the open air encouraged. Liver, thyroid and vitamins have been recommended. Neoarsphenamine and preparations of bismuth should both be employed. Vitamin C is given to improve the tolerance of the organism to these drugs.

**Progesterone for Prevention of Abortion Following Gynecologic Operations**—Clavero Nuñez reports the occurrence in a woman aged 27 of several uterine myomas, one of which on the posterior surface of the uterus was unusually large, its lower pole descending into the pouch of Douglas and blocking the vagina. Removal of the tumor was performed during the twenty-second week of pregnancy. Immediately after the operation, 10 mg of progesterone was administered intramuscularly and repeated on the following days until a total of 40 mg had been given. The recovery was uneventful and the pregnancy was carried to term. In the second case appendectomy and salpingectomy were performed during the tenth week of gestation. The ovary of the same side was normal and was the seat of a corpus luteum of pregnancy for which reason



special care was taken to preserve it. The patient, a woman aged 25, likewise received 40 mg of progesterone in the same manner and with the same results. The postoperative course was favorable and the pregnancy was carried to term.

**Vitamin B<sub>1</sub> in Herpes Zoster**—Zubiri reports 3 cases of herpes zoster in which he obtained satisfactory therapeutic results with vitamin B<sub>1</sub>. The pain subsided after one or two days and the vesicles dried up in three days. Others have used vitamin B<sub>1</sub> successfully in the same condition. Administration of vitamin B<sub>1</sub> appears to be the most rational treatment of herpes zoster.

## Memorias do Instituto Oswaldo Cruz, Rio de Janeiro

36 237-444 (No 3) 1941 Partial Index

\*Rupture of Spleen in Typhoid C. Magarinos Torres and J. Guilherme Lacorte—p 363

**Rupture of Spleen in Typhoid**—Magarinos Torres and Guilherme Lacorte report the necropsy of a man aged 21 who died of typhoid in the second week of the disease. Eberthella typhosa was present in blood culture. Acute perisplenitis, intracapsular hemorrhages and distention of the capsule of a greatly enlarged spleen were present. These changes with possibly a slight trauma seemed to have been the cause of the spontaneous rupture of the spleen and the consequent hemoperitoneum (2 liters) which caused death. Eberthella typhosa was also recovered in pure cultures from splenic tissue.

## Revista Clínica de S. Paulo, São Paulo

11 1-30 (Jan) 1942 Partial Index

\*Actual Results of Roentgen Therapy in Artificial Pneumonia C. Fried—p 1

**Roentgen Therapy in Experimental Pneumonia**—Pneumonia produced by transtracheal injection of pneumococci of types 1, 2 and 3 in guinea pigs has the same macroscopic and microscopic appearances as has pneumonia caused by hemolytic staphylococci. The action of roentgen irradiation in this type of pneumonia is much the same as in staphylococcal pneumonia. When roentgen therapy is applied between the sixth and tenth hours after the infection it prevents or diminishes the growth of the inoculum. The respiratory capacity of the irradiated lung is preserved by wide areas of dilated alveoli replacing those which are compressed by the pneumonic exudate. The author believes that this phenomenon, which he calls vicarious emphysema, helps in relieving the animals' dyspnea. Stagnation of blood in the bronchial arteries and in the small veins of the lung is observed in nonirradiated animals, whereas it does not occur in the vessels of the irradiated animals. Consequently cardiac death does not occur. Late irradiation, that given between the eighteenth and twenty-fourth hours after the onset of pneumonia, produces the same effects as early irradiation. However, effects of late irradiation appear more slowly and are moderate. The author concludes that roentgen irradiations have the same therapeutic effects in human pneumonia as in experimental pneumonia. The importance of roentgen therapy in pneumonia is stressed.

## Archiv für Psychiatrie und Nervenkrankheiten, Berlin

112 517-698 (Feb 4) 1941 Partial Index

Central Tone Deafness with Monoaural Secondary Sound Interference and Sensory Dysmusia G. Wilke and G. Destunis—p 517

Genealogy of Homosexuality K. Jensch—p 527

Therapy of Schizophrenia by Means of Anoxia Induced by Nitrogen Inhalation K. Gyrfas and Z. Fábó—p 541

\*Addiction to Hypnotics Obtainable Without Prescription D. Sacher—p 552

Prognosis of Schizophrenia S. Hutter—p 562

**Addiction to Hypnotics**—Sacher discusses addiction to hypnotics obtainable without prescriptions on the basis of 30 clinical cases. He investigated consumption of hypnotics by reviewing the annual sales of an apothecary shop. Hypnotics obtainable without prescription and those obtainable with prescription were sold in a ratio of 10 to 1. Ninety-one per cent of the hypnotics obtainable without prescription were barbituric acid derivatives, while 9 per cent were urea bromide derivatives. The hypnotic most often responsible for addiction was cyclo-

barbital (17 of the 30 cases), two other hypnotics sold in almost as great or even larger amounts had caused only 1 case each of addiction. Barbituric acid derivatives obtainable without prescription became important as causes of addiction soon after the new and more strict narcotics law was enacted in 1931. Many of the former morphine addicts used these hypnotics as substitutes. Cyclobarbital is of especial importance not only because it was responsible for the largest number of addictions but also because it has a high tolerance. The symptoms of intoxication caused by cyclobarbital are the same as those caused by other barbituric acid derivatives. The majority of the patients had nystagmus, reduction of pupillary reflexes, Romberg's phenomenon, pyramidal symptoms, coarse tremors and scanning speech. Sudden withdrawal of cyclobarbital often leads to severe states of agitation with aggressiveness and unstable moods, euphoria alternates with depression and anxiety. There is a tendency to lying and cheating. In contradistinction to cyclobarbital, the other hypnotics obtainable without prescription were often indiscriminately changed by the addicts or were combined with morphine derivatives. The doses used were generally much lower, and psychosis or epileptic attacks were never observed. All of the addicts were mental workers and a considerable number had some connection with the medical profession or the drug trade. The prognosis of the addiction to these hypnotics is unfavorable because a large portion of the patients have relapses. In 1940 prescription became obligatory for all hypnotics which contain barbituric acid derivatives, whereas the urea bromide derivatives (carbromal, abrisin, bromural) are still obtainable without prescription.

## Klinische Wochenschrift, Berlin

20 497-528 (May 17) 1941 Partial Index

Experiences with Tolerance (Exertion) Electrocardiogram H. Reiser and L. Delius—p 497

\*Chemoprophylaxis of Gas Gangrene Experimental Infection with *C. F.* in Friedrich's Experiment H. T. Schreus and E. Pelzer—p 501

\*Experimental Studies on Improvement of Heat Tolerance in Human Subjects B. Schlegel—p 506

Sulfonamide Action on Mother and Child During Birth H. W. Kay—p 510

Serial Tests with Tuberculin and Their Significance for Epidemiology of Tuberculosis A. Nagel—p 514

Appearance of Iodophil Substances in Leukocytes Following Anesthesia and Operation G. Habelmann—p 517

**Chemoprophylaxis of Gas Gangrene**—Schreus and Pelzer tested 17 specimens of garden soil and 3 dust samples according to Friedrich's technique for their capacity to produce gas gangrene or tetanus. Eleven of the 17 soil specimens and the 3 dust samples did not cause fatal gas gangrene in inoculated animals, and 10 of these also failed to produce tetanus. More detailed experiments with 6 other soil specimens corroborated Friedrich's observations. The time limit for the possibility of surgical sterilization is six hours, in less infective soil specimens it may be extended to nine hours. The death time likewise is a suitable indicator of infectiousness of specimens. Even in moderately infectious soils the death time is less than sixty hours. Animals which outlive sixty hours often die of tetanus. It can be assumed that these animals like those which survive completely, escape the gas gangrene infection. The authors conclude that the frequently expressed opinions about the favorable results of Friedrich's experiments beyond the six hour limit can be explained by the fact that of the many wounded only a small percentage are threatened by really infectious soils. The ostensible prevention of edema by late excision is probably a deception. In war as well as in peace, conditions for the development of gas gangrene infection are rarely as favorable as under the conditions of Friedrich's animal experiments. The animals which were tested repeatedly showed no great difference in the infectiousness for tetanus and gas gangrene.

**Improvement of Heat Tolerance**—Schlegel's studies on the influence of adrenal cortex extract on heat caused by heat. The effects observed were (1) an increase in the elimination of water by the skin, (2) a decrease in the increase in the cutaneous elimination of sodium chloride, (3) a stabilization of the circulation with alleviation of subjective complaints. The point of attack of the adrenal cortex extract is in the circulation.



extract seems to be chiefly the myocardium. The author classifies the heat disorders into heat exhaustion, heat stroke and heat convulsion but admits that these frequently overlap. In heat exhaustion in which the circulation is impaired but in which the physical heat regulation is still intact or only slightly damaged, the prophylactic administration of the extract stabilizes the circulation and prevents collapse. The organism, thus protected against heat exhaustion, is in danger of heat stroke if it is further exposed to heat and its heat regulation is inadequate. Heat stroke results from the failure of the physical heat regulation and the considerable increase in temperature accompanying it. The adrenal cortex extract acts by maintaining the physical heat regulation through increased and prolonged sweating. It is essential that the sweat shall evaporate and that its heat regulatory function shall not be nullified by high moisture content of the air. The third form of heat disorder, heat convulsion, threatens persons with intact circulation and good physical heat regulation who are protected against heat exhaustion as well as heat stroke. These are persons who by training have become accustomed to working in hot surroundings. As a result of profuse sweating their water and particularly sodium chloride supplies become depleted and the sodium chloride deficiency brings on the danger of heat convulsion. Here adrenal cortex extract is undesirable because it would favor sodium chloride depletion. The most effective prophylaxis here is an adequate filling of the body depots with water and sodium chloride. Heat convulsion may be accompanied by circulatory symptoms characteristic of heat exhaustion; for this reason administration of adrenal cortex extract may be desirable. In general simultaneous administration of adrenal cortex extract and of water with sodium chloride will not have undesirable results. Since the administration of the extract by injection is not practical for large groups, attempts have been made with oral administration but these have so far failed. Dextrose, phosphoric acid compounds, pervitin (synthetic amine related to ephedrine) and kola could be tested for their effect on the heat impaired body. Ascorbic acid could be tried not only because of its strengthening effect but also because the adrenal cortex has an extraordinary high vitamin C content.

### Therapie der Gegenwart, Berlin

82 1-48 (Jan.) 1941 Partial Index

- Tularemia: Diagnosis and Treatment H. Fuhs—p. 1  
Treatment of Rectal Prolapse in Children H. Koch—p. 5  
Induction of Labor in Prolonged Pregnancy W. von Massenbach—p. 18  
Treatment of Cystitis and Pyelitis by General Practitioner H. Weber—p. 22  
\*Chronic Manganese Poisoning and Its Management H. Gärtner—p. 25

**Chronic Manganese Poisoning**—Gärtner lists pyrolusite, manganite, braunite, hausmannite and manganese spar as some of the ores from which manganese is obtained. With comparatively primitive methods of mining manganese poisoning is rare, but in mines in which pneumatic drills are used considerable amounts of dust are produced and the incidence of poisoning is higher. Manganese is used chiefly in the steel industry but also in the chemical, ceramic, glass, dye and varnish industries and in electrotechnics. Cases of poisoning may occur whenever manganese is handled and particularly when manganese dust is produced. Exposure to the dust alone is not sufficient, because with the same exposure only a part of the workers develop symptoms of poisoning. Persons with chronic inflammation of the respiratory passages are particularly vulnerable. The filter capacity of the nose is another important factor. Manganese enters the organism chiefly through the respiratory passages, although swallowed manganese is also of importance. The metal is eliminated in the urine and particularly in the feces but only after a certain amount of it has been stored in the liver and the kidneys. The symptoms of manganese poisoning are caused by a chronic involvement of the central nervous system. There is impairment in walking, the so-called rooster step, difficulty in bicycle riding and dancing, spilling of fluids while eating and a tendency for the handwriting to become smaller. There may be tremor, adiadochokinesis, salivation and

compulsive laughter or crying. Impairment of potency and lack of libido are characteristic. Prognosis is favorable for life but very unfavorable for restoration of health. Chronic manganese poisoning also produces thyrotoxic disturbances or the course may resemble that of a progressive bulbar paralysis or of amyotrophic lateral sclerosis. There may be pyramidal symptoms. Hepatic lesions, joint disorders, thirst, hunger, glycosuria, increased basal metabolism and vasomotor disturbances have been observed. Resemblance to postencephalitic parkinsonism is close. The latter as well as multiple sclerosis, Wilson's disease (progressive lenticular degeneration) and arsenical poisoning must be considered in the differential diagnosis. A history of exposure to manganese is important. The treatment is chiefly symptomatic. Pneumonia is rather frequent among manganese workers and has a high mortality rate. Because of the inadequacy of treatment, preventive measures are important. These include devices to eliminate manganese dust, frequent change of the workers, careful selection of workers (exclusion of those with signs of thyrotoxicosis and with irritability of the respiratory passages) and efforts to detect the first symptoms by examinations at short intervals.

### Sovetskiy Vrachebny Zhurnal, Leningrad

4 242-319 (April) 1941 Partial Index

- Basic Problems in Campaign Against Bacillary Dysentery O. O. Gartshteyn—p. 242  
\*Etiology and Diagnosis of Dysentery in Young Children S. S. Kazarnovskaya and O. I. Solov'eva—p. 254  
\*Clinical Aspects of Chronic Dysentery M. A. Neyman—p. 266  
Work of Dispensaries in Detection of Chronic Dysentery E. M. Novgorodskaya, S. I. Iter, O. I. Solov'eva and G. M. Goldberg—p. 270

**Dysentery in Young Children**—Kazarnovskaya and Solov'eva maintain that acute diarrhea in children clinically diagnosed as hemorrhagic colitis, is in reality dysentery. By examination of feces during the first few days of illness and by multiple cultures, dysentery bacilli may be demonstrated in practically all cases of hemorrhagic colitis. The authors emphasize the necessity of comparing the results of the bacteriologic and coprologic examinations before deciding that a patient has ceased to be a carrier and may be safely sent home. Because of imperfections of present day bacteriologic technique, a bacteriologic examination alone is not sufficient. Their findings indicate that only 65.4 per cent of children are free from dysentery bacilli after three weeks (the average duration of the dysenteric process in young children), while 34.6 per cent continue to excrete bacilli much longer. They point out the difficulty of differential diagnosis between toxic dyspepsia and dysentery in young children, when the dysenteric process appears in the form of enteritis with signs of toxicosis. The term "summer diarrhea" has been applied to diseases of different etiology and different epidemiologic significance. By means of the coprologic examination a rapid and early diagnosis is possible in cases of acute infantile diarrhea. The simplicity of this method makes it especially suitable for dispensary practice.

**Clinical Aspects of Chronic Dysentery**—Neyman's studies are based on prolonged observations of 751 persons with acute dysentery in 1938. Excretion of dysentery bacilli was demonstrated in 44 (8.7 per cent) of 502 persons examined bacteriologically. The majority of these presented certain definite clinical symptoms which made possible the diagnosis of chronic dysentery. The most constant clinical sign was the syndrome of distal colitis. There was a tendency to recurrence with appearance of blood, mucus and pus in the feces. The clinical course of patients excreting Shiga bacilli was different from those excreting Flexner bacilli. The author stresses the value of a bacteriologic examination of feces in patients with gastrointestinal complaints who present a history of acute dysentery even though negative findings do not in themselves exclude the possibility of chronic dysentery. Among factors concerned in the transition from acute dysentery into the chronic form, the author lists the nature and course of the acute process, the patient's constitution and chronic gastrointestinal disease preceding the acute dysentery. At present only severe and typical forms of chronic dysentery can be diagnosed while the milder, atypical forms offer diagnostic difficulties which require further study.

## Book Notices

**Anæsthetics Afloat** By Surgeon Lieutenant Commander Ronald Woolmer R N V R, B A, B M. Anæsthetic Specialist R N Medical Service With an Introduction by Surgeon Captain R D Drennan D S O, R N. Cloth. Price, 6s. Pp 120, with 18 illustrations. London H K Lewis & Co, Ltd, 1942

The author has prepared a brief and truly pocket size treatise dealing with the administration of anæsthetics on board ship. Obviously space is lacking on one hundred small pages to include more than the bare essentials of practical instruction. Selection of what is "essential" for inclusion has been made with judgment. Illustrative of this judgment, the four pages devoted to examination of the patient cover only the points which have a direct bearing on danger and difficulties in anæsthetic administration. For example, he says "It is annoying to realize the inaccessibility of superficial veins in the fat Stoker Petty Officer type only after one has decided upon intravenous anæsthesia, with the syringe in hand and the patient on the table." The advantages of spinal and block anæsthesia are rightly stressed, yet the author states that "for the maintenance of inhalation anæsthesia on board ship, 'open ether' is the only practical method." The criteria of the stages of anæsthesia differ from those usually accepted by anæsthetists; the disappearance of the laryngeal reflex is not usually regarded as a sign of the onset of surgical anæsthesia, and the author defines as the "fourth stage" what is commonly regarded as the fourth plane of the third stage. Chapters XI and XII are the most interesting part of the book. These deal with the problems of anæsthesia during and immediately after a naval action, and the author's views are evidence of a rare combination of humanity, clinical judgment and common sense.

As a specialist in anæsthesia and a naval officer, Mr Woolmer writes from first hand experience. His book should be read by any medical man who may have occasion to act as an anæsthetist on board a ship.

**Industrial Surgery Principles, Problems and Practice** By Willis W Lasher M D, F A C S. Assistant Professor of Traumatic Surgery, New York Post-Graduate Medical School Columbia University, New York. With a foreword by Charles Gordon Heyd M D. Enlarged first edition. Cloth. Price, \$6.50. Pp 472, with 194 illustrations. New York & London Paul B Hoeber Inc, 1942

This is published at a time when the number of persons treated by industrial surgeons is at an all time high. Additions have been made throughout. The basic format has not been materially altered, except for additions of new material and methods. Two chapters have been added: one on strains and sprains, which repeats portions of the book which bear repetition, and one on chemotherapy and dehydration, which is rather sketchy. The author's premise that industrial surgery will be recognized as an independent specialty is one that will probably not be generally accepted. Though there are many problems peculiar to compensable injuries, the physiopathologic changes are similar and their interpretations are for the most part not much different than in any other injuries. The book is well written and fairly well illustrated. Though inclusive, several sections are rather brief. It is a good guide for the many general surgeons who are entering the industrial field at this time.

**Clinical Endocrinology** By Samuel A Loewenberg M D, F A C P. Clinical Professor of Medicine Jefferson Medical College, Philadelphia. Foreword by Hobart A Reimann M D. Professor of Medicine and Clinical Medicine Jefferson Medical College. Second edition. Fabrikoid. Price, \$8. Pp 883, with 194 illustrations. Philadelphia F A Davis Company, 1941

This volume is written in the classic form of medical textbooks and presents a vast amount of well organized information concerning each of the endocrine glands and the clinical aspects of diseases involving those glands. The book is heavily and well illustrated, and it has clearly been written to represent a complete textbook of endocrinology with information on the diagnosis and treatment as well as the underlying physiology and pathology of all endocrine diseases. Unfortunately the book falls short of this goal in a good many important respects.

In the division of space, the thymus and pineal glands have been allowed fifty-five and twenty-four pages respectively, while the male gonads and parathyroids occupy only thirty-six and fifty-five pages. Thus there appears to be an over-emphasis of the former pair, about which, from the clinical point of view, almost nothing is known. But the curtailment of discussion of the latter two is even more regrettable because of their relative importance. The pituitary rightfully receives the largest allotment of space—one hundred and sixty-two pages. In dealing with a field which has become, even in its clinical aspects, largely chemical and physiologic, the author's approach has remained largely descriptive. The sections concerned with physiology and chemistry are brief and superficial and can hardly be considered up to date. The chapter on the thyroid gland is a good example of this criticism. All the splendid recent contributions on the metabolism of iodine and iodoproteins and their application to the present changing concept of thyroid disease have not been included. Two pages of the one hundred and eleven devoted to the subject are concerned with thyroid physiology. Unusual emphasis has been placed on the differentiation between toxic adenoma and exophthalmic goitre, a distinction which physiologic studies are showing to be of less and less importance. Finally, and perhaps most important, inadequate attention has been paid to the multitude of clinical problems interrelated with thyroid disease, such as nutrition, calcium metabolism and cardiovascular aspects. Many of the same criticisms are equally applicable to the sections dealing with the adrenal glands and the gonads, both male and female. An abundance of physiologic material has been omitted. Nothing is mentioned concerning the qualitative differences between the various adrenal steroids and the interesting correlation between their chemical structures and physiological actions. The brilliant contributions relative to the 17 ketosteroid compounds are not presented, thereby seriously detracting from discussions of the gonads and adrenals. Chapters 13, 14 and 15 contain summary material including laboratory tests, an outline of common endocrinopathies and a list of available endocrine products. Many readers will disagree individually on many of these details, such as, for example, the recommendation of whole anterior pituitary substance orally and the use of whole ovarian substance. The dominant criticism of this volume, however, is its failure to provide the necessary basis of pathologic physiology of endocrine diseases which is an indispensable prerequisite of any treatise of clinical endocrinology at the present time.

**Self Analysis** By Karen Horney, M D. Cloth. Price, \$3. Pp 128. New York W W Norton & Company, Inc, 1942

This book is based on a series of lectures delivered to laymen at the New York School for Social Research in New York City. On page 7 the author says "There is little actual experience to serve as guide, my purpose has been merely to raise the issue rather than to offer any clearcut answer." Again on page 28 she says "To what extent self analysis is possible without previous experience (that is, previous experience as a patient in a professionally guided analysis) must be left an open question." Under these circumstances the title of the book and the statements in the advertising matter are grossly misleading. They imply that the book presents a technique of analysis which is available to any and every one, whereas it is based exclusively on longer or shorter periods of self-analysis during the course of a regularly conducted psychoanalytic analysis. Why then is it presented to laymen at all? The author acknowledges that the results of her procedure have been subjected to critical clinical tests or to review by interested colleagues? There is a sound medical conviction that nostrums should not be peddled to the public before they have been widely tested by more than one impartial observer. It is wholly indefensible that a book of this kind should be marketed as a popular book and advertised with a "money-back-guarantee" completely satisfied" coupon, and as a "practical" step by step outline to guide the layman in this procedure. This is "patent medicine" advertising and a shock to the system from reputable procedure on the part of both the author and the publisher.

Furthermore, the material dealt with in the book should have been called "clinical self description" rather than "self analysis." Horney focuses the attention of the reader on the recognition of what she calls "neurotic trends." In her theoretical structure she attributes to neurotic trends a role in the etiology of the neuroses not unlike that which Freud assigns to instinctual drives. Her position, however, is not always consistent, because she also recognizes that these neurotic trends are themselves compulsive neurotic symptoms. In fact these "neurotic" trends of Horney consist of nothing more than a congeries of compulsive, symptomatic, neurotic behavior patterns. They are as compulsive in their nature as is a handwashing compulsion, although they are infinitely more subtle in their manifestations and more difficult to recognize, whether by the patient or by the physician.

Once this simple truth is realized the basic weakness of Horney's system becomes apparent. If a patient has a compulsive demand to receive attention and if the mere absence of a telephone call can throw such a patient into a frenzy of anxiety, it will give rise to a tension state which the patient must either bury in depression or act out blindly in many subtle but compulsive ways. On the other hand if a patient has a handwashing compulsion and is prevented from washing his hands, then he too will be thrown into a state of tension and anxiety. Thus the essence of the two phenomena is the same. Both are familiar, although the latter is less subtle and more easily recognized than the former.

But no psychiatrist or psychotherapist, much less analyst, believes that a compulsion can be cured merely by confronting a patient with the fact that it is a compulsion, or even by a careful description of the interrelations of such symptoms. If the handwasher rationalizes his handwashing and feels that there are special reasons why he must wash his hands so often it is important of course to break down these rationalizations in order to make the compulsive symptom itself more accessible to analysis. But no one for a moment would fool himself into believing that the accurate description of the symptom, or the patient's admission of the fact that it was a symptom, or the patient's abandoning of his rationalizations of his symptoms will put an end to the compulsive necessity which drives the symptom. Honest self description is an essential first step but it constitutes only the antechamber to treatment. This fundamental fact holds true whether one is dealing with an obvious symptom like a handwashing compulsion or one of those subtle, diffuse compulsive patterns of behavior which Horney calls aptly "a neurotic trend." However, in her emotional reaction against analysis Horney calls this process of frank self description "self analysis" and attributes to it a therapeutic leverage which it does not possess. It is of basic importance to realize this.

Furthermore one must register another note of warning. The confrontation of patients with descriptive facts must be carefully dosed. No mistake is more frequently made than the premature confrontation of patients with facts which are difficult to absorb. Horney professes a strange and almost mystical confidence in a patient's capacity to measure his self dosage accurately and safely. This is a strange mistake for an experienced psychiatrist to make, when one contemplates the innumerable ways in which the unguided patient can use truth to his own injury.

So serious are these basic flaws in the book that they seem to the reviewer to outweigh entirely the value of the keen clinical descriptions which Horney as usual is capable of giving. In this book these descriptions are put to a particularly unfortunate use. This reviewer would be as full of praise as he is of criticism if Horney had contented herself with elaborating a description of compulsive behavior patterns and had she then written a series of technical articles on the use of a technique of discontinuous analyses with systematically planned periods of self description interspersed among periods of professionally guided analysis, and had she finally presented to her analytic and psychiatric colleagues a series of patients handled in this way, comparing the results achieved and the duration of treatment with patients treated by currently accepted methods of

continuous professional analysis. Unfortunately, however, Horney has for some years written almost exclusively for the uncritical layman.

There are other flaws in the structure of the book. By omissions and by choosing certain quotations out of their context, Horney builds a distorted picture of the history of psychoanalytic psychiatry. She gives an incorrect picture of Freud's attitude toward the possibilities of self analysis as manifested in his analyses of his own dreams. Indeed, wherever she touches on a point of Freudian theory she distorts it in order to be able to criticize it. To the reviewer this is particularly disturbing, because it is his conviction that Dr. Horney has made certain valuable critical challenges to weak points in analytical theory. Therefore it should be unnecessary for her to distort this theory merely for the sake of target practice. However, this is not the place for a detailed dissection of these criticisms or of the inner details of Horney's system or to contrast it with the Freudian. It is fair to say, however, that before serious consideration can be given to Horney's point of view it must itself be purged of its own manifold and obvious scientific inconsistencies.

*The Treatment of Burns*. By Henry N. Harkins, M.S., M.D., Ph.D. Associate Surgeon, Henry Ford Hospital, Detroit. Cloth. Price \$6.50. Pp. 437 with 117 illustrations. Springfield, Illinois & Baltimore: Charles C. Thomas Publisher, 1942.

[The following part of this book review was inadvertently omitted from *The Journal* July 25 in which the first part appears on page 1061.]

In part II there are chapters covering general treatment and its relation to local treatment, tanning methods of treatment, antiseptics, saline baths, other methods of treatment, early plastic procedures and late plastic reconstruction. In the discussions of local treatment, tannic acid or some modification of the tanning method is given preference. The contraindications and limitations of this method, however, are freely discussed. The advantages of alternate forms of treatment are presented. The importance of careful preliminary cleansing and removal of blisters as a basis for all forms of local therapy is emphasized. The author clearly indicates that the local treatment must be modified to suit the needs of the case and must be carried along with the systemic management in an orderly fashion. He emphasizes the extreme importance of intravenous transfusion, oxygen therapy and other systemic measures in severe burns. The need for blood transfusions in all stages of burn therapy is mentioned. There is a good discussion of the use of blood plasma. The chapter on early plastic surgical procedure is good. The author emphasizes the importance of early skin grafting on large granulating surfaces and gives detailed discussion of skin grafting methods. He makes the point that very thin Thiersch grafts do not give good results. Thick Ollier-Thiersch grafts, however, which the author calls small thick split grafts will when properly cut and laid on good granulation tissue give a satisfactory result in most cases. They have the advantage of producing little or no mutilation of the donor site. The chapter on the late plastic treatment of burn defects is brief but fundamentally sound.

In part III the author gives a short chapter on the special features in burns of the scalp, eyes, face, hands and other areas of the body of unusual significance. There are also chapters on electrical and radian burn, chemical burns and freezing.

Brief biographical sketches of the lives of Dupuytren, Curling, Underhill and Davidson are included as interesting historical features. Photographs and illustrations are excellent.

The author obviously has not written this book primarily for readers who wish to be told in a few words exactly how to treat burns. There is, however, a final chapter giving a practical outline for treatment. Dr. Harkins's book stands as the best available guide to the successful management of the severely burned patient. As the author states in the preface, the question of burn therapy is at the crossroads, and a decision as to the best type of local treatment may be reached in the near future. It is gratifying that he makes no effort to close the subject. As an aid and inspiration to further study and progress, the book is most valuable. With suitable revision it may stand as a masterpiece.

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

### FOLLICULITIS IN BRASS PLATING WORKERS

To the Editor—A new plating operation has been installed, and I have been confronted with a series of workmen suffering from pustular eruptions surrounding the hair follicles on forearms, wrists and hands, also any slight scratches in these regions become acutely inflamed with a tendency to infection. The face is seldom attacked, occasional nausea and epistaxis occur. The following materials are used in conjunction with the brass plating equipment. The process is outlined in the sequence of operation. All operators wear rubber gauntlet type gloves with coverall sleeves down to the wrists, inside the gauntlets. The cycle of operation is fully automatic and operators do not immerse their hands in any of the solutions. Cleaning 1 Sun T Mineral Oil (Sunoca Company) 2 International A B Cleaner (caustic trisodium phosphate) 3 Muriatic acid 4 Sodium cyanide, sodium hydroxide solution. Plating solution 5 Sodium cyanide, copper cyanide, zinc cyanide, sodium carbonate (possibility of very slight ammonia fumes involved in the process) Rinsing 6 Concentrated lubricating soap solution 7 Sawdust. Heavy duty fans exhaust the bulk of the fumes. It seems to me that the heavy rubber gauntlet gloves worn tend to aid in the production of this condition as a result of perspiration. I have used sulfathiazole-sulfanilamide ointment with good results. My question is for some means of preventing this condition and the possibility of better treatment.

M D, Ohio

ANSWER—From the description given, the condition on the hands and arms and wrists of these men is a folliculitis, probably a low grade pyogenic affair, perhaps from *Staphylococcus aureus* or *albus* or both. It is to be noted that the operators wear rubber gauntlet gloves and that their sleeves come down to the wrists inside the gauntlets. Presumably the gauntlets cover up to the middle of the forearm, so that perhaps part of the forearm affected is outside the gauntlet area. It is also noted that the operators do not immerse their hands in any of the solutions, but it would seem possible that some of the oil and other solutions might be splashed onto the coverall sleeves unless the operation is an entirely enclosed one. The oil and the alkali might perfectly well be factors in the causation of such an eruption, and the retention of perspiration by rubber gloves for an eight hour working period constitutes another hazard.

It is perhaps not feasible to dry clean-sterilize these coverall sleeves and sterilize the rubber gloves if there are many workmen. At the same time, without knowing more of the process, it would still seem advisable to continue with the coverall and glove protection rather than expose the bare skin. It would seem advisable to make use of a permanganate solution, 1 5,000, and even 1 3,000, for the immersion of hands previous to the beginning of each work period, perhaps allowing the solution to dry on before putting the hands into the gloves. Some such solution might reduce the surface bacteria and lessen the perspiration and maceration to a certain extent.

As far as actual therapy is concerned, if the sulfathiazole-sulfanilamide ointment is producing good results it would be best to continue with it for the present. As an alternate, a 4 per cent ammoniated mercury in boric ointment could be used. If any selection of employees is possible, it would seem advisable to transfer those who develop such an eruption to other work and replace them with individuals who might well have a more highly developed immunity to such organisms.

### ERYTHEMA NODOSUM AND OCCUPATION

To the Editor—A patient working in the Celon Company comes in contact with triethanolamine, glycerin, acetic acid, caustic soda, hydrogen peroxide, beta-naphthol, AS naphthol and formaldehyde. I should like to know if any of these have ever been known to produce the clinical entity known as erythema nodosum, which was characterized by pain in his hips, fever, and varicolored nodules on his tibial surfaces.

G J Maloof, M D, Madison, Wis

ANSWER—The etiology of erythema nodosum, albeit obscure, sharply points away from industrial causes and instead to infection or the influence of infection, notably tuberculosis, syphilis, rheumatic fever and mycoses. By some, erythema nodosum is regarded as only a form of erythema multiforme. Of this Johnstone states "The physician should recognize that such skin disorders as erythema multiforme are practically never related to occupation." Although erythema nodosum

has been linked with drug action, including iodides and bromides, these substances when constituting the possible offender were used therapeutically. Numerous factors connected with erythema nodosum militate against any industrial origin. Some such factors are the following.

Erythema nodosum occurs more frequently among women industrially employed than among industrially employed male. The site of the cutaneous lesions do not conform to that commonly associated with occupational dermatitis. Erythema nodosum commonly is ushered in by constitutional features suggestive of infection. The cutaneous lesions appear to develop deep in the integument, which is contrary to the occurrence of most contact dermatoses. One attack appears to confer immunity, or at least some resistance, which would be unlikely in the event of continued or resumed exposure to some industrial substance suspected as the cause.

Of the several chemicals mentioned, all are capable of inducing dermatoses under some circumstances, but not the type here described. Formaldehyde in particular may lead to an erythema but is not known to lead to an erythema nodosum. While disbelieving that this described erythema nodosum may represent any characteristic occupational disease, one may grant that many types of unfavorable work conditions, and particularly excessive wetness, might constitute a contributing factor to such cutaneous lesions.

### CONTROL OF PAIN WITH COMBINED MORPHINE AND CODEINE

To the Editor—A woman aged 47 has been bedridden for twenty-three years with arthritis deformans. She presents a textbook picture of arthritis deformans, and this is exceedingly painful. She cannot bear the pressure of the bedclothing on her feet. She has run the gamut of treatment from salicylates to lights of all sorts, injections of almost everything, diathermy, all with no results. It was necessary to give her morphine for her pain. The dose has never been increased for twenty-three years and is sufficient to ease her pain. Two prescriptions are being given: (1) morphine sulfate 10 grains (0.65 Gm) and compound elixir of pepsin 4 ounces (120 cc), elixir Lactopeptine 4 ounces (2) codeine sulfate 13 grains and compound elixir of pepsin 4 ounces. Roughly she gets 1 1/2 grains (0.007 Gm) of morphine sulfate and 1/4 grain (0.016 Gm) of codeine sulfate in each dose for four doses a day of the mixture of the two. This dose has never for twenty-three years been increased or decreased. At the night she is given one 1/4 grain tablet of scopolamine, and codeine morphine by hypodermic. She is an addict through necessity. She has never had nausea or any of the symptoms of morphine poisoning. Her pupils are contracted. There is no constipation, nor does there seem to be a craving for the drugs, perhaps because her medicine is always given on time. Yet in between doses there is no craving, no loss of appetite, and elimination is normal. In carcinoma, tuberculosis and other incurable diseases, once you start morphine therapy, you have to increase the dose constantly. But in this case 1/2 grain of morphine sulfate and 1/4 grain of codeine sulfate appears to have been sufficient for twenty-three years. Is there anything in the combination of morphine sulfate and codeine sulfate that will lessen the craving for the narcotics and get away with the unfavorable results of morphine sulfate and codeine sulfate when taken separately?

M D, New York

ANSWER—Since the inquirer points out that the prescription containing morphine and codeine sulfate (which is given four times a day) would supply a total daily dose of approximately 1/2 grain of morphine sulfate and 1 grain of codeine sulfate (which is supplemented with an additional 1/4 grain of morphine sulfate at bed time), which has not varied over a period of twenty-three years, it is not surprising that addiction to opiates has resulted. The fact that the patient has had a craving is also not surprising in view of the regularity with which the prescription has been administered. Tolerance does not occur uniformly to all the manifestations of morphine action but occurs only with the depressant effects on the nervous system—analgesia and stupefaction. Tolerance does not occur to the excitatory responses elicited by the opium alkaloids. Thus the true addict may continue to obtain stimulation without increase in the dosage, even though the depressant analgesic effects are lessened if the dosage is not increased. Cross tolerance also exists between the various pharmacological alkaloids of opium, so that a person tolerant to morphine is also tolerant to dihydric, codeine and heroin. Addiction to codeine occurs, and addicts to this alkaloid experience stimulation, although it is well known that this alkaloid lacks the addicting property in the same doses required for morphine. In view of the fact that the patient has had arthritis deformans for many years and is now well beyond the acute stage of the disease, the pain factor was probably more intense, it seems likely that the same dose of morphine and codeine sulfate would be sufficient to allay her craving for the stimulant effects of the narcotics (to which tolerance has not developed), so that the depressant effects (to which tolerance does occur) are no longer needed to make the patient comfortable. This seems the most reasonable



explanation. However, the inquirer can determine more accurately the need for continuing the morphine and codeine prescription by gradually decreasing the dose and by eventually substituting a placebo or another analgesic if this is necessary. There is no evidence to support the view that a combination of morphine and codeine sulfate is less habit forming than morphine alone if doses are adjusted to supply equivalent analgesic effects for example, by subcutaneous injection 64 mg of codeine sulfate is required to produce the same analgesic effect as 10 mg of morphine sulfate.

### SUN PAIN' IN CHRONIC MALARIA

*To the Editor*—Is there such a thing as sun pain, i. e. headache for a period of twenty days due solely to malaria without a history of chills and fever and without temperature in excess of normal at the time of pain?

M D West Virginia

*ANSWER*—Yes. Malaria in the atypical chronic form may be considered as one of the possible causes of the persistent headache following exposure to the activating influence of the sun's rays.

The symptoms as related in the query, however, do not present distinguishing characteristics of malaria, in contrast with many other chronic conditions such as refractive errors, vitamin deficiencies, reflex disturbances and focal infections.

If in this case there occurred periodic abrupt seizures beginning near midday or definite exacerbations of the symptoms reported as following exposure to the sun, with tertiary or with 'septenary' (seven day) periodicity, the case would suggest strongly a cerebral (perhaps ocular) malaria.

A diagnosis of malaria in such cases may sometimes be made by employing a therapeutic test consisting in administration of specific remedies. Symptomatic control may be obtained by prolonged follow-up treatment consistent with the persistent relapsing nature of the disease. References

Craig C F and Faust E C. Clinical Parasitology. Philadelphia Lea & Febiger 1940.

Fonde G H and Fonde E C. Chronic Malaria. A Clinical Consideration, *Arch Int Med* 64 1126 (Dec) 1939.

### PERSISTENT POSITIVE SEROLOGIC REACTION IN A SYPHILITIC PATIENT SENSITIVE TO ARSENICALS

*To the Editor*—In 1937 a woman aged 48 was found to have a positive Kahn reaction. Nine months previously she had had a severe sore throat which lasted five days. There had been no history of a primary lesion or cutaneous rash. She was given six doses of bismuth subsalicylate in oil at weekly intervals followed by one dose of 0.3 Gm of neosarsphenamine and a second dose of 0.6 Gm four days later. She developed salmon colored scaly skin lesions varying in size from 1 to 3 cm in diameter on all parts of the body. It was necessary to stop all treatment for four weeks. She was then given 1 cc of bismuth subsalicylate in oil each week for sixteen months accompanied by potassium iodide orally. During this time several attempts were made to use neosarsphenamine, sulfarsphenamine and mapharsen later on both with and without 400 mg of ascorbic acid daily a dermatitis being produced each time they were tried. During March and April 1939 she received injections of mercury elsewhere. From May 1939 to January 1940 she was given weekly doses of the bismuth compound. Treatment was stopped during 1940. Because of the development of induration in the lower part of the rectum treatment was resumed in February 1941 and has been continuous since that time. Bismuth subsalicylate, thiobismol and iodothiobismol have been used. The soluble bismuth preparations were given twice each week. The Kahn test has been positive at all times. The spinal fluid taken recently contained four cells there was no increase of globulin the calloidol gold curve was normal and the Kahn reaction was negative. Fluoroscopy shows no aneurysm. There is no evidence of skeletal involvement. There are no neurologic signs. It seems to me that this patient has received a more than adequate amount of bismuth and iodides. What further treatment should be given? Can you suggest any procedure by which the serologic test can be reversed? Is the persistence of a positive Kahn reaction in the absence of anything else of any importance?

M D Colorado

*ANSWER*—This patient, according to the data furnished has received more than one hundred injections of bismuth preparations. In view of her sensitivity to arsenic, her age, the negative spinal fluid examination, the negative cardiovascular check and the fact that she is otherwise asymptomatic, there are two courses to pursue. (1) Discontinue treatment entirely and place her on parole checking her once a year, or (2) give two courses of insoluble bismuth a year for the next two years, giving twelve injections to the course.

The persistence of the positive serologic test in itself has no special significance. However, it is advisable to observe the patient for several years longer to make certain that she remains asymptomatic. There is no special treatment that will assuredly reverse the serologic reaction in patients with latent syphilis.

### DETERMINATION OF THE DATE OF OVULATION BY AN ELECTRIC POTENTIOMETER

*To the Editor*—In J P Greenhill's *Office Gynecology*, third edition page 157 I read that with the help of the electric potentiometer one can determine accurately the date of ovulation. Could you please verify this statement and give me details of the technique used?

A L de Guevara MD Guadalajara, Jalisco Mexico

*ANSWER*—Burr, Hill and Allen (*Proc Soc Exper Biol & Med* 33 109 [Oct] 1935) reported that with ovulation in the rabbit there was an increase in the difference in potentials between two electrodes, one placed above the symphysis and the other in the vagina. Reboul, Friedgood and Davis (*Am J Physiol* 119 387 [July] 1937) claimed that this change in biopotentials was synchronous with ovulation. Burr, Musselman, Barton and Kelly (*Science* 86 312 [Oct 1] 1937) reported the same phenomenon in a woman as did Rock, Reboul and Wiggers (*New England J Med* 217 654 [Oct 21] 1937). Barton (*Yale J Biol & Med* 12 335 [March] 1940) claimed that wide changes in the difference of potentials between two index fingers indicated ovulation, but Rock (*New England J Med* 225 910 [Dec 4] 1941) maintains that "finger to finger potentials" have no relation whatever to ovulation. Rock believes that like basal body temperatures and vaginal smears, biopotentials may be affected by ovulation but not in such a critically peculiar way as to indicate ovulation and therefore, like other methods, cannot be used clinically to detect this significant event.

An illustration of the apparatus used in making a bioelectric record and the technique of the procedure may be found in an article by Burr, Musselman, Barton and Kelly (*Yale J Biol & Med* 10 155 [Dec] 1937).

### ROUTINE SEROLOGIC TESTS IN HOSPITALS

*To the Editor*—What is the advisability of making routine blood Kahn or Kline tests on all patients including private obstetric medical, surgical and pediatric? Are hospitals running routine Kahn tests on private patients or waiting until individual physicians order them?

Sister Ann Superintendent, St Mary's Hospital Detroit

*ANSWER*—The use of serologic tests routinely on all hospital admissions has during late years become common practice. At the University of Michigan Hospital, for example, a Kahn test is part of the registration of all patients, including private, in all the services both inpatients and outpatients. Blood specimens, obtained when the patients register, are sent directly to the serologic laboratory and the results are reported by the laboratory to the respective services in which the patients seek medical or surgical aid. In accordance with this plan, physicians are able to have the serologic reports on their patients at the time of the examination.

In some hospitals, blood testing is part of routine hospital procedure on all patients actually admitted to the hospital. In isolated instances in which a patient objects to having a blood test the matter is left to his physician.

The tendency during late years has been to extend the use of blood tests in private and hospital practice. This fact alone would indicate that physicians desire to have a serologic report as part of the medical record of each of their patients.

### THE RELATIVE VALUE OF SULFONAMIDES IN STREPTOCOCCIC INFECTIONS

*To the Editor*—Will you please tell me the value of sulfathiazole and also sulfadiazine as compared with sulfanilamide in the treatment of streptococcal infections? I understand that sulfathiazole and sulfadiazine are probably better for pneumococcal infections than the sulfanilamide but what is the comparative value of the three preparations for streptococcal infections?

M D Mississippi

*ANSWER*—It is still too soon to evaluate the relative merits of various sulfonamide drugs in different types of infections. In general, however, sulfanilamide is the first choice of many experienced observers for the treatment of streptococcal infections. (Lockwood, J S. Sulfanilamide in Surgical Infections, *THE JOURNAL*, Oct 5, 1940, p 1190. Chemotherapy for Infectious Diseases and Other Infections *ibid* Feb 8, 1941, p 513. Long, P H. *Bull New York Acad Med* 16 732 [Dec] 1940). Sulfathiazole, while appearing to have considerable value in staphylococcal infections, does not seem to be as effective in streptococcal infections, although Epstein found it effective in streptococcal impetigo (Epstein, Stephan. Impetigo Contagiosa *Wiscconsin M J* 40 383 [May] 1941). Not enough reports are in as yet to determine the efficacy of sulfadiazine in streptococcal infections.



### PARAESTHESIA OF SENSE OF TASTE AFTER TONSILLECTOMY

*To the Editor*—Following tonsillectomy under general anesthesia a patient developed a shaggy patch in the center of the tongue and disturbances and diminution of the sense of taste. A neurologist tells me that it would be impossible to cut the nerves of taste during a tonsillectomy. Would traction on the tongue be the probable cause of this damage to the lingual nerves?

R. P. Little, M.D., New York

**ANSWER**—Tonsillectomy may be followed by a variety of disturbances in sensation affecting the tongue and pharynx, among which one occasionally observes a paresthesia of the sense of taste. It is more than likely that the cause lies not in any damage to the lingual nerve but rather to fibers of the glossopharyngeal since these supply the posterior third of the tongue with the special sense of taste in addition to supplying sensory fibers to a good portion of the operative field. Also trophic disturbances have been observed as the result of damage to the sympathetic fibers. Most of these paresthesias disappear in time, since the damaged fibers usually regenerate. If the postoperative scarring is extensive, the ultimate recovery may be long delayed.

### PTYALISM IN INFANT

*To the Editor*—A boy aged 1 year, who is tongue tied, has hyperfunction of the salivary glands while awake but not at night. The bibs are copiously saturated throughout the day. He has nine teeth and a good appetite, and he takes vitamins A, B, C, and D. Please give me your opinion and suggestions.

L. P. Diehl, M.D., Woodsfield, Ohio

**ANSWER**—Hypersecretion, or ptyalism, results from a wide variety of conditions, such as teething, inflammatory conditions of the mouth and throat, cretinism and idiocy, poisoning especially that of mercury, and functional nervous disturbances. In other instances there is only an apparent increase because the saliva is not swallowed. In the case mentioned the tongue tie has no influence. As the infant is apparently normal and healthy and does not have the difficulty at night, it might be presumed that the baby does not swallow its saliva when awake, allowing the excess to drool out of his mouth.

If the condition becomes very troublesome, atropine in therapeutic doses for an infant 1 year of age, administered several times during the day, may diminish the secretion of saliva.

### POSSIBLE BUEGER'S DISEASE

*To the Editor*—A man aged 36 noted five years ago a small round red spot on the calf of the right leg over one of the veins. This progressed slowly over the leg in the course of many months. He was given various forms of treatment without relief. The condition extended above the knee. Ligation of the saphenous vein was done, after which red spots broke out in a number of points over the entire leg, including the thigh. One spot appeared about the point of ligation, and another vein was ligated. The process was stationary until about three months ago, at which time a similar spot appeared on the other leg, anteriorly just below the knee. This progressed down a vein almost to the ankle, then struck an anastomosis and started up the anastomosing branch, it progresses about 1 inch (2.5 cm.) in ten days. It never gets very sore, there is never much swelling, and thrombosis seems to occur behind it, but complete healing with complete disappearance of any abnormality occurs within ten days to two weeks behind the progressing spot of redness. Wearing a pressure bandage has helped some. Attempts have been made to produce thrombosis of the involved vein ahead of the site of the inflammation but have not been successful. This condition seems to be a progressive phlebothrombosis. There is no evidence of endarteritis. Is the condition likely to involve the end arteries? What treatment should be given?

Duncan C. McKeever, M.D., Houston, Texas

**ANSWER**—A young man with migrating phlebitis should always be suspected of having Buerger's disease. Even if all the arteries of the foot are pulsating, excessive sweating, early myocardial damage and the absence of one of the radial pulses may point to a more general vascular involvement. The sedimentation rate and the coagulation time should be investigated to estimate the activity of the process and the possibly increased tendency to thrombosis.

Smoking should be absolutely forbidden. Adequate salt and water intake must be maintained. Twelve injections of sodium thiosulfate, given twice weekly, often help the disappearance of phlebitic patches. Obvious foci of infection should be eradicated. Heparin can be administered during the acute attacks. Even so, the phlebitic process may spread gradually into the arterial tree. It would be wise to obtain the help and advice of a consultant in vascular disease, as patients with the condition may have thrombi in various viscera and sometimes die of pulmonary embolism.

### UNUSUAL REACTION TO SHORT WAVE EXPOSURE

*To the Editor*—A young healthy white man who was exposed to the radiation from uncovered aerial feeders of an ultra high frequency transmitter of approximately 25 meter wavelength for about five minutes complained of a feeling of numbness all over his body. He also felt chilled as if he were drunk. The numbness and chilliness disappeared immediately after cessation of exposure, the feeling of inebriation took from a third to three quarters of an hour to wear off. Are there any records of similar reactions to ultra high frequency radiations?

M.D., New York

**ANSWER**—As far as can be determined, there is no report of similar reactions by persons exposed to radiation of extremely short wavelengths. Some observers have reported unusual symptoms in persons who were exposed to short radio waves of 6 meter wavelength or longer, but for the most part these observations have not been confirmed elsewhere. Schlophake mentioned that persons who remain for a long time in a short wave diathermy field may be subject to certain disturbances of the nervous system, which he listed as "a desire to sleep," "a high degree of enervation and prostration," "intense headaches" and "digestive disturbances." Krusen stated that his clinical observations over a number of years had never revealed any of the effects on the nervous system claimed by Schlophake, and in no instance, even on one occasion after exposure of a patient's hand to a wavelength of 6 meters for eight hours daily for five days, were any untoward reactions noted. It is surprising with exposure of only five minutes to a 25 meter wavelength that the rather amazing symptoms which are mentioned would be produced.

#### References

- Schlophake, Erwin. Human Beings as Antennas, *Physical Therapy* 49: 418 (Nov.) 1931.  
Krusen, F. H. *Physical Medicine*, Philadelphia, W. B. Saunders Company, 1941.

### SULFATHIAZOLE AND CUTANEOUS ERUPTION

*To the Editor*—A patient with malarial who was treated with received one month after treatment 2 Gm of sulfapyridine a dry fever of undetermined origin. Two weeks afterward the febrile symptoms recurred and he was given sulfathiazole, after which he had a rash. After a further four weeks he was given a large dose of sulfapyridine, as he had a perisplenic abscess and the surgeon considered an operation inadvisable because of the patient's condition. The rash has healed, but the patient had and has still, three months later, a painful rash. When exposed to sunlight the rash becomes more pronounced, but it is less noticeable on rainy days. It does not itch but is painful to touch and is worst on the legs, arms and neck. I should be glad to know whether this rash can be expected to disappear by itself or whether there is a possible cure for it.

L. Provo Kluit, M.D., New York

**ANSWER**—The first eruption noted was apparently due to sulfathiazole. The second eruption, which has persisted, suggests erythema nodosum, as the lesions are tender and situated on the legs, arms and neck. This most probably is not due to any of the sulfonamide drugs, as the type of eruption caused by them is usually of short duration. The splenic abscess mentioned might well have acted as a focus of infection and caused the eruption. If erythema nodosum is the correct diagnosis, the prognosis is good, as the disease disappears spontaneously.

### PERSISTING NONDIPHTHERITIC VAGINITIS IN CHILD

*To the Editor*—A girl aged 9 years has vaginitis of two years' duration. The cervix is normal. Repeated smears show diphtheria organisms which are inactive on inoculation. Schick tests have given negative results. Would there be any reason for giving diphtheria toxin in a therapeutic dose at this time, or would you suggest a treatment relating to diphtheria antitoxin? The discharge is profuse and the labia become excoriated from it. I believe that the treatments accepted in general practice have been used on the child in the past two years. I shall appreciate your interest in the case.

M.D., New York

**ANSWER**—Diphtheroid organisms are frequently a part of the normal vaginal flora. Since they do not produce diphtheria toxin, as the inquirer has demonstrated by animal inoculation, results are not expected from the use of diphtheria antitoxin. Persisting nongonorrheal vaginitis is frequently associated with persisting infection elsewhere, especially in the throat. In that case, relief of the original infection may relieve the vaginal symptoms. Another common cause of irritation, this may arise from tightness of the vulva, or obesity with heavy vulval pads, masturbation or the presence of a foreign body in the vagina and, probably, most of the cases require much local treatment.

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## THE STOMACH AND MILITARY SERVICE

CHAIRMAN'S ADDRESS

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CHICAGO

My purpose in this paper is to discuss briefly certain military aspects of gastric disease. Attention will be centered on the two most frequent conditions, peptic ulcer and chronic gastritis. The discussion will be based on civilian experience, on the records of the last war and on the reports from British and Canadian sources since the outbreak of the present conflict.

In the first world war gastric disorders were according to Hurst,<sup>1</sup> rather "rare among soldiers." Schindler<sup>2</sup> however, states that they were not rare in the German army, and Dick<sup>3</sup> recalls that in Base Hospital 11 of the American Expeditionary Forces in France digestive disorders were common. On the basis of civilian experience, indeed, one would not expect them to be rare. Autopsy studies indicate that peptic ulcer occurs at some time in at least 12 per cent of all adults. Furthermore the lesion appears about three times as frequently in males as in females, and the highest incidence occurs in the third decade of life, the period of greatest military service. The clinical recognition of gastric disease in 1914-1918 was in a rather elementary state, the direct objective methods of x-ray examination and gastroscopy were in the process of development. Haudel<sup>4</sup> had described the niche of gastric ulcer, and Cole<sup>5</sup> had clearly established the significance of the deformity and the crater of duodenal ulcer, the classic book by Carman and Miller<sup>6</sup> on "The Roentgen Diagnosis of Diseases of the Alimentary Canal" appeared in 1917, the method, nevertheless, was not widely used, and as far as the American army was concerned it was nonexistent (Case<sup>7</sup>). In the past two and a half decades, however, an amazing transformation has occurred. Gastrointestinal x-ray examination particu-

larly the mucosal relief technic under the influence of Akerlund<sup>8</sup> and Berg,<sup>9</sup> has been perfected to such a degree that now even very small ulcer craters may be demonstrated with an amazingly high degree of accuracy and with a frequency undreamed of in the years of the first world war. Modern gastroscopy has been developed and perfected during this period by Schindler,<sup>10</sup> using first the rigid gastroscope and later, in 1932, devising the flexible instrument now in use. And so today the diagnosis of gastroduodenal disease can be made by rather precise objective methods, whereas at the time of the first world war it was necessary to rely on clinical deduction.

In the present conflict "dyspepsia," according to Hurst<sup>1</sup> is "the largest single type of disease in the British army and from several points of view the most important medical problem of this war." In some of the early convoys from France the proportion of digestive cases was as much as 40 per cent and the total up to the emergency evacuation of base hospitals in April 1940 was 14.4 per cent. Out of 2,500 cases in various military hospitals in England in the second half of 1940 no less than 17.3 per cent were admitted for dyspepsia. The British have had a similar experience in the navy<sup>11</sup> and in the Royal Air Force. The Canadians have encountered the same problem in their expeditionary forces and in those at home.<sup>12</sup> Urquhart, Singleton and Feasby<sup>13</sup> found that while patients with symptoms relating to the upper part of the digestive tract constituted only about 4 per cent of some 25,000 indoor and outdoor patients seen for all causes in the fifteenth Canadian General Hospital in England from July 1, 1940 to June 30, 1941 the patients with digestive disorders nevertheless accounted for one third of the strictly medical outdoor patients and one fifth of those in the hospital medical beds in this period. In the United States Chamberlin<sup>14</sup> reports that the 316 patients in the gastrointestinal service of the Lawson General Hospital constituted 9 per cent of the total admissions between Aug. 1, 1941 and May 1, 1942 and 18 per cent of the medical patients.

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Read before the Section on Gastroenterology and Proctology at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1942.

<sup>1</sup> Hurst, Sir Arthur. *Medical Diseases of War*. Baltimore: Williams & Wilkins Company, 1941. p. 318.

<sup>2</sup> Schindler, Rudolf. Personal communication to the author.

<sup>3</sup> Dick, George F. Personal communication to the author.

<sup>4</sup> Haudel, M. *Zur roentgenologischen Diagnose der Ulcerationen in der Pars media des Magens*. München med. Wchnschr. 57: 1578, 1910.

<sup>5</sup> Cole, L. G. *The Diagnosis of Postpyloric (Duodenal) Ulcer*. Lancet 1: 1239 (May 2), 1914.

<sup>6</sup> Carman, Russell D. and Miller, Albert. *The Roentgen Diagnosis of Diseases of the Alimentary Canal*. Philadelphia: W. B. Saunders Company, 1920.

<sup>7</sup> Case, Lieut. Col. James T. M. C. L. S. Army Director Roentgenology. A. E. F. Personal communication to the author.

<sup>8</sup> Akerlund, A. *Röntgenologische Studien über den Bulbus duodeni*. Acta Radiol. suppl. 1, 1921. *The Roentgen Diagnosis of Ulcus Duodeni with Respect to the Local Direct Roentgen Symptoms*. Acta Radiol. 2: 14-30, 1923.

<sup>9</sup> Berg, H. H. *Röntgenuntersuchungen am Innenrelief des Verdauungskanal*. Leipzig: Georg Thieme, 1930.

<sup>10</sup> Schindler, Rudolf. *Gastroscopy: the Endoscopic Study of Gastric Pathology*. Chicago: University of Chicago Press, 1937.

<sup>11</sup> Allison, R. S. and Thomas, A. Robinson. *Peptic Ulcer in the Royal Navy: Symptoms and Pathology*. Lancet 1: 565 (May 3), 1941.

<sup>12</sup> *Peptic Ulcer: the Major Disability of Wartime*. editorial. Canad. M. A. J. 44: 508 (May), 1941. *Digestive Disorders in the Forces*. ibid. 45: 72 (Aug.), 1941. *National War Services*.

<sup>13</sup> Urquhart, R. W. I., Singleton, A. C. and Feasby, W. R. *The Peptic Ulcer Problem*. Canad. M. A. J. 45: 391 (Nov.), 1941.

<sup>14</sup> Chamberlin, Major Donald T. *Peptic Ulcer and Irritable Colon in the Army*. to be published.

In 1940 Payne and Newman,<sup>15</sup> working under the auspices of the Royal College of Physicians and the Leverholme Trust, made a very careful personal study of 287 patients disabled in the British army because of dyspepsia, covering the months of February, March and April, prior to the fall of France and the evacuation at Dunkirk. The results are shown in table 1. The majority of the patients seen were noncommissioned officers and men, but there was a small group of officers. Gross organic disease was present in 89 per cent of the cases studied, peptic ulcer was found in 96 per cent of these. Gastrosopic examinations were not made in the 28 cases (10 per cent) with diagnoses of "gastritis and duodenitis," "indefinite dyspepsia," "gastroenteritis" and "neurotic and functional" dyspepsia and hence the diagnosis may properly be questioned. Of 839 soldiers returned to Canada for medical reasons, 21 per cent were invalided because of peptic ulcer.<sup>13</sup> Chamberlin<sup>14</sup> reports that patients with peptic ulcer constituted approximately one third of the patients in the gastro-

TABLE 1—Dyspepsia in the British Army (Payne and Newman<sup>15</sup>)

|                                  | Cases from<br>France | Cases from<br>England | Total |
|----------------------------------|----------------------|-----------------------|-------|
| Proved ulcers                    | 167                  | 59                    | 226   |
| Gastric                          | 26                   | 16                    | 42    |
| Duodenal                         | 124                  | 40                    | 164   |
| Gastric and duodenal             | 5                    | 2                     | 7     |
| Anastomotic                      | 4                    | 0                     | 4     |
| Anastomotic and duodenal         | 1                    | 0                     | 1     |
| Site undetermined                | 7                    | 1                     | 8     |
| Probable ulcers                  | 13                   | 8                     | 21    |
| Gastric                          | 2                    | 0                     | 2     |
| Duodenal                         | 11                   | 8                     | 19    |
| Gastritis and duodenitis         | 5                    | 2                     | 7     |
| Carcinoma                        | 0                    | 1                     | 1     |
| Volvulus of stomach              | 1                    | 0                     | 1     |
| Indefinite dyspepsia             | 3                    | 1                     | 4     |
| Gastroenteritis                  | 0                    | 5                     | 6     |
| Neurotic and functional          | 7                    | 4                     | 11    |
| Misdiagnosis (nongastroduodenal) | 5                    | 6                     | 11    |
| Total                            | 201                  | 86                    | 287   |

intestinal disorders caused more rejections than any other disability except defective vision. It is rather surprising, therefore, to find that Saslaw and Junkermann,<sup>18</sup> in a recent study of the medical aspects of the Selective Service System in this country, do not mention digestive disorders (except insufficient teeth, gingivitis and hemorrhoids<sup>1</sup>) as a cause of rejection of 1,752 white men and Negroes during April, May and June 1941. Perhaps the draft and induction boards do not pay sufficient attention to dyspepsia. There is also some evidence that considerable variations exist in the practices of the different draft and induction boards. As far as peptic ulcer is concerned the surgeons, generals of the Army and Navy of the United States have wisely ruled that men known to have had an active ulcer within the past five years are not acceptable for service. However, such men are nevertheless admitted at times and for various reasons. The candidate or selectee may conceal the fact that he has an ulcer or he may not know it. Distress may have been altogether ignored or diagnosed as something else. If one wants to avoid all those errors, it would probably be necessary to carry out routine x-ray and gastroscopic examination before induction, but this is impossible, even if desirable. Men are inducted into military service at a rate of 150,000 or more a month. There are only 1,646 roentgenologists in the United States and Canada accredited by the Board of Radiology, and there are even fewer gastroscopists. Some of these men are in service, others carrying heavy civilian responsibilities. Consequently, in cases of dyspepsia the induction boards usually rely on clinical inquiry supplemented by more detailed examinations in questionable cases.

The man in service who develops dyspepsia, either for the first time or as a recurrence of an old distress, should of course be given adequate investigation and treatment. This has been partially assured through the efforts of Col. John Kantor to obtain the establishment of a section of gastroenterology in each hospital of one thousand beds or over. Presumably adequate facilities have been or will be provided. It is not possible to lay down arbitrary rules for the treatment of digestive disorders in general or of peptic ulcer in particular in military service. Gastroenterologists have never been able to agree on the best treatment of ulcers. Some are convinced of the advantages of the antacid regimens, others advocate diet alone, and the surgeons have their own varying concepts. The medical personnel of the armed forces vary in their attitudes toward peptic ulcer just as civilians vary. Consequently the surgeons are wisely following a liberal program based on individualization in treatment. It is recognized that under proper conditions, patients with peptic ulcer are capable of performing many important tasks. Here they may be assigned to limited duty within the continental United States under conditions permitting them to carry on such dietary and other therapy as may be necessary. It should be possible in this way to keep in limited military service many men with peptic

GASTRITIS

The subject of gastritis must be discussed in detail, I think, for just as there is a difference of opinion with regard to the proper treatment of peptic

18 Saslaw, Milton S., and Junkermann, Carl S. Medical Aspects of the Selective Service System. II. Follow Up Study. Vol. 1, 1941, p. 99 (Jan) 1942.

there is also a divergence of opinion with regard to gastritis its definition, origin symptomatology, diagnosis and treatment. By definition, gastritis means inflammation of the stomach. The word inflammation may be defined in different ways with varying connotations. Perhaps it will suffice to define it as local reaction to injury with or without demonstrable structural change. Usually in mucosal surfaces the reaction to injury takes place promptly and is evident objectively by hyperemia edema and exudation. Indeed pathologically one is reluctant to make a diagnosis of inflammation unless such changes are present. The diagnosis of gastritis is frequently made purely on the basis of symptoms presumed to be of gastric origin and presumed to be due to gastric inflammation. Thus the term acute gastritis is applied to any sudden and temporary digestive disturbance resulting from a variety of causes dietary indiscretions alcoholic debauches, food poisonings infections, emotional upsets. The presence of gastric inflammation is assumed. I doubt if one is justified in accepting as proved the close correlation thus implied between symptoms and gastric inflammation, although Beaumont<sup>19</sup> did describe transitory inflammatory changes in the mucosa under such circumstances. Nausea, vomiting and other so-called gastric symptoms may result from entirely extragastric causes.

The term chronic gastritis is likewise frequently used to refer either to digestive symptoms or to pathologic conditions of the stomach although the relationship between the symptoms and the mucosal changes has not yet been definitely established. The problems in this relationship may be illustrated by the so-called alcoholic gastritis. Numerous investigators notably Hirsch,<sup>20</sup> have failed to find consistent evidence of inflammation histologically in the stomachs of patients with chronic alcoholism. Schindler and Gray<sup>21</sup> in a gastroscopic study found chronic gastritis in only 45 per cent of 100 patients with chronic alcoholism. Morning nausea, with or without vomiting, was present in 80 per cent of the entire group. There seemed to be no relationship between the presence or severity of the morning sickness and the presence or absence of gastritis. Eighteen of the patients described an indefinite epigastric or abdominal distress. The stomach was normal gastroscopically in only 4 of these, in the other 14 some type of chronic gastritis was found. Schindler and Gray emphasized, however, "that only 4 of the 55 patients with normal or essentially normal stomachs complained of mild abdominal or epigastric distress. In contrast, definite subjective complaints were noted in 24 of the 45 patients with chronic gastritis. Severe or moderately severe gastritis was accompanied by symptoms in 20 of the 33 patients in whom it was found." This finding suggests a relationship between the gastritis and the distress, but further study is needed, as will be indicated. However, it is clear that the clinical diagnosis of "alcoholic gastritis" is inaccurate to the extent at least that in 55 per cent of the cases there is no gastroscopic evidence of inflammation.

Chronic gastritis in the strict pathologic sense is very common, though just how common is probably not

known. Entirely satisfactory autopsy or clinical statistics are difficult to obtain for various reasons. My associate Dr. Eleanor Humphreys, in a study of 22 well preserved stomachs obtained at autopsy from patients under 50 years of age dying from miscellaneous causes, found the textbook picture of a normal stomach in only 3 or 4. In 7 or 8 the changes were minor and probably insignificant, in 11 cases there was clearcut definite inflammation with or without atrophy in the body of the stomach. Gastroscopically also the incidence of chronic gastritis is high, being present in approximately half of the patients examined with the gastroscope because of digestive symptoms. Thus in one thousand such examinations made by Schindler in the United States the incidence of chronic gastritis was 41.8 per cent, in 255 examinations in Germany the incidence was 45 per cent. The correlation between the gastroscopic and the histologic changes has been studied by Swalm, Jackson and Morrison<sup>22</sup> and by Schindler and Ortmaier<sup>23</sup>. Many patients with gastritis have other organic disease such as peptic ulcer. Letendre and Schindler<sup>24</sup> in 171 cases of duodenal ulcer, found 99 cases (52 per cent) of chronic gastritis of various types. Schindler and Baumeier<sup>25</sup> in 91 cases of gastric ulcer found gastritis present at the initial examination in 38 cases (42 per cent). In pernicious anemia atrophic mucosal changes are the rule. In so-called simple achlorhydria, atrophic gastritis is a frequent finding. I have no doubt that in time a vast array of statistics will be assembled concerning the incidence of gastritis in various disease states. A study of the incidence of gastritis in presumably normal persons is also desirable. Present knowledge is not adequate. Such an investigation will be difficult to obtain because normal healthy persons are reluctant to undergo investigative procedures such as gastroscopy. The question of definition would also arise, i. e. should a person be considered healthy if gastritis is demonstrated gastroscopically?

Recognizing the great frequency of chronic gastritis pathologically, the question now arises as to its symptomatology and its clinical significance. Wolff and Wolf<sup>26</sup> have found experimentally that "sensitivity to pain in the stomach varies with the condition of the tissues. When the mucosa is acutely inflamed and edematous, pinching, faradic stimulation and moderately vigorous contractions result in pain. These stimuli do not cause pain when the gastric mucosa is in its normal state nor do they when only minor grades of gastritis are present, such as superficial erosions hemorrhagic and pigment spots." As in peptic ulcer, inflammation thus appears to lower the threshold for pain. The question therefore seems to be how much inflammation is required to produce a lowering of the threshold adequate for the production of pain. The answer must be found in clinical study. Schindler, Ortmaier and Renshaw<sup>27</sup> and other workers have struggled unsuccessfully to

22 Swalm W. A. Jackson Chevalier L. and Morrison Lester. Correlation of Clinical and Gastroscopic Findings in Chronic Gastritis with a Report of Cases. *Rev. Gastroenterol.* 3: 19-26 (Sept.) 1936.

23 Schindler Rudolf and Ortmaier Marie. Histopathology of Chronic Gastritis to be published.

24 Letendre Paul and Schindler Rudolf. Unpublished data.

25 Schindler Rudolf and Baumeier Robert I. Mucosal Changes Accompanying Gastric Ulcer: A Gastroscopic Study. *Ann. Int. Med.* 13: 693 (Oct.) 1939.

26 Wolff Harold G. and Wolf Stewart G. Personal communication to the author.

27 Schindler Rudolf, Ortmaier Marie and Renshaw John F. Clinical Symptoms of Chronic Gastritis. *Arch. Int. Med.* 60: 143 (July) 1937.

19 Beaumont William. Experiments and Observations on the Gastric Juice and the Physiology of Digestion. Plattsburgh N. Y. F. P. Allen 1833.

20 Hirsch E. F. The Gastric Mucosa in Delirium Tremens. *Arch. Int. Med.* 17: 354 (March) 1916.

21 Schindler Rudolf and Gray Seymour J. The Gastric Mucosa of Chronic Alcoholic Addicts. A Gastroscopic Study. *J. A. M. A.* 117: 1005 (Sept. 20) 1941.



differentiate the symptoms of the three primary types of chronic nonspecific gastritis, according to Schindler's classification, i. e. the superficial, atrophic and hypertrophic. My own experience has led me to the conclusion that these simple forms of gastritis do not produce symptoms. It must be remembered that abdominal distress is usually the indication for the gastroscopic exami-

TABLE 2—*Chronic Superficial and Hypertrophic Gastritis Without Disability*

|                | Gastroscopic Diagnosis   |
|----------------|--|
| Nov 12, 1934   | Chronic hypertrophic gastritis   |
| Sept 23, 1936  | Chronic hypertrophic gastritis of almost the entire stomach  |
| Oct 27, 1937   | Hypertrophic erosive gastritis of the distal portions of the stomach (improved) combined with superficial gastritis  |
| June 22, 1938  | Severe superficial gastritis (masking hypertrophic gastritis?)   |
| Oct 17, 1938   | Ulcer at lesser curvature above the angulus  |
| Nov 19, 1938   | Gastric ulcer at angulus   |
| Dec 19, 1938   | Severe ulcerative hypertrophic gastritis   |
| Jan 19, 1939   | Chronic superficial gastritis throughout stomach several erosions in angulus   |
| March 17, 1939 | Chronic hypertrophic ulcerative gastritis  |
| June 19, 1939  | Hypertrophic ulcerative gastritis of body of stomach (improved)  |
| Aug 21, 1939   | Hypertrophic gastritis of antrum, development of new, very small ulceration in the mucosa of angulus small area of hypertrophic gastritis  |
| Oct 2, 1939    | Chronic hypertrophic ulcerative hemorrhagic gastritis of lower portions of stomach with overlapping superficial gastritis  |
| Dec 4, 1939    | Severe superficial gastritis superimposed on hypertrophic gastritis  |
| Feb 7, 1940    | Extensive superficial chronic gastritis  |
| April 4, 1940  | Severe superficial gastritis of lower portions of the body   |
| July 8, 1940   | Hemorrhagic ulcerative hypertrophic gastritis of antrum and angulus  |
| July 22, 1940  | Former ulcerative hypertrophic gastritis now practically healed  |
| Sept 11, 1940  | Localized ulcerative hypertrophic gastritis of the angulus   |
| Nov 13, 1940   | Severe superficial gastritis with associated edema and reddening of antrum and body of stomach beginning atrophic gastritis of uppermost portions of stomach with blood vessel visualization |
| Feb 17, 1941   | Erosive gastritis of body and antrum of stomach  |
| June 23, 1941  | Benign gastric ulcer above angulus no definite gastritis   |
| July 14, 1941  | Definite benign ulcer above angulus, healing mild superficial gastritis of fornix  |
| Sept 3, 1941   | Chronic hypertrophic gastritis of lower portion of stomach, no certain ulcer visible, mild superficial gastritis of upper greater curvature  |
| Sept 15, 1941  | Ulcerative hypertrophic gastritis of angulus, extensive superficial gastritis of upper portions of stomach, no chronic ulcer   |
| Nov 10, 1941   | Unusually severe ulcerative hypertrophic gastritis   |
| Dec 1, 1941    | Hypertrophic ulcerative gastritis of antrum and angulus, with development of two exceptionally deep ulcers above the angulus   |
| Jan 1, 1942    | Hypertrophic ulcerative gastritis much improved, overlapping superficial gastritis   |
| March 13, 1942 | Ulcerative hypertrophic gastritis of lower one third of the stomach  |

nation and hence that the demonstration of gastritis does not prove it to be the cause of the distress. It has not seemed to me possible to differentiate the symptoms of the patients with gastritis from those without gastritis. Furthermore, I have not observed any relationship between the severity of the symptoms and the severity of the changes in the mucosa. The abdominal distress is usually that ascribed to the so-called irritable colon, a functional disturbance. One may question the validity of this diagnosis—and at the moment I hold

no brief for it—but the fact remains that, as a rule, in persons with this condition the distress may be relieved by the use of the traditional bland diet and antispasmodic drugs, even though the gastroscopic evidence of gastritis persists. Furthermore, while gastritis is present in nearly half of the cases of peptic ulcer, there is no relationship between the distress and the presence or absence of gastritis. If the ulcer is treated adequately there are no digestive symptoms even though a gastritis persists. Likewise in patients with pernicious anemia and a definitely abnormal gastric mucosa with atrophy and inflammation the digestive symptoms may be entirely absent or, if present, disappear quite regularly after the use of liver extract. To be sure, the gastroscopic appearance of the mucosa improves, but usually it does not become normal. It never regains its normal function, as is indicated by the failure of acid secretion to return, nor does it return to normal histologically, although the digestive symptoms usually disappear.

There is another aspect of the subject of symptomatology which should be mentioned, namely the positive and negative value of suggestion. Under almost all circumstances the power of suggestion is great, when backed by medical prestige and a new method of examination it becomes enormous. By way of illustration, the sacred aura surrounding the x-ray examination and the electrocardiogram may be mentioned. Many patients have been helped along the road to invalidism by inordinate concern over minor electrocardiographic changes. In both civilian and military life there are always certain persons glad to take advantage of minor physical defects, to use them as the basis for claims for disability insurance, as valid excuses for not working and for claiming exemption from military service. In such persons and in the more or less psychoneurotic person the capacity of suggestion to produce or prolong illness is very great.

A brief summary of 2 cases carefully observed for some time will perhaps serve as illustrations of the lack of relationship between gastritis and symptoms.

A man aged 42 came to the clinic on Oct 13, 1941 because of a "sensation of pressure under the left costal margin" of four years' duration. The history was otherwise negative. The physical examination, the laboratory studies and the roentgenologic investigation of the chest, gallbladder, esophagus, stomach, duodenum, terminal ileum and colon. Complicated achlorhydria (histamine) was demonstrated on two occasions. Gastroscopy by Dr. Schindler was reported as follows:

Oct 20, 1941, extensive atrophic ulcerative gastritis of the body of the stomach.

November 21, atrophic hemorrhagic gastritis of the body, with mild superficial changes of the posterior wall.

Jan 14, 1942, extensive atrophic gastritis plus severe superimposed superficial gastritis.

April 15, acute gastritis.

Treatment consisted of reassurance and the administration of  $\frac{1}{2}$  grain (0.03 Gm) of phenobarbital four times daily. There was no dietary restriction. The symptoms disappeared rapidly even though the gastritis persisted. The patient obtained position as a supervisory mechanical engineer in a tank plant, worked at least forty hours a week and, in emergency, as much as sixty hours weekly. The administration of phenobarbital has been discontinued, the patient remains clear and well, the gastritis persists.

28 Brown, Madeline R. The Pathology of the Gastric Mucosa in Pernicious Anemia and Subacute Combined Degeneration of the Cord, New England J. Med. 210: 473 (March 1) 1934.  
and Ungley, C. C. The Gastric Lesion in Pernicious Anemia. 1: 420 (Feb 19) 1938.



The second patient, a man aged 40, when first seen in October 1932 complained of abdominal distress of eighteen years' duration, dating from an injury in which "the ligaments were torn." The pain was said to have been cramplike and burning, chiefly epigastric, appearing two to three hours after meals and relieved by soda. The maximum gastric free acidity (histamine) was 70. Ten roentgenologic examinations of the stomach and duodenum were essentially normal in 1932, 1934, 1937, 1938, 1940 and 1941. Nevertheless in November 1932 the patient was hospitalized for two weeks of treatment (Sippy) for peptic ulcer. The distress disappeared. He continued the treatment in a very modified form and has remained well except for occasional distress relieved by a powder and closely correlated with 'nervousness, irritations of business, loss of temper, etc.' The results of the twenty-eight gastroscopic examinations, most of them carried out by Dr. Schindler, are shown in table 2. Throughout this period the patient has continued his work of supervising engineer in a utilities company and for the past five years has spent his spare time in manual labor remodeling his home. For the last five or six years he has recognized no dietary restrictions and has taken no medication except for an antacid powder on retiring, which he continues from force of habit. Occasional discomforts he has related to overwork and nervous strain. On Nov. 10, 1941 when Dr. Schindler found an unusually severe ulcerative hypertrophic gastritis, the patient stated that he had had no symptoms. When asked recently if his health had been sufficiently good to permit him to serve in the army if this had been desired, he replied enthusiastically that he knew he could have done so if he had been permitted to take his one powder a day and that probably he would not have needed even the one powder.

I have been speaking thus far in terms of the simple or uncomplicated superficial, atrophic and hypertrophic types of gastritis according to the classification of Schindler. It will be noted however, that in the case just cited the adjective "ulcerative" was frequently used in describing the inflammatory process in the mucosa. This patient did not have distress but I think it must be admitted that there are cases of ulcerative gastritis with ulcer-like pain or massive hemorrhage or both. This type of erosive or ulcerative gastritis seems to me related in certain instances at least to peptic ulcer. The gastritis appears to be not the cause of the ulcer but produced by the same mechanism, i. e. by the digestive action of acid gastric juice. Dragstedt<sup>29</sup> has reported the experimental production of such lesions. Clinically the same process is seen in the lower part of the esophagus, the so-called peptic esophagitis described by Winkelstein,<sup>30</sup> in the first portion of the duodenum and after gastroenterostomy, in the jejunum. It is found in its clearest form clinically, perhaps, in the gastrojejunitis noted in patients who have undergone a posterior gastroenterostomy or, more especially, a subtotal gastrectomy for peptic ulcer. These small anastomotic erosions or ulcers may heal or they may gradually increase in size until a frank jejunal ulcer is present. Patients with such lesions should be included, I think, in the group with peptic ulcer and not in the group with simple nonspecific superficial hypertrophic or atrophic gastritis.

If one concedes that ulcerative gastritis may produce epigastric distress, the question at once arises: Why not the nonulcerative types also? The answer would seem to be that in these forms the inflammation is not sufficient to bring about the requisite lowering of the gastric pain threshold.

#### ACTUAL DISABILITY

In passing from the subject of symptomatology to that of actual disability from chronic gastritis in the military forces I refer again to the study of Payne and Newman. The diagnosis in 7 of their 287 cases was "gastritis and duodenitis" and in 6 "gastroenteritis," although the criteria for these diagnoses were not stated. In addition there were 4 cases of "indefinite dyspepsia" and 11 of "neurotic and functional" dyspepsia. If the condition in all these 28 cases was in truth "chronic gastritis," the incidence of disability from this cause could be estimated as approximately 10 per cent. However gastroscopic examinations were not made apparently, and hence one is not justified in attributing the disability to gastritis even in this 10 per cent. Moreover, it seems to me highly probable that many of these were the result of nongastric causes. Hartfall's<sup>31</sup> statement is of interest in this connection: "I have reason to doubt the view that cases of persistent dyspepsia probably have severe gastritis." Gastroscopy [in] 58 otherwise negative dyspeptics with persistent symptoms has shown that in two thirds the mucosa was normal in one fifth trivial to moderate superficial mucosal changes were present. Only in about one seventh were serious organic mucosal changes found, including acute ulcer missed by x-ray, chronic patchy gastritis, anastomotic gastritis and atrophic gastritis." The incidence of actual disability for military service from the simple forms of chronic nonspecific gastritis seems therefore to be very low. Indeed, for the present it seems to me best to proceed on the basis that chronic nonulcerative nonspecific gastritis is not disabling whereas certain types of ulcerative gastritis may be related to peptic ulcer and may produce disability.

#### SUMMARY

Digestive disorders constitute a major problem in military medicine. The incidence of peptic ulcer in such disorders is very high. Consequently the policy of rejecting selectees who are known to have had an active ulcer within the past five years is wise and should be followed quite rigidly. In questionable cases a detailed investigation should be made and the candidate accepted only if it proves negative. When ulcers develop in service or recur, appropriate treatment should of course be given. When the lesion is healed the patient may be discharged or may continue on limited duty within the continental United States. He should not be allowed to return to full rations or active field duty.

The relation of gastritis to military service needs clarification. The clinical diagnosis of acute or chronic gastritis is vague, indefinite and unsatisfactory. Great care must be exercised in correlating symptoms with the mucosal changes seen gastroscopically. In my judgment the evidence available at present indicates that the so-called simple nonspecific, superficial, atrophic and hypertrophic forms of chronic gastritis do not produce symptoms and hence do not constitute a cause of disability. Ulcerative gastritis, however, may be associated with an ulcer-like distress or with massive hemorrhage or both and seems at times, at least, to be related to the lesion peptic ulcer. Patients with this condition for practical military purposes should be included in the group of patients with ulcer and treated accordingly.

<sup>29</sup> Dragstedt, Lester R. Pathogenesis of Gastroduodenal Ulcer. *Arch. Surg.* 44: 438 (March) 1942.

<sup>30</sup> Winkelstein, A. Her. Peptic Esophagitis. *J. A. M. A.* 104: 906 (March 16) 1935.

<sup>31</sup> Hartfall, Stanley J. Dyspepsia in the Army. *Lancet* 1: 124 (Jan. 25) 1941.

## DIABETIC COMA

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Two considerations led to the preparation of this report regarding our recent experience in the treatment of diabetic coma.

1 A growing realization that diabetic coma is an acute deficiency state, a condition in which the primary disturbance is a lack of insulin. In treatment, this fact should be the feature kept most prominently in mind by the physician. Everything else is secondary to the energetic supplying of really adequate amounts of insulin, regardless of how many units this may mean. We regard as regrettable the tendency of some clinicians in their talks and writings to wander away from this fundamental idea for the successful treatment of diabetic acidosis. Without large amounts of insulin given early, maximal success can never be obtained despite the carrying out of other secondary measures, chiefly the supplying of fluid and electrolytes abundantly, however physiologically sound they may be in their own right.

2 The fact that, in this clinic from Aug. 21, 1940 until July 15, 1942, 62 consecutive patients with diabetic coma were treated without a single death. It is believed that restatement of the methods employed is worth while, since our experience contrasts sharply with the high mortality still found in certain other clinics (23.6 per cent among 220 cases recently reported<sup>1</sup>).

## CLINICAL MATERIAL

*Patients*—From May 1923 to January 1942 there were treated in this clinic 525 patients with diabetic acidosis the carbon dioxide content<sup>2</sup> of whose blood plasma was on admission to the hospital or at any time during hospital stay 20 volumes per cent or less. The justification for this arbitrary selection of cases of diabetic coma has been discussed amply before. Careful consideration has led us to retain this method of classification. Intimate knowledge of the patients and critical survey of the data convince us that the cases included in the series are comparable in type and severity of acidosis to those regarded by physicians in general as cases of diabetic coma.

In table 1 are listed the outstanding features of the different groups of patients seen since May 1923. Of the 525 patients, 188 were males and 337 females. The average age at the time of coma was 30.5 years, and the average duration of diabetes prior to coma was 4.4 years. The average blood sugar value on admission to the hospital in coma was surprisingly constant from series to series, being 0.49 per cent for the whole group. The average initial carbon dioxide content of the plasma

for the entire group was 12 volumes per cent, this had risen on the second hospital day to 30 and on the third hospital day to 42 volumes per cent. The average initial blood nonprotein nitrogen value was moderately elevated, being 45 mg. per hundred cubic centimeter. The amount of sugar in the urine although large was not extraordinarily so, averaging for the group 3.2 Gm. per hundred cubic centimeters. The average amount of insulin used during the first twenty-four hours was 208 units for the entire series and 218 units for cases observed since February 1929. The mortality for the entire group of 525 cases was 11 per cent, there being 58 deaths. In the last series from January 1940 to January 1942, among 62 cases there were only 3 deaths a mortality of 4.8 per cent.<sup>2a</sup>

There was not a single death among the 62 patients, average age 29.4, seen from Aug. 21, 1940 to July 15, 1942.

*Precipitating Factors*—In our experience the commonest cause of diabetic coma continues to be laxity in treatment, consisting either of dietary indiscretion or neglect to take an adequate amount of insulin or both. These factors appeared to be responsible for the precipitation of coma in 33, or 53 per cent, of the 62 cases in the series from January 1940 to January 1942. There were an additional 6, or 10 per cent of the total, in which the onset of diabetic coma was the first recognized sign of diabetes. The second commonest precipitating factor was infection, having apparently been responsible for coma in 14, or 23 per cent of the 62 cases. In 2 cases the onset of coma came at the time of menstruation.

*Age*—The average age of the 525 patients in the total series was 30.5 years and of the 62 patients seen in the latest series 27.6 years. One hundred and thirty-nine of the 525 patients were 15 years old or under at the time of onset of coma. 84 patients were 50 years or more at that time. The youngest patient included in the total series of 525 was aged 11 months and the oldest patient was aged 77.5 years at the time of coma, both patients recovered.

*Duration of Diabetes Prior to Coma*—In the last three series of cases studied since October 1934, representing 42, 145 and 62 cases respectively, the average duration of diabetes prior to the onset of coma has been surprisingly constant, ranging from 5.2 to 5.6 years. In the latest group of 62 cases the average figure was 5.3 years, in 12 of the cases, however, the onset of coma was within one year of the time of onset of symptoms of diabetes.

*Mortality*—We naturally take pride in the fact that no death from coma has occurred in the 62 cases observed from Aug. 21, 1940 to July 15, 1942. We realize, of course, that this perfect record may depend in part on chance and may be spoiled at any time by the admission of a patient in a moribund or semicomatose condition beyond the possibility of recovery. However, our results during this twenty-two month period have given us new hope and added encouragement in our continuing effort to abolish death from diabetic coma.

It would be unwarranted to hope that no patient entering a hospital in diabetic coma will die.

From the George F. Baker Clinic, New England Deaconess Hospital. Over a period of years many associates have assisted in the treatment of the patients discussed in this report. More recently these have included Drs. Allen P. Joslin, C. Cabell Bailey, Charles W. Styron, Harold E. Eisele and Jane Byars.

<sup>1</sup> Beardwood, J. T., Jr., and Rouse, G. P., Jr. Diabetic Acidosis. A Study of Two Hundred and Twenty Consecutive Cases, J. A. M. A. 117: 1701 (Nov. 15) 1941.

<sup>2</sup> In cases observed prior to January 1939 the carbon dioxide combining power was determined.

<sup>2a</sup> To avoid confusion the reader's attention is called to the fact that by chance the number of cases seen between Jan. 27, 1941 and Jan. 15, 1942 (Series IX in Table 1) was 62, the same as the number seen between August 1940 and July 15, 1942.

will from time to time be those patients in whom a complicating disease is in itself fatal, and according to our custom such deaths would be listed as deaths from diabetic coma. However in the past a high percentage of these deaths have been in patients with acute overwhelming infections often pneumonia or septicemia, and at the present time and increasingly in the future one can justifiably hope that certain of these infections can be prevented or controlled by early and adequate sulfonamide therapy.

In comparing mortality statistics of one clinic with those of another it is essential that consideration be had for the type of patients included in the two series. For example as shown in table 2 the prognosis for

patients with blood sugar values over 1,500 mg per hundred cubic centimeters or with carbon dioxide values below 5 volumes per cent and patients with nonprotein nitrogen levels above 100 mg per hundred cubic centimeters all have recovered with prompt and energetic treatment. Except for a complicating disease of a nature so serious as to be fatal in itself, the single most important consideration is the depth and duration of unconsciousness prior to institution of treatment. This is apparent from a study of table 3. Among 514 cases for which data are available, the mortality among patients who were conscious on admission to the hospital was 4.5 per cent, as contrasted with 8.6 per cent for those who were drowsy or semicon-

TABLE 1—Summary of Five Hundred and Twenty-Five Cases of Diabetic Coma, Comparative Study, by Averages of the Nine Series

| Series and No of Cases | Age in Years | Duration of Diabetes Mellitus in Years | Date                 | Blood               |                     |                                 |                   |                  |                                    | Urine at Entrance | Sugar per Cent     | Insulin Units       |                    |                    | Fatal Cases |    |          |
|------------------------|--------------|--|----------------------|---------------------|---------------------|---------------------------------|-------------------|------------------|------------------------------------|-------------------|--------------------|---------------------|--------------------|--------------------|-------------|----|----------|
|                        |              |  |                      | Sugar per Cent      |                     | Plasma CO Combining Power Vol % |                   |                  | Non-protein Nitrogen Mg per 100 Cc |                   |                    | Diabetic Acid       | 1st Day            | 2d Day             | 3d Day      | No | Per Cent |
|                        |              |  |                      | 1st Day             | 2d Day              | 1st Day                         | 2d Day            | 3d Day           |                                    |                   |                    |                     |                    |                    |             |    |          |
|                        |              |  |                      |                     |                     |                                 |                   |                  |                                    |                   |                    |                     |                    |                    |             |    |          |
| I<br>24 Cases          | 31.5         | 2.4                                    | May 1923 to Mar 1925 | 0.47 <sub>23</sub>  | 0.20 <sub>3</sub>   | 15 <sub>1</sub>                 | 33 <sub>3</sub>   | 31 <sub>10</sub> | 47 <sub>10</sub>                   | — + + +           | 3.3 <sub>1</sub>   | 154 <sub>1</sub>    | 63 <sub>—</sub>    | 58 <sub>1</sub>    | 5           | 21 |          |
| II<br>28 Cases         | 31.6         | 2.8                                    | Apr 1925 to Feb 1927 | 0.49 <sub>25</sub>  | 0.20 <sub>3</sub>   | 14 <sub>—</sub>                 | 29 <sub>3</sub>   | 30 <sub>10</sub> | 46 <sub>11</sub>                   | — + + +           | 3.4 <sub>3</sub>   | 166 <sub>25</sub>   | 59 <sub>—</sub>    | 49 <sub>—</sub>    | 4           | 14 |          |
| III<br>53 Cases        | 29.1         | 4.0                                    | Mar 1927 to Feb 1929 | 0.53 <sub>—</sub>   | 0.21 <sub>10</sub>  | 13 <sub>3</sub>                 | 28 <sub>—</sub>   | 38 <sub>1</sub>  | 60 <sub>33</sub>                   | + + +             | 3.1 <sub>3</sub>   | 183 <sub>3</sub>    | 40 <sub>—</sub>    | 39 <sub>—</sub>    | 5           | 9  |          |
| IV<br>74 Cases         | 31.3         | 3.5                                    | Feb 1929 to Aug 1931 | 0.49 <sub>1</sub>   | 0.20 <sub>1</sub>   | 11 <sub>—</sub>                 | 29 <sub>—</sub>   | 31 <sub>13</sub> | 48 <sub>—</sub>                    | — + +             | 3.7 <sub>1</sub>   | 252 <sub>1</sub>    | 49 <sub>—</sub>    | 41 <sub>—</sub>    | 13          | 18 |          |
| V<br>42 Cases          | 26.1         | 3.5                                    | Aug 1931 to Oct 1932 | 0.47 <sub>12</sub>  | 0.15 <sub>5</sub>   | 12 <sub>1</sub>                 | 28 <sub>—</sub>   | 33 <sub>—</sub>  | 37 <sub>1</sub>                    | + + +             | 3.9 <sub>10</sub>  | 201 <sub>1</sub>    | 51 <sub>11</sub>   | 45 <sub>—</sub>    | 2           | 5  |          |
| VI<br>55 Cases         | 28.5         | 4.0                                    | Oct 1932 to Oct 1934 | 0.51 <sub>—</sub>   | 0.17 <sub>10</sub>  | 12 <sub>—</sub>                 | 29 <sub>31</sub>  | 34 <sub>—</sub>  | 49 <sub>—</sub>                    | + + +             | 3.6 <sub>34</sub>  | 196 <sub>—</sub>    | 52 <sub>1</sub>    | 44 <sub>—</sub>    | 6           | 11 |          |
| VII<br>42 Cases        | 28.2         | 5.6                                    | Oct 1934 to Jan 1936 | 0.54 <sub>1</sub>   | 0.20 <sub>29</sub>  | 11 <sub>1</sub>                 | 30 <sub>31</sub>  | 41 <sub>5</sub>  | 49 <sub>18</sub>                   | + + +             | 3.7 <sub>1</sub>   | 210 <sub>11</sub>   | 66 <sub>11</sub>   | 61 <sub>11</sub>   | 3           | 7  |          |
| VIII<br>145 Cases      | 29.7         | 5.2                                    | Jan 1936 to Jan 1940 | 0.50 <sub>111</sub> | 0.17 <sub>127</sub> | 10 <sub>111</sub>               | 30 <sub>117</sub> | 46 <sub>6</sub>  | 37 <sub>61</sub>                   | + + +             | 3.6 <sub>131</sub> | 192* <sub>111</sub> | 43* <sub>125</sub> | 41* <sub>127</sub> | 17          | 12 |          |
| IX<br>62 Cases         | 27.6         | 5.3                                    | Jan 1940 to Jan 1942 | 0.44 <sub>—</sub>   | 0.15 <sub>—</sub>   | 12 <sub>—</sub>                 | 36 <sub>1</sub>   | 42 <sub>—</sub>  | 41 <sub>21</sub>                   | + + +             | 3.2 <sub>13</sub>  | 207* <sub>—</sub>   | 43* <sub>—</sub>   | 30* <sub>—</sub>   | 3           | 5  |          |
| Totals and Avg         | 30.5         | 4.4                                    |                      | 0.49                |                     | 12                              | 30                | 42               | 45                                 | +                 | 3.5                | 208                 | 60                 | 56                 | 58          | 11 |          |

\* Unmodified insulin. † Protamine zinc insulin. The subfigures indicate the number of determinations on which the average is computed in each series.

recovery among children is much better than among adult patients. Indeed from May 1923 until May 1942 among 139 children 15 years of age or under at the time of onset of diabetic coma we have seen only 1 death, a mortality of 0.7 per cent. Therefore, in the definitive testing of any given form of therapy, the experience with adult patients is much more valuable than that with children.

As has been emphasized repeatedly in the past, there is no single factor which can be correlated with death from diabetic coma, but usually a combination of various factors. The age of the patient, the depth of acidosis, the duration of unconsciousness and the level of the blood sugar, of the plasma carbon dioxide and of the blood nonprotein nitrogen all play important roles. However, patients over 70 years of age, patients profoundly unconscious, patients in extreme shock with no blood pressure reading obtainable on admission,

conscious and with 31.2 per cent for those who were unconscious when first seen.

Table 3 is of further interest in that a fair correlation is apparent between the mental condition and the plasma carbon dioxide content to mortality.

Of 211 patients with a carbon dioxide content of 10 volumes per cent or below, 15.6 per cent died, of 303 patients with a carbon dioxide value of 11 to 20 volumes per cent, only 7.9 per cent died. Of the 93 patients who were unconscious on admission to the hospital, 59 had a carbon dioxide value of 10 volumes per cent or below, and in these there was the highest mortality of any group in the entire series, 32.2 per cent of these dying. However, it must be emphasized that of the last 62 patients treated without a single death there were 12 who were totally unconscious and 34 who were semiconscious or drowsy. Total unconsciousness is by no means a barrier to recovery.

The 3 fatal cases included in the series of 62 instances of coma ended Dec 31, 1941 require explanation

CASE 1—A woman aged 40, with a history of schizophrenia of about twenty years' duration, appeared moribund when first

TABLE 2—Increasing Danger of Diabetic Coma with Advancing Age

| Age at Coma, by Decades | Total Cases | Deaths |          |
|-------------------------|-------------|--------|----------|
|                         |             | Number | Per Cent |
| First                   | 34          | 0      | 0.0      |
| Second                  | 200         | 6      | 3.0      |
| Third                   | 68          | 5      | 7.4      |
| Fourth                  | 75          | 7      | 9.3      |
| Fifth                   | 64          | 12     | 18.8     |
| Sixth                   | 52          | 21     | 40.4     |
| Seventh                 | 23          | 5      | 21.7     |
| Eighth                  | 9           | 2      | 22.2     |
|                         | 525         | 58     | 11.0     |

seen, April 3, 1940. The patient was not known to have diabetes, although from symptoms it seemed possible that the disease had existed from about January 1940. The diagnosis of diabetes and diabetic coma had been made by the patient's sister, who is the mother of one of our diabetic patients and the daughter of another. When the patient was first seen

a large carbuncle of the neck. The patient was given large doses of insulin, which brought about satisfactory recovery from the diabetic acidosis. On August 14 the carbuncle was incised and drained. A further incision and drainage was necessary on August 24. On August 25, the twelfth day in the hospital and long after his recovery from the acidosis, he became unconscious, developed a right hemiplegia and died within twenty-four hours. Postmortem examination disclosed a large pituitary tumor of the chromophobe type, which had grown out of the sella turcica and extended up into the brain.

CASE 3—A woman aged 32 with diabetes of five years' duration was admitted in profound acidosis on Aug 17, 1940. On admission the plasma carbon dioxide content was 4 volumes per cent and the blood sugar value was 550 mg per hundred cubic centimeters. During the first six hours in the hospital she was given 500 units of insulin together with 2,500 cc of isotonic solution of sodium chloride parenterally. Her general condition improved, and the blood sugar was brought to a satisfactory level and remained so throughout the rest of the stay. However, acidosis with attendant rapid, labored breathing persisted. Furthermore, the output of urine became steadily less and the blood nonprotein nitrogen content rose. Concentrated dextrose solution given intravenously did not stimulate diuresis. On August 19, when the blood sugar was 110 mg per hundred cubic centimeters and the plasma carbon dioxide content 10 volumes per cent, infusion of sixth molar sodium lactate solution intravenously was begun. During the

TABLE 3—Mental Condition and Plasma Carbon Dioxide Content Versus Mortality in Diabetic Coma\*

| Mental Condition        | Carbon Dioxide Content of Plasma |              |                     |                       |              |                     | Totals         |              |                     |
|-------------------------|----------------------------------|--------------|---------------------|-----------------------|--------------|---------------------|----------------|--------------|---------------------|
|                         | 10 Vol Per Cent or Below         |              |                     | 11 to 20 Vol Per Cent |              |                     |                |              |                     |
|                         | No of Patients                   | No of Deaths | Mortality, per Cent | No of Patients        | No of Deaths | Mortality, per Cent | No of Patients | No of Deaths | Mortality, per Cent |
|                         |                                  |              |                     |                       |              |                     |                |              |                     |
| Conscious               | 54                               | 4            | 7.4                 | 145                   | 5            | 3.4                 | 199            | 9            | 4.5                 |
| Drowsy or semiconscious | 98                               | 10           | 10.2                | 124                   | 9            | 7.3                 | 222            | 19           | 8.6                 |
| Unconscious             | 59                               | 19           | 32.2                | 34                    | 10           | 29.4                | 93             | 29           | 31.1                |
| Totals and averages     | 211                              | 33           | 15.6                | 303                   | 24           | 7.9                 | 514            | 57           | 11.1                |

\* Eleven patients, including 1 who died, with incomplete data have been excluded.

the pulse could barely be obtained, the systolic blood pressure was only 40 mm of mercury and the body was cold and mottled. The patient was given 200 units of insulin at once and a total of 1,000 units within the first six hours. Other therapy during this period included 5,500 cc of isotonic solution of sodium chloride subcutaneously. The next day her condition seemed much improved, she was responsive, the pulse and blood pressure were satisfactory, the urinary output was normal and values for blood sugar and carbon dioxide gradually returned to within a satisfactory range. However, later on April 4 and to a greater extent on April 5 the patient again became drowsy, barely responsive, breathed noisily and had periods of apnea. Since the patient was known to have had a very limited diet for several months and to have eaten practically nothing for five days, it was thought possible that her condition might be due in part to multiple vitamin deficiency. Consequently large doses of thiamine hydrochloride and nicotinic acid were given parenterally. By April 8 her general condition seemed definitely improved. However, late in that day her condition again became worse and she died suddenly. Permission for a postmortem examination was refused, so that the exact immediate cause of death could not be determined.

CASE 2—A man aged 49, with onset of diabetes in July 1936, was admitted on Aug 13, 1940 with a blood sugar value of 380 mg per hundred cubic centimeters, a plasma carbon dioxide content of 19 volumes per cent and a blood nonprotein nitrogen value of 51 mg per hundred cubic centimeters. There was much diacetic acid in the urine and 4.6 Gm of sugar per hundred cubic centimeters. The most important feature was

course of the next twenty hours 3,600 cc was given. This produced gratifying subjective improvement with easier breathing. The plasma carbon dioxide content on the morning of August 20 was 41 volumes per cent. Coincident with the secretion of urine increased, and in the twenty-four hours preceding death the volume of urine was 2,800 cc and the blood nonprotein nitrogen content had fallen from 103 to 81 mg per hundred cubic centimeters. However, the patient succumbed, presumably to her third handicap, that of pneumonia, bronchial and lobar, which was present on admission in the right lung and later spread to the left lung. On admission the temperature ranged between 102 and 103 F but returned to normal coincident with treatment with sulfapyridine. The morning of August 24 it seemed likely that recovery would take place, but a short time after the morning meal her condition rapidly became worse and she died. Unfortunately, permission for postmortem examination could not be obtained.

The third patient is one of the few admitted in diabetic coma to receive at our hands intensive alkali therapy since 1917, although the alkali was given for the diabetic ketosis but for an acidosis, presumably to inorganic acids associated with uremia, and followed in its wake. Furthermore, three methods—insulin, sodium lactate and sulfapyridine, were used with specific results.

Thus, of the 3 fatal cases, in only 2 did death actually play a role in death, and in each case it seems likely that other conditions not actually

nosed, since there was no postmortem examination, may actually have been responsible for death

#### OUTLINE OF TREATMENT

1 *Preparatory Measures*—The treatment of diabetic coma properly belongs in a hospital. Every effort should be made to transfer the patient at once to a hospital since the emergency is just as great as when a patient requires immediate surgical therapy. The hospital should be one in which laboratory service can be given at any time day or night, including holidays and Sundays. All preparations for treatment should be based on the fact that diabetic coma is an acute medical emergency in which early prompt, vigorous treatment is absolutely essential if good results are to be secured. When it is learned that a patient is to enter the hospital everything should be put in readiness, a bed should be prepared with blankets and hot water bottles and apparatus should be assembled for the giving of fluids subcutaneously or intravenously for gastric lavage and for enemas. The medical, nursing and laboratory staff should be informed to stand by and to remain in constant attendance until the patient is out of danger. If over the telephone it seems that the diagnosis is absolutely certain, then a preliminary dose of 50 units of insulin may be ordered given at home or on the road to the hospital. Immediately on arrival at the hospital, intensive treatment begins.

On reception at the hospital the patient is put to bed, well covered with blankets and surrounded by hot water bottles placed outside the blankets so that there is no possibility of burning the skin. The history and physical examination are carried out at once as completely and yet as quickly as possible. Even before this is done, a urine specimen is obtained and venous blood is withdrawn for the determination of the blood sugar, plasma carbon dioxide, nonprotein nitrogen and chloride content. The blood and urine specimens are given at once to the laboratory technician so that the analyses can be started without delay and reported as soon as made. If the patient is unable to void, urine may be obtained by catheter, although catheterization is to be avoided if possible because of the danger of urinary tract infection.

2 *Insulin*—Insulin must be accorded first place in any discussion of the treatment of diabetic coma. Other measures, such as the providing of warmth, adequate fluids and salt intake, and stimulants, all have their place, but no physician will achieve a good record in the treatment of diabetic coma unless he always keeps in mind that a truly adequate amount of insulin given early is the most important measure. We commend enthusiastically the way in which Olmsted<sup>3</sup> begins the summary of a recent article. "The principles of treatment of diabetic acidosis as recommended in this [Olmsted's] clinic are: 1. The fearless use of large doses of insulin."

The first dose of insulin varies from 20 to 100 units of the regular or crystalline variety given subcutaneously. The dose for the average patient is 50 units. Particularly if the patient is unconscious and in shock, an accompanying dose of the same size may be given intravenously. In an average case a second dose of like amount is given one-half hour later. By this time at least some of the laboratory reports will be available, and in the usual case at least two other doses of insulin

of 50 units will be necessary at half hourly intervals. The average patient requires about 200 units of insulin within the first two to three hours of treatment. At the end of this time another sample of blood should be taken for determination of the sugar and carbon dioxide content, these values will serve to guide one as to whether treatment should be pushed more or less energetically. If despite the large initial dose of insulin the blood values have shown little or no tendency to return toward normal, even larger doses of insulin should be given more frequently. Thus at times it may be necessary to give as much as 100 or more units of insulin at half hourly or hourly intervals. If, however, satisfactory return of the blood values toward normal has begun, less energetic measures may be employed. Often the patient at this time will be able to void at hourly intervals, and if so the administration of insulin subsequently may be gaged by the outcome of qualitative Benedict tests done hourly, insulin being given according to a schedule somewhat as shown in table 4. As the patient's condition improves, the interval of collection of specimens and the giving of insulin may be increased to every two and later to every three or four hours.

Throughout all this time the clinical condition of the patient, including particularly the mental state and the type of breathing, will serve as valuable guides to the administration of insulin. However, even experi-

TABLE 4—Schedule for Administration of Insulin

| Benedict reaction        | Red | Orange | Yellow | Yellow-Green | Green or Blue |
|--------------------------|-----|--------|--------|--------------|---------------|
| Insulin (units) required | 24  | 20     | 16     | 12           | 0             |

enced observers will be misled at times if reliance is placed solely on clinical findings and impressions. Consequently, one should feel no hesitancy in securing as frequent laboratory determinations as necessary to gage the progress of treatment.

3 *Fluids and Salt*—The administration of fluids and salt may be discussed together, since their administration is usually combined. Prominent among the abnormalities present in diabetic coma are dehydration, hemoconcentration and reduced peripheral blood flow.<sup>4</sup> The dehydration brought about by vomiting and the severe diuresis incident to glycosuria and acidosis is evident in the dryness of the skin and mucous membranes and the softness of the eyeballs. Not only has fluid been lost from the body but also there is loss of electrolytes, sodium, potassium and chloride. Fortunately, the latter deficit can be made up satisfactorily by the supplying of simple sodium chloride. Consequently the early, continuous and adequate giving of isotonic solution of sodium chloride intravenously, subcutaneously or both is second in importance only to the giving of adequate amounts of insulin. The administration of 1,000 to 1,500 cc should be begun within the first few minutes after admission to the hospital, and, depending on the degree of dehydration and general condition of the patient, this may be repeated one or more times within the first six hours of treatment. As time goes on and the patient becomes able to tolerate fluids by mouth, increasingly large amounts may be given in

<sup>3</sup> Olmsted W. H. Diabetic Acidosis. *N. Clin. North America* 26: 1-5 (March) 1942.

<sup>4</sup> Schecter A. E., Wiesel B. H. and Cohn C. Peripheral Circulatory Failure in Diabetic Acidosis and Its Relation to Treatment. *Am. J. Med. Sc.* 202: 364 (Sept.) 1941.



uted to the vitamin occurs relatively seldom and usually is rather slight. Symptomatic improvement occurred more often than objective improvement, but a few patients definitely showed significant subjective and objective improvement. Reduction in the erythrocyte sedimentation rate occurred only rarely. Often improvement lasted only a short while after treatment was stopped, Slocumb<sup>16</sup> also emphasized this temporary effect. The most frequent unpleasant effects were anorexia, nausea and vomiting, sometimes severe. Occasionally dryness of the mouth, increased thirst and polyuria were objectionable, in 1 case only 50,000 units daily caused these symptoms, soon followed by albuminuria, urinary casts and reduced renal function, for which no explanation but the effect of vitamin D appeared to exist. Hypercalcemia (above 12 mg per hundred cubic centimeters of serum) occurred in several cases. In 1 case serum calcium rose to 14 mg per hundred cubic centimeters while the daily dose of vitamin was 300,000 units, in another in which the dose was 200,000 units daily serum calcium rose to 16 mg per hundred cubic centimeters. A third patient,

in the treatment of psoriasis also.<sup>18</sup> Results in these cases are summarized separately in table 7. A higher percentage of this group showed improvement, but still the benefit was not very impressive. The lack of objective improvement, the infrequent reduction in the erythrocyte sedimentation rate, the occasional toxicity and the expense should be emphasized. Improvement, when it occurred with ertron therapy was much more often subjective than objective, and not infrequently patients would state that they felt better in general, "had more pep" and had less indigestion and constipation although improvement in rheumatic symptoms was not especially noted. We wished to determine how much of this improvement might be psychogenic to test this we preceded ertron treatment with the administration of capsules of lactose<sup>19</sup> which looked exactly like ertron. This placebo was given for one or two months in a manner just like ertron therapy and then ertron capsules were given, care being taken that the patient did not know of the change. Results of the test are presented in table 8. It was noticed that improvement seldom occurred during the administration

TABLE 5—Results in Thirty-Six Cases of Rheumatoid Arthritis Treated with Activated Ergosterol\*

| Average Daily Dose Vitamin D Units | Courses of Treatment | Improvement       |                | Reduction in Erythrocyte Sedimentation Rate | Toxic Effects         |          |               |
|------------------------------------|----------------------|-------------------|----------------|---|-----------------------|----------|---------------|
|                                    |                      | Subjective        | Objective      |   | Gastro-intestinal     | Polyuria | Hypercalcemia |
| 400,000                            | 2                    | 1++               | 0              | 0   | 2                     | 1        | 1             |
| 300,000                            | 12                   | 2+<br>1++<br>1+++ | 1+<br><br>1+++ | 2   | 3                     |          | 1             |
| 200,000                            | 24                   | 3+<br>2++         | 3+<br><br>1+++ | 2   | 4                     |          | 3             |
| 150,000                            | 4                    | 1+++              | 1++            | 1   | 2                     |          |               |
| 100,000                            | 1                    | 1                 | 0              | 1   | 1                     | 1        | 1             |
| 50,000                             | 1                    | 1                 | 0              | 0   |                       | 1+       |               |
| 25,000                             | 1                    | 1                 | 0              | 0   | 1                     |          | 1             |
| Total                              | 45 courses           | 14                | 6              | 6   | 13<br>(in 8 patients) | 3        | 1             |

Average cost for medicine at standard price, \$120 per patient  
Toxicity required cessation of treatment in 6 patients (16 per cent)

\* Ertron "

† Albuminuria, cylindruria and impaired renal function also existed

receiving 400,000 units, had an elevation in serum calcium to 19 mg per hundred cubic centimeters, and a fourth, who could not tolerate 200,000 units because of vomiting, could take 50,000 units every other day but had a serum calcium concentration of 14 mg per hundred cubic centimeters. When these high serum calcium values obtained, gastrointestinal symptoms were usually severe. In 16 per cent of all cases summarized in table 5, vitamin D treatment had to be discontinued because of toxicity. The cost of the drug as we employed it, at standard retail prices,<sup>16a</sup> was not small, it averaged \$120 a patient!

Experience with ertron therapy in other than cases of rheumatoid arthritis was much smaller. Results of studies on 8 patients with either osteoarthritis or fibrositis appear in table 6. In general, the data are similar to those we obtained in cases of rheumatoid arthritis.

We were especially interested in the effect of vitamin D on patients with rheumatoid arthritis and psoriasis (some having so-called classic psoriasis arthropathica<sup>17</sup>), for vitamin D has been reported beneficial

of the placebo and when observed it was relatively slight. By this criterion, benefit observed during ertron therapy must only seldom be psychogenic.

TABLE 6—Results in Eight Patients with Osteoarthritis or Fibrositis Treated with Activated Ergosterol\*

| Average Daily Dose Vitamin D Units | Number of Patients | Improvement     |           | Toxic Effects     |          |               |
|------------------------------------|--------------------|-----------------|-----------|-------------------|----------|---------------|
|                                    |                    | Subjective      | Objective | Gastro-intestinal | Polyuria | Hypercalcemia |
| 300,000                            | 3                  | 1+++            | 1++       | 0                 | 0        | 0             |
| 200,000                            | 5                  | 2+<br>temporary | 0         | 2                 | 0        | 3             |

Average cost for medicine at standard price \$80 per patient  
Toxicity required cessation of treatment in 1 patient (12 per cent)

\* "Ertron "

Treatment with vitamin D preparations other than ertron gave generally similar results, except that hypercalcemia occurred in a slightly higher percentage of cases.

16 Slocumb, C. H. Vitamin D in the Treatment of Infectious Arthritis, *Ann Int Med* 16: 241-246 (Feb.) 1942.  
16a The retail price has been reduced since this research was conducted.  
17 Dawson, M. H., and Tyson, T. L. Psoriasis Arthropathica, *Tr A Am Physicians* 53: 303-310, 1938.

18 Cedar, E. T. and Zon, L. Treatment of Psoriasis with Doses of Crystalline Vitamin D and Irradiated Ergosterol, *Rep* 52: 1580-1584 (Nov. 5) 1937. Krafka, J. *Wiener Wochenschr* 52: 1585-1586 (Nov. 5) 1937.  
19 Prepared and furnished for this specific study by J. M. A. Georgia 30: 398-400 (Sept.) 1941.

Results of this entire study of vitamin D therapy are certainly far from impressive of great value in this form of treatment<sup>1</sup>. It is beneficial in only a minority of cases, although in some instances significant improvement occurred which could be explained only by the effect of vitamin D or a coincidental natural improvement. In the majority of cases improvement when it occurred was only symptomatic and temporary, seldom could the course of the disease be considered to be favorably altered.

In view of these facts vitamin D in massive doses should not be used with a comfortable feeling that great benefit is certain to result. Our data would not support the contention that great benefit does result although some persons seem to be improved at least subjectively and not on a psychogenic basis when receiving high dosage vitamin D therapy. Ertrion, claimed by some to be nontoxic does have real potentialities for producing undesirable effects especially gastrointestinal, and hypercalcemia certainly results occasionally. The expense of the drug is considerable<sup>1</sup>. This form of therapy should not be relied on as the only form of treatment (as is all too commonly the case) for seldom is the course of the disease favorably altered. It would seem wise to consider

## VITAMIN K

Rawls<sup>21</sup> states that hypoprothrombinemia was found in about 50 per cent of patients with rheumatoid arthritis and in some patients with gouty arthritis. Administration of vitamin K restored the prothrombin level to normal, no mention is made of the significance of these observations to the rheumatic diseases.

Many investigators have considered various endocrinopathies important causative factors of chronic arthritis especially osteoarthritis. On this basis treatment with different endocrine preparations has been advised.

## THYROID

Many investigators have studied the thyroid activity of patients with chronic arthritis. It has been reported that hyperthyroidism is peculiarly frequent in arthritic patients, others state that hypothyroidism is predominant. More recent workers are certain that the majority of patients with chronic arthritis have normal thyroid activity but that hyperthyroidism or hypothyroidism may occur in patients with arthritis, and when dysthyroidism exists it usually has no relationship to the arthritis but is coincidental. There are some who believe that many cases of osteoarthritis are due to hypothyroidism, however, Bauer<sup>22</sup> is convinced that

TABLE 7—Results in Ten Patients with Psoriasis and Arthritis Treated with Activated Ergosterol\*

| Average Daily Dose Vitamin D Units  | Courses of Treatment | Improvement |           | Psoriasis | Reduction in Erythrocyte Sedimentation Rate | Toxic Effects     |          |               |
|---|----------------------|-------------|-----------|-----------|---|-------------------|----------|---------------|
|   |                      | Subjective  | Objective |           |   | Gastro-intestinal | Polyuria | Hypercalcemia |
| 300 000   | 12                   | 2+<br>4++   | 1+<br>2++ | 3+-       | 3   | 2                 | 1        | 1             |
| 200 000   | 2                    | 1+          | 0         | 1++       | 1   | 0                 | 0        | 0             |
| Total   | 14                   | 7           | 3         | 4         | 4   | 2                 | 1        | 1             |
| Average cost for medicine at standard price \$140 per patient.<br>Toxicity required cessation of treatment in 1 patient (10 per cent) |                      |             |           |           |   | (in 2 patients)   |          |               |

\* Ertrion

vitamin D only as an adjunct to a well rounded program of treatment the use of which might be helpful when other therapy, which might be more apt to arrest the arthritis was ineffectual or could not be employed.

## VITAMIN E

Patients with fibrositis have been treated with vitamin E (both natural and synthetic preparations). Stenberg and Ingham separately report that "all patients showed remarkable improvement"<sup>20</sup>. We have

TABLE 8—Results of Placebo Control of Vitamin D Effect in Twenty-Five Patients (Twenty-Eight Courses of Treatment)

| Improvement |   |           |
|-------------|---|-----------|
| Subjective  |   | Objective |
| Slight      | + |           |
| 2           | 6 | 0         |

started a study of the effects of treatment with this vitamin but it has not progressed sufficiently to make a final statement of our results. To date they are unimpressive.

subnormal basal metabolic rates occur no oftener among osteoarthritic patients than among any other group of patients of similar age and that there is no proof for the endocrine theory of osteoarthritis. Thyroid dysfunction and chronic arthritis are both common diseases, and it should not be surprising that they might coexist in some persons. It would seem wise, therefore that physicians should be alert to recognize dysthyroidism in patients with chronic arthritis and treat it when it occurs as they would in a nonarthritic patient. If hypothyroidism exists proper treatment with thyroid is indicated and when it has been controlled the patient may be significantly improved but improvement in the arthritis should not be expected directly as a result of treatment with this endocrine preparation.

## PARATHYROID

The theory that hyperparathyroidism is responsible for some cases of rheumatoid arthritis has led to parathyroidectomy as a measure of treatment. However, careful study has failed to support either the theory or the benefit of such treatment. I have seen arthritic patients whose parathyroids had been removed as a measure of treatment for the arthritis and the disease became worse. I have also seen rheumatoid arthritis

20 Stenberg C L. Vitamin E in the Treatment of Fibrositis. *Am J M Sc* 201:347-349 (March) 1941. Ingham D W. The Treatment of Fibrositis with Vitamin E. *Am J Med* 10:12 (Dec) 1941.

21 Rawls W L. Vitamin K in Other Than Hemorrhagic Diseases. *South M J* 74:1266-1272 (Dec) 1931.

22 Bauer H. The Diagnosis of the Various Arthritides. *New England J Med* 221:527-533 (Oct 5) 1939.

develop in a patient who had chronic hypoparathyroid tetany (post-thyroidectomy) for years. I am convinced that there is no direct relationship between parathyroid function and arthritis.

PITUITARY

Although there has been some study of possible pituitary effects on joints, treatment of arthritic patients

TABLE 9—Effect of Estrogenic Substance on Rheumatic Disease Occurring with Menopause

|            | Number of Patients | Drug Used                   | Results  |           |
|------------|--------------------|-----------------------------|----------|-----------|
|            |                    |                             | Improved | No Effect |
| Arthritis  | 9                  | Theelol<br>1 mg daily       | 4        | 5         |
|            | 3                  | Progynon B<br>2.7 mg weekly | 2        | 1         |
| Arthralgia | 6                  | Progynon B<br>1.6 mg weekly | 5        | 1         |

with pituitary preparations has been only rarely suggested. There is no justification for such treatment according to the present state of our knowledge.

ADRENAL GLAND

There is no evidence that the adrenal gland is in any way related to any type of chronic arthritis.

ESTROGENIC SUBSTANCE

Because of the fact that many women have arthritis for the first time or have an exacerbation of an already existing arthritis at the time of the menopause, and because still more have prominent rheumatic symptoms, especially arthralgia, at the time of the menopause, it is suggested that there is an intimate relationship between the gonadal hormones, and perhaps the whole endocrine system, and some forms of rheumatic disease. The term "menopause arthritis" has been used to refer to the joint disease occurring with the menopause, but no specific entity has ever been defined, sometimes joint changes typical of rheumatoid arthritis occur, other patients have quite characteristic osteoarthritis. Definite abnormalities of the joints certainly develop in many patients, so that the term "arthritis" is often

TABLE 10—Effect of Estrogenic Substance on Fibrositis Occurring with Hypomenorrhea

| Number of Cases | Drug Used                   | Results  |           |
|-----------------|-----------------------------|----------|-----------|
|                 |                             | Improved | No Effect |
| 3               | Theelol<br>0.6 gm daily     | 2        | 1         |
| 4               | Progynon B<br>1.6 mg weekly | 2        | 2         |

justified, however, most persons who have rheumatic symptoms during the menopause exhibit no definite articular changes, and in such cases the term "menopause arthralgia" serves to differentiate this from true arthritis.

One of the first endocrine preparations used to treat menopause arthritis and arthralgia was thyroid substance for sometimes thyroid deficiency definitely exists. In such cases benefit is derived from the thyroid.<sup>23</sup> However, with development of our knowledge regard-

ing the nature of the menopause, it became evident that use of estrogenic substance might more often be helpful. Numerous reports indicate that adequate treatment with a potent estrogen will often completely control the arthralgia and even arthritis which develop with the menopause both natural and artificial.<sup>24</sup> It is so often true that effective treatment for certain specific types of disease is used promiscuously that estrogenic substances have been employed in the treatment of many rheumatic conditions other than those coincidental with the menopause. We have been interested in learning what the limitations of usefulness of estrogen are and what advantages result from different routes of administration of the substance. We have therefore used the oral preparation "theelol"<sup>25</sup> and the substance "progynon B"<sup>26</sup> injected intramuscularly. Results in these cases are summarized in table 9. Theelol in the doses used caused improvement in 4 of our 9 patients with arthritis occurring with the menopause, and progynon B as used brought improvement in 2 of 3 cases. The number of cases studied is too small to make our figures statistically significant. It should be emphasized that many of our patients had arthritis (usually rheumatoid) before the menopause, arthritis developed in only a few during the menopause. In those patients who had

TABLE 11—Effect of Estrogenic Substance on Spondylitis Rhizomelica

| Number of Cases | Drug Used                                  | Results  |           |
|-----------------|--|----------|-----------|
|                 |  | Improved | No Effect |
| 5               | Theelol<br>1 mg daily                      | 0        | 5         |
| 3               | Diethylstilbestrol<br>4 mg daily (in case) | 0        | 3         |

showing signs of the menopause after arthritis, even improvement in the arthritis was slight or there was none, although typical symptoms of the menopause were effectively relieved by estrogen therapy. We could detect no particular difference in the effects of the oral and the injected substance provided sufficient doses were used. Significantly more of the substance was needed when given by mouth.

All the cases of arthralgia included in table 9 were so-called menopause arthralgia and it should be noted that good results were obtained in relieving the arthralgia as well as other menopausal symptoms of these patients. Sometimes quite large amounts of the substance were required, however—from 16 to 32 (10,000 to 20,000 rat units) every five or seven days—as emphasized also by Hall<sup>24</sup> and Dunn.<sup>27</sup>

In table 10 are the results of estrogen therapy in a few cases of "fibrositis" occurring with hypomenorrhea in young women. In some cases there was no improvement, but the degree of improvement was usually slight, always incomplete and usually temporary.

23 Hall, F. C., and Monroe, R. T. Thyroid Gland Deficiency in Chronic Arthritis, *J. Lab. & Clin. Med.* 18: 439-457 (Feb.) 1933.  
24 Hall, F. C. Menopause Arthralgia, *New England J. Med.* 101: 1026 (Dec. 29) 1938.  
25 Theelol (Dec. 29) 1938. Cohen, A., Dublin, N. Y. The Treatment of Atrophic Arthritis with Estrogen, *J. Clin. Med.* 22: 140-142 (Jan. 25) 1940.  
26 Ishmael, W. K. *J. Lab. & Clin. Med.* 27: 297-303 (Dec.) 1941.  
27 Dunn, C. W. Present Status of Endocrine Therapy, *N. Am. J. Clin. North America* 24: 1697-1708 (No. 1) 1941.

as used this form of therapy was not sufficient to control the rheumatic symptoms and was in most cases abandoned

Because spondylitis rhizomelica occurs predominantly in males and because estrogens have been shown to have a definite effect on pelvic ligaments,<sup>28</sup> it has been suggested that treatment with estrogens might be effective in this form of spondylitis. In 8 cases (7 males 1 female) in which we studied the effects of estrogenic substances orally with both natural and synthetic preparation we could observe no beneficial effect (table 11).

From our studies together with those of others it appears that in patients undergoing the menopause in whom rheumatic disease develops at that time adequate treatment with potent estrogenic substance may often have significant benefit on the rheumatism as well as on other menopausal difficulties. Oral preparations seem as effective as the injected substance when used in adequate amounts, by either route moderate to large doses may be needed to effect good results. Estrogen therapy had little or no effect on the rheumatic disease in our cases of existing arthritis when the menopause began in patients with fibrositis and hypomenorrhea and in persons with spondylitis rhizomelica.

#### SUMMARY

With the current tendency toward unbounded enthusiasm for various vitamin and endocrine treatments for chronic arthritis, it seems timely—yes even necessary—to emphasize the limitations in usefulness of these therapeutic agents. There is no known antirheumatic vitamin! It has not been clearly shown that any vitamin has any direct relationship to any rheumatic disease. It is true that deficiency of certain vitamins exists not infrequently in patients with chronic arthritis, in such cases adequate intake of the deficient food factor may materially improve the health of the patient, but it should not be expected that such treatment will directly benefit the arthritis. Vitamin therapy in this group of cases is a part of the treatment of the patient's general health and state of nutrition and not a "specific" treatment of the rheumatic disease. In some patients massive doses of vitamin D appear to have a beneficial effect, especially symptomatically, in most of our patients improvement from vitamin D could not be detected. There is little or no evidence that this vitamin favorably alters the course of the rheumatic disease especially rheumatoid arthritis. If used, therefore vitamin D preparations should not be relied on as the "one measure treatment" for arthritis. The potential toxicity and expense should be kept clearly in mind.

Neither is there known to be a hormone "specific" for arthritis, except in some cases of rheumatic disease developing with or shortly after the menopause, when estrogenic hormones, in adequate amounts orally or intramuscularly, are of distinct and apparently of direct benefit. In all other cases endocrine preparations should be helpful in the treatment of patients with rheumatic disease only when definite hypofunction of an internal secreting gland exists, and in such cases proper substitution therapy can be expected to be helpful only in correcting the deficiency state and the symptoms resulting therefrom and not directly to the rheumatic disease.

28. Sutor C J and Pomerantz Leo. Effects of Estrogen on Bones Joints and Ligaments of Castrated Guinea Pigs. Arch. Surg. 39: 992 1000 (Dec.) 1939.

## REHABILITATION AND PREHABILITATION

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Selective Service appreciates the privilege of discussing with the American Medical Association through the Section on Preventive and Industrial Medicine and Public Health, the subject of rehabilitation. This is a matter of considerable national importance at the present time.

Perhaps the subject can be best approached by referring to the third statistical survey carried out by Selective Service and appearing as Medical Statistics Bulletin No 1. This affords a basis for discussion and perhaps for action. It indicates that, of the 2,000,000 men examined up to May 31, 1941, 1,000,000 were rejected by the examining boards of Selective Service and the Army. The breakdown according to symptoms is given in table 1. This must not be interpreted as indicating 50 per cent invalidism or sickness of registrants or as indicating 50 per cent crippling of the total population of the country. The survey does, however, reveal a high incidence of defects sufficient to dis-

TABLE 1—Causes for Rejection

|                       |           |
|-----------------------|-----------|
| Illiteracy            | 100 000   |
| Teeth                 | 188 000   |
| Eyes                  | 123 000   |
| Cardiovascular system | 96 000    |
| Musculoskeletal       | 61 000    |
| Veneral               | 57 000    |
| Mental and nervous    | 57 000    |
| Hernia                | 56 000    |
| Ears                  | 41 000    |
| Feet                  | 36 000    |
| Lungs                 | 26 000    |
| Miscellaneous         | 159 000   |
| Total                 | 1 000 000 |

qualify for combat service and hence responsible for 50 per cent reduction in I-A manpower for the Army. Most of the rejections were of men at work, men with hidden defects which they covered up as they carried on in civil life.

#### THE PRESIDENT'S PLAN OF REHABILITATION

The President, like the nation as a whole, was greatly concerned over the high incidence of defects and the resulting curtailment of the manpower of the Army. He therefore called a conference at the White House on Oct 9, 1941 of those most concerned in this problem. He said, in effect, that he did not believe that the standards of the Army were too high or the rulings of Selective Service or the army examining boards too rigid. He indicated his wish that Selective Service rehabilitate 200,000 men—the rehabilitation to be carried out as far as possible by the family doctors and dentists in the registrant's home town, selecting such cases as could be rehabilitated in a reasonable time and at a reasonable cost for which he said funds were to be appropriated. These instructions were verbal. Immediately following this, a conference was called at Selective Service Headquarters of representatives of all the great outstanding medical and dental organizations of the country. The plan was discussed in detail and

Read before the Section on Preventive and Industrial Medicine and Public Health at the Ninety-Third Annual Session of the American Medical Association Atlantic City N J June 10 1942.

also the chief difficulties involved. The latter concerned, essentially, two matters: (1) certification of competence of physicians and dentists for specific procedures and (2) the surgical risk involved in physical rehabilitation of those in need of operations. Some time passed before the executive order materialized and before the funds were made actually available for the carrying out of this plan. Plans were formulated after consideration was accorded all the legal, financial and governmental angles involved. The problem became one of considerable complexity.

The original plans of Selective Service were entirely changed by Pearl Harbor and the declaration of war. Prior to that time it seemed a simple matter to rehabilitate 200,000 of these registrants without employing surgical procedures. But after Pearl Harbor the increased need for men became imperative. This necessitated changing of the standards of requirement by the Army, especially as they relate to the teeth and the eyes. Then 1-B men came under scrutiny and, as recently announced by the press after August 1 they will be actually inducted in considerable numbers. It became apparent therefore that most of the minor defects scheduled for rehabilitation by Selective Service could and would be waived, so that the original group scheduled for rehabilitation became acceptable to the Army as they were and without undergoing rehabilitation of any kind.

Nevertheless, pilot tests in rehabilitation were set up in Virginia and Maryland in February, and splendid cooperation has been accorded us by the physicians and dentists in these two states. It was determined at national headquarters that only medical and dental cases would be rehabilitated, which greatly limits the numbers concerned.

The Director of Selective Service, appraising this position and bearing in mind a greatly altered picture, felt that the results of the limited pilot test did not justify the current adoption of a rehabilitation program on a nationwide basis, as far as the Selective Service System was concerned. Since the War Manpower Commission had been recently created by the President to coordinate all matters pertaining to manpower, the director felt it appropriate to refer the problem to that body for consideration and action.

However, the program adopted and the work done as far as it goes will probably be of interest to the medical profession. It was necessary to set up groups of designated physicians, dentists and facilities for each of these states. In fact, they have actually been set up in nucleus for all the states of the country. In medicine, for instance, a list of licentiates of the national boards was submitted as a nucleus to the state directors, who, with their medical directors and medical advisory boards, prepared their final lists of physicians and specialists for each state for designation by the director. Somewhat similar procedures were used in dentistry. Only hospitals approved by the American College of Surgeons and the American Hospital Association were approved as facilities. The Veterans Administration schedule of fees was adopted as a guide in the matter of remuneration for professional services.

The development of a plan of rehabilitation may be likened somewhat to the development of a plant for the manufacture of airplanes. There, buildings have to be constructed, machinery and personnel assembled and supplies secured. In rehabilitation, plans had to be formulated, personnel assembled, regulations written and forms provided. It has been frequently said that it is more difficult to turn out the first plane than the

next succeeding 999, and this applies with equal force to this plan of rehabilitation. However just as planes appearing on the line express real accomplishment in relation to the manufacture of planes, so the completion of rehabilitation of registrants and their acceptance in the armed forces indicate true progress. Rehabilitation has been completed in some instances and a small number of registrants inducted in both Maryland and Virginia, sufficient, however, to indicate the possibility of the plan.

These pilot tests to date have revealed the possibility of a plan of rehabilitation and the concomitant satisfaction of the registrants as well as that of the designated physicians and dentists executing the plan. They also indicated that the procedure employed must be simplified. This led to a conference at Selective Service National Headquarters on Tuesday, June 2 at which it was determined that certain changes were necessary in the regulations and forms, leading to greater simplification.

The present procedure will probably be of interest to doctors generally. The new examination form D S S 221, serves both Selective Service and the Army. On this form the Army specifies the defects to be corrected and returns the form to Selective Service which, through the machinery set up, aims to effect this rehabilitation and resubmits the man to the Army for his induction. The registrant remains in class 1-A throughout the rehabilitation procedure.

The defects listed as correctible by the Office of the Surgeon General include the following:

- Uncinariasis, if severe
- Chronic blepharitis, if mild
- Pterygium encroaching on the cornea
- Conjunctivitis, chronic, simple, moderate
- Deviation of the nasal septum which definitely interferes with nasal breathing
- Nasal polyp, unless severe and irremediable
- Such conditions as chronic diseases of the skin of the face which disqualify for general military service, provided the individual has successfully followed a useful vocation in civil life
- Pilonidal cyst or sinus
- Ringworm, if very severe and not easily remediable
- Scabies, if very severe and not easily remediable
- Cysts and benign tumors of the skin of such size and location as to interfere with normal wearing of military equipment
- Hammer toe with rigidity
- Other abnormalities which, in the opinion of the examining physician, are disqualifying but remediable and which have not prevented the individual from following a useful vocation in civil life
- Simple goiter unassociated with toxic pressure symptoms
- Enlarged lymph nodes and benign tumors of the neck of such size and location as to interfere with wearing of a uniform or military equipment
- Simple adenomatous goiter
- Thyrolingual cyst
- Small fibroid lesions
- Foreign body in the lung. A person may be accepted if a foreign body has been removed from a bronchus and examination shows recovery without disqualifying conditions
- Benign tumors of the breast or of the chest of such size and location as to interfere with the wearing of a uniform or military equipment
- Herma—inguinal, femoral, umbilical or postoperative—irremediable by surgical treatment
- Large benign tumors of the abdominal wall
- Internal and external hemorrhoids not easily remediable
- Single fistula in ano if careful examination shows absence of tuberculosis
- Stricture of the urethra unless severe and irreparable



Cystitis, subacute if deemed remediable  
Varicocele if large  
Hydrocele if large  
Undescended testicle which lies within the inguinal canal  
Venereal diseases Cases of gonorrhea with complications,  
chancroid infection, granuloma inguinale and lymphogranuloma  
venereum

Pellagra, beriberi, scurvy and other nutritional deficiencies  
if mild and remediable by correction of diet

Simple goiter with definite pressure symptoms or so large  
in size as to interfere with wearing a uniform or military  
equipment

Malaria acute severe or malaria chronic, unless severe

If the program of rehabilitation is limited to medical  
cases only it will prove relatively unimportant and  
unproductive from the standpoint of increasing man-  
power for the Army. Thus, in Virginia less than  
100 medical cases were involved, while some 1 600  
surgical cases are left in the backlog for future consid-  
eration and action. In Michigan for the month of Feb-  
ruary 1942 only 76 cases were listed as medical in  
nature, while there exists a backlog of 1 200 surgical  
cases. On the other hand if the scope is broadened to  
include all diseases specified for correction by the Sur-  
geon General's Office and the range extended to include  
all the states of the Union, the rehabilitation of regis-  
trants will constitute a project of great magnitude,  
one of the largest ever undertaken by American medi-  
cine. At present, many thousand registrants await a  
decision.

Irrespective of whether the plan is applied on a  
narrow or on a broad scale, or whether it terminates  
as a pilot test or is adopted on a nationwide scale,  
Selective Service has succeeded in creating a model  
which can serve the needs of the nation in the reha-  
bilitation of men with correctible defects for the military  
forces and, in the event of necessity, also in industry.

#### LOCAL PROGRAM OF VOLUNTARY REHABILITATION

Interest in the rehabilitation of registrants is wide-  
spread at present. This is evidenced by diverse types  
of rehabilitation programs being carried on by various  
organizations in different parts of the country. Only  
a few will be mentioned.

The Kansas State Board of Health, with the aid of  
the medical profession, is carrying on an active reha-  
bilitation program in relation to tuberculosis and  
venereal disease. They are caring for 355 of the 697  
men rejected for tuberculosis and 619 of the 1,165  
venereal cases rejected by the Army up to March 1,  
1942. In Massachusetts a committee of the National  
Hospital Association has been organized and is actively  
engaged in several phases of rehabilitation. In Colo-  
rado an active program has been in operation in the  
dental field for more than a year.

Perhaps the most interesting and effective programs  
at present are those of the Selective Service Head-  
quarters of New York City and of the American Flying  
Services Foundation. A report of April 7, 1942 from  
Colonel Samuel Kopetzky, Medical Director, New York  
City, states that 9 630 registrants have been written  
to, 7 637 interviewed and 3 996 referred to doctors,  
dentists or clinics and hospitals for appropriate care in  
the correction of their defects. This work has been on  
a purely voluntary basis. All military surgeons agree  
that unless registrants are eager to serve the mechan-  
ical correction of their defects can add but little to their  
effectiveness as soldiers, hence surgery should be  
reserved for those desiring it. In New York several

hundred surgical operations have been performed with-  
out fatality, mishap or serious complication of any kind.  
The American Flying Service Foundation, New York  
City, under the leadership of Dr. S. M. Strong, has  
limited its activities to the rehabilitation of men for  
service with the air force. Through the cooperation of  
doctors and dentists largely on a voluntary basis, some  
2 700 have been given appropriate guidance and 700  
cases have accepted surgery to date, without fatality or  
serious complications. Over 90 per cent of those reha-  
bilitated have been accepted for military service.

These few instances will serve to indicate the preva-  
lence of interest in the rehabilitation program and the  
nature, extent and value of some of the programs now  
in operation.

#### SOME BROADER ASPECTS OF REHABILITATION

The President's plan of rehabilitation provides for  
an increase of manpower for the Army through the  
correction of defects easy of remedy in a limited num-  
ber of registrants. This represents, as the President  
intended it, should a limited program for a very specific  
purpose. However, the statistical survey which focused  
his attention on the prevalence of defects in registrants  
also tends to suggest the existence of such defects among  
the public in general. Whether or not such is actually  
the case must remain a matter of conjecture unless  
substantiating evidence is derived from sampling surveys  
specifically designed to answer this question. Common  
sense, however, tells us that the possibility of these  
defects being limited solely to registrants is slight indeed.  
It seems inescapable that the statistical survey—though  
limited to registrants—indicates widespread existence of  
physical defects among the general population.

This of course, raises the question of national  
rehabilitation. The utopian solution of this problem  
would involve the immediate correction of all correctible  
defects, deficiencies, disorders and diseases among all  
who are their victims, an idealistic project of herculean  
proportions and one altogether impossible of attainment  
under existing wartime conditions.

The winning of the war is now, and should continue  
to be our sole objective. Therefore the scope of any  
program of rehabilitation now and at any time should  
be determined by the war needs.

This country, of its own free choice, has elected to  
become the "arsenal of democracy," and this involves  
the production of the "sinews of war" for ourselves and  
our allies. In this connection, industry and labor are  
called on for almost superhuman effort. The hitherto  
undreamed of demands of industry for manpower carries  
with it an unprecedented concomitant demand for medi-  
cal personnel and service.

Sickness and ill health takes a tremendous toll of  
manpower and industry. According to the recent Gal-  
lup poll, this is unbelievably large—400 000 000 man  
days lost annually. This can best be visualized by pic-  
turing a thousand plants each employing a thousand  
men, shut down completely for a whole year. This is  
a situation which medicine must recognize and attempt  
to remedy.

#### REHABILITATION AND PREHABILITATION IN INDUSTRY

A most illuminating article appeared in the pages of  
*THE JOURNAL* recently from the pen of Dr. William A.  
Sawyer, medical director of the Eastman Kodak Com-

pany, Rochester, N. Y. In the article, Dr. Sawyer states, among other things, that 1 The physical qualifications necessary to be an industrial worker are considerably less rigid than those demanded by our military forces. 2 The program of Selective Service bears a certain similarity to the industrial preemployment and preplacement medical examination for the selection and classification of workers. Here there are four groups: I Physically fit for employment—no defects or impairment. II Physically fit for employment—minor defects, easily correctible. III Physically fit for certain restricted employment. IV Physically unfit for any employment (rejected). 3 In certain well organized plants, class II correctible defects are employed and followed up periodically while working until the condition has been taken care of adequately. 4 Industrial medicine comes nearer to preventive medicine than any other branch of the entire practice of medicine. 5 Under the ideal situation it is possible that industry could institute a more positive program on behalf of Selective Service. Industry could review all eligibles and offer examinations and advice concerning the correction of defects.

In this article Dr. Sawyer has dealt not only with the problem of incidence of disease but also with possible methods of meeting the situation adequately. He suggests a plan through which by foresight and planning the workman may have access to the best medical service in his home locality rather than to the cheapest

#### PREHABILITATION

Prehabilitation is a word coined by the Medical Division of National Headquarters, Selective Service, to designate the correction of remediable defects prior to actual examination by Selective Service or the Army Examining and Induction Station. The plan is simple, is easily understood and can be readily carried out and should result in a pronounced diminution in the percentage of rejections and a proportionate increase in the number of men inducted into the Army of those physically examined.

The plan provides that (1) registrants familiarize themselves with the physical standards required, (2) that registrants apply to their local physicians and dentists if they fall short of the stipulated standards, (3) that family physicians and dentists correct defects if they are remediable and (4) that registrants carry certificates of prehabilitation to local induction boards at the time they present themselves for examination.

When this program of prehabilitation was first suggested, circumstances were not propitious. At that time much doubt existed in the minds of many of the young men of the country as to the need for their services in the Army. Since Pearl Harbor and our participation in the war, the line of duty has become well defined and doubt no longer exists as to the need, which now becomes not only apparent but imperative. With public support, prehabilitation can come into general acceptance and prevent an infinite number of unnecessary rejections, especially if applied to the group of young men just below the age of induction.

#### THE PRESENT NEED FOR COORDINATION OF MEDICAL SERVICES

The war has charged medicine with unprecedented responsibility. The medical needs of our medical forces, the increasing demands of our essential workers, the necessity of improving the quality of wartime service

through appropriate research and the customary requirements of the civilian population are all immediate and all pressing. Never has the doctor been more in demand, never has his opportunity for service been greater. Under such conditions wisdom in the allocation of his services is essential to the national well-being.

Because of this situation there has been set up in this nation, in the office of the Federal Security Agency, a national committee of doctors, "Health and Welfare Committee," under the able leadership of Mr. Paul A. McNutt. This agency is set up for the specific purpose of preserving the health and welfare of the people. The medical profession must realize now that its complete cooperation in this endeavor is absolutely essential to its success. Furthermore, certain other fields are under Mr. McNutt's jurisdiction, the War Relocation Commission and the Procurement and Assignment Service, the latter dealing with the equitable allocation of doctors, dentists and veterinarians. These facts turn cogent reasons for medical cooperation with him and the committee on Health and Welfare. However, cooperation should be active, not passive, in character. Medicine should formulate its own plans now and enter them to the coordinator of health and welfare so that he may utilize our services to the best advantage of the nation, and along lines we most approve.

The success of the nation at war is determined not only by the might of its arms but by the health and productivity of its people. National health can be placed on a higher plane only by the improvement of individual health. Individual health, the health of our military forces, and national health, all fall within the province of the physician. Rehabilitation must be determined by the national needs.

The present situation affords medicine a golden opportunity to determine how it best can serve the nation now, in its hour of need. Our profession present has the opportunity of exercising true leadership in the job of making America healthy, strong and productive. Thus American medicine can and must hasten the hour of victory.

#### ABSTRACT OF DISCUSSION

DR. JOHN A. FERRELL, New York. Colonel Rowntree's discussion as to the Army's lowering its customary standards with regard to vision and teeth but rigidly enforcing the exclusion of all young men having any mental or neurological disability interested me. I would appreciate if you would illustrate the milder types or grades of mental disability which would indicate rejection. Would stammering, spasm, chorea and neurotic tendency exclude a draftsman? Of the physicians, engineers, bacteriologists and chemists fall into this category might be drawn into the civilian services.

DR. L. G. ROWNTREE, Washington, D. C. Our standards for admission are set by the War Department by the Selective Service. We act somewhat like a factory service. We make allowance for shrinkage, breakage, order, distribute it and then bring in the number to the prescribed quota. I should not discuss the subject of physical and mental disease in detail since it would lead to a discussion. In Selective Service we are rejecting at present all who have been committed for mental disease or are epileptics. We have never believed that the deficient should be considered for rehabilitation. It has been discussed with the Surgeon Generals. In many cases it is exceedingly difficult to make a diagnosis. In reaching a conclusion in the short time allotted to examination, being the case, there has been more and more

on the psychiatric examination by the army examining and induction stations. There have not been enough psychiatrists to fill the needs of our 6403 local boards. We have also had great emphasis on the importance of the medical history and on the registrant's clinical record. We are attempting to have set up in every state in the Union a central bureau for the assembling of such information bearing on the mental status of these registrants. All the information made available to us is to be passed on with the registrant to the Army. The Army does not want mental defectives. It does not want even stutterers and stammerers unless the affliction is of a very mild nature.

## TOXIC AMAUROSIS DUE TO QUININE

TREATMENT WITH SODIUM NITRITE ADMINISTERED  
INTRAVENOUSLY

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AND

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BROOKLYN

The widespread use of quinine by both physician and layman as a cold remedy, an analgesic and an eccholic as well as in the classic treatment of malaria would seem to merit the reporting of another case of a severe toxic reaction to this substance. The effects most frequently observed, even of ordinary therapeutic doses are disturbances of the sense of hearing and less frequently, a derangement of sight. In the case to be described tinnitus with moderate deafness developed, but the amaurosis that occurred completely overshadowed the loss of hearing.

The severity of the symptoms may be, and frequently is independent of the amount of quinine taken, since persons with sensitivity will show rapid and severe visual loss after swallowing a small amount of quinine in a cold remedy. Other persons will show such difficulties only after prolonged administration or after considerable overdosage.<sup>1</sup> Typically the patient will state that a curtain was drawn over the eye, beginning peripherally and finally causing central and total obscuration of vision. In cases of amaurosis the associated ophthalmologic observations are represented by dilated fixed pupils and a fundus picture of closure of the central retinal artery, i. e. noticeably narrowed retinal arteries somewhat dilated veins, intense retinal edema and a cherry red spot in the macula.

With the proper recognition of the condition and rapid therapeutic vasodilation the tendency is toward recovery with some loss of peripheral field. However cases of permanent blindness are on record.<sup>2</sup> Indeed one author stated that in every case of optic nerve atrophy without a demonstrable cause there should be a search for a possible sensitivity or toxic reaction to quinine.<sup>3</sup>

### REPORT OF CASE

S. P., a Negro woman aged 69 suddenly had chills and fever three days before calling for medical aid. She gave a history of having had a severe attack of malaria about twenty-five years before for which she had received quinine. How-

ever she stated later on closer questioning that her physician had discontinued administration of the drug after several days. Thereafter she used a concoction made by brewing grapefruit rinds and drank this as a form of tea. Since that time she had had many other attacks occurring at the rate of about one every two years for which she had not received medical attention but had used the grapefruit brew. The present attack began suddenly with a severe chill and a rise of temperature to 106° F. There were no pneumonic symptoms such as cough, production of rusty sputum or pains in the chest. The brew was administered without apparent effect because in approximately forty-eight hours another chill occurred and again the temperature rose. The patient was seen at this point by one of us (L. P.).

Physical examination revealed that she was emaciated, had pale mucous membranes and had a temperature of 106° F., a pulse rate of 120 and a respiratory rate of 26. There were no abnormal signs in the chest. The spleen was firm and enlarged to about 2 fingerbreadths below the costal margin. There was no enlargement of the liver. There were no hemorrhages on the mucous membranes or evidences of renal involvement. The blood pressure was 120 systolic and 80 diastolic. A diagnosis of chronic malaria was made. A blood count was performed, a blood smear made and quinine sulfate in doses of 5 grains (0.32 Gm.) ordered to be given three times a day. The blood count revealed 9000 white cells with 36 per cent polymorphonuclear leukocytes, 28 per cent lymphocytes, 12 per cent mononuclear leukocytes, 2 per cent eosinophils and 2 per cent basophils. Careful examination of a smear stained with Wright's stain showed some stippling of red blood cells and some young malarial parasites.

On the third day of medication after 40 grains (2.6 Gm.) of quinine had been taken the patient first complained of dimming of vision, ringing of the ears and moderate deafness. One more dose of quinine was given the patient by one of the family who attributed the symptoms to the malaria. Examination by one of us (L. P.) shortly afterward disclosed that the patient was totally blind and a fundus examination showed extreme pallor of the retina with a strong contraction of the blood vessels. The administration of quinine was immediately stopped and a cathartic was ordered. Prostigmine methylsulfate solution 1:2000 (2 cc. by hypodermic) was given at once for its vasodilating effect without avail. Sodium nitrite, 1 grain (0.06 Gm.) by mouth every two hours was also given without apparent effect.

On the morning of the fourth day after the quinine therapy was begun one of us (E. S.) examined the patient ophthalmologically. She was supine in bed apparently entirely unaware of her surroundings. The pupils were dilated to 7 to 8 mm. were slightly irregular and did not react to light directly or consensually nor was any effort to elicit a reaction to accommodation-convergence successful. Both lenses showed a few punctate cortical opacities and the vitreous of each eye also contained some fine punctate 'floaters'. The most dramatic ocular changes were in the fundi where a picture simulating bilateral closure of the central artery was seen. There was a large area of edema extending from each optic papilla temporally, passing above and below the macula and beyond it for a distance of about 1 disk diameter. A distinct cherry red spot was present in each macula. The retinal arteries were decidedly contracted while the veins were somewhat dilated producing a vein-artery caliber ratio of 4:1 instead of the usual 3:2. Both nerve heads showed blurring of the margins and a mild degree of pallor.

The digital tension in each eye was within normal limits. The vision in each eye was reduced to questionable light perception with no light localization.

In view of the severe visual impairment, the well defined contraction of the retinal arteries and the fact that prostigmine had not ameliorated the condition we felt that a more heroic measure should be employed. Accordingly 1 cc. of sodium nitrite solution (100 mg. To se) was administered intravenously.<sup>4</sup>

4 Pfamlin R. Treatment of Alcohol Tobacco Amblyopia with Nitrocleran. Klin Monatsbl f Augenb 85:787 (Dec.) 1950.

1 Evans I. N. Quinine Amblyopia. Am J Ophth 6:271 (April) 1923.

2 Duggan J. N. and Narayati B. P. A Case of Quinine Amblyopia with Central Color Scotoma of One Eye and Total Blindness in the Other. Brit J Ophth 15:164 (March) 1931.

3 Duggan J. N. and Narayati B. P. Quinine Amblyopia with Unusual Ophthalmoscopic Picture. Brit J Ophth 15:160 (March) 1931.

While the needle of the syringe was still within the vein, the patient dramatically declared that she experienced flashes of light before her eyes, photopsiae. Fundus examination one half hour later revealed a change in the vein-artery caliber ratio from 4:1 to 3:1, but no change in the degree of retinal edema. Four hours later another ampule of sodium nitrite was administered intravenously, after which the patient declared that she could see the bars of her windows, about 10 feet distant from her bed. At this time she was given a 2 per cent solution of ethylmorphine hydrochloride to be used topically, 1 drop in each eye three times daily, and tablets of vitamin B complex, two tablets to be taken twice daily.

Approximately four hours later another ampule of sodium nitrite was administered in similar fashion, and in about one hour she was able to distinguish the features of her children. During the morning of the next day another ampule was given. She was then able to recognize the primary colors on large test objects—25 mm in diameter. After the fourth injection, no more of the drug was administered. The following morning ocular examination disclosed that vision was 15/100 + in the right eye and 15/100 + in the left. The patient was hypermetropic, and refraction could not be performed in her home. The pupils were now 5 mm in diameter and reacted sluggishly to light directly and consensually and equally poorly to accommodation-convergence. There was only slight retinal edema, and the maculas appeared more normal by contrast. The vein-artery caliber ratio was now about 2:1, and it persisted at that value to the time of writing. There has been no recurrence of the fever and chills since the administration of quinine was discontinued. The patient was seen at the office of one of us (E. S.) approximately two weeks later. Her vision was now 20/100 in each eye and was improved to 20/30 + in each eye with a +1.75 D sph +0.50 C cyl axis 180, and she could read Jaeger type 1 with a +2.75 D sph added.

The pupils were now 4 mm in diameter and reacted promptly to light and accommodation-convergence. No retinal edema could be seen, and the vein-artery caliber ratio was still 2:1. The disk margins were still slightly blurred, and the mild pallor persisted. A perimetric examination with a 3 mm white target at 330 mm revealed an almost concentric 10 to 15 degree contraction in the visual field of each eye. The central color vision was normal. Peripheral field contraction is compatible with a toxic reaction to quinine and is to be expected.

#### COMMENT

There is still considerable difference of opinion as to whether the vascular change or the nervous degeneration is the primary lesion in the production of quinine amaurosis. Most recent work favors the vascular causation. Against this view, Marshall<sup>5</sup> stated that several observers have found that solutions of quinine salts when passed through the vessels of excised organs of warm blooded animals produce severe dilatation. Of course, these experiments were not in vivo, the organs having been dissociated from their various stimulative and inhibitive nervous elements. Druault,<sup>6</sup> after injecting quinine hydrochlorosulfate solution into dogs, found a rapid and early degeneration of the ganglion cell layers of the retina. He concluded that the quinine caused primarily a destruction of the retinal ganglion cells and the optic nerve and that the vasoconstriction played a further but secondary part in the degeneration of the nerve cells. Also, in support of this contention, cases have been reported of quinine blindness with no contraction of the retinal vessels.

The well known fact that the macular area (central vision) is relatively spared is an interesting point and

is difficult to explain. If we accept Druault's hypothesis that the quinine directly destroys the ganglion cells, keep in mind the central, relatively avascular area (the capillary loops surround but do not penetrate the central area 0.5 mm in diameter), a part of the retina is theoretically quinine free, and this portion of the perceptive apparatus is composed of the central and the adjacent ganglion cells. Thus the ganglion cells which are connected with the most centrally situated cones are located farthest from the quinine carrying blood vessels and escape destruction. This view is strictly theoretic.

On the other hand, successful modern methods of treatment, i. e. with peripheral vasodilators, seem to be proof that the initial lesions are vascular in nature and that the nervous elements, though touched, are not injured irreparably. It also seems that the vasodilating action should be on the muscular coat of the blood vessel rather than on the myoneural junction. De Bono<sup>8</sup> eliminated the role of the sympathetic nerve fibers in the vascular spasm when he injected a large amount of quinine into a semisympathectomized animal. The retinal spasm was most intense on the side in which the superior ganglion was removed. The lack of success in the present case of treatment with prostigmine (a peripheral vasodilator which acts by liberation of naturally occurring acetylcholine and is a sympathetic antagonist) would seem to favor this view.

The dramatic response to intravenous injection of a solution of sodium nitrite in the present case supports this view, since nitrites are known to act directly on the muscular coat of the vessel wall. It must be stated, however, that other investigators have obtained good results with acetylcholine<sup>10</sup> in the treatment of quinine amaurosis, although the treatment appeared to consist of many more injections than used.

#### THERAPY

The immediate discontinuance of administration of quinine is essential. Emesis and catharsis may be tried, but it has been shown that quinine appears in the urine about thirty minutes after a large dose is taken.<sup>7</sup> The prompt production of vasodilatation by inhalation of nitrites or by intravenous injection of sodium nitrite solution would seem to be the method of choice if any conclusion can be drawn from this case. Supportive stimulants, such as strychnine and digitalis, have their symptomatic indications but are not necessary in our case. Ethylmorphine hydrochloride was used locally for its vasodilating effect, and vitamin B complex was given because of its theoretic effect in protecting nerve structure.

#### SUMMARY

Complete amaurosis developed in a male patient treated with quinine. The total dose was 2.59 Gm. given over a period of three days. Intravenous injection of sodium nitrite solution produced a rapid and salutary effect.

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7 Chantiotis, A. L. Severe Poisoning by Quinine. Complete Blindness. Successful Treatment. *Arch. Ophth.* 23: 1935.

8 De Bono, cited by Chantiotis.

9 Edmunds, C. W., and Gunn, M. A. *Clin. Therapeutics*. Philadelphia: Lea & Febiger, 1921, p. 17.

10 Hartman, E., and Volin, J. Amaurosis in Tercholine Therapy. Improvement Especially in Tercholine Therapy. *Arch. Ophth.* de Paris 54: 246 (Feb.) 1924.

5 Marshall, C. R., in Hale White's Textbook of Pharmacology and Therapeutics. Edinburgh, J. & A. Churchill, Ltd., 1901, p. 597.

6 Druault, A. Recherches sur la pathogenie de l'amaurose quinique, Paris, thesis 1900, Recherches sur l'amaurose quinique. *Arch. d'ophth.* 22: 19, 1902.

FATAL POISONING FROM POTASSIUM  
THIOCYANATE TREATMENT OF  
HYPERTENSIONREPORT OF A CASE AND REVIEW OF  
THE LITERATURE

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AND

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Since Westphal<sup>1</sup> in 1925 reintroduced the use of potassium thiocyanate for the treatment of hypertension varying and conflicting reports have appeared in the literature concerning the merits of this treatment. Barker<sup>2</sup> in 1936 reported favorably on the use of thiocyanate for the treatment of hypertension and again<sup>3</sup> in 1941 reaffirmed his opinion from a study of 246 patients observed for periods ranging from two to ten years. That this opinion is shared by other clinicians and that the thiocyanate treatment of hypertension is becoming more generally used is seen from the number of recent publications to that effect.<sup>4</sup> However, others have felt that thiocyanates were not only dangerous<sup>5</sup> in the treatment of hypertension but useless.<sup>6</sup> The toxic manifestations encountered in clinical practice with thiocyanate are well known and have been carefully considered by Wald<sup>7</sup> and others. Because of the well recognized toxic effects of thiocyanate, the Council on Pharmacy and Chemistry has never accepted it and in 1929<sup>8</sup> advised against its use in the treatment of hypertension.

In the case to be reported death resulted from thiocyanate intoxication. The fatal intoxication occurred following administration of the usually prescribed amount of the drug and the blood cyanates were always at supposedly nontoxic levels. This case is therefore of general interest, since it illustrates the need of scrupulously careful observations for the toxic manifestations of thiocyanate during treatment for hypertension because in certain individuals the usually prescribed

amount of the drug may prove fatal. The case report and a review of the fatal cases of thiocyanate poisoning reported in the literature may help to prevent this tragic sequel to an increasingly popular method of treatment of hypertension.

## REPORT OF CASE

**History**—A white man aged 52, American, single, a janitor, who entered the St. Louis County Hospital on Sept. 30, 1941, had been well and active until September 11, when he complained of a severe throbbing headache, dizziness and mental confusion. Because these symptoms were severe and disturbing he was admitted for the first time to the St. Louis County Hospital that same day. The essential points of the physical examination at that time revealed the heart slightly enlarged to the left with the left border of dullness 1 cm. past the nipple line. The heart sounds were regular and of good quality, with the aortic second sound much louder than the pulmonary second sound. The blood pressure was 234 mm. of mercury systolic and 140 mm. diastolic. The liver could be felt 2 cm. below the right costal margin on deep inspiration. There was 3 plus albumin in the urine, and the urea clearance was 27 per cent of normal in the first hour. The nonprotein nitrogen content of the blood was 43 mg. per hundred cubic centimeters. The ocular fundi showed significant tortuosity of the vessels with nicking of the veins by the overlying arteries. The clinical diagnosis was "cardiovascular renal disease with hypertension" and on the fourth hospital day he was started on a daily dose of 6 grains (0.4 Gm.) of potassium thiocyanate. Two days later, on September 16, the blood cyanates were 42 mg. per hundred cubic centimeters. All the symptoms complained of on entry to the hospital were relieved following seven days of hospital care which included bed rest, sedation with elvir of phenobarbital and 6 grains of potassium thiocyanate daily. At the time of discharge from the hospital, on September 18, his blood pressure had fallen to 190 systolic and 110 diastolic, and the blood cyanate level was 45 mg. per hundred cubic centimeters. He was advised to continue the daily dose of 6 grains of potassium thiocyanate and to report to the outpatient clinic in one week.

On September 25, one week after his discharge from the hospital, he was seen in the outpatient medical clinic and reported subjective improvement. The blood pressure was remarkably reduced, being 160 systolic and 100 diastolic, and the cyanate level of the blood was 152 mg. per hundred cubic centimeters. A note on the chart made by the attending physician stressed the need of careful observation of the patient for signs of cyanate intoxication in light of the low urea clearance test observed in the hospital. The drug was continued, however, and the patient was instructed to return to the clinic in one week.

The final admission to the hospital was on September 30. For the forty-eight hours before admission he had complained of profound weakness, had had some mental delusions and had become increasingly stuporous. The patient's family had noticed some jerking movements of both extremities that were not accompanied by loss of consciousness. There had been no vomiting, diarrhea or cutaneous eruptions but he had complained of a moderate itching of the skin. There was no history of symptoms of hypertension or treatment of hypertension prior to his first admission to the hospital on September 11. The past history, family history and marital history were irrelevant.

**Physical Examination**—The patient was well developed and well nourished. He responded poorly to questioning and only after repeated queries. The skin of his face was flushed, but there were no eruptions or ulcerations. Movement of the left side of the face was slightly impaired as compared to the right side. The heart was slightly enlarged to the left. The heart rate was regular and the heart sounds were of good quality with the aortic second sound slightly accentuated. The blood pressure was 180 systolic and 89 diastolic. The edge of the liver was palpable just below the right costal margin. The neurologic examination revealed slight weakness in the grip

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1 Westphal, Karl and Blum, Robert. Die Rhodanthérapie des genuine arteriellen Hochdrucks und ihre theoretische Begründung. *Deutsches Arch. f. klin. Med.* 152: 331-333 (Oct.) 1926.

2 Barker, M. H. The Blood Cyanates in the Treatment of Hypertension. *J. A. M. A.* 106: 762-767 (March 7) 1936.

3 Barker, M. H., Lindberg, H. A. and Wald, M. H. Further Experiences with Thiocyanates. Clinical and Experimental Observations. *J. A. M. A.* 117: 1591-1594 (Nov. 19) 1941.

4 These include

Massie, Edward, Ethridge, C. B. and O'Hare, J. P. Thiocyanate Therapy in Vascular Hypertension. *New England J. Med.* 219: 736-740 (Nov. 10) 1938.

Robinson, R. W. and O'Hare, J. P. Further Experiences with Potassium Sulfo-cyanate Therapy in Hypertension. *ibid.* 221: 964-969 (Dec. 21) 1939.

Covey, G. W. The Use of Sulfo-cyanate in Arterial Hypertension. *Nebraska M. J.* 25: 363-369 (Oct.) 1940.

Griffith, J. Q., Jr., Lindauer, M. A., Roberts, Ella and Rutherford, R. B. Studies of Criteria for Classification of Arterial Hypertension. 1. Treatment with Thiocyanate. *Am. Heart J.* 21: 90-93 (Jan.) 1941.

Blaney, L. F., Geiger, A. J. and Ernst, R. G. Potassium Thiocyanate in the Treatment of Hypertension. *Yale J. Biol. & Med.* 13: 493-507 (March) 1941.

Kurtz, C. M., Shapiro, H. H. and Mills, C. S. The Results of Sulfo-cyanate Therapy in Hypertension. *Am. J. M. Sc.* 202: 378-392 (Sept.) 1941.

5 Ayman, David. Potassium Thiocyanate in the Treatment of Essential Hypertension. *J. A. M. A.* 96: 1852-1857 (May 30) 1931.

6 Hamilton, W. F., Fund, E. R., Slaughter, R. F., Simpson, W. A., Jr., Colson, G. M., Coleman, H. N. and Bateman, V. H. Blood Pressure Values in Street Dogs. *Am. J. Physiol.* 128: 233-237 (Jan.) 1940.

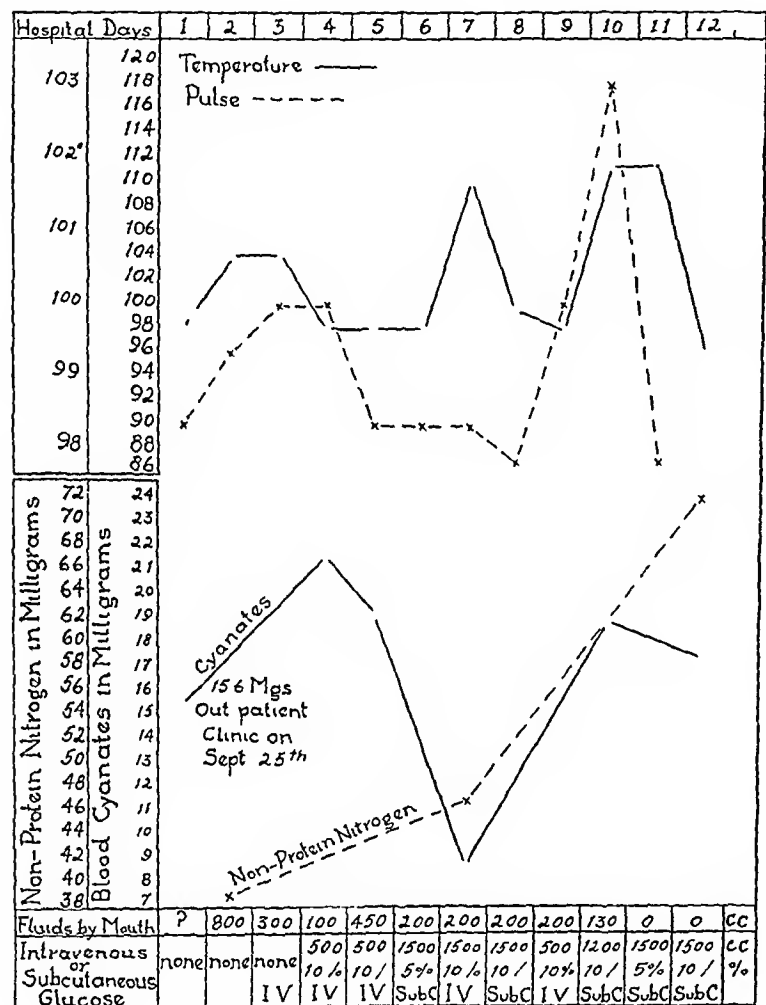
7 Wald, M. H., Lindberg, H. A. and Barker, M. H. The Toxic Manifestations of the Thiocyanates. *J. A. M. A.* 112: 1120-1124 (March 25) 1939.

8 Elvir, Kacyan, McNeil and Tablets, Kacyan, McNeil. Not acceptable for N. R. Reports of the Council. *J. A. M. A.* 92: 1838 (June 1) 1929.



of the right hand but no significant inequality of the superficial and deep reflexes on the right and left sides. The ocular fundi showed moderate vascular sclerosis but no hemorrhages.

**Laboratory Examination**—The leukocyte and erythrocyte counts and the hemoglobin content of the blood were normal. The reactions to the Kahn and Hinton tests were negative. The level of the blood nonprotein nitrogen was 39 mg per hundred cubic centimeters on admission. Subsequent determinations on October 6 and October 11 (the day of death) were 47 mg and 72 mg per hundred cubic centimeters respectively (as shown in the chart). Repeated examinations of the urine revealed only a slight trace of albumin on one occasion. The blood cyanate level taken on October 3, four days after admission, was 217 mg per hundred cubic centimeters. Subsequently on October 4, 6, 9 and 11 the level of blood cyanate was 192, 88, 189 and 174 mg per hundred cubic centimeters respectively.



Observations in case of poisoning from potassium thiocyanate

**Hospital Course and Treatment**—With the history of delirium, mental confusion, convulsive movements and the administration of potassium thiocyanate for hypertension together with a blood level of 156 mg of cyanate per hundred cubic centimeters reported in the outpatient clinic on September 25, a diagnosis was made of intoxication from potassium thiocyanate. For the first three days the patient was disorientated and had to be restrained in bed. Treatment consisted in phenobarbital for sedation, thiamine hydrochloride and forcing fluids. After the third day he had involuntary passage of urine, and the restlessness and the irrational mental state became progressively worse. The blood cyanates were 217 mg per hundred cubic centimeters on the third hospital day, and, in view of this high level of cyanate and the patient's increasingly poor condition, intravenous and subcutaneous dextrose was given in an attempt to facilitate and speed elimination of the cyanate by the kidneys. On the seventh hospital day the patient appeared slightly improved and the blood cyanates had fallen to 88 mg per hundred cubic centimeters, but the nonprotein nitrogen content of the blood had risen from 39 mg per hundred cubic centimeters on admission to 47 mg. His

general condition grew worse with increasing restlessness accompanied by periods of stupor, and on the tenth hospital day the blood cyanate level rose to 189 mg per hundred cubic centimeters. In spite of large amounts of subcutaneous intravenous fluids, the nonprotein nitrogen content of the blood on the twelfth hospital day was 72 mg per hundred cubic centimeters and the cyanate level had fallen but slightly to 174 mg. At this time the patient's condition was regarded as critical, and, in a final attempt to augment excretion of cyanate in light of the rising blood level of the drug and the even more disturbing rise of the nonprotein nitrogen content of the blood, 500 cc of 10 per cent dextrose with 2 cc of salyrgan was ordered every six hours. The temperature had fluctuated between 99 and 100.2 F, rose abruptly to 102.8 F at this time. The pulse rate was regular at all times and rose steadily from 80 beats per minute on admission to 135 on the tenth day. Respirations were regular and ran between 20 and 25 per minute. The patient died in the afternoon of the twelfth hospital day, following several hours of deep coma with the pulse remarkably slowed and the respirations shallow and rapid.

The clinical diagnoses were fatal intoxication from potassium thiocyanate, cardiovascular renal disease with hypertension, slight uremia and minimal cerebrovascular accident on the right.

**Necropsy**—Permission was given for examination of the thoracic and abdominal organs and the brain. The gross observations were as follows. The weight of the heart was slightly increased, being 430 Gm. The aorta showed a moderate number of slightly raised yellow plaques, and the coronary pulmonary and cerebral arteries showed only an occasional plaque. The kidneys were moderately reduced in size, the right weighing 107 Gm and the left 94 Gm. The capsules were removed with slight difficulty, revealing finely granular brown-red surfaces. Section of the kidneys showed the cortex slightly reduced in size but otherwise not remarkable. The lungs were edematous and moderately hyperemic. Except for a 2 by 2 by 0.5 cm area of old encephalomalacia in the cortex of the left temporal lobe of the brain, there were no abnormalities noted in that area. Determination of the amount of thiocyanate contained in the liver, kidney and heart muscle revealed 101 mg, 54 mg and 42 mg respectively per hundred grams of tissue examined.

Microscopic examination of the kidneys showed throughout the cortex scattered hyalinized glomeruli with focal accumulations of lymphocytes and plasma cells. Many of the renal glomeruli showed thickening of the basement membrane. The lumens of the arterioles were narrowed by proliferation of the intimal cells. Microscopic sections taken from the viscera were not remarkable.

The anatomic diagnoses were moderate arteriolar sclerosis, slight hypertrophy and dilatation of the heart, moderate arteriosclerosis of the aorta, slight arteriosclerosis of the coronary and cerebral arteries, old focal encephalomalacia of the left temporal lobe of the brain and moderate edema of the lungs.

#### COMMENT

The 9 cases of fatal thiocyanate poisoning here offer opportunity to make certain generalizations about the fatal toxic manifestations of this drug. In 6 of the cases the thiocyanate was taken therapeutically for hypertension, while in 3 it was taken with suicidal intent (cases 1 and 3) or with probable suicidal intent (case 2). The latter group of cases included in this study for consideration represent death from a single overwhelming dose of thiocyanate and are therefore instances of acute thiocyanate intoxication in man. The toxic effects of thiocyanates have been well studied in the past by Healy,<sup>9</sup> Nichols,<sup>10</sup> Wald<sup>7</sup> and others.

<sup>9</sup> Healy J C Therapeutics and Toxicology  
New England J Med 205 581 583 (Sept 17) 1931  
<sup>10</sup> Nichols J B The Pharmacologic and Therapeutic  
the Sulfocyanates Am J Med Sci 170 735 747 (A) 1925

pointed out essentially the same clinical signs and symptoms and pathologic changes reported in the experimental animals were observed in the human cases reported

There are sufficient clinical data available on the 6 cases in which thiocyanate was given for hypertension to allow adequate generalization about the signs and symptoms that are produced by this type of thiocyanate

*Reported Cases of Fatal Poisoning from Potassium Thiocyanate*

| Number | Author  | Year | Dosage  | Clinical Course   | Necropsy  | Thiocyanate in Blood and Tissues   |
|--------|---|------|---|---|---|--|
| *1     | Lesser A.<br>Vrilschr. L. gerichtl.<br>Med 16 97 1898           | 1898 | Unknown   | 58 year old magician who used thiocyanate to change water containing an iron salt into a colored solution resembling red wine drug taken with suicidal intent death in 10 hours after taking drug no clinical history given   | Extensive areas of necrosis of the mucosa of the mouth esophagus stomach duodenum and small intestine necrosis most severe in lower stomach and duodenum extensive hemorrhage from stomach and duodenum necropsy otherwise negative | No quantitative determinations strong traces found in stomach contents urine liver kidneys spleen and heart thiocyanate content of blood not determined  |
| *2     | Robert E. R.<br>Lehrbuch der In-<br>toxiaktionen 2<br>860 1906  | 1906 | 0.3 Gm (?)<br>ammonium<br>thiocyanate<br>taken in single<br>dose  | No reason given why drug was taken—probably suicide generalized convulsions patient seen by physician in 12 hours in spite of all efforts convulsions continued and death followed 28 hours after ingestion of drug stated dose of drug insignificantly small good possibility stated dose incorrect clinical history characteristic for thiocyanate intoxication | None  | Thiocyanate content of blood not determined  |
| *3     | Vintulesco J. and<br>Popesco A.<br>Ann d hyg pub<br>25 239 1916 | 1916 | 100 Gm. (?)<br>exact amount<br>not definite   | Toxic psychosis with delirium convulsions rigidity of spine and neck anuria, cold sweats and deep coma death in 2 days drug apparently taken with suicidal intent   | Necropsy negative   | Thiocyanate quantitatively identified in stomach lung liver and blood blood gave stronger reactions than tissues   |
| †4     | Healy <sup>9</sup>  | 1931 | 9 Gm. total<br>5 grains t. i. d.<br>for 1 week<br>5 grains b. i. d.<br>for 3 days   | Lowering of blood pressure followed by onset of severe weakness signs of vasomotor collapse and a semicomatose state the patient died in shock 19 days after discontinuance of the drug   | Necropsy not performed  | Thiocyanate content of blood not determined  |
| †5     | Healy <sup>9</sup>  | 1931 | 9 Gm. total<br>5 grains t. i. d.<br>1 wk. 5 grains<br>b. i. d. 3 days   | Weakness delirium coma and shock death occurred 2 weeks after discontinuance of drug  | Necropsy not performed  | Thiocyanate content of blood not determined  |
| †6     | Goldring and<br>Chasis <sup>11</sup>                            | 1932 | 9.77 Gm. total<br>in 15 days<br>0.652 Gm.<br>daily  | On 14th day after receiving 9.12 Gm. of drug patient complained of nausea became confused and incoherent hallucinations and delirium followed restlessness and convulsive movements anuria for 24 hours before death death 63 hours after thiocyanate was discontinued  | Necropsy congestion of lungs pericardial effusion hypertrophy and dilatation of the heart, subendocardial hemorrhages nephrosclerosis with profound arteriolar sclerosis  | Heart 9.7 mg per 100 Gm. of tissue kidney 15.4 mg per 100 Gm. of tissue liver 9.2 mg per 100 Gm. of tissue spleen 14.5 mg per 100 Gm. of tissue lung 17.0 mg per 100 Gm. of tissue brain 18.0 mg per 100 Gm. of tissue thiocyanate content of blood not determined |
| †7     | Goldring and<br>Chasis <sup>11</sup>                            | 1932 | 14.49 Gm. total<br>in 18 days<br>0.805 Gm.<br>daily   | First complaint was nausea toxic symptoms identical with those of case 6 died 6 days after onset of symptoms  | Necropsy not performed  | Thiocyanate content of blood not determined  |
| †8     | Garvin <sup>12</sup>  | 1939 | 9 Gm. total in<br>15 days 5<br>grains q. d.<br>for 5 days<br>5 grains b. i. d.<br>for 8 days<br>5 grains t. i. d.<br>for 2 days | Toxic psychosis with delirium convulsive movements of extremities death 9 days after development of the psychosis and 8 days after discontinuance of the drug   | Necropsy negative except for moderate arteriolar nephrosclerosis  | Highest level of blood cyanates recorded was 18.7 mg per hundred cubic centimeters   |
| †9     | Russell and Stahl   | 1942 | 5.6 Gm. total<br>in 14 days<br>6 grains q. d.   | Symptoms of a toxic psychosis with delirium hallucinations convulsive movements mental stupor and coma death occurred 13 days after onset of symptoms   | Necropsy negative except for moderate arteriolar nephrosclerosis  | Liver 10.1 mg per 100 Gm. of tissue kidney 5.4 mg per 100 Gm. of tissue heart 4.2 mg per 100 Gm. of tissue highest level of blood cyanates recorded was 21.7 mg per hundred cubic centimeters  |

\* Thiocyanate not taken for hypertension.

† Thiocyanate taken for hypertension.

intoxication From these cases it appears that thiocyanate intoxication resulting from repeated small doses of the drug as given in the treatment of hypertension produces a uniformly characteristic clinical syndrome. The first symptom usually complained of by the patient is profound weakness, which is probably due to the lowering of the blood pressure as the concentration of the drug reaches toxic levels. Symptoms of a toxic psychosis characterized by delirium, hallucinations, mental confusion and mental stupor were recorded in 5 of the cases. The appearance of any symptom suggestive of a toxic psychosis in a case in which thiocyanate is being administered should be regarded as adequate evidence of thiocyanate intoxication and possibly of a highly serious nature. All the patients having a toxic psychosis at some time during the course of the disease showed irregular convulsive movements, evidencing further the toxic effect of the cyanate on the central nervous system. Death in this group of patients occurred from three to nineteen days after the onset of the first symptoms and was preceded by a period of deep coma. These were essentially the same symptoms of intoxication noted by Nichols<sup>10</sup> and others working with experimental animals.

The amount of thiocyanate taken and the duration of the treatment in the 6 cases in which thiocyanate was given therapeutically for the hypertension is of interest and merits special comment and consideration, for in all instances the patient received no more than the standard and accepted therapeutic dose, as shown in the table. It is extremely interesting that in this group of patients the maximal amount of drug taken by any 1 patient was 15 Gm over a period of ten days. The smallest amount of drug taken was in the case reported by us, in which but 5.6 Gm of potassium thiocyanate was administered over a period of fourteen days. The blood cyanate levels were determined in the case reported by Garvin and the case we have contributed. The highest level of blood cyanate recorded in Garvin's case was 187 mg per hundred cubic centimeters, and the highest level in our case was 21.6 mg. Serious toxic manifestations are not supposed to occur at these levels, for according to Barker<sup>2</sup> the "optimum therapeutic level [of cyanate] would seem to range between 8 and 12 mg per hundred cubic centimeters" and that "significant toxicity begins to appear at from 15 to 30 mg." Barker further stated that "toxicity increased rapidly above the blood cyanate level of 20 mg, but serious manifestations were not noted until levels of 35 to 50 mg were reached." More recently Barker<sup>3</sup> has recorded a blood level of 45 mg per hundred cubic centimeters in a case in which an uncontrolled amount of thiocyanate was taken without fatal outcome with only symptoms of delirium and hallucinations. No doubt the levels of toxicity as given by Barker are applicable for the great majority of individuals, but certainly in rare instances a blood cyanate level of 15 to 21 mg per hundred cubic centimeters may be fatal, as the cases in this study illustrate. While the level of blood cyanate was studied in only 2 of the 6 cases treated for hypertension, essentially the same dosage was administered in the other 4 cases over comparable periods of time, whereby it may be reasonably assumed that the blood cyanate values in those cases could not have exceeded significantly the levels in the cases in which the blood cyanates were determined. It seems, therefore, that these cases are particularly instructive since they clearly demonstrate that in rare instances the usually prescribed therapeutic

dose of thiocyanate may prove to be a fatal dose. Apparently some individuals have an idiosyncrasy for the drug and have little or no margin of safety between the therapeutically effective dose and the fatal dose. This point has been stressed by Goldring<sup>11</sup> and by Garvin.

In 3 of the 6 cases in which thiocyanate was administered therapeutically complete necropsy studies were made, and in no instance was there any demonstrable anatomic change that could be directly attributed to the effect of the drug. These cases all showed various degrees of arteriolar nephrosclerosis and the usual effects of hypertension. Judging from the concentration of the thiocyanate in the body tissues in our case in the case reported by Goldring<sup>11</sup> and in experimental animals,<sup>7</sup> thiocyanate is stored in all the tissues of the body, and the blood level is dependent on and follows closely the concentration of the drug in the body tissues. The action of thiocyanate in hypertension is dependent on a thorough saturation of body tissues in order to attain sufficiently high blood levels to alter the vasomotor of the blood vascular system. However, the exact mechanism of action of the thiocyanate in lowering blood pressure is not definitely established. The fact that large quantities of thiocyanate must be stored in the body in order to reach a sufficient blood concentration to attain a therapeutic result creates a real hazard to the patient who shows signs of toxicity, since all patients with hypertension have some degree of kidney damage which makes the elimination of the thiocyanate uncertain and unpredictably variable for each patient. The impaired kidney function of our patient was undoubtedly an important factor in the fatal outcome, for there was good improvement until the seventh hospital day, when the nonprotein nitrogen content of the blood rose significantly. The blood cyanates had fallen to 8.8 mg and the patient's general condition had improved but following the rise in the blood nonprotein nitrogen the thiocyanate again rose and the patient's condition steadily worse.

Three of the cases (1, 2 and 3) are instances of acute intoxication from thiocyanate with death resulting from a single dose of the drug. The amount of drug taken in case 1 is unknown but must have been large, for death occurred within ten hours and there was necrosis of the mucosa of the gastrointestinal tract. In case 2 the stated amount is probably not correct, because 0.3 Gm of thiocyanate is too small a quantity to cause death, which was attended by the same clinical signs and symptoms as in the other 2 cases and is undoubtedly due to thiocyanate. It is impossible to determine accurately the amount of drug taken by the third patient but it must have been considerable, for a 100 Gm quantity of thiocyanate was found beside the patient and a few crystals of the drug remaining in the bottle.

These 3 cases are interesting as examples of the clinical symptoms and pathologic changes produced by acute thiocyanate intoxication. In 2 of the cases the clinical signs and symptoms are described, and in 2 cases (not the same 2) a complete necropsy was performed. Judging from the results it can be said that acute thiocyanate intoxication results in convulsions, coma and death in from twelve to twenty-eight hours. The drug, if taken in sufficient concentration, may have a corrosive effect on the

11 Goldring, William, and Chasis, Herbert. *Treatment of Hypertension I. Observations on Its Toxic Effects*. J. A. M. A. 49: 321-329 (Feb.) 1932.  
12 Garvin, C. F. *The Fatal Toxic Manifestations of Thiocyanate*. J. A. M. A. 112: 1125-1127 (March 25) 1919.

membranes of the gastrointestinal tract (case 1) causing extensive necrosis of the mucosa with hemorrhages. These observations are in full agreement with the results of acute thiocyanate intoxication in animals reported by Nichols<sup>10</sup>

## SUMMARY

A case of fatal poisoning from potassium thiocyanate used in the treatment of hypertension was observed. Death in this case resulted from the ingestion of 5.6 Gm of potassium thiocyanate given in 6 grain daily doses for a period of fourteen days. This is less than the usually prescribed amount of thiocyanate for the treatment of hypertension. Five other cases of death from thiocyanate employed in the treatment of hypertension have been collected from the literature thus making a total of 6 cases reported to date. In all the cases a definite clinical syndrome developed characterized by profound weakness and toxic psychosis with delirium, hallucinations, mental confusion and convulsive movements. The maximal amount of thiocyanate administered in any 1 case was 14.4 Gm over a period of eighteen days. The highest concentration of cyanate in the blood was in the case contributed by us here on one occasion 21.7 mg per hundred cubic centimeters was reported. Necropsy studies obtained in 3 of the 6 cases revealed no characteristic pathologic change that could be attributed to thiocyanate intoxication.

Three other cases of fatal thiocyanate intoxication have been collected from the literature in which the thiocyanate was not taken for hypertension. In each instance a single large (presumably so in 1 case) dose caused generalized convulsions and death in from ten to twenty-four hours. The drug was taken with suicidal intent by 2 of the patients and probably by the third patient also. The concentration of thiocyanate was sufficient in 1 of the cases to produce extensive necrosis of the gastrointestinal tract. These 3 cases are therefore instances of acute thiocyanate intoxication in man and clearly demonstrate that thiocyanate, if taken in sufficient quantities, can produce an acute and fatal poisoning.

## CONCLUSIONS

The thiocyanate treatment of hypertension is not free from complications which may even be fatal. In rare instances the dose of thiocyanate usually prescribed and regarded as safe for the treatment of hypertension produces a fatal intoxication, as shown by 6 of the cases collected for this study. In patients showing such an extraordinary toxicity from thiocyanate, a blood cyanate level of from 15 to 20 mg per hundred cubic centimeters should be regarded as critical.

**One Bowel Movement in Thirty-Four Days**—As I look back on those thirty-four days, rains and suns, heavy seas and flat calms merge and nothing comes out but a feeling of hunger and thirst and sadness. Yet there are some things I remember well like the day Aldrich caught the four-foot shark. He stabbed it in the gills and yanked it out of the water. Its skin was so tough that Tony had to hold the tail and Gene the head while I slit open the stomach. We ate the liver first. Next we explored the stomach finding two six-inch sardines. We gave Aldrich one as he had caught the shark, and Tony and I shared the other. Never have I tasted anything better. We devoured the rest of the shark's innards. Then we held up the head and tail forming a pocket in the middle into which the blood poured. It had a strong flavor but we drank it. Finally we ate as much flesh as we could. Incidentally it acted as a physic. Each of us had the only bowel movement on our thirty-four days at sea—Dixon Harold F. Three Men on a Raft, Life, April 6, 1942.

## Clinical Notes, Suggestions and New Instruments

### EMPIEMA COMPLICATING A PARAPHARYNGEAL ABSCESS

EDWARD PRESS, MD, E. GLISHTOWN, N. J. AND  
HARRY S. ALTMAN, MD, BRONX, N. Y.

Empiema as a complication of parapharyngeal abscesses is rare and generally occurs by spread from a mediastinitis.<sup>1</sup> The occurrence of empiema in the absence of mediastinitis is extremely rare and, although Grodinsky<sup>2</sup> described a direct connection between the axilla and one of the fascial spaces of the neck we have been unable to find previous reports of an abscess extending into the pleura from this space. The following is a case report of this condition.

## REPORT OF CASE

N. P., an Italian girl aged 3 years, entered Lincoln Hospital on June 11, 1941 with the complaints of fever, irritability, and pain in the left axilla. The birth and development had been normal. At 7 months of age she had pertussis followed by pneumonia. Although the patient was subject to frequent colds, especially in the winter she had had no other serious illnesses. Two weeks before admission she received a second degree burn of the left forearm which was apparently healing well. Five days prior to admission there was the sudden onset of fever, irritability and vomiting. The following day, because of the persistence of fever she was seen by a local physician, who diagnosed the disease as tonsillopharyngitis. For the next two or three days the fever abated and the patient was apparently well. On the day preceding admission fever and vomiting recurred and this was followed in several hours by the sudden onset of pain in the left axilla. This pain was a sharp and sticking one and was aggravated by inspiration. There were no other complaints and the system review was negative.

The physical examination revealed that the patient was well developed and well nourished. She appeared only moderately ill although her temperature was 103 F. A diffuse punctate erythema was present over the trunk and extremities and was confluent in the left axillary region. The postauricular and cervical nodes were bilaterally palpable and the left axillary nodes were enlarged to the size of hazelnuts and were definitely tender. There was a well healed scar approximately 5 by 2 cm on the left forearm. The tongue was coated and hypertrophied papillae were seen. The tonsils and pharynx were diffusely injected and an enanthem was present. A profuse postnasal discharge was seen, but no bulging of the pharynx or faucial pillars. There was a short systolic murmur over the pulmonic area, the heart rate was 150 per minute and the respiratory rate 30. The remainder of the examination was essentially negative.

Urinalysis revealed 1 plus albumin, rare red blood cells, 4 to 5 white blood cells and the same number of granular casts per low power field. The hemoglobin content of the blood was 120 Gm, the red cell count 3,920,000, the white cell count 13,720 with 72 per cent polymorphonuclears and 6 per cent eosinophils. The Dick and Schultz-Charlton tests were negative and a throat culture was reported as Streptococcus gamma, Proteus vulgaris and Staphylococcus albus. The blood culture was negative.

The admission diagnosis was tonsillopharyngitis and left axillary adenitis probably due to an infection of the burn of the left forearm. With the disappearance of the rash on the following day, the absence of hemolytic streptococci in the throat and the negative Dick and Schultz-Charlton tests the tentative diagnosis of scarlet fever was discarded. Because of the combination of severe tonsillopharyngitis and axillary lymphadenitis sulfathiazole was administered. In spite of this after twenty-four hours the patient's condition became worse, breathing was labored and rapid (46 per minute) and a diffuse

From the Children's Medical Service of Lincoln Hospital, Bronx, N. Y. Dr. Harry S. Altman, attending pediatrician.  
1. Grodinsky, Manuel. Retropharyngeal and Lateral Pharyngeal Abscesses. An Anatomic and Clinical Study. Ann. Surg. 110: 177 (Aug.) 1939 (case 6).  
2. Grodinsky, Manuel and Holyoke, E. A. The Fascia and Fascial Spaces of the Head, Neck and Adjacent Regions. Am. J. Anat. 62: 367 (Nov.) 1938 (p. 394, page 4).

swelling was noted in the region of the left axilla with pain on extension of the arm above the shoulder. A roentgenogram of the chest on the day following admission revealed a decrease in illumination of the left pulmonary field but no other evidence of a pulmonary lesion. This and the decrease in resonance and breath sounds were attributed to the soft tissue swelling. On the third hospital day the swelling in the left axillary region had spread so that there was a diffuse nonpitting edema over the entire left side of the thorax anteriorly and posteriorly. The patient appeared extremely toxic, the temperature was 106 F and in spite of supportive measures she died fifty-three hours after admission.

Postmortem examination revealed an acutely inflamed pharynx and larynx. There were several enlarged nodes in the left cervical region. In the left lower portion of the neck, extending downward to the posterior border of the clavicle, an abscess was found. This was about 5 cm in diameter, contained a small amount of pus and was fairly well walled off with fibrous tissue. A tract could be seen extending laterally from this abscess toward the left axilla and passing just outside the pleura over the apex of the lung. Large lymph nodes showing acute inflammatory changes were present in the left axilla. In the area where the soft tissue swelling had been, and involving chiefly the pectoral muscles, the muscle fibers were diffusely swollen and pale. The left pleural cavity contained about 150 cc of a thin, yellow, purulent fluid. The mediastinum and pericardium appeared normal and there were no signs of osteomyelitis of the cervical vertebrae or thrombosis of the axillary vessels. The burn of the left forearm was found to be well healed and there was no evidence of a purulent infection. Smears and cultures from the pus in the cervical abscess, from the edematous muscle tissue and from the empyema fluid revealed beta hemolytic streptococci in all.

#### SUMMARY

A case was observed in which a parapharyngeal abscess burrowed laterally, to rupture into the pleura in the axillary region causing empyema, myositis and death.

#### ACUTE TOXIC EFFECTS OF MERCURIAL DIURETICS

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Mercurial diuretics were introduced into general use about twelve years ago. It was early demonstrated that acute renal lesions were definite contraindications to their employment, but with this exception there was no particular danger even when given over a long period of time. However, in 1937 Greenwald and Jacobson<sup>1</sup> reported 2 cases and Wolf<sup>2</sup> a third case of sudden death following an intravenous injection of a mercurial diuretic. Recently Tyson<sup>3</sup> has added 1 more fatality and 1 near fatal reaction immediately following this therapeutic procedure. In this entire group there were both clinical and typical postmortem changes indicative of a chronic lipid nephrosis.

#### REPORT OF CASE

A. H., a man aged 53, was admitted to Stuart Circle Hospital with a history of hypertension for from eighteen to twenty years. He had been symptom free until two years before admission, when following an attack of influenza swelling of his ankles and a persistent cough developed. Four months later, after a second respiratory infection, he began having dyspnea with increasing edema of his dependent parts. At this time evidences of cardiac decompensation made their appearance which responded reasonably well to digitalis medication.

On examination he was somewhat dyspneic, moist rales were heard over both bases and there was edema of the legs, the lower part of the back and the buttocks. His heart showed general enlargement and his blood pressure was 175 systolic and 100 diastolic. An electrocardiogram revealed evidences of moderate myocardial damage. Renal studies revealed blood urea 39 to 100 mg per hundred cubic centimeters of blood, cholesterol

174 to 258 mg, chlorides 487 mg, creatinine 17 to 26 mg, uric acid 4.1 mg, and total proteins 5.54 mg (albumin 0.9 mg, globulin 1.4 mg), return of phenolsulfonphthalein was 20 per cent the first hour and 17 per cent the second hour.

During his three months' hospitalization about ten doses of salyrgan or mercupurin were given, approximately one being administered intravenously and the rest intramuscularly. Following the fourth dose (2 cc intravenously) the patient

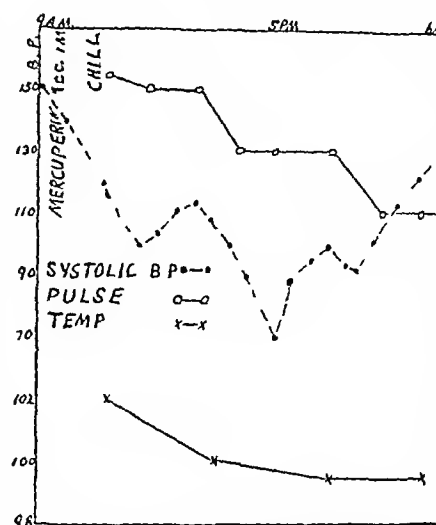


Fig 1—Clinical graph showing evidences of a circulatory collapse following intramuscular injection of 1 cc of mercupurin. Recovery in twenty four hours.

had a chill associated with dyspnea and slight pulmonary edema and was emotionally upset. This episode was partly diagnostically, but the absence of a known relationship of the drug to such a reaction it was tentatively dismissed as an unsolved coincidence. Two weeks later the edema became more pronounced. In the use of mercupurin was cautiously given intramuscularly. About one hour after this injection a severe chill, fever, dyspnea, rapid fall in blood pressure and prostration developed in rapid succession. Figure 1 shows the sequence of events which time death seemed imminent. After a period of four hours the acute symptoms subsided and his general condition remained unchanged until one month later, when he suddenly, presumably from a coronary occlusion, died. He was removed for study by Drs Beck and Howe, who reported that the kidney weighed 203 Gm and measured 12.5 by 5.5 cm. The kidney was moderately enlarged and pale, appeared swollen. (This may have been due to emboli in the arteries coming off from the hilus, the superior renal artery branching before entering the kidney substance. The arteries showed definite arteriosclerotic changes.)

The ureter was grossly normal. What appeared to be cysts averaging 1 mm in diameter could be seen beneath the capsule over the entire surface of the kidney. The capsule stripped readily, leaving a finely granular gray surface. No gross changes were noted. Gross section showed the cortex to be 10 to 15 mm in depth. The cortex was pale, the medulla showed an increase of fat.

**Microscopic Description** The glomeruli were of normal cellularity. A few were hyalinized and numbers of them were shrunken and atrophic, so that they filled only half of the space, even in these shrunken glomerular tufts, however, density was not greatly increased. Many of Bowman's capsules contained pink staining albuminous material, but no red blood cells or leukocytes were seen. Occasional arterioles showed thickening and hyalinization of their walls, this was more pronounced, however. In the cortex there were small areas of scarring and round cell infiltration. The tubules were depressed below the cortical surface. The tubules showed moderate dilatation, which was most pronounced in the convoluted tubules. Their lumens contained pink staining debris. The tubular epithelium was granular and contained numerous vacuoles. In a few scattered areas the epithelium was largely replaced by a granular deep purple stain which was present also in the lumen and interstitial tissue.

Fat stains (sudan III) showed small amounts of fat in the tubules. The vacuoles described did not take the stain.

The pathologic diagnosis was arteriosclerosis of the kidney, mild, vacuolic disorder (due to fat). Very slight necrosis and calcification of the tubules, probably due to mercury (fig 2).

<sup>1</sup> Greenwald, H. M., and Jacobson, Seymour. Sudden Death Due to Mercurial Diuretics, *J. Pediat.* 11: 540-546 (Oct.) 1937.

<sup>2</sup> Wolf, I. J., and Bongiorno, H. O. Sudden Death with Salyrgan, *Canad. M. A. J.* 25: 73-75 (July) 1931.

<sup>3</sup> Tyson, Mary C. Danger of Intravenous Mercurial Injections in Nephrosis, *J. A. M. A.* 117: 998-999 (Sept. 20) 1941.



## COMMENT

The fact that similar symptoms followed the administration of the drug on two occasions is highly indicative of a causal relationship. The prompt recovery within twenty-four hours and the absence of any electrocardiographic evidence during the critical period make any acute cardiorespiratory lesion wholly improbable.

The cause of these reactions is unknown. Tyson concluded that the nephrotic syndrome was a definite contraindication to the use of mercurial diuretics in view of the fatalities previously reported. However, the case in question is unique in that it showed no clinical or postmortem evidence of a lipoid nephrosis, but there was an arteriosclerotic nephritis with necrosis and calcification of the tubules. It has been suggested that these areas of necrosis may have resulted from the mercury to which the tissues were hypersensitive. It is possible that the reaction following the mercurials is an anaphylactic one similar to those occasionally encountered after the administration of arsenicals. The fact that part of the injections was given intramuscularly supports this idea. According to Landsteiner, when a foreign agent even a chemical is injected into the muscle contact with the local tissues may bring about the formation of a conjugate antigen with the body's own protein thus sensitizing the individual. Should this explanation be the *modus operandi*, the method of giving mercurials during a series should not be alternated, as a resulting shock dose may precipitate a catastrophe.

A brief note by Friedfeld and his associates<sup>4</sup> on a number of fatal and extremely serious reactions following intravenous injections of mercurials suggests the possibility of a drug irregularity and recommends that until further investigation mercurpurin be given intramuscularly. The fact that all the reported serious reactions have occurred in the last four years bears out their impression that the mercurials now in use may be different from those on the market prior to 1937.



Fig 2.—Section of kidney removed from patient dying one month after severe toxic reaction following an intramuscular injection of mercurpurin. In addition to evidences of an arteriosclerotic nephritis there are seen on section small areas of necrosis and calcium deposits suggesting mercurial damage.

Mercurial diuretics have been universally accepted as valuable therapeutic agents and their use should not be discouraged without unimpeachable evidence. However, the number of fatalities reported within the last four years is entirely too high to pass without comment, and therefore the toxicity of these

products should be investigated. Contrary to the opinion of previous commentators, these untoward effects occur not only in lipoid nephrosis but also in nephrosclerosis, as has been demonstrated in this report.

Second and Franklin streets

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## Special Articles

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### HANDBOOK OF NUTRITION IV

#### CALORIES IN MEDICAL PRACTICE

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AND

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NEW YORK

*These special articles on foods and nutrition have been prepared under the auspices of the Council on Foods and Nutrition. The opinions expressed are those of the authors and do not necessarily reflect the opinion of the Council. These articles will be published later as a Handbook of Nutrition—Ed.*

Calories in medical practice are just as important as they ever were, in spite of the fact that attention has been centered on the vitamins. No supplements of vitamins or mineral elements can alter the laws of the conservation of energy. Calories are still needed to keep the body warm and to furnish energy for muscular work.

Calories, or British thermal units, form the basis of calculations in engineering, in the estimation of the heating values of commercial fuels and in the estimation of the feeding of populations. Perhaps in the latter connection they may determine the outcome of the present war. A physician, however, is directly concerned with calories in relatively limited fields. He must know the calories of the basal metabolism, he must understand the construction of an adequate diet in both health and disease and he must know how to construct high or low calory diets that contain the essential food elements. Although he does not often realize it, he is intimately concerned not only in the administration of calories in the food but also in their dissipation through the surface of the body. It is the temporary disproportion between gain and loss that causes the ups and downs of fever.

The unit of heat measurement that concerns the physician is the large calory, the kilocalory, the amount of heat required to raise 1 Kg. of water 1 degree C. The small calory, the amount required to raise 1 Gm. of water 1 degree C., is a unit employed by physicists and chemists for the calculation of energy changes in intermediary metabolism and is so seldom mentioned by physicians that it is rarely found in medical literature. When employed clinically, it causes endless confusion. The British thermal unit is the heat required to raise 1 pound of water 1 degree F. and equals 252 small calories. Fortunately this term is not used in medical literature. The amount of heat given off by the resting man of average size is about equal to the heat of a 60 watt electric bulb or the flame of an alcohol lamp about 1 inch high. A man exercising hard equals the heat of ten such lamps. Most of us fluctuate between these two extremes in the course of a day, and it is extremely difficult to make a really accurate estimate of the number of calories that a person consumes on any one day.

<sup>4</sup> Friedfeld, Louis, Kissin, Milton, Modell, Walter and Sussman. *Ralph Mercurpurin*, correspondence J. A. M. A. 117: 1806 (Nov. 22) 1941.

The basal metabolism or basal metabolic rate is a term generally employed to indicate the heat production of a person fourteen or more hours after the last intake of food at complete physical and mental rest in a comfortable environment. This is sometimes called the postabsorptive metabolism, or standard metabolism, theoretically better than basal metabolism because the lowest metabolism is found during sleep or inanition or after the removal of the thyroid gland. Basal metabolism is most conveniently measured early in the morning in the person who has come to the laboratory without breakfast with relatively little physical exertion. Persons in good health can travel for as much as an hour before the test and be in basal condition after resting for one-half to one hour. A person moderately ill with toxic diffuse goiter may be affected by an automobile ride of one-half hour. One who is seriously ill should have the test made in the same building in which he spends the night. The stimulating effect of food, the specific dynamic action, is slight ten hours after the last meal unless that meal has been a heavy one. Even

"The test I had in Dr. Blank's office was about 20 per cent too high."

First tests on inexperienced patients or normal controls are usually 5 to 10 per cent higher than subsequent tests. Most of the older standards of metabolism were based largely on first tests and are therefore 5 to 10 per cent too high when applied to the more modern series of controls founded on results obtained with experienced subjects. It may therefore be said that normal trained healthy subjects average 5 to 8 per cent below the so-called Aub-Du Bois standards of 1917, or the Mayo Clinic Boothby, Berkson and Dunn standards of 1936, or about 3 per cent lower than the Harris-Benedict standards. The Aub-Du Bois standards were much too high for children, and the Biering figures for the boys and the Kestner-Knipping tables for girls are more accurate for well trained children.<sup>1</sup> Some day there will be more satisfactory physiologic standards, but even after the thousands of determinations that have been made on normal subjects it is too soon to settle on a new level, since the average normal is still rising slightly every decade. Some recent work by Hardy and Milhorat<sup>2</sup> showing the effect of temperature in changing the metabolism of women but not of men was disturbing. On the average the metabolism of women is 10 to 12 per cent lower than that of men of the same size, but in a cold environment it may be the same as that of men and in a very warm environment may be 15 to 20 per cent lower. In spite of all these limitations clinicians get along quite well with the old standards to which they are accustomed, estimating that for well trained subjects and good satisfactory tests the normal persons come within +5 to -20 per cent of the so-called standard. Some few normal persons are 5 per cent further off in either direction. Boothby, Berkson and Dunn<sup>3</sup> have emphasized the fact that a person toward the limits of the normal range may be normal but that the chances are greatly against it. Conversely, some exceptional persons with pathological low or high metabolism may come within the normal range. The basal metabolism by itself should be considered merely as one piece of evidence and never a final answer. One book on metabolism ends with the sentence "God forbid that we make our diagnostic machinery."

It must be admitted that the basal metabolism tests are seldom of great value except in the diagnosis and treatment of diseases of the thyroid gland. The majority of basal metabolism tests, like the vast majority of roentgenograms, show normal conditions. It is necessary to avoid missing cases which present atypical histories but which do not show the usual signs. Basal metabolism tests and other laboratory tests are probably overdone, but it is doubtful what can be remedied.

There are obviously many factors which influence total heat production apart from those of size, age, sex that are used in calculating the basal metabolism. Some of the more important factors are shown schematically in figure 1. This illustrates not only heat production but also heat loss and shows how one factor may be offset by the other. Ordinarily, any increase in heat

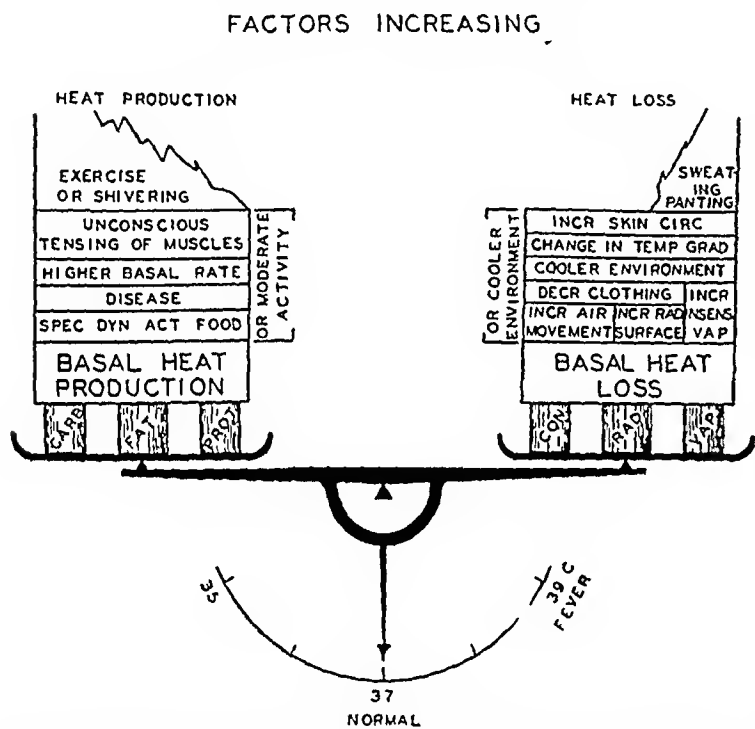


Fig. 1—Balance between the factors increasing heat production and heat loss

a small breakfast has little effect after three or four hours. Much more serious than the 2 to 3 per cent increase from a small breakfast is an increase of 10, 20 or even 50 per cent which may be caused by fear, apprehension or discomfort shortly before or during the test. The most important precaution is prevention of such tension by means of preliminary tests, careful explanation on the part of the physician and a quiet atmosphere during the test. A high percentage of determinations in toxic diffuse goiter are ruined because the patient has been told by her friends or even by her physician that the results will decide whether or not she is to have an operation.

After the test has been made the physician should always try to form an estimate of the emotions during the whole procedure. He should note carefully the pulse rate before and during the test and compare it with the rate obtained while the patient was in bed on other days. A significant rise in pulse rate usually indicates an unreliable determination. The physician should also question the patient regarding apprehension and discomfort. An experienced patient may tell you

1 Webster, Bruce, Harrington Helen and Wright F. J. 19 347 (Sept.) 1941  
2 Hardy, J. D. Milhorat A. T. and Darr F. F. J. 21 383 (April) 1941  
3 Boothby W. V. Berkson, J. and Dunn H. L. 116 468 (July) 1936

by an increase in heat production and vice versa with a balance so delicate that the body temperature is maintained with extraordinary uniformity. In health it is only on occasions when heat production is greatly and suddenly increased that heat loss lags behind causing a rise in body temperature. Nevertheless a short bout of hard exercise can raise the rectal temperature to 38 to 39 C (100.4 to 102.2 F) for half an hour. Conversely, a sudden change to a cold environment without compensating exercise can cause a drop in temperature.

Basal heat production may have superimposed on it the specific dynamic action of food. After a heavy meal of protein or carbohydrate or both there is a gradual increase in metabolism perhaps rising 30 to 40 per cent above the basal rate in two or three hours and then falling slowly. After ordinary meals the rise is less noticeable but when distributed throughout the twenty-four hours under ordinary conditions the total specific dynamic action amounts to about 6 per cent of the total caloric value of the food. This is small in comparison with the large increase that might be caused by certain diseases such as hyperthyroidism with figures of 15 to 100 per cent or more above the basal rate. The unconscious tensing of the muscles that accompanies apprehension may raise the heat production 10 to 20 per cent without its being noticed by an inexperienced observer. Moderate activity causes a rise of 20 to 50 per cent, whereas hard exercise may increase the metabolism three or four or even ten fold. When there is fever there is an elevation of about 13 per cent for each degree centigrade, but the variations are considerable.

Heat loss may be an important element in raising heat production. If a man goes into a cooler environment or is exposed to a strong wind or takes off some of his clothing, or even stretches so that he exposes a larger surface, he loses more heat and in order to compensate the body has to produce more calories. As a rule, a person does this by voluntary exercise or involuntary shivering. Conversely, if the man has produced an unusual amount of heat by exercise he tries to disseminate it by seeking a cooler environment or by taking off some of his clothing. If this is not sufficient he breaks into a sweat, which cools the skin through vaporization. Dogs without sweat glands lose their excess heat by panting.

The mechanism of heat loss is of interest to the medical man, since it forms the basis of air conditioning. When a person is quiet in a moderately cool room most of the heat is lost through radiation from the warm surface of the body and warm clothing to the cooler walls and especially to the windows. The body gains heat through radiation from the heating apparatus and from lamps. Under ordinary conditions about 25 per cent of the calories are lost through the vaporization of water from the skin and lungs but with the outbreak of even small amounts of sweat this percentage rises. When the air and surrounding objects are warmer than the surface of the skin vaporization becomes the sole channel of heat loss. The percentage of calories lost by convection through the movement of air is extremely variable. In a quiet room a very quiet person may lose only 12 to 15 per cent of his heat in this manner, but the percentage rises roughly according to the square root of the velocity of the air movement. Even small motions of the body cause a considerable increase in the flapping effect of clothing.

The human body in a cold environment is able to conserve its calories by changing the skin and subcu-

taneous tissue into a suit of clothing. The peripheral blood flow is reduced almost to zero and the skin becomes as good an insulator as an equal thickness of leather or cork. When the body needs to lose heat the peripheral blood flow is increased and the warm blood from the interior of the body comes in contact with the skin, which is cooled by the vaporization of sweat. The most effective sweating leaves no visible water on the surface, sweat that drips is wasted since it removes no heat. In this loss of heat the hands and feet are relatively unimportant since they constitute only a small percentage of the total surface. Circulation in the hands is not necessarily a good indicator of the average circulation or of the total heat loss because the hands respond to emotion more than any other part of the body. The feet and especially the toes are not good indicators of the average condition of the skin because they are far from the source of heat and have large radiating surfaces. In cold weather the skin of the toes may show temperature readings below that of the dry bulb thermometer. The toes resemble wet bulb thermometers.

In one of the older hospitals in New York there was a women's ward on the north side of the building that was difficult to heat on a cold winter night. In making rounds after such a cold night it would be noted that most of the patients showed a subnormal temperature and that many of the older women had temperatures alarmingly depressed. Here was a combination of low heat production on the part of the old women and high loss through radiation and convection. Their feet were icy cold, and since many of them had impaired peripheral circulation the situation was serious. At the present time in Russia when the weather is so extremely cold, if a soldier who has been keeping up his heat production by marching or fighting is wounded and has to remain quiet the heat loss will exceed heat production to such an extent that there will be a decided fall in body temperature contributing to the rapid production of shock. The same thing, to a lesser extent can happen in our own climate when a man is injured outdoors. It can happen even in the accident ward of a hospital. Going to the other extreme, a man in shock might be surrounded by so many hot water bottles and blankets that in the effort to lose calories a large amount of blood needed internally is diverted to the skin and a large amount of water and salt lost through dripping sweat.

In health the normal temperature of the body is regulated delicately at about 36.9 C, a little lower in the early morning, higher in the late afternoon. Minor or even moderately large changes in heat production or heat loss are balanced, as shown in the diagram (fig. 1). In fever the temperature regulating center in the hypothalamus seems to be adjusted at a different level, sometimes fairly constant, usually fluctuating 2 to 3 degrees C during the day. When the temperature regulating center is suddenly set at 40 C, the body at the normal temperature of 37 C (98.6 F) finds itself 3 degrees too cool and therefore calls into play the mechanism of increased heat production, sometimes supplemented by the skin mechanism which diminishes heat loss. If the change in the temperature regulating center is sudden, as in malaria the body has to warm itself by means of shivering. In most fevers the change can be made more gradually. If the patient has attained a high temperature say 40 C, and the heat regulating center is suddenly adjusted to the normal of 37 C the

body finds itself 3 degrees too warm, calls into play the mechanism of heat loss and loses calories rapidly through sweating

In diseases of high metabolism, for example toxic diffuse goiter, the body is faced with the continuous problem of losing abnormally large amounts of heat. Therefore, the peripheral circulation is greatly increased and sweating may be necessary even in moderately cool

TABLE 1—Total Energy Requirement Every Twenty-Four Hours, Including Eight Hours of Labor, as Estimated by Becker and Hamalainen

| Men                           | Calories |       |
|-------------------------------|----------|-------|
| Tailor                        | 2,600    | 2,800 |
| Bookbinders                   | 3,000    |       |
| Shoemakers                    | 3,100    |       |
| Metal workers                 | 3,400    | 3,500 |
| Painters                      | 3,500    | 3,600 |
| Cabinet makers                | 3,500    | 3,600 |
| Stone masons                  | 4,700    | 5,200 |
| Wood sawers                   | 5,500    | 6,000 |
| Women                         |          |       |
| Seamstress (with hand needle) | 2,000    |       |
| Seamstress (with machine)     | 2,100    | 2,300 |
| Bookbinder                    | 2,100    | 2,300 |
| Household servants            | 2,500    | 3,200 |
| Washerwomen                   | 2,900    | 3,700 |

atmospheres. The patient cannot tolerate as much clothing or as many blankets as the normal person. At the other extreme, persons with low metabolism, as in myxedema or inanition or old age, are obliged to restrict the loss of heat by diminishing the peripheral blood flow. They need warm clothing, especially since they are unable to keep themselves warm by exercise. These illustrations emphasize the importance of balance of calories. The physician is responsible not only for putting them into the patient but also for seeing that they are conserved or eliminated in the proper manner. Heat loss is just as important as heat production.

There are certain diseases in which not only the basal metabolism but also the total metabolism is decidedly raised. Chief among these comes toxic diffuse goiter, with an increase in the basal metabolism which may be 75 per cent or more. In addition, the restlessness of the patient and the muscular inefficiency in performing tasks raise the total requirement far beyond the basal rate. Emotional storms constitute an added caloric burden. There is also an increased metabolic rate in many patients with lymphatic leukemia, pernicious anemia, some patients with acromegaly, some with heart disease, and nephritis, particularly if the patient is dyspneic. There is a rise in metabolism in fever, perhaps as much as 40 per cent in a patient with a temperature of 40 C (104 F). If the patient is restless or delirious or coughing, the total metabolism is affected more than the basal. Agitated mental patients may have a very high requirement.

The depression of the basal metabolism in so-called complete myxedema is usually around 35 to 40 per cent. A similar decrease may be found with extreme inanition. Elderly patients who lie quietly in bed have surprisingly low total metabolisms.

There may be considerable loss of ingested calories in the feces, as for example in pancreatic or hepatic disease with poor absorption of fat. Interference with bile important in the feeding of premature infants.<sup>4</sup> Of the flow or with the abdominal lymph channels may also affect fat absorption.<sup>4</sup> Excretion of fat may be extremely 120 calories per kilogram of body weight contained in

the daily diet, 10 to 30 per cent may be lost as fat in the feces. The loss is reduced by lowering the fat intake. Full term infants usually waste less than 10 per cent of the food calories by fat excretion. Roughage or indigestible carbohydrate residue increases the fecal excretion of nitrogen, presumably from endogenous secretions. Recent interest in whole wheat cereals has led to a confirmation of the loss of nitrogen but has shown no interference in the digestion of fat or carbohydrate.<sup>6</sup> These observations on men should be extended to children and patients who may be less able to tolerate roughage. In diabetes the caloric loss from glycosuria which may be considerable, should be subtracted from the available calories of the food. Fortunately, with insulin extremely great losses are now rare.

The caloric needs of children form a chapter in themselves and the criteria are different from those of adults. Extra food must be given to take care of growth, large proportions of calories are needed to meet the incessant activities of playing children and athletic young men. In general, the food allowance for a child over 12 years should be about the same as that of an average adult or more than 2,500 calories a day. An active boy at 15 or 16 years may use 4,000 calories a day.

Bearing all these factors in mind, it is usually possible to form a rough estimate of the calories produced by a normal person or a person with a given disease. Since the basal metabolism of different persons may vary 10 to 15 per cent from the average and since in the same person it may vary 5 to 15 per cent from day to day, it is obvious that one cannot make an accurate prediction. Moreover, the basal metabolism is only a small proportion of the total metabolism unless the person is confined to strict bed rest. Therefore, in estimating the total caloric requirement it is almost impossible to guess the basal metabolic requirement within 100 to 200 calories. Still, in figuring out a dietary it is a help to estimate the person's height and weight, find the average and figure out the basal metabolism without bothering to calculate closer than the nearest 100 calories. For a person quiet in bed one can add 10 per cent, a patient moderately active, 30 per cent, a patient

TABLE 2—Recommended Daily Allowances for Calories (F. and Nutrition Board, National Research Council)

|                            | Calories per Day |
|----------------------------|------------------|
| 70 kg man, fairly active   | 3,000            |
| very active                | 4,500            |
| sedentary                  | 2,500            |
| 55 kg woman, fairly active | 2,500            |
| very active                | 3,000            |
| sedentary                  | 2,100            |
| Children                   | 100/kg           |
| Under 1 year               | 1,200            |
| 1 - 3 years                | 1,600            |
| 4 - 6 years                | 2,000            |
| 7 - 9 years                | 2,500            |
| 10 - 12 years              | 2,600 girls      |
| 13 - 15 years              | 2,400 girls      |
| 16 - 20 years              | 3,000 girls      |

of bed in the sickroom during the day but must be quiet, 50 per cent. The day may be divided into periods of sleep, rest, moderate activity and the like, and one can estimate the calories consumed each hour and add the total of estimates. Fortunately, it is seldom necessary to come within 200 to 400 calories of the actual metabolism. One of the best checks, nature's, is the appetite, which in most normal persons varies with surprising accuracy. This, however, varies in disease and is notoriously faulty in

4 Verzar, F., and McDougall, E. J. Absorption from the Intestine, New York Longmans, Green & Co., 1936.  
5 Gordon, H. H., and McNamara, Helen. Fat Excretion of Premature Infants, Am J Dis Child 62 328 (Aug) 1941.

6 Scallock R. R., Basinski D. H. and Murlin J. F. J 22 589 (Dec) 1941

Fairly accurate measurements are made in metabolism wards in which some patients are in bed and others are carrying on a moderate amount of activity. All the food eaten by each patient is carefully weighed and the excreta are collected and analyzed. Changes in body weight are charted daily and the food intake is adjusted to maintain an approximately uniform body weight. In laboratories equipped with a large respiration chamber or calorimeter in which a man may remain for several days measurements of total metabolism can be made within 5 per cent. This can be balanced against the food intake but the normal activity of the person is somewhat restricted. For the person who is outdoors working, the total requirement can be estimated from the tables of occupations given in the textbooks of physiology and dietetics, for example, table 1.<sup>7</sup> The Food and Nutrition Board of the National Research Council<sup>8</sup> recently has recommended the general standards of caloric requirement for children and adults under average conditions given in table 2. A good deal depends on temperament and habit since there may be two clerks in the same office, one slow moving and placid and the other quick and nervous who will have quite different requirements. One man takes the elevator or walks up stairs slowly, the other runs up stairs. Walking at a rate of 5 miles an hour requires about 50 per cent more energy than walking at 3 miles an hour.

The calculation of the calories produced is only the first step in estimating the calories of the diet. The physician may wish to give more calories than the "requirement" to a person who is thin or who is convalescent from an acute disease. On the other hand, he may wish to give an amount of food below the total expenditure in order to reduce weight or to diminish the metabolism or the total work of the circulation. Again he may desire to give an amount equal to the expenditure but may be limited by the lack of appetite or the condition of the gastrointestinal tract. In a hospital ward there are relatively few patients whose heat production is even approximately equal to the number of calories they take in the food. Those acutely ill are living partly off the restricted diet and partly off their own body supply of fat and protein. Those who are convalescent are storing much of their food intake as body protein or body fat. In patients who are seriously ill the changes in weight are only partially due to changes in body protein and fat, since most of the fluctuations are caused by gain or loss in body water. Newburgh and Johnston<sup>9</sup> have shown that this often occurs in the obese and that the patient, for a week or more, may lose large amounts of body tissue before there is a drop in weight. In the long run, provided there is no edema, the body weight is the best indication of the adequacy of a diet. The scale should be used regularly with the ambulatory patient, and frequent weighings are extremely valuable in those who are confined to bed (fig 2).

Can a general basic diet be recommended which will fit the needs of the average patient in the hospital? Other requirements besides the caloric intake need to be considered. When the physician is confronted with a patient who cannot take a sufficient number of calories even with expert cooking and skilful nursing, he has the responsibility of seeing that the food administered

contains the essential vitamins and minerals. If necessary, they can be supplemented by additional vitamins in concentrated form. In some hospitals this problem is met by recommending a general diet of 2,000 calories, containing 75 Gm of protein, 100 Gm of fat and 200 Gm of carbohydrate. This general diet of 2,000 calories seems to be an adequate standard for the average hospital patient, although its interpretation for each individual must be a liberal one. A supply of vitamins and minerals adequate for a normal person is provided by including in the diet the following "protective" foods: 1 pint of milk, 1 egg, 1 serving (3 to 4 ounces) of meat, 3 teaspoons (15 Gm) of butter, 4 servings of whole grain bread or cereal, 2 vegetables other than potato 1 of which is raw and 2 fruits 1 of which is raw. The "protective" foods thus supply about 1,200 of the 2,000 calories.

An appetizing menu may lead to a wide variation in the daily caloric intake. In one hospital<sup>10</sup> a week's survey of the general diets as served showed a daily

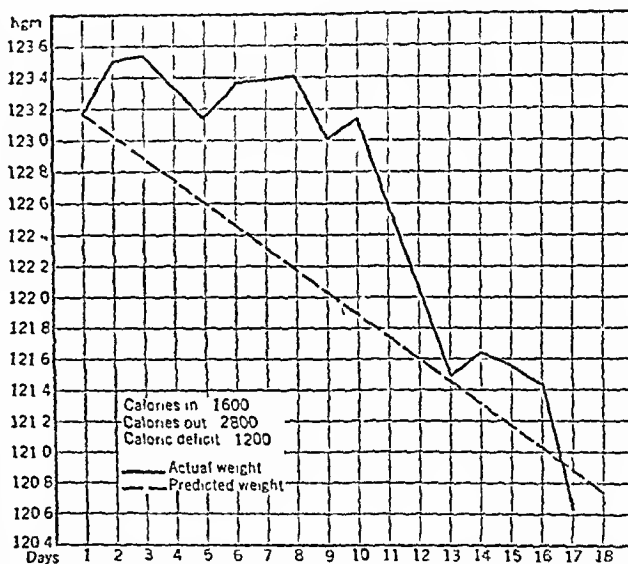


Fig 2—Weight loss curve. An obese subject first maintains her weight and then loses weight so rapidly that the total loss corresponds with the prediction (Newburgh and Johnston<sup>9</sup>).

variation between 1,900 and 3,200 calories with an average of 2,570 calories. But the food served does not necessarily represent the food intake of the patients. When the patients in semiprivate rooms selected food from a menu of approximately 3,000 calories, about 25 per cent of the bread, butter and vegetables and 37 per cent of the salads were not eaten. The ward patients on a nonselective diet of 3,000 calories left between 5 and 10 per cent of the food served. When special diets are needed it is essential to know the food intake as well as the food prescription.

To meet special needs additional calories can be added to the general diet, such as an extra pint of milk during the latter part of the period of pregnancy. The extra energy required for lactation depends on the amount of milk produced. The extra food calories should be about twice those secreted in the milk or approximately 700 to 1,500 calories of food for 500 to 1,000 cc of milk. Dairy products are the preferred foods for supplying the extra calories. Excess caloric intake leading to fat deposition in the mother during

<sup>7</sup> McLester J. S. *Nutrition and Diet in Health and Disease* ed. 3 Philadelphia W. B. Saunders Company, 1940, p. 63.

<sup>8</sup> Recommended Allowances for the Various Dietary Essentials current comment *J. Am. Diet. A.* 27: 565 (June-July) 1941.

<sup>9</sup> Newburgh L. H. and Johnston M. W. *Ann. Int. Med.* 3: 815 (Feb.) 1930.

<sup>10</sup> Unpublished data from the Department of Nutrition, New York Hospital.



the latter period of pregnancy influences lactation rather than the weight of the child at birth<sup>11</sup>

The energy requirements of the body under various conditions are calculated from the basal metabolism plus activity, as previously noted, according to the oxygen consumption and the physiologic combustion values of protein, fat and carbohydrate derived from Rubner's work. Since the foodstuffs vary in composition and degree of assimilation, the slightly lower values of Atwater are generally used for the calculation of diets in this country. Atwater's figures are 4 calories per gram for protein and carbohydrate and 8.9 calories for fat, although 9 for fat is frequently used. A recent review<sup>12</sup> has emphasized the lack of uniformity in specifying diet standards. For example, 100 Gm of protein, 80 of fat and 500 of carbohydrate would represent 3,423 calories as purchased (allowing 10 per cent for kitchen and table waste) or 3,204 Rubner calories, or 3,112 Atwater net calories. The difference becomes significant when the results of laboratory experiments are translated to large groups of persons.

To simplify the calculation of diets, it has been a common practice to divide the vegetables and fruits into general classes according to their total carbohydrate content. Recent analyses by improved methods indicate that a reclassification of some of the foods is in order. The later figures for available carbohydrate tend to be lower than those in the generally accepted tables.<sup>13</sup> Another possible error has appeared in the sample to sample variation of cooked vegetables. The discrepancy between the calculated carbohydrate calories and those determined by direct analyses was particularly large in boiled squash, parsnips and sweet potatoes.<sup>14</sup>

What is the optimum proportion of fat to carbohydrate in the diet from the standpoint of meeting the caloric needs of the body under various conditions? Exact data on this point are scarce. Economic factors dictate the diets of large parts of the population and thus lead to a relatively high percentage of the cheaper carbohydrates. This situation influenced the older standards such as Voit's, which called for 60 to 70 per cent of the calories in the form of carbohydrate. The recent emphasis on vitamin and mineral requirements and on the biologic value of proteins tends to increase the fats and decrease the carbohydrates. This is seen especially in the quoted 2,000 calorie general diet for patients. Fat provides 45 per cent and carbohydrate 40 per cent of the calories, which together with 15 per cent from protein yield a respiratory quotient of 0.83. It is perhaps significant that a similar proportion of fat to carbohydrate (1:2 by weight) is found in human milk. When a free choice of food is possible, men doing heavy sustained work and athletes in training with high caloric intakes of 4,500 to 7,500 calories select a diet containing 15 per cent or more of the calories in protein and the balance about evenly distributed between fat and carbohydrate.<sup>15</sup> Many of the observed respiratory quotients approach the median level of 0.85 in continued heavy exercise. If future research supports the present indication, a more abundant consumption of fat would be desirable for optimum nutrition.<sup>16</sup>

525 East Sixty-Eighth Street

11 Garry, R. C., and Steven, D. *Nutrition Abstr. & Rev.* 5: 855 (April) 1936.  
12 Morey, N. B. *Nutrition Abstr. & Rev.* 6: 1 (July) 1936.  
13 Williams, R. D., Wicks, L., Bierman, H. R., and Olmsted, W. H. *J. Nutrition* 19: 593 (June) 1940.  
14 Carpenter, T. M. *J. Nutrition* 19: 415 (May) 1940.  
15 Cuthbertson, D. P. *Nutrition Abstr. & Rev.* 10: 1 (July) 1940.  
16 Anderson, W. E., and Williams, H. H. *Physiol. Rev.* 17: 335 (July) 1937.

TYPHOID IN THE LARGE CITIES OF THE UNITED STATES IN 1941

THIRTIETH ANNUAL REPORT

In keeping with the practice of previous years, a communication was addressed to the health officer of each of the cities, requesting the number of deaths from typhoid both among residents and among nonresidents which were recorded in 1941. There seems to be a decreasing tendency for many cities to keep readily available the reallocations for residence and for nonresidents such data are obtainable only through the state health departments. While each health officer was asked to record an estimate of population for 1941, it is apparent that the great majority of these public health administrators are continuing to use the 1930 census figures. As no official figures are available for any date subsequent to that of the federal census, it has been deemed advisable to employ the population determined by this uniform tabulation. In areas of concentration of military and defense activities, the practice may cause a slight error, but it is believed that no great injustice has resulted. As in the preceding review, the provisional census data for 1941 are used, since the Bureau of the Census has not made population estimates for cities as of July 1, 1940.

Paratyphoid has again been excluded. In tables 1 to 8 inclusive (as well as in table 10) a special table has been made of cities in which all deaths occurred among nonresidents. It seems appropriate at the

TABLE 1—Death Rates of Fourteen Cities in New England from Typhoid per Hundred Thousand of Population

|             | 1941 | 1940 | 1936<br>1940 | 1931<br>1935 | 1926<br>1930 | 1921<br>1925 | 1916<br>1920 | 1911<br>1915 |
|-------------|------|------|--------------|--------------|--------------|--------------|--------------|--------------|
| Cambridge   | 0.0  | 0.0  | 0.2*         | 0.5          | 2.1          | 4.3          | 9.5          | 40.5*        |
| Fall River  | 0.0  | 0.0  | 0.2          | 0.2          | 2.2          | 2.3          | 8.5          | 14.1         |
| Lynn        | 0.0  | 0.0  | 0.2          | 0.2          | 1.5          | 1.6          | 3.0          | 10.0         |
| Springfield | 0.0  | 0.0  | 0.3*         | 1.1†         | 0.4          | 2.0          | 4.4          | 16.0         |
| New Bedford | 0.0  | 0.0  | 0.4          | 1.1          | 1.5          | 1.7          | 6.0          | 10.0         |
| Lowell      | 0.0  | 0.0  | 0.4          | 1.2          | 2.6          | 2.4          | 5.0          | 10.0         |
| Hartford    | 0.0  | 0.0  | 0.5          | 1.0†         | 1.3          | 3.5          | 6.0          | 10.0         |
| Somerville  | 0.0  | 2.0  | 0.6          | 0.4          | 1.3          | 1.6          | 9.5          | 12.1         |
| Boston      | 0.1  | 0.1* | 0.3†         | 0.6          | 1.2          | 2.2          | 5.5          | 12.1         |
| Providence  | 0.4* | 1.2  | 0.6          | 1.1†         | 1.3          | 1.8          | 5.5          | 12.1         |
| Worcester   | 0.5  | 0.0  | 0.2*         | 0.5*         | 1.0          | 2.1          | 5.5          | 12.1         |
| New Haven   | 0.6  | 0.0  | 1.0          | 0.7†         | 0.6          | 4.4          | 6.4          | 12.1         |
| Bridgeport  | 0.7  | 2.0  | 0.4          | 0.3          | 0.5          | 0.7          | 4.5          | 12.1         |
| Waterbury   | 1.0  | 0.0  | 0.2          | 0.4          | 1.2          | 1.0          | 4.0          | 12.1         |

\* All typhoid deaths were stated to be in nonresidents.  
† One third or more of the reported typhoid deaths were stated to be in nonresidents.

beginning of this review to state that, in addition to the thirty-seven cities enumerated on the honor roll in table 10, nineteen additional cities are qualified for such acclaim but have been charged with typhoid deaths among nonresidents who have been hospitalized or otherwise cared for in these cities (Atlanta, Columbia, Dayton, Denver, Fort Worth, Indianapolis, Kansas City, Kan., Knoxville, Memphis, Nashville, New Orleans, Paterson, Providence, Sacramento, St. Louis, City, Syracuse, Tampa, Toledo, Youngstown). A special symbol has been used to indicate those cities in which more than one third of the reported deaths were stated to have been among nonresidents.

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May 31, 1913, p. 1702; May 9, 1914, p. 1473; May 1, 1915, p. 1305; March 17, 1917, p. 84; May 1, 1918, p. 777; April 5, 1919, p. 997; March 6, 1920, p. 67; May 1, 1921, p. 860; March 25, 1922, p. 890; March 10, 1923, p. 67; May 1, 1924, p. 860; March 14, 1925, p. 813; March 27, 1926, p. 1674; May 1, 1927, p. 1574; May 9, 1931, p. 1576; April 30, 1932, p. 1574; May 19, 1934, p. 1677; June 8, 1935, p. 414; June 19, 1937, p. 2118; July 30, 1938, p. 2118; May 25, 1940, p. 2103; and Jan. 17, 1941, p. 1.

Special attention is called to the twenty-five cities listed in table 9 which reported no typhoid death during the past two or more years. Fort Wayne now heads the list with no death in seven years. This represents the longest consecutive period of years for which a city included in the review has been free of

TABLE 2—Death Rates of Eighteen Cities in Middle Atlantic States from Typhoid per Hundred Thousand of Population

|              | 1941 | 1940 | 1936-1940 | 1931-1935 | 1926-1930 | 1921-1925 | 1916-1920 | 1911-1915 | 1906-1910 |
|--------------|------|------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Buffalo      | 0.0  | 0.0  | 0.1       | 0.1       | 2.7       | 3.1       | 4.1       | 1.4       | 22.5      |
| Yonkers      | 0.0  | 0.0  | 0.3       | 0.7       | 0.3       | 1.7       | 4.5       | 5.0       | 10.3      |
| Newark       | 0.0  | 0.0  | 0.3       | 0.4       | 0.9       | 2.3       | 3.3       | 6.7       | 14.6      |
| Scranton     | 0.0  | 0.0  | 0.3       | 1.4       | 1.5       | 2.4       | 3.8       | 9.3       | 31.5      |
| Erie         | 0.0  | 0.0  | 0.7       | 1.2       | 0.9       | 2.3       | 6.9       | 49.0      | 46.6      |
| Jersey City  | 0.0  | 0.7  | 0.6       | 0.3       | 0.9       | 1.7       | 4.5       | 7.2       | 12.6      |
| Albany       | 0.0  | 0.4  | 1.2       | 1.2       | 1.5       | 5.6       | 8.0       | 15.6      | 17.4      |
| Trenton      | 0.0  | 2.4  | 1.4       | 1.1       | 2.1       | 5.2       | 8.6       | 22.3      | 25.1      |
| New York     | 0.1  | 0.1  | 0.3       | 0.5       | 1.3       | 2.6       | 3.2       | 8.0       | 13.5      |
| Rochester    | 0.3  | 0.0  | 0.3       | 0.4       | 1.7       | 2.1       | 2.9       | 9.6       | 12.5      |
| Pittsburgh   | 0.4  | 0.4  | 0.7       | 0.9       | 2.4       | 3.9       | 7.7       | 15.9      | 63.0      |
| Philadelphia | 0.4  | 0.6  | 0.5       | 0.9       | 1.1       | 2.2       | 4.9       | 11.2      | 41.7      |
| Syracuse     | 0.5  | 1.0  | 0.5       | 0.5       | 0.5       | 2.3       | 7.7       | 12.3      | 15.6      |
| Paterson     | 0.7  | 0.7  | 0.7       | 0.9       | 1.0       | 3.3       | 4.1       | 9.1       | 19.3      |
| Camden       | 0.6  | 0.0  | 1.4       | 2.7       | 4.4       | 5.9       | 4.9       | 4.5       | 4.0       |
| Reading      | 0.9  | 0.0  | 0.5       | 0.4       | 1.6       | 6.0       | 10.0      | 31.0      | 42.0      |
| Elizabeth    | 0.9  | 0.9  | 0.5       | 0.9       | 1.6       | 2.4       | 3.3       | 5.0       | 16.6      |
| Utica        | 1.0  | 0.0  | 0.2       | 0.2       | 1.1       | 3.0       |           |           |           |

\* All typhoid deaths were stated to be in nonresidents.

† One third or more of the reported typhoid deaths were stated to be in nonresidents.

# Incomplete data.

TABLE 3—Death Rates of Ten Cities in South Atlantic States from Typhoid per Hundred Thousand of Population

|              | 1941 | 1940 | 1936-1940 | 1931-1935 | 1926-1930 | 1921-1925 | 1916-1920 | 1911-1915 | 1906-1910 |
|--------------|------|------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Wilmington   | 0.0  | 0.0  | 0.5       | 1.5       | 3.1       | 4.7       | 25.5      | 23.2      | 33.0      |
| Baltimore    | 0.7  | 0.4  | 0.9       | 1.4       | 3.2       | 4.0       | 11.5      | 25.7      | 42.1      |
| Washington   | 0.7  | 0.6  | 1.1       | 2.2       | 2.8       | 5.4       | 9.5       | 17.2      | 26.7      |
| Atlanta      | 0.7  | 0.7  | 2.1       | 7.3       | 11.1      | 14.5      | 14.2      | 31.4      | 5.4       |
| Norfolk      | 0.7  | 2.6  | 1.1       | 3.3       | 2.2       | 2.5       | 2.5       | 21.7      | 42.1      |
| Tampa        | 0.9  | 0.0  | 0.1       | 3.4       | 3.8       | 19.1      | 43.9      |           |           |
| Charlotte    | 1.0  | 0.0  | 1.6       | 2.5       |           |           |           |           |           |
| Richmond     | 1.0  | 1.2  | 2.5       | 2.4       | 1.1       | 5.7       | 15.7      | 34.0      |           |
| Miami        | 1.2  | 1.2  | 2.4       | 2.0       | 3.5       |           |           |           |           |
| Jacksonville | 2.9  | 0.0  | 2.3       | 1.6       | 4.4       |           |           |           |           |

\* All typhoid deaths were stated to be in nonresidents.

† One third or more of the reported typhoid deaths were stated to be in nonresidents.

# Incomplete data.

a typhoid death both among residents and nonresidents. South Bend reports no death in six years, Fall River, Lynn, New Bedford and Wichita none in five years. It is apparent that some cities are far more liberal than others in their attitude in accepting for hospitalization cases of communicable disease from the neighboring rural areas. In some instances legal circumstances compel the city to accept cases from the county.

Eight of the large New England cities (there were eleven in 1939, ten in 1940) report no death from typhoid in 1941 (table 1). Cambridge, Fall River, Hartford, Lowell, Lynn, New Bedford and Springfield have maintained their ranking of 1940 while Somerville has been added to the honor roll. Fall River, Lynn and New Bedford have extended their good records to five years, Cambridge and Lowell record no death in four years. Springfield reports no death among residents during the past eight years. Hartford none for four years. While in 1940 one half of the eighteen cities recording no deaths from typhoid during a two year period were to be found among the New England cities in 1941 only one third (eight among twenty-five) were from these states. Somerville, with two deaths among residents in 1940, now returns to the honor roll, there have occurred but three deaths in Somerville during the past eight years. Boston records one death among residents in 1941. Providence reports one death among nonresidents. It

is stated that the one death among residents in Worcester is the first in more than ten years. Waterbury records its first death among residents since 1938, New Haven the first since 1939. Bridgeport with no death in five years (1935 to 1939) reports one among residents in 1941 (there were three in 1940). The New England cities as a whole (population 2,579,152) lost first place among the grouped cities in 1940. They were excelled by the Middle Atlantic cities (now in third place), who in turn were replaced in 1941 by the East North Central cities (table 13) which occupied this enviable position in 1938. In the New England cities there were recorded six deaths, the same as for 1939 (there were nine in 1940). The rate (0.23), which is lower than that of 1940 (0.35), remains the same as recorded for 1939. It should be recalled that for the quinquennium 1936-1940 the New England cities held first place.

The Middle Atlantic cities (table 2) have a group rate (0.24) which is but slightly higher than that of the New England cities. It is lower than the rates for 1940 (0.27) and 1939 (0.37). Eight cities (there were nine in 1940) report no typhoid death in 1941 (Albany, Buffalo, Erie, Jersey City, Newark, Scranton, Trenton, Yonkers). Buffalo reports but one death (in 1939) among residents during the past five years, Scranton but two deaths for eight years, Yonkers but one death during five years. It is stated that in Erie there has occurred only one death among residents

TABLE 4—Death Rates of Nineteen Cities in East North Central States from Typhoid per Hundred Thousand of Population

|              | 1941 | 1940 | 1936-1940 | 1931-1935 | 1926-1930 | 1921-1925 | 1916-1920 | 1911-1915 | 1906-1910 |
|--------------|------|------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| South Bend   | 0.0  | 0.0  | 0.0       | 0.5       |           |           |           |           |           |
| Fort Wayne   | 0.0  | 0.0  | 0.0       | 2.1       | 4.2       | 19.9      | 7.3       |           |           |
| Grand Rapids | 0.0  | 0.0  | 0.5       | 0.2       | 1.0       | 1.9       | 9.1       | 25.0      | 29.7      |
| Canton       | 0.0  | 0.0  | 0.4       | 0.8       | 1.4       | 3.3       | 8.9       |           |           |
| Akron        | 0.0  | 0.4  | 0.6       | 0.9       | 1.5       | 2.4       | 10.6      | 21.0      | 27.7      |
| Gary         | 0.0  | 0.9  | 1.1       | 0.8       |           |           |           |           |           |
| Evansville   | 0.0  | 1.0  | 1.2       | 1.5       | 6.2       | 5.0       | 17.5      | 32.0      | 35.0      |
| Chicago      | 0.1  | 0.1  | 0.3       | 0.4       | 0.6       | 1.4       | 2.4       | 8.2       | 15.3      |
| Milwaukee    | 0.2  | 0.0  | 0.1       | 0.2       | 0.8       | 1.6       | 6.5       | 13.6      | 27.0      |
| Detroit      | 0.2  | 0.3  | 0.4       | 0.7       | 1.3       | 4.1       | 8.1       | 15.4      | 22.8      |
| Cleveland    | 0.2  | 0.7  | 0.6       | 1.1       | 1.0       | 2.0       | 4.0       | 10.0      | 15.7      |
| Cincinnati   | 0.2  | 0.7  | 1.1       | 1.4       | 2.5       | 3.2       | 3.4       | 7.8       | 30.1      |
| Columbus     | 0.3  | 0.3  | 1.4       | 1.9       | 2.1       | 3.5       | 7.1       | 15.8      | 40.0      |
| Indianapolis | 0.3  | 1.0  | 1.2       | 1.5       | 2.7       | 4.6       | 10.3      | 20.5      | 30.4      |
| Toledo       | 0.4  | 0.4  | 1.0       | 1.2       | 3.0       | 5.8       | 10.6      | 31.4      | 37.5      |
| Youngstown   | 0.6  | 0.0  | 0.7       | 1.2       | 1.1       | 7.2       | 19.2      | 29.5      | 35.1      |
| Flint        | 0.7  | 0.7  | 1.3       | 0.8       | 1.6       | 4.6       | 22.7      | 18.8      | 46.9      |
| Peoria       | 0.9  | 0.0  | 1.3       | 0.9       | 0.2       | 3.7       | 5.7       | 16.4      | 15.7      |
| Dayton       | 0.9  | 2.8  | 1.4       | 0.8       | 1.9       | 3.3       | 9.3       | 14.5      | 22.5      |

\* All typhoid deaths were stated to be in nonresidents.

† One third or more of the reported typhoid deaths were stated to be in nonresidents.

# Incomplete data.

TABLE 5—Death Rates of Six Cities in East South Central States from Typhoid per Hundred Thousand of Population

|             | 1941 | 1940 | 1936-1940 | 1931-1935 | 1926-1930 | 1921-1925 | 1916-1920 | 1911-1915 | 1906-1910 |
|-------------|------|------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Memphis     | 0.3  | 1.7  | 4.0       | 7.5       | 9.3       | 18.9      | 27.7      | 42.5      | 35.3      |
| Birmingham  | 0.4  | 3.4  | 2.5       | 4.1       | 8.0       | 10.8      | 31.5      | 41.3      | 41.7      |
| Chattanooga | 0.8  | 1.6  | 0.9       | 5.8       | 8.0       | 18.6      | 27.2      | 35.6      |           |
| Louisville  | 0.9  | 0.9  | 0.9       | 2.8       | 3.7       | 4.9       | 9.7       | 19.7      | 52.7      |
| Knoxville   | 0.9  | 1.8  | 3.8       | 6.0       | 10.7      | 20.8      | 25.3      |           |           |
| Nashville   | 1.2  | 3.6  | 3.4       | 5.7       | 18.2      | 17.8      | 20.7      | 40.2      | 61.2      |

\* All typhoid deaths were stated to be in nonresidents.

† One third or more of the reported typhoid deaths were stated to be in nonresidents.

# Incomplete data.

during the past seven years. Albany and Trenton report no death among residents for three years. Utica, with the excellent record of no death among residents for ten years, reports the death in 1941 of a railroad engineer. Unable definitely to ascertain any outside source of infection, the health officer feels compelled to accept this charge against his mortality record.

Syracuse reports one death among nonresidents, none among residents for six years. The one death in Paterson was stated to be in nonresidents. New York reports fourteen deaths (one among nonresidents). This city reported eleven deaths in 1940, seventeen in 1939, twenty-two in 1938. Philadelphia reports seven

TABLE 6—Death Rates of Nine Cities in West North Central States from Typhoid per Hundred Thousand of Population

|                   | 1941 | 1940 | 1936<br>1940 | 1931<br>1935 | 1926<br>1930 | 1921<br>1925 | 1916<br>1920 | 1911<br>1915 | 1906<br>1910 |
|-------------------|------|------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Duluth            | 0.0  | 0.0  | 0.2          | 1.0          | 1.1          | 1.7          | 4.4          | 19.8         | 45.5         |
| St. Paul          | 0.0  | 0.0  | 0.3          | 0.7          | 1.4          | 3.4          | 3.1          | 9.2          | 12.8         |
| Wichita           | 0.0  | 0.0  | 0.4          | 1.1          | 1.2          | 6.3          |              |              |              |
| Des Moines        | 0.0  | 0.0  | 1.3          | 2.5          | 2.4          | 2.2          | 6.4          | 15.9         | 23.7         |
| Omaha             | 0.0  | 0.4  | 0.6          | 0.9          | 1.3          | 3.3          | 5.7          | 14.9         | 40.7         |
| Minneapolis       | 0.2  | 0.4  | 0.2          | 0.8          | 0.6          | 1.9          | 5.0          | 10.6         | 32.1         |
| Kansas City, Mo.  | 0.3  | 0.7† | 0.9†         | 1.0          | 2.8          | 5.7          | 10.6         | 16.2         | 35.6         |
| St. Louis         | 0.5† | 0.4† | 0.7          | 1.6          | 2.1          | 3.9          | 6.5          | 12.1         | 14.7         |
| Kansas City, Kan. | 1.6* | 1.6  | 1.0          | 1.0          | 1.7          | 5.0          | 9.4          | 31.1         | 74.5‡        |

\* All typhoid deaths were stated to be in nonresidents.  
† One third or more of the reported typhoid deaths were stated to be in nonresidents.  
‡ Incomplete data.

TABLE 7—Death Rates of Eight Cities in West South Central States from Typhoid per Hundred Thousand of Population

|               | 1941 | 1940 | 1936<br>1940 | 1931<br>1935 | 1926<br>1930 | 1921<br>1925 | 1916<br>1920 | 1911<br>1915 | 1906<br>1910 |
|---------------|------|------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Tulsa         | 0.0  | 0.0  | 0.4          | 1.1          | 5.3          | 16.2‡        |              |              |              |
| Oklahoma City | 0.0  | 1.0  | 2.6          | 4.3          | 7.4‡         |              |              |              |              |
| San Antonio   | 0.0  | 2.7  | 2.9          | 4.3          | 4.6          | 9.3          | 23.3         | 29.5         | 35.9         |
| Fort Worth    | 0.6* | 1.1  | 2.1          | 4.5          | 5.0          | 6.1          | 16.3‡        | 11.9         | 27.8         |
| Houston       | 1.3  | 1.6  | 2.3          | 3.2          | 4.8          | 7.6          | 14.2         | 3.1          | 49.5‡        |
| New Orleans   | 2.2* | 2.4† | 5.0†         | 9.6          | 9.9          | 11.6         | 17.5         | 20.0         | 30.6         |
| Dallas        | 2.4† | 3.0† | 2.7†         | 5.1          | 7.3          | 11.2         | 17.2         |              |              |
| El Paso       | 4.1† | 3.1† | 4.5          | 5.2          | 9.1          | 10.8         | 30.7         | 42.6         |              |

\* All typhoid deaths were stated to be in nonresidents.  
† One third or more of the reported typhoid deaths were stated to be in nonresidents.  
‡ Incomplete data.

deaths (twelve in 1940), two among nonresidents, Pittsburgh three (the same as in 1940), all among residents. It is stated that there was one death among residents of Reading in 1941, the health department having no data on nonresidents. In the group as a whole (population 13,129,185) there were thirty-one deaths in 1941 compared with thirty-six in 1940 and forty-eight in 1939. There were two geographic areas which had a lower death rate in 1941, the East North Central and the New England.

The rate (table 3) for the South Atlantic cities (0.88) is higher than the rate of 1940 (0.73) but lower than that of 1939 (0.93) and the quinquennial period 1936-1940 (1.14). In these cities (population 2,727,985) there occurred twenty-four deaths in 1941, twenty in 1940 and twenty-five in 1939. There was but one city (Wilmington) without a death in 1941. There were four such cities in 1940. Wilmington reports no death during the past three years. Two cities (Atlanta, Tampa) record all deaths in 1941 among nonresidents, two in Atlanta, one in Tampa. Eleven (nearly one half) of the deaths in the group of cities as a whole occurred among nonresidents. In three cities (Baltimore, Washington, Richmond) more than one half were among nonresidents—three of six in Baltimore, three of five in Washington, one of two in Richmond. Charlotte (one death in 1941) has been included in the group for the second time, however, for purposes of adequate comparison, the figures for this city have been omitted in calculating rates for the group as a whole. Jacksonville reports four deaths, one among nonresidents.

The East North Central cities (population 9,386,378) have returned to first place, which rank they held

temporarily in 1938. Gary (no death in 1941) was added to this group in 1940, but figures for this city have been omitted in determining rates for the group as a whole. The number of typhoid deaths decreased from thirty-three to nineteen (the rate from 0.35 to 0.20). This is the lowest rate thus far reached by any group of cities. That the decrease in number of deaths has been scattered among the cities is indicated by the fact that there are only six cities exclusive of Gary (seven in 1940) which report no death in 1941 (Akron, Canton, Evansville, Fort Wayne, Grand Rapids, South Bend). Five cities (Columbus, Dayton, Indianapolis, Toledo, Youngstown) record all deaths among nonresidents. But two cities report more than two deaths each (four in Detroit, one among nonresidents, three in Chicago, all residents). Fort Wayne reports no typhoid death in seven years, South Bend no death in six years. It is stated that there have occurred but two deaths among residents of Grand Rapids for more than eleven years. No death among residents of Canton is recorded during the past five years. Cleveland records two deaths, one among nonresidents. Cincinnati, Flint and Peoria report one death each among residents. Following a period of four years (1937-1940) without a typhoid death, Milwaukee records one death among residents.

The six cities (table 5) in the East South Central group (population 1,286,747) show a very significant decrease in the death rate (0.70 in 1941, 2.09 in 1940).

TABLE 8—Death Rates of Twelve Cities in Mountain and Pacific States from Typhoid per Hundred Thousand of Population

|                | 1941 | 1940 | 1936<br>1940 | 1931<br>1935 | 1926<br>1930 | 1921<br>1925 | 1916<br>1920 | 1911<br>1915 | 1906<br>1910 |
|----------------|------|------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Seattle        | 0.0  | 0.0  | 0.2          | 0.7          | 2.2          | 2.6          | 2.9          | 5.1          | 2.1          |
| Portland       | 0.0  | 0.0  | 0.3          | 0.8          | 2.3          | 3.5          | 4.5          | 10.5         | 2.1          |
| Spokane        | 0.0  | 0.0  | 1.2          | 1.0          | 2.2          | 4.4          | 4.9          | 14.1         | 2.1          |
| Oakland        | 0.0  | 0.6* | 0.5†         | 1.2          | 1.2          | 2.0          | 3.8          | 8.1          | 2.1          |
| Long Beach     | 0.0  | 0.6  | 0.5          | 0.5          | 1.1          | 2.1‡         |              |              |              |
| Denver         | 0.3* | 0.0  | 1.4          | 1.7          | 2.6          | 5.1          | 5.8          | 11.0         | 2.1          |
| San Francisco  | 0.3† | 0.3† | 0.4          | 0.8          | 2.0          | 2.8          | 4.6          | 13.6         | 2.1          |
| San Diego      | 0.5  | 0.0  | 0.8          | 1.3          | 1.0          | 1.6          | 7.9          | 11.0         | 2.1          |
| Los Angeles    | 0.7† | 0.4† | 0.7†         | 0.8          | 1.5          | 3.0          | 7.6          | 10.7         | 2.1          |
| Salt Lake City | 0.7* | 0.7* | 0.3*         | 0.7          | 1.9          | 6.0          | 9.3          | 13.0         | 2.1          |
| Sacramento     | 0.9* | 0.0  | 1.5*         | 6.3          |              |              |              |              |              |
| Tacoma         | 0.9  | 0.9  | 0.5          | 0.9          | 1.8          | 3.7          | 2.9          | 19.1         | 2.1          |

\* All typhoid deaths were stated to be in nonresidents.  
† One third or more of the reported typhoid deaths were stated to be in nonresidents.  
‡ Incomplete data.

TABLE 9—Twenty-Five Cities with No Typhoid Deaths in 1940 and 1941

|              |               |
|--------------|---------------|
| Buffalo      | New Bedford** |
| Cambridge†   | Portland      |
| Canton       | Sacramento    |
| Des Moines   | Seattle       |
| Duluth††     | South Bend*   |
| Erle         | Spokane       |
| Fall River** | Springfield†† |
| Fort Wayne†  | St. Paul††    |
| Grand Rapids | Tulsa         |
| Hartford††   | Wichita**     |
| Lowell†      | Wilmington††  |
| Lynn**       | Yonkers††     |
| Newark       |               |

\* No typhoid deaths in seven years.  
\*\* No typhoid deaths in six years.  
\*\*\* No typhoid deaths in five years.  
† No typhoid deaths in four years.  
†† No typhoid deaths in three years.

2.58 in 1939). The new rate is far below the quinquennial period 1936-1940 (2.54). The number of deaths in these six cities decreased from twenty-seven in 1940 to nine in 1941. Of these five were among nonresidents, leaving but one resident (one each in Birmingham and Cleveland).

two in Louisville) Not one city records the absence of a death, but it is stated that in three (Knoxville, Memphis, Nashville) all deaths were among nonresidents. It has repeatedly been stated that the rates in this area have been adversely affected by the hospitalization of cases brought in from the surrounding rural areas. The great improvement shown in 1941 may reflect a betterment of health conditions in areas neighboring the urban centers or a change in hospitalization policy. Especially noteworthy is the decrease in Memphis from fifty-eight deaths (twenty-seven among residents) during the five year period 1936-1940 (an average of nearly twelve cases a year) to one death (thus in a nonresident) in 1941.

The West North Central group (table 6) (population 2,716,484) shows a decrease in the death rate (0.41 in 1940, 0.29 in 1941). This group now occupies

TABLE 10—Death Rates from Typhoid in 1941

| Honor Roll No Typhoid Deaths (Thirty Seven Cities) <sup>1</sup>                         |               |                |             |
|---|---------------|----------------|-------------|
| Akron   | Grand Rapids  | Hartford       | Seranton    |
| Albany  | Jersey City   | Lowell         | Seattle     |
| Buffalo   | Long Beach    | Newark         | South Bend  |
| Cambridge   | Lowell        | New Bedford    | Somerville  |
| Canton  | Lynn          | Oakland        | Springfield |
| Des Moines  | Newark        | Omaha          | St. Paul    |
| Duluth  | New Bedford   | Portland       | Trenton     |
| Erle  | Oakland       | San Antonio    | Tulsa       |
| Evansville  | Oklahoma City | Wichita        | Wilmington  |
| Fort Wayne  | Omaha         | Wilmington     | Yonkers     |
| Gary  | Portland      | Yonkers        |             |
| First Rank From 0.1 to 1.9 Deaths per Hundred Thousand (Fifty Five Cities) <sup>2</sup> |               |                |             |
| Boston  | 0.1           | Pittsburgh     | 0.4         |
| Chicago   | 0.1           | Syracuse       | 0.5         |
| Cleveland   | 0.2           | St. Louis      | 0.5         |
| Cincinnati  | 0.2           | San Diego      | 0.5         |
| Detroit   | 0.2           | Worcester      | 0.5         |
| Milwaukee   | 0.2           | Fort Worth     | 0.6         |
| Minneapolis   | 0.2           | Youngstown     | 0.6         |
| New York  | 0.2           | New Haven      | 0.6         |
| Columbus  | 0.3           | Atlanta        | 0.7         |
| Denver  | 0.3           | Paterson       | 0.7         |
| Indianapolis  | 0.3           | Salt Lake City | 0.7         |
| Memphis   | 0.3           | Baltimore      | 0.7         |
| San Francisco   | 0.3           | Los Angeles    | 0.7         |
| Kansas City, Mo.  | 0.3           | Washington     | 0.7         |
| Rochester   | 0.3           | Bridgeport     | 0.7         |
| Providence  | 0.4           | Flint          | 0.7         |
| Toledo  | 0.4           | Norfolk        | 0.7         |
| Birmingham  | 0.4           | Camden         | 0.8         |
| Philadelphia  | 0.4           |                |             |
| Second Rank From 2.0 to 4.9 (Four Cities)   |               |                |             |
| New Orleans   | 2.2           | Jacksonville   | 2.9         |
| Dallas  | 2.4           | El Paso        | 4.1         |

All typhoid deaths were stated to be in nonresidents.  
<sup>1</sup> One third or more of the reported typhoid deaths were stated to be in nonresidents.  
<sup>2</sup> Thirty six without Gary.  
 Fifty three without Charlotte and Sacramento.

fourth place. The number of deaths from typhoid have decreased from eleven in 1940 to eight in 1941. Five cities (Des Moines, Duluth, Omaha, St. Paul, Wichita) record no deaths and Kansas City, Mo., reports two deaths among nonresidents. Wichita records no death during the past five years. Duluth and St. Paul none for three years, Des Moines none for two years. It is stated that there has occurred but one death in Duluth during the past six years, two in St. Paul for five years. For 1941 Kansas City, Mo., and Minneapolis record one death each among residents, St. Louis four deaths two among nonresidents.

The eight cities of the West South Central group (table 7) (population 2,048,692) report a decided reduction in the death rate (2.00 in 1940, 1.37 in 1941). The actual number of deaths decreased from forty-one to twenty-eight. There was but one city (Tulsa) in 1940 without a death. In 1941 there were three cities

(Oklahoma City, San Antonio, Tulsa) without a death. In this group of cities, 60 per cent of deaths (seventeen out of twenty-eight) were recorded as among nonresidents. Of eleven deaths in New Orleans, all were among nonresidents. There was one death among non-

TABLE 11—Number of Cities with Various Typhoid Death Rates

|           | No of Cities | 10.0 and Over | 5.0 to 9.9 | 2.0 to 4.9 | 1.0 to 1.9 | 0.1 to 0.9 | 0.0 |
|-----------|--------------|---------------|------------|------------|------------|------------|-----|
| 1905-1910 | 77           | 7             | 2          | 0          | 0          | 0          | 0   |
| 1911-1915 | 79           | 8             | 19         | 2          | 0          | 0          | 0   |
| 1916-1920 | 84           | 11            | 32         | 30         | 0          | 0          | 0   |
| 1921-1925 | 89           | 12            | 17         | 48         | 12         | 0          | 0   |
| 1926-1930 | 92           | 1             | 10         | 50         | 27         | 12         | 0   |
| 1931-1935 | 91           | 0             | 6          | 17         | 28         | 42         | 0   |
| 1936-1940 | 93           | 2             | 6          | 30         | 21         | 22         | 10  |
| 1941      | 93           | 2             | 6          | 33         | 28         | 22         | 12  |
| 1941      | 93           | 1             | 7          | 13         | 29         | 39         | 14  |
| 1941      | 93           | 0             | 7          | 15         | 19         | 33         | 16  |
| 1941      | 93           | 0             | 9          | 11         | 27         | 23         | 23  |
| 1941      | 93           | 0             | 7          | 15         | 18         | 29         | 24  |
| 1941      | 93           | 0             | 3          | 15         | 21         | 29         | 18  |
| 1941      | 93           | 0             | 1          | 13         | 21         | 29         | 27  |
| 1941      | 93           | 0             | 1          | 13         | 14         | 24         | 29  |
| 1941      | 93           | 0             | 3          | 7          | 17         | 32         | 34  |
| 1941      | 93           | 0             | 0          | 12         | 12         | 30         | 39  |
| 1941      | 93           | 0             | 0          | 4          | 7          | 46         | 36  |

Charlotte, Gary and Sacramento omitted.

residents in Fort Worth, none among residents. Only three cities (Dallas, El Paso, Houston) record deaths among residents. Dallas reports seven deaths, four among residents (nine in 1940, three among residents).

TABLE 12—Total Typhoid Rate for Seventy-Eight Cities 1910-1941\*

|                               | Population | Typhoid Deaths | Typhoid Death Rate per 100,000 |
|-------------------------------|------------|----------------|--------------------------------|
| 1910                          | 22,573,435 | 4,637          | 20.54                          |
| 1911                          | 23,211,941 | 3,950          | 17.02                          |
| 1912                          | 23,835,339 | 3,132          | 13.14                          |
| 1913                          | 24,457,659 | 3,255          | 13.43                          |
| 1914                          | 25,091,112 | 2,751          | 11.08                          |
| 1915                          | 25,713,440 | 2,434          | 9.47                           |
| 1916                          | 26,257,530 | 2,191          | 8.34                           |
| 1917                          | 26,895,405 | 2,016          | 7.50                           |
| 1918                          | 27,056,094 | 1,844          | 6.73                           |
| 1919                          | 27,735,083 | 1,511          | 4.10                           |
| 1920                          | 28,244,575 | 1,055          | 3.85                           |
| 1921                          | 28,859,062 | 1,141          | 3.95                           |
| 1922                          | 29,473,246 | 903            | 3.26                           |
| 1923                          | 30,057,430 | 950            | 3.16                           |
| 1924                          | 30,701,614 | 943            | 3.07                           |
| 1925                          | 31,315,593 | 1,079          | 3.44                           |
| 1926                          | 31,929,782 | 907            | 2.84                           |
| 1927                          | 32,543,966 | 648            | 1.99                           |
| 1928                          | 33,158,150 | 678            | 1.89                           |
| 1929                          | 33,772,334 | 537            | 1.59                           |
| 1930                          | 34,410,935 | 504            | 1.61                           |
| 1931                          | 34,958,750 | 56             | 1.63                           |
| 1932                          | 34,607,505 | 442            | 1.78                           |
| 1933                          | 34,709,945 | 423            | 1.22                           |
| 1934                          | 34,833,650 | 413            | 1.19                           |
| 1935                          | 35,005,351 | 348            | 0.99                           |
| 1936                          | 35,196,325 | 337            | 0.96                           |
| 1937                          | 35,386,350 | 289            | 0.82                           |
| 1938                          | 35,576,011 | 257            | 0.72                           |
| 1939                          | 35,767,022 | 232            | 0.65                           |
| 1940                          | 35,959,633 | 172            | 0.48                           |
| 1941                          | 36,150,634 | 123            | 0.34                           |
| Rates for Ninety Three Cities |            |                |                                |
| 1935                          | 37,025,179 | 355            | 1.04                           |
| 1936                          | 37,211,414 | 306            | 0.95                           |
| 1937                          | 37,459,339 | 374            | 0.86                           |
| 1938                          | 37,650,155 | 295            | 0.79                           |
| 1939                          | 37,900,354 | 259            | 0.68                           |
| 1940                          | 38,060,662 | 190            | 0.50                           |
| 1941                          | 38,060,662 | 141            | 0.37                           |

\* The following fifteen cities are omitted from this table because data for the full period are not available: Canton, Chattanooga, Dallas, Fort Wayne, Jacksonville, Knoxville, Long Beach, Miami, Omaha, Oklahoma City, South Bend, Tampa, Tulsa, Utica, Wichita, Wilmington.

† Data for Fort Worth lacking.  
 ‡ 1940 census figures used.

El Paso reports four deaths, two among residents (three in 1940, two among residents). Houston records five deaths among residents (six in 1940).

The cities in the Mountain and Pacific states (table 8) (population 4,186,039) report an increase from thirteen

deaths in 1940 to sixteen in 1941. The rate has increased from 0.30 to 0.38. Sacramento has again been omitted in calculating the total number of deaths and the rates. This city, which reported no death in 1940, now records one death for 1941 among nonresidents. There are five cities (Long Beach, Oakland, Portland, Seattle, Spokane) without a death. Two cities in addition to Sacramento (Denver, Salt Lake City) record one death each among nonresidents. Los Angeles reports ten deaths, four among residents (six in 1940, three among residents). San Francisco reports two deaths, one among residents (the same for 1940). San Diego and Tacoma record one death each among residents.

THE HONOR ROLL

The number of cities with no death from typhoid has decreased from thirty-nine to thirty-six. There has occurred, however, a very significant increase in the number of cities with a death rate below 1.0 (from thirty in 1940 to forty-six in 1941). Of particular significance is the decrease in the number of cities with rates in excess of 1.0 (twenty-four in 1940, eleven in 1941). There are but four cities with rates above 2.0, and one of these (New Orleans) reports all deaths among nonresidents. Twenty-five cities record no typhoid death in 1940 and 1941 (table 9). As repeatedly stated, several other cities in the first rank would appear in the honor roll were they not charged with deaths among nonresidents.

For the seventy-eight cities (table 12) for which data are available since 1910 there occurred one hundred and twenty-three deaths from typhoid in 1941, which is the lowest of record (172 in 1940, 232 in 1939). The rate is now at a rate of about 0.33 per hundred thousand of population. For the ninety-three cities

TABLE 13—Total Typhoid Death Rate per Hundred Thousand of Population for Ninety-Three Cities According to Geographic Divisions

|                      | Population* | Typhoid Deaths |      | Typhoid Death Rates |      |      |      |       |
|----------------------|-------------|----------------|------|---------------------|------|------|------|-------|
|                      |             | 1941           | 1940 | 1941*               | 1940 | 1936 | 1931 | 1926  |
| New England          | 2,579,152   | 6              | 9    | 0.23                | 0.35 | 0.39 | 0.70 | 1.31  |
| Middle Atlantic      | 13,129,185  | 31             | 36   | 0.24                | 0.27 | 0.43 | 0.80 | 1.40  |
| South Atlantic       | 2,727,985   | 24             | 20   | 0.88                | 0.73 | 1.14 | 2.70 | 4.50  |
| East North Central   | 9,386,378   | 19             | 33   | 0.20                | 0.35 | 0.53 | 0.75 | 1.29† |
| East South Central   | 1,286,747   | 9              | 27   | 0.70                | 2.09 | 2.54 | 4.81 | 8.31  |
| West North Central   | 2,716,484   | 8              | 11   | 0.29                | 0.41 | 0.60 | 1.24 | 1.83  |
| West South Central   | 2,048,692   | 28             | 41   | 1.37                | 2.00 | 3.09 | 5.36 | 7.32‡ |
| Mountain and Pacific | 4,186,039   | 16             | 13   | 0.38                | 0.30 | 0.60 | 0.88 | 1.80  |

\* 1940 census figures used  
† Data for South Bend for 1925-1929 are not available  
‡ Lacks data for Oklahoma City in 1926

the number of deaths in 1941 is one hundred and forty-one (190 in 1940). The rate has decreased from 0.50 to 0.37. Of the one hundred and forty-one deaths in the ninety-three cities, sixty deaths (43 per cent) were among nonresidents. The health officers report no special outbreaks of typhoid. Preventive services have apparently been carried on as in previous years. Lay consideration for the dangers of exposure to insanitation, especially when traveling, have doubtless had a salutary influence on the prevalence of typhoid. The New England, Middle Atlantic, East North Central and West North Central groups have maintained their excellent rates of many years' standing. Especially noteworthy are the significant decreases in the rates of the cities in the East South Central and West South Central groups.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

THE COUNCIL VOTED AT ITS LAST ANNUAL MEETING TO INITIATE ACTION TOWARD PREPARATION AND PUBLICATION OF A REPORT ON THE PATHOGENESIS AND TREATMENT OF HYPERTENSION IN THE LIGHT OF PRESENT DAY KNOWLEDGE. CORRESPONDENCE WITH DR. HARRY GOLDBLATT REVEALED HIS WILLINGNESS TO UNDERTAKE THIS PROJECT. ACCORDINGLY THE FOLLOWING ARTICLE WAS SUBMITTED BY DR. HARRY GOLDBLATT, DR. JOSEPH R. KAHN AND DR. HARVEY A. LEWIS AND HAS BEEN AUTHORIZED FOR PUBLICATION BY THE COUNCIL.

AUSTIN E. SMITH, M.D., Acting Secretary

STUDIES ON EXPERIMENTAL HYPERTENSION

XVII. EXPERIMENTAL OBSERVATIONS ON THE TREATMENT OF HYPERTENSION

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CLEVELAND

Experimental hypertension of a persistent type is regularly produced by the application of a specially designed adjustable silver clamp so as to constrict the renal arteries or by constriction of one renal artery and excision of the opposite kidney. This leads to elevated blood pressure without or with only little depression of the excretory function of the kidney. The comparison of human essential hypertension is, in its early stages, at least, also without accompanying decrease of the excretory function, but as it progresses renal insufficiency may develop. The kidneys of such patients show arteriolar sclerosis of varying degrees of intensity and distribution. In some instances renal arterioleclerosis or other chronic disease of the kidney may be a determining factor. In experimental hypertension produced by this method and in human essential hypertension a common feature is alteration of renal circulation.

The following report is an evaluation of various methods of treatment, both surgical and medical, tested on animals with experimental hypertension. Although the mechanism of the hypertension is of circulatory origin in both experimental and human essential forms, there is one striking difference. The experimental form is due to reduction of the lumen of the main renal arteries. This is occasionally true in man because of arteriosclerosis at the ostia of the main arteries within the main renal arteries, but in the large majority of cases essential hypertension is associated with disease of smaller arteries, within the kidney, and it is especially manifest in the preglomerular arteries.

SURGICAL TREATMENT

(a) Operations on the Nervous System.—It has been shown that the various surgical operations on the nervous system that have been devised for the treatment of human hypertension neither prevent nor cure it.

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1. Goldblatt, Harry, Lynch, James, Harzall, P. F., et al. Studies on Experimental Hypertension. I. Production of Persistent Elevation of Systolic Blood Pressure in Renal Ischemia. J. Exper. Med. 59: 347 (Mar. 1934).  
2. Goldblatt, Harry. Experimental Hypertension Induced in Rats. Harvey Lectures, Baltimore, Williams & Wilkins Co., 1937.  
3. Goldblatt, Harry.



mental renal hypertension produced in animals as described. Renal denervation, supradiaphragmatic section of splanchnic nerves and excision of the lower four thoracic sympathetic ganglions, subdiaphragmatic section of splanchnic nerves with excision of the lumbar ganglions, section of the anterior nerve roots from the sixth dorsal to the second lumbar inclusive, total sympathectomy of the abdomen and thorax, including denervation of the heart and even destruction of the spinal cord have no permanent effect in the prevention or alleviation of this type of hypertension.<sup>2</sup>

In the dog the effect on the vasomotor apparatus, especially in the splanchnic region, is presumably the same as in man. There is, however, one significant difference between the anatomic causes of hypertension in dog and man. In animals the restriction of blood flow to the kidneys is effected by constriction of the main renal artery by means of a metal clamp. This is rigid and is not altered by any of the operations on the nervous system as long as the clamp remains on the vessel. In man, on the contrary, the counterpart of the effect of the silver clamp is produced by the thickening of the wall and consequent stenosis of the lumen of many small arteries and arterioles within the kidney.

It is conceivable, at least that some of these vessels which contribute to the disturbance of renal circulation are merely in a state of spasm and still under the influence of the nervous system, so that they are, therefore, in a reversible state and become dilated as a result of the elimination of any vasoconstrictor stimuli. The conclusion that follows from these experiments is that whatever improvement does occur from these operations is in all probability, apart from the effect of enforced rest due to improvement of the circulation to the kidney and not to an effect on the rest of the vasomotor apparatus of the abdomen.

(b) *Excision of a Single Diseased Kidney*—In the earliest experiments on the production of renal hypertension in the dog it was found that constriction of the main artery of only one kidney might result in elevation of the blood pressure which persisted from weeks to months.<sup>3</sup> It has since been shown that in the rat, sheep and goat<sup>4</sup> hypertension due to constriction of only one main renal artery may persist for many months. Furthermore, the removal of the clamp on the renal artery, or the excision of the corresponding kidney, at a time when the blood pressure was still considerably elevated, resulted in a prompt (twenty-four

to forty-eight hours) return of the blood pressure to normal, provided the opposite kidney was normal. These observations have been fully confirmed<sup>5</sup> and have led to the recognition of human hypertension associated with unilateral renal disease, especially unilateral chronic pyelonephritis or any other pathologic condition capable of producing a disturbance of renal hemodynamics similar to that produced by constriction of the main renal artery. It is now known that in man some types of unilateral renal disease may produce hypertension that persists for a long period and that the hypertension may also be cured by the removal of the diseased kidney, provided the contralateral kidney is normal.

Recently Abeshouse<sup>6</sup> published an extensive review of this phase of the subject which summarizes most of the experimental work and gives the reports of human hypertension treated by unilateral nephrectomy. Although alleviation or seeming cure of the hypertension has already been reported in a goodly number of cases, yet the number in which improvement has not occurred is also considerable. This may mean merely that in such cases, although the results of the tests of renal excretory function of the contralateral kidney were within the limits of normal, the kidney was not normal. It was probably the seat of vascular disease of a degree which present methods do not detect but which may have been responsible for the persistence of the hypertension.

(c) *Surgical Production of Collateral Renal Circulation*—In animals with persistent hypertension due to constriction of both main renal arteries, the natural development or surgical production of collateral circulation to these kidneys has also resulted in the return of the blood pressure to normal,<sup>7</sup> but with one exception<sup>8</sup> the few reported attempts to do this in human hypertension have not yet been successful.<sup>9</sup> However, in human hypertension, up to the present time, the attempt to produce collateral circulation has been practiced on only one kidney in cases in which both kidneys were presumably diseased. The difference in results is probably due to the fact that the operation was on one side only but is undoubtedly also due to the fact that in the dog the vessels inside the kidney are not organically diseased, while in man, in most instances, the vascular disease is intrarenal and often only the preglomerular arterioles are affected. Anastomosis of extrarenal and intrarenal vessels could, therefore, prove of little or no value unless only the larger intrarenal arteries, or better the extrarenal portion of the renal

<sup>2</sup> Page I H. Relationship of Extrinsic Renal Nerves to Origin of Experimental Hypertension. *Am J Physiol* 112:166 (May) 1935. Collins D A. Hypertension from Constriction of Arteries in Denervated Kidneys. *ibid* 116:616 (Aug) 1936. Goldblatt Harry, Gross J and Hanzal R F. Studies on Experimental Hypertension. II. The Effect of Resection of the Splanchnic Nerves on Experimental Renal Hypertension. *J Exper Med* 65:233 (Feb) 1937. Goldblatt Harry and Wartman W B. Studies on Experimental Hypertension. VI. The Effect of Section of the Anterior Spinal Nerve Roots on Experimental Hypertension Due to Renal Ischemia. *ibid* 66:527 (Nov) 1937. Freeman N E and Page I H. Hypertension Produced by Constriction of Renal Artery in Sympathectomized Dogs. *Am Heart J* 14:405 (Oct) 1937. Heymans C, Bouckvert J J, Elaut L, Bayless E and Samaan A. Hypertension arterielle chronique par ischemie renale chez le chien totalement sympathectomise. *Compt rend Soc de biol* 126:434 (Sept) 1937. Glenn F, Child C G and Page I H. Effect of Destruction of the Spinal Cord on Hypertension Artificially Produced in Dogs. *Am J Physiol* 122:506 (May) 1938. Glenn F and Lasher E P. Effect of Destruction of Spinal Cord on Artificial Production of Hypertension in Dogs. *ibid* 124:106 (Oct) 1938. Verney and Vogt<sup>5</sup>. Block and Levy.<sup>5</sup>

<sup>3</sup> Goldblatt Harry. Studies on Experimental Hypertension. VII. The Experimental Production and Pathogenesis of Hypertension Due to Renal Ischemia. *Am J Clin Path* 10:40 (Jan) 1940.

<sup>4</sup> Wil on C and Byrom F B. Renal Changes in Malignant Hypertension. *Lancet* 1:136 (Jan) 1939. Friedman B, Jarman J and Klempner P. Sustained Hypertension Following Experimental Unilateral Renal Injuries. Effects of Nephrectomy. *Am J M Sc* 202:20 (July) 1941. Goldblatt Harry, Kahn J and Lewis H A. Experimental Hypertension in Goats and Sheep to be published.

<sup>5</sup> Goldblatt Harry. Studies on Experimental Hypertension. V. The Pathogenesis of Experimental Hypertension Due to Renal Ischemia. *Ann Int Med* 11:69 (July) 1937. Rodbard S and Katz L N. The Elimination of the Effect of the Chemical Mediator of Renal Hypertension. *Am J M Sc* 198:602 (Nov) 1939. Verney E B and Vogt M. An Experimental Investigation into Hypertension of Renal Origin with Some Observations on Convulsive Uremia. *Quart J Exper Physiol* 28:253 (Sept) 1938. Block Alfred and Levy S E. Studies on the Etiology of Hypertension. *Ann Surg* 106:826 (Nov) 1937.

<sup>6</sup> Abeshouse B S. Hypertension and Unilateral Renal Disease. *Surgery* 9:942 (June) 1940. 10:147 (July) 1941.

<sup>7</sup> Mansfield J S, Weeks D M, Steiner A and Victor J. Reduction of Experimental Renal Hypertension by Pexis of Spleen or Omentum to the Kidney. *Proc Soc Exper Biol & Med* 40:708 (April) 1939. Cerqua S and Samaan A. Cure of Experimental Renal Hypertension. *Chin Sc* 4:113 (Dec) 1939. Weeks D M, Steiner A, Mansfield J S and Victor J. The Depressor Effect of Splenorenexy on Hypertension Due to Renal Ischemia. *J Exper Med* 72:345 (Oct) 1940.

<sup>8</sup> Ritter J S. Nephro Omentopexy for Relief of Hypertension. *J Internat Coll Surgeons* 4:25 (Feb) 1941.

<sup>9</sup> Ahrami P, Iselin M and Wallich R. Essai de traitement de l'hypertension arterielle d'origine renale par la revascularization chirurgicale du rein (nephro-omentopexie). *Presse med* 47:137 (Jan 28) 1939. de Takats Geza and Scupham G W. Revascularization of the Ischemic Kidney. *Arch Surg* 41:1394 (Dec.) 1940. Bruger M and Carter R F. Nephro-omentopexy and Nephromyopexy in the Treatment of Arterial Hypertension. *Ann Surg* 113:381 (March) 1941.

artery, were diseased. The occurrence of such cases in man has already been reported,<sup>10</sup> but the identification of this particular condition in life is difficult or impossible.

We have also observed patients with hypertension who at autopsy showed little or no intrarenal vascular disease, but the mouth of each renal artery was stenotic owing to an arteriosclerotic plaque in the wall of the aorta around it, or to arteriosclerosis of both main renal arteries or even to partial thrombosis of the main renal arteries, conditions that could produce the same intrarenal hemodynamic disturbances as are caused by experimental constriction of the main renal arteries. If such conditions could be recognized in life, treatment by production of accessory renal circulation might be successful.

#### MEDICAL TREATMENT

In a recent publication, Mosenthal<sup>11</sup> summarized the effects of the most common methods of medical treatment of human hypertension and concluded that "there are no means by which an elevated blood pressure can be appreciably and persistently lowered." He referred, of course, to cases of so-called essential hypertension. The same conclusion had been reached previously by others. During the past six years many of the methods of medicinal treatment mentioned in Mosenthal's article, and other methods also, have been tested in this laboratory and elsewhere<sup>12</sup> on dogs with the type of experimental renal hypertension which resembles that human form of hypertension which is associated with renal vascular disease. The results are now summarized and evaluated in reference to the treatment of human hypertension.

An interesting difference between experimental hypertension due to renal ischemia in the dog and some of the types of hypertension that have been included under the heading of essential hypertension in man is the immediate response of the blood pressure of the latter to the effect of certain hypnotics, narcotics and anesthetics. For example, in many cases of human hypertension, the intravenous administration of pentothal sodium is said<sup>13</sup> to cause a significant, and sometimes a profound, fall of blood pressure. As a matter of fact, human hypertension which responds in this way to the injection of this drug is the type usually chosen for treatment by surgical operation on the nervous system.<sup>13</sup>

(a) *Pentothal Sodium*—In the tests on dogs with experimental renal hypertension the dose of pentothal sodium used was, as in man, between 10 and 15 mg per kilogram of body weight, injected intravenously, in

10 cc of saline solution during a period of about ten minutes. The blood pressure was taken immediately before the injection and again at the end of the injection, or soon afterward, when the dog had become completely unconscious. In our experience, in the trained normal dog a significantly persistent elevation of blood pressure is rare. In excitable dogs, normal or hypertensive, the blood pressure fell moderately during the period of unconsciousness, indicating that in the normal dog the pressures were relatively high for the animal and that in the hypertensive dog the hypertension which followed the constriction of the renal arteries was not entirely of renal origin and was probably, in part at least, psychogenic. In most of the normal and hypertensive, quiet, well trained animals, no effect on the blood pressure was observed from the injection of the dose of pentothal sodium indicated.

(b) *Pentobarbital Sodium*—Like pentothal sodium an anesthetic dose of pentobarbital sodium lowered the blood pressure of only normal and excitable untrained hypertensive dogs. Hamilton and his associates<sup>14</sup> found that the blood pressures of 5 dogs with "spontaneous hypertension" fell from an average of 222/161 to 137/67 after barbiturate anesthesia of surgical depth. In our experience persistent, spontaneous hypertension in the dog is very rare. We believe, therefore, that the dogs just mentioned were not truly hypertensive and that the hypertension which follows renal ischemia is unaffected by barbiturate narcosis or chloralose.

It is for this reason that before any type of medicinal treatment was tested each test animal was usually subjected, at least once, to an intravenous injection of pentothal sodium or chloralose. If the blood pressure did not fall significantly during the unconscious state, the dog was regarded as satisfactory for determination of the effect of various agents on the hypertension. A significant fall of blood pressure, on the contrary, was regarded as an indication that the elevation of the blood pressure was due, in part at least, to factors other than renal and the animal was not used for therapeutic tests.

(c) *Chloralose* (orthochloralose)—This drug, like pentothal sodium. In dogs with experimental hypertension due to renal ischemia a dose of 0.08 Gm of chloralose per kilogram of body weight, injected intravenously, dissolved in isotonic solution of sodium chloride (from 50 to 100 cc) had no appreciable effect on experimental renal hypertension in the dog. The rise of blood pressure was due, in part at least, to excitement.

(d) *Morphine*—As much as 0.1 Gm of morphine sulfate injected hypodermically in well trained hypertensive dogs weighing 15 to 20 Kg had no significant effect on the blood pressure. In the occasional excitable, untrained normal dog the blood pressure was somewhat decreased by this drug.

(e) *Nitrites*—Of the various substances that have a fleeting effect on human hypertension, the most effective is nitroglycerin, which produces a fall in blood pressure by producing peripheral vasodilation. In the dog, the nitrites are the most commonly employed. In the dog, with experimental renal hypertension, the most effective is amyl nitrite (pearl) or the intravenous injection of glyceryl trinitrate (1/100 grain, or 0.6 mg).

10 Freeman, Gustave, and Hartley, George, Jr. Hypertension in a Patient with a Solitary Ischemic Kidney, *J. A. M. A.* **111** 1159 (Sept 24) 1938. Leiter, Louis. Unusual Hypertensive Renal Disease. 1 Occlusion of Renal Arteries (Goldblatt Hypertension), 2 Anomalies of Urinary Tract, *ibid.* **111** 507 (Aug 6) 1938. Blackman, S. S., Jr. Arteriosclerosis and Partial Obstruction of the Main Renal Arteries in Association with "Essential" Hypertension in Man, *Bull. Johns Hopkins Hosp.* **65** 353 (June) 1939. Riggs, T. F., and Satherwaite, R. W. Unilateral Kidney with Partial Occlusion of Renal Artery Associated with Hypertension, *Case, J. Urol.* **45** 513 (April) 1941.

11 Mosenthal, H. O. The Medicinal Treatment of Hypertension, *J. A. M. A.* **114** 1548 (April 20) 1940.

12 Wakerlin, G. E., and Gaines, W. The Effect of Various Agents on the Blood Pressure of Renal Hypertensive Dogs, *Am. J. Physiol.* **130** 568 (Sept.) 1940. Grollman, A., Harrison, T. R., and Williams, J. R. Therapeutics of Experimental Hypertension, *J. Pharmacol. & Exper. Therap.* **69** 76 (May) 1940. Davis, Loyd and Barker, M. H. Clinical and Experimental Experiences in the Surgical Treatment of Hypertension, *Ann. Surg.* **110** 1016 (Dec.) 1939. Levy, S. E., and Block, Alfred. Experimental Attempts to Prevent or Abolish Hypertension That Is Associated with Renal Ischemia, *Surgery* **3** 899 (June) 1938. Friedman, B., Jarman, J., and Marrus, J. Therapeutic Agents and Renal Implantations in Experimental Hypertension, *J. Mount Sinai Hosp.* **8** 534 (Jan-Feb.) 1942. Davis and Barker.<sup>10</sup>

13 Allen, E. V., and Adson, A. W. Comments on the Surgical Treatment of Essential Hypertension, *Proc. Staff Meet., Mayo Clin.* **12** 588 (Sept 15) 1937.

14 Hamilton, W. F., Fund, E. R., Slone, P. A., Jr., Colson, G. M., Coleman, H. W., and J. P., 1940. Blood Pressure Values in Street Dogs, *Am. J. Physiol.* **124**

blood pressure almost immediately. In some animals the direct femoral mean blood pressure fell precipitously from a level well over 200 mm of mercury to 100 mm or less. The effect as in man, lasted only a few minutes, with a quick return to the original high level. The administration of these substances at frequent intervals prolonged the effect by causing repeated falls of the blood pressure but cessation of administration resulted in a prompt return of the blood pressure to the original high level.

(f) *Potassium Thiocyanate*—Of the drugs that have been suggested recently for continuous or frequent administration in cases of human hypertension, potassium thiocyanate is the best known. For man, it has been stated<sup>15</sup> that if an adequate concentration of this drug in the blood is maintained by daily administration the blood pressure may in some cases be kept at a considerably reduced level and may even fall to normal. In the dog with renal hypertension, it has been found that the concentration of the drug in the blood must be at, or very close to, the level of intoxication before an appreciable fall of blood pressure occurs. Intoxication, indicated usually by anorexia and vomiting and sometimes by diarrhea, regularly preceded the fall of blood pressure to a lower level. To obtain a concentration of 10 mg of this drug in 100 cc of blood the most effective concentration for man, the dog required a relatively larger dose than is necessary for man. Withdrawal of the drug resulted in a slow return of the blood pressure to the previously hypertensive level, the rate of return depended on the degree of intoxication of the animal. In 1 animal it took a little more than two weeks for return of the blood pressure to the original high level. During the greater part of this period the animal was obviously ill.

Davis and Barker<sup>12</sup> reported that injection of potassium thiocyanate effectively lowered the blood pressure of renal hypertensive dogs, and that supradiaphragmatic removal of the thoracic sympathetic trunks and splanchnic nerves rendered the animals even more sensitive to the drug.<sup>16</sup> Grollman, Harrison and Williams found<sup>12</sup> that potassium thiocyanate caused an insignificant fall when administered orally to hypertensive rats. Hamilton and his associates<sup>14</sup> found that sodium thiocyanate lowered the blood pressure of dogs with "spontaneous" hypertension but concluded that the season of the year (summer) was more likely the cause of the reduction in blood pressure than was the drug, as the fall persisted for two months after all the thiocyanate was excreted.

(g) *Mannitol Hexamtrate*—For the continuous treatment of human hypertension the nitrates have also been used. A preparation of mannitol hexamtrate, obtained on the open market and recommended for the treatment of human hypertension, was administered orally to 3 hypertensive dogs. No persistent reduction of blood pressure of these animals was observed from as much as 12 grains (0.8 Gm) daily for twenty-one days. This dose was about three times the maximum daily amount recommended for man. Occasionally, two to three hours after the drug was given a slight but significant reduction of the blood pressure was noted. However, it soon began to rise again and in the morning before the administration of the first dose of the drug, the blood pressure was almost invariably back to

the original high level. Grollman and his associates<sup>12</sup> obtained a similar result from the oral administration of similar compounds (sodium nitrite and erythrol tetranitrate) to hypertensive rats.

(h) *Viscum Album* (extract of mistletoe)—This has been used widely for the treatment of hypertension in man. In dogs with experimental renal hypertension the oral administration of 200 mg of this drug daily for two weeks had no significant effect on the blood pressure. There were no untoward effects from the administration of this amount of the drug although it was equal to the dose recommended for man.

(i) *Allium Sativum* (garlic extract)—This is a drug that is being exploited commercially in the treatment of human hypertension. Dogs with experimental renal hypertension were given three times daily 2 capsules of a commercial preparation, each containing 0.3 cc of extract. This was three times the dose recommended for human hypertension, and the administration was continued up to two weeks. The blood pressure showed no significant change from the original hypertensive level. There were no untoward effects. This finding is in agreement with that of others.<sup>17</sup>

(j) *Extract of Watermelon Seed*—This is another drug that has been exploited commercially in the treatment of human hypertension. The administration of as much as three times the dose of a commercial preparation recommended for man had no significant effect on the blood pressure of dogs with experimental renal hypertension. There were no obvious untoward effects from the oral administration of this drug.

(k) *Sodium Bromide*—The bromides, in various forms, are frequently administered to hypertensive persons, and a significant lowering of the blood pressure has been observed in some human beings as long as the drug is taken. The blood pressure does not usually reach the normal level. However, in the unexcitable well trained hypertensive dog, as much as 8 Gm of sodium bromide by mouth daily for ten days failed to have a significant effect on the blood pressure. This indicates that the effect observed in persons with hypertension is on the accessory, possibly psychogenic, factors and not on the basic cause of the hypertension.

(l) *Veratrum Viride*—Tincture of *Veratrum viride* (U S P XI), 1 to 2 cc daily by mouth, which is from four to eight times the maximum dose that has been recommended for man, had no significant effect on the blood pressure of hypertensive dogs when given daily for two weeks. No signs of intoxication were observed from the administration of this amount of the drug.

(m) *Acetyl Choline*—Choline derivatives of several kinds have been used in the treatment of human peripheral vascular disease, with or without hypertension. There is no agreement about beneficial effects on the hypertension. The daily administration of acetyl choline for as long as one hundred and forty-four days failed to cause a persistent lowering of the blood pressure in dogs with experimental renal hypertension. The daily dose was from 2 mg to 5 mg per kilogram of body weight. It was dissolved in 500 cc of isotonic solution of sodium chloride and was injected intravenously in a continuous period of about three hours. Immediately after the injection the direct femoral mean blood pressure was frequently from 30 to 50 mm of mercury lower than the initial value, but it returned quickly to the original hypertensive level and remained

15 Barker M H. The Blood Cyanates in the Treatment of Hypertension. J A M A 106 762 (March) 1936.

16 Davis Ioval and Barker M H. The Depressor Effect of Potassium Sulfo-cyanate Before and After Bilateral Splanchnicotomy in Normal and Hypertensive Dogs. J Lab & Clin Med 26 658 (Jan) 1941.

17 Wakerlin and Gaines.<sup>12</sup> Grollman, Harrison and Williams.<sup>12</sup>

there until the next injection. At autopsy these animals did not exhibit coronary arteriosclerosis or any of the other changes in the cardiovascular system that have been attributed to treatment with acetyl choline in nonhypertensive dogs.<sup>18</sup> Normal dogs that were given the same treatment for almost a year also failed to show a permanent effect on the blood pressure or pathologic changes in the vascular system. Grollman and his associates<sup>12</sup> also failed to observe an effect on the blood pressure from the oral administration of acetyl beta-methyl choline to hypertensive rats.

(n) *Choline Chloride*—As much as 80 grains (5.2 Gm.) of choline chloride by mouth daily for three weeks also had no effect on the blood pressure of dogs with experimental renal hypertension. There were no signs of intoxication as a result of the administration of this large dose of the drug.

(o) *Sodium Chloride*—Almost complete elimination of sodium chloride from the diet did not effect a permanent lowering of the blood pressure of hypertensive dogs. In some of the dogs there was finally a slight fall of blood pressure during a period of almost complete starvation when the animals refused to eat the unappetizing diet. Conversely, the administration of an excess of sodium chloride in the diet of normal and hypertensive dogs did not elevate the blood pressure appreciably above the usual range.

(p) *Nicotinic Acid*—The oral administration of from 200 mg. to 2 Gm. of nicotinic acid daily for three weeks failed to have a significant effect on the blood pressure of normal or hypertensive dogs. No untoward effects were noticed even in the dogs that had received the largest dose.

(q) *Biotin* (vitamin H)—Injected subcutaneously, for ten days, 1,000 units of biotin daily had no significant effect on the blood pressure of hypertensive dogs. The solution of biotin was supplied to us by Dr. Paul Gyoigy.

#### THE EFFECT OF DIET ON EXPERIMENTAL RENAL HYPERTENSION

Verney and Vogt<sup>5</sup> first reported on the effect of diet on the blood pressure of dogs made hypertensive by induction of renal ischemia. They found that the addition of an excess of salt caused a definite rise of blood pressure in hypertensive dogs which did not occur in dogs with 80 per cent of their kidney tissue removed surgically, or in normal dogs. We noticed no increase of pressure when large quantities of salt (20 Gm. daily) were added to the diet of dogs with experimental renal hypertension, a finding similar to that of Philipsborn, Katz and Rodbard<sup>19</sup> in hypertensive dogs and of Grollman and his associates<sup>12</sup> in hypertensive rats.

Cash and Wood<sup>20</sup> found that both the systolic and the diastolic pressure of 1 dog with experimental hypertension rose when it was fed a meat diet only when this animal gained in weight. Pursuing this line of investigation, Cash and Wood found that addition of beef fat to the diets of normal and hypertensive dogs caused a reversible rise of systolic pressure in both groups during the period of obesity, the diastolic pressure remaining unaltered. Verney and Vogt<sup>5</sup> reported a moderate

rise of blood pressure in dogs with experimental hypertension when they were fed a meat diet or when urea was added to their diet. Philipsborn, Katz and Rodbard<sup>19</sup> found that a high protein diet had no effect on the blood pressure of renal hypertensive dogs in the absence of renal excretory insufficiency, and this is in keeping with our own experience. Extra deprivation of protein in hypertensive dogs fed a cracker meal diet had an effect in slightly lowering the blood pressure only when these animals refused to eat the food and were losing weight.

#### ORGANOTHERAPY

Many different types of extract and other preparations of various organs, especially liver, kidney and pancreas, have been prepared and administered experimentally in a variety of ways for the treatment of human essential hypertension. The results, for the most part, have been equivocal and the claims for the value of these preparations by some have not been substantiated by others.

*Pancreas*—A preparation of pancreatic extract, available on the open market and recommended for the treatment of hypertension in man, failed to have any effect on experimental renal hypertension in the dog, even when twelve times the recommended dose for man was given daily for three weeks. Another pancreatic extract combined with extract of mistletoe, supposed to be effective for human hypertension, also failed to affect experimental renal hypertension in the dog even when four times the daily dose recommended for human hypertension was administered orally for four weeks. No untoward effects were observed. This is in agreement with the experience of Wakerlin and Garret<sup>21</sup> in the treatment of 1 hypertensive dog.

*Liver*—Tests of the efficacy of commercially available liver extract for the treatment of hypertension have not yet been made on animals with experimental hypertension.

*Kidney*—Renal organotherapy is by no means a new procedure for the treatment of hypertension without obvious disturbance of renal excretory function. The thought that the kidney may be an organ of internal secretion dates back to Brown-Séquard, who in 1851 was assisted in this work by d'Arsonval.<sup>22</sup> It was regarded as uremia, associated with anuria, due to disease or to bilateral nephrectomy, as, in part at least, in the nature of a hormone deficiency, and were then to prepare an extract of kidney for the treatment of this condition. They did not determine the effect of treatment on blood pressure. Many other preparations on the existence of an internal secretion of the kidney have appeared since, and treatment of nephritic eclampsia with uremia, by renal organotherapy, has been the subject of many reports. Renal organotherapy for the treatment of hypertension with renal insufficiency was first practiced by Renaut in 1903. He used macerated kidneys and claimed that the administration of this material had a beneficial effect in both conditions.

Actually, the first organ to be extracted for the possible isolation of a substance that would

18 Hall, G. E., Ettinger, G. H., and Banting, F. G. An Experimental Production of Coronary Thrombosis and Myocardial Failure, *Canad. M. A. J.* 34:9 (Jan.) 1936.

19 Philipsborn, H., Katz, L. N., and Rodbard, S. The Effect of High Protein Diets on Experimental Renal Hypertension, *J. Exper. Med.* 74:591 (Dec.) 1941.

20 Cash, J. R., and Wood, J. E., Jr. Observations upon the Blood Pressure of Dogs Following Changes in Body Weight, *South. M. J.* 31:270 (March) 1938.

21 Brown-Séquard, C. E. Importance de la sécrétion rénale. Démonstrée par les phénomènes de l'anurie et de la physiologie normale et pathologique, 1893.

22 Renaut, I. L. Pouvoir sécrétoire des épithéliums des tubes contournés du rein et valeur des préproduits solubles dans l'eau, *Bull. Acad. de Médecine*, Paris 17:1081-1903. Sur le rôle de la macération du rein. *Compt. rend. Soc. de biol.* 56:5-1903.



pressure was the kidney. Renal extracts specifically for the treatment of human hypertension, were first tried by Gomez in 1934.<sup>23</sup> In 17 of his 40 cases the hypertension was accompanied by renal excretory insufficiency and accumulation of nitrogenous products in the blood. He stated that there was a steady drop of blood pressure as a result of the treatment in 38 of his 40 cases and also a fall of blood urea in 16 out of the 17 cases in which there was elevated blood urea. During the past few years there have been other publications<sup>24</sup> dealing with the treatment of renal hypertension by renal opotherapy and with injections of renal extracts of various kinds.

Hitherto what prompted the trial of renal substance or extract has always been either pure empiricism or the idea of the substitution of a missing or deficient renal hormone, or the detoxification of poisonous substances present in the blood due to disease of the kidneys. The thought that such treatment might inhibit the hypertension by inhibiting the formation of or destroying or inactivating a pressor substance of renal origin or some substance in the blood plasma which interacts with a substance of renal origin to form a pressor substance is entirely new and is based on the current theory of a humoral mechanism of hypertension of renal origin. It is in order, therefore, at this time to give a brief summary of this theory, which justifies the most recent attempts at renal organotherapy for experimental and human hypertension.

#### THE HUMORAL MECHANISM OF EXPERIMENTAL RENAL HYPERTENSION

Briefly, the present view of the humoral mechanism in the pathogenesis of renal hypertension is that renin, an enzyme or enzyme-like substance from the kidney, enters the blood stream by way of the renal veins. Renin by itself is not vasoconstrictor<sup>24a</sup> but interacts with a substance in the blood plasma identified as a globulin and probably a pseudoglobulin, which has been called renin activator<sup>25</sup> or hypertension precursor<sup>26</sup> and which is also being referred to as hypertensinogen or prehypertensin. The combination or interaction of these two substances results in the formation of a vasoconstrictor and therefore vasopressor substance that has been termed angiotonin<sup>27</sup> or hypertensin<sup>28</sup>. Page and his collaborators have regarded renin as the substrate while Munoz and his associates<sup>29</sup> believe that the substrate is the pseudoglobulin in the plasma. The authors agree that renin activator and hypertensin precursor on the one hand and angiotonin and hypertensin on the other hand are respectively identical. The mode of formation of the actual pressor substance from renin is,

in both cases theoretical. However, it can be shown that this interaction does occur *in vitro*. Renin, dissolved in isotonic solution of three chlorides, when perfused through the hind end of a toad shows no vasoconstrictor properties. If, however, renin, which is not itself vasoconstrictor, is mixed with blood serum, also without vasoconstrictor properties, in the proportion of 1 part of renin to 20 parts of blood serum, and the two are allowed to stand at room temperature for as little as ten minutes the resultant mixture is intensely vasoconstrictor. Presumably therefore, renin by itself is not vasopressor but it is the interaction with something in the blood that brings about the formation of a vasoconstrictor and therefore a vasopressor substance. Both groups of investigators also hypothesize the existence of a substance called either inhibitor<sup>30</sup> or hypertensinase,<sup>29</sup> which can be extracted in considerable quantity from kidney and intestinal mucosa<sup>31</sup> and, in smaller quantity from muscle.<sup>32</sup> This substance is capable of inactivating the vasopressor substance *in vitro*. Exactly how it produces this effect is not yet known but it is presumably due to enzymatic destruction of the effective pressor substance. This is the basis for the present attempt to treat hypertension by means of renal extract. Obviously, *in vivo* the effect of an antipressor substance could be brought about in one or several ways. It could be due to the interference with the formation, inactivation or destruction of renin, renin activator or angiotonin, or to interference with the response of the blood vessels by an effect on the nervous or muscular portions of the vasomotor apparatus.

#### THE TREATMENT OF EXPERIMENTAL RENAL HYPERTENSION BY RENAL ORGANOOTHERAPY

To test the value of the claims that have been made for renal opotherapy in man, Dr. Paul Gyorgy suggested to us that dogs with experimental renal hypertension be fed kidney to supplement a possible deficient factor of renal origin. Three hypertensive dogs were therefore fed 500 Gm of raw beef kidney daily from Oct 15, 1936 to Jan 29, 1937. They ate the kidney readily, in addition to a variable amount of Ralston's Purina Dog Chow, their regular diet. During the period of opotherapy with raw beef kidney, lowering of the blood pressure was not noted in any of the 3 dogs. This finding is in keeping with that of Wakerlin and Gaines.<sup>12</sup>

With the thought that the amount of kidney eaten daily might have been inadequate for any effect on the blood pressure, a papain digest of kidney was then prepared which permitted the administration by stomach tube of the equivalent of 3 Kg of renal substance daily. The effect varied in different animals. In some there was a slight but significant fall of the blood pressure, which returned to normal a few days after the administration of the digest was discontinued. The extract was vile smelling and evidently distasteful to the animals,

23 Gomez D M. Pre ence dans certains extraits renaux d'une substance hypotensive et ureolytique. *Compt rend Soc de biol* 116: 976 (June 30) 1934. Gomez D M. Action therapeutique de certains extraits renaux dans le traitement de l'hypertension arterielle. *Presse med* 42: 1571 (Sept 1) 1934.

24 Jablons Benjamin. Nephritic Hypertension. Treatment with Diuretic Agent Obtained from Animal Kidney. *New York State J Med* 38: 31 (Jan 1) 1938.

24a Friedman B, Abramson P I and Marx W. Pressor Substance in the Cortex of the Kidney. *Am J Physiol* 124: 285 (Nov) 1945.

25 Kohlstedt K G, Page I H and Helmer O M. The Activation of Renin by Blood. *Am Heart J* 19: 92 (Jan) 1940.

26 Leloir L F, Munoz J M, Braun Menendez E and Fasciolo J C. La creacion de renina y la formacion de hipertensina. *Rev Soc argnt biol* 16: 75 (May) 1940.

27 Page I H and Helmer O M. Crystalline Pressor Substance (Angiotonin) Resulting from Reaction Between Renin and Renin Activator. *J Exper Med* 71: 29 (Jan) 1940.

28 Braun Menendez E, Fasciolo J C, Leloir L F and Munoz J M. The Substance Causing Renal Hypertension. *J Physiol* 95: 284 (July) 1940.

29 Munoz J M, Braun Menendez E, Fasciolo J C and Leloir L F. The Mechanism of Renal Hypertension. *Am J M Sc* 200: 608 (Nov) 1940.

30 Page I H and Helmer O M. Angiotonin Activator, Renin and Angiotonin Inhibitor and the Mechanism of Angiotonin Tachyphylaxis in Normal Hypertensive and Nephrectomized Animals. *J Exper Med* 71: 495 (April) 1940.

31 Fasciolo J C, Leloir L F, Munoz J M and Braun Menendez E. La hipertensinasa. Su dosaje y distribucion. *Rev Soc argnt. biol* 16: 643 (Nov) 1940.

32 Page I H, Helmer O M, Kohlstedt K G, Fout P J, Kempf G F and Corcoran A C. Substance in Kidneys and Muscle Eliciting Prolonged Reduction of Blood Pressure in Human and Experimental Hypertension. *Proc Soc Exper Biol & Med* 43: 722 (April) 1940.



for, although it was administered by stomach tube, most of the dogs habitually vomited the material soon after the administration and refused to eat even their ordinary food. The fall of blood pressure, therefore, may have been due only to this untoward effect on the general condition of the animal and not to a specific effect of the digest.

Grollman and his collaborators<sup>33</sup> have reported that kidney extract given by mouth can effect a lowering of the blood pressure of hypertensive dogs and rats. Their rats were made hypertensive by reduction of the amount of renal substance.<sup>34</sup> This claim has not yet been confirmed. Later Grollman and his collaborators<sup>35</sup> and Page and his collaborators<sup>36</sup> reported beneficial effects obtained from the injection of extracts of whole hog's kidney in hypertensive rats, dogs and man. Most of the dogs of Page and his collaborators were made hypertensive by wrapping the kidneys in cellophane or silk.<sup>37</sup> In the most recent publications they have given details about the preparation of their extracts, so that it has become possible to reproduce them and, by tests on hypertensive dogs, to make a direct comparison of the potency of their extracts with those which we have produced.

The tests of renal extracts recorded here were carried out on dogs with experimental hypertension due to constriction of both main renal arteries by means of a silver clamp<sup>13</sup> or similar constriction of the main artery of one kidney and removal of the other kidney. In some of the animals an organic membrane ("Natural-lamb Skin") was also placed around one or both kidneys to eliminate the possibility of development of accessory circulation.

Extracts of kidney of various kinds were prepared by various methods. Most of the early preparations proved ineffective in lowering the blood pressure, principally, perhaps, because excessive heat was used in their preparation. When it was realized that the active substance was probably destroyed by the heat, an observation which was confirmed by personal communications from Dr. Page and Dr. Harrison, preparations were made by various methods in which the temperature of the material was at no time permitted to rise higher than 60°C. The results were erratic. Preparations which were moderately effective in lowering the blood pressure of one hypertensive dog failed entirely in another. One batch proved active and another, prepared in exactly the same way, proved inactive. When the injection of an active extract was discontinued, it took from one day to a week or longer for the blood pressure to return to its original high level. Since none of the extracts gave consistent results, details of their preparation are omitted.<sup>38</sup>

33 Grollman, Arthur, Harrison, T. R., and Williams, J. R., Jr. Humoral Agents in the Causation of Hypertension, *Am. A. Advancement Sc.* **13**: 274, 1940.

34 Chanutin, Alfred, and Ferris, E. B., Jr. Experimental Renal Insufficiency Produced by Partial Nephrectomy, *Control Diet, Arch. Int. Med.* **49**: 767 (May) 1932.

35 Harrison, T. R., Grollman, Arthur, and Williams, J. R., Jr. The Antipressor Action of Renal Extracts and Their Capacity to Reduce the Blood Pressure of Hypertensive Rats, *Am. J. Physiol.* **128**: 716 (March) 1940. Williams, J. R., Jr., Grollman, Arthur, and Harrison, T. R. Reduction of Blood Pressure of Hypertensive Dogs by Administration of Renal Extract, *ibid.* **130**: 496 (Sept.) 1940. Grollman, Arthur, Williams, J. R., Jr., and Harrison, T. R. Reduction of Elevated Blood Pressure by Administration of Renal Extracts, *J. A. M. A.* **115**: 1169 (Oct. 5) 1940, footnote 40.

36 Page, Helmer, Kohlstaedt, Fouts, Kempf and Corcoran.<sup>32</sup> Page, Helmer, Kohlstaedt, Fouts and Kempf.<sup>33</sup>

37 Page, I. H. A Method for Producing Persistent Hypertension by Cellophane Perinephritis, *Science* **89**: 273 (March 24) 1939.

38 Large quantities of these extracts were prepared for us, under our direction, by the S. M. A. Corporation, Chagrin Falls, Ohio.

Two separate preparations made in exact accordance with the details given by Page<sup>36</sup> failed to have a significant effect on the blood pressure of hypertensive dogs when as much as the equivalent of 150 Gm of kidney substance per kilogram of body weight was injected daily, subcutaneously or intramuscularly, for eight days. Two other preparations of Page's extract (1 cc representing 120 Gm of renal tissue) proved fatal to 3 hypertensive dogs, in 1 about twenty-four hours after a single injection of 1.5 cc per kilogram of body weight, in another animal in the same time after two daily injections and in the third after four daily injections. At autopsy in these dogs, acute edema of the lungs was the only anatomic alteration to which death could be attributed. Whether the blood pressure of the first 2 of these 3 animals fell before death cannot be stated because they died in less than twenty-four hours, before the blood pressure was taken again, but in the animal that received four injections the blood pressure remained practically at the original high level for three days. The animal was found dead on the morning of the fourth day.

Three separate preparations, made exactly as described by Grollman and his collaborators,<sup>35</sup> were also tested by us on dogs and rats with hypertension due to renal ischemia. One preparation, injected subcutaneously twice daily, each dose equivalent to 100 Gm of whole kidney, had a slight but significant effect in lowering the blood pressure of 1 dog. Another preparation made by the same method, in daily dose equivalent to 1,500 Gm of whole kidney substance, injected subcutaneously, caused a significant fall of blood pressure in 1 animal but had no effect whatever on the blood pressure of another animal. Both animals had been hypertensive for a long time and the level of blood pressure was high. In the dog that did respond the direct femoral blood pressure fell 80 mm of mercury within a period of six days. The animal did not appear ill. There were no untoward systemic effects but there was a considerable amount of tenderness, spontaneous swelling and induration without suppuration at the site of every injection and in a considerable area around it. This disappeared in a variable time. When the injections were discontinued. Within twenty to forty-eight hours after the discontinuance of the injections, the blood pressure began to rise but in some cases did not reach the original hypertensive level for a week or longer. On the contrary, three hypertensive rats rendered hypertensive by enclosure of the kidneys in gauze painted with collodion were injected daily with as much as 2 cc of the same extract, a relatively small dose compared with that of the dogs, but the blood pressure showed no reduction in a period of two weeks.

Jensen and his collaborators<sup>41</sup> prepared an extract by a combination of the methods of Grollman and Page and of Page. They reported a lowering of blood pressure in some hypertensive rats. This has not yet been confirmed.

39 Page, I. H., Helmer, O. M., Kohlstaedt, F., Fouts, T. and Kempf, G. F. Reduction of Arterial Blood Pressure in Patients and Animals with Extracts of Kidneys, *J. Exptl. Med.* **73**: 1 (Jan.) 1941.

40 Grollman, Arthur, Williams, J. R., Jr. and Harrison, T. R. Preparation of Renal Extracts Capable of Reducing Blood Pressure of Animals with Experimental Renal Hypertension, *J. Exptl. Med.* **115** (June) 1940.

41 Jensen, H., Corwin, W. C., Tolksdorf, S. C., and Bamman, F. Reduction of Arterial Blood Pressure in Rats by Administration of Renal Extracts, *J. Exptl. Med.* **73**: 38 (Sept.) 1941.

More recently Rockwell<sup>42</sup> reported a fall of blood pressure in 5 patients with hypertension who received daily intramuscular injections of their own preparation of renal extract. This extract had not been tested for its effect on the blood pressure of animals with experimental renal hypertension. Through Dr Rockwell we were afforded the opportunity to test the effect of their dilute as well as their concentrated renal extract on 3 dogs with prolonged experimental renal hypertension. A dose of as much as 5 cc of even the concentrated extract injected intramuscularly daily for two weeks, failed to affect the blood pressure of any of the animals. There was no inflammation, edema or tenderness at the site of injection, and no elevation of the temperature of the animals occurred after the injection. Like the renal extracts of others, it contained a considerable quantity of renin but did not inactivate angiotonin (hypertensin) *in vitro*.

#### POSSIBLE NONSPECIFIC EFFECT OF RENAL EXTRACT

Recently it was observed that in a hypertensive dog in which the injection of a renal extract was followed by a fall of blood pressure, the temperature was considerably elevated during the period when the blood pressure was lowered. In this dog the local reaction to the injection was substantial but suppuration did not occur. When the injections were discontinued as the temperature gradually fell to normal the blood pressure rose to the original hypertensive level. This observation suggested the obvious experiment of testing the effect on the blood pressure of any agent which would raise the temperature of a hypertensive dog.

Four dogs with experimental renal hypertension that had existed for from one to four years were given intravenous, intramuscular or subcutaneous injections of typhoid vaccine. It was soon found that to cause a significant rise of temperature in a dog a relatively large dose of vaccine is necessary, as compared with the dose required for man. The first dose consisted of 1 cc containing 1,000 million bacteria, intravenously, and this was repeated in some animals at intervals of one to three hours during the day. Even after a single injection a fall in blood pressure occurred which was not accompanied by any other obvious abnormality except the elevation of temperature. A similar observation had already been made on 1 dog by Levy and Blalock.<sup>43</sup> They also reported<sup>43</sup> a slight temporary decline of blood pressure in 3 hypertensive dogs whose temperature was raised by exposure to an atmosphere with an elevated temperature. Repeated daily injections kept the blood pressure significantly lowered, although elevated temperature was not always present. The animals behaved normally, the appetite remained good and there was no loss of weight. Similar but less striking results were obtained by the intramuscular and subcutaneous injection of the same vaccine. It should be obvious from these observations that great caution should be exercised in drawing any conclusions about the specific effects of renal extracts when a suspension of bacteria can produce a similar effect.

Dr R. W. Scott at the Cleveland City Hospital has found a similar effect on the blood pressure of a few patients with hypertension as a result of the intravenous injection of typhoid vaccine. He has also noted a simi-

lar effect from the intramuscular injection of 5 to 10 cc of boiled milk.

These experiences mentioned recall another which is apropos. Rodbard Katz and Sokolow<sup>44</sup> transplanted a piece of normal kidney under the skin of 7 dogs and attributed the fall of blood pressure which followed to a specific effect of the autolyzed kidney. We were able to show<sup>45</sup> that autolysis of sterile kidney had no effect on the blood pressure of hypertensive dogs, but a definite effect occurred when the transplant was contaminated and an abscess formed at the site of the transplantation. The observations of Friedman, Jarman and Marrus<sup>46</sup> on hypertensive rats are in accord with ours. They found that subcutaneous implants not only of kidney but also of spleen and liver, when infected caused a fall of blood pressure in hypertensive rats, which was not observed without abscess formation. Recently Katz<sup>44</sup> has agreed that the effect was due to the abscess formation which occurred invariably in their first series of animals but still thinks that the autolyzed kidney substance plays a part in the phenomenon.

Levy and Blalock<sup>43</sup> reported that distemper, severe mange or a virulent infection of any type caused a decline of the blood pressure of hypertensive dogs and that animals with distemper rarely responded with elevation of blood pressure as a result of constriction of the main renal arteries. Wakerlin and Gaines<sup>47</sup> found that in 4 hypertensive dogs with distemper the blood pressure came down but returned to the hypertensive level on recovery from the distemper. On the contrary, a mixed staphylococcal and streptococcal cellulitis is reported not to have lowered the blood pressures of 4 other hypertensive animals.

Our experience has been that both distemper and local infection with abscess due to a mixture of bacteria have the effect of lowering the blood pressure of hypertensive animals or of interfering with the development of hypertension due to constriction of the main renal arteries.

#### THE EFFECT OF TREATMENT WITH SUBCUTANEOUS INJECTIONS OF RENAL EXTRACTS CONTAINING RENIN

It has been claimed recently by Wakerlin and his associates<sup>48</sup> that the subcutaneous injection of renal extract containing renin also effects a lowering of the blood pressure in animals with experimental renal hypertension produced by constriction of the main renal arteries. The mechanism whereby this occurs is considered to be the development of a neutralizing substance (antirenin) in the blood. The presence of antirenin in the blood serum has been demonstrated by showing that when equal quantities of renin solution and serum are allowed to stand in the refrigerator for about twenty-four hours there results an inactivation or destruction of the renin which is now incapable of raising the blood pressure when injected directly into the blood stream. Only 4 dogs were used in their experiments. All

43 Rodbard S, Katz L N and Sokolow M. Reduction of Arterial Hypertension by Subcutaneous Implantation of Kidney Tissue. *Proc. Soc. Exper. Biol. & Med.* 44: 360 (June) 1940.

44 Goldblatt Harry and Kahn J R. Discussion in Proceedings of the Central Society Clinical Research Nov 1 and 2 1940. *J. A. M. A.* 116: 2430 (May 24) 1941.

45 In discussion on Wakerlin G E and Johnson C A. The Effect of Renin on Experimental Hypertension in the Dog.

46 Johnson C A and Wakerlin G E. Antiserum for Renin. *Proc. Soc. Exper. Biol. & Med.* 44: 277 (May) 1940. Wakerlin G E and Johnson C A. Reductions in Blood Pressures of Renal Hypertensive Dogs by Hog Renin. *ibid.* 46: 104 (Jan.) 1941. The Effect of Renin on Experimental Renal Hypertension in the Dog. *J. A. M. A.* 117: 416 (Aug 9) 1941.

42 Rockwell G E. Renal Extract Therapy in Essential Hypertension. Preparation of Extract and Case Reports. *Cincinnati J. Med.* 23: 20 (March) 1942.

showed a fall of blood pressure which began only after the injection had been carried on for about two months. In all the dogs the blood pressure rose again after the injections were discontinued. However, in 1 of the 4 animals the concentration of antirenin in the blood serum remained the same, although the blood pressure returned to the original high level after the injection of renin had been discontinued. This makes it difficult to accept unequivocally the idea that the fall of blood pressure was due to the presence of antirenin in the blood. Williams<sup>45</sup> has reported failure to confirm this result in 2 dogs, while Prinzmetal in a personal communication to Katz<sup>13</sup> has reported a lowering of the blood pressure in 7 hypertensive rabbits in which however, an injection of renin was followed by the usual rise of blood pressure. Many more experiments must be performed to prove the effectiveness of this method and to elucidate the mechanism of its action. The experiments are being repeated in this laboratory with the purest possible hog renin which is being prepared by Dr. Yale Katz, but the results are not yet available.

Winternitz and Katzenstein<sup>47</sup> demonstrated the development of precipitin to kidney extracts containing renin as the result of repeated injections of such extracts. However, they observed the usual pressor response when they injected refrigerated mixtures of kidney extract containing renin and serums of dogs which had received repeated injections of the extract. They failed to confirm the finding of "antirenin" reported by Wakerlin and Johnson<sup>46</sup> and concluded that immunity to the pressor effect of renin did not develop in their animals.

We have also failed to observe the development of "antirenin" in 1 dog that has received renin injections for seven months and in 5 dogs that have received daily intramuscular injections for two months.

It is interesting in this connection that Wakerlin and Games<sup>12</sup> reported a slight elevation of blood pressure in normal and hypertensive dogs when dog renin was injected intramuscularly daily for from one to two and one-half months.

We have injected large quantities of renin intravenously at irregular intervals, at least once a week and often daily, into at least 20 normal dogs and have not observed a consistent effect on the blood pressure over a period of many months. There was always an immediate response of the same magnitude following the intravenous injections of renin, and the blood pressure remained normal in the interim.

#### THE EFFECT OF TYROSINASE ON EXPERIMENTAL HYPERTENSION

Because the chemical nature of the humoral pressor substance causing experimental renal hypertension is unknown, and because it could therefore be a pressor amine, several interesting observations on this possibility have been made. Bing and his associates,<sup>48</sup> using the lung-kidney preparation perfused with heparinized blood, found that the kidney converted dopa into hydroxytyramine only when it was rendered ischemic by clamping the renal artery and reducing renal blood flow about 50 per cent.<sup>49</sup> Bing has suggested that a

similar mechanism might play a part in experimental renal hypertension but does not believe hydroxytyramine is actually concerned because he differentiates it from angiotonin.<sup>50</sup>

Schroeder<sup>51</sup> has also suspected that the pressor substance might possibly be a pressor amine and has used tyrosinase in the treatment of experimental renal hypertension. Tyrosinase has the property of oxidizing monodihydro-oxyphenols and orthodihydro-oxyphenols to nonpressor quinones, so that the rationale of treating hypertension with this drug is good in the absence of further knowledge of the actual nature of the pressor substance.

Schroeder reported that tyrosinase reduced the blood pressure of hypertensive rats and dogs to normal during periods of intravenous therapy with this enzyme.<sup>51</sup> It is well known that local reactions, frequently with a sometimes without fever, are common with subcutaneous or intramuscular injections of tyrosinase. In view of the well known nonspecific depressor effect of such local reactions from any cause whatever, caution will be necessary in interpreting as specific any fall of blood pressure in a hypertensive animal or patient with this mode of injection.

Recently Prinzmetal and his collaborators<sup>52</sup> found that an extract of mushrooms containing tyrosinase, in which the tyrosinase was first inactivated by heat, produced a significant lowering of the blood pressure and a remission of other symptoms of hypertension in rats as the result of the intramuscular injection of the extract. The effects which were observed were striking as those which have been reported by others from the injection of a preparation containing tyrosinase and were therefore unrelated to the enzyme content of the preparation.

#### SUMMARY AND CONCLUSIONS

A long list of substances, many of them used at one time or still being used in the treatment of human hypertension, had no significant effect on the blood pressure when administered to dogs with experimental renal hypertension. Our results with renal extracts of our own preparation, as well as with similar extracts of other investigators, have shown either no effect or at most inconsistent and not very striking lowering of the blood pressure of dogs with experimental renal hypertension.

If the idea is correct that renal arteriosclerosis, arteriolosclerosis and the consequent disturbance of renal hemodynamics are the morphologic and functional basis of most cases of so-called essential hypertension in man, the likelihood of a permanent cure of the hypertension, including the removal of the cause and the effect of such treatment is not very great. It is unlikely that such extracts could effect a reversal of renal vascular disease that probably preceded the development of the hypertension. The only benefit to be expected from this type of treatment is the consistent administration of the renal extract will have effect on the mechanism of formation, the release or the neutralization of the pressor substance or its precursors. In this respect, however, the

47 Winternitz, M. C. and Katzenstein, R. Studies on the Relation of the Kidneys to Cardiovascular Disease. IV. Tolerance and the Pressor Agent of Kidney Extracts, *Yale J. Biol. & Med.* **13**: 789 (July) 1941.

48 Bing, R. J., and Zucker, M. B. Renal Hypertension Produced by an Amino Acid, *J. Exper. Med.* **74**: 235 (Sept.) 1941. Bing, R. J., Zucker, M. B., and Perkins, W. Comparison Between Destruction of Angiotonin, Hydroxytyramine and Tyramine by Renal Extracts, *Proc. Soc. Exper. Biol. & Med.* **48**: 372 (Oct.) 1941. Bing and Zucker<sup>50</sup>

49 Bing, R. J. The Formation of Hydroxytyramine by Extracts of Renal Cortex and by Perfused Kidneys, *Am. J. Physiol.* **132**: 497 (March) 1941.

50 Bing, R. J., and Zucker, M. B. Ferritin in the Kidney, *Proc. Soc. Exper. Biol. & Med.* **16**: 111 (1941).

51 Schroeder, H. A. Effect of Tyrosinase on Hypertensive Rats, *Proc. Soc. Exper. Biol. & Med.* **11**: 111 (1941).

Schroeder, H. A., and Adams, M. H. The Effect of Tyrosinase on Experimental Hypertension, *J. Exper. Med.* **77**: 111 (1941).

52 Prinzmetal, M. Alles, G. A. Marck, C. Davis, D. S. Effects on Arterial Hypertension of Tyrosinase Preparation. Personal Communication. *Proc. Soc. Exper. Biol. & Med.*

would not differ from the treatment of diabetes with insulin or the treatment of pernicious anemia with liver extract. Neither of these diseases has been cured by these treatments.

Before the treatment of hypertension by renal extracts can be recommended for man serious consideration should be given to the possible untoward effects of sudden lowering of the blood pressure in persons with hypertension, especially those with significant impairment of renal excretory function. Indeed renal excretory failure and a fatal outcome might actually be precipitated by such an effect on the blood pressure. It will be necessary to determine with care the type of patient to whom such extracts can be safely administered. Since it is now possible to test the effect of renal extracts on experimental hypertension in animals, they should not be made available for general use until much more has been learned about the nature and mode of action of the effective substance or substances until local or general reactions have been eliminated and until more consistent results have been obtained in many tests on animals with experimental hypertension.

The results so far observed from the treatment of experimental renal hypertension in dogs and rats do not yet justify much optimism about the possible efficacy of such treatment for human hypertension. For the present, the most that can be said is that a faint note of hope has been sounded for the possible medicinal treatment of the most common type of so-called essential hypertension associated with renal vascular disease. Progress in this respect will be hastened because it is now possible to carry out tests on hypertensive animals before they are tried out on man. Empiricism has given way to experimental demonstration but the final acceptance of the value of this contribution must and will depend on the results obtained in the treatment of human hypertension.

## NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AUSTIN E. SMITH, M.D., Acting Secretary

**SULFATHIAZOLE SODIUM**—Sodium 2 sulfanilamidothiazole—Sodium 2 sulfanilthiazole—The sodium salt of sulfathiazole

Sulfathiazole sodium may be prepared by the interaction of sulfathiazole and sodium hydroxide in solution. The product may be isolated by appropriate methods. It is marketed in the form of anhydrous monohydrated or sesquihydrated crystals.

Anhydrous sulfathiazole sodium has the following empirical formula  $C_8H_8O N_2S_2Na$  (M.W. 277.3).

**Actions and Uses**—The sodium salts of sulfathiazole have the same therapeutic activities as sulfathiazole. This compound has proved to be of value in the treatment of severe pneumococcal, meningococcal, staphylococcal and gonococcal infections.

**Dosage**—The intravenous injections of 0.01 Gm. per kilogram of body weight of the sodium salt of sulfathiazole will produce within a few minutes a concentration of approximately 1 mg. of sulfathiazole per hundred cubic centimeters of blood. The usual initial dose of the drug for patients severely ill with pneumonia is based on 0.06 Gm. per kilogram of body weight. Solutions of the drug should be prepared in the same manner as has been advised for solutions of sulfapyridine sodium and the same precautions should be followed in respect to its administration.

### Tests and Standards—

Sulfathiazole sodium occurs as a white to faintly yellowish white odorless crystalline powder possessing a bitter and saline taste. It is soluble in water, ethyl alcohol, methyl alcohol and acetone, slightly soluble in ethyl acetate and isopropyl alcohol, practically insoluble in

benzene, carbon tetrachloride, ether and petroleum ether. Aqueous solutions of sulfathiazole sodium are alkaline to phenolphthalein, the pH of a 5 per cent aqueous solution lies between 9.5 and 10.0.

**Dissolve** 0.1 Gm. of sulfathiazole sodium in 20 cc. of water; the solution is clear and colorless. Divide the solution into two portions. Add to one portion 0.5 cc. of copper sulfate solution and stir; a grayish purple precipitate forms. Add diluted hydrochloric acid dropwise to the other portion until a precipitate forms; filter, wash the precipitate with water and dry it at 100°C. The melting point of the crystals corresponds to that described for sulfathiazole, dip a clean platinum loop in the filtrate; the solution imparts an intense yellow color to a nonluminous flame.

**Dissolve** 0.5 Gm. of sulfathiazole sodium in 5 cc. of water; add 2 cc. of normal sodium hydroxide and boil gently; no ammonia is formed.

The amount of chloride ion must not exceed 0.01 per cent when determined according to the U. S. P. XI, page 487; the amount of sulfate ion must not exceed 0.02 per cent when determined according to the U. S. P. XI, page 488; and the arsenic content after acid destruction of the original substance must not exceed five parts per million as arsenic trioxide when determined according to the U. S. I. XI, page 436.

**Dissolve** 0.5 Gm. of sulfathiazole sodium in 20 cc. of distilled water; add 5 drops of freshly prepared 10 per cent sodium sulfide solution; the darkening produced does not exceed that developed in a control test to which has been added 0.01 mg. of lead.

**Dry** about 1 Gm. of sulfathiazole sodium accurately weighed in a tared weighing bottle to constant weight in a partial vacuum at 100°C; the loss in weight is not more than 9.0 per cent. Transfer about 0.5 Gm. of sulfathiazole sodium accurately weighed to a tared porcelain crucible; add 1 cc. of sulfuric acid and gently ignite the mixture. When fumes have ceased to arise, cool the crucible and add 0.5 cc. of nitric acid and 0.5 cc. of sulfuric acid and continue ignition to constant weight; the weight of the residue is not less than 24 per cent nor more than 26 per cent of the dried substance. **Dissolve** 1 Gm. of sulfathiazole sodium accurately weighed, in 20 cc. of distilled water previously saturated with sulfathiazole at 25°C. Neutralize the solution with tenth normal sulfuric acid using methyl red as the indicator. Allow the mixture to stand for one hour, filter by suction through a tared Gooch crucible; wash the precipitate with small quantities of water previously saturated with sulfathiazole at 25°C and finally dry at 110°C for one hour; the amount of sulfathiazole obtained is not less than 87.4 nor more than 92 per cent of the dried substance.

**Dissolve** about 0.5 Gm. of sulfathiazole sodium accurately weighed in 50 cc. of water and 5 cc. of concentrated hydrochloric acid; cool to 15°C and titrate with tenth molar sodium nitrite solution as directed under Sulfathiazole. Each cubic centimeter of tenth molar sodium nitrite corresponds to 0.02773 Gm. of anhydrous sulfathiazole sodium; the amount of anhydrous sulfathiazole sodium found corresponds to not less than 99 nor more than 101 per cent of the dried substance.

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**THIAMINE HYDROCHLORIDE** (See New and Non-official Remedies 1941, p. 551)

The following dosage forms have been accepted

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Sterile Solution Thiamine Hydrochloride, 30 mg. per cc. 5 cc. bottle. Preserved with 0.5 per cent chlorobutanol.

GEORGE A. BREON & COMPANY, INC., KANSAS CITY, MO.

Solution Thiamine Hydrochloride, 10 mg. per cc. 10 cc. vial. Contains sodium chloride 7.5 mg. per cubic centimeter. Preserved with 0.5 per cent chlorobutanol.

Solution Thiamine Hydrochloride, 30 mg. per cc. 5 cc. and 30 cc. vials. Contains sodium chloride 5.3 mg. per cubic centimeter. Preserved with 0.5 per cent chlorobutanol.

Solution Thiamine Hydrochloride, 50 mg. per cc. 5 cc. and 30 cc. vials. Contains sodium chloride 3.65 mg. per cubic centimeter. Preserved with 0.5 per cent chlorobutanol.

Solution Thiamine Hydrochloride, 100 mg. per cc. 30 cc. vial. Preserved with 0.5 per cent chlorobutanol.

**MENADIONE** (See THE JOURNAL, Jan. 17, 1942, p. 226)

The following dosage forms have been accepted

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SATURDAY, AUGUST 8, 1942

## SULFONAMIDE SENSITIVITY

A chemical theory as to the mechanism of acquired sensitivity to sulfonamide compounds is supported by a study made by Wedum<sup>1</sup> of the Department of Bacteriology, University of Cincinnati, on the antigenicity of sulfonamide azoproteins.

Statistical evidence recently published by Lyons and Balberor<sup>2</sup> indicates that approximately one third of all patients treated with sulfonamide drugs develop a sensitivity to these drugs sufficient to interfere with their subsequent use on these patients. Other investigators have shown that this sensitivity usually develops about nine days after the first administration of the drug and may persist for at least two years.<sup>3</sup> The dominant symptom of the resulting "sulfonamide shock" is a prompt febrile reaction, often reaching higher than 104 F, accompanied by chilliness, erythema, pruritus and conjunctival injection. Attempts to diagnose the hypersensitive state by patch, scratch or intradermal tests or by passive transfer of the patient's serum have almost invariably given negative results. In vitro serum reactions are also negative. Acquired sulfonamide sensitivity to derivatives must therefore differ essentially from the familiar clinical picture of allergy or anaphylaxis.

In order to determine the physiologic mechanism of this acquired sensitivity, attempts were made by the Cincinnati biochemist to sensitize guinea pigs to sulfanilamide, sulfapyridine and sulfathiazole. Each animal received three combined intradermal and intraperitoneal doses of the drug at intervals of three days. The animals were tested by an intradermal injection of an aqueous solution of each drug twenty-nine days after

the last dose. Local skin reactions were not noted. To each of a second group of presumably sensitive guinea pigs was given a shocking dose of the same drug intracardially. Constitutional anaphylactic reactions did not occur. A third group of treated guinea pigs gave negative in vitro reactions on specific precipitin titrations. Evidently sulfonamide compounds are in themselves nonantigenic and cannot serve as sensitizing, immunizing or testing reagents. Theoretically, the way these drugs could function as antigens, therefore, would be as haptens conjugated with a colloidal protein carrier.

In order to confirm this deduced hapten function of the three sulfonamide compounds, each was conjugated with egg white, beef serum, human serum or rabbit serum by the Landsteiner technique. The resulting sulfonamide azoproteins were used as sensitizing agents for a series of guinea pigs. Twenty-nine days after the final sensitizing dose the guinea pigs all gave positive reactions to intracutaneous tests with the same protein conjugates, in some cases the reaction being sufficient to cause local necrosis. Cross sensitization was noted with these hapten conjugates. Sulfanilamide and beef proteins, for example, gave positive reactions in guinea pigs sensitized with sulfanilamide azoprotein and serum proteins and vice versa. Reactions with homologous protein, however, was always stronger.

A second group of similarly sensitized guinea pigs was tested for constitutional anaphylaxis by intracardiac injections. Lethal anaphylactic reactions were noted in approximately a third of the cases, with an average number of sublethal shocks. Here also cross reactions were recorded, though less numerous than in the previous intracutaneous tests.

Numerous rabbits received repeated injections of the hapten conjugates. All rabbits yielded positive reactions for homologous chemoproteins. Cross reactions were noted. There was a suggestion of a serologic grade of specificity among the three sulfonamide compounds tested, sulfathiazole having the broadest base of antigenicity. Sulfanilamide was most highly antigenic. These findings are in accord with previously reported clinical experience.

Wedum concludes that there is no evidence that simple uncombined sulfonamide compounds can function either as sensitizing or as testing antigens. Guinea pigs presumably sensitized with these simple compounds do not respond when tested with corresponding protein conjugates. Animals demonstrated to be sensitive to the hapten conjugates also give negative reactions with the uncombined sulfonamide compounds. It is not clear whether or not it would be possible to desensitize or

<sup>1</sup> Wedum, A. G. *J. Infect. Dis.* 70: 171 (March-April) 1942.

<sup>2</sup> Lyons, R. H., and Balberor, Harry. *Univ. Hosp. Bull., Ann Arbor* 19 (March) 1941.

<sup>3</sup> Gallagher, J. R. *New England J. Med.* 221: 132 (July 27) 1939.



nize guinea pigs against these hapten conjugates and the effect of such desensitization on the therapeutic efficiency of the uncombined sulfonamide drugs, have not yet been reported from the Cincinnati laboratory.

### THE HARMLESSNESS OF GLYCOSURIA FOR A PATIENT TREATED WITH PROTAMINE ZINC INSULIN

In the treatment of moderately severe and severe diabetes with protamine zinc insulin Tolstoi and his associates have encountered patients who, on a diet of 200 to 250 Gm of carbohydrate exhibited either intermittent or continuous severe glycosuria. When they attempted to treat this glycosuria by increasing the dose of protamine zinc insulin the urine became free from sugar but the patient suffered from insulin reactions, at times of alarming severity. In spite, however, of the persistent glycosuria some of these patients had good health, maintained their weight and were free from any symptoms of diabetes. These authors<sup>1</sup> treated 84 patients with one daily dose of protamine zinc insulin without a particular effort to maintain their urines free from sugar. Twenty-seven of these patients had more or less continuous glycosuria throughout the period of study, which lasted one year. The great majority of them maintained weight, and many gained. Symptoms of diabetes did not appear in any of them, and only one developed acetonuria. The incidence of infections was not greater in this group than in other patients. Allen and Du Bois, in their calorimetric studies found that the diabetic person can and does utilize carbohydrate in the presence of hyperglycemia and glycosuria. This utilization of carbohydrate can be prolonged by insulin. Apparently their patients metabolized sufficient carbohydrate, in spite of the pronounced excretion of dextrose so as to approach the physiologic ideal. When confronted with the problem of maintaining the urine sugar free at the cost of severe insulin reactions, these authors unequivocally prefer glycosuria. In their experience, maintenance of weight, freedom from symptoms of diabetes and absence of ketone bodies in the urine are safe guiding principles in the management of patients on a single daily dose of protamine zinc insulin.

This attitude toward glycosuria was severely criticized by Joslin and his associates.<sup>2</sup> While admitting that there is no positive proof that certain harmful effects, such as lack of resistance to infection, degen-

erative phenomena in arteries and nerves, weakness, weariness and impotence, are due to hyperglycemia per se, they nevertheless are emphatic in stating that glycosuria of 5 per cent or more and freedom from the symptoms mentioned are incompatible.

Tolstoi and his associates<sup>3</sup> in a recent communication, report a careful study of a severe case of diabetes in which treatment with multiple injections of insulin, aiming at a normal blood sugar and sugar free urine, failed to produce as good clinical results as a single dose of protamine zinc insulin without attempt to abolish hyperglycemia and glycosuria. On the latter regimen, weight was maintained, the patient remained in positive nitrogen balance and he was free from symptoms of diabetes but occasionally suffered mild insulin reactions. Despite the severe and continuous glycosuria for three years, the patient has not had any more colds or other infections than nondiabetic patients, his renal function was not impaired and his atherosclerosis did not demonstrably increase. The minimizing of importance of glycosuria in patients treated with protamine zinc insulin presents a new concept and as such will have to be subjected to further clinical investigation before a final evaluation.

### Current Comment

#### JAUNDICE FOLLOWING YELLOW FEVER VACCINATION

As THE JOURNAL goes to press it may be announced that the incidence of cases of jaundice following vaccination against yellow fever is decreasing. Since such cases first appeared, investigators of the highest repute in the fields of epidemiology, pathology, infectious diseases and viruses have been intensively engaged in a study of the factors concerned. There is in the minds of those familiar with the situation the firm conviction that the condition concerned certainly is *not yellow fever*. There seems to be no reason to believe that it is yellow fever or any abortive or mild form of that disease. The vaccine concerned gives actual protection against yellow fever. Only a few batches of vaccine seem to have been involved, although obviously many thousands of men were inoculated with material from each batch. The investigators feel that the technic of preparation now in use will be followed shortly by a discontinuance of new cases. It must be remembered, however, that the incubation period may be months in duration. The jaundice concerned has not noticeably affected the civilian population. An official statement in the form of an army medical department circular will be issued in the near future.

<sup>1</sup> Tolstoi, Edward and Weber, F. C. Jr. Protamine Zinc Insulin Clinical Study. Report of a Group of Diabetic Patients in Whose Cases Glycosuria Was Disregarded for One Year. Arch. Int. Med. 66: 670 (Sept.) 1940.

<sup>2</sup> Joslin, E. P., Root, H. F., White, Priscilla and Marble, Alexander. Treatment of Diabetes. J. A. M. A. 115: 1038 (Sept. 21) 1940.

<sup>3</sup> Tolstoi, Edward, Almy, T. P. and Toscani, V. Treatment of Diabetes Mellitus with Protamine Insulin. Is a Persistent Glycosuria Harmful? A Metabolic Study of a Severe Case. Ann. Int. Med. 16: 893 (May) 1942.

## MECHANICAL ASPECTS OF SURVIVAL FROM FALLS

The high incidence of fatal automobile accidents and the serious loss of pilots due to increased landing speeds of military planes are matters of grave national concern. Some persons can receive fatal injuries from falling only a few feet, whereas others who have fallen from great heights have from time to time survived. In some instances the mechanical factors leading to death or survival from such falls are subject to accurate analysis. DeHaven,<sup>1</sup> in the July issue of *War Medicine*, attempts such an analysis with the objective of studying the physiologic results of rapid deceleration in order to establish a working knowledge of the force and tolerance limits of the body. The 7 cases he presents involve survival from falls 50 to 150 feet in height. In several of them the speed of fall, position, deceleration and relation of resultant injuries to structure could be determined with great precision. It is obvious, he points out, that speed and height of fall alone are not of themselves injurious. Moderate change of velocity, such as occurs after a ten story fall into a fire net, is far different from the rate of change of velocity which occurs after a fall of similar height on to concrete. The velocity reached in cases of free fall (defined as a fall free of any obstruction other than that encountered at its termination) can be estimated from an acceleration equation (in vacuum), from which is deducted an estimate of the slowing effect of air resistance. In this manner the resultant speed or velocity of the body at contact can be estimated with reasonable accuracy. The rate of deceleration, however, presents much greater difficulties. Even in falls to earth there is a variation of deceleration distance of the fall for certain parts of the body, e. g. the hand, which might be stopped in a distance of 2 inches, whereas the hips might leave a mark of 5 or 6 inches. In falls to structures such as automobiles, the conditions might be still more confused. From the analysis of his 7 cases DeHaven concludes that the human body can tolerate and expend a force of two hundred times the force of gravity for brief intervals during which the force acts in transverse relation to the long axis of the body. Since a slip on the street in which the head strikes the hard pavement may induce a gravity increase exceeding 300 g (the value of gravity in the acceleration [32 feet] per second) because of the small deceleration factor involved, the explanation for the apparent discrepancy between height of fall and injury becomes readily apparent. The cases he presents show physiologic evidence of well known mechanical and physical laws. Furthermore, the fact that survival occurs when the necessary factors are accidentally contributed indicates the probability that structural provisions can be introduced into automotive and airplane design which will reduce impact and distribute pressure, thus enhancing possibilities of survival and modifying injury.

1 DeHaven, Hugh. Mechanical Analysis of Survival in Falls from Heights of Fifty to One Hundred and Fifty Feet, *War Med* 2: 586 (July), 1942.

## MEDICAL PROBLEMS OF SELECTIVE SERVICE

Elsewhere in this issue appear two contributions of great importance to the medical profession.<sup>1</sup> From the moment when Selective Service first began to function the complete cooperation of physicians was tendered to it. The calm judgment of General Hershey and the work of his medical staff in the National Headquarters have been outstanding for their wisdom and effectiveness. Although innumerable attempts have been made to stampede the Selective Service System into various welfare programs—venereal disease, prehabilitation, rehabilitation, physical fitness and what not—its leaders have held steadfastly to their main objective—the securing of a sufficient number of men sufficiently fit to meet the varying needs of the armed forces. As pointed out by both General Hershey and Colonel Rowntree the Selective Service System has at the same time cooperated fully in maintaining both premedical and medical education, in retaining essential physicians for teaching and the civilian population, and in the conduct of pilot experiments to determine the worthiness of such programs as prehabilitation and rehabilitation before establishing them on a national scale. Apparently General Hershey has concluded that rehabilitation is “one of the methods by which our manpower may be made more efficient” but that “the results obtained to date do not justify a program of physical rehabilitation by Selective Service.” The program is therefore being submitted by General Hershey to the War Reliance Commission. The medical profession may commend the type of scientific study and decision that have been exemplified by the leaders of Selective Service in this phase of their work. The procedure may well serve as a model for a functioning democracy.

### EUGENE L. OPIE

The July number of the *Archives of Pathology* is a special issue dedicated to Dr. Eugene L. Opie, emeritus professor of pathology at Cornell University Medical College, by his former associates on the occasion of his retirement. Some facets of Opie's accomplishments and personality are presented in the opening article contributed by Peyton Rous. Within a few months of entering Johns Hopkins Medical School (from which he and William MacCallum were among the first graduates) Dr. Opie developed a special interest in Langerhans cells of the pancreas, the function of which he did much to elucidate. Many of his other scientific investigations, especially in the field of cancer, now have become classic. Opie's modesty and ingenuity are well honored by his colleagues. The preparation and dedication of this special issue of the *Archives of Pathology*. Such contributions by Krumbhaar, Cecil, MacCallum and Mudd and others, are an indication of the great recognition that Dr. Opie's work has had.

1 Rowntree, Leonard G. Rehabilitation and Selective Service, page 1171. Hershey, Major General. Selective Service and Its Medical Problems, this issue, page 1171.

# MEDICINE AND THE WAR

*In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession*

## THE SELECTIVE SERVICE AND ITS MEDICAL PROBLEMS

MAJOR GENERAL LEWIS B. HERSHEY  
Washington, D. C.

I am happy to address your meeting as I wish to express my appreciation to you personally and from National Headquarters of Selective Service to the physicians of this country for your work and help in Selective Service. Those of you who are here represent many men at home who are also serving their country at this time.

I am fortunate in having as advisers various committees and groups in your profession who have helped and advised me in the matter of deferment of medical students, physicians, the procurement of physicians and various problems that arose in Selective Service with regard to medical matters.

There are two or three things I wish to talk to you about: first, the physical examination as now conducted in Selective Service, second, rehabilitation, and, third, I want to say something about the part Selective Service will play in the future in the selection of manpower and assignment of the medical profession.

In October 1940 the Army and Navy Selective Service Committee formulated plans to be used in the mobilization of manpower in the United States. These plans were based on the experience of World War I. The physical examinations of 1917 and 1918 were given by the local boards and the men were then inducted and sent to the Army. The Army exercised its right to reexamine these men after their arrival in camp, and as a result 250,000 were rejected and sent home. This system was obviously one to be avoided. It had resulted in burdening the transportation system with many thousands of miles of unnecessary travel. It had dislocated registrants in their everyday life to take them to camps for a short period of time and then return them to pick up the threads of their life again.

In the planning which took place in the War Department in the years since World War I, it was decided that certain general principles should be observed in induction examination. In the first place, a man should not be inducted into the service until he has passed his final physical examination. Second, this final physical examination should be given as near to his home as possible. The experience of the World War had demonstrated that the dual examination regardless of its other merits resulted in misunderstanding, uncertainty for the registrant, and the general feeling on the part of the public that a wide difference of opinion

existed among doctors on the qualifications for a soldier. These principles led the Planning Division of the War Department General Staff to set up a single examination given by the Army.

When the Selective Training and Service Act was passed, the War Department did not feel that it had sufficient doctors to put this plan into effect. The result of this decision was a reversion to the dual examination system which had not been satisfactory during the war. Inevitably the results anticipated occurred. Men who were passed by their local board examiner made arrangements to leave civil life and were returned rejected by the army induction boards.

To rectify this situation a preinduction examination was provided by the Army. Under this method men were sent to army examining boards well ahead of their induction date. This resulted in a considerable amount of travel, but it did provide definite information to the man as to his physical qualifications prior to the time it was necessary for him to settle up his civilian business. This system would have been successful, undoubtedly, had it not been for the onset of war. War brought a change in conditions, an intensification of recruiting by the Army and the Navy. Men who had been physically examined, who knew that they were qualified for military service, became the prize pool from which recruiters drew their men. It was impossible to make any accurate estimate of how many men would be available for induction two weeks after the completion of a successful physical examination. The War Department felt that in self protection it must induct a man immediately after he was physically examined. To overcome the objection that men would be uncertain in the settling up of their business, the War Department undertook to provide emergency furloughs for those who needed additional time. This plan was not satisfactory, and ultimately the War Department decided to give furloughs to all men after their induction to permit them to close up their civilian activities.

The place of the local board examiner since the institution of the preinduction examination has been one of uncertainty. The Selective Service System attempted to use the medical examiner of the local board for the purpose of making a screening examination, with particular emphasis on the furnishing of information concerning the emotional and mental stability of the registrant for use of the army induction board. This type of screening examination has not been satisfactory to the medical examiners. The continuing increase in the demand for doctors raises a question as to whether or not the screening examination of the registrant should be continued.

I wish to speak now about physical rehabilitation. By rehabilitation I do not refer to the voluntary kind

in which a man seeks the correction of his own defects but to that plan which applies to a rehabilitation program by Selective Service for men who have been rejected by the Army. An attempt was made to publicize and popularize a rehabilitation plan for these men who had been rejected by the Army. The Army did not care to rehabilitate any one because it was too busy doing other things and in addition did not have the available physicians and hospital facilities. Selective Service was assigned the job (by the President) to rehabilitate individuals with minor correctable defects who otherwise were ready for induction.

Last autumn a large representative group from the medical profession and allied interests met in Washington to discuss rehabilitation. It was the unanimous opinion of its members that the assignment was a difficult one and that they did not want to do it but they offered their wholehearted support in the event that Selective Service undertook the task.

Before money could be secured for this plan of physical rehabilitation, war came upon us. Then the situation changed. With the problem of procuring much larger numbers of men for the armed forces, physical standards were lowered. The activities of the local boards were multiplied through increased quotas, additional registration and occupational questionnaires. Medical man hours changed from limited to precious. Twenty per cent of those formerly rejected for service were accepted or were placed in I-B classification instead of IV-F or totally rejected.

The pilot test conducted in Maryland and Virginia received able cooperation from the medical profession. The results obtained to date do not justify a program of physical rehabilitation by Selective Service.

The President has created a War Manpower Commission to coordinate all efforts pertaining to manpower. Rehabilitation is one of the methods by which our manpower may be made more efficient. I shall submit to the War Manpower Commission a report of

the experience of the Selective Service System with rehabilitation for its consideration and action.

I stated in outlining this address that I wish to tell you a moment about doctors. There is a scarcity of medical personnel, an over-all shortage. At present we need all the medical brains we have available. May I observe in passing that Selective Service must recognize a doctor on the basis of the license issued by the state. Two actions must be taken: the maximum professional use must be made immediately of every doctor we have in the services or in civilian practice, the training of additional doctors must be assisted and expedited.

No doctor should be inducted unless he will be needed by the armed forces in a professional capacity. The Procurement and Assignment Service will assist the Selective Service with information and advice as to the availability of doctors. This information and all other information available on a registrant doctor will be accumulated and used by the local board in arriving at its decision. On the information so obtained the local board and it alone will decide the classification of the doctor.

Selective Service has protected the medical student. This has extended down into the premedical group. Those students accepted by medical schools for matriculation will be deferred to complete their education, provided they continue to show promise of being acceptable students. The protection of premedical students has been extended under the junior rule, which also applies to chemical, engineering and other technical students. This means that students in their first two years of premedical work who show promise of reaching the ultimate goal will be deferred so as to finish their medical education.

It has been a privilege and a pleasure to speak to you and to express my appreciation of all that you have done in Selective Service. My association with your profession convinces me that you will meet the needs of both the armed forces and our civilian population. How it will be done, the future alone can answer.

### FEDERAL LOANS TO COLLEGE STUDENTS

The loan fund of \$5,000,000 voted by Congress to help college students speed up their training for technical and professional jobs will be available soon, Paul V. McNutt, War Manpower Commission chairman, announced on July 17. Monthly loans totaling not more than \$500 a year, at 2.5 per cent interest annually and canceled if the student is drafted during training, will be made directly to students by colleges or universities and by public or college connected agencies. Federal funds will be allocated to the lending institutions by the U. S. Office of Education. Bulletins announcing the program are being sent to all colleges and universities in the United States.

This financial assistance will permit students to pursue intensive programs of study to meet the need for technicians. Loans are available only to students who are registered in accelerated programs in degree granting colleges and universities and whose technical or professional education can be completed within two years, in one of the following fields: engineering, physics, chemistry, medicine (including veterinary), dentistry and pharmacy. The student agrees in writing (1) to participate, until otherwise directed by the chairman of the War Manpower Commission, in accelerated programs of study in any of the authorized fields and (2) to engage for the duration of the war in which the United States is now engaged in such employment or service as may be assigned by officers or agencies designated by the chairman of the War Manpower Commission. Students must be in need of assistance and must attain and continue to maintain satisfactory standards of scholarship.

Loans shall be made in amounts not exceeding tuition fees plus \$25 a month and not exceeding a total of \$500 to one student during any twelve month period. Loans are evidenced by notes executed by student borrowers payable to the Treasurer of the United States. Repayments of loans to be made through the colleges, universities or other agencies negotiating the loans, to be covered into the treasury by miscellaneous receipts. The indebtedness of a student shall be canceled (1) if before completing his course he is ordered to military service during the present war under the Training and Service Act of 1940, as amended, or (2) if he suffers total and permanent disability or (3) in any other case.

### NURSES TO THE COLORS

To aid nurses in reaching a decision as to whether they should serve on the "home front" or with the armed forces, the National Nursing Council for War Service has developed classifications which will help nurses and the local health council to make a decision. These classifications have been developed also by the American Red Cross and the Health Administration Committee of the Office of Defense Health Administration and its Subcommittee on Nursing. These classifications are published lists of categories in which nurses should serve: (1) in the armed forces or (2) at home. For example: "You should serve with the armed forces if you are single, under 40 and are doing private duty."

of categories under 'You should serve at home' is if you have a position in a hospital which has a school of nursing as (a) administrator in a key position, (b) instructor, (c) supervisor, (d) head nurse, in a position related to supervision, and so on.

This leaflet, which will be mailed by the National Nursing Council for War Service, 1790 Broadway, New York City, free on request, points out that the Army and Navy are now asking for many thousands of nurses. Nurses who wish to enter the military service should enroll in the First Reserve of the Red Cross Nursing Service for assignment to the Army Nurse Corps or the Navy Nurse Corps. Each nurse is urged in this leaflet to get in touch with the Local Nursing Council for War Service or the local American Red Cross Chapter for information about enrollment.

The National Nursing Council for War Service will also send free, on request, a booklet, "Distribution of Nursing Service During the War," which gives advice on how to organize a local nursing council.

### CONFERENCE ON HEALTH OF WORKERS IN ORDNANCE PLANTS

Medical directors and safety engineers responsible for measures safeguarding the health of army ordnance manufacturing plant workers met July 17-18 in St. Louis to discuss the scientific advances in industrial hygiene. The War Department announced, July 16, Col. A. B. Johnson, Office of the Chief of Ordnance, presided. The purpose of the conference was to set forth new phases of industrial hygiene which will contribute to improved health, safety and working conditions of those making munitions. The speakers were as follows:

July 17: W. D. Norwood, M.D., medical director, Kankakee Ordnance Works, Joliet, Ill.; 'T. N. T. Poisoning', G. H. Gehrmann, M.D., medical director, E. I. du Pont de Nemours & Co., Wilmington, Del.; "Toxicology in the Manufacture of Munitions", Louis Schwartz, M.D., National Institute of Health, Bethesda, Md.; 'Dermatoses in the Manufacture of Munitions', R. H. Flinn, M.D., National Institute of Health; "Recommended Medical Services", Lieut. Col. A. J. Lanza, Army Surgeon General's Office, Washington, D. C.; "Periodic Physical Examinations", Max Burnell, M.D., General Motors Corporation, 'Women in Industry'.

July 18: A. D. Brandt, D.Sc., National Institute of Health, 'Engineering Control of Toxic Exposures', H. H. Schrenk, Ph.D., U. S. Bureau of Mines, Pittsburgh; 'Personal Protective Equipment in Toxic Exposures', Capt. W. J. Niederauer, Office, Chief of Ordnance, 'Principles of an Industrial Safety Program', discussion on 'Industrial Nutrition', H. L. Schultz, M.D., Elwood Ordnance Plant, Elwood, Ill.; 'Disaster Planning and Emergency Medical Services', Colonel Johnson; 'Summary of Conference and Future Plans'.

### WAR RECREATION CONGRESS

To expand and intensify the war service of the recreation forces of America is the purpose of the War Recreation Congress being called in Cincinnati September 28-October 2. Representatives of the armed forces, the federal government departments, local officials, industry, private agencies and other community leaders will face together ways and means of using recreation to serve more effectively the war effort. Special meetings will deal with recreation for service men, for war production workers and for civilian needs in wartime. Consideration will also be given to long range plans for recreation after the war.

President Roosevelt, who for a long time has been a member of the National Recreation Association, expressed to Mr. Howard Braucher, president of the association, his earnest hope that the congress would be successful. President Roosevelt said that the recreation services being provided for the armed forces, for workers in war industries and for the morale of civilian groups are definitely contributing to the war effort.

For over thirty-five years the National Recreation Association has served as the clearing house for the recreation movement in America. The special purpose of the War Recreation

Congress is to help further to mobilize the recreation movement behind the war effort. The five general sessions of the congress will be addressed by leaders from the federal government, the armed forces, industry, labor and other fields. Discussion groups will meet to consider topics based on material found in a pamphlet, which will be sent to each delegate during September. The announcement asks delegates to bring questions and answers to the congress in Cincinnati that all may face them together to the end that all recreation work during the coming year may count toward winning the war.

For further information concerning this meeting, address Mr. T. E. Rivers, National Recreation Association, 315 Fourth Avenue, New York City.

### NEW APPOINTMENTS

Dr. David D. Rutstein, chief of the cardiac bureau of the New York State Department of Health, Albany, has been appointed to the staff of the Medical Division, Office of Civilian Defense, Washington, D. C., as medical gas officer to organize instruction for physicians of Eastern states in the medical aspects of chemical warfare. A native of Pennsylvania, Dr. Rutstein graduated from Harvard University in 1930 and from Harvard Medical School in 1934. In 1937 Dr. Rutstein was appointed medical consultant to the bureau of pneumonia control of the New York State Department of Health and continued in that capacity until 1941, when he became chief of the cardiac bureau. He is now on leave from that position. While in Albany, Dr. Rutstein also was a member of the faculty of Albany Medical College. Dr. Rutstein has been certified by the American Board of Internal Medicine.

Dr. Fred T. Foard, Surgeon, U. S. Public Health Service, has been assigned as regional medical officer for the ninth civilian defense region with headquarters in San Francisco. Dr. Foard graduated from the University of Maryland School of Medicine in 1916 and entered the Public Health Service in 1917 as a scientific assistant. He has directed rural sanitation projects and county health work in many parts of the United States. Special activities in which he has engaged include sanitation work in extracantonment areas during World War I, and in connection with flood control at Jackson, Miss., in 1927.

### COUNTY MEDICAL SOCIETY ESTABLISHES BLOOD BANK

The San Francisco County Medical Society, San Francisco, established last July the Irwin Memorial Blood Bank, which to date has received blood from 8,544 donors and thus has been able to provide an invaluable community service for civilians who were sick or injured and supplementary aid to the defense program. The blood bank sends to the hospitals of the San Francisco metropolitan area about 500 units of whole blood each month, for which the maintenance cost has been stabilized at \$750 per pint, plus a donor. Twenty-four hospitals now call on the Irwin Memorial Blood Bank, and at the present rate of growth it is expected that this heavily populated area will need about twice the amount of blood it is now receiving. Many emergency stations and hospitals were stocked from the blood bank the day war was declared, and several hundred portable transfusion kits containing dried plasma had been placed aboard ships of the United Nations. An hour has been set aside each week for medical officers of the armed forces to see the plant in actual operation.

### DIABETIC IDENTIFICATION CARDS

*Philadelphia Medicine* July 18 states that the Commission on Diabetes of the Pennsylvania State Medical Society has furnished identification disks and cards for all diabetic persons, which may be procured at the County Medical Society Building, Twenty-First and Spruce streets, Philadelphia, and at the Philadelphia Metabolic Association, 123 South Broad Street. There are available tags for patients who use insulin and tags for those who do not use insulin. The identification cards which the patients are to fill out, however, are identical.



# ORGANIZATION SECTION

## MEDICAL LEGISLATION

### MEDICAL BILLS IN CONGRESS

*Changes in Status*—S 2676 has been reported to the Senate, to provide for medical care and funeral expenses for certain members of the Naval Reserve Officers' Training Corps. This bill provides that members of the corps, including members who have heretofore suffered disability during the present war or the national emergency preceding it, who suffer disability from personal injury, illness or disease occurring in line of duty while en route to or from and while participating in authorized practice cruises shall be entitled at government expense to such hospitalization, rehospitalization and medical and surgical care and treatment, in hospitals or at their homes, as is necessary for the appropriate treatment of such personal

injury, illness or disease until the disability resulting therefrom cannot be materially improved by hospitalization or treatment. H R 7164 has passed the House and Senate, to amend the Soldiers' and Sailors' Civil Relief Act of 1940. Among other things, this bill extends the benefits provided in the original act to transactions occurring subsequent to Oct 17, 1940 and contains a provision under which leases may be terminated by persons who enter military service when such leases cover premises occupied for dwelling, professional, business, agricultural or similar purposes. Under the original act no provision was made for the cancellation of leases, nor did the benefits contained in the original act in connection with leases apply to leases on premises used for professional or business purposes.

## WOMAN'S AUXILIARY

### California

The thirteenth annual session of the Woman's Auxiliary to the California Medical Association was held, May 4-5, at the Del Monte Hotel, Monterey. At the opening session of the California Medical Association Mrs Harry O Hund, president of the state auxiliary, presented a \$735 check to the California Medical Association Benevolence Fund. A general meeting was held on Tuesday. The speakers included Mrs Dewey R Powell, William R Molony and George H Kress. A luncheon honoring Mrs F G Lindemulder, president-elect, concluded the activities.

### Illinois

At a recent meeting of the auxiliary to the Bureau County Medical Society Mrs R E Davies of Spring Valley showed pictures of Guatemala and tapestries collected during her trip there.

Mrs Christine Ryman Pensinger, supervisor of Institutional Housekeeping for the State of Illinois, spoke at a joint meeting of Vermilion County medical auxiliary and the American Association of University Women recently on "Housekeeping in the Institutions and the Place of the Homemaker in the War". The speaker is now cooperating with Governor Green in planning a program to help housewives face problems which the war has created in the home.

Miss Harriet Fulmer, R N, supervisor of nurses for Cook County Health Unit, spoke on "History of Rural Nursing Service in Cook County" at the February meeting of the auxiliary to the Chicago Medical Society.

### Ohio

The Woman's Auxiliary to the Hempstead Academy of Medicine (Scioto County) held its annual spring luncheon on May 13 at Portsmouth. Speakers at the meeting were Mrs Helen Davis Holcombe, past national president of the Woman's Auxiliary to the American Medical Association, Mrs Eleanor Osborne, president of the Woman's Auxiliary to the Ohio State Medical Association, Dr Carl G Braunlin, president of the Hempstead Academy of Medicine, and Mr R F Fletcher of the Portsmouth Times. A radio broadcast by a member of the local auxiliary on diphtheria immunization was heard. Health education broadcasts are a regular feature of the Hempstead auxiliary over the local radio station.

### Oklahoma

The Woman's Auxiliary to the Oklahoma State Medical Association met in Tulsa in April under the presidency of Mrs Edward D Greenberger, with one hundred and five registered. The eight counties organized had representatives present with reports of their activities throughout the year.

Muskogee County, organized during the year, won honorable mention in the American Medical Association *Hygeia* contest. The public relations and philanthropic work of Pittsburg County (McAlester) was outstanding. Oklahoma County has the largest membership, with one hundred and thirty-eight active members. Representatives from a large number of woman's clubs were present. Tulsa gave sixty-one six month *Hygeia* subscriptions to county schools and gave the county medical society \$75 for their library.

### Washington

The open public relations meeting of the Pierce County auxiliary in Tacoma, March 12, was attended by one hundred and sixty-five. Dr Jennie Roundtree of the University of Washington spoke on nutrition.

At the March meeting of the Cowlitz County auxiliary, Mrs Clyde Shurer, executive secretary of the Red Cross, spoke on blood banks.

The March meeting of the Yakima County auxiliary was addressed by Dr D S Corpron on his experience as a medical missionary in China.

### Wisconsin

The Kenosha County auxiliary met at the home of Mrs Ilef Lokvam, March 3. Judson Staplekamp spoke concerning the civilian defense project in Kenosha, and the auxiliary donated \$25 to this cause. Mrs Edgar Andre was appointed chairman of the committee to finance the sending of girl scouts to camp this summer.

At a joint meeting of the woman's auxiliary to the Brown Kewaunee-Door County Medical Society and the Green Bay and DePere units of the Women's Field Army, March 25, Mrs G E Stoddart, Beaver Dam, state commander, spoke on the curability of cancer in its early stages. Mrs George Goggins, president of the auxiliary, presided.

The auxiliary to the Milwaukee County Medical Society held a luncheon meeting in Milwaukee, March 13. Ninety seven members were present and twenty-two members of the minstrel chorus of the medical society later entertained. Dr R E Fitzgerald addressed the group on "Procurement and Assignment". The proceeds (\$247.50) of a benefit card party were turned over to the Red Cross.

At a meeting of the auxiliary to the Racine County Medical Society, Mrs I F Thompson reviewed an article in *Hygeia* entitled "How Well Do You Know Your First Aid?" Miss Louise Thompson talked on "Nutrition and Meal Planning as Taught at Park High" and displayed posters made by 15 students of the home economics class.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS EDUCATION AND PUBLIC HEALTH)

### CALIFORNIA

**Physicians Wanted**—Physicians at least 21 years of age are wanted for temporary and permanent positions at the Olive View Sanatorium by the Los Angeles County Civil Service Commission. Salary will be \$225 a month. Necessary qualifications include graduation with the degree of M.D. from an approved medical school and the completion of at least one year's internship in an approved hospital. Qualified persons over 55 years of age may file for the temporary or duration appointments. Complete information may be obtained from the office of the commission, Room 102, Hall of Records, Los Angeles. All applications must be received on or before August 25.

### CONNECTICUT

**Physician Pleads Guilty to Violation of Espionage Act**—Dr. Wolfgang Ebell, El Paso, Texas, a native of Zabern, Alsace, pleaded guilty in a federal court in Hartford July 14 to a charge of conspiring to violate the Espionage Act of 1911 according to the *New York Times*. The physician was said to be furnishing military secrets of the United States to Germany and Japan. He entered the guilty plea following a former plea of innocence the *Times* stated. Dr. Ebell graduated at the Albert Ludwigs Universität Medizinische Fakultät Freiburg, Baden, Germany, in 1923. He was licensed in Texas in 1930.

**Cancer Progress in Connecticut**—The state department of health recently established a tumor registry of slides in the department of pathology at Yale University School of Medicine, New Haven, to serve as a storehouse of material for study and for assisting in standardizing the diagnosis and grading of tumors. Twenty-five specimens with complete records have been registered since April 1. Dr. Robert Tennant, assistant professor of pathology and surgery at the medical school and pathologist at the Hartford Hospital, is the registrar. The registry is an extension of the cancer program that was inaugurated in Connecticut in 1935 through the general efforts of the state medical society, the Connecticut Society of Pathologists and the state department of health. The tumor committee of the state medical society acts as a policy making advisory committee. Under the program the society of pathologists has agreed on a standard nomenclature that has been accepted throughout the state. The division of cancer research of the state department of health has set up and systematized a standard tumor record form and is collecting coding and analyzing the records of every patient with a malignant growth admitted to each of the twenty-one cooperating hospitals, keeping the form for the period from 1935 to and including the present. In May 1941 an act signed by the governor appropriated \$50,000 to the state department of health to be used for the study of cancer and the maintenance of diagnostic and treatment clinics for the period ending June 30, 1943. The public health council of the state health department and the tumor committee of the state medical society approved the allocation of funds to twenty-one hospitals keeping the standard tumor records on the basis of actual services rendered for a twelve month period. The records for the calendar year 1939 were chosen as the basis on which the initial allocation of funds was made. A seven point plan of appraising service rendered by evaluating the hospital records of all neoplasms admitted was established. A result of subsequent study showed that 73.8 per cent of all the malignant growths in the twenty-one hospitals were proved by microscopic diagnosis in 1940. One thousand dollars was allotted from the state's appropriations of \$50,000 to the tumor registry. It was decided to register tumors of lymphoid tissues, bone, the ovary and the nervous system. For each group of tumors a board of three pathologists was to establish a system of nomenclature as an expansion of the present code and to submit diagnoses on material referred from the central registry. A part time personnel maintains the work of the registry under remuneration from the cancer funds of the state. Tumor clinics throughout the state send to the registry a block (in cases in which all available tissue has been embedded in unstained slides may be submitted) of tissue fixed in 10 per cent neutral solution of formaldehyde and an assembly of all pertinent clinical

data that is a duplicate of the tumor clinic record or, when indicated, an expansion of this, in certain instances, for example bone tumors the roentgenograms or prints made from these in quadruplicate for filing with the records. Information classified in the registry is returned to the original clinic for cross index purposes, the registry to be responsible for follow-up work through the clinics.

### DISTRICT OF COLUMBIA

**Dr. McGovern Receives Service Award**—Dr. Francis X. McGovern, Washington, retiring chairman of the executive committee of the Medical Society of the District of Columbia, was recently presented with the society's Certificate of Award for Meritorious Service. Dr. McGovern has been an officer of the society for the past seven years.

### FLORIDA

**Changes in Examining Board**—Dr. Isaac W. Chandler, Avon Park, was elected president of the state board of medical examiners succeeding Dr. Harold D. Van Schaick, Jacksonville. Dr. Howard G. Holland, Leesburg, was named vice president. Dr. William M. Rowlett, Tampa, secretary and treasurer of the board since it was established was reelected.

**New State Health Officer**—Dr. Henry Hanson has been appointed state health officer, effective July 15, succeeding Dr. William H. Pickett, Jacksonville, who has been commissioned in the U. S. Public Health Service. Dr. Pickett has been state health officer since January 1941 and is president of the Florida Public Health Association. Dr. Hanson formerly served as health officer of Florida and recently has been working in South America chiefly in Ecuador and Peru as technical adviser in bubonic plague eradication and in jungle fever and malaria control.

### ILLINOIS

**Changes in Health Officers**—Dr. Cecil A. Z. Sharp, state district health officer, Highland, has been placed in charge of a new health unit in Will County, it is reported. Dr. Albert C. Baxter, Springfield, has been appointed state district health officer, with headquarters in Pana. Dr. Baxter formerly served as acting state health officer.

**Committee on Youth and Welfare**—Governor Green recently appointed a committee on youth and welfare as a part of the Illinois State Council of Defense to obviate any tendency toward delinquency brought on by abnormal conditions caused by the national emergency. The committee's activities have been placed under the supervision of the state division for delinquency prevention. Members of the executive committee include Judge B. Harry Reck, Mendota, chairman, Samuel R. Ryerson, Springfield, vice chairman and executive director, William A. Lewis, Chicago, R. W. Fairchild, Normal, Judge Harlington Wood, Springfield, Mrs. Jessie Scofield, Peoria, Rodney H. Brandon, Springfield, and Dr. Julius H. Hess, Chicago.

### Chicago

**Personal**—Dr. Loyal Davis, chairman of the division of surgery, Northwestern University School of Medicine, was elected president of the university's alumni association on June 23.

**Squibb Award to Dr. Koch**—The Squibb Award of \$1,000, administered by the Association for the Study of Internal Secretions, was presented to Fred C. Koch, Ph.D., Frank P. Hixon, distinguished service professor emeritus of biochemistry, University of Chicago, during the annual meeting of the association in Atlantic City, June 8. The award was established in 1939 to encourage investigations in endocrinology.

**New Director of Tuberculosis Rehabilitation Service**—Marvin Halsey, B.A., associate director, has been appointed director of the Rehabilitation Service of the Tuberculosis Institute of Chicago and Cook County, succeeding Morton A. Seidenfeld, Ph.D., who has entered army service. Mr. Halsey served as director of rehabilitation at the Hamilton County Tuberculosis Hospital in Ohio from 1936 to 1937, when he was made director of the department of social services. He joined the Chicago Tuberculosis Institute, Feb. 1, 1941.

### INDIANA

**Changes in Health Personnel**—Dr. Arthur Leiter, Columbia City, has been named health officer of Whitley County to succeed Dr. Otto F. C. Lehmberg, Columbia City, who is now a captain in the U. S. Army. Dr. Russell Perry Reynolds has been appointed secretary of the Garrett board of health.

succeeding Dr Robert A Nason, who has entered government service—Dr Sherman T Rogers has been appointed health officer of New Albany to succeed Dr Addis N Robertson, who has resigned—Dr Arthur F Weyerbacher has been appointed to the Indianapolis board of health for a four year term, succeeding Dr George W Kohlstaedt, who recently moved outside the city limits

### KANSAS

**New County Medical Society**—The council of the Kansas Medical Society recently approved the issuance of a charter to the Clark County Medical Society. New officers include Drs Ivan R Buiket, Ashland, president, and Harold O Closson, Ashland, secretary-treasurer

**Election of State Health Board**—At a recent meeting of the Kansas State Board of Health Dr George I Thacher, Waterville, was reelected president and Dr Harry L Aldrich, Caney, vice president. Dr Floyd C Beelman, Topeka, acting secretary, was appointed as the secretary and executive officer and Dr William Fred Mayes, Kansas City, was appointed director of the division of child hygiene. Dr Harry R Ross, Topeka, medical consultant to the board, Drs Forrest L Loveland, Topeka, and Hugh A Hope, Hunter, have been appointed members of the board, succeeding the late Drs James T Reid, Iola, and William C Lathrop, Norton

### KENTUCKY

**Health Officer Goes to West Virginia**—Dr James T Duncan, Columbia, health officer of Adair County since 1937, has resigned to become director of the bureau of tuberculosis of the West Virginia State Department of Health, effective July 1. Dr Duncan graduated at Western Reserve University School of Medicine, Cleveland, in 1933

### MARYLAND

**Dr Knox Named Consultant in Child Hygiene**—Dr James H Mason Knox Jr, Baltimore, who recently retired as director of the state bureau of child hygiene, has been appointed consultant in child hygiene. Dr Knox had been chief of the state bureau since its establishment in 1922. At a recent dinner held to mark his retirement, Dr Knox was presented with a bound portfolio of his own work including reprints of articles, addresses and reports of special studies

### MICHIGAN

**Personal**—Dr Harold B Fenech, Detroit, was appointed chairman of the state crippled children commission, succeeding the late Paul King, Detroit. Other members of the commission are Maurice Aronsson, Detroit, George R Cooke, Detroit, Max Reynolds, Marquette, and Emmet Richards, Alpena

**New Building for State Health Department**—A new building has been erected for the state department of health on the northwest edge of Lansing. The four story construction was financed with state funds of \$135,000, supplemented by WPA grants of labor and materials. Eleven of the twelve bureaus of the state department are located in the new building. Laboratory personnel will continue to occupy the old unit. Ground was broken for the new building in May 1940. It is expected that the official opening will take place within the near future

### MINNESOTA

**Personal**—Dr Edward W Zeman has been named health director of Hibbing, it is reported

**Society News**—Dr Anton J Carlson, Chicago, gave a Mayo Foundation Lecture, July 2, in Rochester on "The Newer Knowledge of Nutrition—How Much of It Is Knowledge?"—Dr Erling W Hansen, Minneapolis, addressed the Minnesota Academy of Medicine, May 13, on "Eye Lesions in Leukemia"

### MISSISSIPPI

**Administrative Changes at Veterans' Facilities**—Dr Ellis P Burns, formerly of Tucson, Ariz, has been assigned chief medical officer at the Veterans Administration Facility, Biloxi, effective July 1, it is reported. He succeeds Dr Ira L Parsons, who is retiring from active service and who has served the facility as chief medical officer since its opening in 1933—Dr Gettis T Sheffield, formerly of Downey, Ill, has been appointed head of the Veterans Administration Facility, Gulfport, succeeding Dr George M Melvin, who was transferred to Roseburg, Ore

### NEBRASKA

**New State Health Officer**—Dr Wallace S Petty, for many years head of the Sioux City and Woodbury County health units, Iowa, has been appointed state health officer of Nebraska. He succeeds Dr Arthur L Miller, Kimball, who resigned to seek the Republican nomination for congress in the fourth district of Nebraska, according to the *Sioux City Journal*, June 1. Dr Petty graduated at Keokuk Medical College of Physicians and Surgeons, Keokuk, Iowa, in 1908. He is 55 years of age. Recently he completed a course of graduate work at the University of Minnesota

### NEW MEXICO

**Society News**—Dr A William Multhaupt, El Paso, Texas, discussed "Management of Stones in the Kidney and Ureter" before a recent meeting of the Chaves County Medical Society in Roswell. The McKinley County Medical Society was addressed recently in Gallup by Dr Ernest A Campbell on methods of skin grafts and their after care

### NEW YORK

**State Maternal Mortality**—The maternal mortality in New York State, exclusive of New York City, was 24 deaths in 1941 per 10,000 live and still births, according to *Health News*, which was 17 per cent less than in the preceding year and 55 per cent below the rate in 1936. Deaths from diseases of pregnancy, childbirth and the puerperium in the state totaled 238. *Health News* points out that, in making comparison between the statistics of mortality in 1940 and in 1941 with those for earlier years, it is necessary to bear in mind the changes made in the last (1938) revision of the International List of Causes of Death. This revision assigns to the puerperal group the mortality from criminal abortion formerly classed under homicide and that from acute yellow atrophy of the liver if associated with pregnancy or childbirth. Since deaths from the latter cause are comparatively few (in 1941 there was only 3 in upstate New York), this new classification has but slight effect on the total rate. Criminal abortions are more numerous, representing 3 to 4 per cent of the maternal mortality, and in comparing the present rates with those of foregoing years it is necessary to make a correction for this factor. The 47 deaths from abortion reported in 1941 were distributed according to circumstances as follows: self induced, 6, adjudged on investigation to have been criminal, 10, therapeutic, 2, spontaneous or unspecified, 29. Of the 47 victims, 12 were single, 2 widowed, 33 married. Among the 191 women who died from other puerperal causes, 12 were single, 1 widowed, 2 divorced and 176 married. Thus, single women accounted for 26 per cent of the deaths from abortion and somewhat more than 6 per cent of the deaths from all other puerperal causes. The leading cause of all maternal deaths is septicemia, which in 1941 was responsible for 42 per cent of the total mortality. In the same year, toxemia accounted for 18 per cent of the deaths. Compared with 1936, the septicemia rate declined 52 per cent and that from toxemia 64 per cent, the rate from all other causes having decreased 55 per cent

### New York City

**Hospital Ship Begins Annual Outings**—The *Lloyd I Scaman*, floating hospital ship of St John's Guild of the City of New York, started, July 1, the sixty-seventh year of the guild's excursions on New York waters for undernourished children up to 12 years and mothers. The vessel carried one thousand children and mothers on the first day of the week end trips. These trips will continue until September 5

**Doctors of Old New York**—The New York Historical Society recently opened a special exhibition called "Doctors of Old New York" to commemorate the two hundredth anniversary of the birth of the New York physician and surgeon Dr Samuel Bard and to honor some of his medical contemporaries. According to the *New York Times*, Dr Bard (1742-1821) was one of the founders of King's College, the first medical school in the city. After retiring he lived at Hyde Park on the estate inherited from his father, which, after passing through many other hands, has now become a national park, the *Times* stated

**Personal**—Dr Fred H Albee will leave Miami, Fla on August 10 via the Pan American Airways on a trip to countries in South America including Brazil, Argentina, Peru and Panama. During his visit Dr Albee will

the operating room of the new Medical College of the University of Buenos Aires, which is to be named after him. Special lectures have been organized before the Brazilian National Orthopaedic Association and the University of Chile, of which Dr Albee is an honorary member.—Dr George T Pack recently received the honorary degree of doctor of laws from the University of Alabama and the degree of doctor of medicine honoris causa from the College of Physicians and Surgeons of the Republic of Costa Rica. Dr Pack recently returned from a lecture tour of Central and South America.

**Changes on Rockefeller Institute Staff**—The board of scientific directors of the Rockefeller Institute for Medical Research announces the following appointments and promotions on the scientific staff, effective on or after July 1. Promotions include associate to associate member, Dr Charles L Hargland, Dr John G Kidd Rebecca C Lancefield Ph D and Dr Joseph E Smadel, assistant to associate, Dr Jordi Folch-Pi Rollin D Hotchkiss, Ph D, and Dr Henry A Schroeder, fellow to assistant, Ralph P Elrod, Ph D, Claude A Knight Jr, Ph D, Thomas Laskaris, Ph D, and Dr R Walter Schlesinger. New appointments include assistants, Francis Binklev, Ph D, Lester Orville Krampitz, Ph D, Cedar Falls Iowa, Dr Raymond Anthony Mezera, St Louis, Mark Arnold Stahlmann, Ph D, Madison, Wis, and Frederick Charles Uhle, Ph D.

**Physician Ordered to Serve Prison Sentence for Insurance Fraud**—Dr Maximilian W Goldstein, who two years ago was convicted of participating in a scheme to defraud insurance companies, must serve his prison sentence, according to a ruling made by Federal Judge Mortimer Byers, reported in the *New York Times* June 24. Dr Goldstein was convicted, with others, on eight counts on charges of mail fraud and conspiracy in a disability insurance fraud. He was convicted under one indictment, but the case was carried to the supreme court, where it was reversed because some investigators had obtained evidence by the unlawful tapping of telephone wires. The *Times* reported. New indictments were obtained to avoid the need of such evidence, it was stated. Under the guidance of the doctors involved in the scheme, the claimants would undergo severe physical exercises and take drugs which upset their normal pulse and other conditions. In this way the claimants were prepared for examinations conducted by honest physicians, who were completely fooled by their apparent symptoms, the *Times* stated. According to the recent report, Dr Goldstein was ordered to surrender on June 29 to start serving his prison sentence of fifteen months. It was reported that he had asked to be placed on probation and permitted to give his medical services in whatever field they might be needed in the war. Judge Myers, who had presided at his trial, rejected the physician's plea, it was stated.

## OHIO

**Physician Celebrates One Hundredth Birthday**—Dr Albert J Marks, Toledo, observed his one hundredth birthday on July 5. According to a newspaper report Dr Marks was born on the high seas of the Atlantic Ocean, July 5, 1842, when his parents were on their way to America from Tool, England. Dr Marks, who practiced medicine in Toledo until he was 92 years old, originally opened his practice in Milbury, it was reported. He graduated at the Physio-Medical Institute Cincinnati, in 1882.

**Special Society Elections**—Dr Frank C Hodges, Huntington W Va, was named president-elect of the Ohio Society of Pathologists recently, and Dr Richard S Austin, Cincinnati, was installed as president. Dr August H Schade, Toledo, is secretary-treasurer.—Dr Ursus V Portmann, Cleveland was elected president during the recent annual meeting of the Ohio State Radiological Society in Columbus. Other officers are Drs Edgar C Baker, Youngstown, vice president, and Justin E McCarthy, Cincinnati secretary-treasurer.

## PENNSYLVANIA

**District Meeting**—The Eleventh Councilor District of the Medical Society of the State of Pennsylvania, comprising Bedford, Cambria, Fayette Greene, Somerset and Washington counties was addressed, July 16, in Somerset by Drs John S McMurray, Washington, on "Neoplasma of the Upper Respiratory Tract", Horace B Anderson, Johnstown, "Plasma Banks", Edwin P Buchanan, Pittsburgh "Responsibility for Early Diagnosis of Cancer—Special Consideration of Cancer of the Breast," and James L Blaisdell, London Ont Canada,

"Further Studies in Silicosis with Reference to Aluminum Therapy." Fifty year testimonial certificates were presented by Dr Walter F Donaldson, Pittsburgh, secretary of the state medical society, to Drs Harry J Bell, Dawson, and Jesse F Cogan, Dawson.

## Philadelphia

**Dr Packard Receives Newcomb Award**—The American Laryngological Association bestowed its Newcomb Award on Dr Francis R Packard, formerly professor of otology of the Postgraduate School of the University of Pennsylvania, "for scientific attainment in rhinology and laryngology and as a mark of esteem and appreciation for services to the association." Dr Packard was president of the American Laryngological Association in 1931.

## Pittsburgh

**Society News**—The Pittsburgh Surgical Society was addressed, May 15, by Drs Jonathan E Rhoads and John S Lockwood, Philadelphia on "Management of Burns" and "Use of the Sulfonamides in Treatment and Prevention of Infections," respectively.

## WASHINGTON

**State Medical Meeting Canceled**—The fifty-third annual meeting of the Washington State Medical Association scheduled for Spokane, August 17-19, has been canceled by action of the board of trustees. The board and house of delegates will meet, however, at the Olympic Hotel, Seattle, September 12-13, to conduct the official business of the association.

**Personal**—Dr Emil E Palmquist, Port Angeles, health officer of Clallam County-City Health Unit, was elected president of the Washington State Public Health Association at its recent annual meeting, succeeding Dr Arthur L Ringle Kelso.—Dr Frederic G Sprowl, Spokane, has been appointed a member of the medical examining committee to succeed Dr Donald G Corbett, Spokane.—Dr Jacob Kasanin, San Francisco, is conducting two courses in social psychiatry during the summer session of the University of Washington, Seattle.

## WISCONSIN

**State Medical Meeting**—The one hundred and first annual meeting of the State Medical Society of Wisconsin will be held at the Hotel Schroeder and the Milwaukee Auditorium in Milwaukee, September 14-16. Included among the speakers participating in the general sessions, round table discussions, symposiums and sectional meetings will be

- Dr Arlie R Barnes Rochester Minn Diagnosis of Pathologic Conditions of the Heart
- Dr Stuart W Harrington Rochester Constructing Pericarditis
- Dr Wesley W Spink Minneapolis The Clinical Applications and Complications of the Sulfonamides
- Dr Clayton G Loosi Chicago Pneumonia and Chemotherapy
- Dr Edgar A Hines Jr Rochester Normal Range and Hereditary Factors in Hypertension
- Drs Eliequis T Bell Minneapolis and Irvine H Page Indianapolis titles to be announced later
- Dr Edward H Rynearson Rochester Actual Clinical Disturbances of the Endocrine Glands
- Dr Tom D Spies Cincinnati Advances in Vitamin Therapy
- Dr Julius Jensen St Louis Modern Concepts of the Relation Between Heart Disease and Pregnancy
- Dr Howard P Douth Detroit The Roentgenographic Changes in Virus Pneumonia
- Dr James W White New York Diagnosis in Diseases of Eye Muscles
- Dr Ralph H Woods La Salle Ill Frequent Causes of Eye Discomfort
- Dr Wallace H Cole St Paul The Kenny Treatment of Anterior Poliomyelitis
- Dr Maurice L Blatt Chicago Control of Contagion in Childhood
- Dr Bert I Beverly Chicago Emotional States and Management Problems in Childhood
- Dr Hülger P Jenkins Chicago Problems in the Selection Preparation and Use of Suture Material in General Surgery
- Dr Herman O McPheeters Minneapolis The Present Day Treatment of Varicose Veins
- Dr Winfield W Scott Chicago Castration Treatment of Carcinoma of the Prostate
- Dr Thomas L Pool Rochester The Treatment of Urinary Tract Infections with the Sulfonamide Group of Drugs
- Dr Oliver E Van Aylse Chicago Nasal Accessory Sinuses
- Dr George E Shambaugh Jr, Chicago Allergy in Office Eye Ear and Throat Practice
- Lieut Col William C Porter M C U S Army Washington D C, Theresa Rogers Memorial Lecture—War and Neuropsychiatry
- Dr George M Curtis Columbus Ohio Blast Injuries
- Dr Warren H Cole Chicago The Treatment of Civilian War Injuries
- Dr George P Guibor Chicago The Practical Use of Prisms

The woman's auxiliary will join the physicians at the annual dinner, Tuesday, September 15, to be addressed by Dr Fred W Rankin, Lexington, Ky, President of the American Medical Association. The annual smoker of the society will be held at the Hotel Schroeder, Monday, September 14. This year the society will hold a physicians hobby show under the supervision of Dr Clyde J Smiles, Ashland.



## GENERAL

**Institute for Hospital Administrators**—The tenth institute for hospital administrators of the American Hospital Association will be held at International House, University of Chicago, September 14-26. The program will include lectures, seminars and group conferences covering various aspects of hospital management. All communications concerning the institute should be addressed to Miss Agnes M. McCann, secretary of the Institute for Hospital Administrators American Hospital Association, 18 East Division Street, Chicago.

**Clinics**—The editors and publisher of the *New International Clinics*, in response to the increased tempo of medical progress, have started a new publication called *Clinics*, which will be issued bimonthly instead of quarterly, as was the older publication, the *New International Clinics*. A symposium is planned for each number for the issues ahead covering such topics as transfusion and blood substitutes, hemorrhage, nutrition, neurosurgery, endocrinology, industrial hygiene, arthritis and rheumatism, obstetrics and gynecology, pediatrics, differential diagnosis and social psychiatry. The new periodical will be edited by Dr. George Morris Piersol, professor of medicine, Graduate School of Medicine, University of Pennsylvania, with the collaboration of a group of distinguished physicians from various medical centers, and the publisher will continue to be the J. B. Lippincott Company, Philadelphia. The first issue of the first volume of *Clinics* was published in June.

**Mr. Cameron Retires as Managing Director of Safety Council**—Mr. William H. Cameron, Chicago, for almost thirty years managing director of the National Safety Council, has retired. He will be succeeded by Ned H. Dearborn, Ph.D., New York, who has been named executive vice president and managing director. Mr. Dearborn has been dean of the division of general education of New York University since 1934. In his new position he will actively direct and expand the wartime program now being conducted by the National Safety Council as a result of a proclamation by President Roosevelt. The necessary funds for this program, aimed at stopping accidents that are impeding production, are now being obtained from commerce and industry by the Council's War Production Fund to Conserve Manpower. According to an official release, an initial appropriation of \$250,000 from this fund will be made available to the council for immediate development of this wartime safety program. An additional \$1,000,000 already pledged will be allocated within the next few months. Mr. Dearborn has been engaged in accident prevention for several years and was responsible for the development four years ago of the Center for Safety Education at New York University. He has been vice president for education of the National Safety Council for two years and for the last year has been chairman of the council's special finance support committee. Mr. Cameron became managing director of the National Safety Council when it was formed in 1913. Prior to that he had been manager of the casualty and safety departments of the American Steel Foundries in Chicago.

**Special Society Elections**—Dr. Hermon M. Taylor, Jacksonville, Fla., was named president-elect of the American Laryngological, Rhinological and Otolological Society at its meeting in Atlantic City, June 3, and Dr. James G. Dwyer, New York, was installed as president. Dr. Carlton Stewart Nash, Rochester, N. Y., was reelected secretary. Dr. Walter S. Thomas of Rochester, N. Y., was chosen president-elect of the American Society of Clinical Pathologists at its annual meeting, held in Philadelphia in June. Dr. Harry Goldblatt, Cleveland, was installed as president and Dr. John T. Bauer, Philadelphia, was named vice president. Dr. Alfred S. Giordano, South Bend, Ind., was reelected secretary. The gold medal for excellence in scientific exhibit was awarded to Drs. Philip Levine, Newark, N. J., Peter Vogel, New York, and Eugene M. Katzin, Newark, for their exhibit on "Isoimmunization, Rh Blood Factor and Erythroblastosis Fetalis." Dr. Byrl R. Kirklin, Rochester, Minn., was elected president of the American College of Radiology at its annual meeting in Atlantic City, June 10. Dr. Eugene P. Pendergrass, Philadelphia, was named vice president and Dr. Hollis E. Potter, Chicago, was reelected treasurer. Mac F. Cahal, Chicago, is the executive secretary. The next annual meeting will be in San Francisco. The board of chancellors of the college and teachers of clinical radiology will hold their annual congress in Chicago in February 1943. Dr. Karl D. Figley, Toledo, Ohio, was chosen president-elect of the Association for the Study of Allergy at its annual meeting and Dr. Samuel M. Feinberg, Chicago, was inducted into the presidency. Dr. Oscar Swineford Jr., Charlottesville, Va., is vice president and Dr. Harvey Black, Dallas, is the secretary-treasurer. Dr. Homer I. Silvers, Atlantic City,

N. J., was elected president of the American Proctologic Society at its annual meeting recently and Dr. William H. Daniel, Los Angeles, was reelected secretary. The American Diabetes Association announced that its officers for the ensuing year are Drs. Joseph T. Beardwood Jr., Philadelphia, president, Joseph H. Barach, Pittsburgh, and Russell M. Wilder, Rochester, Minn., vice presidents, Cecil Striker, Cincinnati, and William Muhlberg, Cincinnati, treasurer. Helen Revel is acting executive secretary.

## LATIN AMERICA

**Personal**—Dr. Alvaro E. Bence, Buenos Aires, Argentina, was elected a corresponding member of the American Bronchoesophagological Association at its annual meeting in Atlantic City, June 9.

**New Committee on Tuberculosis**—A national committee was recently organized in Argentina for the government campaign against tuberculosis, with headquarters in Buenos Aires, according to the *Bulletin* of the National Tuberculosis Association. Drs. Alejandro A. Ramondi and Rodolfo A. Vaccarezza, University of Buenos Aires Faculty of Medicine, were appointed president and secretary, respectively.

## FOREIGN

**Sir Henry Dale to Retire as Director of National Institute**—Sir Henry H. Dale, president of the Royal Society, will retire as director of the National Institute for Medical Research, Hampstead, on September 30, according to *Science*. He will be succeeded by Charles R. Harington, Ph.D., professor of pathologic chemistry, University of London, and director of the Graham Medical Research Laboratories of University College Hospital Medical School.

**Public Health Under Hitler's Rule**—Transocean of May 22 reports that 1,100 sick and wounded Belgian prisoners of war arrived in Antwerp May 21 in special trains from Germany. Except those who were able to return to their families, the men were placed in hospitals.

The reich minister of labor has decreed, according to NDZ of May 23, that, for the duration of the war, national health insurance institutes must defray the cost of remedying the sterility of women as part of their assistance to the family, even if they exceed the statutory benefits granted by health insurance institutes.

The *Donauzeitung*, Belgrade, of May 5 reports that, according to a recent announcement, all families with more than five members and all the poor in Athens and the Piraeus will receive free medical attention.

A public meeting was held at Lahti in May, according to *Suomen Sosialidemokraatti*, Helsinki, of May 10 to discuss the increase in venereal disease and drunkenness in Lahti. Venereal disease was said to be spreading at an alarming rate, it was suggested at the meeting that the city build a clinic for venereal diseases.

A report submitted to the Styrian Medical Society, according to the *Munchener medizinische Wochenschrift* of May 8, stated that susceptibility to spotted typhus is the same for men as it is for women. Every case and every suspected case must be reported. Only persons who have been cured of spotted typhus or who have been vaccinated against the disease should work at delousing stations. Only single cases thus far have reached Styria. According to the *Deutsche Zeitung* of May 7, the report of the Budapest medical officer for April stated that "in connection with typhus (bauchtyphus) 1,338 persons were examined by the Institute of Public Health, and 29 in connection with spotted typhus (flecktyphus)." At a meeting at Thisted, according to *Amts Avis* of May 6, Dr. Folke, the district physician, said that lice were more widespread than was expected. A hundred school children at Thisted had head lice; twenty-five had body lice and about fifty adults had body lice. The "lice plague" has also increased lately in such country districts as Thy and Mors.

An advanced training course for works doctors has begun in Vienna, according to a Luxembourg broadcast of May 11. The course, which was arranged by the academy for advanced medical training and the DAF, was opened in the presence of the gauleiter of Niederdonau.

## CORRECTION

**Treatment of Yellow Fever**—In the article by Dr. Fred L. Soper in *THE JOURNAL*, January 31, the sentence in lines 4-6 in the paragraph numbered 4 under "Clinical Picture" on page 376 should have read: "The classic attack may be mild or the hemorrhage does not become excessive and the kidneys continue to secrete."



## Foreign Letters

### LONDON

(From Our Regular Correspondent)

June 27, 1942

#### More Doctors Wanted for the Fighting Forces

Though a large part of the younger members of the medical profession has been called up for service with the fighting forces the minister of health, Mr. Ernest Brown addressing a meeting of local medical war committees, stated that the exigencies of the military situation now required an acceleration of the withdrawal of civilian practitioners for war purposes. This could not be done without special arrangements. It would be necessary to curtail the period during which newly qualified practitioners were allowed to remain in hospital appointments. Their place would have to be taken by women practitioners and by male practitioners who were not liable for service with the fighting forces on the ground of age, nationality or medical fitness. Larger hospitals were to be urged to undertake specialist work for smaller hospitals and so release for the fighting forces specialists at present retained in the latter. It would be necessary for part time medical officers of hospitals to undertake a greater share of the work so as to reduce the number of whole time staff and thereby release them for the same end. There was scope for economies in the staffs of medical schools and research establishments and the possibilities were being explored with the appropriate authorities. Finally a scheme was under consideration with the object of making the most economical use of medical manpower by eliminating overlapping in the work of general practitioners.

Lieutenant General Hood, director general of the army medical services, described how medical establishments in the army were kept down to the absolute minimum compatible with efficiency and were constantly under review in the light of experience gained from all theaters of war. He gave examples of how it had been found possible to economize in personnel by replacing medical officers by nonmedical ones in certain units. He informed the meeting that a committee consisting of doctors experienced in army administration and of business men experienced in army medical administration had carried out a special investigation into medical documentation in order to cut this down to a minimum which would contribute to economy in medical officers. The amount of time that has to be spent in filling out forms is a well known complaint of army medical officers. General Hood emphasized the importance of preventive medicine in the army. The primary duty of the medical officer was to keep the largest number of fit men at the disposal of the commander. He was confident that the men in the field would have the most efficient medical service this country could produce and that, if further demands were made on the civil profession they would respond to their maximum effort.

#### Economy in the Use of Quinine

Though supplies of quinine are declared by the government to be adequate for a considerable time, economy is necessary. In a communication to the *Lancet* W. D. Nicol and P. G. Shute of the Malaria Laboratory of the Ministry of Health point out that it is not generally recognized that the amount of quinine necessary to cure an attack of malaria varies according to the parasite. As a result of twenty years' experience they give the following advice. In *Plasmodium vivax* infections a single dose of 5 grains (0.3 Gm.) of quinine once a day for fifteen days will cure. Larger daily doses even if extended over a longer period, do not prevent relapses no matter how often the patient has been bitten by infected mosquitoes. In relapses an even smaller daily dose for a few days is sufficient.

Infections with *Plasmodium falciparum* require a larger dose, 10 grains (0.65 Gm.) daily for ten days. Long delayed relapses or latency are not seen in malignant tertian malaria.

The problem of mixed infections is rather different, but in the writer's experience 10 grains daily for ten days is adequate. The so called anti-relapse treatment is useless. To give 10, 20 or even 30 grains once a week in the hope of preventing a relapse in the future does nothing but make the patient feel uncomfortable.

These remarks apply only to persons returning to this country after having suffered from malaria in an endemic area. To conserve quinine it should not be given until a relapse occurs, and then only when the diagnosis has been confirmed by blood examination. A patient returning to this country may never relapse and even if he does in the case of *Plasmodium vivax* it may not be for six months or a year after his last attack.

#### A Shorter Medical Curriculum

The shortage of doctors resulting from the number required for the fighting services has caused the minister of health to make a recommendation to the General Medical Council that the period of medical study be shortened as an emergency measure. The council has decided not to stand in the way of any licensing body which cares to shorten the period of medical study following the examinations in anatomy and physiology, provided that at least thirty months are allowed between these examinations and the final examination and that the standard is not lowered. At the present time the minimum period is three years. This would mean a shortening by six months of the period of clinical study—a thing to be regretted, but no doubt the lesser of two evils under the circumstances.

#### Flying Doctors for the Air Force

"Flying doctors"—medical officers fully trained in most cases for operational duties as pilots—are being introduced into the fighting services. In the fleet air arm and the air force the scheme has been adopted to enable the closest possible study to be made of flying strain and other diseases peculiar to airmen. In the army air corps it is intended that medical officers shall accompany glider troops into action where necessary. An increasing number of naval surgeons will soon be wearing wings. In most cases they will be posted to aircraft carriers.

#### A Physician Who Sacrificed Himself for the Benefit of Lepers

At the annual meeting of the British Empire Relief Association it was stated that as great an interest is being displayed in the problem of leprosy in the empire as at any previous time. Even from the colonies now in Japanese control comes news of inspiring devotion to duty. Dr. G. A. Rylie, head of the great leper settlement at Sungai Buloh established by the government of the Federated Malay States has refused to be evacuated and remained to care for his lepers when the territory was overrun by the Japanese. The chairman of the executive committee of the association, Sir William Peel, said that the settlement was one of the finest of its kind in the world. Dr. Rylie had been reported to be a prisoner, but it was now understood that the Japanese had requested him to carry on his good work and that he was doing so.

#### Children Killed by Undetected Bomb

A violent explosion in the Southwark district of London killed nineteen persons and injured fifty-nine. Five three story buildings were completely wrecked and a crater 20 feet deep was produced. It is believed that the bomb was dropped in an air raid and lodged in a cellar where it remained undetected. The dead included six little children five of whom had been playing cricket in the street and the sixth riding a bicycle. The last big air raid on London was on May 10, 1941 when bombs

were dropped on the area where the explosion took place. Why the bomb should have remained quiescent for over a year has not been explained.

### Improved Health During the War

Latest figures for the chief notifiable infectious diseases to April 11 are lower than in the corresponding periods of previous years. The deaths from influenza in the returns for the one hundred and twenty-six large cities number so far this year 933, compared with 2,340, 4,745 and 3,094 in the corresponding periods of 1941, 1940 and 1939. The fall in infant mortality has been checked, but in the second year of the war it was only 56 per thousand live births, as compared with 110 in the second year of the last war. The fall in maternal mortality has continued and the figure of 261 per thousand births in 1940 was the lowest on record. This is ascribed partly to advances in the treatment of sepsis and partly to the improved standard of domiciliary midwifery. A war measure was the setting up by the end of 1941 of one hundred and seventeen emergency maternity homes for women evacuated from areas in danger of air attack. Near these homes, antepartum and postpartum hostels were established to accommodate the women before and after labor.

There are two exceptions to the general improvement in health during the war. The first is cerebrospinal fever, which is specifically a wartime disease. The number of cases rose from 1,500 in 1939 to 12,771 in 1940, but the mortality was low. Another exception to the general improvement in health is an increase in the number of cases of pulmonary tuberculosis in young women. This also was observed in the last war.

### THE EMERGENCY MEDICAL SERVICE

The war emergency service has been an important factor in the public health. By March 1941 80 per cent of the hospitals were embraced in this scheme. At first it was for civilian air raid casualties and military sick and casualties for which the army could not find beds. Later it undertook civil defense workers and others suffering from injuries sustained in war service. One result of the new system has been increased specialization. The former conception of a general hospital which undertakes everything has given way to hospitals which specialize in one thing or another. Over seventy special treatment centers are attached to the emergency hospitals, and patients are transferred to them as soon as the need for special treatment arises. This includes orthopedic and fracture surgery, maxillofacial, thoracic and neurosurgery, and treatment for burns, effort syndrome and cutaneous diseases.

### The Medical Research Institute

Sir Henry Dale, president of the Royal Society, will on September 30 retire from the post of director of the National Institute for Medical Research. To succeed him the Medical Research Council has appointed Prof C R Harrington, FRS, professor of chemical pathology in the University of London and director of the Graham Research Laboratories in University College Medical School.

### No Tea for Children Under Five Years of Age

As stated in previous letters, every one can get enough food for maintenance of health but is limited in choice by rationing. The minister of food announces that he is advised that tea is not good for young children, for whom special provision is made in priority supplies of milk, eggs, oranges and cod liver oil. He has therefore decided that the weekly tea ration of 2 ounces will no longer be allowed for children under 5. The United States is supplying sufficient concentrated orange juice to meet the special allocation to infants up to the age of 2 years.

### Precautions Against Air Attacks

Queen Mary's Hospital at Roehampton (in the outskirts of London) has since the last war been the great center for artificial limb fitting. Of the 41,000 men who lost limbs in that war 26,000 were fitted for their artificial limbs at Roehampton. In the present war 1,123 persons, whether civilians or members of the fighting forces, who underwent amputation as the result of enemy action have been fitted there. In a ceremony presided over by the minister of pensions, Lord Horder opened underground extensions which have been made as a protection against air attacks. These include an underground operating room with a roof of reinforced concrete, especially strong traverses, an air conditioning plant, two emergency lighting schemes and provision, in the event of a gas attack, for air to be drawn through charcoal filters both to the operating room and to the wards above. There is also a resuscitation ward to which casualties are first taken and where every bed has its own set of pipes and masks for oxygen administration.

### The Employment of the Tuberculous

In peacetime, work for the tuberculous after discharge from a sanatorium is a difficult problem. They usually are unable to work full time. In attempting to provide for his family a man may start a relapse. Attempts have been made to solve the difficulty by village settlements, where patients discharged from sanatoriums have work suitable for their condition provided, but so far provision has been made for only a fraction of the cases. The problem was discussed at a recent meeting of the Tuberculosis Association, and a committee was appointed to report. It divided the tuberculous discharged from a sanatorium into three classes: (1) those with positive sputum who cannot work, (2) those with positive sputum who can do some work and (3) those with negative sputum who are employable. The committee considers that the third group may undertake half time work in ordinary factory shops or part time work in groups in special sections of factories. Thus there would be a period of sheltered employment before returning to full time work. At present, because of the increased demand for labor due to the war, there is little difficulty in providing part time work. But payment on an hourly basis will not maintain a healthy standard of living. Therefore wages must be subsidized by some outside agency. Local authorities have power in this direction through their public assistance committees, but these are imperfectly understood and so far have been little used. Actually they do subsidize the wages of their patients working in village settlements. Patients in the second group might be provided with work at the larger sanatoriums. The committee recommends simple light industries not requiring complicated machinery or power.

## Marriages

GERALD EDWARD KINZEL, Portland, Ore., to Miss Gladys Le Count Darling of Waycross, Ga., recently.

DAVID PENDLETON WINKLER, Los Angeles, to Miss Elizabeth Babcock in Atlanta, Ga., recently.

JOHN HARTWELL DUNN, Heavener, Okla., to Miss Gladys Edna Moody of Drew, Miss., in May.

ALEXANDER CHARLES COHEN, Philadelphia, to Missillian Becker of Newark, N. J., May 31.

PHILIP EDWARD ASSEY to Miss Josephine Frances Lee, both of Georgetown, S. C., May 24.

JOHN CHAMPNEYS TAYLOR, Jacksonville, Fla., to Miss Evelyn Rose of Chicago in May.

EDWIN E. MILLER, Knoxville, Tenn., to Miss Clara C. Rosenfield of Jellico in May.

MILTON D. HYMAN to Dr. SEMMA SHAPIRO, both of New York, May 7.

## Deaths

**Robert Emmett Buckley**, New York, Yale University School of Medicine New Haven, Conn. 1911 member of the Medical Society of the State of New York, the American Academy of Ophthalmology and Otolaryngology, the American Laryngological Association and the American Rhinological, Rhinological and Otolaryngological Society, specialist certified by the American Board of Otolaryngology, at one time assistant professor of laryngology and professor of clinical otolaryngology at the New York Post-Graduate Medical School, Columbia University served with the Roosevelt Hospital unit in France during World War I, consultant to St. Luke's Hospital, Newburgh, N. Y., and the Yonkers (N. Y.) Professional Hospital, surgeon director of laryngology at the Manhattan Eye, Ear and Throat Hospital, consulting laryngologist to the Misericordia Hospital and consulting otolaryngologist to the Roosevelt Hospital, where he died, July 25, following an operation carcinoma of the colon, aged 53.

**John B. Alcorn** of Columbus, Ohio, University of Louisville (Ky.) Medical Department, 1894 member of the House of Delegates of the American Medical Association in 1938, 1940, 1941 and 1942, emeritus assistant professor of ophthalmology at the Ohio State University College of Medicine, past president of the Ohio State Medical Association and of the Columbus Academy of Medicine, past president and secretary of the Gallia County Medical Society, veteran of the Spanish-American War, served on the Mexican border in 1917 and as a captain in the Ohio National Guard, at one time health officer of Gallipolis and president of the school board, formerly chairman of the staff of the Grant and University hospitals and a member of the staff of St. Francis Hospital, at one time physician for the Ohio State Penitentiary, aged 69, died, June 16, of injuries received when struck by a trolley bus.

**Winfield Carey Sweet**, New York, Rush Medical College, Chicago, 1917, served in the medical corps of the U. S. Army during World War I, after a period of service with the American Red Cross in Siberia, went to the Christian Hospital at Shoa-hsing Chekiang Province, China, as a surgeon, began his service with the International Health Board of the Rockefeller Foundation on Nov. 10, 1921, was director of hookworm campaigns for the foundation in Australia and in Ceylon, formerly consultant in health for the government of Bangalore, Mysore, India, received the degree of doctor of public health from Johns Hopkins University School of Hygiene and Public Health, Baltimore, in 1931, aged 50, died, May 20, in Cochabamba, Bolivia, of heart disease.

**William McCully James** of Panama, Republic of Panama, University of Virginia Department of Medicine, Charlottesville, 1906, member and in 1913 president of the Medical Association of the Isthmian Canal Zone, fellow and a former governor of the American College of Physicians, served as a major in the medical corps of the U. S. Army during World War I, specialist certified by the American Board of Internal Medicine, chief of the medical service of the Panama Hospital and the Herrick Clinic which he helped to establish, in 1927 was awarded the bronze medal by the American Medical Association and in 1934 a gold medal for his exhibits on amebiasis, aged 62, died, July 10, of cerebral hemorrhage.

**Clarence Manning Grigsby** of Dallas, Texas, College of Physicians and Surgeons, Baltimore, 1893, associate professor of medicine, 1911-1912, professor of medicine from 1912 to 1929, professor of clinical medicine from 1929 to 1941 and since then emeritus professor of medicine at the Baylor University College of Medicine, specialist certified by the American Board of Internal Medicine, fellow of the American College of Physicians, past president of the Dallas County Medical Society, aged 73, formerly physician in chief at the Baylor Hospital where he died, June 14, of hypertensive heart disease and angina pectoris.

**Warren Conrad Breidenbach** of Dayton, Ohio, University of Michigan Medical School, Ann Arbor, 1917, specialist certified by the American Board of Internal Medicine, member of the American College of Chest Physicians, fellow of the American College of Physicians, formerly member of the Ohio Public Health Council, since 1919 medical director of the Stillwater Sanatorium, on the staffs of the Miami Valley and Good Samaritan hospitals, consultant for the Ohio Soldiers and Sailors' Orphans Home Hospital, Xenia, aged 48, died, June 30, of heart disease.

**Edwin Hogerbets Coward** of Atlantic City, N. J., Jefferson Medical College of Philadelphia, 1913, health officer of Atlantic City from 1915 to 1918, director of the county welfare board, was associated with the state department of health as a member of the examining board for health officers and sanitary inspectors for food, drugs, milk and the like, member of the Selective Service System of Atlantic County, medical director and superintendent of the Atlantic County Almshouse Hospital, Northfield, aged 56, died, June 10, of coronary thrombosis.

**William H. Wilson**, Ponca City, Okla., College of Physicians and Surgeons of Chicago, 1884, member of the Nebraska State Medical Association, formerly associated with the U. S. Public Health Service, at one time chief of the bureau of health, Nebraska State Department of Health and Public Welfare at Lincoln, state health inspector from 1907 to 1915 and state epidemiologist from 1918 to 1921, represented Pawnee County, Neb., in the legislature in 1903 and 1905 and was senator from the first district in 1907, aged 86, died recently.

**Henry Williamson Hoagland**, Palm Springs, Calif., University of Pennsylvania Department of Medicine, Philadelphia, 1899, at one time assistant professor of medicine (tuberculosis) at the College of Medical Evangelists, Los Angeles, member of the American Chemical and Climatological Association, served as a colonel in the medical corps of the U. S. Army during World War I, formerly secretary of the U. S. Pension Board, aged 68, died, May 7, in La Jolla of coronary thrombosis, coronary sclerosis and arterial hypertension.

**William Fowler** of Detroit, Michigan College of Medicine and Surgery, Detroit, 1903, specialist certified by the American Board of Otolaryngology, member of the American Academy of Ophthalmology and Otolaryngology, past president of the Detroit Otolaryngological Society, fellow of the American College of Surgeons, on the staff of the Grace Hospital, a frequent contributor of poems and other original items in *Tonics and Sedatives* under the name of "Weehum", aged 76, died, July 13, of carcinoma.

**Eugene Thames**, Mobile, Ala., University of Alabama School of Medicine, 1910, member of the Medical Association of the State of Alabama, formerly instructor of biology and for many years physician at the Springhill College, served as a first lieutenant with the American Expeditionary Forces during World War I, at one time member of the county board of health, for many years on the staff and at one time secretary of the Providence Hospital, aged 53, died, June 8, of cardiovascular renal disease.

**Fielding Lewis Taylor** of New York, University of Virginia Department of Medicine, Charlottesville, 1891, formerly associate in clinical medicine (dermatology) at the Cornell University Medical College, formerly on the staff of the City Hospital and the Hudson Street Hospital, for many years consulting syphilologist to the New York Hospital, aged 74, died, June 22, of coronary thrombosis.

**Conrad De Jong**, Grand Rapids, Mich., State University of Iowa College of Medicine, Iowa City, 1897, formerly on the staffs of the Blodgett Memorial, Butterworth and St. Mary's hospitals, aged 70, died, June 13, in the Holland City Hospital, Holland, of pneumococcus type 11 pneumonia complicating cerebral hemiplegia.

**Charles Stephen Buchanan**, Bennington, Vt., University of Vermont College of Medicine, Burlington, 1904, member of the Vermont State Medical Society, past president of the Bennington County Medical Society, aged 70, on the staff of the Putnam Memorial Hospital, where he died, June 6, of cerebral arteriosclerosis.

**Stephen Joseph Wojcik** of Los Angeles, Loyola University School of Medicine, Chicago, 1934, member of the Illinois State Medical Society, aged 40, died, May 20, in the Veterans Administration Facility of coronary occlusion due to coronary sclerosis.

## KILLED IN ACTION

**Allen Jones Jervey Jr.**, Tryon, N. C., Medical College of the State of South Carolina, Charleston, 1939, was appointed a first lieutenant in the medical reserve corps of the U. S. Army March 1, 1941, formerly district health officer for Rutherford and Polk counties, aged 30, died somewhere in the Pacific, June 17, of gunshot wounds.

**Bureau of Investigation****MISBRANDED PRODUCTS****Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the Federal Security Agency**

[EDITORIAL NOTE—These Notices of Judgment are issued under the Food, Drug and Cosmetic Act and in cases in which they refer to drugs and devices they are designated D D N J and foods, F N J. The abstracts that follow are given in the briefest possible form: (1) the name of the product, (2) the name of the manufacturer, shipper or consigner, (3) the date of shipment, (4) the composition, (5) the type of nostrum, (6) the reason for the charge of misbranding and (7) the date of issuance of the Notice of Judgment—which is considerably later than the date of the seizure of the product and somewhat later than the conclusion of the case by the Food and Drug Administration.]

**Axine Plates**—W Gordon Pervis, Tennille, Ga. Shipped Sept 30, 1939. Composition: two plates made of copper and zinc respectively, to be worn in the shoes. Falsely represented to produce health and vigor by means of electricity in the human body, rid the blood of uric acid, prevent high or low blood pressure, asthma, paralysis, diabetes, eczema, rheumatism, kidney disorders and some other things—[D D N J, F D C 217, April 1941]

**Chlorotonic**—Pharmaceutical Products Company, Easton Md. Shipped Jan 30, 1939. Composition: 0.145 grain of arsenic chloride per fluid ounce. Misbranded because among other things, falsely represented on the label as an alternative in treating latent syphilis, a stimulant to the glandular system and an effective treatment of anemia—[D D N J, F D C 168, April 1941]

**Colloidal Dextro Calcium**—Bleything Laboratories, Denver. Shipped Oct 17, 1940. Misbranded because label gave false impression that product would supply the user with a significant amount of calcium even in pronounced cases of calcium deficiency whereas it would supply only a negligible amount of this mineral, further misbranded because it contained more than the 1/20 of 1 per cent of sodium benzoate that the label declared—[F N J, F D C 2098, February 1942]

**Elixir Saligen**—G D Searle & Company, Chicago. Shipped July 29, 1939. Composition: though labels declared 4 grains of potassium iodide per fluid ounce, some bottles contained as much as 7.6 grains of this ingredient and others, none, hence adulterated. Misbranded because label statement "Each fluid ounce represents potassium iodide 4 grains" was false and misleading. Use not reported—[D D N J, F D C 290, November 1941]

**Germ-I Tabs**—Esteys, Inc., Seattle. Shipped Jan 3, 1940. Composition: tablets containing starch and 22.4 per cent of sodium para-toluenesulfonchloramide (chloramine T). Bacteriological tests showed that it was not, as represented, an antiseptic or germicide in the dilutions recommended. Misbranded because represented on label as a general germicide, antiseptic and personal deodorant and a remedy for acne—[D D N J, F D C 215, April 1941]

**Hannon's Rub**—Hannon's Medicines, Inc., Brookhaven, Miss. Shipped April 29, 1940. Composition: a two-layer liquid consisting essentially of camphor, soap, chloroform water and alcohol. Falsely represented to be a remedy for many disorders, including arthritis, croup, menstrual colic, sciatica and paroxysms due to asthma—[D D N J, F D C 222, April 1941 and D D N J, F D C 371, March 1942]

**Healo Salve**—Ericka Company, Springfield, Mass. Shipped Feb 8, 1940. Composition: essentially petrolatum and volatile oils including peppermint, thymol, camphor and eucalyptol. Misbranded because label representations that it was a remedy for neuralgia, catarrh, pneumonia, asthma, hay fever, eczema and some other things were false and misleading—[D D N J, F D C 221, April 1941]

**H & H Foot Exercisers**—Hussmann Holmes Company, El Paso, Texas. Shipped April 29, 1940. This consisted of a wooden roller. Falsely represented as efficacious in the treatment of weak arches, flat feet, metatarsal trouble, burning calluses, 'chronic leg muscle' and a good many other disorders—[D D N J, F D C 218, April 1941]

**Koenig's Nervine**—Koenig Medicine Company, Chicago. Shipped Feb 15, 1940. Composition: sodium potassium and ammonium bromides, extracts of plant material (including valerian), glycerin, alcohol and benzoic acid. Misbranded because labels falsely represented it as a proper sedative in headache, common nervousness, sleeplessness and allied conditions—[D D N J, F D C 142, April 1941]

**L B Hair Oil**—L B Laboratories, Inc., Hollywood, Calif. Shipped Sept 18, 1939. Composition: essentially mineral oil with small amounts of saponifiable oil and perfume. Misbranded because label falsely represented, among other things, that it was a "scalp conditioner" containing a balanced blend of rich animal oils and toning ingredients which would give life to the hair almost instantly, that it would aid in overcoming baldness, thin and falling hair, that it contained animal oils of a very penetrating nature, that it was an "oil of life" for the hair and had cured baldness in its originator, that it was a blend of animal oils which would provide the vitalizing, nourishing and restorative element needed

by the scalp to clear out clogging waste matter and dead tissue, and that it was effective for infant scalp trouble, granulated eyelids, thinning lashes and sunburns or other burns—[D D N J, F D C 296, November 1941 and C N J, F D C 34, May 1941]

**Mastercraft Two Speed Electric Vibrator**—Vidrio Products Corporation, Chicago. Shipped between Dec 10 and 22, 1939. A device with various attachments intended to apply mechanical vibration to the body. Falsely represented on the label as efficacious for indigestion, constipation, baldness, neuralgia, head colds, sciatica pains, eyestrain, sleeplessness, obesity and some other conditions—[D D N J, F D C 202, April 1941]

**Nuval Aid**—V M Products, Chicago. Shipped Sept 18, 1940. Composition: sugar coated yeast tablets each containing not more than 36 U S P units of vitamin B<sub>1</sub>, which was only three-fourths of the amount declared on the label. Adulterated because a valuable constituent, vitamin B<sub>1</sub>, had been in whole or in part omitted or extracted and because the product's strength differed from, and its quality fell below what it was represented to possess. Misbranded because of false label claim "Each tablet contains not less than 48 International units of Vitamin B<sub>1</sub>"—[D D N J, F D C 285, November 1941]

**Parker's Hair Balsam**—Hiscox Chemical Works, Patchogue, N Y. Shipped between Aug 26, 1939 and Jan 27, 1940. Composition: lead acetate, sulfur, water, glycerin and perfume. Misbranded because label represented, among other things, that it would stop falling hair and prevent premature grayness—[D D N J, F D C 216, April 1941]

**Premek 33**—H K Patch Company, Los Angeles. Shipped between Sept 25 and Nov 13, 1939. Composition: essentially sulfur, magnesium hydroxide, water and a small amount of a phenolic product. Misbranded because falsely represented that it would remedy many skin disorders and destroy parasites and fungus spores by releasing a vapor into the pores of the skin—[D D N J, F D C 223, April 1941]

**Robinson Spring Water**—Robinson Spring Water Company, Jackson, Mich. Shipped between July 26 and Aug 2, 1939. A water whose scant mineral matter consisted chiefly of common salt, Glauber's salt, gypsum and epsom salt. Reported to contain less dissolved mineral matter than the water supply of a number of cities in this country. Misbranded because represented on label to be a natural diuretic eliminant water for diabetes and kidney and bladder disorders—[D D N J, F D C 206, April 1941]

**Rogers' Mineral Extract**—Rogers' Mineral Company, Cullomburg, Mo. Shipped Jan 25, 1940. Composition: a water containing approximately 6 per cent of mineral matter, chiefly the sulfates of iron, aluminum and sodium. Label falsely represented it as a remedy for indigestion, hemorrhage of lungs, pellagra, rheumatism, stomach ulcers, liver and kidney disorders, "T B of the bone," skin diseases, impure blood and some other conditions—[D D N J, F D C 207, April 1941]

**Saxon Six Vitamins in Tablet Form**—Royal Manufacturing Company of Duquesne, Kolomon Kovacs, Samuel S Kovacs and Martin Kovacs all of Chicago. Shipped Aug 18, 1939. Composition: adulterated because its strength differed from, and its quality fell below, what it purported to contain in that each tablet was represented to consist of not less than 3138 U S P units of vitamin A and not less than 314 U S P units of vitamin D, whereas each tablet contained not more than 50 of the first named units or 150 of the last named units. These false statements as to vitamin content also constituted misbranding as did the misrepresentation that when taken according to directions the product would provide a substantial amount of vitamin C, whereas the recommended dose would be less than 1/10 of the amount of this vitamin required daily by adults and less than 1/7 of the amount required daily by children less than 1 year old, and under 1/10 of the amount required daily by children from 1 to 12 years old. Charges dismissed as to corporation, but individuals found guilty—[D D N J, F D C 284, November 1941]

**Shivar Spring Water**—Shivar Springs, Inc., Shelton, S C. Shipped Nov 24, 1939. Composition: a slightly mineralized, slightly alkaline water containing less than one-half of 1 per cent of inorganic salts consisting chiefly of calcium and sodium sulfates, chlorides and bicarbonates. Falsely represented on label to dissolve and wash away any catarrhal mucus, cleanse the stomach and bowels, flush the kidneys, help to wash out impurities of the blood and cleanse and refresh the system—[D D N J, F D C 205, April 1941]

**Shores Ka-Vi Min Tablets**—Shores Company, Cedar Rapids, Iowa. Shipped Feb 28, 1940. Adulterated in that valuable constituents, namely vitamins B<sub>1</sub> and D, had been wholly or in part omitted or extracted from the product, misbranded because falsely labeled to contain in each tablet 140 U S P units of vitamin D and 25 International units of vitamin B<sub>1</sub>—[F N J, F D C 2097, February 1942 and D D N J, F D C 336, March 1942]

**Vegetable Cancer Compound**—Richard A Mason Chatham, N Y. Shipped between July 1 and Sept 9, 1939. Composition: essentially extracts of plant drugs including a laxative with sugars, alcohol and water. Falsely represented as effective for cancers, tumors, ulcers and all blood diseases—[D D N J, F D C 219, April 1941]

**Wemett's Salve**—J J Wemett, Los Angeles. Shipped Sept 21, 1939. Composition: essentially salicylic acid (30.1 per cent) in a petrolatum base. Misbranded because label falsely represented that it would reduce swelling and remove the soreness and inflammation from bunions—[D D N J, F D C 224, April 1941]

**Witsells Chocolate Quinine**—Witsell Bros, Dean Hill, Congress, Tenn. Shipped Nov 13, 1937. Composition: quinine sulfate (12 grains per hundred cubic centimeter) in a sugar chocolate preparation and alcohol (4 per cent). Label falsely represented it as an effective treatment for symptoms of malaria, chills and la grippe—[D D N J, F D C 220, April 1941]

## Correspondence

### TREATMENT OF TYPHOID CARRIERS

*To the Editor*—Recent articles in THE JOURNAL on the use of medicinal agents to treat chronic typhoid and paratyphoid carriers have been interesting to health authorities. Following the optimistic reports of Saphir and Howell (May 18 1940 p 1988) and of Enright (Jan 18 1941 p 220), the Division of Communicable Disease of the New York State Health Department studied the efficacy of soluble iodophthalein in several carriers. The results were unsuccessful similar to those more recently reported by Saphir Baer and Plotke (March 21, 1942 p 964) and by Cutting and Robson (April 25 1942, p 1447).

With the cooperation and active help of Dr Kenneth Keill and Dr W M Pamphilon of the Willard State Hospital Willard N Y, six known chronic typhoid carriers were treated at that institution. The results are summarized in the accompanying table. In each of the instances it was known that the stools had been consistently positive for typhoid bacilli for more than one year and in each instance at least three specimens of feces were obtained before treatment was started. These carriers were therefore known to be excreting typhoid bacilli

#### Summary of Results

| Carrier | Time of Dye Administration and Stool Collection |    |    |   |   |   |   |   |   |   |       |   |    |    |    |    |    |    |    |     |
|---------|---|----|----|---|---|---|---|---|---|---|-------|---|----|----|----|----|----|----|----|-----|
|         | 29  | 30 | 31 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8     | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17  |
| A L     | +   | +  | +  | + | + | + | + | + | + | + | +     | + | +  | +  | +  | +  | +  | +  | +  | +   |
| C A     | +   | +  | +  | + | + | + | + | + | + | + | +     | + | +  | +  | +  | +  | +  | +  | +  | +   |
| M M     | +   | +  | +  | + | + | + | + | + | + | + | +     | + | +  | +  | +  | +  | +  | +  | +  | +   |
| M J     | +   | +  | +  | + | + | + | + | + | + | + | +     | + | +  | +  | +  | +  | +  | +  | +  | +   |
| A S     | +   | +  | +  | + | + | + | + | + | + | + | +     | + | +  | +  | +  | +  | +  | +  | +  | +   |
| A W     | +   | +  | +  | + | + | + | + | + | + | + | +     | + | +  | +  | +  | +  | +  | +  | +  | +   |
|         | 29  | 30 | 31 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8     | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17  |
|         | March   |    |    |   |   |   |   |   |   |   | April |   |    |    |    |    |    |    |    | Oct |

+ Fecal specimen contained *Eberthella typhosa*  
d Four Gm of soluble iodophthalein administered

immediately before and during the course of therapy. This ruled out the possibility that an intermittent carrier might be classified as cured.

When this experiment failed it was felt that perhaps a convalescent typhoid case would prove more suitable for treatment since the infection in the biliary tract would be of shorter duration and hence more amenable to treatment. A woman aged 40 convalescing from typhoid was treated. The onset of typhoid occurred on Sept 27, 1940 with a stormy clinical course prolonged illness and symptoms of cholecystitis. Her temperature did not reach normal until the end of February 1941. Specimens of duodenal contents were positive for typhoid bacilli as were the stools and three doses of 50 Gm each of iodophthalein were given at four day intervals. The stools during and after therapy were positive.

Still another carrier whose gallbladder had been removed was treated in the hope that the removal of the major part of the diseased tissue would leave a less severe focus amenable to treatment. This woman aged 60, had a history of typhoid in 1901 with positive stool specimens in September 1936. Her gallbladder had been removed in November 1936 but her stools continued to be positive. Duodenal contents obtained in March 1939 were positive. She was treated in the same way as the other patients (three doses each of 4 Gm) with similar lack of success.

WENDELL R AMES MD Olean N Y  
Commissioner of Health (Formerly Epidemiologist  
New York State Health Department)

### "HIGH FAT DIET PRECEDING CHOLECYSTOGRAPHY"

*To the Editor*—Under this title an article by Dr Howard Curl appeared in the June 20 issue of THE JOURNAL. Since cholecystography is widely employed and since the program recommended by the author may cause much unhappiness to patients with biliary disease (namely a week or two on high fat diet preceding roentgen examination) it seems advisable to point out certain discrepancies in his remarks.

He states that 28 per cent of gallbladders in a group of healthy young medical students failed to concentrate iodophthalein. This extraordinarily high figure suggests some error in technic. It is noteworthy that this group was the first one examined and therefore technical difficulties or misunderstandings may have been greater than in the subsequent tests (which were made on the same group). Further, the author states that colonic cleansing was never used. It is well known that a fecal laden transverse colon may readily hide a normal concentrating gallbladder and be rectified by a simple water enema.

The results following the low fat and high fat breakfasts are not intelligible without mentioning the apparent size of the gallbladders immediately prior to these meals and the size which they were at a specified time following those meals—data not given by the author.

In his comments appear the statements "Groups 4 and 5 demonstrate the fact that in many patients on a low fat or carbohydrate diet the gallbladder will not admit opaque bile in quantities sufficient to cast a shadow. While occasionally calculi are demonstrated in patients free from any evidence of cholelithiasis, it is not common in this age group." Now, groups 4 and 5 do not demonstrate such facts, the conclusion is merely the author's contention or hypothesis. Further it is well known that many calculous gallbladders fill well with dye.

Cholecystography is a good test for the presence of nonopaque calculi. It is not a good test for gallbladder disease, since even with only a small portion of the gallbladder mucosa remaining intact an excellent shadow may be obtained. The author, being an anatomist perhaps overlooked this fact. That there are factors which interfere with the filling of the normal gallbladder is unquestionable, but to conclude that his investigation showed that the principal factor is the presence of thick bile in the bladder resulting from a low fat diet is incorrect. May I urge your readers not to inflict a "high fat diet for several weeks" before cholecystography on the dyspeptics of this happy land. It is neither necessary nor wise. Simple adherence to correct fasting and radiographic technic will result in satisfactory cholecystograms in the great majority of cases.

L HENRY GARLAND MD San Francisco

### CONTAMINATED MEDICINE DROPPERS

*To the Editor*—In THE JOURNAL May 30 is a communication on nose drop contamination. This prompts a thought relative to the use of dropper bottles for eye medicines.

I think it is careless to say the least for the eye physician as well as others to instil drops in eyes with the use of a general dropper which contaminates the solution and which could easily cause a spread of infection to other patients. For many years in my office I have used droppers which are boiled after use and are never put into the solution to be dispensed after the dropper has been used on the patient.

It interests me that one large drug house which is doing much to popularize the use of a reasonably new eye medicament sells it and samples it in a container with a dropper cap which invites cross infection.

I believe that the practice of the use of a common dropper should be relegated to the museum or antiquity.

G HENRY MOUNT MD Chicago



Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, Aug 1, page 1131

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS Part I Various centers, Sept 14 16 Exec Sec, Mr Everett S Elwood, 225 S 15th St, Phila delphia

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY Written Part I Various centers, Feb 4 Final date for filing application is Nov 6 Sec, Dr Paul M Wood, 745 Fifth Ave, New York

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY Oral Groups A and B Cleveland, Jan 14 15, 1943 Final date for filing application is Dec 7 Written Various centers, Nov 16 Final date for filing application is Oct 5 Sec, Dr C Guy Lane, 416 Marlboro St, Boston

AMERICAN BOARD OF INTERNAL MEDICINE Written Oct 19 Final date for filing application is Sept 1 Asst Sec, Dr William A Werrell 1301 University Ave, Madison, Wis

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY Written Part I Various centers Feb 13 Oral Part II May 1943 Sec, Dr Paul Titus 1015 Highland Bldg Pittsburgh

AMERICAN BOARD OF OPHTHALMOLOGY Oral All Groups Chicago Oct 8 10 Sec, Dr John Green, 6830 Waterman Ave, St Louis

AMERICAN BOARD OF ORTHOPAEDIC SURGERY Oral and Written Chicago, Jan 9 10 Final date for filing application is Nov 1 Sec, Dr Guy A Caldwell 3503 Pryor St New Orleans

AMERICAN BOARD OF PATHOLOGY Oral and Written Richmond Va, Nov 9 10 Final date for filing application is Sept 1 Sec Dr F W Hartman Henry Ford Hospital, Detroit

AMERICAN BOARD OF PEDIATRICS Written Locally Sept 18 Sec, Dr C A Aldrich, 707 Fullerton Ave Chicago

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY New York, December Final date for filing application is Oct 1 Sec, Dr Walter Freeman, 1028 Connecticut Ave NW Washington, D C

AMERICAN BOARD OF RADIOLOGY Oral Chicago Nov 27 29 Final date for filing application is Sept 30 Sec, Dr Byrl R Kirklin, 102 110 Second Ave, S W, Rochester, Minn

AMERICAN BOARD OF SURGERY Part I Oct 7 Final date for filing application is Aug 22 Sec, Dr J Stewart Rodman, 225 S Fifteenth St, Philadelphia

AMERICAN BOARD OF UROLOGY February 1943 (tentative) Sec, Dr Gilbert J Thomas 1409 Willow St, Minneapolis

Colorado Endorsement Report

The Colorado State Board of Medical Examiners reports 2 physicians licensed to practice medicine by endorsement on April 7 The following schools were represented

| School                                 | LICENSED BY ENDORSEMENT | Year Grad | Endorsement of |
|--|-------------------------|-----------|----------------|
| Rush Medical College                   |                         | (1927)    | Illinois       |
| University of Wisconsin Medical School |                         | (1935)    | Minnesota      |

Missouri Reciprocity Report

The State Board of Health of Missouri reports 6 physicians licensed to practice medicine by reciprocity and 2 physicians so licensed on endorsement of credentials of the National Board of Medical Examiners from April 17 through April 27, 1942 The following schools were represented

| School  | LICENSED BY RECIPROCITY | Year Grad | Reciprocity with |
|---|-------------------------|-----------|------------------|
| Indiana University School of Medicine         |                         | (1926)    | Indiana          |
| University of Kansas School of Medicine       | (1928)                  | (1939)    | Kansas           |
| Cornell University Medical College            |                         | (1941)    | Ohio             |
| Western Reserve University School of Medicine |                         | (1936)    | Ohio             |
| University of Toronto Faculty of Medicine     |                         | (1935)    | W Virginia       |

| School                         | LICENSED BY ENDORSEMENT | Year Grad      |
|--------------------------------|-------------------------|----------------|
| College of Medical Evangelists |                         | (1935), (1941) |

Montana Reciprocity Report

The Montana State Board of Medical Examiners reports 4 physicians licensed to practice medicine by reciprocity on April 15 The following schools were represented

| School                                       | LICENSED BY RECIPROCITY | Year Grad | Reciprocity with |
|--|-------------------------|-----------|------------------|
| State University of Iowa College of Medicine |                         | (1934)    | Iowa             |
| University of Minnesota Medical School       | (1939)                  | (1940)    | Minnesota        |
| University of Nebraska College of Medicine   |                         | (1938)    | Minnesota        |

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACT

Malpractice Prenatal Injuries to Infant—The plaintiffs, husband and wife, filed a suit for damages, on behalf of themselves and their minor child, against the defendant charging him with malpractice resulting in injuries to the child prior to its birth It was alleged that prior to the child's birth his mother had gone to the defendant physician for medical attention and that, because of the defendant's negligence in diagnosis and the application of roentgen treatments, the child was born a microcephalic and an idiot, without skeletal structure, sight, speech, hearing or the power of locomotion The defendant filed a motion to dismiss the complaint on the ground that an infant has no right to maintain an action for injuries sustained while en ventre sa mere This motion was denied by the trial court (Stemmer v Kline, 17 A (2d) 58 (N J, 1940), J A M A 119 367 [May 23] 1942), and the case proceeded to trial before a jury, resulting in verdicts and judgments for the plaintiffs The defendant physician then appealed to the Court of Errors and Appeals of New Jersey

The important question involved in this case, said the court is whether or not, for injury sustained by the fetus before birth because of negligence of the defendant, the child, when born, has a right of action In answering this question the court said that while there is some divergence of judicial opinion, the great weight of authority in this country is to the effect that, as in cases of injury causing death, there is no right of action at common law, such right exists only as the result of a statute There being no such statute in New Jersey, the judgment of the trial court in favor of the infant was in error The court was likewise of the opinion that the judgment in favor of the parents should be reversed because "an act or omission which would not support an action for damages by the person injured thereby will not furnish a ground of action by the parent or spouse of the injured person for consequential damages" Final judgment in favor of the defendant on the entire case was entered by the Court of Errors and Appeals

The chief justice filed a specially dissenting opinion in which he stated that he was unable to agree with the majority of the court He first quoted Blackstone to the effect that "Life begins in contemplation of law (italics supplied) as soon as an infant is able to stir in the mother's womb" an infant en ventre sa mere is supposed in law to be born for many purposes," pointed out that an abortion was illegal at common law and held that the common law therefore did recognize an unborn child as a person If such child is not a person, the justice continued, why is an abortion illegal at common law? If such unborn child is to be regarded as a non entity, actually or legally, why may it not at common law be destroyed with impunity? The law does not concern itself with nonentities If the common law protects the rights of the unborn child and if every intendment in the law is favorable to him, the inference was inevitable to the chief justice that such unborn child is a person and possesses the rights that inhere in a person even though he is incapable himself to assert them If the unborn child may not legally be deprived of his life it is hard to understand how that life may with impunity be totally impaired by the tort of a third person If the civil rights of an unborn child begin with conception as to property and the like, on what reasonable ground may there be a distinction against its rights to recover for serious personal injuries done it through the negligence of a physician? Three judges concurred in this dissenting opinion and a fourth felt that the facts proved in the case supported a cause of action for the infant Still another justice filed a specially concurring opinion in which he agreed that the judgments for the plaintiffs should be reversed but specifically stated that he was "unable to agree with the holding of the majority of the court, denying the right of a child to recover for injuries negligently inflicted upon it before birth On this phase of the case he agreed with the

reasoning of the chief justice's dissenting opinion. In the opinion of this justice the judgments for the plaintiffs should be reversed because of an erroneous ruling of the trial court on a question of the admission of evidence. An essential ingredient of the plaintiffs' case was evidence that the pelvic irradiations were the cause of the infant's tragic condition when born. To establish this fact the plaintiff called as a witness a doctor of philosophy with extensive experience in the field of psychology and connections with many institutions handling mental deficiencies. He had examined the child about nine months prior to the trial of the cause. His examination was not for the purpose of treatment and was at the request of counsel for the plaintiffs. Prior to the examination he was given a history of the parents and a history of the child. Both histories, he testified, being essential in forming his opinion as to the cause of the infant's condition. Objection to his testimony was interposed on the two grounds that the answer to certain questions would necessarily call for hearsay testimony and that it would call for a history, and that the witness, being called as an expert, could neither use nor refer to the history but was limited to testifying as to the result of his examination. The objection was overruled. This witness admitted on cross examination that his opinion could not be based solely on his examination of the child but that part of the needed information was given by members of the family and by members of the medical profession. He testified, too, that he accepted the report of his colleague that the dosage was sufficient to produce the condition but that he was not informed as to the dosage. If there was any doubt about the inadmissibility of this evidence, this justice said, it was removed by the Court of Errors and Appeals in *Sandford v. Chanaz Co.*, 117 N. J. L. 485, 189 A. 670, in which case the court said:

We think it is perfectly plain that almost throughout the examination of these medical experts there was a violation of the general rule that, where the statements of the party are made not to his own medical adviser for the purpose of proper medical treatment but are made to medical experts for the purpose of enabling that expert to give his opinion evidence in a court of law they are obnoxious to the rule excluding hearsay evidence.

To the concurring justice it was apparent that the opinion of this witness was improperly admitted in evidence and that the error called for a reversal if it appeared that the substantial rights of the defendant were injuriously affected. Since the cause of the infant's condition was at the nub of the controversy, since the great numerical weight of the medical testimony was to the effect that roentgen applications were not its cause and since without the testimony of this witness the plaintiffs' case on this essential aspect depended on the opinion of one physician the justice was of the opinion that the substantial rights of the defendant were indubitably injuriously affected—*Stemmer v. Kline*, 26 A. (2d) 489, 26 A. (2d) 684 (V. J. 1942).

**Malpractice Suit Instituted Eleven Years After Alleged Negligent Extraction of Teeth**—The plaintiff brought suit for malpractice against the defendant dentist in 1941. She alleged that for about four months in 1930 the dentist undertook to render dental care for her and in the course of the treatment so negligently extracted twenty-six of her teeth that portions of the roots of six of them remained embedded in her jaw and that, although the dentist knew of that fact and although good dental practice required further treatment, the dentist represented to her that no further care or treatment was necessary. Accordingly she sought no further care. Subsequently, so the patient alleged, she "suffered serious ill and generally run down health" and from about 1937 to Feb. 15, 1941 she consulted and was examined by many physicians relative to her condition but was not advised by them as to the cause of her condition until a roentgenogram, taken Feb. 15, 1941, revealed the presence of the broken roots, "all in a highly infected state," and that thereafter she was advised that her run-down condition was due to the negligent extractions and discharge from further treatment in 1930. Holding that the action was barred by a section of the Code of Civil Procedure of California which provides that "actions founded in negligence must be commenced within one year, the trial court sustained a demurrer and would not permit the plaintiff to

amend her complaint. The plaintiff then appealed to the district court of appeal, second district, division 2, California.

The judgment of the trial court, said the appellate court, must be reversed on the authority of *Huisman v. Kirsch*, 6 Cal. (2d) 302, 57 P. (2d) 908, which holds, in effect, that the statute of limitations does not run against a plaintiff in a malpractice action until he knows the cause of the injury on which he bases his claim for damages, or by reasonable care and diligence should have known the cause of his injury. From the allegations of the complaint in this case, continued the court, it appears that the patient had no knowledge of the negligent acts of the dentist until within four months of the filing of the complaint. It was incumbent on her to establish that she did not know the cause of her ill health within one year from the date of the filing of the complaint and that her failure to gain such knowledge was not due to a failure to exercise reasonable care and diligence. She alleges that during the four year period before the filing of the complaint she consulted and was examined by many physicians concerning her "generally run-down health" and that she was not apprised that her condition was caused by the "negligent extractions" until a roentgenogram was taken. This is tantamount to an allegation that the physicians consulted did not ascertain or advise her as to the true cause of her ill health. Doubtless improvement could be made on these allegations by giving the names and standing of the physicians consulted, the nature of their examinations and the advice given but the trial court erred in sustaining the demurrer without leave to amend thus preventing the making of more specific allegations by the plaintiff. The practice of medicine is not an exact science and it is a matter of common knowledge that physicians frequently find great difficulty in determining the cause of "generally run-down health." Especially is this true in the case of a person whose teeth had been extracted in such manner as to leave many of the roots remaining with the patient. It could not be held as a matter of law that the patient had failed in the exercise of due diligence if she and her consulting physicians felt it unnecessary to have roentgenograms made of the jaws from which the teeth had been extracted at least seven years earlier, at which time the extracting dentist had given assurance that no further dental care or treatment was necessary. For the reasons stated, the judgment of the trial court was reversed and it was directed to permit the patient to file an amended complaint if she cared to do so.—*Faith v. Erhart* 126 P. (2d) 151 (Calif., 1942).

## Society Proceedings

### COMING MEETINGS

- American Association of Obstetricians, Gynecologists and Abdominal Surgeons, White Sulphur Springs, W. Va. Sept. 10-12. Dr. James R. Bloss, 418 Eleventh St., Huntington, W. Va., Secretary.
- American Association of Railway Surgeons, Chicago, Sept. 10-12. Dr. Raymond B. Kepner, 547 West Jackson Blvd., Chicago, Secretary.
- American Congress of Physical Therapy, Pittsburgh, Sept. 9-12. Dr. Richard Kovacs, 2 East 88th St., New York, Secretary.
- American Roentgen Ray Society, Chicago, Sept. 13-18. Dr. H. Dabney Kerr, University Hospitals, Iowa City, Secretary.
- Colorado State Medical Society (House of Delegates only), Denver, Sept. 23-24. Mr. Harvey T. Sethman, 1612 Tremont Place, Denver, Executive Secretary.
- District of Columbia Medical Society of the Washington, Sept. 29-Oct. 1. Mr. Theodore Wiprud, 1718 M St. N.W., Washington, Secretary.
- Idaho State Medical Association, Sun Valley, Sept. 16-19. Dr. F. B. Jeppesen, 105 North 8th St., Boise, Secretary.
- Indiana State Medical Association, French Lick, Sept. 29-Oct. 1. Mr. T. A. Hendricks, 23 East Ohio St., Indianapolis, Executive Secretary.
- Kentucky State Medical Association, Louisville, Sept. 27-Oct. 1. Dr. Arthur T. McCormack, 620 South Third St., Louisville, Secretary.
- Michigan State Medical Society, Grand Rapids, Sept. 22-23. Dr. L. Fernald Foster, 2020 Olds Tower, Lansing, Secretary.
- National Medical Association, Cleveland, Aug. 17-21. Dr. John T. Givens, 1108 Church St., Norfolk, Va., General Secretary.
- Nevada State Medical Association, Reno, Sept. 24-26. Dr. Horace J. Brown, 120 North Virginia St., Reno, Secretary.
- Oregon State Medical Society, Portland, Sept. 9-11. Dr. John R. Montague, 1020 S.W. Taylor St., Portland, Secretary.
- Utah State Medical Association, Provo, Aug. 27-29. Dr. D. G. Edmunds, 610 McIntire Bldg., Salt Lake City, Secretary.
- Washington State Medical Association (House of Delegates only), Seattle, Sept. 12-13. Dr. V. W. Spickard, 1305 Fourth Ave., Seattle, Secretary.
- Wisconsin State Medical Society of Milwaukee, Sept. 16-18. Mr. Charles H. Crownhart, 110 East Main St., Madison, Secretary.
- Wyoming State Medical Society, Cheyenne, Aug. 16-18. Dr. Marshall C. Keith, Capitol Bldg., Cheyenne, Secretary.

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

#### Alabama State Medical Assn Journal, Montgomery 11 377-420 (May) 1942

- Victory Shall Be Ours F J Underwood, Jackson, Miss —p 377  
Study of Meningococcus Toxin J S Smith, Montgomery —p 380  
Abruptio Placentae Report of Ninety Cases T M Boulware, Birmingham —p 383  
Acute Bilateral Secondary Surgical Parotitis, Prompt Recovery with Sulfathiazole Report of Case H Martz and H P Shugerman, Birmingham —p 389  
Acute Gastroenteritis Due to Elaboration of Enterotoxin by Staphylococcus Aureus in Buttermilk O L Chason and C H Waite, Mobile —p 390

#### Annals of Internal Medicine, Lancaster, Pa 16 633-810 (April) 1942

- Emotional Component of the Ulcer Susceptible Constitution G Draper, New York —p 633  
Sulfathiazine Study of Its Effect on Hemolytic Streptococci C H Rammelkamp and C S Keefer Boston —p 659  
\*Response to Sulfapyridine in 241 Cases of Pneumonia with Special Reference to Lack of Prompt Response in Some Cases S Scherlis, Baltimore —p 666  
Cardiovascular Aspects of Carotid Sinus Hypersensitivity, with Special Reference to Some Cardiac Arrhythmias A D Tanney and A Lilienfeld, New York —p 676  
Iron Content of Skin in Hemochromatosis H J Magnuson and B O Raulston, Los Angeles —p 687  
\*Meningococcal Meningitis Report of Fifty Cases, Forty Treated with Serum and Ten Treated with Serum and Sulfanilamide E P Campbell, Philadelphia —p 694  
Fatigue of Patients with Circulatory Insufficiency Investigated by Means of Fusion Frequency of Flicker N Enzer, E Simonson and S S Blankstein, Milwaukee —p 701  
Sulfonamides Passage into Spinal Fluid and Rectal Absorption W C Cutting and E H Sultan San Francisco —p 708  
Streptococcal Meningitis Four Cases Treated with Sulfonamides in Which the Etiologic Agent Was an Unusual Streptococcus L A Rantz, San Francisco —p 716  
Recent Advances in Care of the Comatose Patient B A Greene, Brooklyn —p 727  
Concentration of Creatine in Heart Diaphragm and Skeletal Muscle in Uremia H Gross and Marta Sandberg, New York —p 737  
\*Observations on Comparable Effects of Protamine Zinc and Regular Insulin in Diabetic Patients Followed over a Period of Years Elaine P Ralli, H Brandeone and H D Fein New York —p 750  
Convulsions in Paget's Disease Electroencephalographic Observations J A Mufson and P Chodoff New York —p 762  
Theory Explaining Local Mechanism for Gastric Motor and Secretory Control and Alteration of These Functions in Uncomplicated Duodenal Ulcer H Shoy, J Gershon Cohen and S S Fels, Philadelphia —p 772

**Sulfapyridine in Pneumonia**—Scherlis reports a series of 241 unselected cases of pneumonia treated with sulfapyridine in 1938-1939 and 1939-1940, with 21 fatalities. Of the 220 patients who recovered, 175 responded with a drop of temperature to a normal and maintained level within forty-eight hours. The remaining 47 showed no such dramatic drop of temperature. Failure to respond promptly was much more frequent among patients with patchy involvement than in those with a true lobar consolidation. Of those failing to respond promptly, only one fourth had true lobar involvement. The types of bacteria responsible for the lobar pneumonia or the bronchopneumonia were determined. It was found that if the predominating organism in the sputum was the pneumococcus (168 cases) most of the patients responded promptly to treatment (crisis 141, lysis 27), but if staphylococci or streptococci predominated (52 cases) a greater proportion did not respond promptly to sulfapyridine (crisis 32, lysis 20). Of 12 patients with lobar pneumonia who did not respond promptly, 10 had complications, of 35 with bronchopneumonia who did not respond promptly,

17 had complications. The complications were otitis media in 16, mastoiditis in 3, pleural effusion in 9 and empyema in 2. There were 13 patients with bacteremia, 3 died, empyema requiring thoracotomy developed in 1, 2 had sterile pleural effusion and in 1 resolution was delayed. The response to sulfapyridine was prompt in 3 and the response, if any, was delayed in 9.

**Meningococcal Meningitis**—The general scheme of treating the 50 cases Campbell discusses consisted in daily or semi-daily intraspinal, intravenous and intramuscular injections of a potent highly concentrated antimeningococcus serum. During the last two of the four years of the study, sulfanilamide was added. The average total amount of serum given to each patient in the serum group was 108 cc, and in the serum plus sulfanilamide group it was 109 cc. Of the 50 cases 5 were of the fulminating type, with death in all 5, 4 within twenty-four hours of admission. All these fulminating cases occurred in the serum treated group. Of the other 35 patients treated with serum 15 died, and of the 10 treated with serum and sulfanilamide none died. Deafness, at one time a common complication, occurred only once in the series, 1 patient had mild jaundice following the administration of sulfanilamide. The only other complication attributable to the sulfanilamide was vomiting by the patient with jaundice. Four patients had bronchopneumonia, 1 of whom died. Four had signs and symptoms suggestive of meningococcemia. The most prominent characteristic of the condition was the prolonged period of illness (fourteen, twenty-one, thirty-five and forty-two days respectively) before admission to the hospital. The average duration of illness before hospitalization of 41 of the other patients giving a reliable history was three and one-tenth days. The septicemic stage of the 4 patients was characterized by intermittent fever, arthralgia, rash, headache, chills and sweats. All 4 had meningitis presumably as a result of a chronic meningococcal septicemia, 3 recovered promptly following the administration of small doses of antimeningococcus serum and 1 after treatment with serum and sulfanilamide. Careful study of the features of the disease among the 50 cases reveals a high number of multiple cases, one family of 3 members were all affected within one month, and a second group of 3 cases occurred in a building that housed two Negro families. The 50 cases are represented by 48 persons, 3 of whom had second attacks. Such a high incidence of second attacks would seem to indicate that the degree of immunity is not very durable. The average period of hospitalization for 20 serum treated patients (recovered) was thirty-six and three-tenths days and for the serum and sulfanilamide group it was twenty-six and seven-tenths days. On the basis of the collected results of seven different methods of treating 2,747 cases of meningococcal meningitis, chemotherapy alone or in combination with immune serum appears to be the most effective treatment.

**Protamine Zinc and Regular Insulin in Diabetes**—Ralli and her associates have observed for from one to five years 34 ambulatory patients with diabetes mellitus who were on regular insulin and who were later transferred to protamine zinc insulin. The diets were not significantly changed at any time, so that a fair comparison was possible. The ages of the patients varied from 14 to 81, there were 14 males and 20 females. The majority had had diabetes for about nine years, and in all but 2 the disease was severe. The authors are not of the opinion that it is absolutely imperative to control glycosuria, nor does it seem wise to allow unrestricted glycosuria, which is usually attended by a loss of weight and a tendency to ketosis. They tried to keep each patient moderately sugar free, to maintain his body weight and to provide him with a diet adequate for his daily needs. Enough insulin was given to accomplish these results. The criteria they used to indicate improvement on protamine zinc insulin were a smaller number of daily injections, improvement in the patient's general condition and a decrease in the number of units of insulin required. Nine of the patients did not improve on protamine zinc insulin. They did poorly and were returned to regular insulin. The difficulty with most of them was severe insulin shock, severe enough to cause unconsciousness, regardless of the time the protamine zinc insulin was given. The other annoying symptom was intense headache. Four patients did no better on

protamine zinc insulin than on regular insulin. One patient did well on protamine zinc insulin alone for almost four years but then became difficult to control and was returned to regular insulin. Of the other 20 patients, 6 have been well controlled on protamine zinc insulin alone and 14 have required combinations of the two insulins.

### Archives of Physical Therapy, Chicago

23 261-314 (May) 1942

- Electromyographic Studies in Poliomyelitis. K. G. Hans on in collaboration with B. S. Troedson and E. Schwarzkopf. New York.—p. 261.  
Rationalization of Peripheral Vascular Disease. G. H. Yeager. Baltimore.—p. 267.  
Economic Value of Physical Therapy Following Injuries. B. E. Kuechle. Waukegan, Wis.—p. 273.  
A Repetitive Resistance Test for Muscular Fatigue. C. O. Molander and Bertha Weinmann. Chicago.—p. 276.  
Improved Walking Chair and Breaches Buoy Suspension for Severely Handicapped Infantile Paralysis Patients. E. H. Bettmann. Albany, N. Y.—p. 281.  
Simple Workable Respirator. H. A. Carter. Chicago.—p. 284.  
Physical Agents in Tissue Repair. L. Nutini. Cincinnati.—p. 285.

### Bulletin Johns Hopkins Hospital, Baltimore

70 399-466 (May) 1942

- Representation of Cutaneous Tactile Sensibility in Cerebral Cortex of Monkey as Indicated by Evoked Potentials. C. N. Woolsey, W. H. Marshall and P. Bard. Baltimore.—p. 399.  
Facial Patterns of Electrical Skin Resistance. Their Relation to Sleep, External Temperature, Hair Distribution, Sensory Dermatomes and Skin Disease. C. P. Richter and Bettie G. Woodruff. Baltimore.—p. 442.  
Fungus Culture Slide. J. H. Brown. Baltimore.—p. 460.

### Bulletin New York Academy of Medicine, New York

18 303-364 (May) 1942

- Some Chemical Changes in the Myocardium Accompanying Heart Failure. A. C. Myers. Cleveland.—p. 303.  
Treatment of Gout. J. H. Talbot. Boston.—p. 318.  
Tropical Medicine in United States Military History. H. E. Meleney. New York.—p. 329.  
\*Effect of Tonsillectomy on Respiratory Infections in Children. A. D. Kaiser. Rochester.—p. 338.  
\*Relationship of Upper Respiratory Infections to Chronic Arthritis. R. H. Boots and R. L. McCollom. New York.—p. 347.  
Tonsillectomy and Acute Nephritis. J. D. Little. New York.—p. 356.

#### Tonsillectomy and Respiratory Infections in Children

—Kaiser followed the development of 4,400 children to adolescence or a period of ten years, recording the sequence and the number of respiratory infections over this period. Half of the children had their tonsils and adenoids removed and the other half did not. The initial examination and observation of the children began when they were between 4 and 7 years of age when for various reasons only half of them were submitted to tonsillectomy. The evidence indicates that there is a relationship between tonsils and adenoids and respiratory infection. Tonsils and adenoids favorably influence the upper type of respiratory infection and not the lower respiratory or pulmonary infections. The tonsils may even act as a safeguard against pulmonary infection since in the unoperated children there was a slightly lower incidence of bronchitis and pneumonia. The measurable benefits of tonsillectomy and adenoidectomy in children subject to tonsillitis, colds, otitis media and cervical adenitis justify the operation and make it a desirable procedure. The benefits though striking in the presence of tonsillitis and cervical adenitis are not great enough to advocate prophylactic tonsillectomy for children with the idea of reducing respiratory infection. The statistical evidence agrees with the general clinical experience that certain infections of the upper respiratory tract can be reduced if the tonsils and adenoids are removed but other infections may actually occur more frequently after the operation. The respiratory complaint to which the child is most susceptible must determine whether the tonsils or adenoids are likely a liability. When the tonsils and adenoids enhance the production of clinical symptoms their removal is advocated.

#### Upper Respiratory Infections and Chronic Arthritis—

From their experience during the last thirteen years in the arthritis clinic of the Presbyterian Hospital on the relation of tonsillitis to arthritis Boots and McCollom conclude that routine tonsillectomy is not indicated in any form of arthritis.

The type of arthritis should be diagnosed before any relationship to a respiratory or any other focus is considered. Osteoarthritis, gonorrheal arthritis, tuberculous arthritis and other types are certainly not related to infection of the upper part of the respiratory tract. In rheumatoid arthritis it is wise to remove apparently diseased tonsils and to treat sinus infections, not because of any proved etiologic relationship, but because anything that improves the patient's health seems to help the arthritis. The question of tonsillectomy or treatment of sinusitis is still largely a clinical decision to be made by the physician, preferably by a combined consultation between the internist and the otolaryngologist. Early treatment of the sinuses and early removal of the infected tonsils is necessary if any benefit in rheumatoid arthritis is to be forthcoming. The results in private practice are probably better than those obtained in clinics probably because patients are usually seen earlier and possible foci are treated and eradicated at an earlier stage of the disease.

### California and Western Medicine, San Francisco

56 279-332 (May) 1942

- California Physicians Service and the Low Income Patient. R. L. Wilbur. Stanford University.—p. 286.  
Can the Human Body Keep Pace with the Airplane? D. A. Myers. San Francisco.—p. 287.  
Intraperitoneal Use of Sulfonamides. G. J. Laird. San Diego and H. Stavern. San Francisco.—p. 293.  
Epilepsy, Hazardous Disease. W. E. Carter and R. W. Harvey. San Francisco.—p. 294.

### Canadian Medical Association Journal, Montreal

46 411-524 (May) 1942

- \*Evaluation of Preparations of Vitamin B Complex. L. B. Pett, J. A. McKirdy and M. M. Cantor. Edmonton, Alta.—p. 413.  
Shock. P. G. Weil. Montreal.—p. 417.  
Common Neurologic Syndromes Produced by Pressure from Extrusion of Intervertebral Disk. K. G. McKenzie and E. H. Botterell. Toronto.—p. 424.  
\*Coarctation of Aorta. A. D. Irvine. Edmonton, Alta.—p. 436.  
Hyperthyroidism Treated by Estrogens. W. E. Shute. Guelph, Ont. and E. V. Shute. London, Ont.—p. 441.  
Circulatory Failure in Acute Glomerulonephritis. R. McIntosh. New York.—p. 445.  
Modern Trends in Medical Practice. J. C. Meakins. Montreal.—p. 449.  
External Use of Sulfonamides in Dermatology. F. Kalz and M. V. H. Prinz. Montreal.—p. 457.  
Weights and Measures in Medicine. R. L. Stehle. Montreal.—p. 463.  
Obstructive Jaundice. O. W. Niemeier. Hamilton, Ont.—p. 466.  
Cardiovascular Changes in Toxic Goiter. H. McPhedran. Toronto.—p. 471.  
Tumors of Larynx. G. W. Fletcher. Winnipeg, Man.—p. 474.

#### Evaluation of Preparations of Vitamin B Complex—

Pett and his colleagues determined the relative value of six commercial vitamin B complex preparations purchased in the open market. The natural sources of the preparations were yeast, liver and rice bran. The preparations were fed to rats on a diet free of vitamin B complex so that the thiamine intake was uniform in all groups. The best results came from using a preparation in which the proportions of the members of the vitamin B complex were thiamine 1, riboflavin 0.8, pyridoxine 0.4, pantothenic acid 1 and nicotinic acid 5. The poorest results were obtained from a combination of thiamine 1, riboflavin 0.05, pyridoxine 0.05, pantothenic acid 0.1 and nicotinic acid 2.5. The results emphasize the importance of adequate amounts of all the B complex together with thiamine. The gross disproportion among these components in some of the preparations apparently resulted from adding such synthetics as thiamine or nicotinic acid to the original source material. At different levels of thiamine intake the relative importance of the components of the B complex changed. Thus with higher amounts of thiamine the riboflavin content was of greatest importance while with smaller quantities of thiamine the pyridoxine and nicotinic acid content seemed to be more important than that of riboflavin.

**Coarctation of Aorta**—Irvine reports 2 cases of coarctation of the aorta. In the first the condition was detected during routine roentgen study of the chest. The diagnosis was made on the pathognomonic finding of pressure defects in the inferior surfaces of some of the ribs. The symptoms that caused the patient to seek medical attention were caused by bronchopneumonia. The history of chest pain some weeks



before admission may or may not have been related to the coarctation. Hypertension in the upper extremity, exaggerated pulsations in the vessels of the neck, souffle over the collateral arteries and left sided cardiac hypertrophy supported the diagnosis of coarctation. The condition of the second patient, an army recruit, was accidentally discovered in the course of a roentgen examination of the chest. The diagnosis was based on Rosler's sign of erosion of the ribs. A later clinical examination confirmed the roentgen diagnosis by revealing visible and palpable pulsations due to the dilated collateral anastomosis, hypertension in the upper extremity and disparity between the blood pressure of the brachial and femoral arteries. A case report supplied by Malcolmson was also of a recruit with the pathognomonic defects of the ribs in the roentgenogram and secondary cardiac enlargement. There was a definite hypertension in both arms with a much lower tension in the femoral arteries. A bruit was readily detected over the anastomosing branches in the scapular and upper thoracic areas. The condition in this recruit had been overlooked in the first routine medical examination.

### Canadian Public Health Journal, Toronto

33 145-184 (April) 1942

- Public Health in War Time G Fleming, Montreal—p 145  
Equine Encephalomyelitis (Western Type) in Humans in Alberta, 1941 A C McGugan, Edmonton, Alta—p 148  
Nutrition and Child Health E W McHenry, Toronto—p 152  
Analysis of Tetanus Toxoid Antitoxin Floccules P J Moloney and Joan N Hennessy, Toronto—p 157  
An Outbreak of Typhoid Fever Due to Raw Milk J S Sirois, Riviere du Loup, Que—p 168  
Diagnosis of Enterobiosis (Evaluation of Recent Devices) E Kuitunen Ekbaum, Toronto—p 174

### Connecticut State Medical Journal, Hartford

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- Leverette Hubbard, M D Biographical Memoir of the First President of the Connecticut State Medical Society (Reprint) H Bronson—p 429  
Centennial Meeting of Connecticut Medical Society C J Foote, New Haven—p 434  
Historical Survey of Connecticut Hospitals S G Davidson, New Haven—p 437  
Surgery of the Past in Connecticut S C Harvey, New Haven—p 445  
Early Physicians in Connecticut (Reprint) G O Sumner—p 459

### Journal of Allergy, St Louis

13 327-430 (May) 1942

- Passive Transfer in Light Urticaria Pathomechanism of Physical Allergy E Rajka, Budapest, Hungary—p 327  
Studies in Guinea Pig Anaphylaxis with House Dust Antigen H J Friedman, Cleveland—p 346  
Presence of Ingested Cottonseed Protein in Woman's Milk M Brunner and Bessie Baron, Brooklyn—p 358  
Production of Nonetiologic Skin Hypersensitivity to Foods by Natural Means in Atopic Persons L W Hill, Boston—p 366  
Contact Dermatitis from Narrow Leaf Marsh Elder (*Iva angustifolia*) Observations on Dermatitis Producing Factor W A Smith, Beaumont, Texas, H E Prince and Mary Lou Cole, Houston, Texas—p 371  
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\*Odors (Osmys) as Allergenic Agents E Urbach, Philadelphia—p 387  
Treatment of Asthmatic Paroxysm with Nicotinic Acids Preliminary Report F E Maisel and E Somkin, New York—p 397  
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Vitamin D in Vernal Catarrh A A Knapp, New York—p 407  
Pollen Content of Air in Belo Horizonte, Brazil J B Greco, A O Lima and A Tupinamba, Belo Horizonte, Brazil—p 411  
Mecholyl Desensitization in Treatment of Asthma R B Logue and C Laws, Atlanta, Ga—p 414

**Odors as Allergenic Agents**—Clinical and experimental evidence presented by Urbach suggests that osmys (pleasant or unpleasant odors of flowers, fruits, resins, animals, plants and animal foods) can act as allergens. Pollens head the list of allergens responsible for most cases of hay fever. In some patients nasal symptoms or asthma appear in the vicinity of roses, locust trees, linden trees, mock oranges, carnations, privet, lilacs, common elders, lilacs, lilacs of the valley and violets. Pollen as cause of rhinorrhea can be excluded in such instances if the blossoms in question have no stamens and thus no pollen,

if the peculiar position of the stamens surrounded by a carina makes it impossible for pollen to be carried off by the wind and if insufflation of the particular pollen into the nostril of the patient elicits no symptoms. Exposure to fresh blossoms and extracts of blossoms demonstrates that odors and not pollens are operative. The author has observed cases of hay fever which were proved by these methods to be due to volatile oils. It was not possible to determine which ingredient of the ethereal oil of the blossoms caused the hay fever. In some instances allergic symptoms develop from the mere odor of certain animals without the patient coming into actual contact with them. For some persons allergic to the smell of dogs the proximity of a person owning a dog is sufficient to provoke an attack. The degree of such hypersensitiveness is illustrated by a woman in whom extensive angioneurotic edema, usually followed by severe anaphylactic collapse, developed every time she passed a street in which a fish market was located. In this group there are patients who are so hypersensitive to animal protein that even the smell of the particular food (meat or fish) elicits symptoms identical with those appearing after its actual ingestion. Allergic phenomena caused by scents other than those of plant and animal origin include inorganic compounds, synthetic perfumes employed in cosmetics and soaps, sulfuric emanation in a sulfur spa and the smell of burning wood, charcoal, kerosene and tobacco. Experiments with oral desensitization with substances prepared by the process of enfleurage proved successful for scent allergies.

### Journal of Experimental Medicine, New York

75 567-692 (June) 1942

- Effect of External Temperature on Course of Infectious Myxomatosis of Rabbits R F Parker and R L Thompson, Cleveland—p 567  
Comparative Study of Meningopneumonitis Virus, Psittacosis of Pigeon Origin and Psittacosis of Parrot Origin H Pinkerton and V Moragues, St Louis—p 575  
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Bactericidal Action of Propylene Glycol Vapor on Microorganisms Suspended in Air I O H Robertson, E Bigg, T T Puck and B F Miller, with the technical assistance of Elizabeth A Appell, Chicago—p 593  
Studies in Rodent Poliomyelitis I Further Experiments with Murine Strain of SK Poliomyelitis Virus C W Jungeblut, M Sanders and Rose R Feiner, New York—p 611  
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Morphologic Structure of Virus of Vaccinia R H Green, New York, T F Anderson, Camden, N J, and J E Smadel, New York—p 651  
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Effects of Renal Hypertension on Vessels of Ears of Rabbits R G Abell, Philadelphia, and I H Page, Indianapolis—p 673

### Journal of Immunology, Baltimore

43 297-362 (April) 1942

- Permeability of Gastrointestinal Mucosa of Guinea Pigs to Crystalline Egg Albumin G Hartley Jr, Boston—p 297  
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Studies of Antipneumococcus Serum III Relation of Complement Fixation Titers to Antibody Nitrogen Values Christine E Rice and Gretchen R Sickles, Albany, N Y—p 319  
Specific Groups of Antibodies I Haurowitz, M Vardar and Paula Schwerin, Istanbul, Turkey—p 327  
Separation and Determination of Multiple Antibodies I Haurowitz with assistance of M Vardar, K Sarafyan, M Tunca, I Uzman and Paula Schwerin, Istanbul, Turkey—p 331  
\*Inhibition of Sulfapyridine in Human Serum, Exudates and Transudates D A Boroff, Anita Cooper and J G M Bullowa, New York—p 341  
Studies on Stabilizing Diluent for Old Tuberculin R Y Gottschall, T M Koppa and J T Tripp, Lansing, Mich—p 349

**Inhibition of Sulfapyridine in Human Serum**—Boroff and his associates found that an antisulfapyridine action is widely distributed in human serums, transudates and exudates. Almost all body fluids studied showed some antisulfapyridine action against a concentration of 1 to 15 mg of the drug per hundred cubic centimeters of fluid. No change in inhibitory action could be demonstrated against fluids obtained at different times from the same individuals. The apparent decrease in inhibition observed after prolonged standing was attributed to the shift of pH of the mediums to 8.6 to 8.9, which is unfavorable to growth. For the first four hours the growth curves with and without sulfapyridine were the same. At the end of



that time there was a gradual decrease in the number of organisms in the mediums containing the drug. If the mediums contained an inhibitor, and if the amount of the drug was not too great, the descent of the population curve was arrested after six to eight hours and showed a gradual rise. This phenomenon was observed in most of the growth curves whether the inoculum was 30 or 1,000 organisms per cubic centimeter. With the same inoculum the same amount of drug produced significant differences. When a small amount of an inhibiting serum (0.2 to 0.5 cc) was added to the control mediums containing no inhibitor the control mediums became inhibitory, this did not occur when serum which was not inhibitory was added to the mediums. These observations suggest that the growth promoting properties of the mediums do not wholly explain the inhibitory action of body fluids against sulfapyridine. Apparently there are substances in serums, exudates and transudates which interfere with the action of sulfapyridine in vitro.

## Journal Industrial Hygiene & Toxicology, Baltimore

24 93-124 (May) 1942

- Potential Health Hazards of the Leather Industry W J McConnell  
J W Fehnel and J J Perry New York—p 93  
Some Medical Problems Encountered in Modern Air Travel J W  
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Ventilation Requirements for Radium Dial Linting W C L Hemeon  
and R D Evans Cambridge Mass—p 116  
Analysis of Atmospheric Samples of Explosive Chemicals F H Gold  
man Bethesda Md—p 121

## Journal-Lancet, Minneapolis

62 155-206 (May) 1942

- Prothrombin Deficiency in Newborn as Affected by Vitamin K and by  
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\*Pleurisy with Effusion as a Manifestation of Rheumatic Fever A E  
Hansen Minneapolis—p 158  
\*Significance of Adrenal Insufficiency in Childhood Report of Case of  
Primary Addison's Disease in 11 Year Old Boy J A Anderson  
Minneapolis—p 161  
Why School Children Fail M Scham Minneapolis—p 166  
Influenza Meningitis A Hill and E S Platon Minneapolis—p 168  
Evaluation of Relative Importance of Various Etiologic Factors in  
Asphyxia Neonatorum Study of Fifty Six Cases Occurring in 1,000  
Consecutive Deliveries A J Moss Minneapolis—p 170  
\*Recent Observations on Hay Fever in Children A V Stoesser Minne-  
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Pediatric Aspects of Endocrine Therapy Mildred R Ziegler and A E  
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Primary Hepatic Carcinoma in Infancy Report of Two Cases R V  
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Infected Cysts of Lung Source of Pulmonary Suppuration L G  
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Impaired Ability to Fabricate Serum Proteins as Chief Cause of Edema  
in Chronic Constrictive Pericarditis I McQuarrie Minneapolis—  
p 199

**Pleurisy with Effusion as Manifestation of Rheumatic Fever**—Hansen discusses the difficulty which may arise in making a correct diagnosis when the less common manifestations of rheumatic fever such as pneumonitis and pleuritis, are present. This is illustrated by a patient in whom a recrudescence developed whose main feature was pleurisy with effusion. A boy of 12 had a sudden onset of fever with slight dyspnea and pain in the chest several weeks after a typical attack of polyarthritis. Failure to isolate any organism in the pleural fluid and the rapid resorption of the exudate seemed to establish this as a clearcut rheumatic pleurisy with effusion. The pleural effusion may be purulent, serous, serofibrinous and serosanguineous. The general manifestations of rheumatic fever are not specific but may occur with any type of infection. Those which occur characteristically and frequently include epistaxis pallor (out of proportion to the hemoglobin), weight loss, fatigue, fretfulness, anorexia, malaise, lassitude, weakness, emotional disturbances, 'growing pains', prostration, rapid pulse, leukocytosis, secondary anemia and malnutrition. These signs and symptoms often antedate the more severe and specific manifestations by weeks or months and are important in detecting signs of rheumatic activity or recrudescence.

**Adrenal Insufficiency in Childhood**—Anderson presents the history of an 11 year old boy with clinical signs and symptoms of Addison's disease. A primary atrophy of the adrenals

is believed to exist, since no evidence of tuberculosis or of a tumor of the adrenals could be found. The response to therapy was entirely satisfactory. Growth in weight and height has progressed normally. Holt and McIntosh have stated that adequate treatment for several years has been associated with some regeneration of adrenal cortex tissue as judged by continued clinical improvement and decreased hormone requirement. Following the impending Addisonian crisis at the time of the original laboratory studies, large quantities of sodium chloride and dextrose were given intravenously. A low potassium, high sodium diet was then instituted. Daily, 5 mg of desoxycorticosterone acetate in sesame oil and 6 cc of adrenal cortex extract were given intramuscularly. Within three days the electrolytes of the serum and the hematocrit were essentially normal. The blood pressure increased to 100 systolic and 60 diastolic. Following discharge from the hospital the child was allowed to take a general diet, and the desoxycorticosterone acetate and adrenal cortex extract were continued. Weight gain continued to be satisfactory. The child was well and vigorous and assisted in the labors about the farm without fatigue or complaint. He was then placed on 5 mg of desoxycorticosterone acetate in propylene glycol sublingually twice a day and has been doing well for approximately one year since discharge from the hospital.

**Hay Fever in Children**—According to Stoesser, symptoms of hay fever were found in about 20 per cent of children reporting in the outpatient department with an allergic disease during 1936 to 1941. The onset occurred in a few patients during their first year, a much larger number began to manifest signs in the second year and there was a rapid increase during the preschool period. The majority of the 413 children treated did not come for treatment until they had attended school. The severity of symptoms usually increased during the school years, and the children's poor condition on their return to school in the fall focused medical attention on them. The determination of seasonal pollinosis consisted in cutaneous tests with the sixteen pollens prepared by Ellis and Rosendahl of the University of Minnesota. Positive cutaneous reactions were obtained to maple (box elder) in 69, birch 23, poplar (willow) 55, elm (nettle) 38, sedge (bulrush) 30, ash 65, oak 54, grass 72, walnut 33, plantain 24, dock (sorrel) 39, alfalfa 58, pigweed 115, Russian thistle 146, sage (wormwood) 209 and ragweed 306. Of the 413 children 310 were chosen for specific pollen injection therapy, of 24 having long preseasonal therapy to the pollens of trees the results were good in 79.2 and fair in 8.3 per cent, of 19 receiving similar therapy to the pollens of grasses 36.8 had good and 42.1 per cent had fair results, the results were good in 59 and fair in 31.3 per cent of 195 given injection treatment to the pollens of weeds, and perennial therapy gave good results in the 6 children receiving treatment for tree pollens and of 82 receiving this therapy to weed pollens 59.8 had good and 20.7 per cent had fair results. The author concludes that long preseasonal or perennial specific pollen therapy is still the best treatment for hay fever in the child. The oral administration of pollen did not give satisfactory results. Enzyme therapy with histaminase failed completely. Potassium chloride therapy benefited enough children with seasonal pollinosis to warrant further investigation. Coli metabolin therapy was of little value.

## Laryngoscope, St. Louis

52 255-340 (April) 1942

- Histamine in Treatment of Nasal Allergy (Perennial and Seasonal Allergic Rhinitis) L Farmer and R E Kaufman, New York—p 255  
Osteomyelitis of the Frontal Bone J L Drill Detroit—p 267  
Illusion of Loudness of Tinnitus—Its Etiology and Treatment E P Fowler New York—p 275  
Case of Lipoidosis Cutis et Mucosae—So Called Lipoid Proteinosis Urbach Wiethe M B Sulzberger New York—p 286  
Preliminary Study of Effect of Prostigmine on Tinnitus H D Taterka New York—p 299  
Interesting Case of Frontal Sinusitis G M Coates and V F Hoffman Jr Philadelphia—p 304  
Case of Subarachnoid Hemorrhage Simulating Acute Frontal Sinusitis M Saltzman Philadelphia—p 307  
Prolapse of the Laryngeal Ventricle in Acute Myelogenous Leukemia Report of Case G de Campo Manila P I—p 311  
Review of 1941 Literature in the Field of Bronchoesophagology P H Holinger A H Andrews Jr and R G Rigby Chicago—p 317

## Maine Medical Association Journal, Portland

33 89-112 (May) 1942

- \*Slipping Rib Cartilage Syndrome with Report of Cases J F Holmes, Manchester, N H—p 89  
Pulmonary Suppuration Secondary to Esophageal Diverticulum F T Hill, Waterville—p 99

**Slipping Rib Cartilage**—Holmes calls attention to a group of painful symptoms involving rib borders, chest, abdomen and back. The syndrome is concerned with the anterior ends of the anterior rib cartilages, their interchondrial articulations and the closely related intercostal nerves. It does not involve the osteochondral junction of the anterior ends of the ribs, it includes only the anterior cartilages of the first three false ribs, designated as vertebrochondral ribs, namely the eighth, the ninth and the tenth on either side. This symptom complex was first reported by Cyriax of London in 1919. It is of common occurrence and often produces irksome, incapacitating symptoms. Because of failure to recognize it, needless laparotomies have been performed, and prolonged suffering and incapacity from an easily curable condition were permitted. The loosening and deformity of the anterior ends of the anterior cartilages of the vertebrochondral ribs begin by a pulling away of the fibrous attachment of the anterior end of the cartilage. The deformity is the result of a displacement of a fracture fragment or a dislocated cartilage, or, as is usually the case, by a curling upward of the loosened cartilage end so that, on motion, the deformed end rubs against the inside of the rib cartilage above and against the intercostal nerve, causing pain. On certain motions and on manipulation the deformed end slips over the rib border with a click that usually can be felt and heard and a pain that is often severe. From an analysis of 68 cases it appears that slipping rib cartilage results more often from indirect than from direct trauma. Since the cartilage deformity almost always develops over a period of time subsequent to the trauma, the patient frequently does not associate the injury with the complaint, and the cause is not recognized. This is especially true of indirect injury when, as in coughing or in childbirth, the trauma itself is frequently not recognized. A sudden blow of the steering wheel of an automobile against the lower ribs is one method of direct injury. Indirectly it may be caused by sudden flexion, extension or twisting of the body, by repeated distortion of the body as the onesided weight carrying of an industrial worker, by a sudden pull on the arms as in weight lifting or pushing, by forced compression or expansion of the chest as in childbirth or coughing, and by many other types of force. The author treats the acute condition conservatively by adhesive strapping. If after one to three months the symptoms persist, he advises excision of the loosened cartilage. Many cases of obscure pain associated with the chest or abdomen may have their origin in a slipping rib cartilage. Examination of rib borders should be made routinely.

## Michigan State Medical Society Journal, Muskegon

41 341-436 (May) 1942

- Medical Department of the Army in War R G Prentiss Jr, Washington, D C—p 373  
Tuberculosis—A Fox Still Able to Fight C E Lyght, Northfield, Minn—p 377  
Diagnosis and Treatment of Placenta Previa W F Mengert, Iowa City—p 382  
Value of the Oxygen Incubator Survival of a Twenty Seven Ounce Baby J C S Battle, Port Huron—p 388  
Id Survival of a Thirty Six Ounce Baby P S Bradshaw, Muskegon—p 390  
Relation of Postgraduate Committees to Intern Instruction in Unaffiliated Hospitals Should the State Society Assume Any Responsibility for Such Intern Instruction? B R Corbus, Grand Rapids—p 390  
Localization, in Aid in the Diagnosis of Contact Dermatitis G L Waldbott, Detroit—p 392

## Minnesota Medicine, St Paul

25 321-424 (May) 1942

- Chemotherapy in Experimental Tuberculosis W H Feldman, Rochester—p 339  
Some Aspects of Blood Storage M Levine, Minneapolis—p 352  
Gastrojejunocolic Fistula Report of Case R F Hedun, Red Wing—p 358  
Mitral Stenosis and Paralysis of the Left Recurrent Laryngeal Nerve C H Scheffey and H L Smith, Rochester—p 362

## New England Journal of Medicine, Boston

226 707-744 (April 30) 1942

- Statistical Study of 671 Cases of Appendical Peritonitis H Rogers and H H Faxon, Boston—p 707  
Unrecognized Typhoid Cholecystitis as Source of Hospital Infections A D Rubenstein, Boston—p 722  
Allergy Serum Reactions, with Particular Reference to the Prevention and Treatment of Tetanus F M Rackemann, Boston—p 726

226 745-786 (May 7) 1942

- Statistical Study of 671 Cases of Appendical Peritonitis H H Faxon and H Rogers, Boston—p 745  
Retinal Lipemia and Visual Disturbances Associated with Acromegaly and Diabetes Mellitus Report of Case J Igersheimer, Boston—p 754  
Hamartoma of the Spleen Report of Case R H Sweet and S Warren, Boston—p 757  
Endocrinology Treatment of Abnormalities of Anterior Pituitary Gland J C Aub and D Karnofsky, Boston—p 759

## New Orleans Medical and Surgical Journal

94 519-566 (May) 1942

- Practical Aspects of Water Balance E Hull, New Orleans—p 521  
Peptic Ulcer Report of Unusual Case D C Browne and G McHardy, New Orleans—p 527  
Acute Perforation of Peptic Ulcer Report of Twenty Nine Cases R Kapsinow, Lafayette, La—p 528  
Left Sided Appendicitis Report of Three Cases J T Nix and J T Nix Jr, New Orleans—p 530  
Tuberculosis of the Major Bronchi Review R M Shepard Jr, New Orleans—p 532  
Some Recent Advances in Gastrointestinal Physiology J H Johnston, New Orleans—p 538

## New York State Journal of Medicine, New York

42 929-1024 (May 15) 1942

- Social Aspect of Heart Disease in Industry F H Westcott, New York—p 955  
Management of Foot Deformities in the Newborn F R Thompson, New York—p 958  
Clinical and Physical Significance of Quality in Routine Teleradiation Therapy W T Murphy, Buffalo—p 966  
Polyps of the Rectum and Colon Their Etiology, Clinical Significance and Treatment J C M Brust, Syracuse—p 973  
Aplastic Anemia S L Vaughan, Buffalo—p 978  
Modern Treatment of Skin Cancer G C Andrews and M C Barnes, New York—p 986  
Contact Dermatoses I Swartz, Syracuse—p 991  
Some End Results of Internal Fixation of the Hip W W Plummer and F N Potts, Buffalo—p 997  
Restaurant Hygiene W D Tiedeman, Albany—p 1000

49 1025-1120 (June 1) 1942

- Schizophrenic Brain Metabolism in Course of Insulin Shock Treatment with Special Reference to Blood Carbon Dioxide and Tendency to Convulsions J Wortis and W Goldfarb, New York—p 1053  
Moderate Dosage Atropine Treatment of Parkinson Syndrome Review of 112 Treated Cases L J Doshay, New York, and T R Ford, East Orange, N J—p 1060  
Comparison of Synthetic and Natural Belladonna Alkaloid Compounds in Treatment of Parkinsonism H Vollmer, New York—p 1069  
Clinical Considerations of Poisonings by Some Chlorinated Hydrocarbons H F Smyth, Philadelphia—p 1072  
\*Use of Bovine Antitoxin for Prophylaxis of Tetanus J Glaser, New York—p 1080  
Relation of a Specialist to the General Hospital and Its Personnel I M Sulzman, Troy—p 1083  
A Pediatrician Looks at School Health Examinations A C Silverman, Syracuse—p 1088

**Bovine Antitoxin for Tetanus Prophylaxis**—According to Glaser, bovine antitoxin for the prophylaxis and treatment of tetanus and diphtheria was introduced by Kraus and his associates in Buenos Aires about 1921. They demonstrated that bovine tetanus and diphtheria antitoxic serums were just as effective as equine preparations and to a large extent free from the disagreeable sequelae of horse serum. Bovine tetanus antitoxin was introduced into this country in 1929. The author's experience with bovine tetanus antitoxin comprises 38 cases. The patients ranged in age from 1½ to 18 years with an average age of 7. The author reports 2 cases. The first patient was a boy who had been dragged along the road in an automobile accident. A severe anaphylactic reaction followed a routine intradermal test with horse serum. A few days later a test with bovine serum was negative. The boy was given bovine antitetanus antitoxin without difficulty. The second patient was a boy who had had asthma since the age of 2.

Horse serum antitoxin administered for severe lacerations was followed by a severe reaction. Scratch and intradermal tests with bovine serum being negative, bovine tetanus antitoxin was given in divided doses without difficulty. Of the 38 patients 15 (39.5 per cent) experienced some reaction to the bovine antitoxin varying from mild itching at the site of injection to two moderately severe attacks of serum sickness. The usual reaction was the appearance of a few urticarial wheals lasting from a few minutes to a few hours. In no case was there an immediate anaphylactic reaction. The author concludes that 1. Bovine tetanus antitoxin has been used with safety in selected cases known to give severe anaphylactic reactions to horse serum. 2. The only indication for the use of equine tetanus antitoxin is for patients who are known to be or can be demonstrated to be sensitive to the bovine but not to the equine preparation. 3. Persons undergoing study for allergy should be tested routinely with equine and bovine serum. This should be done by the scratch method only to avoid as far as possible sensitizing the patient to the serum. If the patient is sensitive to both serums he should be immunized by tetanus toxoid.

### North Carolina Medical Journal, Winston-Salem

3 217-264 (May) 1942

- Cesarean Section. Review of 316 Cases. J. P. Hennessy. New York.—p. 217
- Physiologic Treatment of Burns. A. Webb Jr. Raleigh.—p. 220
- Etiology and Management of Uterine Prolapse. W. S. Doster. Wilmington.—p. 224
- Use and Evaluation of Anesthesia by Freezing for Surgery of Extremities in Diabetic Patients. Case Report. H. M. Schiebel. Durham.—p. 227
- Review of Some Recent Advances in Study of Factors in Hemolytic Reactions. Rh Property of Erythrocytes. H. D. Bruner. Chapel Hill.—p. 230
- Five Perforations of Gastric Ulcer. Case Report. H. P. Royster. Philadelphia.—p. 234
- Primary Acute Epiglottitis. T. C. Hubbard and J. W. Morris. North Wilkesboro.—p. 236
- Generalized Exfoliative Erythroderma Following Atabrine. Report of Case. R. O. Noyon and I. L. Callaway. Durham.—p. 239
- Coordination of Public Health Nursing Services with Other Services in Generalized Program. W. B. Raulston. Greensboro.—p. 240
- \*Note on Use of Histaminase in Preventing Ivy Dermatitis. J. Moss. Durham.—p. 243
- \*Use of Cobra Venom in Treatment of Osteitis Deformans. Report of Case. F. R. Taylor. High Point.—p. 244

**Histaminase in Preventing Ivy Dermatitis.**—Moss investigated the effect of histaminase in preventing the cutaneous reaction of susceptible individuals to poison ivy. Eight subjects who had had ivy dermatitis the previous summer were observed for ten days in a summer camp at which it was practically impossible to escape exposure. Four of the subjects were given orally 45 units of histaminase daily and the remaining 4 served as controls. During the ten days ivy dermatitis developed in 2 of those not treated, in 1 rather extensively. In none of the 4 receiving histaminase did dermatitis develop. Two subjects who had had dermatitis the previous summer deliberately exposed themselves to the plant after taking 45 units of histaminase daily for ten days, lesions did not develop. A group of 35 campers were observed for twenty-five days. 9 admitted having had dermatitis the previous summer. These 9 campers were given 45 units of histaminase by mouth for the twenty-five days. The remaining 26 subjects were used as controls. One of those receiving histaminase had diarrhea twenty-four hours after the first dose was given and was excluded from the study. Of the 8 subjects receiving histaminase dermatitis a 2 cm area on the knee developed in only 1. Ivy dermatitis developed during the twenty-five days in 13 of the 26 controls. Four subjects all susceptible by history, deliberately exposed themselves by rubbing the plant into the skin after taking 60 units of histaminase daily for ten days, and only 2 had lesions.

**Cobra Venom for Osteitis Deformans.**—A case of osteitis deformans with extremely severe pain is reported by Taylor in which definite relief followed the administration of cobra venom according to the method of Macht. Relief followed the first few doses, and thereafter a few semiweekly doses and then weekly doses for about six months have kept the patient comfortable. After this treatment was discontinued temporarily, and only a few doses of venom have been required to keep the patient comfortable for two years. The results seem to justify the trial of cobra venom in other cases of osteitis deformans.

### Northwest Medicine, Seattle

41 149-182 (May) 1942

- Lesions of the Intervertebral Disk. Facts and Fallacies. P. G. Flotow. Seattle.—p. 152
- Nonoperative Removal of Intraspinal Lipiodol and Thorotrast. E. Burgess and R. Anderson. Seattle.—p. 158
- Treatment of Infantile Cerebral Palsy. E. R. Carlson. New York.—p. 160
- Röntgenotherapy of Spondylitis Adolescents. S. E. Rees and W. Murphy. Portland Ore.—p. 164
- Histopathologic Changes of Brain Accompanying Delayed Death Following Asphyxiation. W. B. Dublin and R. W. Brown. Fort Steilacoom Wash.—p. 167
- Circumcision by Ligation. C. J. Ross. Portland Ore.—p. 170

### Ohio State Medical Journal, Columbus

38 417-512 (May) 1942

- Clinical Study of Hay Fever Therapy with Pollen Antigen Hydrochloride. G. E. Rockwell. Cincinnati.—p. 433
- Study of Epilepsy in the Detroit Schools. O. P. Kimball. Cleveland.—p. 435
- Further Clinical Experience in Treatment of Arthritis with Vitamin D. I. F. Steck. Chicago.—p. 440
- Diagnosis and Treatment of Acute Occlusion of Peripheral Arteries. F. A. LeFevre. Cleveland.—p. 444
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- Outline for Treatment of Pulmonary Gas Poisoning. W. Crosley. Cleveland.—p. 448
- Prevention of Recurrent Hyperthyroidism. J. L. DeCoursey. Cincinnati.—p. 449
- Prevention and Suppression of Lactation with Diethylstilbestrol. J. W. Douglas, J. F. Wanless and D. D. Deeds. Cincinnati.—p. 452
- Penetrating Wounds of the Eyeball in Industry. Survey of Fifteen Cases. H. V. Phelan. Cleveland.—p. 454
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- Medical Men as Pioneers in Nonmedical Fields. L. F. Edwards. Columbus.—p. 461
- Coarctation of the Aorta Associated with Mycotic Aneurysm. Case Record Presenting Clinical Problems. S. Koletsky. Cleveland.—p. 465

### Radiology, Syracuse, N. Y.

38 513-642 (May) 1942

- Management of Patients Receiving Radiation Therapy for Cancer. L. S. Goin. Los Angeles.—p. 513
- Röntgen Therapy in Cancer of Breast. Analysis of Experiences at State of Wisconsin General Hospital During Last Twelve Years. F. A. Pohle and R. R. Benson. Madison Wis.—p. 516
- \*Place of Irradiation in Treatment of Cancer of Breast. F. W. O'Brien. Boston.—p. 524
- Pathology of Breast. J. W. Budd. Los Angeles.—p. 535
- Preoperative Irradiation of Breast Cancer. A. Soiland. Los Angeles.—p. 537
- Selection of Cases for Surgery in Cancer of Breast. A. R. Kilgore. San Francisco.—p. 540
- \*Radiation Osteitis of Ribs. L. W. Paul and E. A. Pohle. Madison Wis.—p. 543
- Treatment of Hemaangiomas with Special Reference to Unsatisfactory Results. W. Bailey and W. S. Kiskadden. Los Angeles.—p. 552
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- Röntgenologic Appearance of Heart in Toxic Adenoma and Graves Disease. G. Levine and Lois C. Miller. Boston.—p. 573
- Gaucher's Disease. J. Reed. Farmington Maine and M. C. Sosman. Boston.—p. 579
- What Obligations Do We Have to the Radiologist Who Is Called into the National Service? J. C. Dickinson. Tampa Fla.—p. 584
- Requirements for Roentgenologic Services in Field of Combat. A. A. de Lorimer. Washington D. C.—p. 590
- Maintaining the Supply of Specialists During the National Emergency. B. R. Kirklin. Rochester. Minn.—p. 599
- Use of Modified Opaque Meal Gastroroentgenography. Its Special Application in Differentiation Between Benign and Malignant Ulcers on the Lesser Curvature. R. A. Rendieh and M. H. Poppel. New York.—p. 602
- Radiation Effects on Blood Vessels. Part II. Inflammation. Degeneration. Suppression of Growth Capacity. Retrogression. Necrosis. J. Borak. New York.—p. 607

**Irradiation for Cancer of Breast.**—Irradiation for the patient with a frankly inoperable mammary cancer with or without secondary manifestations, although hopeless from a curative standpoint, O'Brien points out produces enough palliative benefit to warrant its employment if the patient is not moribund. Ulcerating breasts will frequently heal and axillary and supraclavicular nodes regress but more often than not while this proceeds secondary deposits appear in the skeleton or other organs. These patients should have proper medical supervision, antianemic and supportive remedies, sedatives and

relatively small doses of radiation help some patients to live in comparative comfort for a few months to years. Irradiation as the sole therapeutic measure seems justifiable in especially organized clinics in poor surgical risks and borderline cases. Irradiation to the exclusion of surgery should not be employed for that group of mammary cancers which with radical mastectomy give a five year cure rate (alive without disease) of 70 per cent or better. A local operation even for a probable early breast cancer does not give a patient a chance for recovery. Preoperative irradiation in amounts to sterilize the tumor is neither desirable nor necessary. Its chief preoperative application should be to modify the undifferentiated young neoplastic cells, as Coutard has recognized. This can be done with relatively small doses given within a reasonable time and without the production of fibrosis. Surgical intervention can be then instituted before new young cells appear, that is, before the twentieth day and in any case before the slight cutaneous reaction of the twenty-fifth day. Many more fields of irradiation should be utilized than is the prevailing custom. It is not sufficient to treat the affected side of the chest, axilla and supraclavicular chain of lymphatics, the mediastinum and parasternal nodes and lymphatics of the opposite breast must also be treated over a protracted period. Postoperative irradiation does not seem necessary for patients whose disease is localized to the breast. If castration by irradiation is to be recommended, it must be done with the understanding that there are several stimuli that will induce cell division in tissues in which growth is normally dominated by hormones. This knowledge explains some of the failures of castration and reminds one that cancer growth and its cure continue to be a complex matter.

**Radiation Osteitis of Ribs**—During the last ten years Paul and Pohle have observed changes in the ribs of 15 patients who had received postoperative irradiation after removal of a breast for cancer. The authors obtained roentgenograms of the chest at intervals of three to six months. This has been found of value in the early detection of metastasis and pleuropulmonary reactions secondary to irradiation. Study shows that 10 of the patients received total doses to each field of from 5,200 to 6,600 roentgens over periods ranging from thirteen to thirty-six months. The other 5 received somewhat smaller total doses. At varying times after the full course of therapy there were noted changes in the underlying ribs consisting of pathologic fracture or fractures, a variable amount of bone absorption at the edges of the fractures and absence of reparative change over periods up to three years. Usually the first roentgen evidence was that of a fracture. This was manifested by a sharp change in alignment of the rib with or without a fracture line being visible. In some an irregular transverse fissure or line of increased radiotranslucency was seen first. Usually after some months the rarefied zone became more pronounced, with well defined defects in the rib shadow. Varying degrees of displacement were encountered. In 4 of the 15 the fractures healed after ten months, in 10 no healing had occurred up to three years and in 1 there was no follow-up after the fracture was discovered. In the healed cases the bone at the site of the fracture became more dense than normal. Sclerosis, if it appeared at all, occurred late and was minimal in degree. Symptoms referable to the fracture were absent. All the lesions were in the anterior or anterolateral segments of the upper ribs. In 4 only one rib was involved, in 5 two ribs, in 3 three ribs and in 3 four ribs. When the involvement was multiple, the changes were in immediately adjacent segments. In the differential diagnosis, only traumatic fracture and metastasis must be considered. Experience indicates that adult bone can be damaged by external roentgen irradiation and that the sensitivity of bone to such irradiation, if repeated over one or two years, is considerably greater than was formerly believed.

### Rhode Island Medical Journal, Providence

25 97-122 (May) 1942

- Neoplastic and Related Conditions in the Bones of Children C F Geschickter, Baltimore—p 98  
Note on Alcoholism M Moore, Boston—p 101  
Cancer Scroti P P Chase, Providence—p 104  
Recent Trends in Care of Prostatic Malignancy E Stone Providence—p 106

### Southern Medical Journal, Birmingham, Ala.

35 541-630 (June) 1942

- Pharmacologic Action of Drugs on Isolated Ureter D Slaughter, R E Van Duzen, T U Johnson and N Tobolowsky, Dallas, Texas—p 541  
Intracranial Tumors in Children Preliminary Study of 100 Cases W A Smith and E F Fincher, Atlanta, Ga—p 547  
Influence of Variations in Size and Structure of Cranial Venous Sinuses on Clinical Picture of Sinus Thrombophlebitis E M Seydell, Wichita, Kan—p 555  
Apnea Neonatorum Its Treatment by Simplified Insufflation Technique P P Volpitta and R Torpin, Augusta, Ga—p 559  
Gastroscopic Diagnosis of Syphilis of Stomach C O Patterson, M O Rouse and J S Bagweel, Dallas, Texas—p 565  
Syphilis of Esophagus Two Additional Cases V L Peterson, Charleston, W Va—p 571  
Investigations of Transfusion Donors with Positive Serologic Tests for Syphilis A E Keller, R H Kampmeier and W W Frye, Nashville, Tenn—p 573  
Bright's Disease Ureteral Structure an Important Etiologic Factor G L Hunner, Baltimore—p 577  
Multiple Skin Cancer Statistical and Pathologic Study C Phillips, Temple, Texas—p 583  
Carcinoma of Cervix J W Kelso, Oklahoma City—p 590  
Placenta Modified Arteriovenous Fistula W Bickers, Richmond, Va—p 593  
\*Pityriasis Rosea Treatment with Baths in Bichloride of Mercury Solution R L Sutton Jr, Kansas City, Mo—p 597  
Sulfonamides in Proctology M C Pruitt, Atlanta, Ga—p 598  
Bacterial Endocarditis Combined Bacteriologic and Clinical Problem E S Organ and Mary A Poston, Durham, N C—p 602  
\*Chemotherapy of Acute Bacillary Dysentery G M Lyon, Huntington, W Va—p 606  
Nutrition and Public Health J B Youmans, Nashville, Tenn—p 612  
Improvised Vaginal Powder Blower G A Williams, Atlanta, Ga—p 616  
Roentgen Therapy to Pituitary Gland in Functional Disturbances of and Associated with Menstruation J C King, Memphis, Tenn—p 616  
Source of Industrial Hazard from Hydrogen Sulfide Gas L F Robinson, M N Camp and E C Chamberlain, Fort Lauderdale, Fla—p 620

#### Mercury Bichloride Baths for Pityriasis Rosea—

According to Sutton, pityriasis rosea is a disease of unknown etiology, which behaves like an infection. It begins typically with a "herald patch" which precedes widespread involvement by a week or so, this is followed by the appearance of discrete lesions in considerable numbers involving either nearby skin and spreading gradually or involving the skin as a whole. It runs its course in perhaps ten weeks. It occurs in the spring and fall months. Effective treatment is ultraviolet irradiation. If the skin is caused to peel, the disease goes with the scales. But since some persons would prefer to suffer the disease rather than this sunburning, the author recommends a prescription of 1 ounce (30 Gm) of mercury bichloride in 16 ounces (480 cc) of water in a graduated bottle, labeled "POISON—2 ounces (60 cc) to 15 gallons of cool water for ten minute baths twice a day." The patient is requested to measure 15 gallons into his tub. The bath is to be lukewarm. No soap is used with the medicinal bath. The patient is to immerse himself in this dilution, which is about 1:15,000, twice daily for ten minutes. Stronger concentrations are irritating. If the disease has just commenced, two weeks of such treatment are necessary. If the eruption is full blown, cure may be obtained in one week. Thin skinned, xerotic patients develop dryness, a fine crackling scaling, irritation and itching by the end of four days, after which treatment must be discontinued temporarily. Greasy skinned brncts tolerate it longer. When the skin becomes dry and faintly scaly, the eruption fades and disappears. The fact that mercury bichloride is effective while sulfur is not lends credibility to the hypothesis that pityriasis rosea may be a streptococcal dermatosis.

**Chemotherapy of Acute Bacillary Dysentery**—Lyon has subjected sulfaguanidine to an extensive test in the treatment of acute bacillary dysentery, a condition that is popularly known in the mining sections as "bloody flux." The effect of the drug was first studied in a small, well controlled series of carefully selected patients who had the disease in a severe or moderately severe form and in whom treatment was instituted during the first week of fever or diarrhea. Next sulfaguanidine was used routinely in the treatment of the various forms and stages of "bloody flux" as they were encountered in office practice, homes and hospitals of mining sections where bacillary dysentery is endemic. Records are available of 300 patients with "bloody diarrhea" who were treated with sulfaguanidine.



In addition to the 'bloody diarrhea' all the patients presented a characteristic history: fever, malaise, blood and pus, or pus and mucus in the stools. A great many had positive stool cultures or characteristic microscopic evidence when particles of pus from stools were examined microscopically. Not all were bacteriologically proved instances of bacillary dysentery. They were however all patients having a 'bloody flux' typical of mining and rural mountainous areas in which the disease is endemic. Sulfaguanidine was of definite value in reducing the number of days of illness due to bacillary dysentery. This was one of the most striking effects statistically demonstrable. It is of unusual importance in industrial and military medicine. A wider use of the chemical will result not only in a continuously lower dysentery mortality rate but in a greatly lessened economic loss from days of disabling sickness. Of the 259 patients treated with sulfaguanidine without regard to the time elapsing between the onset of illness and institution of chemotherapy, 219 had normal stools within three days, 21 in four days, 17 within five days and only 2 had loose stools for more than five days. Early recognition and early treatment are important. The best results are attained when chemotherapy is applied early in the disease. It may be effective when administered at a much later time. Sulfaguanidine was as effective in adults as it was in infants and young children. Chemotherapy has completely revolutionized the treatment of bacillary dysentery. Sulfaguanidine is as effective in the treatment of acute bacillary dysentery as sulfanilamide is in the treatment of some streptococcal infections or as the other sulfonamide compounds are in the pneumococcal infections. The drug is easily administered, is well tolerated and has a wide margin of safety. It is ideal for treatment of bacillary dysentery.

### Surgery, Gynecology and Obstetrics, Chicago

74 1033-1162 (June) 1942

- \*Primary Tumors of Submaxillary Gland with Special Reference to Mixed Tumors. M. B. Dockerty and C. W. Mayo. Rochester, Minn.—p. 1033.
- Free Omental Graft. Clinical and Experimental Study. J. L. McGehee and M. J. Tendler. Memphis, Tenn.—p. 1046.
- \*Role of Hypertension and Pancreatic Erosion in Massive Fatal Hemorrhage from Gastric and Duodenal Ulcers. J. R. Schenken, E. L. Burns and L. Maes. New Orleans.—p. 1058.
- Significance of Changes in Subdivisions of Lung Volume in the Trendelenburg Position. M. D. Altshuler and N. Zamcheck. Boston.—p. 1061.
- Stone in the Ureter. Clinical Data Based on 500 Cases. H. L. Kretschmer. Chicago.—p. 1065.
- \*Phenomenon of Asphyxial Resuscitation. I. Resuscitation with Inert Asphyxiating Gas in Advanced Asphyxia. S. A. Thompson and G. L. Birnbaum. New York.—p. 1078.
- Significance of Galactose Tolerance Test in Hyperthyroidism. M. C. Smith, W. Jondahl and A. Ochsner. New Orleans.—p. 1083.
- Chronic Idiopathic Ulcerative Colitis. Report of Seven Cases of Patients Operated on. M. Kahn and M. W. Bay. Los Angeles.—p. 1087.
- Fale Epithelium in Mammary Gland and Its Experimental Production in Rhesus Monkey. H. Speert. Baltimore.—p. 1098.
- Persistence of Tumor After Preoperative Radium Treatment for Cancer of Corpus Uteri. M. S. Donovan and S. Warren. Boston.—p. 1106.
- Treatment of Acute Appendicitis at University of Minnesota Hospitals. C. Dennis, F. B. Mears and B. H. Ramsay. Minneapolis.—p. 1112.
- Circulation in Normal and Varicose Veins. R. E. Heller. Chicago.—p. 1118.
- Field Fire and Invasive Basal Cell Carcinoma—Basal Squamous Type. J. B. Brown and F. McDowell. St. Louis.—p. 1128.
- Use of Latex and Hydrocol in Casting Medical Sculpture. Charlotte S. Holt and F. H. Falls. Chicago.—p. 1133.
- Significance of Bleeding in Early Pregnancy as Evidenced by Decidual Biopsy. R. A. Rutherford. Boston.—p. 1139.
- Biologic Test Proposed as Guide in the Administration of Thiamine. D. L. Farley. Philadelphia.—p. 1154.

**Tumors of the Submaxillary Gland**—Lack of unanimity of opinion regarding the nature of mixed salivary gland tumors, according to Dockerty and Mayo, is adversely reflected in the results of surgical treatment. Because these mixed tumors have been regarded by many as being essentially benign, surgeons all too often have yielded to the temptation to "shell them out." In recent years experience has accumulated to show the necessity for revision of some of the older concepts regarding the nature of mixed tumors. The authors reviewed records of some 500 patients suffering from 'submaxillary malignancy'. More than 80 per cent were found to represent metastatic lesions metastasizing usually having taken place from epidermoid carcinoma of the lip, nasopharynx or face. Such tumors were excluded from the present study. The authors analyzed 81

primary submaxillary malignant tumors. True mixed tumors constituted 63 per cent of the series. They represented low grade, slowly growing adenocarcinomas usually not associated with pain or fixation. The tendency toward recurrence was not pronounced, except when inadequate "tissue sacrifice" had been carried out. Adenocarcinomas of the cylindroma type accounted for 18.5 per cent. These cylindromas were associated as a rule with a short clinical history in which pain and fixation were prominent. The lesions, although of a moderate degree of malignancy, presented pronounced infiltrative tendencies with selective invasion of nerves. The rate of recurrence was extremely high and the outlook generally unfavorable. An "intermediate" group of cases was found in which the tumors shared the features of the mixed tumors and the cylindromas. Clinically also the histories of the patients justified separation of the tumors into a special category. Eight patients, 9.5 per cent, had atypical tumors described as "miscellaneous." Prognosis depended partly on the type and grade of the lesion and partly on the extent of lymph node involvement. Follow-up studies demonstrated the usefulness of the microscopic classification in relation to prognosis. The authors were impressed by the disappointing results of the conservative operation on malignant tumors of the submaxillary gland.

**Hypertension and Pancreatic Erosion in Fatal Hemorrhage from Gastric and Duodenal Ulcers**—According to Schenken and his collaborators, many factors influence the prognosis of massive hemorrhage from a gastric or duodenal ulcer. Most frequently mentioned are age, number of hemorrhages, arteriosclerosis, chronicity, sex and location. Factors less frequently mentioned are (1) hypertension, (2) erosion of the pancreaticoduodenal artery and (3) bleeding from granulation tissue buds in the base of the ulcer. In a review of post-mortem examinations of cases of fatal gastric and duodenal ulcer the authors were impressed with the high incidence of hypertension and pancreatic erosion in patients dying of massive hemorrhage. In the Charity Hospital of Louisiana during the period from 1935 to 1941 the bodies of 81 patients who died as the result of gastric or duodenal ulcer were subjected to post-mortem examination. It was found that 19, or 23.3 per cent, of 81 patients with gastric or duodenal ulcer died of hemorrhage. Eleven, 57.8 per cent, of these had hypertension. Four had erosion of the pancreas without hypertension and 3 had both hypertension and pancreatic erosion. Fifteen, 78.9 per cent, of the 19 patients had either hypertension or erosion of the pancreas or both.

**Asphyxial Resuscitation with Inert (Asphyxiating) Gas**—Thompson and Birnbaum carried out an experimental investigation in the course of which they have observed a phenomenon hitherto not described. It is one of asphyxial resuscitation which consists in restoring the circulation and respiration in advanced asphyxia without the use of oxygen through the use of rhythmic inflation of the lung with an inert gas alternating with rhythmic suction. Dogs weighing 8 to 12 Kg. were anesthetized by the intraperitoneal injection of veterinary soluble pentobarbital. In some experiments a pharyngeal airway was inserted and a specially fitted metal face mask with inflation cuff on its rim was applied. In other experiments there was inserted an intratracheal tube surrounded by an inflatable rubber cuff to make the trachea leak proof. Asphyxia was produced either by obstructing the face mask completely or by clamping the intratracheal tube. In still other experiments asphyxia was produced by inhalation of inert gases such as nitrogen or helium. The Emerson resuscitator was used. Resuscitation was found possible in a high percentage of cases and far beyond the period at which spontaneous recovery could occur by discontinuing the asphyxial procedure. With other methods of resuscitation such as manual artificial respiration, rhythmic inflation and rhythmic suction, restoration of the circulation and respiration is the exception rather than the rule. In this phenomenon of asphyxial resuscitation the heart and circulation recover first, the respiration later. Typically applied in experimental asphyxia, the positive-negative resuscitator with inert gas is kept in action until the blood pressure has definitely recovered and spontaneous respiration is begun, when the lungs are in communication with the atmospheric air. In many instances recovery may take place on discontinuing the resuscitator after the blood pressure has recovered but before spontaneous respiration has occurred.



## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Anaesthesia, Manchester

18 1-46 (March) 1942

- Tracheobronchial Toilet R M Walters—p 1  
Postoperative Pulmonary Complications in Troops T A B Harris—p 11  
Future Organization of Anesthetics R B Gould—p 27

## British Medical Journal, London

1 515-542 (April 25) 1942

- \*Treatment of the Nephrotic Syndrome with Serum Transfusions H Brown, C H Gray and P L Mollison—p 515  
Cancer of the Stomach Striking Contrast in Clinical Features H H Rayner—p 518  
Treatment of Depression in Later Life D E Sands and W Sargent—p 520  
Undulant Fever Small Outbreak in a Girl's School J C Cruickshank and G A Stevenson—p 522  
Review of the Sanitary Appliance with Discussion on Intravaginal Packs Mary Barton—p 524

## Serum Transfusions in the Nephrotic Syndrome—

According to Brown and his associates, the degree of edema in patients with a nephrotic syndrome depends on several factors, hypoproteinemia is the most important of these. Results of serum transfusion in the nephrotic syndrome yield conflicting evidence as to its value. The authors treated 12 patients with transfusion of concentrated human serum. Eight of the patients were considered to have Bright's disease in the nephrotic stage, in the ninth case a diagnosis of lipoid nephrosis was made, and in the tenth of amyloid nephrosis. The eleventh and twelfth cases were examples of malabsorption of protein from the alimentary tract. Dosage ranged from 10 to 15 Gm of protein in children and from 20 to 100 Gm in adults, and more than one transfusion of these amounts was given in most cases. Immediately after the transfusion the serum protein level was generally found to have risen and the hemoglobin to have fallen. The concentration twenty-four to forty-eight hours after transfusion usually was scarcely greater than before transfusion, and the hemoglobin had usually returned to the pre-transfusion level. This failure to produce an increase in serum protein cannot have been due to loss of protein in the urine in either case 12 or, in all probability, in case 11. In several other cases it appeared also that the amount of albumin passed in the urine was not sufficient to account for the failure of the serum proteins to increase. Of the 12 patients, 11 were suffering from some degree of edema at the time of the transfusions. In only 2 was a good diuresis produced by administration of serum, and in 1 of these the edema returned within ten days and failed to respond to a further transfusion. It appears that in the nephrotic stage of glomerulonephritis a transfusion of concentrated serum is as likely to be followed by an adverse as by a favorable effect.

## Lancet, London

1.433-462 (April 11) 1942

- Post Shock Metabolic Response D P Cuthbertson—p 433  
\*Intraperitoneal Sulfanilamide Its Prophylactic and Therapeutic Value R V Hudson and R Smith—p 437  
Radiotherapy in the Prophylaxis and Treatment of Keloid W M Levitt and H Gillies—p 440  
Chances of Resuscitation After an Overdose of Ether Divinyl Ether and Chloroform W B Draper and R W Whitehead—p 442  
Pneumococcal Meningitis in an Infant Recovery with Sulfapyridine A Sikula—p 444

**Intraperitoneal Use of Sulfanilamide**—Hudson and Smith have employed sulfanilamide intraperitoneally in the treatment of peritonitis and peritoneal contamination since October 1940. The average dose amounted to from 10 to 15 Gm. In most cases this was the only chemotherapy employed, in a few it was reinforced with sulfapyridine given by mouth or intramuscularly for two or three days after operation. From September 1939 to October 1940 intravenous and intramuscular chemotherapy was used in many cases with disappointing results and a fatality rate of 55.5 per cent in cases of grave general peritonitis or gross peritoneal contamination. Between October 1940 and October 1941, when sulfanilamide

was employed intraperitoneally as a routine, the fatality in similar cases was reduced to 8.3 per cent. The use of continuous gastric, duodenal or intestinal suction drainage as an additional measure is strongly advocated. Ten illustrative cases are described in which the intraperitoneal use of sulfanilamide is thought to have contributed materially toward recovery.

1 463-492 (April 18) 1942

- \*Male Gonorrhea Treated with Sulfapyridine S M Laird—p 463  
Blood Concentrations During Chemotherapy of Gonorrhea R W Fairbrother, C A Aymer and C W Ashton—p 464  
Peptic Ulceration Results of Modern Treatment B M Nicol—p 466  
Aspiration of Petrol C L Cope—p 469  
Staphylococcal Septicemia Two Cases Treated with Sulfathiazole W S Flowers D H Collins and K H Hardy—p 470  
Salt Concentration in Blood Grouping Technique H Sachs—p 473  
Prevention of Hammer Toe Bursitis K McFadyen—p 474

**Male Gonorrhea Treated with Sulfapyridine**—Laird reports an attempt to determine a standard course of treatment most suitable for the inpatient therapy of gonorrhea in service patients. He presents six schemes of treatment employed in the total series of 764 cases. The A series of cases was given 1 Gm of sulfapyridine at 8 a.m., 12 noon, 4 p.m. and 8 p.m. daily for six days (24 Gm), the daily fluid intake was 7 pints and urethral irrigation was used. The B series was treated in the same way except that irrigation was omitted. The C series was treated the same as B, but the fluid intake was restricted to 3 pints daily. The D series was given 1 Gm of sulfapyridine at intervals of four hours for four days (24 Gm) without irrigation, and the fluid intake was 3 pints daily. In the E series the sulfapyridine dosage was the same as in D, but irrigation was used and the fluid intake was 7 pints daily. Series F was treated the same as E, but sulfapyridine was stopped after three days (18 Gm). The best results followed doses of 1 Gm of sulfapyridine at intervals of four hours over a period of four days. Urethral lavage and a high fluid intake were of benefit in reducing the number of failures, the time necessary for clinical cure, the rate of early relapse and the incidence of acute complications during and after chemotherapy.

## South African Medical Journal, Cape Town

16 113-128 (March 28) 1942

- \*Thirst at Sea—Sea Water Enemas H Foy, A Altman and Athens Konde—p 113  
Microcephaly in Newborn Infant with Almost Total Absence of Brain J A Keen—p 116  
Treatment of Experimental Anthrax with Sulfapyridine (M & B 693) M Sterne—p 121  
Account of Recent Food Infection Outbreaks Caused by Organisms of the Salmonella Group Investigated at South African Institute for Medical Research, Johannesburg J Gear, P Roux and C de V Bevan—p 125

16 129-152 (April 11) 1942 Partial Index

- Primary Suture of Wounds M Greenberg—p 145  
Pellagra's Progress A R R Mears—p 147

**Thirst at Sea—Sea Water Enemas**—Foy and his associates point out that many shipwrecked sailors and pilots are exposed to thirst at sea and their suffering has stimulated ideas of alleviating thirst either by rectal administration or by some chemical modification of sea water. Sea water enemata of from 800 to 1,200 cc were given daily to 3 fasting volunteers deprived of all fluid for a period of eighty hours, 3 similar volunteers, also fasting and deprived of all fluids, served as controls. There was no difference between the two groups with regard to clinical signs of dehydration and hemoconcentration, as shown by increased hemoglobin, red cell count, packed cell volume and serum proteins. Sea water is undoubtedly absorbed from the rectum, as shown by the higher blood and urine chlorides and the enormously increased output of total urinary chlorides. The output of urine in the sea water enema group was also increased, being 2,000 cc per person daily and in the control group 1,400 cc per person daily. This higher urine output does not indicate an improved water balance in the sea water group but merely a salt diuresis (osmotic diuresis), indicating a withdrawal of fluid from the tissues in order to excrete the increased concentration of solutes. The greatly increased osmotic pressure (solute concentration) of the fluid in the renal tubules would further tend to decrease reabsorption and thus increase urinary output. It follows that the

increased urinary output in the sea water group is probably from enforced tissue dehydration and/or cutting down of tubular reabsorption. The sea water group further lost on an average of 10 pounds (4.5 Kg) in weight per person, as compared with 6 pounds (2.7 Kg) in the control group, a further indication of tissue dehydration. The authors are of the opinion that sea water, although absorbed from the rectum, is of little or no value in maintaining the body's water balance and is possibly even harmful in that it enforces tissue dehydration and causes the kidney maximal work, as shown by the lumbar pain in 2 of 3 of the sea water group. Ship's biscuits were found impossible to eat after the first twenty-four hours and the authors feel that some improvement in this form of diet is needed. "Life saver" sweets (lime flavored) were acclaimed by all the volunteers as of great value in allaying subjective sensation and oral discomfort.

### Bull. of Health Org., League of Nations, Geneva

9 367-492 (No. 4) 1940/41

- Adoption of Crystalline Vitamin B<sub>1</sub> Hydrochloride as New International Standard of Vitamin B<sub>1</sub> and Comparison of Its Potency with That of Former Standard T 1 Mære —p. 371
- Relative Antirachitic Potencies of Vitamin D (Calciferol from Irradiated Ergosterol) and of Vitamin D<sub>2</sub> (from Irradiated 7-Dehydrocholesterol) K. H. Coward —p. 425
- International Standard for Vitamin E E. M. Hume —p. 436
- Progress Report on Production of Tetanus Test Toxin J. Ipsen —p. 447
- Comparison of Tetanus Test Toxins Prepared by Seven Institutes from Same Strain and by Same Method J. Ipsen —p. 452
- On the Standardization of African Viper (*Bitis Arietans*) and Cape Cobra (*Naja Fura*) Antivenenes E. Grasset —p. 476

### Schweizerische medizinische Wochenschrift, Basel

72 29-56 (Jan. 10) 1942 Partial Index

- Experiences in Therapeutic Application of Ovarian Hormones (Estrone and Progesterone) T. Koller and K. Anderes —p. 29
- \*Pneumonia Resistant to Sulfonamide Drug O. Gsell and M. Engel —p. 35
- \*Transplantation of Hypophysis in Simmonds Disease T. Marti —p. 38
- Diphenyl Hydantoinate of Calcium in Treatment of Epilepsy R. de Montmollin —p. 40
- Treatment of Vicosis of Hands and Feet R. Schuppli —p. 43
- Sterile Production of Nondenatured Dried Plasma R. Bucher —p. 44

**Sulfonamide Resistant Pneumonia**—According to Gsell and Engel, failures in treatment of pneumonia with sulfapyridine and sulfathiazole are rare. Failures are due to late or inadequate medication or to coexistence of other serious disorders such as valvular lesions, myocardial defects, carcinoma or bleeding ulcer. True resistance to sulfonamides is extremely rare. Although resistant pneumococci can be produced experimentally, clinical proof of such resistance has not been furnished. Failure of the therapy is due to lack of resistance on the part of the patient's organism and not to sulfonamide resistance of the bacteria. The authors describe 7 cases of highly febrile pneumonia that failed to respond to large and prolonged doses of sulfathiazole. These patients presented several aspects in common that may be regarded as clinical characteristics of sulfonamide resistant pneumonia: (1) a sharp contrast between the mild physical and severe roentgenologic changes of the lung during the first days of high fever; (2) severe toxicity; (3) absence of leukocytosis during the fully developed stage of pneumonia; (4) severe irritative cough with or without expectoration; (5) absence of pneumococci from the sputum; (6) endemic and infectious occurrence (familial and military epidemics). These atypical pneumonias also have certain negative aspects such as absence of eosinophilia. Inadequate dosage was not responsible for the therapeutic failure in these cases. The authors think that the sulfonamide resistant, benign, leukopenic pneumonias represent a special group of atypical pneumonias the clinical characteristics of which seem to indicate a uniform etiology. Recent American reports suggest that they may be virus pneumonias.

**Transplantation of Hypophysis in Hypophyseal Cachexia**—Marti points out that atypical forms of hypophyseal cachexia are more frequent than the typical forms. Curschmann has differentiated four atypical types. The diagnosis of hypophyseal cachexia is difficult because it is not thought of. It differs from cancerous cachexia chiefly by the atrophy of the

genitalia and by the lack of pubic hair. Latent tuberculosis, arteriosclerotic cachexia and thyrotoxicosis are other conditions which must be ruled out. Because emaciation is the outstanding symptom, forced feeding and insulin cures have been tried. The only therapy, however, that promises results is substitutional hormone therapy. Various preparations of the anterior pituitary have been used with some success. When the adrenals seem to be involved, adrenal cortex extracts are advisable. The hypophyseal substitution therapy can be combined with ovarian preparations. The most severe cases are often refractory to this therapy. For such cases intra-abdominal transplantation of hypophyseal tissue from calves has been recommended by Bergmann, Kylan and Curschmann. The author reports the history of a woman, aged 37, who had a severe form of hypophyseal cachexia. In this patient a freshly obtained veal hypophysis was sutured to the omentum and two other veal hypophyses were sutured directly to the peritoneum. The post-operative course was uneventful except for a small abscess. Following the operation the appetite and the psychic state of the patient improved greatly and the weight increased. The condition was not cured but was considerably improved.

### An. Inst. de Inv. Fis. Ap. a la Pat. Hum., Buenos Aires

3 1-444, 1941 Partial Index

- \*Action of Sulfanilamide Spray on Bacterial Flora in Bronchopulmonary Suppuration M. R. Castex, E. L. Capdehourat and E. A. Pedace —p. 5

**Sulfonamide Spray in Bronchopulmonary Suppuration**—Castex and his collaborators report studies of sputums of a large group (exact number unstated) of patients with bronchopulmonary suppuration before and in the course of treatment with sulfonamide sprays. The group included patients with pulmonary abscess. Two or four daily sprays were administered for several consecutive days. A spray contained 20 to 25 cc of isotonic sodium chloride solution or distilled water with 5 cc of 5 per cent azosulfamide. The first examination was performed on the second day of the treatment; the examinations being repeated once a week. Stained smears of sputum obtained before treatment showed abundant bacteria and absence of phagocytosis. Streptococci, staphylococci and pneumococci predominated in the sputum in the acute cases. Forty-eight hours after beginning of the treatment the number of bacteria in the sputum was diminished and phagocytosis increased. Phagocytosis was selective for azosulfamide stained particles. As the treatment progressed, the number of bacteria in the sputum diminished and phagocytosis increased. In some cases in which early treatment failed, blood transfusion or the administration of autovaccines or heterovaccines stimulated the response. In other cases abundant extracellular bacteria temporarily reappeared after intrabronchial instillation of iodized oil, after development of a catarrh or when the treatment was discontinued before a cure was obtained. Sulfanilamide spray failed to affect the sputum when the pneumococcus was the predominating micro-organism. Diminution of sputum and of bacteria was paralleled by regression of the disease. When a cure was almost complete the sputum was almost normal. Endothelial cells filled with streptococci and occasional extracellular bacteria were observed in the microscopic fields. The sputum was normal in amount and quality when the cure was complete. The bacteriostatic effect of sulfanilamide is greater when the drug is administered by spray rather than by mouth or by injection. The drug when in contact with suppurating pulmonary tissue in high concentration alters the metabolism of bacteria and controls their toxicity and growth. It stimulates local phagocytosis, local and general defense forces of the body, production of antibodies and the function of the reticuloendothelial cells.

### Archivos Arg. de Enf. del Ap. Digest, Buenos Aires

17 335-448 (Feb.-March) 1942 Partial Index

- Regional Ileitis G. Hadfield —p. 333
- \*Nonsurgical Cholangiography. New Method for Examination of Biliary Tract M. Royer, A. V. Solari and R. Lottero Lanari —p. 368

**Nonsurgical Cholangiography**—The method described by Royer and his collaborators is as follows: A laparoscopy is performed during which the gallbladder is observed. Twenty

five cc of a solution of hexamethyldiamino-isopropanol diiodide is injected into the gallbladder with a special apparatus. Roentgenograms are taken before and after evacuation of the gallbladder with a Boyden meal. Nonsurgical cholangiography enables one to observe the behavior of the gallbladder and of the bile ducts during evacuation of the opaque mass and to make a diagnosis of several diseases of the biliary tract. In almost all cases the gallbladder shows uniform contractions without any waves of the peristaltic type. It forms rings which simulate haustra. Bile is evacuated during contraction into the common bile duct. The bile passes into the hepatic duct and its branches high up into the liver. Contractions of the common bile duct during evacuation of the gallbladder and the cystic sphincter described by Mirizzi are not observed. The method is of value in the diagnosis of cholecystitis, pericholecystitis, dilatation of the gallbladder from obstruction of the bile ducts, biliary lithiasis and to some extent in lithiasis of the common bile duct.

### Boletín de la Sociedad Cubana de Pediatría, Havana

14 169-216 (April) 1942 Partial Index

Seborrheic Dermatitis and Diathesis in Infants R. Quera —p. 169

\*Bronchopneumonia in Infants G. Cardelle Penichet, F. Borges Hernandez and B. Duran Castillo —p. 197

**Bronchopneumonia in Infants**—Cardelle Penichet and his collaborators studied 98 cases of bronchopneumonia in infants. Seventy-three of these were undernourished. The disease occurred in two seasonal outbreaks with the greatest incidence in April and September. It was primary in 62 cases and complicated measles, gastroenteritis and whooping cough in the remaining cases. The largest number of cases in the group corresponded to ages between 4 and 12 months. Symptoms most frequently observed in order of frequency were fever, disorders of the respiratory tract and gastrointestinal and nervous disturbances. The clinical types most frequently observed were bronchopneumonia with disseminated foci and pseudolobular bronchopneumonia. There were a few cases of pseudotuberculous bronchopneumonia and of capillary bronchitis. In patients under 6 months of age there was a moderate leukocytosis with acute deviations of the nuclear index to the left, which was not observed in older infants. Roentgenograms taken in 58 cases showed diffuse bronchopneumonia with disseminated foci in 12 cases, local (pseudolobar) foci in 25 cases and hilar, perihilar bronchial and peribronchial types in 13. Purulent pleurisy, suppurative otitis media, anemia and purulent meningitis were frequent complications. Pneumococci, staphylococci, Hemophilus influenzae, streptococci and tetragenic bacteria in combination were present in several cases. Recovery took place in 8 of 25 who had nonspecific treatment, in 18 of 36 who had specific serums and antigens, in 3 of 7 who had sulfanilamide after administration of antigens and serums and in 18 of 30 who had sulfanilamide alone. Best results followed administration of sulfanilamide and blood transfusion. A diet rich in vitamins is important. Mortality was highest among the youngest patients and patients with capillary bronchitis. Mortality amounted to 68 per cent for patients who were given nonspecific treatment, to 50 per cent for patients given specific treatment and to 40 per cent for those treated with sulfanilamide.

### Brasil-Medico, Rio de Janeiro

56 125-134 (March 21) 1942 Partial Index

\*Pemphigus Foliaceus (Fogo Selvagem) and Gonadal Disorders J. Paulo Vieira, J. Ricardo Guimarães and Benedictus Mario Mourão —p. 125

**Pemphigus Foliaceus**—Paulo Vieira and his collaborators report observations on gonadal disturbances in two groups of 35 and 37 adult men, respectively, who suffered from pemphigus foliaceus. In the first group, 12 patients had a cryptorchism while 24 exhibited hypogonadism. In the second group, 27 patients were impotent, 5 had azoospermia and 4 had oligospermia. The only patient with normal sperm suffered from a benign type of the disease. His limbs were of the eunuchoid type. A regression of the disease occurred in 3 patients with oligospermia. The sexual function became normal as the disease regressed. The testicle descended in the 12 patients with

retained testicle after three injections of 5 mg each of testosterone. The descent of the testicle did not have any effect on the course of the disease. The author believes that there are two testicular hormones, insufficient production of which is the predisposing factor in the development of pemphigus foliaceus. The disease possibly may be controlled by removing the various associated endocrine disorders.

### Revista Cubana de Cardiología, Havana

3 67-122 (May-Dec) 1941 Partial Index

Acute Coronary Syndrome F. Rodriguez —p. 69

\*Action of Digitalis by Intravenous Route on Arrhythmia from Excitability D. M. Gomez Gimeranez, C. F. Gomez and G. Gomez and del Rio —p. 101

**Digitalis in Arrhythmia**—Gómez Gimeranez and his collaborators direct attention to the danger of intravenous injections of quinine and quinidine in the treatment of arrhythmia. These injections may cause sudden collapse. Intravenous injections of physostigmine and geneserine have several contraindications. The authors report good results from intravenous injections of total digitalis (injectable Digalen-Roche) in 7 cases of arrhythmia not associated with cardiac insufficiency. The number of previous attacks varied in the several cases between three and ten, with a duration of from three days to one month. The interval between the attacks varied from several months to eight years. The patients complained of sudden transient acute pain in the precordial region at the beginning of the attack. Diagnosis of the type of arrhythmia was made by the electrocardiogram. The various types of therapy commonly employed for the control of arrhythmia failed in these cases. Paroxysmal tachycardia was observed in 5. It was of either the infranodal or supranodal type with a frequency of about 180 to 200 heart beats per minute. The attack was controlled by one intravenous injection of digitalis in every case. There was a recurrent attack several months later in 1. This attack was likewise controlled by one intravenous injection of digitalis. Auricular flutter was observed in 2 cases. In 1 in which attacks lasted one month the condition was controlled by five intravenous injections of digitalis administered at intervals of twelve hours. In the other, a case of auricular flutter, the attack persisted after administration of fifteen intravenous injections given at twelve hour intervals. The heart rhythm became normal after administration of quinidine given by mouth in a daily dose of 1.5 Gm up to a total of 10 Gm. There appear to be no contraindications to intravenous injection of total digitalis. The treatment is well tolerated.

### Revista Española de Tuberculosis, Madrid

10 379-428 (July) 1941

\*Silicosis and Silicotuberculosis in Coal Miners R. Jalon Lasserre —p. 379

Clinical Study of the Syndromes of Tuberculous Intoxication D. I. Gonzalez Rubio —p. 422

**Silicosis and Silicotuberculosis in Coal Miners**—Jalon Lasserre presents an extensive review of the various aspects of silicosis and a discussion of association of tuberculosis with silicosis. His studies were made on 247 coal miners who had worked in the mines for more than five years. He detected 59 cases of silicosis (44 of pure silicosis and 15 of silicotuberculosis). He classifies the workers into three groups according to the type of work they performed. The first group of 104 workers included men performing various types of work. The second group of 67 workers included coal cutters. The third group included 76 men who were drillers and cutters of rock. Anthracosis may develop in coal cutters who have been working in mines for a sufficient length of time, but it does not seem to produce characteristic roentgenologic changes or a special symptomatology. In coal miners who by the nature of their work are subjected to constant and prolonged inhalation of coal dust (coal cutters) the development of pulmonary silicosis seems to be retarded or attenuated. The incidence of silicosis among coal miners deserves attention only among the drillers and cutters who work on rock and in miners who have worked inside the mine for many years (more than 30 in the author's cases). The incidence of silicosis, as well as its severity, is

directly related to the length of exposure to the harmful mine dust (stone dust). The incidence of silicosis and silicotuberculosis is greater in the asthmatic type. Anatomic defects or chronic pathologic processes of the upper air passages particularly of the nose and the pharynx, greatly favor the early appearance of silicosis. The incidence of tuberculosis is not greater among the coal miners of the Asturias than among the male population who are not miners. The incidence of tuberculosis appears to be less among the coal cutters than among the other workers active inside the mines. The sedimentation speed of the erythrocytes is normal in the majority of cases of simple silicosis and is only slightly accelerated in some, this contrasts with cases of silicotuberculosis, in which it is nearly always greatly accelerated. Speed of sedimentation is of great value together with the clinical and roentgenologic data in the establishment of a differential diagnosis between silicosis and silicotuberculosis.

### Revista de Tuberculosis, Lima

1 129-258 (Oct-Jan) 1942 Partial Index

Bronchography with Leroux's Simplified Permeal Technique M Espinoza Galarza—p 142

\*Opaque Pneumothorax J Descalzo—p 151

**Opaque Pneumothorax.**—According to Descalzo, opaque pneumothorax is rare. The condition is seen in the course of artificial pneumothorax. The roentgen picture was first described by Cardis and Bourguignon in 1931 (*Arch med-chir de l'app respir* 6 422, 1931). It consists in a uniform intrapleural opacity which is in contrast with the clear shadow given by the collapsed parenchyma of the lung. During fluoroscopy a false impression of the disappearance of a large zone of the lung parenchyma is obtained. If the patient is asked to take a deep breath, the border of the collapsed lung can be observed on the screen. In the 2 cases reported by the author opaque pneumothorax was due to the presence of a parietal pachypleuritis with pleural adhesions and emphysema of the collapsed pulmonary parenchyma. In the course of air insufflations the air space exhibited a tendency to progressive diminution. In 1 of the cases the roentgen image of opaque pneumothorax which appeared in the course of artificial pneumothorax disappeared later on. It was followed by appearance of a normal roentgen image of artificial pneumothorax. In this case artificial pneumothorax resulted in complete healing of the tuberculous lesions which did not reappear when the pneumothorax disappeared.

### Revista de Tuberculosis del Uruguay, Montevideo

10 81-160 (No 2) 1941 Partial Index

Action of Phrenicectomy in a Patient with Parahilar Pulmonary Tuberculosis J Armando Sciuto—p 100

\*Calcifications and Their Significance in Reinfection with Pulmonary Tuberculosis A Sarno and A C Artagaveytia—p 104

Results of Tuberculin Patch Test in Children and Adults with Tuberculous Lesions P Cantonnet Blanch H Mourigan and J A Radice—p 118

**Calcifications and Reinfection in Pulmonary Tuberculosis.**—Sarno and Artagaveytia discuss the relation of calcification of pulmonary or lymph node tuberculous lesions and tuberculous reinfection. They had studied four thousand chest roentgenograms of persons between the ages of 15 and 60 years and five hundred chest roentgenograms of children. Calcifications were noted in 144 adults (36 per cent) and in 50 children (10 per cent). Pulmonary tuberculosis was present in 81 adults whose roentgenograms exhibited calcifications. The exudative were the most frequent types of reinfection observed (50.6 per cent). Productive forms in reinfection were seen in 23.4 per cent. Apical calcifications were accompanied by pulmonary tuberculosis with greater frequency than those at any other pulmonary or lymph node site. Calcifications are more frequent in children than in young adults, and more frequent in the latter than in older adults. Girls and women exhibit a greater tendency to the formation of calcifications than do boys and men. The authors believe that the larger number of cases of reinfection are nothing more than cases of reactivation of calcified foci of primary infection.

### Wiener medizinische Wochenschrift, Vienna

91 849-866 (Oct 18) 1941

Modern Treatment of Epilepsy T von Lehotsky and A Dobos—p 849

Treatment of Hepatic Diseases with Liver Extracts J Schifferer—p 856

\*Rare Cause of Duodenal Occlusion Internal Retroduodenal Hernia I Fagarasanu—p 857

Read's Formula for Basal Metabolic Rate in Insulin Therapy D T Dimitrijević—p 861

**Internal Retroduodenal Hernia.**—Fagarasanu reports a man, aged 38 who was operated on for duodenal occlusion. The closure was caused by an internal hernia, a jejunal loop becoming incarcerated in a deep peritoneal depression located behind the horizontal part of the duodenum to the left of the mesentery. This depression, bounded on the right and left by peritoneal folds was discovered in 1893 by Jannet in 2 cadavers and was described as recessus retroduodenalis or recessus retroduodenopancreaticus. The case is noteworthy because this localization has never been mentioned in the literature. The hitherto reported duodenal hernias concerned those into the superior, inferior or paraduodenal recesses. The recessus retroduodenopancreaticus, like the other periduodenal recesses, is the result of an incomplete adhesion of the duodenal peritoneum. Under certain conditions a loop of the small intestine can slip through the opening behind the duodenum and under the pancreas and thus produce a retroduodenopancreatic hernia. The resulting symptoms are more those of a duodenal closure than of an internal hernia. Since the retroduodenopancreatic recess is comparatively frequent, it may be assumed that these cases are not as rare as the earlier literature seems to indicate. It is likely that occasionally internal hernia is produced by an intestinal loop engaging in this recess but that at the time of the operation a mild pull liberates the incarcerated loop and the hernial aperture is no longer apparent.

### Acta Dermato-Venereologica, Stockholm

22 401-498 (Nov) 1941

Effect of Turpentine Oil on Normal and Hypersensitive Skins I Rokstad and P Bonnevie—p 401

\*Simple Method for Treatment of Scabies in Women T E Ohlin—p 452

\*Ambulatory Treatment of Uncomplicated Gonorrhea with Sulfathiazole with the Two Day Treatment According to Miescher H Pfisterer—p 455

**Treatment of Scabies in Women.**—Ohlin treats scabies by inunctions with xylene, but he recommends this procedure only for women. The xylene is rubbed on by hand. It is applied twice in succession without preparation of the skin in any way. On the following day the inunction is repeated and the clothing is changed. No bath is given. The author employed this treatment in about 40 women and observed no irritations. In only 4 of the cases did the cure have to be repeated. The advantages of the method are that it is short, simple and inexpensive and that it does not stain the clothing. The method can be employed in all uncomplicated cases, even in the presence of scratches, but not in the presence of dermatitis. In men the treatment is not as effective as in women, probably because of the tougher skin. Furthermore, xylene causes intolerable burning in the scrotal region.

**Two Day Sulfathiazole Treatment of Gonorrhea.**—Pfisterer cites results obtained by Miescher and others with the two day sulfathiazole treatment and presents his own experiences with the method. He employed it in the ambulatory manner in 100 of a total of 143 cases of gonorrhea observed at the Zurich polyclinic. The gonorrhea was uncomplicated. The patients were given five times two tablets on each of two successive days. Local treatment was dispensed with. The treatment resulted in a cure in 95 of the cases. The 5 patients in whom it failed were cured by a second course of sulfathiazole. Complicated cases of gonorrhea and those that fail to respond to the first two day sulfathiazole therapy should be treated for four days with continuous doses (four times ten tablets). Local treatment is unnecessary. The complete absence of grave secondary effects, the rarity of complications, the brevity of the treatment and the small doses demonstrate the advantages of the drug and of Miescher's two day method.



## Book Notices

**Textbook of Clinical Parasitology Including Laboratory Identification and Technic** By David L. Belding, M.D., Professor of Bacteriology and Experimental Pathology, Boston University School of Medicine, Boston. Cloth. Price, \$8.50. Pp. 888, with 1438 illustrations. New York & London: D. Appleton-Century Company, Incorporated, 1942.

Many of the treatises on parasitology have had their origin from biologic and academic backgrounds without medical experience on the part of their authors. They therefore lack the physician's approach in the discussions of pathogenesis, prognosis and treatment. This book is a notable exception to these limitations. Its author is professor of bacteriology and experimental pathology in Boston University School of Medicine and a member of the staff of the Evans Memorial Hospital and the Massachusetts Memorial Hospitals. From this dual background of both teaching and practice this book had its origin. It is a finely organized treatise in both text and illustrations as well as in the use of tables and assembled figures, which facilitate comparisons important in diagnosis and in the identification of species. The scope of the book includes the entire range of the parasitic infections of man with more extended accounts of the commoner and most important ones. The topical arrangement of the discussion of each species includes the generic and specific names with authorities and dates, synonyms, disease, history, geographic distribution, biologic characteristics including morphology and physiology, life cycle, pathogenesis including pathology and symptomatology, diagnosis, prognosis and treatment, prevention, epidemiology and prophylaxis. In addition to the forty-two chapters containing the systematic treatment of nearly a hundred different species parasitic in man, and discussions of the larger systematic groups, there are chapters on general subjects such as parasites and parasitism, pathology of parasitic infections, immunity, transmission and technical methods for the diagnosis, treatment and prevention of parasitic diseases. There is a bibliography and indexes of authors and subjects. The text is noteworthy for being up to date in all fields. The style is direct, simple and clear. The work is a model textbook in every particular and a credit alike to its author and the publishers and should be in the library of every physician and clinical laboratory. It is an indispensable work of reference for every biologist.

**Diseases of the Skin** By Frank Crozer Knowles, M.D., Professor of Dermatology, Jefferson Medical College, Philadelphia, Edward F. Corson, M.D., Clinical Professor of Dermatology, Jefferson Medical College, and Henry B. Decker, M.D., Assistant Professor of Dermatology, Jefferson Medical College. Fourth edition. Cloth. Price \$8. Pp. 621 with 272 illustrations. Philadelphia: Lea & Febiger, 1942.

Dr. Knowles and his new collaborators have tried diligently to cram an abundance of information between the covers of a small textbook, but the result is disappointing. To weigh the general data of a subject, to accept the important and reject the immaterial, is a subtle task, demanding a quality of astute discrimination which marks good teachers and good authors. The authors of this revision, however, in a zealous attempt to bring the work up to date, have inserted into the pages indiscriminately, or at least uncritically, abstracts of papers published during the last few years. Many insignificant items are therefore included, but, curiously, a number of really illuminating contributions to the recent dermatologic literature are not mentioned. Several of the shorter sections, dealing with rare conditions, serve no useful function because of their meager outlines and lack of illustrations. In a textbook intended for students and general practitioners it is redundant to include minutiae which often hold little interest even for dermatologists.

The morphologic accounts of most of the major dermatoses, including the syphilids, are well and concisely done. A few classifications are frankly erroneous, such as the listing of lupus vulgaris erythematodes as a rare form of lupus erythematosus, the inclusion of pseudoxanthoma elasticum among the xanthomas, and the designation of pellagra as a manifestation of avitaminosis B<sub>2</sub> (G). Dermatologists will take issue with some of the concepts expressed and some of the factual data, but in general the authors adhere closely to conventional lines.

While the book covers a great deal of ground, considering its size it is unfortunately devoid of freshness and inspiration.

The writing is still painfully awkward in spots, careless, disjointed, unpolished, often ungrammatical. Such editorial laxity in a fourth edition is inexcusable. Prescriptions are given in a hybrid Latin, with improvised endings, casual abbreviations and liberal admixtures of English. It is difficult to understand why, in the absence of intimacy with accurate Latin terminology, the authors have not simply written the formulas in English. A glossary is essential to a book of this scope, and one is lacking. It must be added finally that the index is incomplete.

**The Eye Manifestations of Internal Diseases** By I. S. Tassman, M.D., Associate Professor of Ophthalmology, Graduate School of Medicine, University of Pennsylvania, Philadelphia. Cloth. Price \$9.50. Pp. 542, with 201 illustrations. St. Louis: C. V. Mosby Company, 1942.

There has long been a need for a modern, comprehensive textbook which would consider exhaustively the ocular manifestations of internal diseases. In complete detail, with simple concise style, the author has provided a most excellent contribution in this first edition which would "meet the needs of the ophthalmologist and all others engaged either in general or specialized practice." The first part of the text, including the first five chapters, provides a description of the normal structure of the eye, a general description of the causes of eye manifestations and two chapters devoted to the structural abnormalities and manifestations. The second part presents the essential description of the eye manifestations of a different disease or system of diseases in each chapter. An effort is made to describe all the important features of the ocular condition, as well as the management, treatment and prognosis, and also to include the results of the most recent investigations and references to work of recognized authors. In the "congenital and hereditary manifestations" in a separate chapter is a description of the ocular manifestations found in the more important hereditary and hereditary diseases, in addition to a description of congenital eye malformations and anatomic defects of development. The eye manifestations of infections and the infectious diseases include those of all the acute and chronic infectious diseases, with separate chapters on such important subjects as syphilis and tuberculosis, both of which are excellently considered. The other infections are grouped as "virus infections," "fungus infections," "ocular parasites and parasitic infections" and "focal infections." A separate and detailed chapter is devoted to the eye manifestations of the important drug and chemical intoxications. The succeeding chapters deal with the eye manifestations of nearly every disease from those of the cardiovascular system to the diseases affecting the bones of the skull. The illustrations are adequate and there are nineteen excellent color reproductions. A short bibliography, mainly of American authors, follows each chapter, and an extensive index concludes the work. This textbook is easy and pleasurable to read. It is concisely but adequately presented by an authority on the subject.

**Spontaneous and Experimental Leukemia in Animals** By Julius Fugelbreth-Holm, M.D., Director of the Cancer Research Laboratory of the Danish Anti-Cancer League. Translated from Danish into English by C. L. Heel. Cloth. Price 15s. Pp. 245 with 44 illustrations. Edinburgh & London: Oliver & Boyd, 1942.

This book is published by the Lady Tata Memorial Trust, which since 1932 has supported researches on diseases of the blood, especially leukemia. Contributions have been made by investigators thus assisted in various countries. The manuscript was written in Danish and ably translated into English by C. L. Heel. The introduction deals succinctly with the history and the classification of leukemia. Human leukemia was recognized in 1845, when Bennett described a case of "suppuration of the blood," Craigie reported a case of "purulent matter in the blood" and Virchow published his important observations on white blood ("weisses Blut"). Following Leisner's report in 1858 of a case of leukemia in a horse some reports of leukemia in different kinds of animals, and in 1908 Ellermann and Bang transmitted the disease from leukemic to healthy birds, thus introducing the experimental study of leukemia. The book reviews the accumulated, widely scattered knowledge of spontaneous and experimental leukemia in animals (birds and mammals). The results of the studies of animal leukemia bear directly on the human disease as well as on problems of poultry husbandry. The transmission experiments, the virus of 161



leukemia, the role of heredity in the spontaneous disease and in the transmitted mouse disease and the attempts to produce leukemia experimentally receive thorough and critical consideration. The final chapter deals with the nature of animal leukemia and its relation to leukemia in man. "Altogether there can be no legitimate grounds for doubt that leukemia in animals, especially in mice is the same disease as leukemia in man. The peculiar features presented by the disease in some species especially birds are more reasonably explained as being due to the special characteristics of these species than to the possibility that fowl leukemia for example is a disease of an entirely different nature from leukemia in other animals or in man. With the solution of the problem of human leukemia as the final goal the study of the nature of the disease and of its various features in animals must therefore be regarded as abundantly justified since the results attained are likely at the same time to elucidate the corresponding features in leukemia in man." The book will be of help to any one interested in the advance of our knowledge of leukemia.

**Analysis of Human Motion. A Textbook in Kinesiology.** By M. Clady. Scott. Cloth. Price \$3.90. Pp. 388 with 87 illustrations. New York: F. S. Crofts & Co. 1942.

The mechanics of human motion—kinesiology—is now a required subject in the curriculum in physical education in most universities. Full understanding of the subject would demand a good groundwork in anatomy and in mechanics. Unfortunately the instructor in kinesiology must expect that the majority of his students will have little exact knowledge of anatomy and less of mechanics. Any textbook of the subject therefore must represent a compromise in which difficult details are diluted with elementary facts.

The present book is not exceptional in this regard. Little is taken for granted, and both simple and complex motions are explained in detail. The fact that these explanations are generally clear and intelligible is a tribute to the author's skill in verbal presentation. The author's task could have been simplified—with benefit to the reader—by much more extensive use of illustrations. It must be supposed that full appreciation of the mechanics of many of the motions discussed will need physical reenactment by the instructor.

Most emphasis is given on the action of levers, antagonistic muscles and the position of the center of gravity. Relatively little attention is given to more truly kinetic aspects such as speed of movement and momentum. The section on injuries is short and unadorned with a single illustration. The general treatment frequently gives the impression of verbosity. Even when the facts are unfamiliar the mature reader is apt to resent being reminded of the obvious too often. Though much of the subject matter is of intrinsic interest and is accurately stated, it is likely that few parts of the book would satisfy the average medical student or physician. The fact is of course that the book is not designed for such readers. It may be questioned, however, whether these criticisms may not apply to some extent to the use of the book by physical education students.

Physical education has long been striving for increased academic recognition. There are two directions of development—the pedagogic and the scientific. Thus far the latter has been sadly neglected. Kinesiology would seem to be an ideal subject with which to bring the impact of science to the earnest student of physical education. The merits of the present textbook for this purpose are considerable. Its weakness must be ascribed primarily to the limitations of the general curriculum in physical education.

**Lane Medical Lectures. The Lymphatic System. Its Part in Regulation of Composition and Volume of Tissue Fluid.** By Cecil K. Drinker. Professor of Physiology, Harvard University, Boston. Stanford University Publications, University Series, Medical Sciences, Volume IV, Number 2. Price cloth \$2.25, paper \$1.50. Pp. 101 with 29 illustrations. Stanford University, Stanford University Press, London, Oxford University Press, 1942.

It is only in recent years and in large measure because of the work of Drinker and his co-workers that the neglected field of the physiology of lymph production has again received the attention it deserves. In this concise volume Drinker has attempted "to describe a world never entered by the three-

deckers we call medical texts, one of which I had just helped to perpetrate." In an interesting introductory section the author traces the evolution of the mammalian circulation and the appearance and elaboration of lymphatic vessels. For specific discussion he has selected the formation of lymph as illustrated by experiments on the heart and lungs. Clinicians will be interested in Drinker's interpretations of the role of the lymphatics in such events as the formation of pulmonary edema, pneumoconiosis and the healing of wounds. The book is most readable and combines witness with scholarship of presentation to an unusual extent.

**The Electrocardiogram and X-Ray Configuration of the Heart.** By Arthur M. Master, B.S., M.D., F.A.C.P., Cardiologist to the Mount Sinai Hospital, New York. Second edition. Fabrikoid. Price \$7.50. Pp. 404 with 163 illustrations. Philadelphia: Lea & Febiger, 1942.

To those already familiar with the first edition of this book, great pleasure will come from reading and studying this amplified volume. The work, concerning itself with the correlation of the electrocardiogram and the x-ray configuration of the heart, is an important contribution to the science of cardiology. The comprehensiveness of the volume soon becomes apparent to the reader for no important phase of heart disease has been omitted. The stress placed on normal variations, both in the electrocardiogram and in the x-ray silhouette of the heart, is most commendable because the range of normal so frequently escapes the attention of those using these methods of examination. This lack of understanding leads to many diagnostic errors on the side both of omission and of commission. For instance the author clearly discusses and illustrates the changes occurring in the various periods of life, the changes resulting from respiration changes in position of the body, habitus, and so on. Virtually every pathologic state and combination of pathologic conditions is considered in a logical and orderly manner. In the concluding phase of the book the effects of digitalis are clearly discussed, a subject which continues to need emphasis. The format of the book is excellent, the constant comparison of the cardiac silhouette and electrocardiogram is extremely instructive and the reproduction of the illustrations is excellent. While the difficulty of selecting suitable cases which have been verified by postmortem examination is realized, many of the cases presented in this work would exhibit themselves with greater authority had this been possible. This is particularly true in cases of congenital cardiac defects in which multiple lesions are the rule as well as in chronic cor pulmonale, in which more than one pathologic entity commonly contributes to the ultimate cardiac picture. The book can be highly recommended to all physicians interested in diseases of the heart. It should be carefully studied by every internist and certainly should be an inspiration to the medical student.

**Reaccion de Takata-Ara en el líquido céfalo raquídeo. Contribucion a su estudio.** Por el Dr. Jorge Bulló. Tesis de doctorado. Universidad Nacional de Buenos Aires. Facultad de ciencias medicas. Paper. Pp. 99 with 3 illustrations. Buenos Aires: Aniceto Lopez, 1941.

This monograph, which was submitted by the author as a doctorate thesis to the faculty of medical science of the University of Buenos Aires, deals with a study of the Takata-Ara reaction of the cerebrospinal fluid. The reaction was described in 1926 and consists in the addition of 1 drop of 10 per cent sodium bicarbonate solution to 1 cc. of cerebrospinal fluid, to which is added 0.3 cc. of a fresh mixture of equal parts of 0.5 per cent mercury bichloride solution and 0.02 per cent fuchsin solution. Normal cerebrospinal fluid has a blue-violet color without flocculation. In metasyphilitic conditions the fluid is clear like water with a blue-violet sediment below it. In meningitis there is a rose color to the fluid without any precipitation. The degree of precipitate is indicated as 1 plus to 4 plus. The present study consisted in a comparison of the various qualitative globulin tests, the colloidal gold test and the Wassermann test with the Takata-Ara reaction, the latter having been carried out both in its original one test tube method and in various dilutions. On the basis of a large series of normal and pathologic fluids the author reaches the conclusion that the Takata-Ara reaction is very valuable in the diagnosis of metasyphilis and of meningitis and should be employed routinely in the examination of cerebrospinal fluid.

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

### LATENT SYPHILIS AND BLOOD TRANSFUSION

**To the Editor**—There seems to be considerable difference of opinion among medical men on the question: Will the Wassermann 4 plus blood of a person with latent syphilis (primary lesion ten years ago), if given by transfusion to a normal person, result in syphilis in the recipient or in a 4 plus Wassermann reaction in the blood of the recipient?

M D, West Virginia

**ANSWER**—There is some difference of opinion as to the safety of the blood taken from a patient with latent syphilis and used for transfusion purposes (Morgan, H J. Factors Conditioning the Transmission of Syphilis by Blood Transfusion, *Am J M Sc* 189 808 [June] 1935). Morgan is rather inclined to think that with late latent syphilis there is not much danger of transmission of the disease.

On the other hand, Klauder and Butterworth (Accidental Transmission of Syphilis by Blood Transfusion, *Am J Syph, Gonorr & Ven Dis* 21 652 [Nov] 1937) have reviewed the subject and state that, since 1915, reports of 33 cases of transfusion syphilis have been published (of course there are hundreds of them that have not been published). In the majority of cases of transfusion syphilis they believe that the donors, in contrast to the view of Morgan, were in the latent stage of the disease. It is true that in latent syphilis the disease is more or less submerged and quiescent, and most of the spirochetes are probably found in lymph nodes, in the bone marrow and perhaps in the walls of small vessels supplying the larger arteries. There is a possibility that from time to time a few organisms may get out into the general circulation and, if this was to happen, naturally the donee would contract syphilis.

It is probably better never to use the blood of a syphilitic person for transfusion purposes, and if this contingency has arisen the patient should be followed carefully for the next eight to ten weeks. If the serologic reaction becomes positive it indicates the presence of syphilis. It is true that a child may be born to a person with late latent syphilis and that the cord blood will show a positive serologic reaction and that later, within a period of two to three months, the serologic reaction may return to negative, indicating that the cord blood Wassermann reaction was simply a reflection of the mother's blood reaction, not necessarily indicating that the child had syphilis. However, the amount of blood that is furnished to a donee would not be large enough to change the serologic reaction, and if such a change has occurred it indicates that this patient has contracted syphilis.

### SO-CALLED DIABETIC CURES

**To the Editor**—One of my patients heard about ragweed leaf extracts as a remedy for diabetes. Have you any information on this subject?

R R Sullivan, M D, Lakeland, Fla

**ANSWER**—Every physician interested in the treatment of diabetes mellitus receives numerous queries from patients regarding "cures" or "substitutes for insulin" or "insulin which can be taken by mouth." There is no specific information regarding the particular leaf extract mentioned in the query. It is, however, but one of hundreds of similar extracts, some of which have been studied in detail and none of which have proved of any practical importance. Whenever such an extract is reported to have helped control diabetes mellitus, it can be safely assumed that its effect has been due to the diet (which usually is prescribed with the nostrum), to a diuretic effect (decreasing the amount of sugar in an individual specimen but not affecting the total excretion) or to other extraneous factors. Wilder recorded that some extracts of plants do have a sugar depressing principle, but they have not proved of practical importance. These were reported by Collip and later by Best and Scott. Myrtillin, an extract of blueberry leaf, was studied carefully, particularly by Allen. Numerous substances of this nature are included in the monograph on insulin by Hill and Howitt. The Chinese, of course, long have studied the effect of plant extracts, some of which are discussed by King and his associates. Another reported plant extract with

hypoglycemic potency is one from the roots of the shrub called "devil's club" (*Fatsia horrida*), which, it is reported has been used for centuries by the Indians of British Columbia.

Guandine derivatives, synthaline and neosynthaline, have been given a thorough clinical trial and have been discarded.

Regarding the administration of insulin, Joslin and his associates have stated that "many methods for the introduction of insulin into the body other than by the needle, subcutaneously or intravenously, have been tried without practical success. Major (*Am J M Sc* 192 257 [Aug] 1936, *Proc Soc Exper Biol & Med* 34 775 [June] 1936, 37 338 [Nov] 1937, 38 721 [June] 1938) has mixed insulin with diethylene glycol monoethyl ether, and when thus mixed it can be introduced by rubbing into the skin in animals with a resultant fall in blood sugar. He has also shown the absorption in 92 per cent of experiments on diabetic dogs in which he has inserted pinacol tablets into the intestinal loop. Hermann and Kassowitz (*Klin Wchenschr* 15 129 [Jan 25] 1936), using animals, and Pribram (*ibid* 14 1534 [Oct 26] 1935), in a group of 20 diabetic patients have demonstrated the percutaneous action of insulin applied in an ointment. All methods of introduction, such as the conjunctival, oral, rectal, vaginal and by inunction, have failed to be clinically useful because large amounts of insulin are required to produce even variable or slight effects on the blood sugar. (A recent report is that of Brahm [*Lancet* 1 829 (May 4) 1940], who studied the effect of insulin suppositories [rectal] on the blood sugar of rabbits and normal persons. He found that the action sets in quickly, attaining its maximum in thirty to forty minutes, the duration of effect is from one to two hours. He quotes Wuhrmann [*Schweiz med Wchenschr* 69 35, 787, 1939] as finding that one suppository unit is equivalent to about ten injection units.)

"Insulin is a protein and as such is broken down by the digestive juices of the stomach and intestine. When this happens, potency is lost. Preparations on the market claiming to control diabetes when taken orally are, by and large, quack medicines, and advertisements of such products are barred from reputable medical journals. To date insulin administered subcutaneously is the only agent available which affords treatment specific for diabetes.

"Although attempts to date to secure absorption of insulin from the gastrointestinal tract have been unsuccessful from a practical point of view, much has been done in the way of investigation with this in mind. Murlin and his associates (*Am J Physiol* 126 P480 [July] 1939) have for years carried out studies with the object of finding some way in which to protect the insulin molecule from the destructive action of the digestive juices and to facilitate its absorption through the intestinal wall. These and other workers have found that in general there are three classes of substances which are effective: (1) alkyl derivatives of resorcinol, (2) glycol derivatives and (3) sapogenins. Favorable effects seem to depend in part on surface action (the resorcinols and the sapogenins lower surface tension) and in part on the presence of hydrophilic and hydrophobic groups. Calcium reduces intestinal permeability, consequently agents such as sodium hexameta phosphate which combine with calcium favor absorption. The most recent report of the Rochester workers (Murlin, Gibbs, Romansky, Steinhausen and Truak, *J Clin Investigation* 19 709 [Sept] 1940) describes their results with an insulin hexylresorcinol mixture given to 20 human patients with diabetes. They characterized their findings as 'only mildly encouraging'.

"Wilson, Sappington and Salter (*Endocrinology* 23 535 [Nov] 1938) have shown that the inactivation of insulin by proteolytic enzymes in vitro may be reversed in whole or in part. Under the conditions of their experiments, the oral administration of insulin preparations caused hypoglycemic coma or convulsions in mice within two hours after administration. The effective oral dose for 'undigested' insulin was about ninety times, and for 'digested' insulin about forty-five times, the subcutaneous dose. Iron salts increased the effectiveness of insulin preparations given orally.

"Insulin is effective when injected subcutaneously, intravenously or (as found in animal studies) intraperitoneally. Absorption from the rectum, vagina and skin is incomplete and uncertain. It has been reported that intratracheal application produces hypoglycemia though not so regularly as do hypodermic injections. The literature regarding these unusual modes of administration has been summarized by Jensen (*Insulin: Its Chemistry and Physiology*, New York, Commonwealth Fund, 1938).

It should be stated that at this time the only successful treatment of diabetes mellitus is based on prescribing the proper diet and the injection of insulin when it is necessary.

lives are lost when patients are encouraged to rely on "diabetic cures." It is true that these nostrums and extracts probably do not cause any harm to a patient suffering from mild diabetes (although they do no good), but they account for deaths, particularly when prescribed for children whose lives require the intelligent use of insulin by injection.

#### References

- Wilder R M. Clinical Diabetes Mellitus and Hyperinsulinism. Philadelphia W B Saunders Company 1940 p 159.  
 Colby J B. Glucocorticin. A New Hormone Present in Plant Tissue. Preliminary Paper. *J Biol Chem* 56: 513 (June) 1923.  
 Best C H and Scott D A. Insulin in Tissues Other Than the Pancreas. Preliminary Communication. *The Journal* Aug 4 1923 p 382.  
 Allen F M. Blueberry Leaf Extract. Physiological and Chemical Properties in Relation to Carbohydrate Metabolism. *ibid* Nov 5 1927 p 1577.  
 Hill D W and Howitt F O. Insulin. Its Production Purification and Physiological Action. London Hutchinson & Co Ltd 1936.  
 King I Pin Shih Yun Kuo and Yi Teng Ping. Etude de l'action hypoglycémisante de Rehmannia glutinosa, Alisma plantago, Serotifolia Oldhami, Atractylis ovata, Lycium chinense. *Comp rend Soc de biol* 123 1155 (Dec 19) 1936.  
 Large R G and Brocklesby H N. A Hypoglycemic Substance from Roots of the Devils Club (*Fatima Horrida*). *Canad M A J* 79 32 (July) 1938.  
 Schuler Bruno. Untersuchungen über die Behandlung der Zuckerkrankheit (IV. Mitteilung). *Klin Wchnschr* 17 77 (Jan 15) 1938.  
 Joslin E P, Root H F, White Priscilla and Varble Alexander. The Treatment of Diabetes Mellitus. ed 7. Philadelphia Lea & Febiger 1940 pp 323-324 151.

#### INHERITANCE OF SKIN COLOR

To the Editor—A small percentage of the men in the armed forces stationed in Trinidad are marrying native girls. The girls they are marrying are white in appearance. They are a mixture of English, Spanish, French and Portuguese with from one sixteenth to one thirty-second Negro. The men in question are 100 per cent occidental. This brings up the question as to whether a child born of such a marriage could be black. If so what are the mathematical possibilities of such a thing happening?

M D Trinidad British West Indies

ANSWER—The inheritance of skin color has been studied by Pearson (*Biometrika* 6 346 1909) Davenport (Pub 188, Carnegie Institution of Washington 1913) and Barnes (*Human Biol* 1 321, 1929) and their results are summarized by Lewis (The Biology of the Negro (Chicago University of Chicago Press 1942). The principal question involved in these studies is whether or not skin pigmentation is inherited according to mendelian law. Pearson was of the opinion that the inheritance is by blending, since skin color is not segregated in the offspring of mixed parents in the manner that he believed was called for by mendelian law although it is obvious that he had in mind what is today known as one factor mendelian heredity. Davenport pointed out the probability that two factors are involved. He tested this hypothesis by a study of the pedigrees and skin colors of one hundred and six different families in Bermuda, Jamaica and Louisiana in which there were Negro-white crosses. From an analysis of his data concerning the color of offspring in the second generation he established five grades of color representing seven different genotypes. The full blooded Negro was given the gametic formula *AABB* (two double factors for black) and pure Caucasian was given the formula *aabb* (absence of factors for black). The gametic formula *Aobb* was assigned to light colored individuals *AAbb* or *AaBb* to the medium colored and *AABb* or *AaBB* to the dark colored. Davenport further showed that with his five grades of skin color there are twenty-six possible matings between them. If the matings are considered to be between genotypes instead of between grades of color and if the genotypes *aaBb* and *aaBB*, which he omitted, are included, there are eighty-one possible matings between the nine genotypes. Davenport presented data relative to seventeen of the possible matings and showed that the actual occurrence of color grades among the offspring closely approximated that predictable by mendelian two factor heredity. Among his findings was the observation that white fathers (*aabb*) and light colored mothers (*Aabb* or *aABb*) in twenty-two such matings produced fifty-six children of the same grade of color as the white parent, eighty children of the same grade of color as the colored parent, and one child darker than the colored parent. In the second or subsequent generations of mixed matings, skin color may be completely segregated so that among the offspring can be found individuals with skin color identical with that of pure Caucasians or pure Negroes. These so-called extracted whites or extracted Negroes will breed true when crossed with similarly extracted mates of the same color or with pure bred mates of the same race. Davenport also investigated in Jamaica the popular belief that black

children might be born to a purebred white married to an extracted white. Replies received to inquiries concerning this happening agreed in holding the idea of "reversion to black" to be mythical. He thought it might have arisen from the fact that two very light colored persons can be the parents of a medium colored child. It is improbable, from Davenport's findings, that factors for black are contained in the genes of a person who is one sixteenth or one thirty-second Negro, representing the third or fourth generation after the Negro-white cross, provided the mating at each generation was with an individual with no factor for black.

#### PAINFUL GUMS FROM DENTURE

To the Editor—I am wearing a complete lower denture. The teeth were extracted several months ago. Healing has been complete for a long time. The denture fits well yet the gums are tender and painful while I am wearing the denture. The upper denture is worn with ease, as the upper gums are not sensitive. Can you suggest some local application that might harden the lower gums and give me the comfort of the upper? The suggestions of our local dentist do not overcome the condition. Hardening of the gum tissue would be the solution. M D South Carolina

ANSWER—The condition of the gums as described may be due to a slight malocclusion of the teeth resulting either from a change which may have occurred since the placing of the lower denture or the acceptance of an incorrect record of the positional relation of the lower jaw.

The unbalanced occlusion produces localized excessive pressure, this in turn traumatizes the mucosa or gum tissue.

There are two corrective treatments that may be employed. The first is a new registration of the position of the lower denture in its relation to the upper, a remounting of the denture followed by a diagnosis of the type and magnitude of the malocclusion and its correction by spot grinding and milling in with an abrasive paste.

The second is a relining and rebasing of the lower denture and the correction of the malocclusion by transposing the lower arch on the new model cast into the reline impression. This also calls for a mounting on an adjustable articulator.

There is no effective treatment for hardening gums. Rinsing the mouth with salt water helps to alleviate soreness.

#### SCLEROSING SOLUTIONS

To the Editor—Please inform me as to what material is now considered the best agent for sclerosing veins.

W D Bretz M D Huntingburg Ind

ANSWER—No single solution fits all situations. Fifty per cent dextrose solution is safest for the fine spider bursts. A mixture of 50 per cent dextrose and 20 per cent sodium chloride has given the best results in injecting the distal stumps of ligated veins. A whole group of oleates is available for segmental injection of large or medium sized varices, of these, potassium oleate in 5 and 10 per cent concentration has proved to be a stable, dependable drug. Sodium morrhuate produces sensitization reaction more often than the others. Quinine and sodium salicylate are quite caustic and produce sloughs more easily. The amount of solution used must be adapted to the size of the vein and to the reactivity of its wall, which must be tested by small preliminary doses in patients suspected of harboring latent infection.

#### DENTURES AND DERMATITIS

To the Editor—A patient has been using a mixture of acetone in the making up of dentures in a dental laboratory. He has had from time to time a rash on the hands with peeling. At the present he has a rash on the back which is better when he is away from work a few days. Do you think the acetone could be the irritating factor and if so are there any suggestions for treatment which do not consist of changing occupation?

M D, Wisconsin

ANSWER—Acetone causes comparatively little in the way of eruptions on the skin. The compounds from which the dentures are made would in all probability prove to be a greater source of irritation. An article by Dr Everett S Lan appearing in the *Archives of Dermatology and Syphilology* in January 1932 itemizes the number of substances in material used for dentures. Undoubtedly others have been developed since this article was written. The patient should have some patch tests made with the various substances with which he is coming in contact, these tests to be made by a competent dermatologist in an endeavor to determine the exact agent if it is possible to do so. With this information, possible preventive measures could be developed. Such measures would depend entirely on the substance found, and some such program should be followed before giving up one's occupation.

## PROBABLE DYNAMIC ILEUS

To the Editor—A white woman aged 49 complains of severe attacks of pain in the epigastrium of eight years' duration, accompanied by severe nausea and vomiting. Attacks come on at intervals of one week to three months. They last usually twelve hours but have lasted as long as five days. Intravenous dextrose solution has been necessary on several occasions because of dehydration caused by vomiting. Pain and nausea do not appear to be influenced by medication. As much as 1 grain (0.065 Gm) of morphine, 1/50 grain (0.001 Gm) of scopolamine and 6 grains (0.4 Gm) of soluble pentobarbital were given over a twenty-four hour period with practically no relief. After the attack is over, the patient appears entirely well and is free from any symptoms until the next attack appears. Menses have been normal and still appear at intervals of twenty-eight days. She is the mother of two children aged 18 and 24. She is frail, weighs 110 pounds (50 Kg), is 5 feet 5 inches (165 cm) in height, her blood pressure is 110 systolic and 80 diastolic, her abdomen is negative to palpation and her reflexes are hyperactive. The hemoglobin is 12 Gm and the urine is normal. X-ray examination is negative for disease of the gastrointestinal tract. Repeated roentgenograms of the gallbladder with dye have been essentially negative. Examinations by a neurologist were negative for organic disease. Genitourinary examination by a urologist was negative. A surgical consultant did not recommend an exploratory laparotomy. Recently the attacks have come on more frequently and have caused the patient to lose a good position where she had been employed for the past five years. The last attack awakened her from a sound sleep. Dieting with the Rowe elimination diet for allergy gave essentially negative results. At present she is getting a proprietary preparation for the control of autonomic nervous disorders, which does not appear to have any effect on the occurrence of the attacks. What is your advice as to further conduct of this case?

M D, Tennessee

ANSWER—From the story of severe attacks of pain in the epigastrium accompanied by nausea and vomiting occurring at increasingly frequent intervals with complete relief of symptoms between attacks, one is forced to conclude that the condition is probably a functional one. The fact that all laboratory examinations reveal normal findings between attacks would substantiate this contention. One must in such a case rule out, of course, a spinal cord lesion, such as tabes, because in such an instance irritative lesions of the cord can give rise to similar symptoms. Certainly a lumbar puncture and examination of the spinal fluid are in order, although the negative examination by the neurologist would tend to rule this out. The most likely condition is that the patient has a dynamic ileus, resulting from severe spasm of the gastrointestinal musculature, a condition which occurs relatively infrequently but which has been repeatedly observed and for which frequently patients are operated on. Occasionally such attacks are precipitated by a sensitivity to tobacco, and, if the patient does smoke, it would seem desirable that she refrain from it. Because the attacks appear to be of a spastic nature, it would seem highly desirable to continue the use of the antispasmodics and during the attacks to use more drastic ones, such as glyceryl trinitrate.

## PULSATING FONTANEL

To the Editor—The anterior fontanel of my 4½ month old baby shows a barely visible pulsation when it is closely observed, it is more obvious when the child holds her head still and it is palpable, its rate of pulsation is roughly equal to the pulse rate. The measurements of the child's head are within normal limits, and the head does not appear disproportionate in size or shape. The child seems bright and normal for its age. There is a moderate incoordination of the eye movements. The child appears cross eyed at times, this condition has been present since the child was a few weeks old and consists in an inability to rotate the right eye completely externally (about 15 degrees) and the same eye is rotated about 10 degrees too far with medial rotation. The eyegrounds are not visualized. At the birth of the patient there was frank breech presentation (extraction and forceps on the aftercoming head) and the duration of labor was nineteen and one-half hours. There was no apparent undue trauma during delivery, but far one week after delivery the child had a transitory paresis of the right leg, which completely cleared up after ten to fourteen days. The following information would be greatly appreciated: 1. Is it normal to notice a pulsating fontanel in an infant at this age? If not normal, what investigation would be indicated? What conditions might cause this? 2. What significance would an attack to the eye condition? How soon would an eye examination be indicated? 3. Is a weight of 14 pounds (6.4 Kg) in an infant this age, whose height is 26 inches (66 cm), normal?

M D, California

ANSWER—1. The pulsation of the fontanel is due to the systolic impulse in the superior longitudinal sinus and is often seen in the normal infant as long as the anterior fontanel is open.

2. The eye condition described probably indicates a partial paresis of the right external rectus muscle. This often results from injury to the sixth nucleus at birth, most probably due to hemorrhage into or near the nucleus. In many cases normal function returns spontaneously within the first two years. Covering the good eye for one hour daily exercises the weak muscle and is generally recommended during infancy. No other treatment is indicated until the vision in the affected eye can be measured, which is at about 2 years of age. It seems probable that the paresis of the right leg was peripheral in origin and has no connection with the eye condition.

3. Fourteen pounds is the average normal weight of a 4 months baby. Twenty-six inches is higher than normal.

## SUBMAXILLARY MUMPS

To the Editor—My wife's sister teaches in a kindergarten in which there have been several cases of mumps. Several weeks ago she was taken ill with what her physician diagnosed as mumps, although the systemic symptoms were mild and the swelling mostly limited to the submaxillary glands. The day before the swelling appeared my wife and 2 year old boy intimately associated with her. Just two weeks after this single contact my wife complained of headache, malaise, slight fever and definite enlargement and tenderness of both submaxillaries. There was no parotid involvement, pharyngitis or cervical adenitis. Two days later I too developed a left submaxillary adenitis with definite though moderate swelling and tenderness. Is this a true "specific" submaxillary infection by the virus of specific parotitis? Is it often that the virus attacks the submaxillaries to the exclusion of the parotids or is this a peculiar "strain" of the virus? Neither of us had had mumps. Will this insure us of permanent immunity? In the absence of any symptoms of ovarion involvement is it still advisable to continue bed rest until complete subsidence of adenitis? My son so far has shown no symptoms. At what age does the natural immunity disappear?

M D, New Jersey

ANSWER—Apparently a submaxillary infection, as described, was due to the virus of epidemic parotitis. It is not a great rarity to see submaxillary mumps without apparent swelling of the parotid glands. Involvement of the submaxillary glands due to infection with the virus of mumps should establish immunity against the common form of epidemic parotitis. Notwithstanding this fact, patients frequently give histories indicating a unilateral attack of mumps, first on one side and several years later on the other.

There is no doubt that the patient should remain in bed until there is complete subsidence of the adenitis.

Mumps is uncommon under 2 years of age and is almost unknown under 1 year.

## DISTURBANCE OF LACRIMATION

To the Editor—A man aged 45 complains of a constant feeling of dryness in his eyes. The Schirmer test reveals a normal amount of lacrimal secretion. The appearance of the lids is not abnormal, and two careful checks on refraction and state of the muscles have been done with negative results. At times he has gushes of tears, which run down over the cheek and cloud his vision. These are usually not bilateral but only of one eye or the other. One such episode was brought on while using his eyes intently through a magnifying glass. Is there any specific syndrome or reflex which causes this momentary lacrimal increase, or any parasympathetic drugs that may be used in an effort to control it?

M D, Oklahoma

ANSWER—It is possible that the patient has some small corneal lesion, such as a small recurrent erosion, which might account for his symptoms. The sudden flow of tears in such a case might occur when the eye is held in a certain position which exposes the denuded area to the pressure of the lids. In such cases usually there is pain on awakening in the morning. A careful slit lamp examination after staining with fluorescein would reveal such a condition, if it is present. If such a finding is made, the use of olive oil at night and some ethyl morphine hydrochloride in increasing concentration might give relief. Even if no epithelial lesion is found, the use of ethyl morphine hydrochloride might give relief. There is probably a certain functional element present and every attempt ought to be made to reassure the patient that the attacks of lacrimation will have no deleterious effect on the sight. It might even be necessary to go into the history with the possibility of a psychoneurosis. No drug is known which is likely to have much effect on the secretion of the lacrimal gland in the direction of lessening it, although atropine, systemically, might possibly do so.

## INTRAPROSTATIC INJECTIONS OF MERCUROCHROME

To the Editor—In the March 28, 1942 issue of *Liberty* magazine there is an article entitled "Are Operations Necessary?" by Morris Markey, in which he states that a new method of treating prostatitis has come to light. It consists in injecting mercurochrome into the tissues of the gland. He further states that there have been more than six hundred injections with a complete cure percentage of about 70. What can you tell us about this?

Petersen, Bergmann and Jones, M D, Mattituck, L I, New York

ANSWER—The method of treating prostatitis described in the query is not a new one. As long as forty or fifty years ago drugs of various sorts were injected into the prostate. Solutions of iodine and ichthammol were used at that time. They were discontinued because they failed. Some years ago injections of mercurochrome into the prostate were used with a good deal of enthusiasm and a good deal of publicity. The method has practically passed out of use because it failed to cure the patient. The use of mercurochrome by intraprostatic injections is not of much value.



## THYMUS PREPARATION IN TREATMENT OF CANCER

To the Editor—Will you be kind enough to give me information regarding a thymus extract which is being used in the treatment of advanced cancer? I am informed that this extract is made from 6 week old calves and is being administered intravenously mixed with plasma. The treatment was apparently originated by Dr Maynard Murray of Cincinnati who is connected with the medical school there. Have there been any favorable reports on this treatment in the literature? I am seeking this information at the request of a physician friend who is suffering from carcinoma of the lung. Albert A Schultz M.D. Fort Dodge Iowa

ANSWER—Preparations from many organs (opotherapy, organotherapy) and tissues, including cancer tissue itself, have been tried in the treatment of human cancer, all so far without success. Gwyer in New York reported experiments with the calf's dried thymus in 1907 and 1908. In 1917 Kaminer and Morgenstern described experiments on the destruction of cancer cells by substances in the thymus and in 1929 Kittinger studied the effects of calf's thymus in advanced human cancer, with negative results. He used thymus emulsions in glycerin and water as well as in the serum of horses. Hanson obtained temporary improvement in inoperable cases by the intramuscular injection of an extract of the giant epithelial cells of the neck thymus of young calves. He called this extract "karkinolysin" and stated that "further proofs of its action and possible value" in the treatment of cancer would be "sought on a large scale" but it does not appear that any further reports have been published. Simpson and Marsh obtained no effects with karkinolysin in spontaneous mammary mouse cancer, and Meyer and Simmons had negative results in experiments with karkinolysin in implanted mouse cancer. Murray reported that under certain conditions transplants in rats of fresh thymus appeared to stop the growth of implants of a tumor of the breast. During the last five years it has not been possible to find any articles on the use of thymic preparations in any form of human cancer.

## References

- Gwyer F. On the Thymus Gland Treatment of Cancer. *Ann Surg* 47: 506 1908.  
Kaminer G. and Morgenstern O. Leber Beziehungen zwischen Thymus und Carzinom. *Biochim Ztschr* 84: 283 1917.  
Kittinger A. Kalb thymus und das Verhalten der Karzinome und das Blutbildes beim inoperablen Karzinom. *Wien Klin Wchnschr* 42: 1434 1929.  
Hanson A. M. A Report of Four Cases of Inoperable Carcinoma Treated with Intramuscular Injections of Karkinolysin. *Minnesota Med* 13: 62 (Feb.) 1930. Treatment of Cancer with Thymus Extract. *The Journal* March 1 1930 p. 653.  
Simpson B. T. and Marsh M. C. Therapy of Spontaneous Mouse Cancer. Failure of Tuberculin Karkinolysin and Some Inorganic Compounds Therein. *Ann Surg* 93: 169 (Jan.) 1931.  
Meyer O. O. and Simmons C. C. Thymus Extract (Hanson) in Mouse Carcinoma. *Am J Cancer* (Supp.) 15: 2271 (July) 1931.  
Murray Maynard. Effect of Thymus Transplants in Tumor Growth. *J Lab & Clin Med* 24: 1247 (Sept.) 1939.

## SCHICK TEST FOR CHILDREN ENTERING SCHOOL

To the Editor—In the welfare stations inoculation with diphtheria toxoid is begun at the ninth month three injections of 0.5, 1 and 1 cc being given at intervals of three weeks. The school board a year ago passed a resolution requiring a certificate of immunization against diphtheria at the time of registration for school. I should like to know whether a negative Schick test obtained three to six months after the inoculation would be acceptable at the time of registration for school which would be in the fifth year or whether the Schick test should be done at the time of registration for school. Though I feel that the important period of protection is in infancy and in the preschool years I should like to settle the foregoing question in order that the authorities may set a definite time for the Schick test. Any advice on the subject will be greatly appreciated.

Charles P. De Fuccio M.D. Jersey City N. J.

ANSWER—Claus Jensen (*Deutsche med Wchnschr* 57: 324 [Feb 20] 1931) has shown that the rate at which antitoxin disappears from the blood is a function of a rectangular hyperbola  $Y = \frac{1}{\lambda}$  or  $T = \frac{A-X}{A\lambda} \cdot \frac{1}{\lambda}$

$A$  is the maximum concentration of antitoxin following an antigenic stimulus,  $\lambda$  is the amount of antitoxin which remains,  $T$  is units of time after the moment at which  $A$  is reached and  $K$  is a constant which is different for each individual. This is the same formula by which lysins and other antibodies disappear from the blood.

Because there seems to be a gradual loss in the diphtheria antitoxin content of the blood it appears that the best course to pursue would be to perform the Schick test just before the children enter school as well as from three to six months after the inoculations for the prevention of diphtheria have been completed. If the second Schick test is found to be positive, injection of one dose of alum precipitated toxoid would probably be recommended.

## CONTRACTING SYPHILIS FROM A NEEDLE PUNCTURE

To the Editor—While I was suturing the lacerated finger of a workman, the needle slipped and pierced my thumb going about a quarter of an inch deep. I squeezed my thumb and made it bleed freely, then applied alcohol and proceeded to finish the suturing. As a matter of precaution I had a Wassermann test done on the patient and the report was 4 plus. Another Wassermann test by a second laboratory was the same. The patient gave a history of a sore on the penis six years ago that went away. There is no history of secondary rash. As he never suspected the nature of the lesion on the penis he never had a Wassermann test before and of course no treatment. He has been married three years. His wife had a negative Wassermann reaction before giving blood for a transfusion five months ago and her Wassermann reaction is negative now. What are my chances of contracting syphilis from the needle puncture and what should I do about it?

M. D. Texas

ANSWER—There is no need of doing anything to the punctured thumb now. Syphilis is infectious during the first five years or less, and even though this patient had no treatment for syphilis, the likelihood of acquiring the disease from such a source and in such a manner is practically nil. When such injuries occur while working on patients with syphilis a thorough application of iodine into the wound or the application of 33 per cent ointment of mild mercurous chloride rubbed in vigorously for five minutes is usually sufficient. However, do not use iodine and the calomel on the same wound.

## TRICHOMONAS AND SPERMATOZOA

To the Editor—Recently I examined a vaginal smear to establish the viability of sperm. Microscopic studies showed innumerable trichomonads which appeared to be ingesting the sperms. In several instances there was a clear picture of a sperm struggling to avoid the engulfing process. In many other cases the end of the trichomonads opposite to that containing the cilium seemed to present a long tail—sometimes motionless and in other cases it appeared as though it had a waving motion suggesting the tails of sperms the bodies of which had been ingested. Will you inform me whether there is anything in the literature which discusses this occurrence or suggests its possibilities? If not could you suggest to me what conditions could make for the possible error in what I thought I had observed?

M. D. Little Falls Minn

ANSWER—It is possible that the observations in which the trichomonads were observed ingesting the spermatozoa are correct. It is well known that they ingest bacteria. Apparently, however, the literature does not contain reports of such observations.

Gynecologists recognize that women suffering from Trichomonas vaginitis have impaired fertility. The treatment for Trichomonas vaginitis can be found in any standard textbook of gynecology. Massage the prostate gland and search the prostatic fluid for the trichomonads, and, if any are present, clear up the infection by prostatic massage twice a week.

## GASTROENTEROSTOMY FOR EPILEPSY

To the Editor—For some time I have been hearing about an occasional cure of epilepsy as a result of a gastroenterostomy being done by an osteopathic surgeon. Have you any record of treatment of that kind being authentic?

M. F. Smith, M.D. Baton Rouge La.

ANSWER—Gastroenterostomy by any kind of surgeon is not a recognized or authentic form of treatment for epilepsy. Almost all epileptic patients have fatigue postures and suffer from chronic constipation. Any procedure which will correct either of these conditions will improve elimination and therefore will have an indirect beneficial effect on the epilepsy. Peterman has reported that occasionally the administration of an anesthetic, particularly chloroform, will stop convulsions for long periods. He has attributed the reported cures following circumcision to the effect of the anesthetic. Dr. John Howland reported such a case. If there is a large redundant loop of colon or a so-called Lane kink there might be some indication for surgery on the intestine. However, since Carman proved that there is no such thing as gastroenteroptosis, there could be no justification for gastroenterostomy as a treatment for epilepsy.

## SULFAPYRIDINE IN TREATMENT OF EPIDERMOPHYTOSIS

To the Editor—Is sulfapyridine in powder form of any value in the treatment of epidermophytosis?

L. Edward Giovine M.D. Woodside N. Y.

ANSWER—Observations to date do not indicate that sulfapyridine powder is of any value in the treatment of epidermophytosis, from either the clinical or the experimental point of view.



## CONTROL OF NARCOTIC ADDICTION

To the Editor—Will you kindly send me or tell me where I can get access to the latest and best methods of treating morphine addiction?

Milton E Robbins, M D, Laurelfon, L I

ANSWER—According to recent authoritative pharmacologic sources the therapy of morphine addiction is a highly specialized problem which, to be successful, requires combined medical, nursing and psychiatric management. Withdrawal treatment is undertaken as a rule only by those with special training in this field, and this medical phase of management of morphine addiction revolves round the use of several routine systems of treatment which are best adapted to meet the need of the individual case. The systems proposed for withdrawal treatment which are employed most frequently are those by G E Pettay (The Narcotic Drug Addictions, Etiologic Factors, Principles Involved in Treatment, Reasons for Possible Failures, *Memphis M Monthly* 29 337, 1909), Alexander Lambert (The Obliteration of the Craving for Narcotics, *THE JOURNAL*, Sept 25, 1909, p 985, Treatment or Drug Addiction, *ibid*, March 14, 1931, p 825) and C E Sceleth (A Rational Treatment of the Morphine Habit, *ibid*, March 18, 1916, p 860). These systems have in common the free use of intense purging and full doses of the belladonna alkaloids, although the evidence reported by Lambert casts some doubt on the value of atropine and scopolamine. Sedation appears to be the sheet anchor of therapy during withdrawal of the narcotic, chloral hydrate being one of the most satisfactory drugs for this purpose. Information concerning recent advances in the treatment of morphine addiction may be obtained by directing an inquiry to the U S Health Service hospitals at Leestown Pike, Lexington, Ky, or Fort Worth, Texas, where the federal government maintains special institutions for the special care of narcotic addicts. The important medical and social aspects of narcotic addiction may be reviewed by reference to the following:

Light A B, and Torrance, E G. Opium Addiction, *Arch Int Med* 44 1 (July), 194 (Aug.), 862 (Dec.) 1929

Smill, L F, and others. Studies on Drug Addiction, *Pub Health Rep*, 1938, supplement 138

Terry, C E, and Pellens Mildred. The Opium Problem, New York, Committee on Drug Addictions, 1928

Lambert, Alexander. Narcotic Addiction, Report of the Mayor's Committee to Hon Richard C Patterson Jr, Commissioner of Correction, *THE JOURNAL*, Oct 26, 1929, p 1297

The Control of Narcotic Addiction, editorial, *ibid*, March 14, 1931, p 862

Opening of the Federal Narcotic Farm, Lexington, Ky, Government Services, *ibid*, Feb 16, 1935, p 574

Narcotic Addiction, Queries and Minor Notes, *ibid*, June 29, 1935, p 2384

## VITAMIN B IN TREATMENT OF EPILEPSY

To the Editor—Would you be good enough to let me know whether there is any evidence to support the use of any of the elements of the B complex, more specifically thiamine hydrochloride, in the treatment of epilepsy?

M D, New York

ANSWER—Fits develop in animals deprived of vitamin B<sub>6</sub>, but according to some unpublished work administration of this and other vitamins does not raise the threshold for convulsions. Some favorable results with thiamine hydrochloride have been reported by Schinder in human cases, but they are not striking. Vitamin B<sub>1</sub> has been used in large doses by Williams and Spies, but without conspicuous success.

## References

Chick, Harriette, El Sadr, M M, and Worden A N. Occurrence of Fits of an Epileptiform Nature in Rats Maintained for Long Periods on a Diet Deprived of Vitamin B<sub>6</sub>, *Biochem J* 34 595 (April) 1940

Schinder, M. Thiamine Hydrochloride Therapy of Six Cases of Epilepsy, *Semana med* 1 351 (Feb 6) 1941

Williams R R, and Spies T D. Vitamin B<sub>1</sub> and Its Use in Medicine, New York Macmillan Company, 1939

## MEMBRANOUS CONJUNCTIVITIS

To the Editor—A girl aged 2 has a membranous conjunctivitis of six months' duration which has resisted local treatment, vitamins and foreign protein. The cornea is not involved, the general condition is good. Microscopic examination showed some polymorphonuclear leukocytes in the adherent exudate and some pneumococci. Please discuss the treatment of this condition.

M D, Montana

ANSWER—Cases of membranous conjunctivitis are exceedingly persistent and resistant to usual methods of treatment. Some cases due to the pneumococcus and streptococcus have responded to sulfanilamide and sulfapyridine in full oral dosage and a trial of one of these drugs seems indicated in this case, if they have not already been tried. If pneumococci are constantly found in the membrane, it would seem best to try sulfapyridine both locally and systemically. For local use the

3 per cent solution of sodium sulfapyridine five to six times a day with a 5 per cent ointment of sodium sulfapyridine at night would be advisable. Sulfathiazole might be as efficacious. The systemic dosage should be guided by the weight and general condition and after three to four days of full dosage (1 grain per pound of body weight daily) smaller doses should be continued for two to three weeks unless toxic symptoms are noted. It is usually best not to remove the membrane too frequently, as it reforms rapidly and will disappear when the infection is under control.

## PREMENSTRUAL MIGRAINE

To the Editor—Please outline treatment for a woman dentist aged 34, married, nulligravida, who since the age of 30 has been subject to attacks of left temporal migraine, particularly premenstrually. There is considerable premenstrual tension, moodiness and a desire to cry. The rest of the history is negative. Physical examination was negative except for a blood pressure of 90 systolic, 60 diastolic.

M D, Ohio

ANSWER—Recently a claim has been made for the efficacy of ammonium chloride in this type of condition. Ammonium chloride is taken orally for a few days before the menstrual period. Its modus operandi is presumably modification of the edema which is thought to be responsible for migraine during the premenstrual period. In some instances, claims have also been made for the effectiveness of endocrine preparations in these cases. Since aggravation of allergic symptoms is rather common in the premenstrual period, it is important not to overlook the possibility of allergy in such a case. The usual routine cutaneous tests or elimination diet may have to be tried in this instance.

## DIFFUSION OF SPINAL ANESTHETIC SOLUTION

To the Editor—Of what significance is the specific gravity of a spinal anesthetic with respect to the level of anesthesia desired? I was recently informed that such anesthetics, when introduced into the third or fourth intervertebral space in sufficiently high concentration, would produce cervical anesthesia. My informant also stated that the important factor concerned was the diffusion of a sufficient amount of anesthetic and that specific gravity had no role in obtaining desired levels of anesthesia (i.e., specific gravity of anesthetic, position of patient, and so on). May I have the benefit of your opinion?

M D, Pennsylvania

ANSWER—It must be assumed that, when reference is made to the space between the third and fourth vertebrae, the vertebrae in question are the lumbar vertebrae. It is possible to obtain anesthesia in the neck if the volume of solution injected into the lumbar interspace is large enough (that is, 8 to 10 cc). The concentration of the solution (procaine hydrochloride) should be 1.5 per cent. The alternate method, which is not so safe, is to depend on gravity and thus to inject a solution that is lighter in weight than the spinal fluid, to raise the patient's shoulders and to allow the anesthetic solution to move to the level of the thoracic curve. Another method (a gravity method) is to inject a solution heavier than spinal fluid and lower the patient's shoulders until the anesthetic solution reaches a sufficiently high point. The gravity method is not considered to be as safe as the method first mentioned.

POSSIBILITY OF INOCULATION WITH SYPHILIS  
BY A PRICK FROM A NEEDLE USED IN  
INJECTING A SYPHILITIC PATIENT

To the Editor—Two weeks ago I stuck my finger with a needle with which I had just given an injection for syphilis. Would it be possible for me to become infected without a chancre or sore?

M D, Virginia

ANSWER—It is not stated what kind of an injection had been given to this patient nor is it stated in what stage of syphilis the patient was. It would make a great deal of difference whether the patient had an old syphilis or whether it was a recent syphilis.

This is a common occurrence, and the chances are probably slim of one's contracting any disease, even if the patient has early syphilis.

It is true that if this was an intravenous injection and one stuck the finger with a needle immediately after the injection and if the patient had early syphilis there might be more cause for concern. There have been instances of this contingency reported in the literature and in some of them the physician never developed a sore or a chancre.

Our advice would be not to start treatment for syphilis for it one does this one must treat oneself the same as if one had actually contracted syphilis and should take the same therapy.

The recommendation would be to have a serologic test once a week for a period of twelve weeks after the needle prick. If the serologic test is consistently negative, one may forget it.

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## CULTURAL EDUCATION OF A PHYSICIAN

WILLIAM W. ROOT LECTURE OF ALPHA OMEGA  
ALPHA HONOR MEDICAL SOCIETY

MORRIS FISHBEIN, M.D.

Editor The Journal of the American Medical Association  
CHICAGO

In an address delivered at the commencement of the Medical School of Harvard University at the Medical College in Boston March 9 1870 the Honorable Preston Peabody<sup>1</sup> spoke to the graduating class. He stressed particularly the importance of general culture.

To your professional knowledge you need to add general culture as wide and thorough as your special studies and labors will permit. You owe this to yourselves, to your brethren, to your calling. You owe it to yourselves for the man who confines himself to a single department however noble it may be, sacrifices his own intellectual manhood; moves not in a self-returning circle, but in a constantly diminishing spiral, and from year to year becomes less, and not beautifully less. You have a vital interest in poetry, literature and art—in all that is beautiful and grand in the works of God and man. You need them for recreation, solace, growth. You need them to bring you into due relation with the cultivated minds around you. You need them even for the highest professional success and reputation. No man can be great in his own profession who has not a vigorous intellectual life outside of it, beyond it, above it.

Since the time when medicine began to evolve from mysticism into science, educators have been concerned by the possibility that the trend toward pure science would lose for the physician that art which made him a humanitarian. The search continues still somewhat aimlessly for a test of character that will admit to medical schools or to medical practice only men of undoubted integrity, idealism and charitableness. As yet aptitude tests are in an "early experimental stage." Certainly there is as yet no method of determining the attributes of character or mentality that stamp the man who, on entrance into the study of medicine, will persist through the demands of the modern curriculum now speeded and intensified. Scientists hint vaguely of the scientific type of mind, but they recognize it by its results and not by any established standards useful for measurement before the results are achieved.

The educators have sought to aid the process of development of the ideal physician by attention to the

premedical curriculum hopefully attempting, by compulsory courses in English letters and composition in language in biology, even in sociology, philosophy, political economy, music, appreciation art and the drama, to implant the seeds of culture. The feeling persists that a cultural background is a necessity for the physician.

The report of the Commission on Graduate Medical Education<sup>2</sup> published in 1940 emphasizes the importance of appreciation of those beauties and delights that are to be found only in cultural subjects. The report says:

Medicine is one of the learned professions and this fact presupposes that each physician has acquired a broad cultural as well as scientific background and that because of this he is able to take his proper place in the community, both as a wise counselor to his patients and as an informed and active citizen. Too frequently the heavy schedule required in the college and medical school years which becomes even more exacting during the internship and residency, and the large proportion of the practitioner's time that he must devote to study and attendance at professional meetings in order to keep abreast of medical advances make it almost impossible for a physician to nourish his cultural interests. The man who neglects these interests lacks one important part of his preparation for life. The truly great physician somehow finds enough time, in spite of his busy practice, to develop various interests that add to his richness and depth. Medical educators should set aside time in the curriculum for cultural opportunities and should encourage students to take advantage of these opportunities even though they make no direct contribution to their knowledge of medicine. By this means, they will doubtless stimulate in many men a lasting interest in these broader fields, an interest that will carry over into their years of active practice.

Some medical educators have accepted as students in the medical school a few outstanding candidates who have majored in the humanities, hoping that these men will bring new viewpoints to bear on many of the problems of medicine. Other medical educators might follow this example. While it is realized that this need of broader cultural education for physicians is not strictly speaking a problem of graduate medical education nevertheless it is important to any complete concept of graduate and postgraduate training.

The report emphasizes, moreover, the need of culture for the intern who has passed from the stage of concentration on wholly medical subjects to a field in which he is partially engaged in medical practice. It says:

Equally important is the opportunity for the intern to continue his interest in the humanities and in cultural activities. The intern who has a real appreciation of music, philosophy or first editions should be able to find at least a few minutes each week to pursue these avocations.

<sup>1</sup> Read before the Alpha Omega Alpha Honor Medical Society, Atlantic City, N. J., June 11, 1942.

<sup>2</sup> Peabody, Andrew Preston. What the Physician Should Be. An Address Delivered at the Commencement of the Medical School of Harvard University, Medical College, Boston, March 9, 1870, published by request of the Faculty. Cambridge: Welch, Bigelow and Company. Printed for the University, 1870.

<sup>2</sup> Graduate Medical Education. Report of the Commission on Graduate Medical Education. University of Chicago Press, 1940.

These quotations indicate concepts of cultural education. The Oxford Dictionary refers to culture only as "the training and refinement of mind, tastes and manners, or the intellectual side of civilization." In his witty work on "Modern English Usage," Fowler<sup>3</sup> calls attention to what has happened to German *kultur* by referring the reader simply to the word "frightfulness." Many a distinguished colleague with whom I have spoken has indicated his concept of a cultural education as one which involves emphasis on Latin, Greek, English letters and similar subjects.

Thomas Henry Huxley,<sup>4</sup> in his essay on "Science and Culture," said

I hold very strongly by two convictions. The first is, that neither the discipline nor the subject matter of classical education is of such direct value to the student of physical science as to justify the expenditure of valuable time upon either, the second is, that for the purpose of attaining real culture, an exclusively scientific education is at least as effectual as an exclusively literary education.

But for those who mean to make science their serious occupation, or who intend to follow the profession of medicine, or who have to enter early upon the business of life, for all these, in my opinion classical education is a mistake, and it is for this reason that I am glad to see "mere literary education and instruction" shut out from the curriculum, seeing that its inclusion would probably lead to the introduction of the ordinary smattering of Latin and Greek.

Nevertheless, I am the last person to question the importance of genuine literary education, or to suppose that intellectual culture can be complete without it. An exclusively scientific training will bring about a mental twist as surely as an exclusively literary training.

French and German, and especially the latter language, are absolutely indispensable to those who desire full knowledge in any department of science. But even supposing that the knowledge of these languages acquired is not more than sufficient for purely scientific purposes, every Englishman has, in his native tongue, an almost perfect instrument of literary expression, and, in his own literature, models of every kind of literary excellence. If an Englishman cannot get literary culture out of his Bible, his Shakespeare, his Milton, neither in my belief, will the profoundest study of Homer and Sophocles, Virgil and Horace, give it to him.

At the same period the subject of cultural education was disturbing many a leader in the field of medicine. Sir Thomas Clifford Allbutt,<sup>5</sup> who gave the introductory address at St. George's Hospital in 1889, took as his subject "The Need for a Liberal Education." He spoke of a university as "a permanent embodiment of the ideal of wisdom as opposed to technical furniture—of the ideal of mental culture as opposed to the collection of tips and devices in memory." Then, in an address given in 1892, he said

It is sad to hear it commonly said that the day of the learned physician is past, that they are gone with periwigs and bric-a-brac. And I have had already to observe to my pain that the Cambridge medical student of today is by no means "learned", that too he often thinks loosely, and that he does not always write even the English of the gentlemen who do the *Fires* and the *Murders* for the country journals.

Largely as a result of this lecture the question of introducing an essay into the tripos examination in order to improve the facility of writing English was discussed at length throughout England.

An important defender of literary education as opposed to pragmatic studies for cultural purposes is Bertrand Russell.<sup>6</sup> Writing of "The Place of Science in a Liberal Education," he said

From the point of view of training the mind, of giving that well informed, impersonal outlook which constitutes culture in the good sense of this much misused word, it seems to be generally held indisputable that a literary education is superior to one based on science. Even the warmest advocates of science are apt to rest their claims on the contention that culture ought to be sacrificed to utility. Those men of science who respect culture, when they associate with men learned in the classics, are apt to admit, not merely politely, but sincerely, a certain inferiority on their side, compensated doubtless by the services which science renders to humanity, but none the less real.

After the Civil War medical education reached an exceedingly low level in this country. President Eliot of Harvard, quoted by Florence Sabin<sup>7</sup> in her life of Franklin P. Mall, pointed out that "There were no requirements for admission to our medical schools. To secure admission a young man had nothing to do but to register his name and pay a fee. In consequence hundreds of young men joined the medical schools who could barely read and write." President Eliot described them as young medical practitioners who were "uncultivated men with scanty knowledge of medicine and surgery, who had had opportunity for but a small amount of observation by the bedside and but little experience in hospitals."

In 1905 the creation of the Council on Medical Education of the American Medical Association and the searching investigation of medical education by Abraham Flexner led to renewed emphasis on basic education as part of the preparation of the student for medical studies. The leadership of Dr. Franklin P. Mall, eminent anatomist, and of William Henry Welch of the Johns Hopkins group, who have recently reflected those years in their autobiographies, came to be widely recognized throughout American educational circles. But the essays of Sir William Osler were probably more significant than many other contributions in directing the trend of basic education into sound cultural lines. In his essay "The Master Word" Osler<sup>8</sup> wrote

Professional work of any sort tends to narrow the mind, to limit the point of view and to put a hall-mark on a man of a most unmistakable kind. On the one hand are the intense, ardent natures, absorbed in their studies and quickly losing interest in everything but their profession, while other faculties and interests "rust" unused. On the other hand are the bovine brethren, who think of nothing but the treadmill and the corn. From very different causes, the one from concentration, the other from apathy, both are apt to neglect those outside studies that widen the sympathies and help a man to get the best there is out of life. Like art, medicine is an exacting mistress, and in the pursuit of one of the scientific branches, sometimes, too, in practice, not a portion of a man's spirit may be left free from other distractions, but this does not often happen. On account of the intimate, personal nature of his work, the medical man, perhaps more than any other man, needs that higher education of which Plato speaks—"that education in virtue from youth upwards which enables a man eagerly to pursue the ideal perfection."

6 Russell, Bertrand. *The Place of Science in a Liberal Education*. In Saitla and Gibbs. *Science and the Scientific Mind*.

7 Sabin, Florence. *Franklin P. Mall, Anatomist*. Baltimore: Johns Hopkins Press, 1934.

8 Osler, Sir William. *The Master Word in Medicine*, an address to medical students on the occasion of the opening of the new building of the Medical Faculty of the University of Toronto, Oct. 1, 1903. In his collected reprints 1902-1907, v, no. 248.

3 Fowler, H. W. *A Dictionary of Modern English Usage*. Oxford at the Clarendon Press, London: Humphrey Milford, 1926.

4 Huxley, Thomas Henry. *Science and Culture*, in Saitla, Leo E. and Gibbs, Warren L. *Science and the Scientific Mind*. New York: McGraw-Hill Book Company, Inc., 1930.

5 Rolleston, Sir Humphry Davy. *Right Honourable Sir Thomas Clifford Allbutt: A Memoir*. London: Macmillan Company, 1929.

# THE CULTURAL EDUCATION OF MEDICAL LEADERS OF THIS GENERATION

Since the views of leaders in American medicine on the subject of cultural education obviously must have been conditioned largely by the type of cultural education which they themselves had I have referred to some of the biographies and autobiographies which have recently become available as a form of literary research which might yield data leading toward a scientific conclusion. The study has been one of enjoyment, stimulation and inspiration. Many of these great leaders I have known personally, with others I have corresponded at various times. The record of their lives is varied and fascinating.

In "The Life of Sir William Osler" by Harvey Cushing<sup>9</sup> appears this brief note about a teacher of Sir William Osler to whom Osler himself credited much of the cultural education that he had. The head prefect of the school called Weston, some fifty years after the period in which he had been a favorite teacher of Sir William Osler wrote

As a boy I had the common experience of fifty years ago—teachers whose sole object was to spoonfeed classes, not with the classics but with syntax and prosody, forcing our empty wits, as Milton says to compose "Theames Verses and Orations" wrung from poor striplings like blood from the nose, with the result that we loathed Xenophon and his ten thousand, Homer was an abomination while Livy and Cicero were names and tasks. Ten years with really able Trinity College, Dublin, and Oxford teachers left me with no more real knowledge of Greek and Latin than of Chinese and without the free use of the language as keys to great literatures.

## WILLIAM HENRY WELCH

William Henry Welch influenced profoundly the cultural education of many an American physician. From the distinguished biography by Simon and James Thomas Flexner<sup>10</sup> we learn

In his later years Welch ascribed the sudden flowering of his interest in medicine not so much to the studies he pursued as to the personality of his teachers. "One can decry the system in those days," he said, "but the results were better than the system. The College of Physicians and Surgeons stood then, as it has always stood, in the front rank of American medical schools. Our teachers were men of fine character, devoted to the duties of their chairs; they inspired us with enthusiasm, interest in our studies and hard work, and they imparted to us sound traditions of our profession; nor did they send us forth so utterly ignorant and unfitted for professional work as those born of the present, greatly improved methods of training and opportunities for practical study are sometimes wont to suppose."

## J. M. T. FINNEY

The recent death of Dr. J. M. T. Finney took from American medicine one of its most cultured leaders, a man of broad vision, recognized skill and wide associations. Of his early training he<sup>11</sup> said

It is interesting to look back now and try to evaluate the most potent influences and their effect upon my character. What stands out in my mind after all these years is not so much what I learned from my studies but what I gained from more or less intimate personal contact with real human men who were sufficiently well educated themselves to appreciate true values in education and to stimulate in the minds

of their students the desire to attain those values. We are all in a measure "copy cats." How often do we see reflected, unconsciously perhaps, in students certain idiosyncrasies of their teachers—it may be methods of thought, modes of expression, mannerisms, poses or what not.

## WILLIAM SYDNEY THAYER

The views of William Sydney Thayer, a former president of the American Medical Association, a student of the classics and himself a poet of no mean ability, should be significant. Thayer was a natural linguist and scholar. Besides the ancient languages he read and spoke and could think in French, German, Italian and Russian. Of his cultural education, he<sup>12</sup> said

I am one of those who believe earnestly that a broad general training, not only in the natural sciences, but in ancient as well as in modern languages and mathematics, is important for him who would study medicine if he is to be a broad-minded and scholarly man.

## CHEVALIER JACKSON

Known as a scholar, a distinguished inventor, an artist of recognized ability and as a recipient of the Distinguished Service Medal of the American Medical Association, Chevalier Jackson's record of his own cultural education is especially interesting. In his autobiography he says<sup>13</sup>

Next to drawing my greatest interest in school work was in physiology, geography, Latin, Greek, English and mathematics, about in the order given. History, telling about what the kings, dictators, rulers and politicians did, was uninteresting.

## VICTOR C. VAUGHAN

Turning to the West, I submit a few selections from the autobiography of Victor C. Vaughan<sup>14</sup>

While nominally I had my schooling at Hazel Hill, I received the better part of my education at home. My wise mother did not pretend to dictate my instruction. She simply placed the books she desired me to read within my reach and supplied no others. Scott, Dickens, Thackeray.

Poor training! a present day educator would say for one whose adult life was to be devoted to science. This may be true but I am reciting facts. I cannot deny that my scientific work might have been more productive had my early training been different.

In 1917 Dean West of Princeton University held a day for glorification of the classics. He wished to see these studies restored to their former position in the curricula of our colleges and universities, and I was in sympathy with him in this particular.

Although my adult life has been given to the sciences, I wish to testify that the first author to stimulate the pyramidal cells of my cerebral cortex was old Virgil, and even now in my old age when I seek mental recreation there is only one book which I prefer to Virgil and that is Dryden's translation, which I read with less effort.

## BERKELEY MOYNIHAN

Americans who for many years admired the skilful oratory of Sir Berkeley Moynihan should enjoy particularly these sections from the recent biography by Donald Bateman,<sup>15</sup> which are more than explanatory of the Moynihan technic in public address.

Of extramural reading he did little. He had no time for it. His love of literature developed later. Yet though his taste

<sup>9</sup> Cushing, Harvey. The Life of Sir William Osler. Oxford University Press, 1940.

<sup>10</sup> Flexner, Simon and Flexner, James Thomas. William Henry Welch and the Heroic Age of American Medicine. New York: Viking Press, 1942.

<sup>11</sup> Finney, J. M. T. A Surgeon's Life. New York: G. P. Putnam's Son, 1940.

<sup>12</sup> Reid, Edith Gittings. The Life and Convictions of William Sydney Thayer. Physician. Oxford University Press, 1936.

<sup>13</sup> Jackson, Chevalier. The Life of Chevalier Jackson. New York: Macmillan Company, 1938.

<sup>14</sup> Vaughan, Victor C. A Doctor's Memories. Indianapolis: Bobbs-Merrill Company, 1926.

<sup>15</sup> Bateman, Donald. Berkeley Moynihan. New York: Macmillan Company, 1940.



was still unformed, its scaffoldings were visible. In Shakespeare's sonnets he unearthed a sympathetic mirror of his thoughts, in them he found a satisfaction that communion with his friends did not promote. To memorize them was easy, to repeat them delicious. He saw the spring in them, and not as yet the autumn they concealed—that was for the future.

He had, even in those early days, an ardent love of words. Dulcet phrase and mellifluous adjectives entranced him. They matched the sweet depths of his voice. No less for their music than their meaning did he cherish them. Except within the confines of his home he had no chance for recitation, his family were the only audience he could then command. But, from his first encounter with the sonnets, his devotion was sealed, he became the acolyte before the shrine of words.

The only other seas of his literary voyaging were the varied oceans of the Bible. It was lovely English of the Bible that excited him, he did not then explore its philosophic content. But those words, velvet and resonant—how he loved them. In them he had the artist's apprehension of beauty—painful, intangible, etheral.

For music, strangely, he had but little ear.

In pictorial art he had no interest, nor such have medical students as a rule.

When he could afford it he went to the theatre.

#### ARTHUR E. HERTZLER

Consider a brief statement by the eminently pragmatic Arthur E. Hertzler,<sup>16</sup> author of the widely read "Horse and Buggy Doctor."

The course of study in those days consisted chiefly of Latin, Greek, mathematics and English.

All I remember about Greek is that you learn one verb, all the rest are irregular, that Darius had three huge sons and that buzzard meat tastes like venison only sweeter. Nevertheless were I to begin the study of medicine again I should choose the same courses in Latin and Greek as a preliminary. For though, like Shakespeare, I had small Latin and less Greek, they made terminology more interesting and intelligible.

Four years in the academy equaled what is about the first two years of the colleges of today. Better training in literature than most college graduates (three years of English composition and rhetoric—our English teacher was a Canadian who had the idea that English was a good language to learn), mathematics as far as differential calculus, German, most grammar and time spent in the utterly futile attempt to read Wallenstein and several other works of the same kind—everything except what I would need in the future. I never could understand poetry or drama even in English and the German was a nightmare.

#### LEWELLYS F. BARKER

While Lewellys Barker<sup>17</sup> tells us in his recently published "Time and the Physician," an autobiographic work, little of his own cultural education, he gives us some thoughts on the subject in his book on "The Young Man and Medicine"<sup>18</sup> which are definitely apropos to our purpose.

Another fundamental human need is connected with the activity of the aesthetic judgment. Man has a desire for the beautiful. He loves to create beautiful things himself, and he derives satisfaction, also, through the enjoyment of beauty in nature and in man, beauty in his own works, or beauty in the works of others.

The young man in medicine in his student days can scarcely fail to do better work, if in that work he strive not merely to acquire knowledge but also to satisfy his aesthetic sense. As a teacher in the medical school I soon learned to look with favour upon the student who in the anatomical laboratory

made a "beautiful" dissection, or who, in the pathological institute, stained his sections of tissue so perfectly that they delighted me, or who, in the clinic, made physical examinations so skilfully and kept records with such order and accuracy that they charmed the observer. There are exceptions, of course, but, in general, it will be found to be true that the pupil who works in the spirit of the true artist, who knows how to delight in the work that he does for its own sake, who, besides being interested in content, loves perfection of form, is likely to go far. But even though he go not far, he has experienced on his way satisfactions of his need of beauty that are not to be despised.

And the same considerations apply to the work of the medical man after graduation from the medical school. The art of medical practice, the art of medical teaching, the art of medical discovery, and the art of medical writing are likely to be best promoted and to be most greatly enjoyed by those who pursue them in compliance with the urge of their aesthetic motives.

#### HANS ZINSSER

Among the most cultured of American investigators scientists and physicians was Hans Zinsser. In his intimate and revealing biography "As I Remember Him" Zinsser<sup>19</sup> gave much of the credit for his cultural education to some of his teachers in the letters and in science who had had a tremendous effect on his personality. Among the most revealing are the following paragraphs.

George Edward Woodberry was at that time best known for his poetry. I say "at that time" because, as I judge him now, I believe that his ultimate place—a high one in American letters—will rest on his prose writings, his critical essays, and his *Taormina*, all of which combine distinction and color of style with great learning and a sensitiveness to beauty which mark him as a poet writing prose. Woodberry was of the tradition of Shelley, Wordsworth and Coleridge. His mind was deeply saturated with European culture and the art of Greece and of Italy.

Whatever may be the eventual position of Woodberry in American letters—an estimate which I am not competent to make—he was unquestionably one of the greatest teachers this country has seen, inspiring with his own passionate sincerity and sensitive perceptions a large and diverse group of young men, few of whom, whatever their subsequent occupations, ever lost entirely the imprint of his personality.

The destinies of man are guided by the most extraordinary accidents. In my sophomore year, while in the Woodberryan poetic exaltation, and feeling much of the time like a young Shelley, I threw a snowball across the campus at a professor emerging from the Natural Science Building. It was a prodigious shot, a good hundred yards, I think. I hit him in the ear, knocked his hat off, and had time to disappear around the corner. I had nothing against him. It was an impulse, and a happy one, because I became guiltily conscious of him, thereafter, and eventually I took one of his courses as a sort of apologetic gesture. He happened to be both an anthropologist of note and a philosopher, and it was he who awakened in me the realization of the philosophical implications of scientific fact. There were great teachers of science at Columbia in those days, and the junior year—largely owing to the inspiration of the man whom I had hit in the ear—found me, without cutting loose entirely from the Department of Comparative Literature, feeling as though I had suddenly entered a new world of wonders and revelations on the top floor of Schermerhorn Hall under the reign of Edmund P. Wilson and Bashford Dean.

My college education, to make a long story short then consisted of Woodberry, Wilson and Dean—thus again affirming the truism that one is trained by men and not by curriculum. The remark about the superb educational value of sitting on

<sup>16</sup> Hertzler, Arthur E. *The Horse and Buggy Doctor*. New York: Harper & Brothers, 1938.

<sup>17</sup> Barker, Lewellys F. *Time and the Physician*. New York, G. P. Putnam's Sons, 1942.

<sup>18</sup> Barker, Lewellys F. *The Young Man and Medicine*. New York: Macmillan Company, 1928.

<sup>19</sup> Zinsser, Hans. *As I Remember Him*. The Biography of Hans Zinsser. Boston: Little Brown & Co., 1940.



a log with Mark Hopkins on the other end of it is quite correct in principle—though from what I have read of that gentleman's philosophical views and information, I should have picked some one else for my log

#### DIRECTED READING

Hardly one of the counselors who would guide us to culture but recognizes the importance of properly directed reading for the continuous improvement of culture. Thus Sir William Osler<sup>20</sup> in his "Aequanimitas and Other Addresses," published in Philadelphia in 1904, wrote

For the general practitioner a well used library is one of the few correctives of the premature senility which is so apt to overtake him. Self centered self taught he leads a solitary life and unless his every day experience is controlled by careful reading or by the addition of a medical society it soon ceases to be of the slightest value and becomes a mere recreation of isolated facts without correlation. It is astonishing with how little reading a doctor can practice medicine, but it is not astonishing how badly he may do it.

Osler had, of course his favorites among the writers of all time. For medical students he suggested a bedside library saying

A liberal education may be had at a very slight cost of time and money. Well filled though the day be with appointed tasks to make the best possible use of your one or of your ten talents rest not satisfied with his professional training but try to get the education if not of a scholar at least of a gentleman. Before going to sleep read for half an hour and in the morning have a book open on your dressing table. You will be surprised to find how much can be accomplished in the course of a year. I have put down a list of ten books which you may make close friends. There are many others, studied carefully in your student days will help in the inner education of which I speak.

- I Old and New Testament
- II Shakespeare
- III Montaigne
- IV Plutarch's Lives
- V Marcus Aurelius
- VI Epictetus
- VII Religio Medici
- VIII Don Quixote
- IX Emerson
- X Oliver Wendell Holmes (Breakfast Table Series)

Sir Thomas Browne's "Religio Medici" and Rabelais were his special favorites. In the library at McGill, a memorial to Osler, one may see his great collection of various editions of these two literary masterpieces.

Again in "The Alabama Student and Other Biographical Essays" published in 1908, he<sup>21</sup> emphasized his devotion to these writings.

For the student of medicine the writings of Sir Thomas Browne have a very positive value. The charm of high thoughts clad in beautiful language may win some readers to a love of good literature but beyond this is a still greater advantage. Like the "Thoughts of Marcus Aurelius" and the "Enchiridion of Epictetus" the *Religio* is full of counsels of perfection which appeal to the mind of youth still plastic and unhardened by contact with the world. Carefully studied from such books come subtle influences which give stability to character and help to give a man a sane outlook on the complex problems of life. Sealed early of this tribe of authors, a student takes with him as *compagnons de voyage* lifelong

friends whose thoughts become his thoughts and whose ways become his ways. Masters of self conscientious devotion to duty, deep human interest in human beings—these best of all lessons you must learn now or never and these are some of the lessons which may be gleaned from the life and from the writings of Sir Thomas Browne.

Innumerable suggestions have been made as to the type of reading that the physician should use for the improvement of his cultural education. An earnest student once asked the great Sydenham for advice as to what he should read to lay a sound foundation in medicine. To this request Sydenham replied "Don Quixote."

As a protest against a wholly technical education, Raymond Pearl in his selected list of reading for cultural education of the scientist also emphasized the lack of reading as one of the reasons for our failure to produce culture in our medical students. Raymond Pearl<sup>22</sup> said

In consequence of the widely prevailing pedagogical theory that needlework, jig-sawing, salesmanship and many other kindred academic disciplines are of at least equal cultural and intellectual value in the training of our youth to the study of Greek or Latin or mathematics or chemistry, coupled with the permission if not active encouragement to the undergraduate to specialize during the state of his mental infancy it results that when the young things begin serious graduate work a solidly grounded general background upon which to build a sound specialism is precisely what, generally speaking they most completely lack.

President Robert M. Hutchins of the University of Chicago and Mortimer Adler and many others have prepared lists of the books that should form the basis of culture. President Eliot of Harvard had his five foot shelf. The American Library Association developed a list and presented a set especially bound to the President in the White House. The average physician will be amazed on personal consultation to discover how slender an intimacy he has with most of the volumes that are included in these selections. From this point of view alone, the cultural education of the modern physician is lacking.

#### THE BASIS OF A CULTURAL EDUCATION

I have indicated by these few citations the belief of practically every distinguished leader who has approached the subject that directed reading is a vital part of a cultural education. The list prepared by Sir William Osler includes books to which we turn again and again and which provide new values with reading and rereading. The writings of Mark Twain, particularly "Huckleberry Finn" the diaries of Samuel Pepys, Walpole and Evelyn, the Elizabethan dramatists and poets specially Dryden, the startling wisdom of Samuel Johnson, the essays of Emerson have been emphasized so frequently by so many guides to that which is best in cultural reading that reemphasis is hardly necessary. And I would recommend personally for stimulation and inspiration the famous biographies and autobiographies that I have already mentioned. Add to them Vallery-Radot's "Life of Pasteur," Sir Rickman Godlee's "Life of Lister," the biography of Metchnikoff by his wife Olga, the essays of Stephen Paget, of Harvey Cushing and of John Chalmers DaCosta. You will find in these more that is thought provoking and beautiful than ever you have dreamed of.

<sup>20</sup> Osler William. *Aequanimitas and Other Addresses*. Philadelphia: P. Blakiston's Sons & Co. 1904.

<sup>21</sup> Osler Sir William. *The Alabama Student and Other Biographical Essays*. Oxford University Press 1908.

<sup>22</sup> Pearl Raymond. *To Begin With*. New York: Alfred A. Knopf Inc. 1927.

## PERSONAL ASSOCIATION

First in importance in cultural education, and as a factor that makes for success in medicine and in life, is early and intimate association with preceptors and teachers who have the ability to inspire. Men of the type of William Henry Welch, Halstead, Ludvig Hektoen, Victor C. Vaughan, Frank Billings, Hans Zinsser and Sir William Osler have had this quality.

Many years ago I studied the records of the graduating classes of three of our greatest universities at a period twenty years after graduation. The number of men who had attained medical fame, either international, national, state or local, could be definitely related to the inspiring teachers with whom they worked and to the kind of contact that they had had with such teachers. Those who associate with preceptors who have achieved fame and leadership secure direction and guidance not only to the scientific techniques and methods that they have developed but also, provided the contact is sufficiently intimate, to music, the drama, sport, art, recreation and even training in the art of writing. This is what Zinsser meant by his reference to Woodberry. This too is what made Thayer say ultimately "I have a passion to use the perfect word, the inevitably right sentence." This, it has been noted, is what stamped every pupil of Harvey Cushing with many a mannerism and habit of thought and speech that on occasion out-Cushings the great Cushing himself. These men were not necessarily first in their studies and examinations. Occasionally as with Thayer and Paul Ehrlich they triumphed over recognized failure.

Looking back on his own education, Sir James Mackenzie deprecated the type of education that places emphasis on memory rather than on the power of reasoning. He condemned the trend in our medical education which leads toward the type of teacher who merely repeats what his own teachers taught him and whose pupils merely repeat what he teaches them. Mackenzie<sup>23</sup> said:

There are two very distinct qualities of the human mind, memory, and the power of reasoning. The earliest to be developed is that of memorizing, and this can be cultivated with great ease. The power of reasoning is quite different, although, no doubt, memory takes a part. When we look at a great number of students, we discover that this power of memory is greatly developed in a few, and that all our educational methods are devoted to its cultivation. Examinations are specially contrived for the purpose of discriminating those with the best memories, and to them all the honours and prizes are given.

The individuals who, on the contrary, possess more of the power of reasoning than their fellows receive no consideration. There are minds which have a difficulty in remembering isolated facts, but if these facts are related in some consecutive manner, they can not only remember them, but also appreciate their bearing on one another. But this type of mind is slow in acquiring knowledge and in our present day methods of education less and less encouragement is given to this type of student.

## GAMES, SPORTS AND CULTURE

In Finney's recent autobiography he says all that can be said of games and sports in just a few lines:

One important lesson that one learns from athletics, especially football, is how to take hard knocks, and when occasion requires, how to give them too. Self restraint along all lines

so hard to acquire is a "sine qua non" in order to be successful in any form of athletic sport. The qualities necessary to insure success in athletics are quite as necessary in positions of responsibility in after life: courage, brains, agility of mind and body, ability to think on one's feet, thoroughness, application, diligence, honesty, determination—all of which are summed up in that good old English word "guts."

There are students and physicians who find over the bridge table and on the golf course assets for building character. Invaluable to me have been many of the lessons learned and the associations acquired by these pleasant pathways. They are inordinate consumers of time, but, having tried, as Arnold Bennett suggested, to live always on twenty-four hours a day, it has seemed to me that those whose production is greatest are usually least pressed for time to be spent in cultural pursuits.

## WRITING AS A CULTURAL MECHANISM

Previously I have referred to the production of an essay as a part of cultural education, and of Sir Thomas Clifford Allbutt's comment. In his own book, entitled "Notes on the Composition of Scientific Papers," he<sup>24</sup> said that it was his custom to make at least four drafts of a manuscript before it could be considered ready for the printer. His first draft was compiled from notes. Then redundant words, phrases, sentences and paragraphs were deleted. Sentences out of position were removed to better positions, coherence and logical development of thought were tested. In the next revision new thoughts, sentences and paragraphs were inserted and all doubtful meanings were eliminated. In this revision also simplicity was sought and ornamental passages were removed. Finally, after a few weeks, Sir Clifford would read the entire manuscript and make a final revision.

Those who have envied Sir William Osler his beautiful command of English should see the collection of his manuscripts in the Osler room of McGill University. One stage followed closely on another in the preparation of his papers. First were notes of various kinds, written here and there and collected at opportune moments. The first draft was an outline written in long hand. Next came the first typewritten copy with interlineations, transpositions and deletions. Then came a second typewritten copy with evidence of many additional modifications, and finally a third typewritten copy which could be sent to the printer. Even this last copy provided for final corrections.

Quite recently Sir Robert Hutchinson<sup>25</sup> found cause to castigate medical writers for the extraordinary dullness of their productions.

In considering the quality of medical literature distinct from its quantity one has to distinguish between its content and its form. As regards the content, one is struck by the great excess of facts and the comparative absence of ideas, generalizations and hypotheses, there is, in short, too much observation and recording and too little reflection. Hence much of it is like a heap of bricks without any mortar to hold them together. The power of wide generalization, of course, is very rare, but medical writers might at least show greater imagination, and the lack of this has the sad consequence that much medical literature is deplorably dull. This dullness is the more curious considering that the subject matter is so interesting. It may be contended in reply to all

<sup>24</sup> Allbutt, Thomas Clifford. *Notes on the Composition of Scientific Papers*, ed. 3. London: Macmillan Company, 1923.  
<sup>25</sup> Hutchinson, Sir Robert. *Annotations*. Dulles, Va.: Literature Bull. Minnesota M. Foundation 26 (Feb.) 1941.

<sup>23</sup> Wilson R. Macnair. *The Beloved Physician*. Sir James Mackenzie, New York, Macmillan Company, 1926.

this that the style of medical writing is not of much importance because these are read primarily for their matter. Unquestionably this is too superficial a view for, as Allbutt said, "The man of science ought best to know that style and matter can no more be dissociated than skin and bone, but if we write clumsily, loosely or disjointedly our thoughts are accordingly."

#### SIGNIFICANCE OF A CULTURAL EDUCATION

I have been more and more impressed of recent years with that trend in medical education which holds the young man strictly in the field of technical study until he has reached the middle years or the ultimate of what Herbert Spencer called the prolongation of infancy. This concentration on technical education which carries young physicians through internship, a residency or assistantship, extra training in anatomy, physiology, pathology and other basic medical sciences and at least two years of additional study and practice before they can be certified has tended to withdraw the interests of young physicians from most of those aspects of life and work which might be included in cultural education.

The physician of an earlier day assumed a position of leadership as a citizen in his community, as a member of medical organizations concerned with public health, the economics of medical practice, general education and similar problems. Today there is a notable lack of young men in the midst of such activities, so that the charge is being made again and again that leadership in American medicine is chiefly by the elders. The elders, because of their social and economic positions, it is charged, are too conservative to lead in a world confronted by tremendous social changes. Recently a talented novelist made one of her characters say that it is about as much use to give advice to an old man as to give a tonic to a corpse. Emphasis on certain types of cultural education prerequisite or associated with education in medicine might serve as a wholesome corrective of this tendency.

#### CONCLUSION

The prescription for a perfect formula for a cultural education, even if based on an analysis of the considerations that have been here set forth, is difficult to concoct. Obviously the product may be offered in the future, after thorough trial in the laboratory and in the clinic. However, I can suggest some of the ingredients and leave to the physician the determination of the proportions in which they are to be used in the individual case. The menstruum of this prescription will be a literary background, composed of directed and required reading in an emulsion with enjoyable fiction, tales of mystery and poems. The active ingredient must be the classics, associated in a synthesis or perhaps a symbiosis with history, ethnology and anthropology. Golf, bridge and certainly football in excessive doses can be toxic to culture, whereas in homeopathic quantities they may be exceedingly beneficial. For color and flavor add measured quantities of art, music, drama and travel. The preceptor who prescribes will give to the ailing student that intimate personal relationship which breeds confidence, faith and understanding. And on the label write "Take frequently throughout life and at the approach of death!" for this mixture will permit those who have developed an addiction to face the ultimate dissolution with equanimity.

## THE TEACHING OF ANESTHESIOLOGY IN THE ARMY

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It is now a well established fact that inadequate anesthesia was responsible for much of the surgical morbidity and mortality of the last war. Such costly lessons must not and will not be repeated in the present conflict. Anesthesiology has progressed tremendously in the last two decades and has been recognized as an indispensable department in the organization of leading university<sup>1</sup> and other civilian<sup>2</sup> hospitals. Its recognition in army hospitals<sup>3</sup> has begun with the designation of a special section for anesthesiology. The organized didactic and clinical instruction by the Army of its personnel in the science of anesthesiology constitutes a further advance. The plan of instruction at Tilton General Hospital is now presented to the medical profession for the first time.

Aside from the mobilization of combat units for the successful prosecution of this war, the various services of the Army have been augmented tremendously by specially trained personnel. This task has been greatly facilitated by the work of the Medical Science division of the National Research Council<sup>4</sup> and its committees, representing the scientific resources of our nation. The Subcommittee on Anesthesiology, consisting of leading anesthesiologists (Drs. Ralph M. Waters, chairman, E. A. Rovenstine, secretary, John S. Lundy, Ralph M. Tovell and Lewis S. Booth) was requested, among other things, to propose a teaching program in this specialty for army, navy and public health officers. It was suggested that "refresher courses" for medical officers of these forces might be conducted with the aid of a prepared manual<sup>5</sup> at selected locations throughout the country. The Research Council Advisory Committee has already designated six civilian centers for special courses in anesthesiology. These will begin functioning on or about July 1. In this way the need for trained anesthesiologists for our expanding forces might be alleviated. The demand now for such personnel in the Army is admittedly acute. It appeared that, until the program of the subcommittee in anesthesiology got under way, the problem of providing anesthetists at this and nearby posts might be partially met by offering instructions in anesthesia. Accordingly, a course in the fundamental principles of anesthesiology was begun last July at Tilton General Hospital<sup>6</sup>.

During the past year, four courses of three different types were given in anesthesiology.

Type A. Officers of station or general hospitals. The first two courses were presented to medical officers of

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<sup>1</sup> Approved Residencies and Fellowships Council on Medical Education and Hospitals of American Medical Association J. A. M. A. 117 767 (Aug. 30) 1941.

<sup>2</sup> Council on Medical Education and Hospitals J. A. M. A. 111 2213 (Dec. 10) 1938.

<sup>3</sup> Walston, Charles M. Station Hospital Organization Army M. Bull. No. 54, 3 October 1940.

<sup>4</sup> Medical Preparedness J. A. M. A. 115 1641 (Nov. 9) 1940.

<sup>5</sup> Fundamentals of Anesthesiology. An Outline. Chicago: American Medical Association, May 1942.

<sup>6</sup> Martin, Stevens J. Instruction in Anesthesiology at Tilton General Hospital Army M. Bull. No. 60, 108 January 1942.

this post, the Station Hospital and the 210th General Hospital, Fort Dix, N J, and the Station Hospital, Fort Monmouth, N J

Type B Officers of evacuation hospitals The third course was given to officers of the 7th Evacuation Hospital

Type C Enlisted men of the Medical Corps on mobile auxiliary, surgical teams The last course was prepared for enlisted men and a nurse of Tilton General Hospital, who were placed on casualty or auxiliary surgical teams

TABLE 1—Schedule of Lectures for Officers of General and Station Hospitals

| Date        | Subject Matter  |
|-------------|---|
| 1st Week    |   |
| July 21 Mon | —Introduction purpose, history, scope of anesthesia, records            |
| 22 Tues     | —Cardiovascular system—pertinent normal physiology                      |
| 23 Wed      | —Cardiovascular system—pathologic physiology—shock                      |
| 24 Thurs    | —Central nervous system—relation to anesthesia                          |
| 25 Fri      | —Autonomic nervous system—relation to anesthesia                        |
| 2d Week     |   |
| July 28 Mon | —Respiratory system—physical principles involved, gaseous exchange      |
| 29 Tues     | —Respiratory system—chemical and nervous control                        |
| 30 Wed      | —Respiratory system—pathologic physiology, asphyxia                     |
| 31 Thurs    | —Miscellaneous topics—acidosis, heat stroke versus exhaustion           |
| Aug 1 Fri   | —Traction reflexes, liver and kidney malfunction                        |
| 3d Week     |   |
| Aug 4 Mon   | —Chemistry and pharmacology—volatile agents ether, vinylene, chloroform |
| 5 Tues      | —Chemistry and pharmacology—gases nitrous oxide, ethylene, cyclopropane |
| 6 Wed       | —Chemistry and pharmacology—local anesthetic agents                     |
| 7 Thurs     | —Chemistry and pharmacology—barbiturates                                |
| 8 Fri       | —Chemistry and pharmacology—opium derivatives                           |
| 4th Week    |   |
| Aug 11 Mon  | —Chemistry and pharmacology—alcohols, paraldehyde, inorganic salts      |
| 12 Tues     | —Chemistry and pharmacology—non-narcotic drugs and gases                |
| 13 Wed      | —Premedication—purposes, principles and technique                       |
| 14 Thurs    | —Regional anesthesia—principles, techniques for upper body              |
| 15 Fri      | —Thoracic, abdominal and inguinal regions                               |
| 5th Week    |   |
| Aug 18 Mon  | —Regional anesthesia—perineal and sacral regions and lower body         |
| 19 Tues     | —Regional anesthesia—diagnostic and therapeutic blocks                  |
| 20 Wed      | —Spinal anesthesia—subdural and epidural                                |
| 21 Thurs    | —Rectal, subcutaneous and intravenous anesthesia                        |
| 22 Fri      | —Stages and signs of anesthesia   |
| 6th Week    |   |
| Aug 25 Mon  | —Inhalation anesthesia the theories and methods employed                |
| 26 Tues     | —Resuscitation and oxygen therapy } Demonstration of                    |
| 27 Wed      | —Resuscitation and oxygen therapy } iron lung                           |
| 28 Thurs    | —Problems in the care and transport of patients                         |
| 29 Fri      | —Common anesthetic considerations and emergencies                       |

gical teams In all courses, the following five basic subjects were discussed

- 1 Introduction purpose, definitions, records, and so on
- 2 Pertinent basic sciences
- 3 Anesthetic techniques and stages
- 4 Complications recognition and treatment, asphyxia, shock, airways, artificial respiration, inhalation and fluid therapy
- 5 Operating room hazards fires, explosions, transport of patients

The general plan of instruction consisted of a series of (a) lectures of one to two hours' duration, (b) demonstration of various techniques with the aid of films

or slides and (c) practical instruction in various anesthetic procedures The extent of instruction was necessarily limited by the status of the student and particularly by the function of the unit to which he was assigned

Thus, in table 1 may be seen the outline of a six weeks lecture course given to medical officers of general or station hospitals Since specialists in surgery are assigned to such posts, the services of a competent anesthesiologist are indispensable The outline was designed to cover the field rather broadly Mimeographed lecture outlines were passed out before each session to serve both as a stimulus for class discussion and also as a guide for future reference and reading outside While the schedule appears to have covered the subject intensively, only the significant and practical aspects of anesthesiology were emphasized The subsequent practical work extended for two to ten months Students were assigned to operative schedules and made the customary preoperative and postoperative rounds on their patients Pertinent data taken during such rounds or during the interval of anesthesia were recorded on special charts as well as on Form 55-0-1 Such charts were filed after they were used for group discussions of errors, complications and sequelae

Table 2 shows the lecture outline employed in the instruction of assigned officers of the 7th Evacuation Hospital Only twelve conferences with demonstrations were held and practical instruction continued for only three weeks As these officers were members of a mobile surgical unit in which surgery and anesthetic equipment would be of a different character than that found at a station or general hospital, particular emphasis was given to inhalation (open system), intravenous and some regional anesthesia and the technique of endotracheal intubation

Table 3 shows the lecture outline prescribed for the instruction of seven enlisted men of the Medical Detachment and one nurse assigned to casualty units In addition to the twelve sessions and demonstrations, personal supervision of the administration of anesthetic agents continued for twelve weeks Open drop anesthesia was the only technique taught, with emphasis being given to the methods of introducing artificial airways and of detecting and treating respiratory and circulatory complications

#### COMMENT

During the course of this teaching adventure there were many trying, encouraging and instructive experiences These may be briefly summarized as pertaining largely to (1) the students, per se, their initial approach to anesthesia and subsequent development, and (2) the shortcomings and merits of the plan of instruction Most of the officer students appeared to have the preconceived idea that modern anesthesia was still concerned only with the mastering of techniques This notion was not forgotten until lectures were given on pertinent basic sciences, pathologic physiology and the applications to clinical anesthesia A more wholesome respect for anesthesia was then assumed as well as a more interested and mature approach to the field It appeared obvious many times that the lack of knowledge of the fundamental sciences was largely responsible for their inability to appreciate the changing physiology of an anesthetized patient Because of this the basic sciences were emphasized with added fervor in subsequent

courses. This procedure eliminated one of the many important shortcomings of the first course of instruction. The emphasis on pathologic physiology, its direct clinical application and the elimination of controversial subjects and finer but seldom used techniques greatly improved the later courses.

It has been the experience at this post that inhalation anesthesia more than any other method was particularly instrumental in illustrating and emphasizing not only anesthesia and its stages per se but also the basic pathologic physiology underlying some of the significant respiratory and circulatory complications. Because of this fact and particularly because some of the students will be called on in combat areas to resuscitate injured patients showing similar complications, inhalation anesthesia was stressed more than any other technique.

While the number of students who attended lectures in the four courses exceeded seventy-one, only eleven officers and seven enlisted men were given practical instruction. Four medical officers were from Tilton General Hospital and remained on the anesthesia staff after their formal instruction. One each came from the 210th General Hospital and Station Hospital at Fort Monmouth, N. J., and Station Hospital Fort Dix, N. J. The officer at the last named post is now chief of the Section on Anesthesia and is conducting a course in anesthesia at his post. The remaining ones are now on foreign duty. It will be interesting to learn of their experiences and of their continued development as anesthesiologists.

Mimeographed lecture outlines of the course prescribed for officers of station and general hospitals have been requested by many anesthesiologists contemplating instruction of their assigned army or navy personnel. Thus far, sets have been sent to nine medical officers in charge of anesthesia at general hospitals and to twenty-one colleagues in civilian practice at various institutions. It is hoped that these anesthesiologists have similarly enjoyed the pleasant task of instructing officers to safeguard our armed forces by providing safe and satisfactory anesthesia and avoiding its complications and hazards.

TABLE 2—Schedule of Lectures for Officers of Evacuation Hospitals

| Date        | Subject Matter  |
|-------------|---|
| Feb 18 Wed  | —Introduction, purpose, history, scope of anesthesia, records                               |
| 20 Fri      | —Pertinent normal physiology of the cardiovascular, respiratory and central nervous systems |
| 21 Sat      | —Pertinent pathologic physiology: shock, cyanosis, asphyxia, hypoxia                        |
| 23 Mon      | —Local anesthetic agents: spinal anesthesia   |
| 24 Tues     | —The barbiturates: intravenous anesthesia   |
| 25 Wed      | —Opium derivatives: premedication   |
| 26 Thur     | —Stages and signs of anesthesia   |
| 27 Fri      | —Gases and volatile anesthetic agents: inhalation anesthesia                                |
| 28 Sat      | —Common complications of anesthesia: resuscitation and oxygen therapy                       |
| March 2 Mon | —Operating room hazards: fires, explosions  |
| 3 Tues      | —Regional anesthesia: general principles, operative blocks                                  |
| 4 Wed       | —Regional anesthesia: operative blocks (continued)  |

All seven enlisted men of the medical detachment assigned to the Section on Anesthesia had previous training in the biologic sciences. Three finished the first year of medicine, three were professional biologic chemists and the last was a premedical student. Their background proved to be very helpful in their training.

Their development as anesthetists in open drop ether or inhalation techniques was surprisingly rapid and satisfactory. Enlisted men with such qualifications are desirable students and their selection for training in anesthesia might be encouraged at other posts to conserve not only nurse but officer personnel as well.

TABLE 3—Schedule of Lectures for Enlisted Men of Medical Detachment Assigned to Auxiliary Surgical Teams

| Date        | Subject   |
|-------------|---|
| March 9 Mon | —Introduction, purpose, definitions, records, pertinent biology |
| 10 Tues     | —Stages and signs of anesthesia                                 |
| 11 Wed      | —Open drop anesthesia: ethyl chloride, ether, vinylcaine        |
| 12 Thur     | —Open drop anesthesia: technique in detail                      |
| 13 Fri      | —Open drop anesthesia: advantages, disadvantages, airways       |
| 14 Sat      | —Complications—respiratory: recognition and treatment           |
| 16 Mon      | —Complications—circulatory: recognition and treatment           |
| 17 Tues     | —Complications—other systems: recognition and treatment         |
| 18 Wed      | —Operating room hazards: fires, explosions, precautions         |
| 19 Thur     | —Problems in care and transport of operative patients           |
| 20 Fri      | —Review   |
| 26 Thur     | —Written examination  |

It has been my good fortune to be assigned to a post staffed with highly trained and academic minded officers. Their patience and interest have materially aided the plan of instruction. However, to Col S. Jay Turnbull, commanding officer, and to Col Hertel P. Makel, chief of the surgical service, I am particularly indebted for their kind permission to present the first organized didactic course in anesthesiology in the history of the Army and for their suggestions and whole hearted cooperation throughout this teaching adventure.

#### ABSTRACT OF DISCUSSION

DR HENRY S. RUTH, Merion Station, Pa. Major Martin has prepared an outline for instruction of anesthesiology in a branch of the armed forces. His emphasis on the fundamental sciences is, as we know from our experience in civilian instruction, a sound principle and a proved one. It will be interesting to observe however to just what degree this aspect can or should be emphasized under the duress of war. Many factors such as the time element and the necessity for rather rapid changes in personnel should help to determine this for us shortly. In the meantime I feel certain that Major Martin is not neglecting the all important clinical phase. Our medical military forces will be called on to apply certain anesthetic agents and techniques under all sorts of situations and conditions and to be able to do this at all efficiently they must receive as much instruction and practice on the technical side as it is possible to give in the allocated time. Major Martin has mentioned the nonphysician aide. In this group there appear to be available a relatively large number of noncommissioned personnel with some training in the biologic and other related sciences. These men welcome an opportunity to be of service in a branch even remotely related to their previous training as compared to a duty requiring complete dislocation from and contact with their civilian activities. The services in anesthesia already provided by this type of individual appear to be very satisfactory, according to the information gathered from reliable and competent sources. The utilization of such a non-commissioned group would greatly relieve the present great strain on nursing personnel. It is true that military hospital patient material is increasing in numbers, and therefore instruction in military hospitals is a valuable adjunct to civilian instruction. In spite of this change I believe for several reasons that civilian instruction is as acutely indicated at the present



time as it was in 1940. Civilian instruction would do much to provide an increasing number of anesthetists definitely needed for this type of service in the armed forces. The efficiency of instruction given in established centers of anesthesiology does not suffer by comparison with that given in the more recently formed military hospitals. Moreover, the physical status of civilian surgical cases more nearly approximates, it would seem, that of those encountered in combat service, for civilian practice includes anesthesia for patients of lowered physical status, while that in the service, excluding combat zones, deals mainly with individuals with acute surgical conditions, otherwise in excellent physical status, and in the age group possessing a high resistance. Practice on civilian patients should therefore be valuable training for the future care of combat patients, many of whom are in poor physical status as the result of shock, pain, hemorrhage and trauma, and the unavoidable delay of surgical care frequently encountered. Instruction in anesthesia for military application will be placed on a sound basis when a list of the agents and methods available in the field is known. This, I believe, has not as yet been determined or at least not as yet been made public.

DR SIDNEY C WIGGIN, Boston. Major Martin is to be congratulated for accomplishing in a short time what was thought to be impossible—an organized department of anesthesiology to supply modern methods of civilian practice for pain relief for the military casualty. He has established an anesthesia teaching center for medical officers and enlisted men. My thought is that too few physician anesthetists have been trained in civilian practice, so this program is of vital importance to supply the special operating teams to be organized at the different hospital stations in the line of evacuation. I should like to emphasize the importance of empowering the medical officer in anesthesia with the same authority as the surgical officer in the operating units, so that he may carry out the practices in which his special training has fitted him.

DR STEVENS J MARTIN, Fort Dix, N J. I fully agree with Dr Ruth that the time won't be long distant before we shall have to resort to the training of the nonmedical but biologically trained men to fill in the gaps in various units that are being sent out to do anesthesia and operative work in the field. This problem, I believe, will become more and more acute as the war progresses. I thank you for your kind remarks and I hope that we shall have the fortune of seeing other institutions resort to the training of personnel in anesthesia to relieve the rather grave shortage of anesthetists in the armed forces.

**The Common Good of Mankind**—The profession of medicine, having for its end the common good of mankind, knows nothing of national enmities, of political strife, of sectarian dissensions. Disease and pain the sole conditions of its ministry, it is disquieted by no misgivings concerning the justice and honesty of its client's cause but dispenses its peculiar benefits, without stint or scruple, to men of every country and party and rank and religion and to men of no religion at all. And, like the quality of mercy, of which it is the favorite handmaid, "it blesseth him that gives and him that takes", reading continually to our own hearts and understandings the most impressive lessons, the most solemn warnings. It is ours to know in how many instances, forming indeed a vast majority of the whole, bodily suffering and sickness are the natural fruits of evil courses, of the sins of our fathers, of our own unbridled passions, of the malevolent spirit of others. We see too the uses of these judgments, which are mercifully designed to recall men from the strong allurements of vice and the slumber of temporal prosperity, teaching that it is good for us to be sometimes afflicted. Familiar with death in its manifold shapes, witnessing from day to day its sudden stroke, its slow but open siege, its secret and insidious approaches, we are not permitted to be unmindful that our own stay also is brief and uncertain, our opportunity precarious, and our time, even when longest, very short, if measured by our moral wants, and intellectual cravings.

—Watson, Thomas. *Practice of Physic*

## THE USE OF HUMAN PLASMA IN SPINAL ANESTHESIA

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During the relatively short history of spinal anesthesia, attention has been focused on two problems in designing technic for placing drugs into the subarachnoid space. The first of these has been to produce the desired extent of anesthesia in a manner predictable and with minimal dangers, the second, to secure the required duration of anesthesia with doses of the agent that provide a wide margin of safety. The latter problem has been approached in several ways. Recently, nupercaine and pontocaine, drugs more toxic but more potent than procaine, have been given in relatively smaller amounts and act for longer periods of time. Retarding the absorption of anesthetic drugs has been attempted by dissolving them in various foreign substances of higher osmotic tension than spinal fluid. Finally, prolonged spinal anesthesia is being accomplished by the repeated administration of relatively small doses of the drug.

The problem of obtaining predictable levels of spinal block has exposed the literature to violent argument. Labat<sup>1</sup> and his school were the chief proponents of the principle of diffusion of drugs (procaine) in the spinal fluid increased as needed by appropriate barbotage. He was able to increase the extent of anesthesia by withdrawing and reinjecting the solution of drug in spinal fluid. Labat criticized the gravity control method of attaining desired levels of anesthesia as unphysiologic and dangerous. On the other hand, the gravity control method has had many advocates, for the use of anesthetic drug mixtures both lighter and heavier than spinal fluid. As early as 1907, Barker<sup>2</sup> described the use of 10 per cent stovaine solution in distilled water to which had been added dextrose in 5 per cent concentration. This solution is heavier than spinal fluid, having a specific gravity of 1.030. He demonstrated with the use of glass tubes shaped according to the natural spinal curves that such a solution obeys the physical laws of fluids and seeks the most dependent parts of the spinal canal. The anesthetic levels obtained clinically corresponded to those observed with the models. Barker pointed out that the viscous properties of this solution restricted the anesthetic drug to definite predictable areas, depending on the position of the patient, where it remained undiffused for a definite period of time.

In 1928 Pitkin<sup>3</sup> described his heavy and light anesthetic solutions. The heavy solution first studied and recommended contained starch and later gliadin, and finally amyloprolamine was used. The latter substance prevented diffusion of the anesthetic drug for two hours. Pitkin's light solution owed its properties to the presence of alcohol. The level of anesthesia was obtained by appropriate postural adjustment of the patient.

From the Division of Surgery, Department of Anesthesia, New York University College of Medicine.  
1. Labat, Gaston. *The Trend of Subarachnoid Block*. S. Clin. 6: 11. America 10: 671 681 (June) 1930.  
2. Barker, Arthur L. *A Report on Clinical Experiences with Anesthesia in 100 Cases*. Brit. M. J. 1: 665 674 1907.  
3. Pitkin, George P. *Controllable Spinal Anesthesia*. Am. J. S. 5: 537 553 (Dec.) 1928.

More recently dextrose has been the substance commonly employed for gravity control and to prolong anesthetic action using the single dose method for spinal anesthesia. It has been advocated for storvane by Barker<sup>4</sup> for pontocaine by Sise<sup>5</sup> and for procaine by one of us.<sup>6</sup> Finally, blood serum taken from the patient to be anesthetized was used as the solvent for procaine by Bower, Clark and Burns<sup>6</sup> in 1933. This mixture was employed for anesthesia that was not to extend above the umbilicus by taking advantage of the increased specific gravity compared with spinal fluid for gravity control. Motor power remained intact in many patients especially when the levels of anesthesia did not include areas over the umbilicus.

The present preliminary report deals with the use of pooled human plasma as the solvent for procaine employed in spinal anesthesia. The pooled plasma was obtained by centrifugation of refrigerated citrated whole blood with due regard to complete aseptic precautions. The plasma was collected in small rubber capped vials (20 to 50 cc) and stored in the blood bank. Since pooled plasma has a specific gravity of 1.028 it was used as a heavy solution in the gravity control method for spinal anesthesia. Since Barker<sup>4</sup> had previously demonstrated that duration of anesthesia is dependent on the 'viscid' properties of the anesthetic mixture, experiments on man were carried out to determine whether plasma with its high osmotic tension prolonged the anesthetic action as compared with a solution of procaine in spinal fluid.

#### METHOD

Five volunteer normal men who had not been operated on were used in the preliminary investigation. All experiments were performed three hours postprandially at the same time of the day. All had rested in bed for twelve hours prior to the test. Each subject was anesthetized twice, once with procaine dissolved in spinal fluid and then with the same dose of procaine in plasma. Thus each subject acted as his own control. Tests were conducted forty-eight hours apart. Three subjects were given 100 mg doses and 2 were given 50 mg doses of procaine. The technic was standardized as far as possible. A level table was used. Lumbar puncture was performed in the fourth lumbar interspace with the subject lying on his left side. The dose of procaine selected was then dissolved in 2 cc of spinal fluid or 2 cc of plasma, and injection was completed in exactly ten seconds. The subject was turned gradually and gently to the supine position. The sensory level of anesthesia was noted at frequent intervals by response to pinprick, and motor power of the lower extremities was observed at the same time. Two end points with regard to sensory anesthesia were noted: the beginning of recession from the maximum height and the ability to perceive painful stimuli at the level of the twelfth thoracic vertebra. The return of motor power was indicated by any motor activity of the lower extremity.

#### RESULTS

The accompanying table summarizes the observations made. It will be noted that the maximum height of anesthesia obtained by the use of the technic described

was the same for all subjects whether plasma or spinal fluid was the solvent used. In 3 of the 5 subjects the duration of anesthesia at the maximal level was definitely increased by the use of plasma. In the other 2 there was no difference. The total duration of anesthesia, as judged in this report by perception of pain at the level of the twelfth thoracic vertebra, was prolonged in the plasma experiments from 18 to 85 per cent of the control value in 4 of the 5 subjects. The fifth subject exhibited no difference in duration. Anesthesia of the motor nerves was greater in intensity and duration if spinal fluid rather than plasma was used as the solvent for procaine. In 2 subjects the duration of motor anesthesia was less with plasma than with spinal fluid. In one experiment there was no motor anesthesia with either solvent, in another the duration was the same, and finally, there was one subject with motor paralysis for twenty-two minutes when spinal

Summary of Observations on the Use of Human Plasma in Spinal Anesthesia

| Subject    | Procaine<br>mg | Maximum<br>Height<br>T <sub>10</sub> | (Min) | % Change | Beginning<br>Recession |          | Return to T <sub>1</sub> |          | Return<br>of Motor<br>Power |          |
|------------|----------------|--------------------------------------|-------|----------|------------------------|----------|--------------------------|----------|-----------------------------|----------|
|            |                |                                      |       |          | (Min)                  | % Change | (Min)                    | % Change | (Min)                       | % Change |
| Plasma A B | 100            | T <sub>10</sub>                      | 53    | +110     | 59                     | +59      | 30                       | 0        |                             |          |
| Control    | 100            | T <sub>10</sub>                      | 25    |          | 37                     |          | 30                       |          |                             |          |
| Plasma W E | 100            | T <sub>8</sub>                       | 30    | 0        | 65                     | +18      | 34                       | -29      |                             |          |
| Control    | 100            | T <sub>8</sub>                       | 30    |          | 55                     |          | 47                       |          |                             |          |
| Plasma B F | 100            | T <sub>4</sub>                       | 77    | +28      | 107                    | +34      | 62                       | -11      |                             |          |
| Control    | 100            | T <sub>4</sub>                       | 60    |          | 80                     |          | 70                       |          |                             |          |
| Plasma J K | 50             | T <sub>10</sub>                      | 45    | +104     | 50                     | +85      | No motor<br>paralysis    |          |                             |          |
| Control    | 50             | T <sub>10</sub>                      | 22    |          | 27                     |          | 22                       |          |                             |          |
| Plasma G R | 50             | T <sub>11</sub>                      | 25    | 0        | 25                     | 0        | No motor<br>paralysis    |          |                             |          |
| Control    | 50             | T <sub>11</sub>                      | 25    |          | 25                     |          | No motor<br>paralysis    |          |                             |          |

fluid was used and no motor paralysis when plasma was the solvent. At no time did plasma increase the duration or intensity of motor paralysis. There was no appreciable effect on blood pressure, pulse or respiration in these experiments.

One possible explanation for the potentiation of procaine anesthesia by the use of plasma as a diluent lies in its protein content. Human plasma has an average of 7.0 Gm of protein per hundred cubic centimeters, as compared with 0.02 Gm in spinal fluid.<sup>7</sup> It has been determined that proteins may act synergistically with local anesthetic drugs,<sup>8</sup> but this fact has not been utilized for clinical anesthesia. Other possible mechanisms for synergistic action, which include an increased  $pH$ , increased concentration of potassium sulfate, epinephrine and the addition of purine derivatives, play no part in the phenomena observed. However, the increased duration of sensory anesthesia and decreased motor paralysis may be due largely to retarded absorption of the drug from the plasma solution because of

<sup>4</sup> Sise, Lincoln F. Pontocaine Glucose Solution for Spinal Anesthesia. *S. Clin. North America* 15: 1501 (Dec.) 1935.

<sup>5</sup> Rovenstine, E. A. Anesthesia for Transurethral Prostatic Resection. *J. Urol.* 31: 633-648 (May) 1934.

<sup>6</sup> Bower, John O., Clark, J. H., and Burns, J. C. Spinal Anesthesia. A New Technic Adaptable to the Beginner. *J. A. M. A.* 100: 245-247 (Jan. 28) 1933.

<sup>7</sup> Bodansky, Meyer. *Introduction to Physiological Chemistry*, ed. 3. New York: John Wiley & Sons, 1934, p. 218.

<sup>8</sup> Hirschfelder, Arthur D., and Bieler, Raymond N. Local Anesthetics. *Physiol. Rev.* 12: 190-282 (April) 1932.

the presence of relatively large amounts of protein. The whole effect may be influenced to a great extent simply by the difference in specific gravity of the solutions.

#### CLINICAL DATA

After studies on men who had not been operated on were completed, 5 and 10 per cent solutions of procaine in plasma were used for clinical anesthesia for 70 patients. The standard technic of administration using appropriate postural adjustments was employed to attain the desired level of anesthesia with procaine in plasma. The majority of these were subjected to surgical procedures in the lower part of the abdomen and lower extremities. There have been no untoward manifestations during surgical therapy or postoperatively that might be attributed to the plasma. Observations of these few cases have left the impression that dose for dose the duration of procaine spinal anesthesia is prolonged when plasma rather than spinal fluid is the diluent. Predominantly, motor or sensory anesthesia can be obtained easily and as desired by appropriate adjustments of the position of the patient.

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### THE CAUSES AND PREVENTION OF SUDDEN DEATH IN CORONARY DISEASE

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Aside from the mounting mortality toll that would appear inevitable with the generally increased incidence of coronary disease, the problem of minimizing the occurrence of fatal complications of myocardial infarction resulting from coronary occlusion, as far as they are subject to control, presents a clinical challenge that can be met only by a careful analysis of the actual immediate causes of death following the occurrence and during the recovery stage of myocardial infarction.

Acute myocardial infarction may occur in the course of coronary atherosclerosis as a consequence of any one of the following circumstances:

1. Thrombosis of a narrowed atherosclerotic coronary vessel.
2. Intramural hemorrhage in a coronary vessel producing closure.
3. Rupture of a subintimal lipid abscess with plugging of the lumen.
4. Infarction occurring without complete organic occlusion of a coronary vessel.

The last mentioned circumstance might be induced by prolonged coronary insufficiency, such as a protracted anginal seizure, resulting in a sufficiently sustained ischemia to produce an area of infarction in a myocardium already undernourished from coronary sclerosis. In contrast with this, one occasionally encounters a situation in which the obliterative process of a coronary vessel has evolved so gradually over a period of years that channels of collateral circulation may have developed to an extent sufficient to prevent infarction even when the partial coronary closure does eventually become complete.

In any event it is the myocardial ischemia and ensuing infarction consequent on acute coronary occlusion that plays the dominant role in the clinical picture and presents the important implications in the prognosis and management of the attack. The outstanding indications for therapeutic management include (1) prompt and effective relief of pain, (2) control of shock, (3) efforts directed toward limitation of regional coronary vasoconstriction and (4) the problem of bringing to bear what influences one can to offset certain critical and oftentimes fatal complications attendant to the period of recovery.

#### PROMPT RECOGNITION

Any comprehensive discussion of the management of the sudden attack would be incomplete without emphasizing the signal importance of prompt recognition of an impending occlusion. One's clinical perception must ever be on the alert not only for the atypical attack, often without pain, but also to interpret the significance of increasing frequency, severity and duration of anginal attacks in a subject with coronary disease, particularly when brought on by ever diminishing degrees of stress or even perhaps during rest.

#### MANAGEMENT OF THE ATTACK

Confronted with a clinical picture of coronary occlusion, one's first consideration should be the relief of pain. Intravenous injection of papaverine followed by morphine, if necessary, not only accomplishes this objective promptly but appears to minimize shock and may even serve to limit coronary vasoconstrictor reflexes, with all the implications that such action may have on the extent of the resultant myocardial infarction. Attenuation of vagus vasoconstriction by the use of atropine would likewise appear a sound measure to employ, even when no more than a well founded suspicion of threatened occlusion or infarction exists. The antifibrillation effect of papaverine hydrochloride, as shown by Lindner and Katz<sup>1</sup> in experiments on dogs, appears to justify the clinical use of this opium alkaloid in conditions which are apt to lead to ventricular fibrillation. These investigations have shown that papaverine hydrochloride, in addition to being a powerful coronary vasodilator, makes it much more difficult to induce ventricular fibrillation by faradic stimulation. It would appear that the protection of uninvolved areas of myocardium from vasoconstrictive reflexes which might either extend the area of infarction or induce fatal ventricular fibrillation would constitute the rationale for the prompt use of vasodilatory drugs in acute occlusion.

The work of Manning, McEachern and Hall<sup>2</sup> on coronary artery reflexes accompanying experimental coronary ligation in the dog showed that occlusion of a coronary artery is often followed by a reflex spasm of collateral coronary vessels. Their experiments further suggested that this regional spasm produced an area of ischemia and resultant infarction appreciably larger than would be anticipated from ligation of the particular vessel itself. They conclude that reflex spasm in the regional arterioles following acute occlusion enhances myocardial ischemia and subsequent infarction.

In the purely anginal attacks of coronary atherosclerosis constriction of the regional arterioles is thought to

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Read before the Section on Experimental Medicine and Therapeutics at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J. June 10, 1942.

1. Lindner, E. and Katz, I. N. Papaverine HCl in V. Fibrillation. *Am. J. Physiol.* 133: 15, 16 (May) 1941.  
2. Manning, G. W., McEachern, C. G. and Hall, G. F. I. Coronary Artery Spasm Following Sudden Occlusion of One of the Branches. *Arch. Int. Med.* 64: 661 (74) (Oct.) 1937.

and responds to nitrites or to alcohol. In the event of sudden permanent occlusion the same regional vasoconstriction appears to take place, the effective control of which may have a signal effect on the size and immediate outcome of the impending infarction. LeRoy and Snider demonstrated that after coronary ligation in dogs there is a generalized coronary vasoconstriction subsequent to the myocardial infarction. This seemed to be the factor bringing about ventricular fibrillation which appeared to be the immediate cause of death in animals succumbing to the experiments. In a large group of their animals the average mortality following ligation of the circumflex branch of the left coronary was 75 per cent. This mortality was reduced to 35 per cent with intravenous atropine sulfate and to 30 per cent with atropine sulfate and aminophylline together.

The accepted clinical management of acute coronary occlusion with morphine given hypodermically rest and oxygen when immediately available, all too frequently entails distressing delay in the control of pain and anxiety. This protracted distress undoubtedly influences the degree of resultant shock aside from the possibility of influencing the ultimate area of infarction. Based on Allen's<sup>3</sup> suggestion in 1935 that papaverine given intravenously be tried in coronary occlusion because of his observations on its effect in controlling widespread regional arteriolar spasm in sudden occlusions in the leg and also McLachlan's<sup>4</sup> observations that intravenous injection of papaverine lowered by one third the mortality of dogs following coronary ligation I have been giving from  $\frac{1}{2}$  to 1 gram (0.03 to 0.06 Gm.) of papaverine intravenously in all coronary attacks more severe than the transient anginal type responding to nitrites. When papaverine does not induce adequate relief from pain it can be followed up with a very slow, careful intravenous injection of from  $\frac{1}{8}$  to  $\frac{1}{4}$  gram (0.01 to 0.016 Gm.) of morphine (diluted with 2 cc. of sterile water). Aside from the possibility of some control of regional vascular spasm the prompt relief of pain, as compared with the agonizing delay so many physicians have witnessed while waiting for the protracted response to two or three successive hypodermics of morphine should tend to minimize the shock, to say nothing of the anguish attendant on the seizure.

#### CAUSES OF SUDDEN DEATH

Among the immediate causes of sudden death whether in the throes of the coronary attack or during the period of recovery are such complicating factors as ventricular fibrillation, myocardial failure and pulmonary embolism.

#### VENTRICULAR FIBRILLATION

The occurrence of ventricular fibrillation at the moment of death in sudden fatalities following myocardial infarction has been reported by several observers who happened to be taking electrocardiograms at the time of death. Autopsies in these cases failed to reveal any other sufficient cause.<sup>5</sup>

The occurrence of frequent ventricular extrasystoles following myocardial infarction is conceded to be an ominous sign. It has been observed that the more frequently they occur the greater is the probability of sudden fatal termination. It is the opinion of several observers that infarcted areas of myocardium are hyperirritable and constitute the foci of ectopic beats which by their summation might lead to ventricular fibrillation. Woods and Barnes<sup>7</sup> report that groups of patients having more frequent premature contractions have a higher mortality rate. Of the patients who had one premature ventricular beat in every ten 14 out of 17 died, whereas all of the group who had but one in twenty or more survived.

With the mechanism of sudden death from ventricular fibrillation in mind, Borg<sup>8</sup> in view of the rather general opinion that ventricular fibrillation is considered a frequent cause of sudden death in arteriosclerotic heart disease attempted to reduce the tendency to this fatal rhythm by giving all patients admitted to the Ancker Hospital with degenerative heart disease (including hypertensive coronary and aortic valvular types) 3 grams (0.2 Gm.) of quinidine sulfate three times a day. Before the institution of this routine among 22,490 admissions over a two year period there had occurred 42 sudden deaths, 80 per cent of the patients who died suddenly had degenerative heart disease. The following year when quinidine was given in such cases routinely, Borg reported only 5 sudden deaths. This observation at least suggests that all patients with degenerative heart disease are in danger of sudden death which is apparently minimized by the routine use of quinidine sulfate and it would seem to justify such a measure in the treatment of acute myocardial infarction, more particularly when there are frequent premature systoles, which circumstance appears to present greater danger of fatal ventricular fibrillation. The prophylactic administration of quinidine sulfate soon after the onset of myocardial infarction to prevent ventricular tachycardia and fibrillation has been advocated by several writers.<sup>9</sup> As a myocardial depressant quinidine seems a better prophylactic agent against ventricular fibrillation than a curative one.

#### MASSIVE PULMONARY EMBOLISM

Another immediate cause of death which occurs in an important percentage of cases following acute coronary occlusion with myocardial infarction is massive pulmonary embolism. These pulmonary emboli do not usually come from mural thrombi in the heart but apparently from thrombi originating in the iliac veins. Such massive pulmonary embolism accounted for 6 of the 60 deaths occurring in the series of 128 cases of acute myocardial infarction reported by Woods and Barnes<sup>7</sup> in 1941. Hines and Hunt<sup>10</sup> report that 30 per cent of 161 autopsies on arteriosclerotic heart disease subjects showed pulmonary infarction. This high incidence should be kept in mind in the management of certain

3 LeRoy, G. A. and Snider, S. S. Sudden Death of Patients with Few Symptoms of Heart Disease. *J. A. M. A.* 117: 2019 (Dec. 13) 1941.

4 Allen, E. A. Sudden Occlusions of the Arteries of the Extremities. *Proc. Staff Meet. Mayo Clin.* 10: 678 (Oct. 23) 1935.

5 McEachern, C. G., Smith, F. H. and Manning, G. W. Effect of Intravenous Papaverine on Mortality from Sudden Coronary Occlusion in Dogs. *Am. Heart J.* 21: 23-30 (Jan.) 1941.

6 Thompson, Ivan. Ventricular Fibrillation Causing Sudden Death of Patient with Disease of Left Coronary Artery. *J. A. M. A.* 116: 2583-2585 (June 7) 1941. Smith, F. J. Ventricular Fibrillation as Cause in Coronary Artery Thrombosis. *Am. Heart J.* 17: 735-741 (June) 1939. Miller, H. Ventricular Fibrillation as Mechanism of Sudden Death in Patients with Coronary Occlusion. *New England J. Med.* 221: 564-569 (Oct. 12) 1939. Woods and Barnes.

7 Wood, R. M. and Barnes, A. R. Factors Influencing Immediate Mortality Rate Following Acute Coronary Occlusion. *Proc. Staff Meet. Mayo Clin.* 16: 3-13-15 (Mar. 28) 1941.

8 Borg, Joseph F. Ventricular Fibrillation Causing Sudden Death. *Tr. Am. Therapeutic Soc.* 39: 115 1939.

9 Levine, S. A. and Fulton, M. N. The Effect of Quinidine Sulfate in Ventricular Tachycardia. *J. A. M. A.* 92: 1162 (April 6) 1929. Nathan, M. H. Pathology and Pharmacology of Cardiac Syncope and Sudden Death. *Arch. Int. Med.* 58: 685 (Oct.) 1936. Strauss, M. L. Paroxysmal Ventricular Tachycardia. *Am. J. M. Sc.* 179: 337 (March) 1930. Schwab, E. H. Observations on the Etiology and Treatment of Paroxysmal Ventricular Tachycardia. *Am. Heart J.* 6: 404 (Feb.) 1931.

10 Hines, F. E. and Hunt, J. T. Pulmonary Infarction in Heart Disease. *Ann. Int. Med.* 15: 644-647 (Oct.) 1941.

types of cardiac disease. During the convalescent period of myocardial infarction, circumstances would appear favorable for the formation of thrombi in the iliac veins consequent on the lowered blood pressure and the necessarily prolonged period of bed rest.

In this connection the observations of Potts<sup>11</sup> are of interest. He became convinced many years ago that venous stasis was the most important factor in venous thrombosis and accordingly since 1928 has used the following routine in all surgical cases under his care, beginning twenty-four hours after operation: "Have the patient take fifteen deep breaths morning and evening and with each deep breath passively or actively flex the legs." Potts uses this routine among adults not too weak or too seriously ill to carry out the order, which of course would be the condition in the immediate post-infarction stage of most attacks of coronary occlusion. In the years during which this routine has been carried out, among 518 adult surgical patients Potts<sup>11a</sup> reports not a single instance of pulmonary embolism or even thrombophlebitis, except in fractures of the upper leg in which immobilization rendered flexion of the leg impossible. Among this group he has had 5 patients with pulmonary embolism. Deep inspiration, elevation of the leg and muscular contraction obviously assist in sweeping out the pelvic and femoral veins, thus reducing the venous stasis which is conceded to be such an important contributing factor in the formation of thrombosis and subsequent embolism. The value of leg exercises in the prevention of postoperative embolism is also emphasized by Welch and Faxon<sup>12</sup> in a recent report. That this precautionary measure might be worth utilizing in the relative venous stasis following in the wake of myocardial infarction would appear logical, particularly in the light of Woods and Barnes's observation that 10 per cent of their coronary deaths were attributable to massive pulmonary embolism.

This routine in convalescent coronary management has been established in my service beginning on the fourth or fifth day, the number of exercises being varied from eight to ten according to the patient's condition. For the first few days the legs are flexed passively by the nurse or attendant, the patient folding his hands behind his neck for the deep breathing exercises.

#### MYOCARDIAL FAILURE

Another cause of fatality within the immediate recovery period following acute myocardial infarction is myocardial failure associated with severe pulmonary edema and occasionally with acute hepatic congestion. Indications for management of this complication include the judicious and careful use of digitalis, parenteral aminophylline and adequate oxygen therapy. The use of aminophylline as a routine measure in myocardial infarction is a debatable question. Aside from its parenteral use in the prodromal or early stage of an infarction complicated by signs of congestive failure,

I do not use aminophylline until after the first week of convalescence, when it is given by mouth, along with quinidine and phenobarbital.

#### MYOCARDIAL INFARCTION AS A SURGICAL COMPLICATION

Coronary occlusion is not infrequently the cause of sudden death in arteriosclerotic subjects during surgical anesthesia and the early postoperative period. The reduction in blood pressure occurring in that period presents an ideal situation for an already impaired coronary vessel to develop complete occlusion. This possibility would appear to justify a painstaking preoperative appraisal of coronary efficiency and a clinical estimate of myocardial and coronary reserve, by a careful inquiry into the middle aged or older patient's apparent ability to meet the demands of his everyday life, as well as a comprehensive evaluation of the objective clinical, x-ray and electrocardiographic findings.

Naturally the proper choice of anesthetic and careful observation and management during anesthesia and the immediate postoperative period is imperative. It would appear good judgment to reduce the time of any surgical procedure to a minimum in the presence of suspected coronary insufficiency. One must continue to bear in mind the danger of medical and surgical shock as an immediate precipitating factor in the production of coronary thrombosis in cases in which evidence suggests that disease already exists in the coronary vessels.

#### SUMMARY AND CONCLUSIONS

The syndrome usually termed coronary thrombosis or coronary occlusion, consisting of prolonged substernal pressure or pain and accompanied by a fall in blood pressure, shock, pallor, characteristic electrocardiographic changes, fever, leukocytosis and increased sedimentation rate is in reality the result of the myocardial ischemia and ensuing infarction that follows acute coronary occlusion. This is particularly significant since it is recognized today that myocardial infarction may develop and produce classic symptoms without actual permanent structural occlusion of a coronary vessel. Such a circumstance may follow a severe, prolonged, anginal seizure and be associated with all the symptoms described, resulting from prolonged insufficiency of the blood supply to a particular myocardial sector and consequent protracted local myocardial anoxemia. Such coronary failure may result in myocardial infarction, which under certain circumstances might be averted by prompt intravenous administration of papaverine or morphine, with atropine and perhaps aminophylline, along with absolute rest and oxygen. When sudden complete occlusion makes myocardial infarction inevitable, it would appear within the realm of possibility that such measures might minimize the ensuing shock, if not the area of myocardial infarction, and possibly avert fatal ventricular fibrillation.

The mortality of acute coronary occlusion with myocardial infarction might well be favorably influenced by the early recognition of impending infarction and the institution of adequate protective therapy without delay. Furthermore, the dangerous complications that often characterize the immediate or later recovery period of an acute coronary attack should be borne in mind and adequate protective measures instituted in our therapeutic management of the episode.

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<sup>11</sup> Potts Willis J. Pulmonary Embolism, *Ann Surg* **111** 554 (April) 1940.

<sup>11a</sup> At the 1942 annual session of the American Medical Association Willis Potts reported to the Section on Surgery (to be published) that to date he has had 837 operative cases on this routine without a single instance of either phlebotrombosis or pulmonary embolism whereas in 128 leg fractures (which prevented the leg exercises) there had occurred 5 cases of pulmonary embolism. Among 150 operative patients in the hospital who did not have the exercises, he reports that 4 had one of the complications described.

<sup>12</sup> Welch Claude E., and Faxon Henry H. Thrombophlebitis and Pulmonary Embolism, *J A M A* **117** 1502-1508 (Nov. 1) 1941.



## Clinical Notes, Suggestions and New Instruments

### ANEURYSM OF THE ANTERIOR CEREBRAL ARTERY

WALTER E. DANDY, M.D., BALTIMORE

During the past decade intracranial aneurysms have been added to the group of lesions that are curable by operation. I now have cured 15 patients with aneurysms of the internal carotid artery arising in the cavernous sinus and along the intracranial course of this vessel. The treatment of aneurysms of the internal carotid artery is relatively simple, it being necessary only to isolate the aneurysms between ligatures or silver clips or to clip the neck of the aneurysms when they lie within the cranial chamber.

Herewith is a report of an aneurysm of the anterior cerebral artery. As it is one of the most common aneurysms of the brain and one with a fairly easy approach, the hope is entertained that the surgical attack will become increasingly more frequent. Up to the present aneurysms of other arteries in the brain have not been cured, but doubtless with time the list will be increased.

#### REPORT OF CASE

A well nourished normal looking woman aged 45 was referred by Dr. Robert Sullivan of Murfreesboro, Tenn., Dec. 1, 1941, because of defective vision.

Her only complaint was loss of vision which began two months before and had steadily increased. There had been no headaches.

Dr. Alan C. Woods examined the patient's eyes and found (1) visual acuity to be 15/200 in the right and 20/70 in the left eye; (2) loss of all color vision in the right eye; (3) central scotoma in the right eye; (4) suggestive altitudinal hemianopsia for form in the right eye; (5) some pallor of the right optic disk; (6) central scotoma for color in the left eye; and (7) only a small field for colors remaining in the left eye.

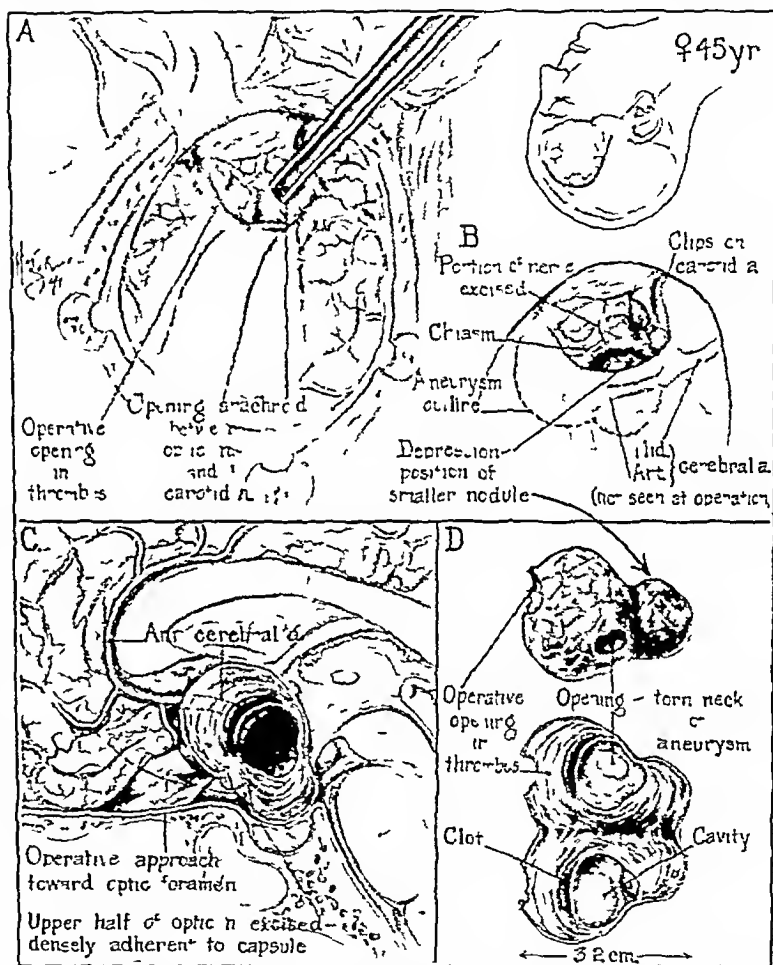
The blood pressure was 120 systolic and 85 diastolic. The Wassermann reaction of the blood was negative and roentgenograms of the head were negative.

The diagnosis was a tumor in the suprasellar region; an aneurysm was not suspected.

An operation was performed on December 3. A right hypophysial approach was made with a concealed incision. There was no increased intracranial pressure. Less than 0.5 cm. from the optic foramen the optic nerve began to show a brownish red discoloration and was increased in size. My first thought was that this was a glioma of the optic nerve and chiasm. The internal carotid artery lay alongside for a distance of probably 3 cm. was free of any attachment and looked perfectly normal. The space between the artery and the nerve was inspected but extension of the tumor was not seen. On further withdrawal of the frontal lobe for inspection of the chiasm a large mass was seen extending upward into the base of the brain. It was smooth and well rounded and was certainly not a glioma. Suspecting that it was a tumor, I incised the capsule and made an attempt to curet the interior, but the content was so hard that the curet made no impression on it. Since it was firmly attached to the right optic nerve and a line of cleavage could not be found, I cut away the upper half of this nerve, freeing the presumed tumor just before the chiasm was reached. The incised bed of the nerve was about 0.75 cm. long, approximately the upper half of the optic nerve had been excised. With very slight traction on the incised capsule the mass was lifted slowly and with no apparent point of fixation. After a little progress, however,

the wound suddenly filled with blood. I suspected that the internal carotid might have been torn and promptly passed a silver clip through the blood and closed it. The blood was then aspirated and it was seen that the bleeding had completely stopped. With gentle dissection the tumor was separated from the optic chiasm and lifted out of its bed; no further bleeding resulted. The tumor was then recognized to be an aneurysm. An opening in the wall as large as the end of a lead pencil was the source of the sudden hemorrhage. The aneurysm could have arisen only from the right anterior cerebral artery. However, at no time was this vessel actually seen and curiously no bleeding appeared from it subsequently, although only the internal carotid artery had been ligated.

The aneurysm was about the size of a bantam's egg. It was the shape of a dumbbell and the upper part was about



A drawing of aneurysm. B upper half of optic nerve excised at point at which aneurysm was firmly attached. C sketch showing the approximate location and relative size of aneurysm, also the relative thickness of the thrombus and size of the cavity. D drawing of aneurysm after its removal. The opening where it was attached to the right anterior cerebral artery is shown.

twice as large as the lower part. The constriction between the two parts was at the level of the optic chiasm, behind which it lay.

The upper portion protruded upward between the two frontal lobes and the lower portion passed back of the optic chiasm and must have rested on the sella turcica. There was only a small cavity in the aneurysm, this connected with the opening on the exterior, at which point the attachment to the trunk of the anterior cerebral artery had been torn off. The larger upper subdivision of the aneurysm was white and the lower half was black, the striking difference in color was due to the age of the contained thrombus, the upper part being quite old and very firm and the lower part being fresh and softer. The cavity in the aneurysm was entirely in the upper part. The weight of the aneurysm was 16 Gm.

Fortunately the Matas test had been made before the operation and was negative. This test is now routinely performed on every patient whose lesion is in the environs of the sella, because a number of aneurysms have been encountered when tumors were suspected. Without a prior knowledge of the adequacy of the collateral circulation through the circle of Willis, closure of the carotid artery would be taking a serious risk, although in this case the risk was inescapable. There can, I think, be no doubt that the cerebral circulation on the right side of the brain is now maintained solely through the posterior communicating artery.

On coming out of the anesthesia (about two hours after the operation was concluded) the patient had half a dozen convulsions on the left side, but there was no weakness of that side of the body then or at any time subsequently. The following day she was in excellent condition, quite alert, happy and apparently normal in every way. Nine days later when asleep she apparently had a convulsion and broke open the wound, this was immediately closed, no one was in the room at the time of the convulsion. There was no subsequent weakness of the left side, but she was disoriented and less alert for three or four days thereafter. I assumed that the convulsion and the after-effects were the result of necrosis of the brain from loss of the anterior cerebral artery. This may or may not be true, but it appears to resemble a similar state that at times follows the operation of Freeman and Watts in prefrontal lobotomies.

The patient left the hospital December 21, eighteen days after the operation. Mentally she was as well as before the operation. A complete third nerve paralysis has persisted since the operation, doubtless owing to an injury sustained when the internal carotid artery was closed, this was entirely unexpected, since bleeding was controlled quickly and seemingly without trauma.

Vision in the right (affected) eye was practically unchanged, the same visual field with a central scotoma and altitudinal hemianopsia remained, and visual acuity was 20/400. I was prepared to believe that vision would have been lost after excision of at least the upper half of the nerve with the firmly attached aneurysm. The vision in the left eye was definitely improved, the visual acuity was 20/20, the central scotoma had disappeared and the color fields, which were barely present alongside the central scotoma, were normal (examination of the eyes was done by Dr Woods). On Jan 15, 1942 (six weeks after the operation) she was reported to be in excellent health, and her vision was good.

Johns Hopkins Hospital

#### MALIGNANT MELANOMA

R. H. RULISON, M.D., NEW YORK

Mrs. L. A. S., a red haired, freckled housewife aged 24, referred to me by Dr. L. J. Perenyi on Sept 13, 1930, had had four nonhairy, brown moles in the interscapular region since infancy. These lesions were separate and were grouped in an area of skin no larger than a silver dollar (38 mm). All were slightly raised. The mole farthest to the right was darker and more prominent than the other three. During the preceding two months this mole had become still darker, was raised about 1 cm above the skin level, had bled after slight scratching, and a small ulceration had developed which did not heal. There had been no change in the three other moles.

A consultation with Dr. Howard Fox was arranged on the same day. It was decided that the entire group of moles should be removed by electrodesiccation, the removal to be wide and deep.

On September 13, under procaine hydrochloride anesthesia, the entire group of moles was removed *en masse*, the full thickness of skin and considerable subcutaneous fat being included. The excised tissue was submitted to Dr. J. Frank Fraser for microscopic examination. On September 24 he reported as follows: "Section of the tumor which you sub-

mitted for microscopic examination show anaplastic cells infiltrating the epiderm and lymphatic vessels of the corium. Histologic diagnosis, malignant melanoma."

The wound healed by granulation. On November 11 it was entirely healed. On March 17, 1931 there was a satisfactory, smooth, soft scar. On Sept 14, 1931, one year after operation, there was no sign of recurrence. On June 29, 1932 the patient returned, worried about a blackhead at the edge of the scar. The comedo was expressed and the patient reassured.

In 1935 the patient gave birth to a daughter, her only child.

In January 1940 the patient noticed an enlarged gland in her left axilla. On March 9 she consulted Dr. Julius Gottesman, who found a mass of glands in the left axilla which suggested a primary cancer of the breast. Careful examination of the breast, however, did not reveal any abnormality. The patient failed to tell Dr. Gottesman of the operation on her back in 1930 or of the pathologic diagnosis made at that time, which she and her husband both knew.

Dr. Gottesman operated on the patient at the Sydenham Hospital on March 14, 1940 for removal of axillary glands. A pathologic report by Dr. Arthur Ginzler of the Sydenham Hospital showed metastatic melanocarcinoma.

The axillary growth recurred. Definite pulmonary metastases were demonstrated by roentgenograms. The patient died in November 1941.

This report is of interest because of the long interval (nine years and three months) between removal of a malignant melanoma and the appearance of metastatic growths.

147 East Fiftieth Street

### Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT  
HOWARD A. CARTER, Secretary

#### FARIES SUNLAMPS, MODELS 2434, 2435, ACCEPTABLE

*Manufacturer* Faries Manufacturing Company, Decatur, Ill.

The Faries Sunlamps, Models 2434 and 2435, employ the Council accepted Westinghouse Mazda RS Sunlamp Bulb (THE JOURNAL Dec 6, 1941 p 1979). This bulb incorporates a sealed-in reflector, no transformer is required.

Following is a description of Faries Sunlamp, Model 2434.

Lamp Mazda RS type bulb  
Finish Shade, base and standard, gray ripple flexarm and trim satin nickel  
Base Diameter 10½ inches height 2½ inches, contains switch  
Reflector Diameter 9¼ inches depth 4 inches  
Overall Height Height 52 inches  
Extension 34 inches to 50 inches from bottom of shade to floor  
Flexible arm extends 11 inches to center of shade  
Wiring Ten feet of approved rubber covered cord with approved socket and unbreakable rubber plug

Following is a description of Model 2435.

Lamp Mazda RS type bulb  
Finish Shade and base rippled bronze, standard and arm statutory bronze  
Base Diameter 11½ inches height 5 inches Contains switch  
Height Overall 60 inches To bottom of shade 50 inches  
Adjustable Bottom of Shade to Floor From 38 to 54 inches  
Reflector Diameter 9¼ inches depth 4 inches  
Arm Extension Ten inches to center of shade  
Adjustment Ratchet joint at top of vertical shaft permits various adjustments  
Wiring Ten feet of approved cord with approved socket and unbreakable plug

A minimum perceptible erythema is obtained with the Westinghouse RS type bulb in approximately five minutes at 24 inches.

The Council found that Model 2435 was mounted on a more stable base than Model 2434.

The Council voted to accept the Faries Sunlamp Models 2434 and 2435, for inclusion on its list of accepted devices.

# MEDICAL EDUCATION IN THE UNITED STATES AND CANADA

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## MEDICAL EDUCATION AND THE WAR

### A SERIES OF ARTICLES BY FEDERAL AUTHORITIES RESPONSIBLE FOR MEDICAL SERVICE IN CONNECTION WITH THE WAR

#### UNITED STATES ARMY

Major General James C. Magee  
Surgeon General Medical Corps

The inventions and scientific discoveries of the machine age placed at man's disposal powers not alone to build but also to destroy with an insensate fury beyond the imaginings of his forebears. Armed conflict has ceased to be an affair reserved to the professional soldier but instead has become the pitiless total war of the modern day, which affects the life and destiny of every citizen of a belligerent state.

The increasing complexities of modern warfare have evolved armies intricately organized and precisely coordinated, which are created welded and steered for a single end. The problems confronting an army, including those relating to medical science differ widely from the problems of a civil population. The evolution of highly trained general and special staff officers for the management of these issues has inevitably resulted. Among the special staff officers there has appeared, in all the armies of the great powers, a medical specialist—the military surgeon—to meet the changing situations. Unless this new development is clearly appreciated, the problem of the medical welfare of the army will be viewed in terms only of the medical and surgical treatment of the sick and wounded.

The duty specifically charged to the Medical Department of the Army is the conservation of the manpower of the military forces. Such a coldly factual statement presents no concept of the far flung organization which is in active operation to fulfil the task. Unseen is the agency endowed with special powers which reaches into the nation's industrial centers to take the vast quantities of materials needed for the professional care of the Army, whether on the battlefield or in the large modernly equipped military hospitals in the homeland.

Unsuspected is the corps of experts specially trained in preventive medicine and sanitation who have visited and studied unheralded and frequently secretly, regions often remote and strange, where history may decree that the fate of the nation shall be irrevocably decided. Likewise there is no suggestion of the many research projects which are being conducted by or at the behest of the Medical Department, to the solution of which the nation's most prominent medical scientists are devoting their attention. These examples suffice to emphasize the fact that the military service presents outlooks and issues which have no counterpart in civilian practice and which necessitate specialized knowledge in the field of medicomilitary practice.

From the inception of mobilization to the completion of demobilization, the Medical Department is intimately concerned in every factor which affects the health of the Army. Furthermore, the Medical Department is the only organization which is represented in every echelon of the combat organization from the attack wave at the forefront of the battle through all the intermediate steps to the zone of the interior. This is due to the fact that medical service must be continuous from the moment and place at which the soldier falls to his final destination and disposition.

The duties specifically charged to the Surgeon General by regulations fall under three main headings

1 The selection of the prospective soldiery to make sure that only those are accepted who are physically fit to endure the rigors of warfare

2 The preservation of the health of the able bodied in the military service.

3 The restoration to health of those who become sick or are injured and wounded. This duty includes all the facilities (installations, supplies, vehicles) and aid (medical field units, location, collection and transporting wounded) necessary for the evacuation and hospitalization of military personnel.

Brief as such an outline of functions may be, it is at once apparent that it includes responsibilities and activities far beyond the scope of medical practice in civil life. The Army is invested with incomparably greater power to control its component elements and the environmental surroundings than civil communities. This power operates at the very outset to establish the characteristics of the group—the nature, composition, size and functions. It then selects from the civil population the desired number of individuals who appear to meet these basic requirements and even fixes their status and relative standing in the group as a whole. In the process of selection the Medical Department naturally takes one of the leading roles, since health and vigor are indispensable attributes of those who must serve in the armed forces.

This work is therefore of great importance. Clearly before an Army itself exists, its nature and health are already partially determined by the standards of quality prescribed and the effectiveness of the selective process put into operation. Planning and devising an efficient system of selection consume months, later to be followed by the enormous labor of conducting the physical examination of millions of men.

Infectious diseases have decisively influenced the entire course of history. Civilizations have waned or vanished for lack of knowledge of the methods to control the plagues which, throughout generations, destroyed millions of human lives without check. The scientific investigations of the past century, however, completely altered the outlook. The vital importance of the new science of preventive medicine was early recognized by the armed forces of all world powers, as a matter of course. No modern army would be able to carry out its mission successfully or indeed to survive for any length of time under combat conditions without the protection from disease which it enjoys in great measure by the unrelenting campaign directed against the outbreak and spread of infectious disease.

An immense amount of study has been devoted to preventive medicine by military surgeons, for whom it occupies a position of paramount importance in the maintenance of the armed forces at maximum physical efficiency. The United States Army has played a leading role in this field of investigation from the earliest days, and, as a result, some of the greatest advances in medical knowledge in preventive medicine have been contributed by medical officers of our army. The work of the immortal Walter Reed on yellow fever, which made possible the building of the Panama Canal, is a particularly brilliant example. A recent example, interesting because of its contribution to the problems of national defense, is the research work conducted by the Medical Department of the Army in Trinidad involving a tiny mosquito of peculiar habits which lives in the air plants growing in the high branches of the giant *immoitelle* trees used to shade cocoa plantations. In 1941, proof of its role in the transmission of malaria resulted from a special study. Now a program of control is under way.

Every member of the United States Army is now vaccinated against typhoid and the paratyphoid fevers, smallpox, tetanus and yellow fever. Immunization to the latter two diseases has been made possible only by

recent advances in medical science. In fact, the United States Army is the first in history to put into effect universal vaccination against the much dreaded yellow fever. The Medical Department is also fully prepared to immunize troops against typhus fever, bubonic plague and cholera, should these measures be indicated.

The infinite variety and complexity of problems attached to the physical selection of individuals which are to compose the Army and the preservation of the health by every means possible of those accepted are matters which are not common to the experience of the civilian practitioner. Special knowledge and training are requisites to the undertaking of responsibilities of such vital importance to a nation whose very existence is committed to the physical welfare of the men under arms, who must withstand hardships to the limit of human endurance.

The professional services rendered in army practice do not differ materially from civilian practice. The Army is operating a huge system of hospitals with an immense total number of beds distributed over half the globe. Some of these hospitals have a bed capacity of two thousand. There is ample clinical material to provide experiences ranging from obscure tropical diseases to those of the arctic zone, from those on the surface of the earth to those occurring in the stratosphere, and from those on the surface of the body to those inside the peritoneal cavity.

A unique feature of the professional work is the fact that for the most part it deals with a selected population of vigorous young males. Naturally, this has certain disadvantages as well as its great advantages. Acute medical and surgical conditions predominate. The astonishing recuperative powers of the body are naturally brought to the fore, and recovery is the rule. As evidence, note the fact that the death rate has been extraordinarily low in the expanded army. The knowledge of human nature gained by contact with the American soldier is worthy of some emphasis. His uniqueness is something an officer never would wish to forget.

However great may be the professional eminence of the doctor in uniform, it avails nothing to the wounded soldier lying unattended where he fell on the battlefield. How can the wounded receive the fullest benefits of the physician's art? This problem is the specific responsibility of the medical officer to solve. Between medical skill, however, and the utmost need it must serve lies the shattering tumult of the conflict and roads urgent with forward moving troops and weapons pressing hard against the supreme hour of decision.

To reach and evacuate a wounded soldier amidst this chaotic devastation of the battlefield is one of the most difficult tasks which confront the military surgeon. It can be achieved effectively only by those who are brave and resourceful and are versed in the tactics of warfare. As in every other field of human activity, only the well informed are competent to undertake the grave responsibility. It is this special military knowledge and training which distinguishes the competent military surgeon in the armies of the world from the doctor who is wearing a uniform but who possesses no other attributes of a medical officer. The purpose and plan of the Reserve Officers Training Corps in the curriculum of a university is precisely to impart the education in military art and tactics indispensable to the performance of duties of the military surgeon. On account of the service they perform in this connection the War Department has every intention of continuing the R. O. T. C. training.

The planning, creation and operation of the vast organization required for the evacuation and professional care of the wounded is in itself an undertaking of greatest magnitude. As late as the sixteenth century no provision was made for the medical care of military casualties. Commonly they were put to the sword by the able bodied friend or foe alike or were left to suffer at the hands of ghouls. Not until the American Civil War was an effective system devised for the orderly evacuation of wounded from the battlefield and early treatment behind the lines. The organization set up at that time by an army surgeon Jonathan Letterman, has become the basic pattern on which is constructed the field medical service of all the great powers. The first world war demonstrated anew that this function is one of the most important phases of the medical service of the theater of operations. Identification of the wounded, immediate first aid by trained personnel, treatment of shock during the evacuation and arrival at an evacuation or surgical hospital in the best operative condition greatly reduced the battlefield mortality, saved many from disabling after results and cleared the forward areas of unattended wounded.

The fact that military medicine has made great advances since 1918 was dramatically portrayed by the phenomenal results obtained in the medical and surgical care of the wounded after the attack on Pearl Harbor. Carefully planned methods of evacuation, the employment of drugs of the sulfonamide group and the administration of blood plasma were the chief features. Wounds healed rapidly and cleanly. Massive infection, which was the rule in World War I, was conspicuous by its absence. Less than 4 per cent of the cases of extensive wounds, including compound fractures, became infected even to a mild degree. The mortality from perforating wounds of the abdomen, which previous experience had demonstrated to be 80 per cent of all cases, was practically nonexistent. Many men have already returned to duty who would be facing the prospects of long continued hospitalization if they had not been afforded the benefits of the newest methods of treatment.

The morale of troops in combat is profoundly affected by the quality and promptness of the medical service rendered to them. The key man in this heavy responsibility is the battalion surgeon, who serves with the front line troops and is the first physician under whose

administrations the wounded come. It is his high mission to rescue them from the furious inferno. If he fails, the morale of the troops falters and fails. More, the entire organization of medical evacuation from front to rear ceases to function. The task requires physicians of stout heart and deep understanding.

The question of occupational classification and deferment from the draft is, naturally, one which is of great concern to premedical and medical students. A program has been devised to defer, until completion of one year of internship, students who meet all qualifications.

Premedical students in universities and colleges with acceptable standards may be enlisted in the Enlisted Reserve Corps under the "Pre-induction Training Plan" by passing a qualifying examination. The details of this plan are obtainable from the Dean of the educational institution or from the Commanding General of the Corps Area in which the student is pursuing his course of instruction.

On graduation from the premedical course those who have been enlisted in the Enlisted Reserve Corps may, upon application, be discharged from their enlistment and commissioned as Second Lieutenant, Medical Administrative Corps, Army of the United States, when they have been matriculated in an accredited school of medicine and can produce the certificate of the dean of the school to that effect. This commission may be held in force throughout the period of medical education so long as it is successfully and continuously pursued. In the last year of instruction in the course of medicine, application may be made for a commission as First Lieutenant in the Medical Corps, Army of the United States, and upon certification of the dean, three months prior to the date of graduation, to the effect that the student is expected to graduate he may be granted the commission for which he applies. Following this change in status, the student may be permitted to pursue an internship of twelve months' duration which must commence immediately after graduation.

Those who have been afforded the protection of this preinduction training plan should not anticipate continued deferment if they fail to enter upon an accredited internship very shortly after graduation. It is not to be expected that exemption will be continued in the case of those who unduly delay commencement of an internship, and are, therefore, not engaged in occupational or educational pursuit for which this entire plan was conceived.

## UNITED STATES NAVY

Rear Admiral Ross T. McIntire

Surgeon General Medical Corps

In preparing for a medical education it has been considered good practice for the premedical student to have four years' college work, which includes certain definite subjects considered necessary as a groundwork in the study of medicine. There is a very definite doubt in our minds whether it is right or desirable at this time to say that a young man who wishes to study medicine must spend four years in a college, four years in medicine and one year as an intern before he may enter one of the military services. Our educators can give this very serious consideration.

Since we must look to our premedical students to provide the bulk of the personnel in our colleges of medicine throughout the country, it has become necessary to find some means to protect these boys while

they are in school. Here again a great deal of common sense has been used in allowing us to work out a sensible program. The Navy is enlisting first and second year premedical and pre dental students in Class V-1 of the U S Naval Reserve. These men are eligible for transfer to Class V-7 on completion of their second year and, on acceptance for admission to an accredited medical or dental school, are eligible for appointment to Class H-V (P) U S Naval Reserve. Should he fail to qualify in medicine, he still retains his Reserve status as an enlisted man in the Navy and is eligible to serve at once in that organization. In this way the boy has had an opportunity to continue his college work, and the service has a potential candidate at all times.



In our opinion it is a fine thing to interest the young man in the Navy while he is a premedical student, for by so doing he will increase his interest in certain branches of medicine, such as tropical diseases, preventive medicine and military medicine. It is the observation of competent officers in the Army and in the Navy that the average medical student, coming into the services, is not well grounded in any of these three subjects. The medical educators of this country recognize this and are taking vigorous steps to see that this defect in our educational system is corrected and some uniformity applied.

It had been the plan of the Navy, when this Special Class, Ensign H-V (P), U S N R, was organized, to call the medical student to active duty during the vacation period and give him an opportunity to see active service in a naval hospital, on a hospital ship or on a combatant ship. Now that the accelerated program has been put into effect, this cannot be done, but should we find that they go back to a more orderly system, whereby we have a certain vacation period, the Navy plans to put this practice into action at once.

Very naturally the Army and the Navy will commission in the Special Class Reserve more medical students than they can give internships to. The excess, however, can be given internships in civil institutions and that can easily be worked out by the Procurement and Assignment Service. The intern in the Navy is given a rotating service that will prepare him for active duty in the field. This war is a young man's war and we in the Navy are finding it necessary to put young doctors who are just out of school on our smaller ships, which are extremely active. It is necessary then for us to see that the young intern is given plenty of opportunity to do emergency surgery. He is also given intensive instruction in minor surgery and first aid. It is our practice to see that, in addition to the indoctrination these young men receive in naval customs and naval medicine, they are given special instruction in newer methods of naval hygiene, field sanitation and the diagnosis and treatment of tropical diseases. The fine spirit of cooperation that is being shown between the services and the medical educators of the country insures us in the matter of keeping the present teaching current with the advances that are being learned in actual warfare. In other words, the medical student will now get the latest information on the treatment of shock, the use of the sulfonamide drugs and the methods used in the treatment of burns and war injuries. The services will see to it that the information they get from the hard experience of treating casualties is put to use at once in the instruction of our young men.

Medicine has never been an easy subject to master, and any man who completes four years in medicine has achieved something. To the medical student today I should like to bring this thought: "Give serious attention to the study of pathology." It is a difficult subject and one of the most important with which we all have to deal. With a war on it will teach you, more than any other subject, methods to decrease our morbidity and mortality.

The medical student will be interested to know what the service offers to the graduate in medicine. What can he look forward to? I have said before that a medical officer in the Navy can do the best work of which he is capable, for he is given an opportunity to do just this. When he finishes his internship he will

be sent to sea on a combatant ship. Here he will undoubtedly see active service in the handling of war casualties. He has a responsibility, however, that goes well beyond the simple treatment of wounds. The medical officer on board ship occupies a singular position, for he has a definite mission and that is to keep our men well. It is no compliment to a doctor on a ship to have a large sick list. So to the young graduate in medicine again let me say that should you join the Navy you will find that your practice of medicine always approaches your problems from the preventive side. You must learn to plan to keep your crew well. This means you must know something about ventilation, you must know something about food inspection, you must realize that you will be the adviser to the commanding officer in all matters that pertain to keeping the crew well. There is no question that you must be a good doctor. That means you must be able to diagnose and treat disease as you find it. But we would expect you to do that. The medical officer of a ship must be a good, practical psychologist—that is, he must understand the psychology of the sailor.

It has been our practice in the past to keep the young medical officer who is entering the service on his first cruise at sea for a period of two years. During this time he finds out how we live in the Navy. He will meet many surprises, but he will be only too glad to enter into the spirit of life on board ship, for he will soon find that he plays a most important part in a huge machine. He will visit ports in many parts of the globe. He will face all kinds of new conditions in life. At the end of this tour, when we bring him ashore, we make it a point to send him to a hospital where he can again pick up the intense side of the practice of medicine. It is during this time ashore that we expect him to make up his mind as to the field of medicine in which he might care to specialize. Since we in the Navy have a specialty, which is naval medicine, we can never allow ourselves to specialize too highly in any of the other branches to the detriment of our real one. When a doctor shows promise in surgery, urology, x-ray or some of the other specialties, he is given an opportunity to go under instruction in one of our larger hospitals, where he has a tour of one year. At the end of that time if he has shown real promise he is ordered to a civil institution for further work in his specialty. As the years go on, each time he comes ashore a real attempt is made to see that his duty is such that his specialty can be put to use. We have found that this system works very well, and it does furnish an incentive for the young man to go on in the service.

The field of aviation is one that is extremely inviting to young medical officers. Here is a branch of the service that calls for an isolated specialty which we term "Aviation Medicine." Since flying is a young man's game, we are encouraging our younger medical officers to enter this field at the end of their first sea cruise. The course we offer in the training of young doctors for this special field is an excellent one and is made up of two parts—the didactic and the practical. On the didactic side, all of the newer methods are taught in the way of selecting and examining personnel. On the practical side, theories are put into practical application and in addition the doctor is taught to fly so that he may better understand the problems of the men with whom he must live.

In a more limited field we find the young officer entering the specialty that has to do with submarines and diving. While not so spectacular as aviation it is just as important. It is rather interesting to note at this point that the problems that face a pilot who flies in an altitude of 35 000 feet are not dissimilar to those of an officer who commands a submarine and submerges it to a depth of 250 feet.

To the officer who is interested in the scientific side of medicine we now have intensive courses in the field of epidemiology and trained teams are under instruction for duty in all parts of the world wherever the Navy or Marines may go. No matter what the disease may be whether it is malaria, yellow fever or plague, these men will be able to cope with conditions as they find them. It is no wonder the Navy emphasizes the great need for special preparation in premedical days, so that the graduate in medicine will have laid his groundwork and can easily qualify in these isolated specialties which are so necessary and so pressing at this time.

So to the young man entering the Navy let me briefly summarize the points which we should like to see him follow in his premedical course:

1 He should acquire a sound groundwork in science and mathematics.

2 He should place emphasis, while in medical school, on military medicine and tropical diseases. An extraordinary attempt should be made to get as much additional work in pathology as his school hours will permit.

3 He should adopt the attitude that his medical school is the instrument that provides him with all the necessary tools with which to practice medicine. He should make an early decision that he will not attempt to specialize until he has had a full opportunity to put into practice the fundamentals that he has been taught in school.

4 During intern days, he should keep abreast of all that is new in medicine, surgery and research that applies to these subjects.

5 To those who are responsible for the instruction of the intern should come the given responsibility that they are preparing this young man for immediate duty in the field where hundreds of lives may depend on their teaching.

One last word to the premedical student. You have a responsible job to do for your country as has the young man who is enlisting in the Army or in the Navy. Should you not then do your best to prepare yourselves for a commission in the services? If not, it would be better for you to enlist in one of the services now. However, medical education must go on—the Army, the Navy, the Public Health Service and the civil communities must have doctors throughout this war and after the war—so common sense among the medical educators is the most important single thing in the field of medical education today.

## UNITED STATES PUBLIC HEALTH SERVICE

Thomas Parran, M D

Surgeon General

The ancient phrase of the Hippocratic Oath "into whatsoever houses I enter" has taken on new and larger meaning today, for the "houses" which open their doors to the young physician are now as wide as the entire world. To his country a medical graduate's skill and knowledge are indispensable, to himself his training is the hub of many radiating lines of questioning about the future.

The answers which the medical graduate makes to these questions are largely determined by his understanding of what he is prepared to give his profession and what he wants to secure in return. The young physician reasonably expects certain fundamental satisfactions in his professional life. He wants to serve his nation, to begin productive work while he is still young and to earn a living. He wants to be assured of increasing experience and responsibility. He wants continuous and stimulating contacts with other professional men. And he seeks an opportunity for progress in some special field wherein his interests and abilities strongly lead him.

The United States Public Health Service is an organization in which the young physician may find these basic satisfactions. The Service is the principal agency of the government whose functions are primarily concerned with medicine and allied sciences. Its various activities are coordinated under the administration of doctors of medicine who are members of the commissioned medical corps of the Public Health Service.

The responsibilities of the Service demand the application of knowledge and skill in the three broad fields of clinical medicine, research and public health practice.

## CLINICAL MEDICINE

To become an able clinician is the one ambition of most medical students. The realization of that goal implies access to a wealth of clinical material, collaboration with competent, experienced practitioners, and the physical facilities requisite for the practice of modern medicine. These essentials are provided for the young service physician in thirty hospitals, one hundred and nineteen dispensaries and twenty-seven medical units in federal penal institutions.

The total bed capacity of the thirty service hospitals is over sixteen thousand, in which more than half a million patients are treated annually for diseases and conditions representing every specialty in medicine. In addition, physicians of the Service give medical and psychiatric care to some twenty thousand inmates of federal penal institutions and treat more than two thousand indigents in the Venereal Disease Medical Center, Hot Springs, Ark.

Twenty-six of the thirty service hospitals are operated by the Division of Marine Hospitals and Relief. In our hospitals the diagnostic and pathologic laboratories, the x-ray department, dental clinic, physical therapy department, the eye, ear, nose and throat clinics, the genitourinary and venereal disease clinics make available to the physician important contributory services necessary for thorough study and successful management of his cases. The general hospitals maintain outpatient departments.

The staff of a marine hospital is headed by an experienced medical officer whose duty it is not only to study the progress of patients but also to guide the progress

of the young physicians under his direction. As in the great university hospitals, the principle of group practice is applied in the hospitals of the Service. In frequent staff meetings, experiences are shared and individual problems discussed. Moreover, prompt access to a large consultant staff, drawn from the active medical profession of the community in which the hospital is located, affords continuous contact with experienced private practitioners.

The responsibility of rendering complete medical service to a large heterogeneous group of patients demands that the Public Health Service develop able practitioners of the highest skill and knowledge in the art and science of medicine.

#### SCIENTIFIC RESEARCH

The program of scientific research carried on by the National Institute of Health, a major administrative unit of the Service, is one of the most extensive of its kind in the world. Special divisions are devoted to toxicology, control, cancer, chemistry, chemotherapy, industrial hygiene, infectious diseases, pathology, public health methods and zoology.

Industry, public health and private medicine alike look to the National Institute of Health for the continuation of research necessary in the prevention of occupational diseases. Technologic changes in industry demand prompt and authoritative investigation of the effect of new substances and new processes on the human organism. New methods of prevention and control must be developed and applied. The importance of the industrial hygiene work of the Public Health Service has been greatly enhanced by the program of war production.

Although engineering and chemical control of industrial hazards is of first importance in the prevention of occupational disability, industrial health must be under the supervision of physicians. Thus a comparatively new specialty—industrial medicine—little known to medical students is opened to those who elect a career in the Service.

Testing, improving and demonstrating the effectiveness of public health methods are other essential investigatory functions of the Public Health Service. The collection and analysis of mass data on general and specific aspects of national health are carried on so that health problems of public importance may be accurately defined and related to their epidemiologic factors.

The Division of Pathology in the National Institute of Health, like the pathologic clinic in the medical school, has the last word on many of the investigations initiated in other divisions. In this unit the results of animal experimentation and of clinical research are subjected to the scrutiny of the pathologist and await his final diagnosis. The expanding research of the Service has increased the work of this division by leaps and bounds in recent years. It is here that junior officers receive training in pathologic diagnosis and description.

The foregoing summary of a few of the Institute's investigations and attainments can only serve to suggest the nature and extent of the manifold research activities of the Public Health Service.

#### PUBLIC HEALTH PRACTICE IN THE SERVICE

It would be misleading, however, to call the Service, as personified by its officers, a clinical or research agency alone. The Service is also adviser and helper of 1,824 official territorial, state and local health agencies.

When the President proclaimed a national emergency in 1940, federal and state health authorities were better prepared than ever before to cope with the many problems which arise from sudden concentrations of population in industrial and military mobilization areas. The pattern of technical and advisory aid at the request of state and local authorities, a long standing basic public health policy of the Service, had provided the nation with a corps of well experienced public health physicians, flexible and mobile enough to meet the demands of the emergency.

Today, the pattern of cooperative public health work, evolved by the Service and state authorities, forms the basis of an effective federal-state program for the expansion and constant strengthening of health services throughout the United States. The Public Health Service administers the allocation of federal funds made available annually to the states through the provisions of title VI of the Social Security Act. The Service also administers the federal-state program for the control of venereal diseases, made possible by the provisions of a special act of Congress in 1938.

The great task of making efficient full time health services available in all parts of the United States is only begun. More than ever, the need for trained public health physicians is paramount.

Foreign quarantine, always a major activity of the Service, has taken on new peaks of emphasis under the shifting pressures of war. It is significant that the United States Public Health Service was able to say in its last annual report to the Congress for the fiscal year 1941 that despite the war—always conducive to the spread of disease—not a single patient with quarantinable disease had entered the United States during the year.

In addition to the provision of medical and hospital service for the beneficiaries of the Public Health Service, the organization provides supervisory personnel and consultant service in the administration of medical care programs in other federal agencies. Such agencies include the Bureau of Indian Affairs, the Bureau of Prisons, the Farm Security Administration of the Department of Agriculture, the Pan American Sanitary Bureau and the Office of Civilian Defense, and numerous other war agencies and federal committees established to guide health defense activities.

In 1902, when Congress gave the Service the responsibility of standardizing and controlling the manufacture of biologic products, the death rate from diphtheria was 25.3 per hundred thousand. Today it approaches the vanishing point—mainly due to toxoid and antitoxin.

The solution of a number of medical problems seems simple today, yet when the medical student asks himself "What is the answer to arthritis, to heart disease, to cancer?" he will experience the same challenge as was offered by typhoid and diphtheria to students of an earlier day.

#### THE REGULAR COMMISSIONED MEDICAL CORPS

The Public Health Service is one of the "career" branches of the federal government and is organized to permit the recruitment of young officers and to guarantee the capable recruit permanent employment, in-service training, consistent promotion, disability benefits and retirement with pay without any cost to the officer.

The regular commissioned medical corps of the Service is organized along the same lines as are the medical corps of the Army and Navy. This medical corps now includes 439 officers on active duty, of whom

102 rank as Assistant Surgeon 186 as Passed Assistant Surgeon 54 as Surgeon 41 as Senior Surgeon, 46 as Medical Director 8 as Assistant Surgeon Generals, 1 as Assistant to the Surgeon General, 1 as Surgeon General. The great majority of these officers are on duty in the Hospital Division, the Divisions of States Relations Foreign Quarantine Venereal Disease, Mental Hygiene, the Public Health Service districts and the National Institute of Health.

The pay allowances and promotion schedule in the Army Navy and Public Health Service medical corps are the same. Commissions to the Public Health Service are granted by the President of the United States by and with the advice and consent of the Senate. The initial grade of commissioned medical officers in the Public Health Service is Assistant Surgeon. The successive higher grades are Passed Assistant Surgeon, Surgeon Senior Surgeon and Medical Director. These grades correspond to the grades ranging from First Lieutenant to Colonel in the Army Medical Corps.

Candidates for appointment in the initial grade of Assistant Surgeon must have the following qualifications. They must be citizens of the United States, they must be graduates of an approved medical school, they must have completed one year's internship in an approved hospital or its equivalent in experience, and their age at the time of examination must not be less than 23 nor more than 32 years.

Applicants for appointment to the commissioned corps of the Service are invited to appear before an examining board composed of commissioned officers of the Service. They must pass physical written and oral examinations given by the board.

Candidates who have passed the tests of the National Board of Medical Examiners are credited with the minimum passing grade for the written part of the professional examination. They must appear before the examining board of the Service for the physical, academic general fitness and oral examinations.

Examinations for appointment in the initial grade in the Public Health Service are held each year, usually in the early spring, and advance notice is published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

#### THE RESERVE MEDICAL CORPS

The Public Health Service has authority by law to appoint for training, or in times of emergency, physicians who have completed their internships. Such appointments within the Reserve Corps are now being made. The rank to which a Reserve officer is appointed depends on his age and experience.

Three hundred and forty-nine Reserve officers are now on active duty, 184 of whom rank as Assistant Surgeon, 104 as Passed Assistant Surgeon, 40 as Surgeon, 20 as Senior Surgeon and 1 as Medical Director. The majority of Reserve officers are on duty with the Hospital Division, the Maritime Service and the Coast Guard in critical industrial and military mobilization areas. There is a distinct need for more personnel in these activities, which are closely coordinated with the war effort. Reserve officers receive the same rank, pay and allowances as Regular officers. Commissions are issued for five year periods, and there is a 5 per cent increase in pay every three years. The requirements for a commission in the Reserve are the same as for the Regular Corps, except that no written examination is required. Such appointments are recommended by the board of examiners on the basis of the applicant's qualifications and the report of his physical examination.

#### INTERNSHIPS

Although a Reserve commission in the Public Health Service does not insure deferment from induction into the Army or Navy, the Selective Service System is encouraging medical students to complete their training and internship before the question of recruitment and assignment arises. This year the Service has the opportunity to offer up to eighty internships. A person offered such an internship is also eligible for a reserve commission (inactive), provided, of course, he does not already hold such a commission in the Army or Navy.

First year interns are paid \$1,440 a year. After a deduction of \$630 for quarters and subsistence, provided by the government at the hospitals, where they must reside, this compensation amounts to \$67.50 a month.

Nine of the marine hospitals of the Public Health Service have been approved for intern training by the Council on Medical Education and Hospitals of the American Medical Association. First year internships are patterned on the standard system of rotating services.

Appointments to first year internships are announced annually on November 15. Applications from third and fourth year medical students will be given consideration when received. Students desiring further information regarding application for an internship should write the Surgeon General of the United States Public Health Service, Washington, D. C.

First year interns usually appear before the examining board of the Service to qualify for appointment in the commissioned corps just prior to the completion of their internship.

Candidates for a commission in the Regular Corps of the Public Health Service who pass the examination are placed on the Merit Roll in the order of their grades and receive appointments as Assistant Surgeons in that order.

Physicians who have passed the examinations and for whom no vacancy in the Regular Corps exists at the time may be commissioned in the Reserve Corps for active duty during the interim.

Officers in the initial grade of Assistant Surgeon after three years of service in the regular commissioned corps and after qualifying, under examination, are eligible for promotion to the grade of Passed Assistant Surgeon. Passed Assistant Surgeons are eligible for promotion to the grade of Surgeon after twelve years of service from the date of their commission as Assistant Surgeon. Promotion to the grade of Senior Surgeon is made after twenty years of service, and Medical Directors must have completed twenty-six years.

Physical examinations are given before promotion to each grade. Promotion to the grades of Passed Assistant Surgeon and Surgeon is preceded by written professional examinations before a board of commissioned officers. When Surgeons and Senior Surgeons become eligible for promotion to higher grades, such promotion is based on passing the physical examination and on a satisfactory record.

The United States Public Health Service calls for the physician with imagination, skill and determination. Wherever and whatever his activities may be, the public health physician's duties reach beyond the individual bedside to touch the lives of all the people. Into whatsoever houses he may enter, he is a direct representative of the more abundant life for which our nation is fighting.



## PROCUREMENT AND ASSIGNMENT SERVICE FOR PHYSICIANS, DENTISTS AND VETERINARIANS

HAROLD S. DIEHL, M.D.

Member, Directing Board, Minneapolis

The war is creating a greatly increased demand for young physicians. The only sources of supply of such physicians are the medical schools of the nation. All the male students of these schools now hold, or should hold, commissions in the medical corps of either the Army or the Navy. On completion of one year of internship those who qualify physically are subject to call to active duty. This means that for the duration of the war medical schools are essentially training institutions for medical officers. Obviously such institutions must continue to function to capacity and at maximum efficiency. To be able to do this they will require a continuing supply of qualified students, adequate support and competent and adequate teaching staffs.

Unless the age for military service is reduced it should be possible to accept for admission to medical school most of the desirable applicants before they are subject to induction by Selective Service. Quality rather than quantity of premedical work is of paramount importance. It is essential, however, that those students who have a real aptitude for the study of medicine be convinced that they can serve best by continuing their medical training. Premedical students who are of draft age may be removed from the jurisdiction of Selective Service by joining the recently authorized Enlisted Reserve Corps for college students of the Army or the V-1 or V-7 program of the Navy. On acceptance by an accredited medical school, such students may be discharged from their enlisted status to accept appointment as commissioned officers in the medical corps of the service to which they are obligated.

The financial problems of medical students occasioned by the accelerated program are being greatly eased by generous grants for loan funds which the Kellogg Foundation recently made to medical schools and by the recent appropriation by Congress making \$5,000,000 available through the United States Office of Education for loans to students in technical fields, including medicine. To be eligible for the latter loans students must be in the last two years of the medical course.

The effect of the accelerated program on medical school budgets is not yet entirely clear. In some schools increased income from tuition fees is sufficient to cover the increased cost of instruction. In others unless additional funds are provided the quality of instruction will inevitably suffer.

The most acute problem which medical schools are facing today is that of maintaining adequate and competent teaching staffs. On July 1 the Procurement and Assignment Service requested that the deans of medical schools prepare revised lists of their faculties with indications as to which individuals they consider available for military service and which are essential for the continuance of effective teaching programs in their schools. It was pointed out that in the preparation of these lists the deans have a dual responsibility: one to retain an adequate and efficient teaching staff, the other to release as many young men as possible for service with the armed forces. During the war emergency the teaching ordinarily done by the young men should be delegated so far as possible to those who because of age, sex or physical defects are not available for service with the armed forces. On the other hand, many of the most effective teachers in medical schools are well trained

young men who are making teaching their careers. It is fallacious to assume that such men can be satisfactorily replaced by busy practitioners who have had little or no experience as teachers. If the quality of medical training suffers, the results may not be immediately apparent, but they will be far reaching in the form of inferior medical service rendered by the thousands of physicians educated during the war. The quality of medical education dare not be sacrificed, and not only should those young men who are effective key teachers be declared "essential" but they should be advised that it is their patriotic duty to remain in their teaching positions. An analysis of the lists of "essential" teachers submitted by the deans is being made by the Procurement and Assignment Service, the results of which will be transmitted to the respective schools and to the appropriate committees of the Procurement and Assignment Service.

Internships are insisted on by the medical departments of both the Army and the Navy. During the war emergency both services, however, limit the length of the internship to one year for all interns who are under their jurisdiction. The directing board of the Procurement and Assignment Service recently enunciated a similar policy, stating that "physicians who have completed one year of internship shall be considered available for service unless they have been appointed to 'essential' positions."

Graduate training in the specialties of medicine is being greatly curtailed, because of the urgent needs of the armed forces for young physicians. In fact, the only grounds for deferment of military service for physicians to pursue graduate training is when such training is incidental to "essential" service as a hospital resident. In certain hospitals a resident staff is necessary for the adequate care of the patients. Recognizing this, the Procurement and Assignment Service has authorized the listing of certain residents as "essential." The period during which any individual may be so listed is not, after July 1, 1942, to exceed two years beyond the internship, the number of residents listed as "essential" is to be kept to a minimum, this minimum is not to exceed 50 per cent of the number of residents which the hospital has ordinarily had, and, as far as possible, essential residencies are to be filled with individuals who do not meet the requirements of the armed forces for commissions.

After March 1943, however, there may be serious difficulties in securing physicians to fill even "essential" hospital residencies. At that time all physically qualified male interns will be under the jurisdiction of the Army or the Navy and so cannot be appointed to residencies unless given deferment of call to active duty. Some "essential positions" can be satisfactorily filled by women or by men not physically qualified for military service. To fill others will require the deferment from active duty of a limited number of interns who are desired for appointment to essential residencies. Failing this there will be in certain hospitals a serious reduction in the quality not only of the care of the patients but also of the training of interns and medical students. The Procurement and Assignment Service has presented this problem to both the Surgeon General of the Army and the Surgeon General of the Navy, but as yet no satisfactory solution has been assured.



# FORTY-SECOND ANNUAL PRESENTATION OF EDUCATIONAL DATA BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

H. G. Weiskotten, M.D., Secretary

The Council presents, in this annual compilation of data pertaining to its educational activities, statements from authentic sources regarding medical education and war. Changes of major importance have occurred in the programs both of medical schools and of hospitals and an attempt has been made to present a concise and accurate account of current activities. In the following pages also is given the usual review of preliminary and undergraduate medical education, a description of the approved medical schools, comments on internships and residencies, the newly revised Essentials of an Approved Internship, and revised lists of approved internships and residencies and fellowships in the specialties. A summary of the activities of the various agencies interested in continuation courses for practicing physicians is here given. Finally are included the official requirements of each of the fifteen approved examining boards in medical specialties together with a statement of the policies adopted by these boards regarding allowances of credit for military service.

The Council and THE JOURNAL express thanks and appreciation to the military officials, the officers of the institutions mentioned, and others for their cordial cooperation in supplying the material submitted in this presentation and for other records furnished throughout the year to the office of the Council and the members of its staff on inspection or visitation, enabling the Council to maintain its medical student and hospital registers efficiently, to carry on its activities as outlined by the House of Delegates of the American Medical Association and to serve the profession.

The Educational Number of THE JOURNAL has proved to be of inestimable value to the medical profession and of particular interest to medical educators, hospital officials, students, interns, residents and those concerned with specialty certification and the promotion of graduate and postgraduate medical education. It is in frequent demand by governmental agencies. Reprints of the entire study, as well as an equal number of reprints of the lists of hospitals, are made available and are widely distributed.

## THE ACCELERATED PROGRAM

Medical schools of the United States have recognized that the national war emergency has created the need for a larger number of well qualified physicians. All but four medical schools have initiated an accelerated program to increase the supply of physicians for the Army, the Navy and the civilian population. The plan provides for the utilization of the long summer vacation as a teaching period, and, by continuing the schedule throughout the calendar year, the four year medical course is completed in three years. It should be possible for medical schools to maintain the quality and quantity of instruction which they have given in the past. The eligibility requirements for admission to medical schools have not been lowered from the present minimum standards set by the Association of American Medical Colleges and the Council on Medical Education and Hospitals of the American Medical Association.

Fifty-three schools have adopted the accelerated curriculum involving both the acceptance of entering students and the graduation of a class every nine months. Ten schools will graduate a class every nine months

during the next three years but will admit entering classes on an annual basis. The University of Tennessee College of Medicine will continue to operate on the four quarter plan, which provides for the admission of students at any quarter and the graduation of students quarterly. Eight schools of the basic medical sciences

## *Schools Which Will Accept an Entering Class and Graduate Students Each Nine Months June 1942 to June 1945*

University of California Medical School  
University of Colorado School of Medicine  
Yale University School of Medicine  
Georgetown University School of Medicine  
George Washington University School of Medicine  
Emory University School of Medicine  
University of Georgia School of Medicine  
Loyola University School of Medicine  
Northwestern University Medical School  
University of Chicago The School of Medicine  
University of Illinois College of Medicine  
Indiana University School of Medicine  
State University of Iowa College of Medicine  
University of Louisville School of Medicine  
Louisiana State University School of Medicine  
Johns Hopkins University School of Medicine  
University of Maryland School of Medicine and College of Physicians and Surgeons  
Boston University School of Medicine  
Harvard Medical School  
Tufts College Medical School  
Wayne University College of Medicine  
University of Minnesota Medical School  
St. Louis University School of Medicine  
Washington University School of Medicine  
Creighton University School of Medicine  
University of Nebraska College of Medicine  
Albany Medical College  
Long Island College of Medicine  
Columbia University College of Physicians and Surgeons  
Cornell University Medical College  
New York Medical College Flower and Fifth Avenue Hospitals  
New York University College of Medicine  
University of Rochester School of Medicine  
Duke University School of Medicine  
Bowman Gray School of Medicine of Wake Forest College  
Western Reserve University School of Medicine  
Ohio State University College of Medicine  
University of Cincinnati College of Medicine  
University of Oklahoma School of Medicine  
University of Oregon Medical School  
Hahnemann Medical College and Hospital of Philadelphia  
Jefferson Medical College of Philadelphia  
Temple University School of Medicine  
University of Pennsylvania School of Medicine  
University of Pittsburgh School of Medicine  
Medical College of the State of South Carolina  
McHerry Medical College  
Vanderbilt University School of Medicine  
University of Texas Medical Branch  
University of Vermont College of Medicine  
University of Virginia Department of Medicine  
Medical College of Virginia  
Marquette University School of Medicine

## *Schools Graduating Students Every Nine Months June 1942 to June 1945 Entering Students Admitted Annually*

College of Medical Evangelists  
University of Southern California School of Medicine  
Stanford University School of Medicine  
University of Kansas School of Medicine  
Tulane University of Louisiana School of Medicine  
University of Michigan Medical School  
University of Buffalo School of Medicine  
Syracuse University College of Medicine  
Woman's Medical College of Pennsylvania  
University of Wisconsin Medical School

have adopted an accelerated program. The medical schools operating on the usual academic plan are the University of Arkansas, the University of North Dakota and Howard and Baylor universities.

Two schools, namely Louisiana State University School of Medicine and the University of Texas Medical Branch, accelerated the senior year during 1941-1942 and graduated these students in March. The

TABLE 1—Program of Medical Schools in the United States

| School  | Sessions           |                |                                | Graduation |                       |
|---|--------------------|----------------|--------------------------------|------------|-----------------------|
|   | 1942 1943          |                |                                |            |                       |
|   | 2d, 3d & 4th Years | Entering Class | Subsequent Entering Class—1943 | 1942 Class | Subsequent Class 1943 |
| University of Arkansas School of Medicine                     | September          | September      | September                      | June       | June                  |
| University of California Medical School                       | June               | June           | February                       | May        | February              |
| College of Medical Evangelists                                | July               | July           | July                           | June       | April *               |
| University of Southern California School of Medicine          | June               | June           | June                           | June       | January *             |
| Stanford University School of Medicine                        | June               | June           | June                           | June       | March *               |
| University of Colorado School of Medicine                     | June               | June           | March                          | June       | March                 |
| Yale University School of Medicine                            | June               | June           | April                          | June       | March (n)             |
| Georgetown University School of Medicine                      | June               | June           | March                          | May        | March                 |
| George Washington University School of Medicine               | June               | June           | March                          | June       | February              |
| Howard University College of Medicine                         | September          | September      | September                      | June       | June                  |
| Emory University School of Medicine                           | June               | June           | March                          | May        | March                 |
| University of Georgia School of Medicine                      | July               | July           | April                          | June       | March                 |
| Loyola University School of Medicine                          | July               | July           | April                          | June       | April *               |
| Northwestern University Medical School                        | June               | June           | March                          | June       | Aug 1942* (b)         |
| University of Chicago, The School of Medicine                 | June               | June           | March                          | June       | Sept 1942 (b)         |
| University of Illinois College of Medicine                    | June (c)           | September      | June                           | June       | March                 |
| Indiana University School of Medicine                         | May                | May            | January                        | May        | December 1942         |
| State University of Iowa College of Medicine                  | May                | June           | February                       | May        | February              |
| University of Kansas School of Medicine                       | September (d)      | June           | June                           | June       | May                   |
| University of Louisville School of Medicine                   | July               | July           | April                          | May        | February              |
| Louisiana State University School of Medicine                 | June               | June           | March                          | March (e)  | March                 |
| Tulane University of Louisiana School of Medicine             | September          | September      | September                      | June       | April                 |
| Johns Hopkins University School of Medicine                   | June               | June           | March                          | June       | February              |
| University of Maryland School of Medicine and Coll of P and S | June               | June           | April                          | May        | March                 |
| Boston University School of Medicine                          | June               | June           | March                          | May        | February              |
| Harvard Medical School  | July               | July           | March                          | June       | March                 |
| Tufts College Medical School                                  | June               | June           | April                          | June       | March                 |
| University of Michigan Medical School                         | June               | October        | October                        | May        | January               |
| Wayne University College of Medicine                          | June               | June           | April                          | June       | March *               |
| University of Minnesota Medical School                        | June               | June           | March                          | June       | March *               |
| St Louis University School of Medicine                        | June               | June           | March                          | June       | February              |
| Washington University School of Medicine                      | June               | July           | March                          | June       | March                 |
| Creighton University School of Medicine                       | July               | July           | March                          | June       | March                 |
| University of Nebraska College of Medicine                    | June               | June           | March                          | May        | March                 |
| Albany Medical College  | July               | July           | March                          | June       | April                 |
| Long Island College of Medicine                               | July               | July           | March                          | May        | March                 |
| University of Buffalo School of Medicine                      | July               | July           | July                           | June       | March                 |
| Columbia University College of Physicians & Surgeons          | July               | July           | March                          | June       | March                 |
| Cornell University Medical College                            | July               | July           | April                          | June       | March                 |
| New York Medical College, Flower & Fifth Ave Hosps            | July               | July           | April                          | June       | March                 |
| New York University College of Medicine                       | June               | June           | April                          | June       | March                 |
| University of Rochester School of Medicine                    | July               | July           | March                          | June       | March                 |
| Syracuse University College of Medicine                       | July               | July           | July                           | June       | March                 |
| Duke University School of Medicine                            | July               | July           | March                          | May        | March *               |
| Bowman Gray School of Medicine of Wake Forest College         | June               | June           | March                          | (f)        | December              |
| University of Cincinnati College of Medicine                  | June               | June           | March                          | June       | February              |
| Western Reserve University School of Medicine                 | June               | June           | March                          | June       | February              |
| Ohio State University College of Medicine                     | June               | June           | March                          | June       | March                 |
| University of Oklahoma School of Medicine                     | September          | September      | June                           | June       | May                   |
| University of Oregon Medical School                           | June               | June           | March                          | June       | March                 |
| Hahnemann Medical College and Hospital of Philadelphia        | July               | July           | April                          | June       | March                 |
| Jefferson Medical College of Philadelphia                     | August (g)         | June           | April                          | June       | February              |
| Temple University School of Medicine                          | July               | August         | April                          | June       | March                 |
| University of Pennsylvania School of Medicine                 | July               | July           | April                          | May (c)    | March                 |
| Woman's Medical College of Pennsylvania                       | September (i)      | September      | (j)                            | June       | March                 |
| University of Pittsburgh School of Medicine                   | July               | July           | April                          | June       | March                 |
| Medical College of the State of South Carolina                | June               | June           | March                          | June       | April                 |
| University of Tennessee College of Medicine                   | July               | July           | (k)                            | June       | Sept 1942             |
| Meharry Medical College                                       | September          | September      | July                           | May        | June                  |
| Vanderbilt University School of Medicine                      | June               | June           | March                          | June       | March                 |
| Baylor University College of Medicine                         | September          | September      | October                        | June       | May                   |
| University of Texas Medical Branch (h)                        | March (l)          | June           | March                          | March (c)  | December 1942         |
| University of Vermont College of Medicine                     | July               | July           | April                          | June       | March                 |
| University of Virginia Department of Medicine                 | June               | June           | March                          | June       | March                 |
| Medical College of Virginia                                   | July               | July           | April                          | June       | March                 |
| University of Wisconsin Medical School                        | July               | July           | July                           | June       | March *               |
| Marquette University School of Medicine                       | July               | July           | March                          | June       | March *               |

\* Internship required for M.D. degree  
(a) Commencement June 1943  
(b) Quarterly graduation  
(c) Second year—September  
(d) Accelerated program  
(e) Senior year accelerated 1941 1942  
(f) No seniors 1941 1942

(g) Seniors—June  
(h) Entire curriculum accelerated session 1941 1942  
(i) Seniors—July  
(j) Undecided  
(k) Operated on four quarter plan—new students admitted as classes graduated every quarter  
(l) Classes in session since March 23 1942

completion of the senior year was advanced from June to May 1942 by fourteen schools

Under the accelerated sessions now in operation, students will be graduated by two schools in December 1942 two in January, ten in February, thirty-eight in March five in April, three in May and three in June 1943. In addition to the University of Tennessee College of Medicine two schools have operated on the quarter system, the former will graduate students in

TABLE 2—Program of Schools of the Basic Medical Sciences

| School  | Session Begins |                |                                |
|---|----------------|----------------|--------------------------------|
|   | 1942-1943      |                |                                |
|   | 2d Year        | Entering Class | Subsequent Entering Class—1943 |
| University of Alabama School of Medicine              | June           | June           | March                          |
| University of Mississippi School of Medicine          | June           | June           | February                       |
| University of Missouri School of Medicine             | June           | June           | February                       |
| Dartmouth Medical School                              | May            | May            | February                       |
| University of North Carolina School of Medicine       | June           | June           | March                          |
| University of North Dakota School of Medicine         | September      | September      | September                      |
| University of South Dakota School of Medical Sciences | June           | June           | March                          |
| University of Utah School of Medicine                 | June           | June           | March                          |
| West Virginia University School of Medicine           | June           | June           | March                          |

September 1942 and the latter two in August 1942. In another school the entire four year curriculum is being offered for the first time, and a class will graduate in December 1943.

The details of the programs now in operation in the various medical schools are outlined in table 1. Similar data for the schools of the basic medical sciences are given in table 2. Listed also are the schools which plan to accept an entering class and graduate students every nine months, as well as those which, while graduating students every nine months during the next three years, will admit entering students once a year.

Licensure requirements in forty-one states, the District of Columbia, Alaska and Puerto Rico permit the granting of licenses, or have been so modified as to permit admission to licensure, to graduates who have completed the accelerated course of training in recognized medical schools. In seven states, Georgia, Illinois, Kansas, Michigan, Nebraska, New Jersey and South Carolina, existing statutory provisions require modification, probably by legislative action, before licenses can be granted to graduates who have completed the accelerated course of medical education.

Another difficulty will be that of correlating or integrating the graduation of medical students every nine months with the customary one year internship. As pointed out elsewhere in this issue of THE JOURNAL, certain hospitals are planning special programs.

#### SUPPLY OF PHYSICIANS

With the adoption of accelerated programs by most of the medical schools in this country, an attempt has been made to estimate the number of physicians who will be graduated from these schools during the next three years. These figures are shown in table 3 and are based on the student enrolment in each class and the particular program of each individual school.

Due allowance has been made for losses due to failures or discontinuance for other reasons. Losses are

estimated at 16.2 per cent for first year students, 5.1 per cent for second year students and 1 per cent for third year students. These percentages were based on the actual experience figures of all medical schools for the years 1937-1941 inclusive.

Included as "graduates" in this tabulation are those students who will have completed their formal undergraduate program in those schools requiring the internship before the granting of the M.D. degree.

Under normal conditions and without the adoption of the accelerated program, the number of physicians graduated during this same three year period would be approximately 15,947. If the estimates shown in this table are correct—and they are considered to be very conservative—21,029 students will actually be graduated during this period, or 5,082 more than would have graduated without the adoption of the accelerated programs. There are in addition approximately 220 students from the United States in the medical schools of Canada. With the adoption of the accelerated programs by these institutions it is anticipated that practically all of this group will also be graduated by June 30, 1945.

Never before in the history of this country have as many as 21,000 physicians been graduated from its medical colleges within a three year period.

In a previous issue of THE JOURNAL<sup>1</sup> it was estimated that the total number of deaths of physicians in the United States during 1941 was 3,460. It is difficult to determine what the over-all effect of the war will be on the annual deaths of physicians. However, the estimated number of graduates of the approved medical schools during the next three years, based on the annual deaths of physicians during recent years, provides more than two graduating physicians for every death.

TABLE 3—Estimated Number of Graduates of the Approved Medical Schools in the United States, July 1, 1942-June 30, 1945

| Dates of Graduation   | Estimated No. of Graduates |
|-----------------------|----------------------------|
| 1942                  |                            |
| July 1-December 31    | 275                        |
| 1943                  |                            |
| January 1-March 31    | 4,180                      |
| April 1-June 30       | 681                        |
| July 1-September 30   | 255                        |
| October 1-December 31 | 4,444                      |
| 1944                  |                            |
| January 1-March 31    | 399                        |
| April 1-June 30       | 541                        |
| July 1-September 30   | 4,578                      |
| October 1-December 31 | 380                        |
| 1945                  |                            |
| January 1-June 30     | 5,296                      |
| Total                 | 21,029                     |

It is comforting to realize that, rather than permit this war to interfere with the education of physicians, the federal authorities in cooperation with medical schools have adopted programs which will increase the output of physicians and at the same time retain the normal curriculum without any material lowering of standards.

Furthermore, the acute need of the Army is for young physicians for assignment to duty with troops. This need must be met, and there is here offered to recent graduates who have just completed internships

<sup>1</sup> Deaths of Physicians in 1941 editorial J. A. M. A. 119:565 (June 13) 1942

an unusual opportunity for service. Reports indicate that there are still many qualified graduates of 1941 who have not yet applied for commissions in the Medical Corps.

AFFILIATED ARMY HOSPITAL UNITS

One of the contributions of medical education to the war has been the organization of affiliated hospital units by the medical colleges of this country. The various medical colleges participating in this program are providing for the Army fully organized hospital staffs composed of unusually competent men in the various specialties, accustomed to working together and prepared to assume the medical responsibilities incident to the conduct of an army hospital.

As shown in table 4, forty medical schools have organized such hospital staffs. Of these, four schools have each organized two such staffs. These affiliated units are of three types, general hospitals, evacuation hospitals and surgical hospitals.

to this program at the present time and has announced its intention of continuing it. Medical students who hold commissions in the Medical Administrative Reserve Corps are urged to take this course if it is given in the colleges which they are attending. The schools which have such R O T C units are listed in table 5.

TABLE 5—Medical Schools Having an R O T C Unit

|                              |                             |
|------------------------------|-----------------------------|
| University of California     | University of Buffalo       |
| George Washington University | Ohio State University       |
| Georgetown University        | Western Reserve University  |
| Indiana University           | University of Oregon        |
| State University of Iowa     | Jefferson Medical College   |
| Boston University            | University of Pennsylvania  |
| University of Michigan       | University of Pittsburgh    |
| St. Louis University         | Vanderbilt University       |
| Washington University        | Baylor University           |
| Cornell University           | University of Vermont       |
| Syracuse University          | Medical College of Virginia |

LOAN FUNDS AND SCHOLARSHIPS FOR STUDENTS IN ACCELERATED PROGRAMS

The accelerated program adopted by the medical schools has presented many new problems to the medical student. Prominent among these is the financial problem of the student with limited means. The long summer vacation period during which many students earned sufficient funds to permit them to continue their educational program has been eliminated.

As recently reported in THE JOURNAL, the W K Kellogg Foundation, recognizing the desperate situation facing these students, offered each of the medical schools an immediate grant of \$10,000 to be used as scholarships and loans at the discretion of the individual medical school. Grants of \$5,000 were made to the schools of the basic medical sciences which offer only the first two years of the medical course. Similarly grants were made by the W K Kellogg Foundation to certain schools of dentistry, public health and nursing.

It is planned that payments on loans from these funds will be made directly to the schools, thus providing for all time a revolving loan fund for deserving students.

This action by the W K Kellogg Foundation undoubtedly represents the largest single contribution that has ever been made in this country to enhance the opportunities for deserving but financially handicapped medical students to complete their medical education.

Sponsored chiefly by the American Council on Education, a program was recently initiated to secure federal funds in the form of loan funds which might be made available not alone to medical students but to certain other technical and professional students following an accelerated program. Congress voted favorably on the proposal, and \$5,000,000 has been made available for this purpose.

The regulations under which the law will operate were not available at the time this issue of THE JOURNAL went to press. The language of the law which was passed June 30, 1942 as provided by the U S Office of Education, is as follows:

PROVISION FOR LOANS TO STUDENTS IN CERTAIN ACCELERATED PROGRAMS

Language in the 1942-43 appropriation act for the Federal Security Agency, passed June 30, 1942

Loans to students in technical and professional fields (national defense). To assist students (in such numbers as the Chair of the War Manpower Commission shall determine) in the

TABLE 4—Medical Schools Having Affiliated Hospital Units

| General Hospitals               | Designation of Unit |
|---------------------------------|---------------------|
| College of Medical Evangelists  | 47                  |
| University of California        | 30                  |
| University of Colorado          | 29                  |
| Yale University                 | 39                  |
| Emory University                | 43                  |
| Loyola University               | 108                 |
| Northwestern University         | 12                  |
| Indiana University              | 32                  |
| Louisiana State University      | 64                  |
| Tulane University               | 24                  |
| Johns Hopkins University        | 18 & 118            |
| University of Maryland          | 42 & 142            |
| Harvard Medical School          | 5 & 105             |
| University of Michigan          | 298                 |
| Wayne University                | 36                  |
| University of Minnesota         | 26                  |
| St. Louis University            | 70                  |
| Washington University           | 21                  |
| Albany Medical College          | 33                  |
| Columbia University             | 2                   |
| Long Island College of Medicine | 107                 |
| Syracuse University             | 52                  |
| Duke University                 | 65                  |
| University of Cincinnati        | 28                  |
| Western Reserve University      | 4                   |
| University of Oregon            | 46                  |
| Jefferson Medical College       | 38                  |
| University of Pennsylvania      | 20                  |
| University of Pittsburgh        | 27                  |
| Vanderbilt University           | 300                 |
| University of Texas             | 127                 |
| Medical College of Virginia     | 45                  |
| University of Wisconsin         | 44                  |
| Evacuation Hospitals            |                     |
| University of Illinois          | 27                  |
| University of Kansas            | 77                  |
| Cornell University              | 7                   |
| University of Oklahoma          | 21                  |
| Baylor University               | 56                  |
| University of Virginia          | 8                   |
| Surgical Hospitals              |                     |
| University of Louisville        | 31                  |
| University of Texas             | 30                  |

In table 4 is shown opposite the name of the medical school the particular unit or units which it has assumed the responsibility for organizing.

R O T C UNITS IN MEDICAL SCHOOLS

For years the Army has believed that the Reserve Officers Training Corps program offered in medical schools provided a very desirable type of experience for medical students who might later be called to serve as officers in the medical corps of the army. The Surgeon General's Office is especially enthusiastic in regard

parting in accelerated programs in degree granting colleges and universities in engineering physics chemistry, medicine (including veterinary), dentistry and pharmacy, whose technical or professional education can be completed within two years, as follows:

**Loans.** For loans to students whose technical or professional education can be completed within two years to enable them to pursue college courses who attain and continue to maintain satisfactory standards of scholarship who are in need of assistance and who agree in writing to participate until otherwise directed by said Chairman in accelerated programs of study in any of the fields authorized hereunder and who agree in writing to engage, for the duration of the wars in which the United States is now engaged, in such employment or service as may be assigned by officers or agencies designated by said Chairman, such loans to be made by such colleges or universities or public or college-connected agencies from funds paid to them upon estimates submitted by them as to the amounts necessary therefor \$500,000. *Provided* That in case it shall be found that any payment to any such college university, or public or college-connected agency is in excess of the needs thereof for the purposes hereof, refund of such excess shall be made to the Treasurer of the United States and the amount thereof credited to this appropriation. Loans hereunder shall be made in amounts not exceeding tuition and fees plus \$25 per month and not exceeding a total of \$500 to any one student during any 12-month period said loans to be evidenced by notes executed by such students payable to the Treasurer of the United States at a rate interest at 2½ per cent per annum. Repayments of such loans shall be made through the colleges universities, or other agencies negotiating the loans and covered into the Treasury as miscellaneous receipts. *Provided* That indebtedness of students who before completing their courses, are ordered into military service during the present wars under the Selective Training and Service Act of 1940, as amended or who suffer total and permanent disability or death, shall be canceled. The foregoing loan program shall be administered in accordance with regulations promulgated by the Commissioner of Education with the approval of the Chairman of the War Manpower Commission.

#### DEVELOPMENTS IN MEDICAL EDUCATION

In the United States sixty-six approved four year medical schools and ten approved schools of the basic medical sciences carry the responsibility for the professional education of the physicians of this country. In times of war these heavy responsibilities are multiplied manyfold. The facilities of the medical schools have been taxed to the utmost by approximately a 10 per cent increase in the size of entering classes and by the institution of the accelerated programs. The loss of many faculty members through active service with the military forces and hospital units and the decrease in the resident personnel of the teaching hospitals have placed even further burdens on the permanent teaching staff.

No basic changes have been made in the established medical curriculum because of the accelerated programs now in operation, although courses have been surveyed and an attempt has been made to eliminate duplication of work and to insure better correlation of subject matter. Innovations have been introduced which are designed to increase the practical value of medical school programs.

Certain subjects peculiar to war have been added to the curriculum. Prominent among the subjects which are being given special attention are military medicine, first aid, tropical medicine, the study and treatment of war wounds and industrial medicine.

Much of the research being conducted in the various departments of the medical schools is directly related to the war effort and is of the utmost importance in

connection with the successful prosecution of the war. Such research is demanding an ever increasing amount of time and attention from already greatly depleted faculties.

The budgets of twelve schools have been materially increased. An aggregate annual increase of \$424,874 has been allotted to these schools ranging from \$1,090 to \$95,886. Eight of these schools have received increases in excess of \$22,000 and five over \$50,000.

Noteworthy improvements in preclinical departments have been made by six schools, providing more satisfactory facilities for both teaching and research.

Improvements affecting clinical teaching were reported by eight schools. These changes include closer affiliation with teaching hospitals increase in available teaching beds, a new clinic building and other noteworthy developments. Of special significance was the completion of the Western State Psychiatric Hospital, which is the mental teaching unit of the University of Pittsburgh School of Medicine. This hospital will provide about two hundred and fifty beds, which will be available for the instruction of students in psychiatry. The new neuropsychiatric institute at the University of Illinois College of Medicine was dedicated on June 6. Clinical facilities at Boston University School of Medicine were greatly improved as a result of the opening of the new Robert Dawson Evans Memorial building on May 12. This building contains nine floors and is equipped to house the Robert Dawson Evans Memorial for Clinical Research and Preventive Medicine.

The provision for these improvements, as well as many others not reported here, is commendatory in that they reflect continued effort on the part of medical educators of the country to progress in spite of the difficulties under which they are operating at the present time. Every effort is being made to maintain present standards in the training of physicians. The Council on Medical Education and Hospitals of the American Medical Association is gratified by the efforts being made and as always is anxious to be of any assistance possible in the further development of the medical schools.

#### CURRICULUM

The standard curriculum recognized by the Council on Medical Education and Hospitals and contained in its Essentials of an Acceptable Medical School consists of from three thousand six hundred to four thousand four hundred hours distributed as from nine hundred to one thousand hours per academic year and grouped under nine headings: anatomy, including histology and embryology, physiology, biochemistry, pathology, bacteriology and immunology, pharmacology, hygiene and sanitation, general medicine, general surgery, and obstetrics and gynecology. A certain percentage of the whole number of hours is devoted to each of these groups.

In the present emergency medical schools are conforming to these minimum requirements, although there may be slight deviation as a result of the institution of accelerated programs.

#### APPROVAL OF SCHOOLS IN CANADA

Following the survey of undergraduate medical schools<sup>2</sup> of the United States and Canada made during 1934-1936 by the Council on Medical Education and

<sup>2</sup> Weiskotten H. G. Schwittalla A. M. Cutter W. D. and Anderson H. H. Medical Education in the United States. Chicago: American Medical Association, 1940.



Hospitals, the secretary was instructed to inquire as to the policy to be adopted in the future regarding the faculties of medicine of Canada, that is, whether the American Medical Association should continue the approval of medical schools in Canada or whether they would prefer that the medical schools themselves or some other body take over this task. The problem was referred to the Canadian Medical Association, which at its annual meeting in June 1938 brought in a report which reads in part as follows:

In the event of the Council on Medical Education of the American Medical Association publishing a list of approved schools, those Canadian schools wishing their inspection and approval could request this inspection. This would leave each school free to deal directly with the Council on Medical Education of the American Medical Association and thus obviate misunderstandings. There seems to be a fairly uniform opinion expressed by the various medical schools in Canada that the Canadian Medical Association should share some responsibility in this country so far as medical education is concerned. The majority of the schools, however, feel that the aims and purposes of the Canadian Medical Association are not primarily those of undergraduate medical education, which is largely a problem of the schools themselves. However, it was recommended that if the Council on Medical Education and Hospitals of the American Medical Association in the future conduct similar surveys at five or ten year intervals, such as the recent survey, the Canadian schools take advantage of and be included in this survey. Those schools which are members of the Association of American Medical Colleges could have a representative from this association included in the personnel of the inspection. The remaining schools which are not members of the Association of American Medical Colleges could ask to have a member of the Association of American Medical Colleges included in the inspecting personnel or some representative from the Committee on Medical Education of the Canadian Medical Association.

It would appear from the foregoing that continued approval of the medical schools of Canada by the Council on Medical Education and Hospitals is a decision which rests with the schools themselves. By resolution, May 13, 1939, the Council voted to include the Canadian medical schools in the lists of approved schools maintained by it only at their request. The Council is willing as in the past to serve the medical schools of Canada.

#### PRELIMINARY EDUCATION

The Council on Medical Education and Hospitals in setting up its minimum subject requirements for admission to approved medical schools does not specify the number of hours required but rather refers to satisfactory courses in biology, physics and chemistry, including organic chemistry. Some of the medical schools still require a specific number of semester hours in these subjects. However, the general trend is to avoid rigidity and to deal with the subjects in terms of satisfactory courses. While the minimum requirement of collegiate credit advocated by the Council is two years of college training, which include English and theoretical and practical courses in physics, biology and general and organic chemistry, three years or more in college is recommended.

As a guide to medical schools in the selection of students and also to assist the prospective medical student in choosing a college for his premedical training, the Council publishes a compilation of approved colleges of arts and sciences. This list comprises colleges approved

by the following national and regional educational associations:

- Association of American Universities
- North Central Association of Colleges and Secondary Schools
- Middle States Association of Colleges and Secondary Schools
- New England Association of Colleges and Secondary Schools
- Southern Association of Colleges and Secondary Schools
- Northwest Association of Secondary and Higher Schools

Seven hundred and nineteen colleges are approved by these agencies, as follows:

|                                      |     |
|--------------------------------------|-----|
| Association of American Universities | 314 |
| North Central                        | 257 |
| Southern                             | 210 |
| Middle States                        | 128 |
| Northwest                            | 60  |
| New England                          | 45  |

All but nineteen of those approved by the Association of American Universities are also recognized by their district agency. This dual approval of two hundred and ninety-five institutions is thus apportioned:

|               |     |
|---------------|-----|
| North Central | 119 |
| Middle States | 69  |
| Southern      | 58  |
| New England   | 31  |
| Northwest     | 18  |

The five regional associations of colleges referred to cover among them the entire United States with the exception of the far Southwest.

Junior colleges are approved by these agencies but are omitted from the Council's compilation, because the Council itself recommends three years of college preliminary to entrance into medical school and because all but a negligible percentage of medical students have actually obtained three years or more in college.

In connection with the matter of acceptance by a medical school this list of approved colleges has been found useful, but the regulations of state departments of education and the rules of individual schools usually form a basis for accreditation of premedical work.

TABLE 6—Requirements for Admission to Medical Schools, 1936-1942

|           | Degree | Years |        |       |                  |     |
|-----------|--------|-------|--------|-------|------------------|-----|
|           |        | Four  | Three* | Three | Two and One Half | Two |
| 1936-1937 | 4      | 1     | 3      | 36    | 1                | 32  |
| 1937-1938 | 5      | 1     | 4      | 39    | 1                | 27  |
| 1938-1939 | 5      | 1     | 5      | 45    | 2                | 19  |
| 1939-1940 | 5      | 1     | 5      | 55    |                  | 11  |
| 1940-1941 | 6      | 1     | 5      | 56    |                  | 9   |
| 1941-1942 | 5      | 1     | 5      | 58    |                  | 8   |
| 1942-1943 | 4      | 1     | 4      | 60    |                  | 7   |

\* Baccalaureate degree conferred in absentia at end of first medical year

For the session 1942-1943, sixty-nine medical schools in the United States have preliminary requirements in excess of the minimum. Of these four required a degree, one required four years, four schools will admit students with three years of college work if the baccalaureate degree is conferred in absentia at the end of the first year in medicine, and sixty schools required three years of college work. Only seven schools have a stated two year requirement. These schools are the Universities of Arkansas, Howard, Louisville, Harvard, Buffalo, Pittsburgh and Tennessee.

see In table 6 are presented for six years figures indicating the trend toward increasing admission requirements. George Washington University School of Medicine increased its prerequisite for the present session to three years.

The general trend toward a premedical program involving three or more years of college work is evidence of an appreciation of the importance of liberalizing preprofessional educational programs. Aside from

TABLE 7—*Freshman Students Admitted with Less Than Three Years of College Preparation*

|           | Number of Schools With Two Year Requirement | Percentage of Freshman Enrolment |
|-----------|---|----------------------------------|
| 1936-1937 | 32  | 12.5                             |
| 1937-1938 | 27  | 7.4                              |
| 1938-1939 | 19  | 3.5                              |
| 1939-1940 | 11  | 2.0                              |
| 1940-1941 | 9   | 1.4                              |
| 1941-1942 | 8   | 1.2                              |

including satisfactory courses in the specific subjects which are fundamental to the initiation of the study of medicine, premedical education should offer students an opportunity to do advanced work in subjects in which they are especially interested. The field of medicine is today so broad that it offers unusual opportunities for students who have a special interest and advanced training in a wide variety of subjects.

Actually but 1.2 per cent (table 7) of the entire freshman class of 1941-1942 was admitted with less than three years of college work. Of the eight schools with a two year requirement for this session, three admitted none on this basis, one admitted four, another five, one

TABLE 8—*Requirements of Preliminary Training by Medical Licensing Boards*

| Two Years or More of College             |                |                |
|--|----------------|----------------|
| Alabama                                  | Louisiana      | Oklahoma       |
| Alaska                                   | Maine          | Oregon         |
| Arizona                                  | Maryland       | Pennsylvania   |
| Arkansas                                 | Michigan       | Puerto Rico    |
| Colorado                                 | Minnesota      | Rhode Island   |
| Delaware                                 | Mississippi    | South Carolina |
| District of Columbia                     | Missouri       | South Dakota   |
| Florida                                  | Montana        | Tennessee      |
| Georgia                                  | Nevada         | Texas          |
| Hawaii                                   | New Hampshire  | Utah           |
| Idaho                                    | New Jersey     | Vermont        |
| Illinois                                 | New Mexico     | Virginia       |
| Indiana                                  | New York       | Washington     |
| Iowa                                     | North Carolina | West Virginia  |
| Kansas                                   | North Dakota   | Wisconsin      |
| Kentucky                                 | Ohio           | Wyoming        |
| One Year of College                      |                |                |
| California                               | Connecticut    |                |
| High School Graduation or Its Equivalent |                |                |
| Massachusetts                            | Nebraska       |                |

accepted fifteen, another seventeen, while one school accepted thirty-four such students, a total of seventy-five. Thus seventy-five students were enrolled in five schools with two years of college work, although in each case they represent less than 50 per cent of the freshman class. In 1936-1937, 12.5 per cent of the entering class had only the minimum of preliminary education, but by 1938-1939 the number dropped to 3.8 per cent and in 1941-1942 to 1.2 per cent.

Entrance requirements have been progressively raised, and it is to be hoped that no institution will find it necessary to lower its requirements during the present emergency.

The faculties of medicine in Canada vary in their premedical requirement. Two require a collegiate degree, two have a six year medical course preceded by senior matriculation which is equivalent to the work of the first year in a college of arts and five, including one school offering courses in the basic sciences, require two years, while one school requires three years before beginning a four year course.

A table appears later in this study which records the number of graduates of 1942 holding baccalaureate degrees (table 24).

With but four exceptions, namely California, Connecticut, Massachusetts and Nebraska, the state licensing boards exact the two year requirement. These states, however, with the exception of Massachusetts and Illinois, do not license other than graduates of approved schools, all of whom in the last decade, at least, have required two years or more of college training. Table 8 records the preliminary training required by each state medical licensing board, the District of Columbia, Alaska, Hawaii and Puerto Rico.

#### MEDICAL SCHOOLS AND SCHOOLS OF THE BASIC MEDICAL SCIENCES

Medical schools and schools of the basic medical sciences approved by the Council on Medical Education and Hospitals of the American Medical Association during the session 1941-1942 are listed in tables 9 and 10, pages 1270, 1271 and 1272. In addition to the name and location of the school there is recorded the number of years of college training required for admission by each school for the session 1942-1943, the enrolment by classes for the session just closed including figures indicating the number of fifth year students interning or engaged in research, the total attendance, and the number of graduates receiving the degree of Doctor of Medicine during the period July 1, 1941 to July 1, 1942. The name of the dean or acting dean of each school is also given. Figures for the sixth year enrolment in Canadian schools are given in a footnote. The fifth year (internship) enrolment is not included in the column giving the total number of students by classes.

Changes in the classification of medical schools that have taken place since the publication of the educational statistics in 1941,<sup>3</sup> as well as those whose approval was formerly on a probationary status and has not been changed, can be noted in footnotes at the bottom of these tables and refer to those schools which are marked by asterisks preceding the name. Five medical schools are in this category.

The University of Chicago School of Medicine and Rush Medical College do not report their students by classes, and in this tabulation only the total enrolment is given.

The University of California Medical School has discontinued the internship requirement affecting the class of 1942 and awarded degrees to fifty-five students who completed the course in 1941 and served internships during 1941-1942 and to fifty-six who completed four years of work in 1942, a total of 111.

Undergraduate courses in the clinical years which have been taught at Rush Medical College, Chicago, since 1837 terminated in 1942. During 1940-1941 arrangements were entered into by the trustees of Rush Medical College, the trustees of the University of Chicago, the trustees of the University of Illinois and the board of managers of the Presbyterian Hospital whereby

(Continued on page 1272)

TABLE 9—Recognized Medical Schools in the United States and Canada

| Students by Classes, Session 1911 1912              |   |                          |            |          |                           |        |                                |                   |     |   |    |
|---|---|--------------------------|------------|----------|---------------------------|--------|--------------------------------|-------------------|-----|---|----|
| 1912 1913<br>Preliminary<br>Requirement<br>by Years | 1st Year  | 2d Year                  | 3d Year    | 4th Year | 5th Year or<br>Inter Year | Totals | Graduates Since<br>July 1 1911 | Executive Officer |     |   |    |
|   |   |                          |            |          |                           |        |                                |                   |     |   |    |
| Name and Location of School                         |   |                          |            |          |                           |        |                                |                   |     |   |    |
| ARKANSAS  |   |                          |            |          |                           |        |                                |                   |     |   |    |
| 1   | *University of Arkansas School of Medicine                                | Little Rock              | 2          | 52       | 71                        | 70     | 60                             | 292               | 66  | Byron L. Robinson M D Dean  | 1  |
| CALIFORNIA  |   |                          |            |          |                           |        |                                |                   |     |   |    |
| 2   | University of California Medical School, Berkeley                         | San Francisco            | 3          | 72       | 63                        | 62     | 56                             | 253               | 111 | Francis Scott Smyth M D Dean  | 2  |
| 3   | College of Medical Evangelists, Loma Linda                                | Los Angeles              | 3          | 52       | 75                        | 68     | 53                             | 289               | 77  | E H Bishop M D Dean Loma Linda Hospital W F Norwood Ph D Assistant Dean Loma Linda Hospital L G Mudd M D Dean | 3  |
| 4   | University of Southern California School of Medicine, Los Angeles         |                          | 3          | 56       | 50                        | 51     | 51                             | 205               | 49  | Lucas G Mudd M D Dean   | 4  |
| 5   | Stanford University School of Medicine, Stanford                          | University San Francisco | 3          | 62       | 60                        | 60     | 60                             | 242               | 57  | Lorna R Gordon Chandler M D Dean  | 5  |
| COLORADO  |   |                          |            |          |                           |        |                                |                   |     |   |    |
| 6   | University of Colorado School of Medicine, Denver                         |                          | 3          | 62       | 51                        | 50     | 51                             | 217               | 51  | Maurice H Ross M D Dean   | 6  |
| CONNECTICUT   |   |                          |            |          |                           |        |                                |                   |     |   |    |
| 7   | Yale University School of Medicine, New Haven                             |                          | 3          | 50       | 55                        | 50     | 51                             | 206               | 51  | Frederic G Blake M D Dean   | 7  |
| DISTRICT OF COLUMBIA                                |   |                          |            |          |                           |        |                                |                   |     |   |    |
| 8   | Georgetown University School of Medicine, Washington                      |                          | 3          | 50       | 65                        | 63     | 56                             | 239               | 55  | David V McCubbin S J Ph D Dean  | 8  |
| 9   | George Washington University School of Medicine, Washington               |                          | 3          | 79       | 69                        | 71     | 72                             | 281               | 72  | Walter A Blochorn M D Dean  | 9  |
| 10  | Howard University College of Medicine, Washington                         |                          | 2          | 55       | 49                        | 57     | 53                             | 212               | 55  | John W Lewis M D Dean   | 10 |
| GEORGIA   |   |                          |            |          |                           |        |                                |                   |     |   |    |
| 11  | Emory University School of Medicine, Atlanta                              |                          | 3          | 68       | 48                        | 53     | 49                             | 218               | 49  | Russell H Oppenheimer M D Dean  | 11 |
| 12  | **University of Georgia School of Medicine, Augusta                       |                          | 3          | 75       | 48                        | 47     | 42                             | 212               | 42  | G Lombard Kelly M D Dean  | 12 |
| ILLINOIS  |   |                          |            |          |                           |        |                                |                   |     |   |    |
| 13  | Loyola University School of Medicine, Chicago                             |                          | 3          | 39       | 67                        | 57     | 63                             | 225               | 67  | Francis J Brice, M D Dean   | 13 |
| 14  | Northwestern University Medical School, Chicago                           |                          | 3          | 131      | 127                       | 109    | 129                            | 507               | 176 | J Roscoe Muller M D Dean  | 14 |
| 15  | University of Chicago, Rush Medical College                               |                          | 3          | 79       | 69                        | 71     | 72                             | 281               | 102 | Earle Gray M D Acting Dean  | 15 |
| 16  | University of Chicago, The School of Medicine                             |                          | 3          | 79       | 69                        | 71     | 72                             | 281               | 102 | Victor Johnson M D Dean of Students   | 16 |
| 17  | University of Illinois College of Medicine, Chicago                       |                          | 3          | 105      | 168                       | 152    | 150                            | 635               | 165 | David J Davis M D Dean  | 17 |
| INDIANA   |   |                          |            |          |                           |        |                                |                   |     |   |    |
| 18  | Indiana University School of Medicine, Bloomington                        | Indianapolis             | 3          | 140      | 139                       | 114    | 114                            | 507               | 105 | William D Gatch M D Dean  | 18 |
| IOWA  |   |                          |            |          |                           |        |                                |                   |     |   |    |
| 19  | State University of Iowa College of Medicine, Iowa City                   |                          | 3          | 100      | 68                        | 63     | 40                             | 232               | 46  | Ernest Murehl on MacEwen M D Dean   | 19 |
| KANSAS  |   |                          |            |          |                           |        |                                |                   |     |   |    |
| 20  | University of Kansas School of Medicine, Lawrence                         | Kansas City              | 3          | 84       | 57                        | 52     | 52                             | 335               | 51  | H R Wahl M D, Dean  | 20 |
| KENTUCKY  |   |                          |            |          |                           |        |                                |                   |     |   |    |
| 21  | University of Louisville School of Medicine, Louisville                   |                          | 2          | 97       | 53                        | 92     | 88                             | 320               | 88  | John Walker Moore M D Dean  | 21 |
| LOUISIANA   |   |                          |            |          |                           |        |                                |                   |     |   |    |
| 22  | Louisiana State University School of Medicine, New Orleans                |                          | 3          | 99       | 80                        | 81     | 85                             | 315               | 85  | Beryl I Burns M D Dean  | 22 |
| 23  | Tulane University of Louisiana School of Medicine, New Orleans            |                          | 3          | 135      | 114                       | 122    | 122                            | 496               | 121 | Hiram W Kostmayer M D Acting Dean   | 23 |
| MARYLAND  |   |                          |            |          |                           |        |                                |                   |     |   |    |
| 24  | Johns Hopkins University School of Medicine, Baltimore                    |                          | Degree     | 74       | 68                        | 73     | 75                             | 290               | 75  | Alan M Chesney, M D Dean  | 24 |
| 25  | University of Maryland School of Med and Coll of Phys and Sur , Baltimore |                          | 3          | 104      | 86                        | 93     | 85                             | 373               | 85  | H Boyd Wylie, M D Acting Dean   | 25 |
| MASSACHUSETTS                                       |   |                          |            |          |                           |        |                                |                   |     |   |    |
| 26  | Boston University School of Medicine, Boston                              |                          | 3          | 70       | 60                        | 47     | 50                             | 217               | 52  | Bennett F Avery M D Dean  | 26 |
| 27  | Harvard Medical School, Boston  |                          | 2          | 127      | 127                       | 145    | 134                            | 533               | 129 | C Sidney Burwell M D Dean   | 27 |
| 28  | Tufts College Medical School, Boston                                      |                          | Degree     | 110      | 101                       | 97     | 94                             | 402               | 91  | Dwight O Hara M D Acting Dean   | 28 |
| MICHIGAN  |   |                          |            |          |                           |        |                                |                   |     |   |    |
| 29  | University of Michigan Medical School, Ann Arbor                          |                          | 3          | 133      | 118                       | 100    | 105                            | 456               | 105 | A C Furstenberg M D Dean  | 29 |
| 30  | Wayne University College of Medicine, Detroit                             |                          | 3 & Degree | 64       | 57                        | 64     | 68                             | 253               | 52  | Edgar H Norris M D Dean   | 30 |
| MINNESOTA   |   |                          |            |          |                           |        |                                |                   |     |   |    |
| 31  | University of Minnesota Medical School, Minneapolis                       |                          | 3          | 140      | 116                       | 115    | 100                            | 477               | 117 | Harold S Diehl M D Dean   | 31 |
| MISSOURI  |   |                          |            |          |                           |        |                                |                   |     |   |    |
| 32  | St Louis University School of Medicine, St Louis                          |                          | 3          | 124      | 112                       | 106    | 101                            | 443               | 94  | Alphonse M Schwifalla S J Ph D Dean   | 32 |
| 33  | Washington University School of Medicine, St Louis                        |                          | 4          | 81       | 83                        | 102    | 93                             | 359               | 93  | Philip A Shaffer Ph D Dean  | 33 |

|    |  |                |            |     |     |     |     |      |     |                                     |
|----|--|----------------|------------|-----|-----|-----|-----|------|-----|-------------------------------------|
| 34 | Creighton University School of Medicine Omaha                                  | NTBRASKA       | 3          | 70  | 68  | 17  | 51  | 274  | 32  | Charles M. Wilhelm M.D. Dean        |
| 35 | University of Nebraska College of Medicine Omaha                               | NTBRASKA       | 3          | 93  | 77  | 70  | 70  | 131  | 49  | C. W. W. Fowler M.D. Dean           |
| 36 | Albany Medical College Albany  | NTW YORK       | 3          | 14  | 78  | 31  | 71  | 1 0  | 73  | R. S. Cunningham M.D. Dean          |
| 37 | Long Island College of Medicine Brooklyn                                       | NTW YORK       | 3          | 109 | 97  | 80  | 80  | 2 1  | 90  | Dean A. Curran M.D. Dean            |
| 38 | University of Buffalo School of Medicine, Buffalo                              | NTW YORK       | 2          | 70  | 61  | 71  | 61  | 27 1 | 61  | Edward W. Koch M.D. Dean            |
| 39 | Columbia University College of Physicians and Surgeons New York                | NTW YORK       | 3          | 176 | 111 | 85  | 84  | 128  | 91  | Joseph C. H. Rappaport M.D. Dean    |
| 40 | Cornell University Medical College New York                                    | NTW YORK       | 3          | 43  | 75  | 73  | 71  | 711  | 75  | Joseph C. H. Rappaport M.D. Dean    |
| 41 | Cornell University Medical College, Flower and Fifth Avenue Hospitals New York | NTW YORK       | 3          | 81  | 85  | 70  | 77  | 723  | 77  | F. A. W. Hetsch M.D. Dean           |
| 42 | New York University College of Medicine New York                               | NTW YORK       | 3          | 136 | 120 | 171 | 127 | 460  | 101 | Carroll Melwen M.D. Dean            |
| 43 | University of Rochester School of Medicine and Dentistry Rochester             | NTW YORK       | 3          | 68  | 62  | 46  | 11  | 228  | 41  | George H. Whipple M.D. Dean         |
| 44 | Syracuse University College of Medicine Syracuse                               | NTW YORK       | 3          | 50  | 40  | 41  | 31  | 151  | 71  | H. G. Winkler M.D. Dean             |
| 45 | Duke University School of Medicine Durham                                      | NORTH CAROLINA | 3          | 76  | 62  | 60  | 61  | 252  | 61  | Wilbur C. Davidson M.D. Dean        |
| 46 | University of Cincinnati College of Medicine Cincinnati                        | OHIO           | 3          | 81  | 70  | 76  | 75  | 207  | 77  | Stanley Drost M.D. Dean             |
| 47 | Western Reserve University School of Medicine Cleveland                        | OHIO           | 3          | 87  | 72  | 71  | 61  | 293  | 69  | Torvald Spillmann M.D. Dean         |
| 48 | Ohio State University College of Medicine Columbus                             | OHIO           | 3          | 81  | 73  | 67  | 50  | 91   | 70  | Fredrick I. Higgin M.D. Acting Dean |
| 49 | University of Oklahoma School of Medicine Oklahoma City                        | OKLAHOMA       | 3          | 66  | 51  | 60  | 55  | 270  | 51  | Robert U. Patterson M.D. Dean       |
| 50 | University of Oregon Medical School Portland                                   | OREGON         | 3          | 75  | 69  | 65  | 51  | 239  | 51  | D. W. F. Baldr M.D. Acting Dean     |
| 51 | Hahnemann Medical College and Hospital of Philadelphia                         | PENNSYLVANIA   | 3          | 119 | 131 | 177 | 131 | 511  | 110 | William A. Pearson M.D. Dean        |
| 52 | Jefferson Medical College of Philadelphia                                      | PENNSYLVANIA   | 3          | 138 | 121 | 112 | 131 | 570  | 111 | William H. Perkins M.D. Dean        |
| 53 | Temple University School of Medicine Philadelphia                              | PENNSYLVANIA   | 3          | 107 | 102 | 121 | 117 | 117  | 117 | William A. Parkins M.D. Dean        |
| 54 | University of Pennsylvania School of Medicine Philadelphia                     | PENNSYLVANIA   | 3          | 129 | 105 | 132 | 130 | 495  | 129 | William Pepper M.D. Dean            |
| 55 | Woman's Medical College of Pennsylvania Philadelphia                           | PENNSYLVANIA   | 3          | 40  | 76  | 21  | 17  | 114  | 15  | Margaret D. Craft M.D. Dean         |
| 56 | University of Pittsburgh School of Medicine Pittsburgh                         | PENNSYLVANIA   | 2          | 87  | 82  | 73  | 73  | 311  | 73  | William S. Melroy M.D. Dean         |
| 57 | Medical College of the State of South Carolina, Charleston                     | SOUTH CAROLINA | 3          | 50  | 41  | 48  | 11  | 183  | 53  | Robert Wilson M.D. Dean             |
| 58 | University of Tennessee College of Medicine Memphis                            | TENNESSEE      | 3          | 150 | 105 | 114 | 95  | 170  | 93  | O. W. Hyman Ph.D. Dean              |
| 59 | Richards Medical College Nashville   | TENNESSEE      | 2          | 69  | 61  | 51  | 50  | 231  | 50  | Michael I. Bent M.D. Dean           |
| 60 | Vanderbilt University School of Medicine Nashville                             | TENNESSEE      | 3 & Degree | 52  | 47  | 51  | 52  | 202  | 51  | Waller S. Feathers M.D. Dean        |
| 61 | Baylor University College of Medicine Dallas                                   | TEXAS          | 3          | 51  | 82  | 74  | 77  | 321  | 75  | Waller H. Mourant M.D. Dean         |
| 62 | University of Texas Medical Branch Galveston                                   | TEXAS          | 3          | 0   | 93  | 89  | 97  | 481  | 97  | John W. Spies M.D. Dean             |
| 63 | University of Vermont College of Medicine, Burlington                          | VERMONT        | 3          | 33  | 31  | 32  | 31  | 127  | 31  | Clarence H. Beecher M.D. Dean       |
| 64 | University of Virginia Department of Medicine, Charlottesville                 | VIRGINIA       | 3          | 75  | 51  | 61  | 63  | 219  | 62  | Harvey F. Jordan Ph.D. Dean         |
| 65 | Medical College of Virginia Richmond   | VIRGINIA       | 3          | 87  | 78  | 73  | 61  | 302  | 61  | Jacques P. Gray M.D. Dean           |
| 66 | University of Wisconsin Medical School Madison                                 | WISCONSIN      | 3          | 82  | 68  | 65  | 14  | 277  | 15  | Walter I. Meek Ph.D. Acting Dean    |
| 67 | Marquette University School of Medicine, Milwaukee                             | WISCONSIN      | 3          | 95  | 81  | 78  | 72  | 332  | 70  | Ellen I. Carey M.D. Dean            |
| 68 | University of Alberta Faculty of Medicine Edmonton Alta                        | CANADA         | 2          | 37  | 37  | 39  | 35  | 191  | 17  | John James Over M.D. Acting Dean    |
| 69 | University of Manitoba Faculty of Medicine Winnipeg Man                        | CANADA         | 2          | 50  | 50  | 60  | 61  | 521  | 51  | A. F. Vathery M.D. Dean             |
| 70 | Queens University Faculty of Medicine Kingston N. S.                           | CANADA         | 2          | 50  | 39  | 37  | 35  | 121  | 12  | H. G. Crout M.D. Dean               |
| 71 | University of Western Ontario Faculty of Medicine London Ont                   | CANADA         | 2          | 45  | 48  | 42  | 46  | 154  | 41  | Frederick J. Thelington M.D. Dean   |
| 72 | University of Western Ontario Medical School London Ont                        | CANADA         | 2          | 50  | 40  | 38  | 37  | 294  | 73  | L. I. H. Campbell M.D. Dean         |
| 73 | University of Toronto Faculty of Medicine Toronto Ont                          | CANADA         | 1          | 206 | 137 | 128 | 110 | 501  | 110 | W. J. Galle M.D. Dean               |
| 74 | McGill University Faculty of Medicine, Montreal, Que                           | CANADA         | 1          | 109 | 95  | 99  | 90  | 597  | 90  | I. C. Menkies M.D. Dean             |
| 75 | University of Montreal Faculty of Medicine Montreal, Que                       | CANADA         | 1          | 60  | 18  | 51  | 40  | 511  | 15  | Albert Teske M.D. Dean              |
| 76 | Laval University Faculty of Medicine Quebec Que                                | CANADA         | 1          | 91  | 61  | 50  | 15  | 121  | 63  | Charles L. Lefebvre M.D. Dean       |

Statistics of Recognized Schools of the Basic Medical Sciences will be found in table 10 page 1272

\* On probation since Dec 1 1930  
 \* Approval withdrawn 1 61 15 1912 without prejudice to the students enrolled as of Sept 1 1912 thus providing protection for all graduates up to and including June 1915  
 \* On probation since June 6 1912  
 \* Enrollment not on above table by classes for the two medical schisms of the University of Chicago  
 \* 14th year (internship) enrollment not included in total column  
 \* Fifth year internship discontinued beginning with the class of 1912  
 \* Two year internship required after graduation  
 \* Sixth year enrollment Alberta 17 Queen's 40 Western Ontario 38 Toronto, 116

(Continued from page 1269)

the University of Chicago returned to the trustees of Rush Medical College the property and funds belonging to the college. The Rush property, buildings and equipment were leased to the Presbyterian Hospital to be maintained by them for the purpose of medical education and research. The Presbyterian Hospital entered into an affiliation with the University of Illinois providing for the teaching of undergraduate students of the University of Illinois in the wards of the Presbyterian Hospital, the Central Free Dispensary and the Rush buildings. The staff of the Presbyterian Hospital joins the faculty of the medical school of the University of Illinois. A newly constituted board of trustees of Rush Medical College will continue to conserve the funds and property of Rush Medical College. This board retains the Rush charter and name and ownership of the Rush buildings, equipment, library and certain funds and the power to appoint a faculty as needed. Under this plan, Rush Medical College is at liberty to use its name with

of Chicago and Rush Medical College enrolled 109 and 269 students respectively. Altogether, 24,884 students were studying medicine in the medical schools of the United States and Canada during the session 1941-1942. Of the medical students shown in these tabulations, 22,031 were pursuing medical courses in the United States. Of this number 6,218 were enrolled as freshmen, 5,406 as sophomores, 5,087 as juniors, 4,942 as seniors and 378 were students at the two Chicago schools that have been mentioned. Including fifth or intern year students, the total would be 22,798. The enrolment in the schools of the basic medical sciences numbered 639, of which 344 were freshmen and 295 sophomores. The enrolment in the Canadian medical schools included first year 696, second year 586, third year 553, fourth year 503, fifth year 276 and sixth year 239, a total of 2,853. In the one school of the basic medical sciences in Canada there were 48 students, 24 freshmen and 24 sophomores.

Table 10—Recognized Schools of the Basic Medical Sciences in the United States and Canada

| Name and Location of School  | 1912-1913<br>Preliminary<br>Requirement<br>by Years | Students by Classes,<br>Session 1911-1912 |         |        | Executive Officer                 |    |
|--|---|---|---------|--------|-----------------------------------|----|
|  |   | 1st Year                                  | 2d Year | Totals |                                   |    |
| ALABAMA  |   |   |         |        |                                   |    |
| 1 University of Alabama School of Medicine, University (Tuscaloosa)        | 3   | 51  | 47      | 98     | Stuart Graves, M D, Dean          | 1  |
| MISSISSIPPI  |   |   |         |        |                                   |    |
| 2 University of Mississippi School of Medicine, University                 | 3   | 23  | 27      | 50     | B S Guyton, M D, Dean             | 2  |
| MISSOURI   |   |   |         |        |                                   |    |
| 3 University of Missouri School of Medicine, Columbia                      | 3   | 37  | 34      | 71     | Dudley S Conley, M D, Dean        | 3  |
| NEW HAMPSHIRE  |   |   |         |        |                                   |    |
| 4 Dartmouth Medical School, Hanover  | 3   | 22  | 24      | 46     | John P Bowler, M D, Dean          | 4  |
| NORTH CAROLINA   |   |   |         |        |                                   |    |
| 5 University of North Carolina School of Medicine, Chapel Hill             | 3   | 46  | 40      | 86     | W Reece Berryhill, M D, Dean      | 5  |
| 6 Bowman Gray School of Medicine of Wake Forest College, Winston-Salem     | 3   | 43  | 30      | 73     | C C Carpenter, M D, Dean          | 6  |
| NORTH DAKOTA   |   |   |         |        |                                   |    |
| 7 *University of North Dakota School of Medicine, Grand Forks              | 3   | 27  | 26      | 53     | H E French, M D, Dean             | 7  |
| SOUTH DAKOTA   |   |   |         |        |                                   |    |
| 8 *University of South Dakota School of Medical Sciences, Vermillion       | 3   | 13  | 17      | 30     | Joseph C Ohlmacher, M D, Dean     | 8  |
| UTAH   |   |   |         |        |                                   |    |
| 9 University of Utah School of Medicine, Salt Lake City                    | 3   | 37  | 29      | 66     | C B Freudenberger, M D, Act. Dean | 9  |
| WEST VIRGINIA  |   |   |         |        |                                   |    |
| 10 West Virginia University School of Medicine, Morgantown                 | 3   | 30  | 21      | 51     | Edward J Van Liere, M D, Dean     | 10 |
| CANADA   |   |   |         |        |                                   |    |
| 11 University of Saskatchewan School of Medical Sciences, Saskatoon, Sask. | 2   | 24  | 24      | 48     | W S Lindsay, M B, Dean            | 11 |

\* On probation since May 13, 1939

any postgraduate or graduate project or research for which funds may be provided. Thus the name of Rush Medical College will be perpetuated. For more than a century Rush Medical College has made outstanding contributions in the field of medical education. Its thousands of graduates have been and are a distinguished group. The data presented in tables 9 and 10 constitute the basis for several of the subsequent tabulations. Historical information regarding all institutions on the approved list of medical schools maintained by the Council on Medical Education and Hospitals will be found beginning on page 1283. In table 9 are listed sixty-seven medical schools in the United States and nine faculties of medicine in Canada, in table 10, ten approved schools of the basic medical sciences in the United States and one in Canada. The freshman enrolment in eighty-five medical schools of the United States and Canada for the session 1941-1942 was 6,914, the sophomore enrolment numbered 5,992, juniors 5,640, seniors 5,445, and fifth and sixth year students in Canadian schools 276 and 239 respectively. The school of medicine of the University

The degree of Doctor of Medicine during the period July 1, 1941 to July 1, 1942 has been awarded to 5,702 students, 5,163 received the degree from medical schools in the United States and 539 from Canadian faculties of medicine. No school of the basic medical sciences had an enrolment over 100. The lowest enrolment among the schools offering the complete course was 114 students at the Woman's Medical College of Pennsylvania and the highest 804 at the University of Toronto Faculty of Medicine. The highest among schools of the United States was 638 at the University of Illinois College of Medicine. Dartmouth Medical School, a school of the basic medical sciences, enrolled the fewest number of students, 40, representing 23 freshmen and 17 sophomores. The Woman's Medical College of Pennsylvania likewise graduated the lowest number of graduates, 18, and the University of Illinois granted the greatest number of degrees, 165. Fourteen schools granted degrees to classes of fewer than 50, thirty-nine graduated between 51 and 100 each, twelve between 101 and 150 and two



more than 151. In Canada one school graduated more than 100 students, while in three schools each there were between 51 and 100 graduates, and five had fewer than 50 graduates.

A cursory review of those now administering the affairs of medical schools reveals that within the last few years many changes have taken place. Only twenty-five of the seventy-six deans have been in their present administrative positions for twenty years or more. Of those sixteen have similarly served for fifteen or more years. The oldest dean in point of service is Dr. Robert Wilson, who has served as dean of the Medical College of the State of South Carolina since 1908. Four medical school deans are now with the armed forces, and their duties have been taken over by men serving in an acting capacity. Other deans are making notable contributions by devoting a considerable amount of time as members of committees responsible for various aspects of the war effort. The Council regrets the loss from the list of deans of such names as Dr. Paul S. McKibben of the University of Southern California and Dr. L. L. Dames of the University of Utah, who died during the past year, those of Dr. Percy Magrin of the College of Medical Evangelists and Dr. William S. Ladd of Cornell University, who relinquished their duties because of ill health, and Dr. Lee E. Sutton Jr. of the Medical College of Virginia, who will continue in a professorial position. The Council welcomes to the administrative field of medical education those who have been appointed to deanships in the last academic year and offers to them and to those serving as acting deans its wholehearted support and cooperation.

#### ENROLLMENT 1942-1943

With most of the schools already in session under the accelerated program, the figures presented in table 11 giving the enrollment of students at the present time and estimated figures for those who will begin the study of medicine in September 1942 will be of interest. With allowance for failures and discontinuance of their studies for other reasons, figures were presented earlier in this study (table 3) estimating the numbers of these students who will be graduated within the next three years. There are at the present time, or will be by October 1942, 22,674 students enrolled in the medical schools of the United States, representing 6,382 freshmen, 5,836 sophomores, 5,326 juniors and 5,130 seniors. The medical schools which are not operating under an accelerated program are the University of Arkansas, University of North Dakota and Howard and Baylor universities.

#### BIRTH PLACE OF STUDENTS

In table 12 the birthplace of medical students of the United States and Canada in attendance during 1941-1942 is shown by schools. The state furnishing the greatest number of students according to state of birth was New York with 2,711 students followed by Pennsylvania with 1,934, Illinois with 1,268 and Ohio with 1,127. Every state and the District of Columbia is represented in this table. It should not be inferred that every medical student enrolled in a state other than that of his birth is still a resident of his natal state. Still less should it be assumed that every one of these students has become a legal resident of the state in which his professional studies are assumed. According to state of birth, in addition to those mentioned, there was from each of four states a student enrollment of between 701

and 1,000, from three states 501 to 700, from seven states between 401 and 500 and between 301 and 400, from eight states 201 to 300, from eleven states between 101 and 200 and from five states less than 100 each.

There were 231 born in the United States territories and possessions studying in fifty-one schools in the

TABLE 11—Enrollment, 1942-1943

|                                   | 1st Year | 2d Year | 3d Year | 4th Year |
|-----------------------------------|----------|---------|---------|----------|
| University of Alabama             | 58       | 51      |         |          |
| University of Arkansas            | 82       | 74      | 70      | 66       |
| University of California          | 72       | 72      | 72      | 72       |
| College of Medical Evangelists    | 60       | 73      | 75      | 66       |
| University of Southern California | 63       | 54      | 52      | 51       |
| Stanford University               | 62       | 60      | 60      | 60       |
| University of Colorado            | 61       | 54      | 53      | 49       |
| Yale University                   | 59       | 53      | 51      | 47       |
| Georgetown University             | 104      | 60      | 60      | 63       |
| George Washington University      | 75       | 75      | 65      | 74       |
| Howard University                 | 75       | 49      | 27      | 35       |
| Emory University                  | 69       | 54      | 50      | 33       |
| University of Georgia             | 70       | 72      | 46      | 46       |
| Loyola University                 | 83       | 82      | 70      | 54       |
| Northwestern University           | 130      | 133     | 130     | 150      |
| University of Chicago             | 65       | 60      | 69      | 45       |
| University of Illinois            | 166      | 173     | 160     | 152      |
| Indiana University                | 130      | 120     | 115     | 114      |
| State University of Iowa          | 100      | 79      | 66      | 60       |
| University of Kansas              | 75       | 90      | 87      | 82       |
| University of Louisville          | 93       | 91      | 89      | 92       |
| Louisiana State University        | 100      | 84      | 82      | 83       |
| Tulane University                 | 140      | 123     | 125     | 120      |
| Johns Hopkins University          | 78       | 65      | 73      | 74       |
| University of Maryland            | 96       | 91      | 90      | 98       |
| Boston University                 | 63       | 63      | 46      | 46       |
| Harvard Medical School            | 125      | 135     | 140     | 140      |
| Tufts College                     | 111      | 104     | 101     | 96       |
| University of Michigan            | 160      | 113     | 121     | 100      |
| Wayne University                  | 80       | 74      | 60      | 64       |
| University of Minnesota           | 126      | 120     | 113     | 114      |
| University of Mississippi         | 30       | 30      |         |          |
| St. Louis University              | 130      | 109     | 112     | 111      |
| University of Missouri            | 45       | 31      |         |          |
| Washington University             | 84       | 76      | 110     | 98       |
| Creighton University              | 70       | 65      | 60      | 44       |
| University of Nebraska            | 95       | 83      | 75      | 74       |
| Dartmouth Medical School          | 24       | 21      |         |          |
| Albany Medical College            | 44       | 30      | 37      | 34       |
| Long Island College               | 104      | 106     | 87      | 90       |
| University of Buffalo             | 78       | 72      | 63      | 70       |
| Columbia University               | 115      | 120     | 107     | 96       |
| Cornell University                | 84       | 74      | 80      | 76       |
| New York Medical College          | 96       | 85      | 85      | 69       |
| New York University               | 130      | 120     | 120     | 124      |
| University of Rochester           | 65       | 64      | 61      | 57       |
| Syracuse University               | 56       | 47      | 40      | 42       |
| Duke University                   | 68       | 70      | 60      | 61       |
| University of North Carolina      | 49       | 42      |         |          |
| Dowman Gray School of Medicine    | 50       | 36      | 33      |          |
| University of North Dakota        | 25       | 26      |         |          |
| University of Cincinnati          | 80       | 76      | 73      | 77       |
| Western Reserve University        | 92       | 78      | 69      | 74       |
| Ohio State University             | 80       | 75      | 72      | 63       |
| University of Oklahoma            | 75       | 55      | 53      | 60       |
| University of Oregon              | 70       | 71      | 64      | 65       |
| Hahnemann Medical College         | 150      | 140     | 135     | 130      |
| Jefferson Medical College         | 157      | 127     | 135     | 142      |
| Temple University                 | 118      | 103     | 123     | 120      |
| University of Pennsylvania        | 133      | 115     | 133     | 132      |
| Woman's Medical College           | 45       | 30      | 27      | 22       |
| University of Pittsburgh          | 87       | 83      | 84      | 73       |
| Medical College of South Carolina | 30       | 40      | 50      | 50       |
| University of South Dakota        | 27       | 24      |         |          |
| University of Tennessee           | 140      | 130     | 126     | 114      |
| Meharry Medical College           | 65       | 66      | 62      | 50       |
| Vanderbilt University             | 57       | 52      | 51      | 51       |
| Baylor University                 | 84       | 76      | 80      | 76       |
| University of Texas               | 100      | 107     | 93      | 89       |
| University of Utah                | 40       | 36      |         |          |
| University of Vermont             | 36       | 32      | 34      | 32       |
| University of Virginia            | 70       | 70      | 60      | 61       |
| Medical College of Virginia       | 80       | 80      | 72      | 71       |
| West Virginia University          | 30       | 26      |         |          |
| University of Wisconsin           | 72       | 80      | 57      | 62       |
| Marquette University              | 100      | 95      | 72      | 73       |
| Totals                            | 6,382    | 5,836   | 5,326   | 5,130    |

United States and 1 each studying in two schools in Canada. In addition, 2,577 of Canadian birth were also studying medicine. 135 of whom were matriculated in forty-four schools in the United States and 2,442 in ten Canadian medical schools. Twenty students of Canadian birth were registered at the College of Medical Evangelists and 15 at Wayne University College of Medicine. Other schools registered fewer than 8.

(Continued on page 1276)

TABLE 12—Birth Place

| Marginal Number                                    | Alabama | Arizona | Arkansas | California | Colorado | Connecticut | Delaware | Dist of Columbia | Florida | Georgia | Idaho | Illinois | Indiana | Iowa | Kansas | Kentucky | Louisiana | Maine | Maryland | Massachusetts | Michigan | Marginal Number |
|--|---------|---------|----------|------------|----------|-------------|----------|------------------|---------|---------|-------|----------|---------|------|--------|----------|-----------|-------|----------|---------------|----------|-----------------|
| 1 University of Alabama School of Medicine         | 28      |         |          |            |          |             |          |                  |         |         |       |          |         |      |        |          |           |       |          |               |          | 1               |
| 2 University of Arkansas School of Medicine        |         |         | 107      |            |          |             |          |                  | 4       | 3       |       |          |         |      |        |          |           |       |          |               |          | 2               |
| 3 University of California Medical School          | 1       |         |          | 112        | 3        | 1           | 1        | 1                | 4       | 3       |       |          | 4       |      | 5      | 3        | 7         |       |          | 1             | 1        | 3               |
| 4 College of Medical Evangelists                   | 1       | 1       |          | 57         | 8        | 2           | 1        | 7                | 1       | 1       | 1     | 11       | 3       |      | 1      |          |           |       |          |               |          | 4               |
| 5 Univ of Southern California School of Medicine   |         | 6       | 1        | 4          | 6        |             | 1        |                  | 1       | 1       | 1     | 6        | 6       | 2    | 2      | 1        |           | 1     | 6        | 7             | 15       | 5               |
| 6 Stanford University School of Medicine           | 1       | 2       | 1        | 12         | 2        | 1           |          | 1                |         |         | 1     | 1        | 3       | 2    | 4      |          |           |       | 2        | 2             | 2        | 6               |
| 7 University of Colorado School of Medicine        |         |         | 1        | 2          | 129      | 1           |          |                  |         |         | 1     | 1        | 3       | 2    | 1      |          |           |       | 2        | 2             | 2        | 7               |
| 8 Yale University School of Medicine               | 1       |         |          |            | 12       |             |          | 1                |         | 2       |       | 5        | 1       | 2    | 3      |          | 1         |       | 8        | 1             | 16       | 8               |
| 9 Georgetown University School of Medicine         | 1       |         |          |            | 17       | 1           | 1        | 19               | 1       | 1       | 1     | 1        | 1       | 2    | 1      |          |           | 3     | 7        | 17            | 9        | 9               |
| 10 George Washington Univ School of Medicine       |         |         |          | 1          | 6        |             |          | 1                | 1       | 1       | 5     | 2        | 2       | 2    |        | 2        |           |       | 11       | 4             | 3        | 10              |
| 11 Howard University College of Medicine           |         | 1       | 2        | 2          |          | 2           | 2        | 20               | 1       | 5       |       | 2        | 4       | 1    |        | 1        | 10        | 1     | 3        | 3             | 3        | 11              |
| 12 Emory University School of Medicine             | 19      |         |          |            | 1        |             |          | 17               | 120     |         |       | 1        | 1       |      | 1      |          | 2         |       |          |               |          | 12              |
| 13 University of Georgia School of Medicine        |         |         |          |            | 1        |             |          | 1                | 182     |         |       |          |         |      |        | 2        |           |       |          |               |          | 13              |
| 14 Loyola University School of Medicine            | 1       |         | 1        | 7          | 1        | 1           | 1        | 1                |         |         |       | 128      | 12      | 13   | 1      |          |           | 1     | 1        | 3             | 11       | 14              |
| 15 Northwestern University Medical School          | 1       | 5       | 1        | 11         | 9        | 1           |          | 1                | 1       |         | 12    | 172      | 25      | 1    | 18     | 6        | 1         |       | 2        | 2             | 20       | 15              |
| 16 University of Chicago Rush Medical College      | 1       | 1       |          | 2          | 1        | 2           |          |                  |         |         | 11    | 11       | 4       | 5    | 2      |          |           |       |          | 1             | 1        | 16              |
| 17 University of Chicago The School of Medicine    |         |         | 2        | 1          | 6        | 2           |          | 1                |         | 1       | 7     | 7        | 15      | 7    | 5      | 3        | 1         |       |          | 2             | 11       | 17              |
| 18 University of Illinois College of Medicine      | 2       |         |          |            |          | 2           |          |                  |         |         | 492   | 10       | 8       | 3    | 1      | 1        |           |       | 1        | 2             | 11       | 18              |
| 19 Indiana University School of Medicine           | 1       |         |          | 2          | 2        | 1           |          |                  | 2       |         | 1     | 1        | 406     | 1    | 1      | 7        |           | 1     | 1        | 2             | 11       | 18              |
| 20 State University of Iowa College of Medicine    |         |         |          |            |          |             |          | 2                |         |         | 1     | 7        | 2       | 226  | 1      |          |           |       |          | 2             | 4        | 20              |
| 21 University of Kansas School of Medicine         |         |         |          | 1          | 7        |             |          | 1                |         |         | 7     | 1        | 1       | 227  | 4      |          |           |       |          | 1             | 4        | 21              |
| 22 University of Louisville School of Medicine     | 5       | 1       | 2        | 5          | 1        | 2           |          |                  | 1       | 5       | 5     | 6        | 21      | 3    | 140    |          |           | 1     | 1        | 2             | 4        | 22              |
| 23 Louisiana State University School of Medicine   | 5       |         | 7        |            | 2        | 1           |          | 1                | 5       | 1       |       | 6        |         | 2    | 2      | 1        | 202       | 1     |          | 2             | 1        | 23              |
| 24 Tulane Univ of Louisiana School of Medicine     | 47      | 5       | 10       | 6          | 1        |             |          | 41               | 14      |         |       |          |         | 1    | 14     | 148      |           |       |          |               |          | 24              |
| 25 Johns Hopkins University School of Medicine     | 4       |         | 1        | 6          | 1        | 7           | 2        | 7                | 4       | 6       |       | 10       | 4       | 1    |        | 4        |           | 5     | 56       | 15            | 4        | 25              |
| 26 University of Maryland School of Medicine       | 2       | 2       |          |            |          | 8           |          | 10               | 2       | 6       |       | 5        | 1       | 1    | 1      | 1        |           | 10    | 1        | 120           | 1        | 26              |
| 27 Boston University School of Medicine            |         |         |          |            |          | 16          |          |                  |         |         |       |          |         |      |        |          |           | 7     | 4        | 97            | 8        | 28              |
| 28 Harvard Medical School                          | 6       | 2       | 2        | 10         | 8        | 17          |          | 8                | 4       | 8       | 1     | 29       | 6       | 3    | 4      | 6        | 2         | 19    | 208      |               |          | 29              |
| 29 Tufts College Medical School                    |         |         |          |            |          | 28          |          | 2                |         |         |       | 1        |         |      |        |          |           |       |          |               |          | 30              |
| 30 University of Michigan Medical School           | 1       |         |          |            | 4        | 1           |          | 2                | 2       |         | 2     | 17       | 10      | 8    | 2      | 2        | 1         | 1     |          | 2             | 236      | 31              |
| 31 Wayne University College of Medicine            | 1       | 1       |          |            |          |             |          |                  |         | 1       | 17    | 8        | 1       | 3    |        | 1        |           |       | 5        | 154           | 31       |                 |
| 32 University of Minnesota Medical School          |         |         |          |            |          |             |          |                  |         | 3       | 10    | 2        | 8       |      |        | 1        |           |       | 2        | 4             | 32       |                 |
| 33 University of Mississippi School of Medicine    |         |         |          |            |          |             |          |                  |         | 1       |       |          |         |      |        | 1        |           |       |          |               |          | 33              |
| 34 University of Missouri School of Medicine       |         |         | 1        | 1          | 1        |             |          |                  |         |         | 1     |          | 1       |      |        |          | 1         |       |          |               |          | 34              |
| 35 St. Louis University School of Medicine         | 1       | 3       | 1        | 21         | 4        | 4           |          |                  |         | 5       | 48    | 15       | 12      | 7    | 3      |          |           | 1     |          | 11            | 8        | 35              |
| 36 Washington University School of Medicine        | 14      |         | 6        | 18         | 6        |             |          | 2                | 3       | 1       | 6     | 34       | 4       | 8    | 14     | 1        |           |       | 1        | 3             | 6        | 36              |
| 37 Creighton University School of Medicine         |         | 1       |          | 44         | 6        | 1           |          | 1                |         |         | 3     | 4        | 28      | 8    |        |          |           |       |          | 3             | 1        | 37              |
| 38 University of Nebraska College of Medicine      | 1       |         |          | 4          | 5        |             |          | 1                |         |         | 2     | 8        | 4       | 14   | 5      |          | 1         | 1     |          |               |          | 38              |
| 39 Dartmouth Medical School                        |         |         |          |            | 1        | 2           |          | 1                | 1       |         |       | 1        |         |      |        |          |           |       | 8        | 2             | 39       |                 |
| 40 Albany Medical College                          |         |         |          |            | 1        | 4           | 1        |                  |         |         | 2     |          |         |      |        |          | 1         |       |          | 6             |          | 40              |
| 41 Long Island College of Medicine                 | 7       |         |          |            |          | 15          | 1        | 1                |         |         |       | 1        |         |      | 1      | 1        |           |       |          | 6             | 1        | 41              |
| 42 University of Buffalo School of Medicine        |         |         |          | 1          | 1        | 1           |          |                  |         |         | 1     |          |         |      |        |          | 1         |       | 2        | 3             | 2        | 42              |
| 43 Columbia Univ Coll of Physicians & Surgeons     | 6       | 1       | 4        | 6          | 2        | 10          |          | 6                | 2       | 5       | 2     | 7        | 4       | 2    | 1      | 1        | 1         | 6     | 2        | 34            | 4        | 43              |
| 44 Cornell University Medical College              | 2       | 1       |          | 12         | 1        | 8           |          |                  | 3       | 3       |       | 1        |         | 2    | 1      |          | 7         |       | 19       | 2             | 44       |                 |
| 45 New York Medical College                        |         |         |          | 2          |          | 10          |          |                  |         |         |       |          |         |      |        | 1        |           |       | 1        | 3             | 1        | 45              |
| 46 New York University College of Medicine         | 3       |         |          | 1          | 1        | 16          | 1        | 3                |         | 1       |       |          |         | 1    | 1      | 2        | 1         | 1     | 1        | 11            |          | 46              |
| 47 Univ of Rochester School of Med & Dentistry     |         |         |          | 16         | 2        | 4           | 1        |                  |         | 1       | 2     |          |         | 2    | 2      | 1        | 1         | 1     | 1        | 17            | 3        | 47              |
| 48 Syracuse University College of Medicine         |         |         |          |            |          | 2           |          |                  |         |         | 3     |          |         |      | 1      |          | 1         | 1     | 5        | 1             | 48       |                 |
| 49 University of North Carolina School of Medicine |         |         |          | 1          |          | 1           |          | 3                |         |         |       |          |         |      |        |          |           |       |          |               |          | 49              |
| 50 Duke University School of Medicine              | 2       |         |          | 3          |          | 2           | 3        | 3                | 21      | 12      | 1     | 2        |         | 1    | 4      |          |           | 3     | 5        | 5             | 50       |                 |
| 51 Bowman Gray School of Medicine                  |         | 1       |          |            |          |             |          | 2                |         |         |       |          |         |      |        |          |           |       |          | 1             | 51       |                 |
| 52 University of North Dakota School of Medicine   |         |         |          |            |          |             |          |                  |         |         |       |          |         |      |        |          |           |       |          |               |          | 52              |
| 53 University of Cincinnati College of Medicine    | 3       | 1       |          | 8          | 2        | 1           | 1        |                  | 1       |         |       | 11       | 10      |      | 26     |          | 1         |       |          | 6             | 53       |                 |
| 54 Western Reserve University School of Medicine   |         |         |          | 4          | 1        | 1           | 1        |                  |         | 3       | 10    | 1        | 3       | 1    | 2      |          | 1         |       | 3        | 10            | 54       |                 |
| 55 Ohio State University College of Medicine       | 1       |         |          | 1          |          |             |          |                  | 1       |         |       | 4        | 5       | 1    | 1      | 3        |           | 2     | 1        | 1             | 55       |                 |
| 56 University of Oklahoma School of Medicine       | 4       |         | 5        | 2          | 4        |             |          |                  |         |         | 4     | 4        | 3       | 6    |        |          |           |       |          | 2             | 56       |                 |
| 57 University of Oregon Medical School             |         | 1       |          | 12         | 5        | 1           |          | 1                |         | 16      | 3     | 3        | 2       | 4    | 1      |          |           |       | 1        |               |          | 57              |
| 58 Hahnemann Med Coll & Hosp of Philadelphia       | 4       | 3       | 3        | 6          |          | 10          |          | 1                | 2       |         | 8     | 2        | 5       |      |        |          | 1         | 4     | 15       | 2             | 58       |                 |
| 59 Jefferson Medical College of Philadelphia       | 3       |         |          | 4          |          | 7           | 11       |                  |         | 3       |       | 5        | 2       |      | 2      |          | 4         | 2     | 6        | 2             | 59       |                 |
| 60 Temple University School of Medicine            | 2       |         |          | 6          | 1        | 4           | 4        |                  | 5       |         | 1     | 4        | 2       | 1    | 1      |          | 2         | 1     | 3        | 10            | 3        | 60              |
| 61 University of Pennsylvania School of Medicine   | 11      | 1       |          | 4          | 6        | 5           |          | 2                | 5       | 2       | 5     | 6        | 2       |      | 6      |          | 5         | 1     | 5        | 1             | 61       |                 |
| 62 Woman's Medical College of Pennsylvania         |         |         |          | 3          | 2        | 2           | 1        |                  |         |         | 9     |          | 1       |      |        |          |           |       |          | 2             | 62       |                 |
| 63 University of Pittsburgh School of Medicine     |         |         |          |            |          |             |          |                  |         |         |       | 1        | 1       |      |        |          |           | 2     | 2        |               |          | 63              |
| 64 Medical College of the State of South Carolina  | 3       |         |          |            |          |             |          |                  |         | 1       |       |          |         |      | 1      |          |           |       |          | 1             |          | 64              |
| 65 Univ of South Dakota School of Med Sciences     |         |         |          | 1          |          |             |          |                  |         | 1       |       |          | 5       |      |        |          |           |       | 3        | 1             |          | 65              |
| 66 University of Tennessee College of Medicine     | 22      | 1       | 17       | 3          |          |             |          | 6                | 13      |         | 6     | 1        |         | 7    | 18     |          | 1         |       |          |               |          | 66              |
| 67 Meharry Medical College                         | 13      | 1       | 3        |            |          | 1           | 1        | 6                | 12      | 97      |       | 4        | 1       |      | 3      | 7        | 12        |       | 1        |               |          | 67              |
| 68 Vanderbilt University School of Medicine        | 20      |         | 2        | 2          | 1        |             |          | 1                | 4       | 9       |       | 3        |         |      | 4      | 18       | 1         |       |          | 1             |          | 68              |
| 69 Baylor University College of Medicine           | 2       | 2       | 10       | 3          | 1        |             |          | 2                | 1       | 1       |       | 1        |         |      | 4      | 1        | 3         |       |          |               |          | 69              |
| 70 University of Texas Medical Branch              |         |         | 4        | 1          | 2        | 1           |          | 1                | 1       | 3       |       | 4        |         | 2    | 2      | 1        | 7         |       |          |               |          | 70              |
| 71 University of Utah School of Medicine           |         | 1       |          |            |          |             |          |                  |         | 2       |       |          |         |      |        |          |           | 4     | 1        | 7             |          | 71              |
| 72 University of Vermont College of Medicine       |         |         |          |            |          | 4           |          |                  |         |         |       |          |         |      |        |          |           |       | 3        | 3             | 1        | 72              |
| 73 University of Virginia Department of Medicine   | 7       | 1       |          |            |          |             | 2        | 4                |         |         |       |          |         |      |        |          |           |       |          |               |          |                 |

of Students

[illegible]

(Continued from page 1273)

Students born in New York were enrolled in all but eight schools and in every state with the exception of Iowa, Mississippi, Missouri, Nebraska, South Carolina, South Dakota, Utah and West Virginia. Students from New York were registered in three of the provinces of Canada having medical schools. None were studying in Alberta, Nova Scotia or Saskatchewan.

From the twelve states in which no medical schools are located there were 1,890 students studying in at least sixty-eight schools. There were 745 students born in New Jersey admitted to sixty-eight schools, while 303 from the state of Washington enrolled in fifty schools. Figures covering the number of students who listed as their birth state one which has no medical school together with the number of medical schools in which they enrolled, are reported as follows:

|              | Enrolled | No. of Schools |
|--------------|----------|----------------|
| Arizona      | 54       | 27             |
| Delaware     | 15       | 22             |
| Florida      | 174      | 35             |
| Idaho        | 101      | 30             |
| Maine        | 105      | 35             |
| Montana      | 117      | 44             |
| Nevada       | 25       | 16             |
| New Jersey   | 745      | 68             |
| New Mexico   | 13       | 23             |
| Rhode Island | 107      | 26             |
| Washington   | 303      | 50             |
| Wyoming      | 49       | 21             |
|              | 1,890    |                |

Students of foreign birth were enrolled in sixty-five of the seventy-seven medical schools of the United States and in every Canadian school. There were 699 such students so enrolled, 512 in the United States and 187 in Canada. Thirty-one were so registered at the College of Medical Evangelists and a like number at New York University College of Medicine, 27 at the University of Illinois and 23 at Harvard Medical School. Other schools registered fewer than 20. It may be presumed that many of these students are now citizens of the United States.

The medical school enrollment is further classified by birth place in table 13. This compilation reveals that 13,904 students are studying in the state or province of their birth and 10,980 elsewhere. It will be noted that, in Illinois, of the 1,848 students enrolled in five schools, 969 were born outside the state. While more than 1,000 born outside the respective states were enrolled in institutions in New York and Pennsylvania, the number of those born within and studying in these states was greater. Schools located in California, Connecticut, the District of Columbia, Kentucky, Louisiana, Maryland, Massachusetts, Missouri, New Hampshire, North Carolina, Oregon and Tennessee enrolled more students from outside the state than from within.

In the United States 11,462 students were attending school in the state of their birth, and 10,569, 48 per cent, were studying elsewhere. Eliminating the 1,890 students from states which have no medical school, there are still 8,679 students who, though born in a state which had a medical school, are studying elsewhere.

While a perusal of table 13 will show many instances wherein the number studying elsewhere far exceeds the number attending school in the state of birth, it also shows many states in which the contrary is the case, namely Alabama, Arkansas, Colorado, Georgia, Indiana,

Iowa, Kansas, Michigan, Minnesota, Mississippi, New York, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Texas, Utah, Vermont, Virginia, West Virginia and Wisconsin.

In Canada 411 of the 2,853 students were born outside the dominion.

The tables which next follow tabulate the student enrollment according to their status as residents or non-residents and show slightly different data.

RESIDENT AND NONRESIDENT STUDENTS

Table 14 gives for each medical school in the United States the number of resident and nonresident students according to the individual school's definition of the word "resident." There is a wide variation in the definition of this term among both state universities and other schools. In some universities this is determined by the legal or permanent residence of the student, parents or guardian only, while in some schools continuous residence for from six months to one, two or three years just prior to the student's application for enrollment is required. Other schools require the student to be a voter, that the parents' home in the state be established prior to the beginning of premedical work, that the student be a taxpayer or a dependent of a taxpayer regardless of whether he resides in the state, while other schools require the student to be self-supporting. In a few schools each case is determined by an attorney after consideration of birth, citizenship, residence of parents, and so on. Most commonly resi-

TABLE 13—Students Classified by Birth Place

|                      | Schools | Attending School In State of Birth | Birth Place Elsewhere |
|----------------------|---------|------------------------------------|-----------------------|
| Alabama              | 1       | 78                                 | 20                    |
| Arkansas             | 1       | 197                                | 95                    |
| California           | 4       | 330                                | 622                   |
| Colorado             | 1       | 129                                | 58                    |
| Connecticut          | 1       | 42                                 | 164                   |
| District of Columbia | 3       | 134                                | 636                   |
| Georgia              | 2       | 302                                | 128                   |
| Illinois             | 5       | 879                                | 969                   |
| Indiana              | 1       | 406                                | 101                   |
| Iowa                 | 1       | 226                                | 56                    |
| Kansas               | 1       | 227                                | 108                   |
| Kentucky             | 1       | 140                                | 220                   |
| Louisiana            | 2       | 350                                | 491                   |
| Maryland             | 2       | 191                                | 472                   |
| Massachusetts        | 3       | 515                                | 637                   |
| Michigan             | 2       | 390                                | 319                   |
| Minnesota            | 1       | 349                                | 128                   |
| Mississippi          | 1       | 48                                 | 7                     |
| Missouri             | 3       | 215                                | 68                    |
| Nebraska             | 2       | 271                                | 274                   |
| New Hampshire        | 1       | 6                                  | 40                    |
| New York             | 9       | 1,699                              | 1,083                 |
| North Carolina       | 3       | 192                                | 229                   |
| North Dakota         | 1       | 32                                 | 21                    |
| Ohio                 | 3       | 616                                | 288                   |
| Oklahoma             | 1       | 153                                | 82                    |
| Oregon               | 1       | 102                                | 158                   |
| Pennsylvania         | 6       | 1,397                              | 1,046                 |
| South Carolina       | 1       | 168                                | 15                    |
| South Dakota         | 1       | 25                                 | 631                   |
| Tennessee            | 3       | 272                                | 172                   |
| Texas                | 2       | 533                                | 3                     |
| Utah                 | 1       | 63                                 | 43                    |
| Vermont              | 1       | 84                                 | 258                   |
| Virginia             | 2       | 293                                | 5                     |
| West Virginia        | 1       | 46                                 | 287                   |
| Wisconsin            | 2       | 302                                | 411                   |
| Canada               | 10      | 2,442                              |                       |
| Totals               | 87      | 13,904                             | 10,980                |

dence is determined by ascertaining whether the student's parents or guardian has been a bona fide resident for a period of not less than six months. Among medical schools of other than state universities a resident is defined for the most part by the home address of the student or the legal residence of the parents or guardian.

Seventy-three schools, including seven schools of the basic medical sciences, reported 13,676 resident and 8,355 nonresident students. The state university enrolling the greatest number of nonresidents was the University of Tennessee College of Medicine, which had 236 resident and 234 nonresident students, while at the

TABLE 14—*Resident and Nonresident Students*

|   | Resident<br>Students | Non-<br>Resident<br>Students | Totals |
|---|----------------------|------------------------------|--------|
| University of Alabama                         | 90                   | 5                            | 95     |
| University of Arkansas                        | 213                  | 41                           | 252    |
| University of California                      | 211                  | 9                            | 220    |
| College of Medical Evangelists                | 5                    | 252                          | 257    |
| University of Southern California             | 190                  | 15                           | 205    |
| Stanford University                           | 193                  | 47                           | 242    |
| University of Colorado                        | 193                  | 22                           | 217    |
| Yale University                               | 51                   | 152                          | 203    |
| Georgetown University                         | 25                   | 276                          | 299    |
| George Washington University                  | 95                   | 190                          | 285    |
| Howard University                             | 20                   | 169                          | 189    |
| Emory University                              | 131                  | 81                           | 218    |
| University of Georgia                         | 212                  |                              | 212    |
| Lovola University                             | 125                  | 147                          | 275    |
| Northwestern University                       | 196                  | 701                          | 897    |
| Rush Medical College                          | 20                   | 5                            | 109    |
| University of Chicago, The School of Medicine | 73                   | 196                          | 269    |
| University of Illinois                        | 627                  | 11                           | 638    |
| Indiana University                            | 491                  | 13                           | 507    |
| State University of Iowa                      | 274                  | 8                            | 282    |
| University of Kansas                          | 319                  | 16                           | 335    |
| University of Louisville                      | 162                  | 195                          | 359    |
| Louisiana State University                    | 26                   | 77                           | 345    |
| Tulane University of Louisiana                | 118                  | 348                          | 466    |
| Johns Hopkins University                      | 56                   | 231                          | 280    |
| University of Maryland                        | 176                  | 197                          | 373    |
| Boston University                             | 140                  | 77                           | 217    |
| Harvard Medical School                        | 110                  | 421                          | 533    |
| Tufts College                                 | 228                  | 104                          | 402    |
| University of Michigan                        | 310                  | 146                          | 456    |
| Wayne University                              | 270                  | 23                           | 293    |
| University of Minnesota                       | 441                  | 56                           | 477    |
| University of Mississippi                     | 55                   |                              | 55     |
| University of Missouri                        | 71                   |                              | 71     |
| St. Louis University                          | 65                   | 375                          | 443    |
| Washington University                         | 112                  | 247                          | 359    |
| Creighton University                          | 34                   | 190                          | 224    |
| University of Nebraska                        | 300                  | 12                           | 321    |
| Dartmouth Medical School                      | 8                    | 35                           | 46     |
| Albany Medical College                        | 101                  | 46                           | 150    |
| Long Island College of Medicine               | 201                  | 81                           | 285    |
| University of Buffalo                         | 243                  | 32                           | 275    |
| Columbia University                           | 193                  | 235                          | 428    |
| Cornell University                            | 151                  | 160                          | 311    |
| New York Medical College                      | 227                  | 101                          | 328    |
| New York University                           | 36                   | 135                          | 506    |
| University of Rochester                       | 126                  | 102                          | 228    |
| Syracuse University                           | 125                  | 43                           | 171    |
| University of North Carolina                  | 70                   | 16                           | 86     |
| Duke University                               | 64                   | 195                          | 262    |
| Bowman Gray School of Medicine                | 53                   | 15                           | 73     |
| University of North Dakota                    | 48                   | 5                            | 53     |
| University of Cincinnati                      | 219                  | 63                           | 307    |
| Western Reserve University                    | 212                  | 81                           | 293    |
| Ohio State University                         | 363                  | 1                            | 304    |
| University of Oklahoma                        | 227                  | 8                            | 235    |
| University of Oregon                          | 177                  | 63                           | 260    |
| Hahnemann Medical College                     | 302                  | 239                          | 541    |
| Jefferson Medical College                     | 330                  | 200                          | 530    |
| Temple University                             | 218                  | 229                          | 447    |
| University of Pennsylvania                    | 263                  | 233                          | 496    |
| Woman's Medical College                       | 31                   | 83                           | 114    |
| University of Pittsburgh                      | 311                  | 4                            | 315    |
| Medical College of South Carolina             | 163                  | 15                           | 183    |
| University of South Dakota                    | 37                   | 3                            | 40     |
| University of Tennessee                       | 236                  | 231                          | 470    |
| McBarray Medical College                      | 15                   | 216                          | 231    |
| Vanderbilt University                         | 72                   | 130                          | 202    |
| Baylor University                             | 256                  | 35                           | 321    |
| University of Texas                           | 380                  | 4                            | 384    |
| University of Utah                            | 63                   | 3                            | 66     |
| University of Vermont                         | 105                  | 22                           | 127    |
| University of Virginia                        | 160                  | 89                           | 249    |
| Medical College of Virginia                   | 160                  | 142                          | 302    |
| West Virginia University                      | 51                   |                              | 51     |
| University of Wisconsin                       | 212                  | 15                           | 227    |
| Marquette University                          | 148                  | 154                          | 332    |
| Totals  | 13,676               | 8,355                        | 22,071 |

Long Island, New York Medical, New York University, Syracuse, Western Reserve, Jefferson and Baylor. The enrolment in the three municipally controlled medical schools included 91, 287 and 55 per cent nonresident students. The state supported medical schools as a group had enrolled 15.6 per cent nonresident students as compared with 51.9 per cent in other medical schools. Municipal universities as a group enrolled 33.6 per cent nonresident students and state and municipal institutions as a group enrolled 17.4 per cent.

Figures indicating enrolment of resident and nonresident students for six years beginning with the academic year 1936-1937, are shown in table 15. The figures do not vary to any measurable extent.

The ten faculties of medicine of Canada, including one offering courses in the basic medical sciences, reported 2,036 residents and 817 nonresident students. The definition of a resident in these schools varied from students whose permanent address is within one of the provinces of Canada or the specific province in which the school is located, to home address on registration and taxpayers. The greatest number of nonresidents in any one of the Canadian schools was reported by McGill University Faculty of Medicine, 251. This school has always obtained a large portion of its student body from the United States.

TABLE 15—*Resident and Nonresident Students, 1936-1941*

|           | Resident | Nonresident | Totals |
|-----------|----------|-------------|--------|
| 1936-1937 | 14,026   | 8,069       | 22,095 |
| 1937-1938 | 13,518   | 8,069       | 21,557 |
| 1938-1939 | 13,418   | 7,884       | 21,502 |
| 1939-1940 | 13,292   | 7,979       | 21,271 |
| 1940-1941 | 13,275   | 8,101       | 21,379 |
| 1941-1942 | 13,676   | 8,355       | 22,031 |

The figures in tables 14 and 15 giving the number of residents and nonresidents and the preceding two tables classifying students by birth place show a divergence. Excluding Canadian registration given in tables 12 and 13, there were 11,462 attending school in the state of their birth and 10,569 elsewhere, as compared with 13,676 whose legal residence is in the state in which they are pursuing their medical courses, and 8,355 classified as nonresidents. The figures for Canada show 2,442 born in Canada and 411 elsewhere, while there were 2,036 reported as residents and 817 as nonresidents.

## SCHOOLS, STUDENTS AND GRADUATES BY STATES

Medical schools and schools of the basic medical sciences are located in thirty-six states and the District of Columbia. The number of schools, students and graduates by states are shown in table 16. These figures include sixty-seven medical schools and ten schools of the basic medical sciences.

The greatest number of medical schools in any one state (nine) are located in New York. This state likewise had the greatest number of students (2,782) and graduates (634). Pennsylvania, with six schools, had 2,443 students and 598 graduates, Illinois, with five schools, 1,848 students and 564 graduates, ranks third, while Massachusetts with three schools, 1,152 students and 275 graduates and California with four schools, 1,012 students and 294 graduates complete the group of states having an enrolment of more than 1,000. The foregoing five states, in which are located 35 per cent

Universities of Georgia, Mississippi, Missouri and West Virginia nonresidents were not registered.

Among other than state universities, it will be noted that there are many schools which select most of their students from among the residents of the state. This is particularly significant at the Universities of Southern California, Stanford, Emory, Tufts, Boston, Albany,



of the medical schools in the United States, had 41.9 per cent of the students and 45.8 per cent of the graduates.

Seven of the aforementioned thirty-six states had no graduates, as the medical schools located therein do not offer the complete medical course. Twelve others had less than 100 graduates, the lowest being 31, who received their degrees from the one medical school in Vermont.

In the seventy-seven schools, including those that offer courses only in the basic medical sciences, there were 22,031 students and 5,163 graduates. Students interning as a requirement for the degree, fifth year students, are not included in this tabulation. There were 767 students serving internships as a prerequisite to obtaining the M.D. degree during 1941-1942. Likewise excluded from this tabulation are part time, special and graduate students pursuing courses in medical schools not leading to the M.D. degree.

The status of two medical schools has changed since the session 1941-1942. Undergraduate courses at Rush Medical College terminated in June 1942. For the session 1941-1942 only senior students were enrolled. On Aug. 4, 1939 the board of trustees of Wake Forest College accepted the resources of the Bowman Gray Foundation in Winston-Salem. The medical school of Wake Forest College was moved to Winston-Salem, N. C., in the summer of 1941 and is known as the Bowman Gray School of Medicine of Wake Forest College. The school, which has offered courses only in the basic medical sciences, is planning to offer the complete medical

TABLE 16—Schools, Students and Graduates by States \*

|                      | Schools | Students | Graduates |
|----------------------|---------|----------|-----------|
| Alabama              | 1       | 95       |           |
| Arkansas             | 1       | 292      | 66        |
| California           | 4       | 1,012    | 291       |
| Colorado             | 1       | 217      | 51        |
| Connecticut          | 1       | 206      | 51        |
| District of Columbia | 1       | 770      | 102       |
| Georgia              | 2       | 430      | 91        |
| Illinois             | 5       | 1,548    | 504       |
| Indiana              | 1       | 507      | 108       |
| Iowa                 | 1       | 252      | 46        |
| Kansas               | 1       | 345      | 81        |
| Kentucky             | 1       | 460      | 88        |
| Louisiana            | 2       | 841      | 206       |
| Maryland             | 2       | 661      | 160       |
| Massachusetts        | 3       | 1,152    | 275       |
| Michigan             | 2       | 709      | 169       |
| Minnesota            | 1       | 477      | 117       |
| Mississippi          | 1       | 55       |           |
| Missouri             | 3       | 873      | 157       |
| Nebraska             | 2       | 545      | 121       |
| New Hampshire        | 1       | 46       |           |
| New York             | 9       | 2,782    | 634       |
| North Carolina       | 3       | 421      | 64        |
| North Dakota         | 1       | 53       |           |
| Ohio                 | 3       | 901      | 216       |
| Oklahoma             | 1       | 235      | 55        |
| Oregon               | 1       | 260      | 51        |
| Pennsylvania         | 6       | 2,443    | 598       |
| South Carolina       | 1       | 183      | 43        |
| South Dakota         | 1       | 40       |           |
| Tennessee            | 3       | 903      | 199       |
| Texas                | 2       | 705      | 174       |
| Utah                 | 1       | 66       |           |
| Vermont              | 1       | 127      | 31        |
| Virginia             | 2       | 551      | 126       |
| West Virginia        | 1       | 51       |           |
| Wisconsin            | 2       | 559      | 115       |
| Totals               | 77      | 22,031   | 5,163     |

\* Excluding fifth or intern year students

course, and instruction to juniors has been offered since July under the accelerated program. It is expected to offer senior instruction beginning in March 1943 and to have its first graduating class in December of that year.

REQUIRED INTERNSHIPS

The medical schools and licensing boards requiring a hospital internship for the M.D. degree and state licensure, respectively, are shown in tables 17 and 18. Nine schools in the United States and four in Canada require an internship for graduation. Several medi-

TABLE 17—Internship Required by Medical Schools

|  |
|--|
| College of Medical Evangelists                       |
| University of Southern California School of Medicine |
| Stanford University School of Medicine               |
| Yosoda University School of Medicine                 |
| Northwestern University Medical School               |
| Wayne University College of Medicine                 |
| University of Minnesota Medical School               |
| Duke University School of Medicine                   |
| Marquette University School of Medicine              |
| University of Alberta Faculty of Medicine            |
| University of Manitoba Faculty of Medicine           |
| Dalhousie University Faculty of Medicine             |
| University of Montreal Faculty of Medicine           |

cal schools will accept research or other clinical work in lieu of hospital service. The University of Minnesota Medical School in 1915 was the first school to adopt the internship as a basis for the M.D. degree. Since 1940 the requirement has been dropped by six schools in the United States and one in Canada. The last school to withdraw the requirement was the University of California Medical School. This school in 1942 awarded degrees to 55 students who completed their course in 1941 and served internships during 1941-1942 and to 56 who completed four years of college work in 1942, a total of 111. In 1942 the University of Alberta Faculty of Medicine added the internship to its requirement for the degree, but this requirement has not been added in recent years by any medical school in the United States.

Twenty-two states, the District of Columbia, Alaska, Hawaii and Puerto Rico require that all applicants for

TABLE 18—Internship Required by Medical Licensing Boards of All Candidates

|                      |               |               |
|----------------------|---------------|---------------|
| Alabama              | Michigan      | Rhode Island  |
| Alaska               | New Hampshire | South Dakota  |
| Delaware             | New Jersey    | Utah          |
| District of Columbia | North Dakota  | Vermont       |
| Hawaii               | Oklahoma      | Washington    |
| Idaho                | Oregon        | West Virginia |
| Illinois             | Pennsylvania  | Wisconsin     |
| Iowa                 | Puerto Rico   | Wyoming       |

Some states require the internship of graduates of medical faculties abroad and reciprocity or endorsement applicants.

licensure shall have served a hospital internship. The first state exacting this requirement was Pennsylvania in 1914. In addition, other states require the internship of graduates of faculties of medicine abroad and of reciprocity or endorsement applicants.

A few of the medical schools and licensing boards have their own list of hospitals acceptable for intern training, but the list of approved internships compiled by the Council on Medical Education and Hospitals is generally in use. A revised edition of the Council's list will be found beginning on page 1311.

There were 767 students in the United States and 145 in Canada, a total of 912, reported as completing the fifth or intern year requirement of the medical schools which exact the fulfillment of the internship as a requisite for the M.D. degree.

## DISTRIBUTION BY SEX

Students and graduates in the United States and Canada classified according to sex are shown in table 19. Sixty-eight medical schools in the United States had both men and women students of which fifty-seven

TABLE 19—Distribution by Sex

|  | Students |       | Graduates |       |
|--|----------|-------|-----------|-------|
|  | Men      | Women | Men       | Women |
| University of Alabama                        | —        | 2     | —         | 1     |
| University of Arkansas                       | —        | 9     | 100       | 11    |
| University of California                     | 250      | 13    | 72        | 5     |
| College of Medical Evangelists               | 250      | —     | 40        | —     |
| University of Southern California            | 250      | —     | —         | —     |
| Stanford University                          | 250      | 15    | 35        | 2     |
| University of Colorado                       | 250      | 17    | 40        | —     |
| Yale University                              | 250      | 16    | 40        | 2     |
| Georgetown University                        | 250      | —     | —         | —     |
| Columbia University                          | 250      | 21    | 65        | 7     |
| Howard University                            | 15       | 13    | 31        | 4     |
| Emory University                             | 250      | —     | 40        | —     |
| University of Georgia                        | 250      | 9     | 41        | 1     |
| Loyola University                            | 250      | 1     | —         | —     |
| Northwestern University                      | 250      | 16    | 150       | 4     |
| Rush Medical College                         | 101      | 5     | 16        | 5     |
| University of Chicago The School of Medicine | 250      | 1     | 29        | 6     |
| University of Illinois                       | 250      | 41    | 153       | 12    |
| Indiana University                           | 250      | 25    | 98        | 10    |
| State University of Iowa                     | 250      | 10    | 45        | 1     |
| University of Kansas                         | 250      | 16    | 50        | 1     |
| University of Kentucky                       | 250      | 8     | 55        | 3     |
| Louisiana State University                   | 250      | 19    | —         | 2     |
| Tulane University of Louisiana               | 250      | 23    | 117       | 4     |
| Johns Hopkins University                     | 250      | —     | 60        | 6     |
| University of Maryland                       | 250      | —     | 51        | 4     |
| Boston University                            | 144      | 23    | 47        | 5     |
| Harvard Medical School                       | 250      | —     | 129       | —     |
| Tufts College                                | 250      | 19    | 85        | 5     |
| University of Michigan                       | 250      | —     | 59        | 6     |
| Wayne University                             | 250      | —     | 51        | 3     |
| University of Minnesota                      | 250      | —     | 109       | 8     |
| University of Mississippi                    | 250      | —     | —         | —     |
| University of Missouri                       | 250      | 1     | —         | —     |
| St. Louis University                         | 250      | —     | 91        | —     |
| Washington University                        | 250      | 22    | 55        | —     |
| Creighton University                         | 250      | 9     | 49        | 3     |
| University of Nebraska                       | 250      | 10    | 65        | 4     |
| Dartmouth Medical School                     | 250      | —     | —         | —     |
| Albany Medical College                       | 250      | 16    | 32        | 1     |
| Long Island College of Medicine              | 250      | 25    | 54        | 6     |
| University of Buffalo                        | 250      | 16    | 54        | 7     |
| Columbia University                          | 250      | 23    | 90        | 5     |
| Cornell University                           | 250      | 17    | 72        | 3     |
| New York Medical College                     | 250      | 25    | 70        | 7     |
| New York University                          | 250      | 41    | 114       | 11    |
| University of Rochester                      | 250      | 14    | 40        | 4     |
| Syracuse University                          | 250      | 10    | 22        | 2     |
| University of North Carolina                 | 250      | 2     | —         | —     |
| Duke University                              | 250      | 8     | 62        | 2     |
| Bowman Gray School of Medicine               | 250      | —     | —         | —     |
| University of North Dakota                   | 250      | 17    | 73        | 4     |
| University of Cincinnati                     | 250      | 10    | 55        | 2     |
| Western Reserve University                   | 250      | 14    | 75        | 4     |
| Ohio State University                        | 250      | 11    | 52        | 3     |
| University of Oklahoma                       | 250      | 7     | 49        | 2     |
| University of Oregon                         | 250      | 10    | 120       | —     |
| Hahnemann Medical College                    | 250      | —     | 131       | —     |
| Jefferson Medical College                    | 250      | 25    | 124       | 5     |
| Temple University                            | 250      | 12    | 70        | 3     |
| University of Pennsylvania                   | 250      | —     | —         | —     |
| Woman's Medical College                      | 250      | 33    | 40        | —     |
| University of Pittsburgh                     | 250      | 14    | 49        | —     |
| Medical College of South Carolina            | 250      | —     | —         | —     |
| University of South Dakota                   | 250      | 14    | 93        | 5     |
| University of Tennessee                      | 250      | 11    | 48        | 2     |
| Meharry Medical College                      | 250      | 7     | 50        | 1     |
| Vanderbilt University                        | 250      | 16    | 71        | 4     |
| Baylor University                            | 250      | 23    | 91        | 8     |
| University of Texas                          | 250      | —     | —         | —     |
| University of Utah                           | 250      | 5     | 31        | —     |
| University of Vermont                        | 250      | 8     | 61        | 1     |
| University of Virginia                       | 250      | 24    | 57        | 7     |
| Medical College of Virginia                  | 250      | —     | —         | —     |
| West Virginia University                     | 250      | 20    | 40        | 5     |
| University of Wisconsin                      | 250      | 10    | 64        | 6     |
| Marquette University                         | 250      | 14    | 49        | 4     |
| University of Alberta                        | 250      | 20    | 51        | 3     |
| University of Manitoba                       | 250      | 4     | —         | —     |
| Dalhousie University                         | 250      | —     | —         | —     |
| Queen's University                           | 250      | 20    | 34        | 2     |
| University of Western Ontario                | 250      | 64    | 109       | 7     |
| University of Toronto                        | 250      | 24    | 81        | 9     |
| McGill University                            | 250      | 8     | 48        | —     |
| University of Montreal                       | 250      | 9     | 64        | 1     |
| Laval University                             | 250      | 6     | —         | —     |
| University of Saskatchewan                   | 250      | —     | —         | —     |
| Totals                                       | 23 551   | 1 333 | 5 397     | 305   |

medicine of Canada had both men and women students, and six had women graduates during the session just closed.

Male students in the United States numbered 20,867 and included 4,884 graduates, female students numbered 1,164 and graduates 279. There were enrolled in Canadian schools 2,684 men and 169 women. Of these 513 were men graduates and 26 women.

There were 2,162 students enrolled in medical schools in the United States which are not coeducational, and of this number 488 graduated during the last session.

TABLE 20—Distribution by Sex in the United States and Canada, 1936-1941

| Year      | Students |        | Graduates |        |
|-----------|----------|--------|-----------|--------|
|           | Male     | Female | Male      | Female |
| 1936-1937 | 21 219   | 1 254  | 5 385     | 265    |
| 1937-1938 | 23 757   | 1 244  | 5 624     | 261    |
| 1938-1939 | 22 234   | 1 307  | 5 479     | 252    |
| 1939-1940 | 22 010   | 1 293  | 5 390     | 255    |
| 1940-1941 | 22 402   | 1 291  | 5 420     | 273    |
| 1941-1942 | 22 453   | 1 308  | 5 527     | 310    |
|           | 2 351    | 1 323  | 5 397     | 305    |

In the one school in Canada which does not admit women there were 226 students and 41 graduates.

In the one medical school for women in the United States there were 114 students and 18 graduates during 1941-1942.

The greatest number of women enrolled in coeducational institutions in the United States was 41 studying at the University of Illinois College of Medicine. In Canada, 64 were enrolled in the University of Toronto Faculty of Medicine.

Figures are given in table 20 showing this distribution for a seven year period. For the session 1941-1942 there has been a slight increase in the number of both men and women students.

## WOMEN IN MEDICINE

Elizabeth Blackwell was the first woman to receive the degree of Doctor of Medicine in the United States. She studied in and graduated at the Geneva Medical

TABLE 21—Women in Medicine in the United States

| Year | Women Students | Percentage of All Students | Women Graduates | Percentage of All Graduates |
|------|----------------|----------------------------|-----------------|-----------------------------|
|      |                |                            |                 |                             |
| 1905 | 1 073          | 4.1                        | 219             | 4.0                         |
| 1910 | 907            | 4.0                        | 116             | 2.6                         |
| 1915 | 392            | 4.0                        | 92              | 2.6                         |
| 1920 | 515            | 5.8                        | 122             | 4.0                         |
| 1925 | 910            | 5.0                        | 204             | 5.1                         |
| 1926 | 935            | 5.0                        | 212             | 5.4                         |
| 1927 | 964            | 4.9                        | 189             | 4.7                         |
| 1928 | 959            | 4.5                        | 207             | 4.9                         |
| 1929 | 925            | 4.4                        | 214             | 4.8                         |
| 1930 | 955            | 4.4                        | 204             | 4.5                         |
| 1931 | 990            | 4.5                        | 217             | 4.6                         |
| 1932 | 955            | 4.3                        | 205             | 4.2                         |
| 1933 | 1 056          | 4.7                        | 214             | 4.4                         |
| 1934 | 1 020          | 4.5                        | 211             | 4.2                         |
| 1935 | 1 077          | 4.7                        | 207             | 4.1                         |
| 1936 | 1 133          | 5.0                        | 246             | 4.7                         |
| 1937 | 1 113          | 5.1                        | 238             | 4.4                         |
| 1938 | 1 161          | 5.4                        | 237             | 4.6                         |
| 1939 | 1 144          | 5.4                        | 269             | 5.1                         |
| 1940 | 1 145          | 5.4                        | 253             | 5.0                         |
| 1941 | 1 146          | 5.4                        | 250             | 5.3                         |
| 1942 | 1 164          | 5.3                        | 279             | 5.4                         |

College, now the Syracuse University College of Medicine, in 1849. The first medical school for women, the Woman's Medical College of Pennsylvania, was organized in 1850 with a class of 7 students. It is still functioning and is the only medical school in the United States which teaches women students exclusively. All but six of the seventy-seven medical schools in the

had women graduates. Women were enrolled in seven of the ten schools in the United States offering only courses of the basic medical sciences. Nine faculties of

United States admit women students. These six schools are Georgetown University School of Medicine, Emory University School of Medicine, Harvard Medical School, St. Louis University School of Medicine, Dartmouth Medical School and Jefferson Medical College. Two schools which have been coeducational since their organization had no women students in 1941-1942, namely the Universities of North and South Dakota. The Hahnemann Medical College of Pennsylvania accepted women students for the first time in 1941-1942 and admitted 10.

During the past year, as shown in table 21, there were 1,164 women studying medicine constituting 5.3 per cent of the total student enrollment. The enrollment of women in 1941-1942 was an increase of 18 over the previous session. There were 279 women graduates, or 5.4 per cent of the total number of graduates. Eighteen were graduates of the Woman's Medical College of Pennsylvania, while 261 secured their degrees from coeducational schools. Of the women students 114 were in attendance at the one medical school for women while 1,050 were students in sixty-eight other schools. In the eighteen years since 1925, 4,080 women have received degrees in medicine. It has recently been estimated that there are about 7,500 women physicians in the United States.

PART TIME, SPECIAL AND GRADUATE STUDENTS ENROLLED IN MEDICAL SCHOOLS

The various courses of the undergraduate medical curriculum are today so closely integrated that medical educators have recognized that it is only under unusual conditions that a student should be permitted to undertake the study of medicine on a part time basis.

Special and graduate students fall into a different category, and their acceptance as such depends on school policies and local conditions such as the relationships of the medical school to other departments of a university.

In addition to the regularly enrolled undergraduate medical students there were 1,035 part time, special and graduate students pursuing medical subjects during 1941-1942 in forty-four medical schools in the United States and four in Canada. This group comprised 132 part time, 416 special and 487 graduate students and is summarized in table 22.

Students on a part time basis (132) were enrolled in twenty schools in the United States. The largest group studying in any one school (34) were in the University of Texas Medical Branch. Fewer than 5 were enrolled in each of twelve schools.

The 416 special students matriculated in twenty-eight schools in the United States and two in Canada. The greatest number (168) were in attendance at the University of North Carolina School of Medicine. The majority of these students were undoubtedly enrolled in the School of Public Health of the University of North Carolina, which maintains close cooperation with the School of Medicine. Ninety-nine were enrolled in Northwestern University School of Medicine and 41 in the School of Medicine of the University of Chicago. Other schools registered fewer than 17.

There were also 487 students not candidates for the medical degree pursuing medical subjects in eighteen medical schools of the United States and three in Canada. This group has been reported as graduate students and is probably enrolled in the graduate school of the university. At Northwestern University Medical

School there were 116 such students and at the University of North Carolina School of Medicine 57, while other schools matriculated fewer than 50.

The Universities of Kansas, Johns Hopkins, Michigan and North Carolina matriculated all three of these types of students.

SCHOOLS, STUDENTS AND GRADUATES, 1905-1942

The number of medical schools, students and graduates in the United States for five year intervals from 1905 to 1920 and for each year since is shown in table 23. This tabulation covers only candidates for the M.D. degree and does not include part time and special students, though their work may later be accepted as

TABLE 22—Medical Schools Reporting Part Time, Special and Graduate Students, 1941-1942

|                               | Part Time | Special | Graduate |
|-------------------------------|-----------|---------|----------|
| University of Alabama         | 16        |         |          |
| University of Arkansas        | 1         | 4       |          |
| University of Colorado        |           | 2       |          |
| Howard University             | 1         | 8       |          |
| University of Georgia         | 2         |         |          |
| Rush Medical College          |           | 1       |          |
| Loyola University             |           | 2       |          |
| Northwestern University       |           | 99      | 116      |
| University of Chicago         |           | 41      |          |
| University of Kansas          | 5         | 2       | 2        |
| University of Louisville      |           |         | 1        |
| Tulane University             | 14        |         |          |
| Louisiana State University    |           | 1       |          |
| Johns Hopkins University      | 6         | 9       | 10       |
| University of Maryland        |           | 1       |          |
| Boston University             |           |         | 6        |
| Tufts College                 |           | 2       |          |
| Wayne University              | 2         |         | 46       |
| University of Michigan        | 12        | 4       | 2        |
| University of Minnesota       |           |         | 17       |
| University of Mississippi     | 4         |         |          |
| Washington University         |           |         | 22       |
| University of Missouri        | 1         | 5       |          |
| St. Louis University          |           | 2       |          |
| Creghton University           |           | 2       |          |
| Albany Medical College        |           | 3       |          |
| University of Buffalo         | 9         | 3       |          |
| Columbia University           |           | 16      | 37       |
| Cornell University            |           | 2       | 11       |
| New York Medical College      |           |         | 16       |
| New York University           | 4         | 3       |          |
| University of North Carolina  | 4         | 168     | 57       |
| University of Cincinnati      |           | 8       |          |
| Western Reserve University    |           | 1       |          |
| University of Oklahoma        |           | 4       | 7        |
| University of Oregon          |           | 2       | 9        |
| Woman's Medical College       | 2         |         | 11       |
| University of Pittsburgh      | 8         |         |          |
| University of South Dakota    | 3         |         |          |
| Vanderbilt University         | 1         | 1       |          |
| University of Tennessee       |           | 15      | 23       |
| Meharry Medical College       |           |         | 11       |
| University of Texas           | 34        |         |          |
| Marquette University          | 3         |         |          |
| Queen's University            |           |         | 2        |
| University of Montreal        |           |         | 48       |
| University of Toronto         |           | 7       | 33       |
| University of Western Ontario |           | 3       |          |
| Totals                        | 132       | 416     | 487      |

fulfilling part of the requirement for the M.D. degree, in which cases they are reported as regularly enrolled students and are thereafter included in these computations.

In 1905 in the one hundred and sixty medical schools existing there were 26,147 students. The total number of undergraduate medical students for the college session 1941-1942 in seventy-seven approved medical schools was 22,031. In the ten years from 1910 to 1920 there was a decrease in enrollment of more than 7,000, owing to the enforcement of educational standards and the closure of many proprietary schools, while from 1921 to 1935 there was a continuous increase in students among approved colleges. For four years the trend was slightly downward and then in 1940 there was again an increase. The decrease in student enrol-

ment in 1936 and thereafter was in part the result of the survey of medical schools conducted by the Council on Medical Education and Hospitals during 1934-1936<sup>2</sup> and its recommendation to several medical schools that their enrolment be decreased in order to provide more adequate opportunities for the student body. However, the executive council of the Association of American Medical Colleges at a meeting held May 30, 1941 recommended that those schools which could do so without lowering standards of medical education increase the enrolment of the 1941 entering class by 10 per cent in order to help meet the medical needs of the national emergency. Thus the number of students enrolled during 1941-1942 was 22,031, an increase of 652 over the previous year.

Again referring to table 23 it will be noted that the total number of graduates in 1942 was 5,163, a decrease of 112 over 1941. The discontinuance of the internship requirement by two schools in 1941 was responsible for the high figure of that year as compared with previous years. There were however fewer graduates in 1942 from sixty-seven medical schools granting the M.D. degree than from the one hundred and sixty schools

TABLE 23—Schools, Students and Graduates in the United States 1905-1942

|      | Schools | Students | Graduates |
|------|---------|----------|-----------|
| 1905 | 169     | 20,147   | 609       |
| 1910 | 131     | 21,576   | 4,440     |
| 1915 | 96      | 14,891   | 3,557     |
| 1920 | 83      | 13,798   | 3,047     |
| 1921 | 81      | 14,466   | 3,186     |
| 1922 | 81      | 13,615   | 2,520     |
| 1923 | 80      | 16,969   | 3,120     |
| 1924 | 79      | 17,728   | 3,662     |
| 1925 | 80      | 18,900   | 3,974     |
| 1926 | 79      | 18,840   | 3,962     |
| 1927 | 80      | 19,662   | 4,080     |
| 1928 | 80      | 20,340   | 4,262     |
| 1929 | 79      | 20,878   | 4,446     |
| 1930 | 76      | 21,397   | 4,560     |
| 1931 | 76      | 21,982   | 4,730     |
| 1932 | 76      | 22,135   | 4,936     |
| 1933 | 77      | 22,468   | 4,890     |
| 1934 | 77      | 22,799   | 5,035     |
| 1935 | 77      | 22,888   | 5,101     |
| 1936 | 77      | 22,364   | 5,183     |
| 1937 | 77      | 22,020   | 5,377     |
| 1938 | 77      | 21,587   | 5,194     |
| 1939 | 77      | 21,302   | 5,080     |
| 1940 | 77      | 21,271   | 5,097     |
| 1941 | 77      | 21,379   | 5,270     |
| 1942 | 77      | 22,031   | 5,163     |

\* Includes figures for schools of the basic medical sciences.

existing in 1905. With a few exceptions there has been an increase in the number of medical graduates each year since 1925. The lowest number of M.D. degrees was granted in 1922. In that year there were 2,520 graduates because of the small size of the class that entered as freshmen in 1918 during the World War.

The number of medical schools in 1905 was one hundred and sixty, by 1910 the number dropped to one hundred and thirty-one, and since 1915 there have been fewer than one hundred. Since 1933 there have been in the United States sixty-six approved four year schools, one offering only clinical courses and ten schools of the basic medical sciences. The school offering only clinical courses terminated undergraduate study with the class of 1942, and one school which formerly offered courses in the basic medical sciences is developing a full four year course.

In the seventy-seven medical schools in the United States including the schools of the basic medical sciences, there were during the last session 22,031 students and 5,163 graduates.

#### GRADUATES WITH BACCALAUREATE DEGREES

While only six schools require a degree for admission, figures contained in table 24 indicate that 4,166 of the 5,702 graduates of medical schools of the United

TABLE 24—Graduates with Baccalaureate Degrees

|  | Graduates | Degrees |
|--|-----------|---------|
| University of Arkansas                       | 66        | 25      |
| University of California                     | 111       | 110     |
| College of Medical Franciscans               | 77        | 40      |
| University of Southern California            | 49        | 30      |
| Stanford University                          | 57        | 56      |
| University of Colorado                       | 51        | 38      |
| Yale University                              | 51        | 40      |
| Georgetown University                        | 85        | 73      |
| George Washington University                 | 72        | 51      |
| Howard University                            | 35        | 30      |
| Emory University                             | 49        | 30      |
| University of Georgia                        | 42        | 24      |
| Loyola University                            | 67        | 19      |
| Northwestern University                      | 150       | 107     |
| Rush Medical College                         | 108       | 62      |
| University of Chicago The School of Medicine | 60        | 64      |
| University of Illinois                       | 160       | 41      |
| Indiana University                           | 108       | 59      |
| State University of Iowa                     | 46        | 29      |
| University of Kansas                         | 81        | 22      |
| University of Louisville                     | 85        | 66      |
| Louisiana State University                   | 85        | 37      |
| Tulane University of Louisiana               | 121       | 96      |
| Johns Hopkins University                     | 75        | 70      |
| University of Maryland                       | 85        | 77      |
| Boston University                            | 52        | 47      |
| Harvard Medical School                       | 129       | 117     |
| Tufts College                                | 94        | 94      |
| University of Michigan                       | 305       | 84      |
| Wayne University                             | 54        | 53      |
| University of Minnesota                      | 117       | 38      |
| St. Louis University                         | 94        | 61      |
| Washington University                        | 93        | 77      |
| Cleveland University                         | 52        | 26      |
| University of Nebraska                       | 69        | 27      |
| Albany Medical College                       | 33        | 33      |
| Long Island College of Medicine              | 90        | 74      |
| University of Buffalo                        | 61        | 40      |
| Columbia University                          | 95        | 92      |
| Cornell University                           | 75        | 70      |
| New York Medical College                     | 77        | 77      |
| New York University                          | 125       | 119     |
| University of Rochester                      | 44        | 41      |
| Syracuse University                          | 34        | 34      |
| Duke University                              | 64        | 48      |
| University of Cincinnati                     | 77        | 64      |
| Western Reserve University                   | 60        | 60      |
| Ohio State University                        | 79        | 77      |
| University of Oklahoma                       | 35        | 23      |
| University of Oregon                         | 51        | 51      |
| Hahnemann Medical College                    | 130       | 110     |
| Jefferson Medical College                    | 131       | 131     |
| Temple University                            | 117       | 109     |
| University of Pennsylvania                   | 129       | 126     |
| Woman's Medical College                      | 18        | 15      |
| University of Pittsburgh                     | 73        | 62      |
| Medical College of South Carolina            | 43        | 42      |
| University of Tennessee                      | 98        | 30      |
| Marshall Medical College                     | 50        | 44      |
| Vanderbilt University                        | 41        | 49      |
| Baylor University                            | 75        | 47      |
| University of Texas                          | 99        | 83      |
| University of Vermont                        | 31        | 28      |
| University of Virginia                       | 62        | 39      |
| Medical College of Virginia                  | 64        | 47      |
| University of Wisconsin                      | 45        | 34      |
| Marquette University                         | 70        | 33      |
| University of Alberta                        | 47        |         |
| University of Manitoba                       | 47        | 18      |
| Dalhousie University                         | 42        | 22      |
| Queen's University                           | 41        | 7       |
| University of Western Ontario                | 26        | 0       |
| University of Toronto                        | 116       | 21      |
| McGill University                            | 90        | 70      |
| University of Montreal                       | 48        | 47      |
| Laval University                             | 60        | 60      |
| Totals                                       | 5,702     | 4,166   |

States and Canada held baccalaureate degrees. This is exclusive of those holding the degree B.S. in medicine. The latter group is separately dealt with in the next section. In the United States alone, 3,907 of the 5,163 medical graduates were in possession of baccalaureate

<sup>2</sup> Weiskotten H. G., Schwittalla A. M., Cutter W. D. and Anderson H. H. Medical Education in the United States. Chicago: American Medical Association, 1940.

degrees All the graduates of Stanford, Johns Hopkins, Tufts, Albany, Cornell, New York Medical, Syracuse, Western Reserve, University of Oregon, Jefferson and Laval University—eleven schools—held baccalaureate degrees Four of these schools require the degree for admission, while two others will enroll students with three years of college training if the baccalaureate degree is conferred at the end of the first year in medicine, and five have a stated three year requirement Three schools having a degree requirement of three years and a degree at the end of the first year of medicine graduated altogether 15 students with less than the stated college education

None of the graduates of the University of Alberta held degrees in arts on graduation The school in the United States having the fewest graduates with college degrees was the Woman's Medical College of Pennsylvania, 15, but this school had only 18 graduates However, Loyola University School of Medicine, with a graduating class of 67, reported that only 19 of this class also held arts college degrees At the University of Toronto Faculty of Medicine, 24 of a class of 116 held such degrees

A percentage of 73 of all graduates in the United States and Canada in 1942 held baccalaureate degrees

GRADUATES WITH BS IN MEDICINE DEGREE

Certain graduates of thirty medical schools in the United States and one in Canada, in 1942, received the Bachelor of Science degree in Medicine There were 483 awarded in the United States and 27 in Canada, a total of 510 The largest single group to receive the degree were 88 graduates of the University of Minnesota, the University of Illinois granted 78, the University of Oklahoma 42, Rush Medical College 40, Indiana University 37, Northwestern University 29, the University of Alberta 27 and Creighton University 23 Other schools issued fewer than 20

Schools in general are discontinuing the practice of issuing such degrees, while others have never done so

STUDENTS BY CLASSES, 1930-1941

The number of students enrolled in preclinical and clinical classes in the medical schools of the United States for each session from 1930 to 1940 is presented in table 25 For the session 1941-1942 the attendance

TABLE 25—Students in the United States by Years, Including the Intern Year When Required for Graduation, 1930-1941

|           | Preclinical |        | Clinical |        | Intern | Total  |
|-----------|-------------|--------|----------|--------|--------|--------|
|           |             |        |          |        | Year   |        |
| 1930-1931 | 6,456       | 5,538  | 5,080    | 4,908  | 1,025  | 23,007 |
| 1931-1932 | 6,260       | 5,402  | 4,932    | 4,885  | 1,067  | 23,202 |
| 1932-1933 | 6,426       | 5,479  | 5,017    | 4,948  | 1,106  | 23,572 |
| 1933-1934 | 6,457       | 5,571  | 4,988    | 4,937  | 1,183  | 23,982 |
| 1934-1935 | 6,350       | 5,624  | 5,142    | 4,905  | 1,233  | 24,121 |
| 1935-1936 | 6,005       | 5,458  | 5,230    | 5,020  | 1,213  | 23,777 |
| 1936-1937 | 5,910       | 5,269  | 5,140    | 5,158  | 1,255  | 23,350 |
| 1937-1938 | 5,791       | 5,225  | 4,986    | 5,036  | 1,132  | 22,719 |
| 1938-1939 | 5,754       | 5,160  | 4,947    | 4,921  | 1,152  | 22,454 |
| 1939-1940 | 5,794       | 5,177  | 4,921    | 4,894  | 1,152  | 22,423 |
| 1940-1941 | 5,837       | 5,254  | 4,969    | 4,849  | 1,058  | 22,437 |
| 1941-1942 | 6,218*      | 5,406* | 5,087*   | 4,942* | 767    | 22,798 |

\* Excluding enrolment figures for Rush Medical College 109 and The School of Medicine of the University of Chicago 269, a total of 378

for the first preclinical year was 6,218 In the second preclinical year 5,406 were registered In the clinical years 5,087 and 4,942 respectively were enrolled The University of Chicago School of Medicine and Rush

Medical College do not report their students by classes, and therefore the figures for enrolment at these schools are included only in the total column During the session just closed there were 269 students enrolled in the University of Chicago School of Medicine and 109 at Rush Medical College, a total of 378 students

By comparison with the previous session, it will be noted that the freshman class was increased by 381, the sophomore enrolment 152, the junior class 118 and the senior class 93 The number entering as a requirement for the degree decreased 291, owing to the discontinuance of this requirement by several schools in recent years There was an increase in the total enrolment of 361 This is the largest student body since the session 1937-1938

FEES

The eighty-seven medical schools of the United States and Canada, including those offering courses in the basic medical sciences, have been arranged in six groups in

TABLE 26—Fees, 1941-1942

|              | Schools |
|--------------|---------|
| Under \$99   | 2       |
| \$100 to 199 | 7       |
| 200 to 299   | 21      |
| 300 to 399   | 14      |
| 400 to 499   | 17      |
| 500 or over  | 26      |
| Total        | 87      |

Based on fees charged resident students

table 26 according to the tuition fees charged resident students for the session 1941-1942 The data are based on the average tuition fee charged for the complete medical course and include minor charges such as for matriculation, breakage, diploma and graduation

Two medical schools the Universities of Oklahoma and Texas, charged fees under \$99 a year Twenty-six schools, eighteen of which are located in the eastern section of the country, had fees of \$500 or more, namely College of Medical Evangelists, Yale, George Washington, Georgetown, Loyola, Rush, Tulane, Johns Hopkins, University of Maryland, Tufts, St. Louis, Washington, Albany, Columbia, Cornell, Long Island, New York Medical, New York University, Syracuse, Buffalo, Rochester, Cincinnati, Western Reserve, Hahnemann, University of Pennsylvania and Pittsburgh

Medical school fees have been increased, as can be noted by a comparison with earlier figures In 1941 there were three schools in the first group, eight in the second, twenty in the third, fifteen in the fourth, nineteen in the fifth and twenty-two in the last group

Thirty-two schools in the United States and five in Canada made an additional charge for nonresidents, ranging from \$50 each year by the Universities of Nebraska, Cincinnati and Virginia to \$400 exacted by Louisiana State University School of Medicine One school in Canada has a nonresident fee of \$5 for the first and \$10 for the second, third and fourth years Thirteen schools have a nonresident fee of \$100 or less, fourteen have fees between \$101 and \$200, seven from \$201 to \$300, and two from \$301 to \$400, while one school has a reciprocal fee for nonresidents

The average resident fee charged by medical schools in the United States for the session 1941-1942 was \$395, whereas in 1941 it was \$386 and in 1940, \$378



## DESCRIPTION OF MEDICAL SCHOOLS

### ARKANSAS

#### Little Rock

UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE 1203 McAlmont Street—Organized in 1877 as the Medical Department of Arkansas Industrial University. Present title in 1922. In 1911 the College of Physicians and Surgeons united with it and it became an integral part of the University of Arkansas. The first class was graduated in 1880. Clinical teaching was suspended in 1918 but resumed in 1923. Coeducational since organization. The faculty consists of 26 professors and 113 lecturers and instructors a total of 139. The curriculum covers four years of nine months each in medicine. Entrance requirements are two years of collegiate work. The B.S. Degree is conferred at the end of the second year. The fees for the four years for residents of Arkansas are \$250 per year non-residents are charged \$225 additional each year. The registration for 1941-1942 was 242 graduates 16. The next session begins September 30 1942 and ends June 15 1943. The Dean is Byron L. Robinson M.D.

### CALIFORNIA

#### Berkeley-San Francisco

UNIVERSITY OF CALIFORNIA MEDICAL SCHOOL University Campus Berkeley Medical Center San Francisco—Organized in 1864 as the Toand Medical College. The first class graduated in 1864. In 1873 it became the Medical Department of the University of California. In 1909 by legislative enactment the College of Medicine of the University of Southern California at Los Angeles became a clinical department but was changed to a graduate school in 1914. In 1915 the Hahnemann Medical College of the Pacific was merged and elective chairs in homeopathic materia medica and therapeutics were provided. Coeducational since organization. Three years of collegiate work are required for admission. The work of the first year is given at Berkeley and that of the last three years at San Francisco. An accelerated program has been adopted consisting of three terms of sixteen weeks in each academic year. The medical course may now be completed in two and two third years. The faculty is composed of 168 professors and 311 associates and assistants a total of 479. The fees average \$300 per academic year non-residents are charged \$300 additional each year. The registration for 1941-1942 was 253 graduates 111. The present session began June 15 1942 and will end February 6 1943. The subsequent session begins February 15 1943. The Dean is Francis S. Smyth M.D. San Francisco

#### Loma Linda-Los Angeles

COLLEGE OF MEDICAL EVANGELISTS Loma Linda Boyle and Michigan Avenues Los Angeles—Organized in 1909. The first class graduated in 1914. The laboratory departments are at Loma Linda the clinical departments at Los Angeles. Coeducational since organization. Three years of collegiate work are required for admission. The faculty is composed of 45 professors and 367 associates assistants and instructors a total of 412. The course covers a period of four years of nine months each and an additional year consisting of an internship in an approved hospital. During the present military emergency vacations have been diminished to a minimum with a resulting accelerated course. The total fees are respectively \$612 \$601 \$612 and \$612. The registration for 1941-1942 was 309 graduates 77. The present session began July 5 1942 and will end April 4 1943. The subsequent session begins April 4 1943. The President is Walter E. Macpherson M.D. Los Angeles. The Dean is E. H. Risley M.D. Loma Linda. The Assistant Dean is W. F. Norwood Ph.D. Los Angeles.

#### Los Angeles

UNIVERSITY OF SOUTHERN CALIFORNIA SCHOOL OF MEDICINE 3551 University Avenue—Organized in 1895 as the University of Southern California College of Medicine. First class graduated in 1888. In 1908 it became the Los Angeles Medical Department of the University of California. In 1909 the College of Physicians and Surgeons established in 1904, became the Medical Department of the University of Southern California. Its activities were suspended in 1920, reorganized in May 1928 under present title. During present national emergency will operate the year round on accelerated three term basis each term continuing for sixteen weeks. Matriculation of new classes will be mid June of each year during emergency. The faculty consists of 165 professors and 236 instructors assistants and others a total of 401. An internship is required for graduation. Three years of collegiate work are required for admission. Coeducational since organization. Annual fees amount to \$452. The registration for 1941-1942 was 208 graduates 49. The present session began June 15 1942 and will end January 29 1943. The Dean is Seeley G. Mudd M.D.

#### Stanford University-San Francisco

STANFORD UNIVERSITY SCHOOL OF MEDICINE University Campus Stanford University 2398 Sacramento Street San Francisco. The main buildings are in San Francisco. The laboratories of anatomy bacteriology and experimental pathology chemistry and physiology are located on the campus at Stanford University which is thirty miles southeast of San Francisco adjoining the City of Palo Alto. The post office is Stanford University. Organized in 1908 when by agreement the interests of Cooper Medical College were taken over. The first class graduated in 1913. Coeducational since organization. The faculty

consists of 136 professors and 183 lecturers assistants and others a total of 319. Three years of collegiate work are required for admission. The quarter plan is in operation admitting one class each year. An internship is a requirement for graduation. The fees for the four years respectively are \$474 \$438 \$418 and \$418. The registration for 1941-1942 was 242 graduates 57. During 1942-1943 the quarters begin June 15, September 29, March 29 and June 17 and will end August 29, December 18, March 19 and June 9. The Dean is Loren Hoscoe Chandler M.D.

### COLORADO

#### Denver

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE 4200 East Ninth Avenue—Organized in 1883. Classes were graduated in 1885 and in all subsequent years except 1898 and 1899. Denver and Gross College of Medicine was merged Jan. 1 1911. Coeducational since organization. The faculty is composed of 57 professors and 130 lecturers instructors and assistants a total of 187. The accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The entrance requirements are three years of collegiate work. The fees average \$289 per academic year. Non-residents are charged \$245 additional each year. The registration for 1941-1942 was 217 graduates 51. The present session began June 15 1942 and will end March 19 1943. The subsequent session will begin March 29 1943. The Dean is Maurice H. Rees M.D.

### CONNECTICUT

#### New Haven

YALE UNIVERSITY SCHOOL OF MEDICINE 333 Cedar Street—Chartered in 1810 as the Medical Institution of Yale College. Organized in 1812 instruction began in 1813 first class graduated in 1814. A new charter in 1879 changed the name to the Medical Department of Yale College. In 1884 the Connecticut Medical Society surrendered such authority as had been granted by the first charter. In 1887 Yale College became Yale University. Coeducational since 1916. The faculty consists of 185 professors and 241 lecturers and assistants a total of 426. The requirements for admission are three years of collegiate work. An accelerated program has been adopted involving the admittance and graduation of a class every nine months. The fees average \$506 per academic year. The registration for 1941-1942 was 206 graduates 51. The present session began June 29 1942 and will end March 20 1943. The subsequent session will begin April 5 1943. The Dean is Francis G. Blake M.D.

### DISTRICT OF COLUMBIA

#### Washington

GEORGETOWN UNIVERSITY SCHOOL OF MEDICINE 3900 Reservoir Road N.W.—Organized in 1851. First class graduated in 1852. The faculty is composed of 62 professors 46 associate professors 11 assistant professors 21 adjunct professors and 147 instructors a total of 287. Three years of work in an acceptable college of arts and sciences is required for admission. An accelerated program has been adopted involving the admittance and graduation of a class every nine months. The fees average \$500 per academic year. The registration for 1941-1942 was 299 graduates 85. The present session began June 29 1942 and will end March 6 1943. The subsequent session begins March 15 1943. The Dean is David V. McCauley S.J., Ph.D.

GEORGE WASHINGTON UNIVERSITY SCHOOL OF MEDICINE 1335 H Street N.W.—Organized in 1825 as the Medical Department of Columbian College. Also authorized to use the name National Medical College. Classes were graduated in 1826 and in all subsequent years except in 1834 to 1838 and 1861 to 1863 inclusive. The original title was changed to Medical Department of Columbian University in 1873. In 1903 it absorbed the National University Medical Department. In 1904 by an Act of Congress the title of George Washington University was granted to the institution. Coeducational since 1884. The faculty is composed of 81 professors and 150 instructors demonstrators and assistants a total of 231. Three years of collegiate work are required for admission. An accelerated program has been adopted involving the admittance and graduation of a class every nine months. The fees average \$550 per academic year. The registration for 1941-1942 was 285 graduates 72. The present session began June 8 1942 and will end February 2 1943. The subsequent session will begin March 1 1943. The Dean is Walter A. Bloedorn M.D.

HOWARD UNIVERSITY COLLEGE OF MEDICINE Fifth and W Streets N.W.—Chartered in 1867. Organized in 1869. The first class graduated in 1871. Coeducational since organization. Negro students compose a majority of those in attendance. The faculty comprises 41 professors and 61 instructors and assistants a total of 102. The admission requirements are at least two years of collegiate work. The course covers four years of thirty three weeks each. The fees are respectively \$269 \$269 \$259 and \$266. Registration for 1941-1942 was 186 graduates 35. The next session begins Sept. 26 1942, and ends June 4 1943. The Dean is John Wesley Lawlah M.D.

## GEORGIA

## Atlanta

EMORY UNIVERSITY SCHOOL OF MEDICINE, 50 Armstrong Street—Organized in 1854 as the Atlanta Medical College. Classes graduated 1855 to 1861, when it suspended. Reorganized in 1865. A class graduated in 1865 and each subsequent year except 1874. In 1898 it merged with the Southern Medical College (organized in 1878), taking the name of Atlanta College of Physicians and Surgeons. In 1913 it merged with the Atlanta School of Medicine (organized in 1905), resuming the name of Atlanta Medical College. Became the Medical Department of Emory University in 1915, assumed present title in 1917. Three years of collegiate work are required for admission. The course of study is four academic years of thirty-two weeks each. By the use of the long summer vacation as a traveling quarter, the time required for the completion of these four academic years has been reduced from four to three calendar years. This is in line with the accelerated program adopted by most medical schools during the present emergency. The fees for each of the four academic years are \$357. The registration for 1940-1941 was 218, graduates, 45. Classes this year began on June 15, 1942 and will end March 15, 1943. The subsequent session will begin March 23, 1943. The Dean is Russ H. Oppenheimer, M.D.

## Augusta

UNIVERSITY OF GEORGIA SCHOOL OF MEDICINE, University Place—Organized in 1828 as the Medical Academy of Georgia, the name being changed to the Medical College of Georgia in 1829. After 1873 it was known as the Medical Department of the University of Georgia. On July 1, 1933, the name was changed to the University of Georgia School of Medicine. Property transferred to the University in 1911. Classes were graduated in 1833 and all subsequent years except 1862 and 1863. Coeducation was begun in 1920. The faculty includes 71 professors and 30 assistants, a total of 101. Three years of collegiate work are required for admission. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The fees average \$225 per academic year for residents of Georgia, nonresidents are not admitted. The registration for 1941-1942 was 212, graduates, 42. The present session began July 1, 1942, and will end March 22, 1943. The subsequent session will begin April 7, 1943. The Dean is G. Lombard Kelly, M.D.

## ILLINOIS

## Chicago

LOYOLA UNIVERSITY SCHOOL OF MEDICINE, 706 South Wolcott Avenue—Organized in 1915 by requisition of Bennett Medical College which had been organized in 1869. Facilities enlarged upon by requisition of Chicago College of Medicine and Surgery, faculties in basic medical sciences put on full time basis and present title assumed in 1917. Operated as an organic part of Loyola University. Coeducational since organization. Ninety semester hours is the minimum requirement for admission. An accelerated program has been adopted involving the admittance and graduation of a class every nine months. An internship is a requirement for graduation. The faculty is composed of 38 full time professors and 260 associate and assistant professors, associates, instructors and assistants, a total of 298. The fees average \$515 per academic year. The registration for 1941-1942 was 275, graduates, 67. The present session for all classes began on July 6, 1942 and will end April 10, 1943. The subsequent session will begin April 19, 1943. The Dean is Francis J. Braceland, M.D.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL, 303 East Chicago Avenue—Organized in 1859 as the Medical Department of Lind University. First class graduated in 1860. In 1864 it became independent as the Chicago Medical College. It united with Northwestern University in 1869 but retained the name of Chicago Medical College until 1891, when the present title was taken. Became an integral part of Northwestern University in 1905. Coeducational since 1926. The faculty comprises 29 professors, 149 associate and assistant professors and 413 associates, instructors and clinical assistants, a total of 591. The requirement for admission is three years of collegiate work. The B.S. in medicine degree may be conferred before the end of the sophomore year. An accelerated program has been adopted involving the acceptance of a class every nine months. A hospital internship is required for graduation. The total fees are \$414 each year. The registration for 1941-1942 was 557, graduates, 159. The present session began June 17, 1942 and will end March 24, 1943. The subsequent session will begin March 29, 1943. The Dean is J. Roscoe Miller, M.D.

UNIVERSITY OF CHICAGO, THE SCHOOL OF MEDICINE, Fifty Eighth Street and Ellis Avenue—Organized in 1924, as a part of the Ogden Graduate School of Science of the University of Chicago. In 1932, when the University of Chicago reorganized its departments, the medical departments were included in the Biological Sciences Division. The work of the first two years in the medical courses has been given on the University Quadrangles since 1899, but the last two years were offered only at Rush Medical College which was affiliated with the university until 1927 when actual work in the clinical departments on the campus began. After that time, candidates for the degree of Doctor of Medicine could take the work of the first two years on the campus and the work of the third and fourth years either on the campus or at the Rush Medical College. In June 1940 Rush Medical College became affiliated with the University of Illinois College of Medicine. All undergraduate instruction is now given only on the campus of the University of Chicago. The faculty of the School of Medicine is composed of 103 professors, 198 associates, instructors and others, a total of 301. The requirements for admission are three years of collegiate work. The B.S. degree may be obtained during the second year. The curriculum covers twelve quarters of work. Sixty-five students are admitted to the first year class every nine months. The tuition fee averages \$450. The

registration for 1941-1942 was 269, graduates, 65. During the academic year 1942-1943 the quarters begin June 22, September 29, January 4, and March 29, and will end September 12, December 19, March 27, and June 18. All correspondence relating to general policies should be addressed to W. H. Taliaferro, Ph.D., Dean of the Division of Biological Sciences, or to A. C. Brehmeyer, M.D., Associate Dean, and that pertaining to student affairs to Victor Johnson, M.D., Dean of Medical Students.

UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE, 1853 West Polk Street—Organized in 1882 as the College of Physicians and Surgeons. The first class graduated in 1883. It became the Medical Department of the University of Illinois by affiliation in 1897. Relationship with the university was cancelled in June 1912, and was restored in March 1913 when the present title was assumed. Coeducational since 1898. Three years of collegiate work are required for admission. The accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The B.S. in medicine degree is conferred at the end of the second year. The faculty is composed of 165 professors and 394 associates, instructors and assistants, a total of 559. The fees for residents of Illinois average \$288 per academic year, nonresidents, \$524. The registration for 1941-1942 was 638, graduates, 165. The present session for juniors and seniors began June 15, 1942 and will end March 29, 1943. Freshmen and sophomores will enroll Sept. 28, 1942 and will complete the year June 5, 1943. The Dean is David J. Davis, M.D.

## INDIANA

## Bloomington-Indianapolis

INDIANA UNIVERSITY SCHOOL OF MEDICINE, Bloomington, 1040 West Michigan Street, Indianapolis—Organized in 1903 but did not give all the work of the first two years of the medical course until 1905. In 1907, by union with the State College of Physicians and Surgeons, the complete course in medicine was offered. In 1908 the Indiana Medical College, which was formed in 1905 by the merger of the Medical College of Indiana (organized in 1878), the Central College of Physicians and Surgeons (organized in 1879), and the Fort Wayne College of Medicine (organized in 1879) merged into it. The first class was graduated in 1908. Coeducational since organization. The faculty consists of 270 professors, lecturers, associates and assistants. Three years of collegiate work are required for admission. The B.S. degree in medicine is conferred. The school has been on an all-time program since May 11, 1942. Each school year is divided into three terms. The work given in two terms is equivalent to the work formerly given in a year. The work of the first two terms is given at Bloomington, the remainder of the work at Indianapolis. Regular fee for two terms of work is \$217 for residents of Indiana and \$422 for nonresidents. The registration for 1941-1942 was 507, graduates, 108. The next regular class will start work on January 7, 1943. The Dean is Willis D. Gatch, M.D., Indianapolis.

## IOWA

## Iowa City

STATE UNIVERSITY OF IOWA COLLEGE OF MEDICINE, University Campus—Organized in 1869. First session began in 1870. First class graduated in 1871. Absorbed Drake University College of Medicine in 1913. Coeducational since 1870. The faculty is made up of 56 professors, 74 lecturers, demonstrators and assistants, a total of 130. Three years of collegiate work are required for admission. The B.A. degree in the combined course of liberal arts and medicine is conferred. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The tuition fee is \$226 each year for residents of Iowa and \$490 for nonresidents. The registration for 1941-1942 was 282, graduates, 46. The present session for upper classmen began May 11, 1942 and for freshmen June 8, 1942 and will end February 20, 1943. The subsequent session begins February 22, 1943. The Dean is Ewen Murchison MacEwen, M.D.

## KANSAS

## Lawrence-Kansas City

UNIVERSITY OF KANSAS SCHOOL OF MEDICINE, Lawrence, 39th Street and Rainbow Boulevard, Kansas City—Organized in 1880. It offered only the first two years of the medical course until 1905, when it merged with the Kansas City (Mo.) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894, and the Medical-Chirurgical College, founded in 1897. Absorbed Kansas Medical College in 1913. The first class graduated in 1906. The clinical courses are given at Kansas City. Coeducational since 1880. The faculty includes 70 professors and 176 instructors, assistants and others, a total of 246. The requirement for admission is three years of collegiate work. The B.S. degree in medicine is conferred at the end of the second year. An accelerated program has been adopted admitting a freshman class in June of each year. Seniors will graduate approximately every nine months. The fees for residents of the state average \$238, nonresidents \$437. The registration for 1941-1942 was 335, graduates, 81. The present session for freshmen began June 1, 1942. Upper classmen will enroll Sept. 21, 1942 and complete the year May 31, 1943. The Dean is H. R. Wahl, M.D., Kansas City.

## KENTUCKY

## Louisville

UNIVERSITY OF LOUISVILLE SCHOOL OF MEDICINE, 101 West Chestnut Street—Organized in 1837 as Louisville Medical Institute. The first class graduated in 1838 and a class graduated each subsequent year except 1863. In 1846 the name was changed to University of Louisville.

**Medical Department.** In 1902 it absorbed the Kentucky University Medical Department in 1908 the Louisville Medical College the Hospital College of Medicine and the Kentucky School of Medicine. In 1922 it changed its name to the University of Louisville School of Medicine. Coeducational since organization. Two years of collegiate work are the minimum requirement for admission. Preference is given applicants with a degree or three college years leading to a degree. The faculty numbers 92 professors and 145 assistants, instructors and others, a total of 237. An accelerated program has been adopted involving the admittance and graduation of a class every nine months. Fees average \$450 per academic year. The registration for 1941-1942 was 60 graduates 84. The present session began July 1 1942 and will end Feb 28 1943. The subsequent session will begin April 1 1943. The Dean is John Walker Moore MD.

## LOUISIANA

### New Orleans

**LOUISIANA STATE UNIVERSITY SCHOOL OF MEDICINE** 1542 Tulane Avenue—Organized January 1911 as Louisiana State University Medical Center. Present title in 1919. Coeducational. First session October 1931 with students of first and third year. Faculty comprises 29 professors and 139 assistant professors, assistant professors, instructors and assistants, a total of 168. Course covers four sessions of no less than 32 weeks each. Under the accelerated program adopted for the duration of the war, a first year class will be admitted each nine months and the entire course will be completed within a period of three years. A minimum of three years' collegiate work is required for admission. Total fees \$134 each year for residents of Louisiana, additional tuition of \$60 each year for nonresident. The registration for 1941-1942 was 342 graduates 85. The present session began June 25 1942 and will end March 6 1943. The subsequent session will begin March 11 1943. The Dean is B. I. Burns MD.

**TULANE UNIVERSITY OF LOUISIANA SCHOOL OF MEDICINE** 1430 Tulane Avenue—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1835 and in all subsequent years except 1863-1866 inclusive. It became the Medical Department of the University of Louisiana in 1847 and in turn the Medical Department of the Tulane University of Louisiana in 1884. Present title in 1913. Coeducational since 1913. The faculty comprises 31 professors and 220 associate and assistant professors, instructors and assistants, a total of 251. An accelerated program has been adopted involving the admittance of a class annually and the graduation of a class approximately every nine months. A minimum of three years of collegiate work is required for admission. Total fees average \$547 per academic year. The registration for 1941-1942 was 496 graduates 121. The next session begins Sept 1 1942 and ends April 17 1943. The Acting Dean is Hiram W. Host mayer MD.

## MARYLAND

### Baltimore

**JOHNS HOPKINS UNIVERSITY SCHOOL OF MEDICINE** 710 North Washington Street—The nucleus of a Medical Faculty was constituted in 1883. Systematic postgraduate instruction in pathology and bacteriology was begun in 1886. School was fully organized and opened in 1893. The first class graduated in 1897. Coeducational since organization. The faculty consists of 70 professors and 421 instructors, assistants and others, a total of 491. The requirement for admission is a collegiate degree. An accelerated program has been adopted involving the admittance and graduation of a class every nine months. The fees average \$627 per academic year. The registration for 1941-1942 was 290 graduates 75. The present session for upper classes began June 1 1942 and will end Feb 27 1943. Freshmen enrolled June 29 1942 and will complete the year Feb 27 1943. The subsequent class will begin March 1 1943. The Dean is Alan M. Cheney MD.

**UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE AND COLLEGE OF PHYSICIANS AND SURGEONS** Lombard and Greene Streets—Organized in 1807 as the College of Medicine of Maryland. The first class graduated in 1810. In 1812 it became the University of Maryland School of Medicine. Baltimore Medical College was merged with it in 1913. In 1915 the College of Physicians and Surgeons of Baltimore was merged and the present name assumed. Coeducational since 1918. The faculty consists of 37 professors and 302 associate and assistant professors and others, a total of 339. Three years of collegiate work are required for admission. The accelerated program has been adopted involving the admittance of a freshman and the graduation of a class approximately every nine months. The fees average \$301 for residents of the state, nonresidents \$130 additional. The registration for 1941-1942 was 373 graduates 85. The present session began June 25 and will end March 27 1943. The subsequent session will begin April 8 1943. The Acting Dean is H. Boyd White MD.

## MASSACHUSETTS

### Boston

**BOSTON UNIVERSITY SCHOOL OF MEDICINE** 80 East Concord Street—Organized in 1873 as a homeopathic institution. In 1874 the New England Female Medical College founded in 1848 was merged into it. The first class was graduated in 1874. Became nonsectarian in 1918. Coeducational since organization. Three years of collegiate work are required for admission. The faculty includes 23 professors, 188 associates and others, a total of 211. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. Total fees average \$480 per academic year. The registration for 1941-1942 was 217 graduates 52. The present session

began June 30 1942 and will end Feb 13 1943 for 1st and 2d year students, February 20 1943 for 3d year students and February 27 1943 for 4th year students. The subsequent session begins March 31 1943. The Dean is Bennett F. Avery MD.

**HARVARD MEDICAL SCHOOL** 25 Shattuck Street—Organized in 1782. The first class graduated in 1788. It has a faculty of 189 members and 479 other instructors and assistants, a total of 668. Two years of collegiate work are required for admission. The accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The fees average \$420 plus \$5 the first year for matriculation. The registration for 1941-1942 was 533 graduates 129. The present session began July 1 1942 and will end February 27 1943. The subsequent session begins March 8 1943. The Dean is C. Sidney Burwell MD.

**TUFTS COLLEGE MEDICAL SCHOOL** 416 Huntington Avenue—Organized in 1893 as the Medical Department of Tufts College. The first class graduated in 1894. Coeducational since 1894. It has a faculty of 96 professors and 311 assistant lecturers and others, a total of 407. A bachelor's degree is required for admission. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The fees average \$308 per academic year. The registration for 1941-1942 was 482 graduates 94. The present session began July 1 1942 and will end March 1 1943. The subsequent class will begin about April 1 1943. The Acting Dean is Dwight O'Hara MD.

## MICHIGAN

### Ann Arbor

**UNIVERSITY OF MICHIGAN MEDICAL SCHOOL**—Organized in 1850 as the University of Michigan Department of Medicine and Surgery. The first class graduated in 1851. Present title assumed in 1915. Coeducational since 1870. It has a faculty of 29 professors, 19 associate professors, 27 assistant professors, 118 assistants, instructors and lecturers, a total of 193. The entrance requirements are ninety semester hours. An accelerated program has been adopted involving the admittance of a class annually and the graduation of a class every nine months. The fees average \$250 per academic year for nonresidents \$400 a year. The registration for 1941-1942 was 456 graduates 105. The present session for upper classes began June 15 1942 and will end February 6 1943. Freshmen will enroll October 3 1942. The Dean is A. C. Furst cnberg MD.

### Detroit

**WAYNE UNIVERSITY COLLEGE OF MEDICINE** 1516 St. Antoine Street—Organized as the Detroit College of Medicine in 1885 by consolidation of the Detroit Medical College organized in 1868 and the Michigan College of Medicine organized in 1879. Reorganized with the title of Detroit College of Medicine and Surgery in 1913. The first class graduated in 1869. In 1918 it became a municipal institution under the control of the Detroit Board of Education. In 1934 the name was changed by action of the Detroit Board of Education to Wayne University College of Medicine as a part of the program of consolidation of the Detroit city colleges into a university system. Coeducational since 1917. Entrance requirement is an academic degree or 90 semester hours of academic credit with combined degree guaranteed by school of arts and sciences. The faculty consists of 45 professors, 287 lecturers and others, a total of 332. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. An internship is a requirement for graduation. The fees average \$325 for Wayne County residents and for nonresidents \$425. The registration for 1941-1942 was 233 graduates 54. The present session began June 29 1942 and will end March 20 1943. The subsequent session will begin April 5 1943. The Dean is Edgar H. Norris MD.

## MINNESOTA

### Minneapolis

**UNIVERSITY OF MINNESOTA MEDICAL SCHOOL**—Organized in 1883 as the University of Minnesota College of Medicine and Surgery reorganized in 1888 by absorption of St. Paul Medical College and Minnesota Hospital College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons organized in 1883 was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged. Present title in 1913. Coeducational since organization. The faculty includes 204 professors of whom 77 are on full time appointment and 127 on part time and 134 instructors, 29 of whom are on full time appointment and 105 on part time, a total of 338. An accelerated program has been adopted involving the admittance and graduation of a class every nine months. The entrance requirements are three years of university work which must include six semester credits of rhetoric, eight semester credits of physics, thirteen credits of general chemistry, qualitative and quantitative analysis, organic and physical chemistry, eight credits of general zoology and genetics and eugenics, four credits of general psychology and a reading knowledge of scientific German with a C average in all subjects and in the sciences. Students are required to meet the requirements for a degree of BS or BA before receiving the degree of Bachelor of Medicine (MB) which is granted at the end of the course. The MD degree is conferred after a year of intern work of advanced laboratory work or of public health work has been completed. Total fees are \$236 per academic year for residents and \$412 for nonresidents. The registration for 1941-1942 was 477 graduates 117. The academic year 1942-1943 began June 17 and will end March 18 1943. The subsequent class will begin March 1943. The Dean is Harold S. Diehl MD.

## MISSOURI

## St. Louis

ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE 1402 South Grand Boulevard—Organized in 1901 as the Marion Sims Beumont Medical College by union of Marion Sims Medical College organized in 1890, and Beumont Hospital Medical College organized in 1886. First class graduated in 1902. It became the Medical School of St. Louis University in 1903. The faculty is composed of 81 professors and 251 instructors and assistants, a total of 332. The completion of three years of college study is the minimum admission requirement but students presenting meritorious credits in excess of the minimum are accepted by preference. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The fees average \$536 per academic year. The registration for 1941-1942 was 443, graduates 94. The present session began June 15, 1942, and will end February 20, 1943. The subsequent session begins March 1, 1943. The Dean is Alphonse M. Schwabha, S. J., Ph. D.

WASHINGTON UNIVERSITY SCHOOL OF MEDICINE Kingshighway and Euclid Avenue—Organized in 1842 as the Medical Department of St. Louis University. The first class graduated in 1843. In 1855 it was chartered as an independent institution under the name of St. Louis Medical College. In 1891 it became the Medical Department of Washington University. In 1929 it absorbed the Missouri Medical College. Coeducational since 1919. The faculty comprises 135 professors and 265 lecturers, instructors and others, a total of 403. Four years of collegiate work are required for admission. The B. S. degree in medicine is conferred at the end of the third or fourth year. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The fees average \$520. The registration for 1941-1942 was 359, graduates 93. The present session for upper classmen began June 15, 1942 and for freshmen July 13, 1942 and will end March 20, 1943. The subsequent session begins March 22, 1943. The Dean is Philip A. Shaffer, Ph. D.

## NEBRASKA

## Omaha

CREIGHTON UNIVERSITY SCHOOL OF MEDICINE 306 North Fourteenth Street—Organized in 1892 as the John A. Creighton Medical College. The first class graduated in 1893. Present title in 1921. Coeducational since organization. It has a faculty of 79 professors and 76 instructors, lecturers and assistants, a total of 151. Three years of collegiate work required for admission. The B. S. degree in medicine is conferred at the end of the second year. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The fees average \$376 per academic year and \$100 additional each year for students who have not taken the major part of their work at Creighton University. The registration for 1941-1942 was 224, graduates 52. The present session began July 7, 1942 and will end March 15, 1943. The subsequent session will begin March 15, 1943. The Dean is Charles M. Wilhelm, M. D.

UNIVERSITY OF NEBRASKA COLLEGE OF MEDICINE, Forty Second Street and Dewey Avenue—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. In 1902 it affiliated with the University of Nebraska, with the present title. The instruction of the first two years was given at Lincoln and of the last two at Omaha until 1913 when the work of all four years was transferred to Omaha. Coeducational since 1882. The faculty is composed of 78 professors and 54 lecturers and instructors, a total of 132. Three years of collegiate work are required for admission. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The B. S. degree in medicine is conferred at the end of the second year. The fees average \$215 per academic year. The registration for 1941-1942 was 321, graduates, 69. The present session began June 15, 1942 and will end March 15, 1943. The subsequent session will begin March 26, 1943. The Dean is C. W. M. Poynter, M. D.

## NEW YORK

## Albany

ALBANY MEDICAL COLLEGE, 47 New Scotland Avenue—Organized in 1838. The first class graduated in 1839. It became the Medical Department of Union University in 1873. In 1915 Union University assumed educational control. Coeducational since 1915. The faculty is composed of 86 professors and 109 instructors, assistants and others, a total of 195. A collegiate degree is required for admission, however, students who have completed three years of college work and who have proper specific qualifications will be admitted. This change in the requirements for admission has been instituted for the duration of the present national emergency. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The fees average \$531 per academic year. The registration for 1941-1942 was 150 graduates, 33. The present session began July 6, 1942 and will end March 27, 1943. The subsequent session will begin March 29, 1943. The Dean is R. S. Cunningham, M. D.

## Brooklyn

LONG ISLAND COLLEGE OF MEDICINE 350 Henry Street. Chartered in 1930, was originally organized in 1858 as The Long Island College Hospital. From the collegiate department the first class was graduated in 1860 and the last class in 1930. The first class of the Long Island College of Medicine was graduated in 1931. It is coeducational. It has a faculty of 122 professors, associate, assistant, clinical and assistant

clinical professors, and 206 lecturers, associates, instructors, assistants, and others, a total of 328. Three years of collegiate work, including specified courses are required for admission. The medical course covers four academic years but is being given in three calendar years for the duration of the war. The fees average \$610 per academic year. The registration for 1941-1942 was 385, graduates, 90. The present session began July 6, 1942 and will end March 30, 1943. The subsequent session begins March 29, 1943. The President and Dean is Jean Alonzo Curran, M. D.

## Buffalo

UNIVERSITY OF BUFFALO SCHOOL OF MEDICINE 24 High Street—Organized in 1846. The first class graduated in 1847. It absorbed the Medical Department of Niagara University in 1898. Coeducational since organization. The faculty is composed of 90 professors and 190 associates, assistants and others, a total of 280. The minimum requirement for admission is two years of collegiate work including certain prescribed science courses. An accelerated program has been adopted admitting a freshman class in July of each year. Seniors will graduate approximately every nine months. The fees for the entire course are \$2000. The registration for 1941-1942 was 275, graduates, 61. The present session began July 6, 1942 and will end March 1943. The subsequent session for freshmen begins July 5, 1943. The Dean is Edward W. Koch, M. D.

## New York

COLUMBIA UNIVERSITY COLLEGE OF PHYSICIANS AND SURGEONS, 630 West One Hundred and Sixty Eighth Street—The medical faculty of Columbia College then known as King's College, was organized in 1767. Instruction was interrupted by the War of the Revolution. The faculty was reestablished in 1792 and merged in 1814 with the College of Physicians and Surgeons which had received an independent charter in 1807. In 1860 the College of Physicians and Surgeons became the Medical Department of Columbia College. This merger became permanent by legislative enactment in 1891. Columbia College became Columbia University in 1896. The medical school has been coeducational since 1917. The faculty is composed of 297 professors and 583 instructors, demonstrators and others, a total of 880. Three years of collegiate work are required for admission. During the war, the school will remain in session throughout the year and entering classes will be enrolled at intervals of approximately nine months. Fees average \$538 per academic year. The registration for 1941-1942 was 428, graduates 95. The present session began July 7, 1942 and will end March 13, 1943. The subsequent session begins March 22, 1943. The Dean is Willard C. Rippley, M. D.

NEW YORK MEDICAL COLLEGE, FLOWER AND FIFTH AVENUE HOSPITALS, 1 East 105th Street—Organized in 1858. Incorporated in 1860 as the Homeopathic Medical College of the State of New York. The title New York Homeopathic Medical College was assumed in 1869, the title New York Homeopathic Medical College and Hospital in 1887, the title New York Homeopathic Medical College and Flower Hospital in 1908, the title New York Medical College and Flower Hospital in 1936, the present title of New York Medical College, Flower and Fifth Avenue Hospitals, June 22, 1938. The first class graduated in 1861. Coeducational since 1919. A baccalaureate degree or its equivalent required for admission. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. It has a faculty of 64 professors and associate professors, 47 assistant professors, 285 lecturers and assistants, a total of 396. The fees average \$663 per academic year. The registration for 1941-1942 was 328, graduates 77. The present session began July 1, 1942, and will end March 20, 1943. The subsequent session begins April 12, 1943. The Dean is J. A. W. Hetrick, M. D.

NEW YORK UNIVERSITY COLLEGE OF MEDICINE 477 First Avenue—The Medical Department of New York University (then called the University of the City of New York) was organized in 1841. In 1898 it united with the Bellevue Hospital Medical College organized in 1861, under the name of University and Bellevue Hospital Medical College. In 1935 the name was changed to New York University College of Medicine. Coeducational since 1919. The faculty is composed of 176 professors, associate, assistant, clinical and assistant clinical professors and 351 lecturers, instructors and others, a total of 527. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. Entrance requirements are three full years of study in an approved college of arts and sciences. The fees average \$600 per academic year. The registration for 1941-1942 was 506, graduates, 125. The present session began June 3, 1942 and will end in March 1943. The subsequent session begins April 1, 1943. The Dean is Currier McEwen, M. D.

CORNELL UNIVERSITY MEDICAL COLLEGE 1300 York Avenue—Organized in 1898. Coeducational since organization. The first year was formerly offered to approximately one third of the class at Ithaca but in 1938 this division was discontinued and all work is now given in New York City. The faculty is composed of 161 professors and 348 instructors, assistants and others, a total of 509. All students admitted are from approved colleges for premedical training. The accepted students are largely holders of a college degree, or those having three years of college work and candidates for a baccalaureate degree on successful completion of the first year in medicine. A limited number of acceptances will be made during the present emergency, however, of students who have the equivalent of three years of college but from institutions not offering the baccalaureate degree under the professional option plan. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The tuition for the academic year is \$600 and Student Hospitalization Insurance \$9. The additional fees are as follows: matriculation fee for first year students \$10, breakage deposit for first and second year students \$10 and a



graduation fee for seniors \$25. The registration for 1941-1942 was 311 graduates 75. The present session began July 5, 1942 and will end March 25, 1943. The subsequent session will begin April 5, 1943. The Dean is Joseph C. Himes, M.D.

### Rochester

UNIVERSITY OF ROCHESTER SCHOOL OF MEDICINE AND DENTISTRY 260 Crittenden Boulevard—Organized in 1925 as the Medical Department of the University of Rochester. Coeducational since organization. The faculty is composed of 64 professors, 20 lecturers, 2 assistants, instructors and others, a total of 284. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. Three years of collegiate work are required for admission. The fees average \$500 per academic year. The registration for 1941-1942 was 228 graduates 44. The present session began July 6, 1942 and will end March 20, 1943. The subsequent session begins March 29, 1943. The Dean is George Hoyt Whipple, M.D.

### Syracuse

SYRACUSE UNIVERSITY COLLEGE OF MEDICINE 776 Irving Avenue—Organized in 1872 when the Geneva Medical College chartered in 1834 was removed to Syracuse under the title. The College of Physicians and Surgeons of Syracuse University. Present title assumed in 1875 when a compulsory three-year graded course was established. The first class graduated in 1875 and a class graduated each subsequent year. In 1889 the affiliation with the university was made complete. Course extended to four years in 1896. Coeducational since organization. The faculty is composed of 51 professors and 184 associate and assistant professors, lecturers and instructors, a total of 235. Three years of a recommended college course are required for admission. An accelerated program has been adopted involving the completion of the four-year course in three years, admitting a freshman class annually. The fees average \$600 per academic year. The enrollment for 1941-1942 was 171 graduates 34. The present session began July 9, 1942 and will end March 1943. The subsequent session for freshmen will begin in July 1943. The Dean is H. G. Weikert, M.D.

## NORTH CAROLINA

### Durham

DUKE UNIVERSITY SCHOOL OF MEDICINE—Organized in 1925. The first class was admitted Oct. 1, 1930. Coeducational. The faculty is composed of 11 professors and 213 associate and assistant professors, lecturers, instructors and assistants, a total of 224. The entrance requirements are ninety hours of collegiate work. The academic year consists of four quarters of eleven weeks each, which must be taken consecutively with graduation in three calendar years. The B.S. degree in medicine may be conferred for special work after six quarters. Students are urged to spend three years in hospital or laboratory work after graduation and must give assurance satisfactory to the executive committee that they will spend at least two years. Active duty with the Army, Navy or Public Health Service can replace the second year. The fees are \$450 for each year of three quarters. The registration for 1941-1942 was 262 graduates 64. During 1942-1943 the quarters begin July 6, October 5, January 4, March 29 and end September 19, December 19, March 20 and June 12. The first year students will be enrolled March 29, 1943 and February 1, 1944. The Dean is Wilbur C. Davison, M.D.

## OHIO

### Cincinnati

UNIVERSITY OF CINCINNATI COLLEGE OF MEDICINE Eden and Bethesda Avenues—Organized in 1909 by the union of the Medical College of Ohio (founded in 1819) with the Miami Medical College (founded in 1852). The Medical College of Ohio became the Medical Department of the University of Cincinnati in 1896. Under a similar agreement March 2, 1909 the Miami Medical College also merged with the University when the title of Ohio-Miami Medical College of the University of Cincinnati was taken. Present title assumed in 1915. Coeducational since organization. Candidates for admission to the freshman class must present three years of college preparation of not less than ninety hours. Liberal Arts students of the University of Cincinnati may sign up for the seven-year combined Liberal Arts and Medical program. The B.S. degree is granted on the joint recommendation of the Faculties of the College of Liberal Arts and Medicine at the end of the first medical year. The faculty consists of 112 professors, associate and assistant professors, 350 instructors etc., a total of 462. During the period of the war emergency the college will operate on an accelerated program. A new class will be admitted every nine months. Each session will consist of thirty-two weeks of work and there will be a short recess between the major sessions. The present session began June 29, 1942 and will end February 26, 1943. The subsequent class will be admitted March 22, 1943. Tuition is as follows: For legal residents of Cincinnati \$485 a year plus breakage fees (\$50 additional for those not legal residents of Cincinnati). The registration for 1941-1942 was 307 graduates 77. The Dean is Stanley Dorst, M.D.

### Cleveland

WESTERN RESERVE UNIVERSITY SCHOOL OF MEDICINE 2109 Adelbert Road—Organized in 1843 as the Cleveland Medical College in cooperation with Western Reserve College. The first class graduated in 1844 (a celebration of the Centenary is planned for April 5 and 6, 1943). It assumed the present title in 1881. In 1910 the Cleveland College of Physicians and Surgeons was merged. Coeducational since 1919. The faculty includes 99 professors and 289 lecturers, assistants and others, a total of 388. The curriculum covers four scholastic years of 36

weeks each. During the war emergency these will be continuous so that the entire course will be completed in 144 weeks. Three years of collegiate work are required for admission and a baccalaureate degree for graduation. During the war the degree may be waived for outstanding students. The fees average \$529 per academic year. The registration for 1941-1942 was 293 graduates 60. The present session began June 22, 1942 and will end February 26, 1943. The subsequent session begins March 1, 1943. The Dean is Torald Sollmann, M.D.

## Columbus

OHIO STATE UNIVERSITY COLLEGE OF MEDICINE Neil and Eleventh Avenues—Organized in 1907 as the Starling Ohio Medical College by the union of Starling Medical College (organized in 1847 by charter granted by the State Legislature changing the name from Willoughby Medical College which was chartered March 3, 1834) with the Ohio Medical University (organized 1890). In 1914 it became an integral part of the Ohio State University with its present title. Coeducational since organization. The faculty consists of 86 professors, associate and assistant professors, 105 lecturers, instructors, demonstrators and others, a total of 191. Three years of collegiate work are required for admission. An accelerated program has been adopted involving the admittance and graduation of a class every nine months. Tuition fees average \$318 per academic year and \$150 additional for nonresidents. The registration for 1941-1942 was 304 graduates 79. The present session began June 21, 1942 and will end March 19, 1943. The subsequent session will begin March 30, 1943. The Acting Dean is Leslie L. Bigelow, M.D.

## OKLAHOMA

### Oklahoma City

UNIVERSITY OF OKLAHOMA SCHOOL OF MEDICINE 801 East Thirteenth Street—Organized in 1900. Until 1910 gave only the first two years of the medical course at Norman, Oklahoma, after which a clinical department was established at Oklahoma City by taking over the Medical School of Epworth University. The first class graduated in 1911. Coeducational since organization. A new medical school building and a second teaching hospital became available in 1928 and since September of that year the entire four-year course has been given in Oklahoma City. It has a faculty of 27 professors, 28 associate professors, 20 assistant professors and 122 associates, lecturers, visiting lecturers, instructors and assistants, a total of 197. Three years of college work are a prerequisite for admission. The course covers four years of nine months each. An accelerated program will be adopted beginning June 1, 1943. Fees \$50. Maintenance and Incidental Fee per semester. Other annual course fees average \$128, \$95, \$53 and \$38 in the order given, beginning with the freshman year. For students not residents of Oklahoma there is a tuition charge of \$350 a year plus laboratory and course fees as indicated for the different years. The registration for 1941-1942 was 235 graduates 33. The next session begins Sept. 14, 1942 and ends May 31, 1943. The Dean is Robert U. Patterson, M.D.

## OREGON

### Portland

UNIVERSITY OF OREGON MEDICAL SCHOOL Marquam Hill—Organized in 1887. The first class graduated in 1888 and a class graduated each subsequent year except 1898. The Willamette University Medical Department was merged in 1913. Coeducational since organization. It has a faculty of 91 professors and 164 lecturers, assistants and others, a total of 255. Entrance requirements are three years of collegiate work. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The total fees are respectively \$380, \$375, \$370 and \$376 for residents of Oregon and \$60 a year additional for nonresidents. The registration for 1941-1942 was 260 graduates 51. The present session began June 22, 1942 and will end March 20, 1943. The subsequent session will begin March 29, 1943. The Dean is Richard B. Dillehunt, M.D.

## PENNSYLVANIA

### Philadelphia

THE HAHNEMANN MEDICAL COLLEGE AND HOSPITAL OF PHILADELPHIA 235 North Fifteenth Street—Organized in 1848 as The Homeopathic Medical College of Pennsylvania. In 1869 it united with The Hahnemann Medical College of Philadelphia taking the latter title. Assumed present title in 1883. The first class graduated in 1849. Coeducational beginning with 1941-1942 session. Three years of collegiate work in an approved college of arts and sciences are required for admission. It has a faculty of 113 professors and 114 lecturers, instructors and others, a total of 227. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. Fees are respectively \$515, \$512, \$512 and \$533. The registration for 1941-1942 was 541 graduates 130. The present session began July 27, 1942 and will end March 20, 1943. The subsequent session will begin April 5, 1943. The Dean is William A. Pearson, M.D.

JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA 1025 Walnut Street—Organized in 1825 as the Medical Department of Jefferson College, Canonsburg, Pa. It was chartered with its present title in 1838. Classes have been graduated annually beginning 1826. In 1838 a separate university charter was granted without change of title since which time it has continued under the direction of its own board of trustees. It has a faculty of 83 professors, associate and assistant professors and 212 associates, lecturers, demonstrators and instructors, a total of 295. Four years of college work and a bachelor's degree are required for admission. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months.



The total fees for the current session are, respectively \$505, \$440, \$430 (Transfers, \$480), and \$430. The registration for 1941-1942 was 530, graduates, 131. The current session for freshmen and seniors extends from June 29, 1942 to the latter part of February 1943, for sophomores and juniors from August 28, 1942 to the latter part of April 1943. The subsequent session begins April 15, 1943. The Dean is William Harvey Perkins, M.D.

**TEMPLE UNIVERSITY SCHOOL OF MEDICINE**, 3400 North Broad Street—Organized in 1901. The first class graduated in 1901. Coeducational since organization. The faculty numbers 14 professors and 247 associates, assistants and others, a total of 251. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. Three years of collegiate work are required for admission. The fees average \$492 per academic year. The registration for 1941-1942 was 447, graduates 117. The present session for upper classes began July 1, 1942 and will end March 15, 1943. Freshmen enrolled Aug. 1, 1942. The subsequent session begins April 1, 1943. The Dean is William N. Parkinson, M.D.

**UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE**, Thirty Sixth and Pine Streets—Organized in 1765. Classes were graduated in 1768 and in all subsequent years except 1772 and 1775-1779 inclusive. The original title was the Department of Medicine College of Philadelphia. The present title was adopted in 1909. It granted the first medical diploma issued in America. In 1916 it took over the Medical-Chirurgical College of Philadelphia to develop it as a graduate school. Coeducational since 1914. The faculty consists of 115 professors, associate and assistant professors and 434 lecturers, associates, instructors and others, a total of 549. Three years of collegiate work are required for admission. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The tuition fee is \$500 each year, with a deposit fee of \$15, a general fee including student health of \$15 and a matriculation fee of \$5. The registration for 1941-1942 was 496, graduates 129. The present session began July 27, 1942, and will end March 27, 1943. The subsequent session begins April 5, 1943. The Dean is William Pepper, M.D.

**WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA**, Henry Avenue and Abbottsford Road, East Hills—Organized in 1950. Classes were graduated in 1952 and in all subsequent years except 1962. It has a faculty of 75 professors and 65 assistants, lecturers and others, a total of 140. At least three years of collegiate work are required for admission and candidates with a degree are given preference. The curriculum covers four years of eight and one-half months each. Total fees are \$450 yearly. The registration for 1941-1942 was 114, graduates, 18. The present session for senior students began July 1, 1942 and will end March 1, 1943. For all other classes the next session will begin Sept. 1, 1942 and end May 28, 1943. The Dean is Margaret D. Craghill, M.D.

### Pittsburgh

**UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE**, Bigelow Boulevard—Organized in 1886, as the Western Pennsylvania Medical College and in 1908 became an integral part of the University of Pittsburgh removing to the university campus in 1910. The first class graduated in 1887. Coeducational since 1899. The faculty is composed of 30 professors and 370 associates, assistants and others, a total of 400. Entrance requirements are two years of collegiate work. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. The total fees are \$500 each year. The registration for 1941-1942 was 315, graduates, 73. The present session began July 6, 1942 and will end about March 20, 1943. The subsequent session will begin April 5, 1943. The Dean is W. S. McElroy, M.D.

## SOUTH CAROLINA

### Charleston

**MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA**, 16 Lucas Street—Organized in 1823 as the Medical College of South Carolina. The first class graduated in 1825. In 1832 a medical college bearing the present title was chartered and the two schools continued as separate institutions until they were merged in 1838. Classes were graduated in all years except 1862 to 1865, inclusive. In 1913 by legislative enactment, it became a state institution. Coeducational from 1895 to 1912, when privileges for women were withdrawn, being restored in 1917. It has a faculty of 46 professors and 48 associates, instructors and others, a total of 94. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. Three years of collegiate work are required for admission. The total fees are \$272 each year. Fees for nonresidents of the state, \$422 each year. The registration for 1941-1942 was 183, graduates, 43. The present session began June 25, 1942 and will end March 20, 1943. The subsequent class will begin March 28, 1943. The Dean is Robert Wilson, M.D.

## TENNESSEE

### Memphis

**UNIVERSITY OF TENNESSEE COLLEGE OF MEDICINE**, 874 Union Avenue—Organized in 1876 at Nashville as Nashville Medical College. First class graduated 1877, and a class graduated each subsequent year. Became Medical Department of University of Tennessee in 1879. In 1909 it united with the Medical Department of the University of Nashville to form the joint Medical Department of the Universities of Nashville and Tennessee. This union was dissolved in 1911. The trustees of the University of Nashville by formal action of that board named the University of Tennessee College of Medicine as its legal successor. In 1911 it moved to Memphis, where it united with the College of

Physicians and Surgeons. The Memphis Hospital Medical College was merged in 1913. Lincoln Memorial University Medical Department was merged in 1914. Coeducational since 1911. The faculty includes 115 professors and 138 assistants, instructors and others, a total of 253. Two years of collegiate work are required for admission. The B.S. degree in medicine is conferred at the end of the second year. The fees are \$120 quarterly. For residents of the state the charge is reduced \$50 each quarter. The registration for 1941-1942 was 470, graduates, 98. During the academic year of 1942-1943 the quarters begin July 7, Sept. 24, Jan. 1 and March 22, and end Sept. 23, Dec. 12, March 20 and June 9. The Dean is O. W. Hymann, Ph.D.

### Nashville

**McHARRIS MEDICAL COLLEGE**, Lighteenth Avenue North and Heffernan Street (1st Negro Youth)—This school was organized in 1876 as the McHerry Medical Department of Central Tennessee College, which became Walden University in 1900. First class graduated in 1877. Obtained new charter independent of Walden University in 1915. Coeducational since 1876. The faculty is made up of 49 professors and 30 instructors and lecturers, a total of 79. Three years' work in a college of liberal arts is required for admission. Tuition fees are respectively, \$300, \$290, \$280 and \$295 each year. The curriculum covers four academic years of thirty-four weeks each. Registration for 1941-1942 was 231, graduates 50. The next session begins September 28, 1942 and ends June 6, 1943. Beginning September, 1942, McHerry Medical College will institute the quarter system, beginning next school year, 1943-1944 (July). McHerry will institute an accelerated schedule. The Dean is Michael J. Bent, M.D., the President is Edward L. Turner, M.D.

**VANDERBILT UNIVERSITY SCHOOL OF MEDICINE**, Twenty First Avenue South at Hildehall—This school was founded in 1874. The first class graduated in 1875. Coeducational since 1925. The faculty numbers 251. For matriculation students must be graduates of collegiate institutions of recognized standing or seniors in absentia who will receive the bachelor degree from their college after having completed successfully one year of work in the school of medicine. The course covers four academic years of nearly nine months each, but due to the accelerated program the four year course is now completed in three calendar years. The fees average \$466 per academic year. The registration for 1941-1942 was 202, graduates 51. The present session began June 10, 1942 and will end March 22, 1943, the following session begins March 24, 1943. The Dean is Waller S. Leathers, M.D.

## TEXAS

### Dallas

**BAYLOR UNIVERSITY COLLEGE OF MEDICINE**, 810 College Avenue—Organized in 1900 as the University of Dallas Medical Department. In 1903 it took its present name and became the Medical Department of Baylor University. It acquired the charter of Dallas Medical College in 1904. Coeducational since organization. The first class graduated in 1901. The faculty consists of 117 professors and 115 instructors and assistants, a total of 232. Entrance requirements are three years of collegiate work. The course covers four years of eight months each. The fees are, respectively, \$423, \$413, \$403, \$428. The registration for 1941-1942 was 321 graduates, 75. The next session begins Sept. 28, 1942, and ends May 31, 1943. The Dean is W. H. Moursund, M.D.

### Galveston

**UNIVERSITY OF TEXAS MEDICAL BRANCH**, 912 Avenue B—Organized in 1891. The first class graduated in 1892. Coeducational since organization. It has a faculty of 40 professors and 107 instructors and assistants, a total of 147. The medical branch has been operating on an accelerated basis on a four quarter system since June 16, 1941. Each quarter consists of eleven weeks. The fees average \$70 per academic year. The registration for 1941-1942 was 384, graduates, 99. The present freshman class entered on June 22, 1942. The next senior class will complete its work in December 1942. The subsequent entering class will enroll in March 1943. The Dean is John W. Spies, M.D.

## VERMONT

### Burlington

**UNIVERSITY OF VERMONT COLLEGE OF MEDICINE**, Pearl Street, College Park—Organized with complete course in 1822. Classes graduated in 1823 to 1836 inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. Coeducational since 1920. It has a faculty of 61 professors and 51 instructors, and assistants, a total of 112. Three years of collegiate work are required for admission. An accelerated program has been adopted involving the admittance and graduation of a class every nine months. For residents of Vermont the tuition fee is \$400 each session. Nonresidents are charged an additional \$150 each session. A \$25 fee is charged for the doctor's degree. The registration for 1941-1942 was 127, graduates, 31. The present session began July 6, 1942 and will end March 29, 1943. The subsequent session begins April 5, 1943. The Dean is Clarence H. Beecher, M.D.

## VIRGINIA

### Charlottesville

**UNIVERSITY OF VIRGINIA DEPARTMENT OF MEDICINE**—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865. Coeducational since the session of 1920-1921. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. It has a faculty of 47 professors and 47 lecturers, instructors, assistants and others, a total of 94. Three years of college work are required for admission. For residents

of Virginia the total fees average \$88 per academic year. Nonresidents are charged an additional \$50 each year. The registration for 1941-1942 was 249 graduates (2). The present session began June 29, 1942 and will end March 12, 1943. The subsequent session will begin March 20, 1943. The Dean is Harvey Ernest Jordan, M.D.

### Richmond

**MEDICAL COLLEGE OF VIRGINIA** Twelfth and Marshall Streets—Organized in 1838 as the Medical Department of Hampden-Sydney College. Present title was taken in 1854. In 1913 the University College of Medicine was merged. In 1914 the North Carolina Medical College was merged. Coeducational since 1918. Classes were graduated in 1839 and in all subsequent years. It has a faculty of 92 professors and 153 lecturer-instructors and others, a total of 245. Three years of collegiate work are required for admission. An accelerated program has been adopted involving the admittance and graduation of a class approximately every nine months. Fees average \$379 per academic year. Nonresidents are charged an additional \$125 each year. The registration for 1941-1942 was 0; graduates 64. The present session began July 6, 1942 and will end March 20, 1943. The subsequent session will begin April 5, 1943. The Dean is Jacques P. Gray, M.D.

## WISCONSIN

### Madison

**UNIVERSITY OF WISCONSIN MEDICAL SCHOOL**, 418 North Randall Avenue—Organized in 1907. Gave only the first two years of the medical course until 1925 when the clinical year was added. Coeducational since organization. Three years of collegiate work are required for admission. The B.S. degree in medical science is conferred at the end of the first year. An accelerated program has been adopted involving the admittance of a class once a year and a graduating class every nine months. It has a faculty of 64 professors and 67 lecturers-instructors and others, a total of 131. The fees average \$206 per academic year. An additional fee of \$200 each year is charged nonresidents. The registration for 1941-1942 was 257 graduates, 45. The present session began July 1, 1942 and will end March 2, 1943. The subsequent session for freshmen will begin July 1, 1943. The Acting Dean is Walter L. Meek, M.D.

### Milwaukee

**MARQUETTE UNIVERSITY SCHOOL OF MEDICINE**, 561 North Fifteenth Street—Organized in December 1912 by the merger of the Milwaukee Medical College and the Wisconsin College of Physicians and Surgeons. Coeducational since organization. It has a faculty of 191. Three years of collegiate work are required for admission. The curriculum covers the equivalent of four years of eight and a half months each and a one-year internship in an approved hospital. During the duration of the war the accelerated program will cover three semesters each calendar year. The fees average \$452 per academic year. The registration for 1941-1942 was 332 graduates, 70. The present session began July 6th, 1942 and will end February 25, 1943. The subsequent session begins March 1, 1943. The Dean is Eben J. Carey, M.D.

## CANADA

### Alberta

**UNIVERSITY OF ALBERTA FACULTY OF MEDICINE** Edmonton—Organized in 1913. Coeducational since organization. Has given the complete six-year medical course since 1924. New course—three years premedical, four years medicine, 1 year internship for medical degree commences 1942-43. The Faculty includes 23 full-time and 45 part-time professors, instructor, assistants and others, a total of 68. Tuition for the second, third and fourth years is \$225; for the fifth and sixth years \$235. The registration for 1941-1942 was 194 graduates, 47. The present session (accelerated) began June 1, 1942 and will end January 4, 1943. All medical classes are being accelerated. The following session opens February 1, 1943. The Acting Dean is John James Ower, M.D.

### Manitoba

**UNIVERSITY OF MANITOBA FACULTY OF MEDICINE** Bannatyne Avenue, Winnipeg—Organized in 1883 as Manitoba Medical College, first class graduated in 1886 and a class graduated each subsequent year. The college transferred all its property to the University of Manitoba in 1919 and assumed the present title. Coeducational since organization. The faculty includes 26 professors and 80 instructors and assistants, a total of 106. Matriculation requirements include two years of collegiate work in the faculty of arts and science of a recognized university. An accelerated program has been adopted. The course extends over four years of eight months each and a hospital internship. The fees average \$254 yearly. The registration for 1941-1942 was 223 graduates, 54. The present session began for 1st year, Aug. 1, 2nd year, July 27, 3rd and 4th years, July 20 and will end March 20, March 31, April 5 and March 31, 1943. The Dean is A. T. Mathers, M.D.

### Nova Scotia

**DALHOUSIE UNIVERSITY FACULTY OF MEDICINE** Morris Street, Halifax—Organized in 1867. Incorporated as the Halifax Medical College in 1875. Reorganized as an examining faculty separate from the Halifax Medical College in 1885. In 1911 in accordance with an agreement between the Governors of Dalhousie University and the Corporation of the Halifax Medical College the work of the latter institution was discontinued and a full teaching faculty was established by the university. First class graduated in 1872. Coeducational since 1871. It has a faculty of 39 professors and 38 demonstrators, lecturers and others, a total of 77 of whom are in active service and are on leave for the duration

requires for matriculation two years of arts. The regular medical course covers four years and a hospital internship of one year. In order to meet the needs of the Canadian Armed Forces the classes in the first three years have been accelerated. The content of the third and fourth years remains the same but holidays have been practically eliminated. The final year internship has for the time being been reduced to eight months. The third and fourth years began their studies on May 14th and continue until the end of December. The first and second years will begin on September 8, 1942 and end on May 11, 1943. The fees average \$314 yearly. \$250 additional registration fee payable by students outside the British Empire. The registration for 1941-1942 was 164, graduates 42. The Dean is H. G. Grant, M.D.

## Ontario

**QUEEN'S UNIVERSITY FACULTY OF MEDICINE** Kingston—Organized 1854, first class graduated in 1855 and a class graduated each subsequent year. The faculty numbers 65. The fees average \$232 yearly. The course covers six years of thirty teaching weeks each. An accelerated program has been adopted and the course may now be completed in four and one-half years. Freshmen will be admitted annually. The registration for 1941-1942 was 266 graduates, 41. The next session begins for 3rd, 4th, 5th and 6th year students on June 1, 1942, for 2nd year students on August 24, 1942 and for 1st year students on September 22, 1942. The next class will graduate Dec. 31, 1942. The Dean is Frederick Etherington, M.D.

**UNIVERSITY OF TORONTO FACULTY OF MEDICINE** Toronto—Organized in 1843 as the Medical Faculty of King's College. Abolished in 1853. Reestablished in 1887. In 1902 it absorbed Victoria University Medical Department and in 1903 it absorbed the Medical Faculty of Trinity University. Coeducational since 1903. The B.Sc. (Med.) degree is conferred at the end of the third or sixth year. It has a faculty of 77 professors and 348 lecturers, associates and others, a total of 425. The fees are \$240 for the first year, for the second \$315, \$315 for the third year, \$340 for the fourth and fifth years and \$348 for the sixth year. The registration for 1941-1942 was 804 graduates, 116. An accelerated program has been adopted and the duration of the academic session has been increased to ten months extending from August 24, 1942 to June 26, 1943. The final year class will graduate Dec. 31, 1942 and every eight months thereafter. The Dean is W. E. Gallie, M.D.

**UNIVERSITY OF WESTERN ONTARIO MEDICAL SCHOOL** Ottawa Avenue, London—Organized in 1881 as the Western University Faculty of Medicine, first class graduated in 1883 and a class graduated each subsequent year. Present title in 1923. The medical school has been under the control of the Board of Governors of the University of Western Ontario since 1913. Coeducational since 1913. The faculty numbers 95. The normal course of study covers six years of eight months each. The total fees to residents of Canada for the last four years respectively are \$352, \$348, \$356 and \$228. Nonresidents are charged \$642, \$638, \$646 and \$391 for each of the last four years. The registration for 1941-1942 was 224 graduates, 36. Owing to war conditions, the next session begins for the sixth year August 24, 1942 and ends December 31, 1942. Classes for the second, third, fourth and fifth years begin August 24, 1942 and end for the second year June 19, 1943 for the third year May 29, 1943 for the fourth and fifth years February 6, 1943. The Dean is F. J. H. Campbell, M.D.

## Quebec

**LAVAL UNIVERSITY FACULTY OF MEDICINE** Quebec—The Quebec School of Medicine organized in 1848 became in 1852 the Laval University Faculty of Medicine, first class graduated in 1855 and a class graduated each subsequent year. An accelerated program has been adopted. The faculty numbers 91. The fees for each of the medical years are \$175 for residents of Canada. Nonresidents are charged an extra fee of \$175 each year. The premedical requirement is a B.A. degree or its equivalent. The registration for 1941-1942 was 324, graduates, 65. The present session for the 2d, 3d, 4th and 5th years began July 15, 1942. The next class will graduate Jan. 31, 1943. Freshmen will enrol Sept. 1, 1942. The Dean is Charles Vézina, M.D.

**MCGILL UNIVERSITY FACULTY OF MEDICINE** 3640 University Street, Montreal—Founded in 1823 as Montreal Medical Institution, became the Medical Faculty of McGill University in 1829, first class graduated under the university auspices in 1833. No session between 1836-1839 owing to political troubles. In 1905 it absorbed the Faculty of Medicine of the University of Bishop's College. Coeducational since 1919. Three years of collegiate work are required for admission. An acceleration program has been adopted for the upper classes. The faculty consists of 61 professors and 199 lecturers and others, a total of 260. The total fee for each of the four medical years are \$391 plus \$100 for non-British subjects. The registration for 1941-1942 was 397 graduates, 90. The present session for sophomores, juniors and seniors began June 15, 1942. Freshmen will enrol Sept. 9, 1942. The next class will graduate January 31, 1943. The Dean is J. C. Meakins, M.D.

**UNIVERSITY OF MONTREAL FACULTY OF MEDICINE** 1265 St. Denis Street, Montreal—Organized in 1843 as the Montreal School of Medicine and Surgery. In 1891 by Act of Parliament the Medical Faculty of Laval University (organized in 1878) was absorbed. Present name by Act of Parliament in 1920. A class was graduated in 1843 and each subsequent year. Coeducational since 1925. The faculty numbers 150. The B.A. or B.S. degree or its equivalent is the premedical requirement. An accelerated program has been adopted. An internship is required for graduation. The fees average \$239 yearly. The registration for 1941-1942 was 209 graduates, 48. The present session for juniors and seniors began June 1, 1942 and will end March 31, 1943. Freshmen and sophomores will enrol Sept. 1, 1942 and will complete the year April 17, 1943. The Dean is Albert LeSage, M.D.

## DESCRIPTION OF SCHOOLS OF THE BASIC MEDICAL SCIENCES

## ALABAMA

## University (Tuscaloosa)

UNIVERSITY OF ALABAMA SCHOOL OF MEDICINE—Organized in 1859 at Mobile as the Medical College of Alabama. Classes graduated in 1861 and subsequent years excepting 1862 to 1869 inclusive. Reorganized in 1897 as the medical department of the University of Alabama. Present title assumed in 1907 when all property was transferred to the University of Alabama. In 1920 clinical teaching was suspended and the medical school was removed to the university campus near Tuscaloosa. Coeducational since 1920. Minimum entrance requirements are three years of collegiate work. An accelerated program has been adopted and a new freshman class will be admitted approximately every nine months. The faculty includes 15 professors and 14 instructors, assistants and others a total of 29. The tuition fees are \$301 each academic year plus \$75 differential for nonresidents. The registration for 1941-1942 was 98. The present session began June 6, 1942 and will end February 5, 1943. The subsequent session will begin March 11, 1943. The Dean is Stuart Graves, M.D.

## MISSISSIPPI

## University

UNIVERSITY OF MISSISSIPPI SCHOOL OF MEDICINE—Organized in 1903. Coeducational since organization. A clinical department was established at Vicksburg in 1908 but was discontinued in 1910 after graduating one class. An accelerated program has been adopted and a new freshman class is admitted each nine months. Entrance requirement is three years of collegiate work or ninety semester hours of credit. The B.S. degree in medicine is conferred at the end of the second year. The faculty includes 9 professors, 2 assistant professors, 1 adjunct professor, 17 instructors, assistants and others a total of 29. The total fees of the first year are \$375, and for the second year \$349. The registration for 1941-1942 was 55. The present session began June 1, 1942 and will end January 30, 1943. The subsequent session begins February 1, 1943. The Dean is B. S. Guyton, M.D.

## MISSOURI

## Columbia

UNIVERSITY OF MISSOURI SCHOOL OF MEDICINE—Organized at St. Louis in 1845, was discontinued in 1855 but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909. Coeducational since 1922. An accelerated program has been adopted involving the admittance of a class every nine months. The faculty includes 20 professors and 15 instructors, lecturers and others a total of 35. The entrance requirements are 90 semester hours of collegiate work. The B.S. degree in medicine is conferred at the end of the second year. Total fees for the first year are \$225, for the second \$215. The registration for 1941-1942 was 71. The current session began June 15, 1942 and will end March 18, 1943. The subsequent session will begin March 22, 1943. The Dean is Dudley S. Conley, M.D.

## NEW HAMPSHIRE

## Hanover

DARTMOUTH MEDICAL SCHOOL—Organized by Dr. Nathan Smith in 1797. The first class graduated in 1798. It is under the control of the trustees of Dartmouth College. Courses of the third and fourth year were discontinued in 1914. The faculty consists of 21 professors and 13 instructors, a total of 34. Three years of collegiate work are required for admission. An accelerated program has been adopted admitting a freshman class approximately every nine months or eight months of actual teaching. Candidates for the A.B. degree in Dartmouth College may substitute the work of the first year in medicine for that of the senior year in the academic department. The tuition is \$450 for each year. The registration for 1941-1942 was 46. The present session began May 25, 1942 and will end Feb. 13, 1943. The subsequent session begins February 14, 1943. The Dean is John P. Bowler, M.D.

## NORTH CAROLINA

## Chapel Hill

UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE—Organized in 1890. Until 1902 this school gave only the work of the first two years when the course was extended to four years by the establishment of a department in Raleigh. The first class graduated in 1903. A class was graduated each subsequent year, including 1910, when the clinical department at Raleigh was discontinued. Coeducational since 1914. A minimum of three years of college work is required for admission. Certificates are awarded on the completion of two years' work in medicine. The faculty is composed of 20 professors and 13 instructors, a total of 33. The fees for each year are \$300 for residents, for nonresidents an additional fee of \$100. The registration for 1941-1942 was 86. The school has gone on the accelerated schedule for the duration of the war. The 1942 session began June 15, and new sessions will begin approximately every nine months. The 1943 session will begin March 15, 1943. The Dean is W. Reece Berryhill, M.D.

## Winston-Salem

BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST COLLEGE, WINSTON SALEM, N. C.—Organized in 1902 by Wake Forest College. Prior to 1941 it was located on the campus of Wake Forest College where it was known as the Wake Forest College School of Medical Sciences

offering only the first two years. During the next session, instruction will be offered to freshmen, sophomores and juniors. Instruction covering the complete four years will follow one session later. Ninety semester hours of college work are required for admission. The B.S. degree is given after the completion of the first year to those not already holding that degree. An accelerated program has been adopted involving the admittance of a freshman class approximately every nine months. The faculty numbers 55 full-time professors, assistant professors and instructors, and 58 part-time clinical professors, assistant professors, instructors and assistants making a total of 113. Tuition for each academic year is \$450. Registration for the year 1941-1942 was 73. The present session began June 29, 1942 and will end March 18, 1943. The subsequent sessions begin March 23, 1943. The Dean is C. C. Carpenter, M.D.

## NORTH DAKOTA

## Grand Forks

UNIVERSITY OF NORTH DAKOTA SCHOOL OF MEDICINE—Organized in 1905. Offers only the first two years of the medical course. Coeducational since organization. Three years' work in a college of liberal arts is required for admission. The B.S. degree in combined arts-medical course is conferred at the end of the second year. The faculty consists of 7 professors and 8 instructors, a total of 15. The fees are \$113, each year for resident students and \$198 for nonresidents. The registration for 1941-1942 was 53. The next session begins Sept. 28, 1942 and ends May 24, 1943. The Dean is H. E. French, M.D.

## SOUTH DAKOTA

## Vermillion

UNIVERSITY OF SOUTH DAKOTA SCHOOL OF MEDICAL SCIENCES—Organized in 1907 as the University of South Dakota School of Medicine. Present title in 1937. Coeducational since organization. Offers only the first two years of the medical course. Three years' work in a college of liberal arts is required for admission. Students who complete the third year of premedical work in the College of Arts and Sciences at the University of South Dakota may apply the work of the first year of medicine to the A.B. degree. The B.S. degree is conferred at the end of the second year on those students who do not hold a combination (Arts and Sciences and Medicine Course) A.B. degree. The faculty numbers 18. An accelerated program has been adopted involving the admittance of a class approximately every nine months. The tuition is \$150 each year for residents and \$250 for nonresidents. The registration for 1941-1942 was 40. The present session began June 15, 1942 and will end Feb. 27, 1943. The subsequent session will begin March 8, 1943. The Dean is Joseph C. Ohlmecher, M.D.

## UTAH

## Salt Lake City

UNIVERSITY OF UTAH SCHOOL OF MEDICINE, University Street—Organized in 1906. Coeducational since organization. Gives only first two years of medical course. An accelerated program has been adopted involving the admittance of a class every nine months. Three years of collegiate work are required for admission. The medical faculty consists of 11 professors, 1 instructor, 21 lecturers and demonstrators and 5 fellows, assistants, and technicians a total of 38. The fees for each year are \$229. There is a nonresident fee of \$75 each year. The registration for 1941-1942 was 66. The present session began June 29, 1942 and ends March 20, 1943. The subsequent session begins March 20, 1943. The Acting Dean is C. B. Freudenberger, M.D.

## WEST VIRGINIA

## Morgantown

WEST VIRGINIA UNIVERSITY SCHOOL OF MEDICINE—Organized in 1902, gives the first two years of the medical course. Coeducational since organization. Three years of collegiate work are required for admission. The B.S. degree in medicine is conferred at the end of the second year. An accelerated program has been adopted involving the admittance of a class every nine months. Faculty numbers 24. Fees for residents of the state are, respectively, \$255 and \$265, nonresidents, \$150 additional each year. The registration for 1941-1942 was 51. The present session began June 1 and will end March 17, 1943. The subsequent session begins March 22, 1943. The Dean is Edward J. Van Liere, M.D.

## CANADA

## Saskatchewan

UNIVERSITY OF SASKATCHEWAN SCHOOL OF MEDICAL SCIENCES, Saskatoon—Organized in 1926. Coeducational. Offers the first two years of the medical course. An accelerated program has been adopted. Two years of collegiate work are required for admission. The B.A. degree is conferred at the end of the second year. The medical faculty includes 7 professors and 4 lecturers and assistants a total of 11. The fees are \$150 for each year. The registration for 1941-1942 was 48. The next session begins September 21, 1942 for the first year and ends May 15, 1943. The second year begins June 1, 1942 and ends December 19, 1942. The Dean is W. S. Lindsay, M.B.

## INTERNSHIPS, RESIDENCIES AND FELLOWSHIPS

(See List Pages 1311-1344)

The 732 hospitals approved for intern training in February 1942 offered a total of 7,228 internship appointments annually. These in relation to the number of medical graduates—5,275 in 1941—would indicate a shortage of nearly 2,000 interns but actually in view of the availability of second year men the approved hospitals had only 927 unfilled positions at the time of reporting. The number of vacancies has since increased however because of the curtailment of many of the advanced training courses and the appointment of additional interns in some hospitals to compensate for the lack of residents. In this connection it would seem particularly essential that all hospitals cooperate in maintaining an equitable distribution of interns by limiting their appointments to actual minimum needs. As a general rule the ratio of house officers to patients should not exceed one intern to six hundred annual admissions.

## INCREASED PRODUCTION OF INTERNS

The present shortage of interns has a compensatory factor in the accelerated program of undergraduate training now adopted by most of the approved medical schools. Thus within three years there will be four graduating classes available totaling 21,029 students as indicated previously in the section on undergraduate education. The first impact of this program will be felt in March 1943 when approximately 4,180 graduates will be ready to begin their intern service three months ahead of the usual date. Since the previous group will not have completed its service until July, there will be an overlapping of assignments for three months unless the older interns can be advanced to senior positions or be assigned to affiliate services in other hospitals that are short of house officers. If the affiliate plan is adopted the original hospital should maintain supervision and be responsible for the entire educational period, otherwise it would not be in position to offer an internship certificate covering the last three months of training.

## CHANGES IN INTERNSHIPS

The Council on Medical Education and Hospitals and the Association of American Medical Colleges have both recommended that internships should not be reduced below twelve months. The essential character of the intern service has likewise been recognized by the Army, Navy and Selective Service, which have made provisions whereby medical students may be deferred from active military duty until they have completed a year of hospital training. The individual hospitals, however, are confronted with the problem of integrating the one year internship with the accelerated medical curriculum under which a new class graduates every nine months. That intern services are rapidly being modified to coincide with the change in graduation dates is apparent from reports received in July 1942 indicating that 544 hospitals have recently readjusted their appointment schedule. At the same time there has been a reduction in the number of long term assignments, as evidenced by the fact that 711 hospitals are now offering one year internships as compared with 608 last February. Five have scheduled an eighteen months service, 9 a two year internship, and 14 a combination of assignments varying from twelve

to twenty-four months. The corresponding figures at the beginning of the year were 17, 71 and 36. Of the hospitals currently approved 687 offer a rotating service, 12 have mixed internships and 19 provide straight assignments, while 21 have more than one type. Previous reports were 660, 27, 18 and 27 respectively. The list of approved internships published in this issue contains in addition to the clinical data up to date information concerning the number of interns required annually, type of internship, length of service, date of appointment, beginning of service and monthly stipend. The approved hospitals now total 739, the approved internships 8,349.

## NECROPSY PERFORMANCE

The necropsy rate has long been considered an index of the scientific attitude of the medical staff and the progressiveness of the hospital's educational service. It is of interest to note, therefore, that in 1941 the hospitals approved for intern training reported 211,935 deaths and 82,587 necropsies an average ratio of 38.97 per cent. Of 727 hospitals reporting, 42 attained

## Highest Necropsy Rates in Approved Internship Hospitals—1941

|   | Control          | Per centage |
|---|------------------|-------------|
| 1 U. S. Naval Hospital Great Lakes Ill                    | Navy             | 110         |
| 2 William Beaumont General Hospital El Paso Texas         | Army             | 95.3        |
| 3 Station Hospital (Fort Sam Houston) San Antonio         | Army             | 92.8        |
| 4 Research and Educational Hospitals Chicago              | State            | 91.2        |
| 5 Colorado General Hospital Denver                        | State            | 90.9        |
| 6 Hospital of the University of Pennsylvania Philadelphia | Non Profit Ass'n | 89.9        |
| 7 Trinity Hospital Mount Vernon D. C.                     | Church           | 88.2        |
| 8 University of California Hospital San Francisco         | State            | 88.7        |
| 9 Walter Reed General Hospital Washington D. C.           | Army             | 86.6        |
| 10 U. S. Naval Hospital San Diego                         | Navy             | 84.8        |
| 11 University of Nebraska Hospital Omaha                  | State            | 84.2        |
| 12 Mary Hitchcock Memorial Hospital Hanover N. H.         | Non Profit Ass'n | 84.0        |
| 13 Peabody Hospital Beverly Mass.                         | Non Profit Ass'n | 82.9        |
| 14 U. S. Marine Hospital Chicago                          | U. S. P. H. S.   | 81.8        |
| 15 University of Chicago Clinics Chicago                  | Non Profit Ass'n | 81.3        |
| 16 Evanston Hospital Evanston Ill.                        | Non Profit Ass'n | 80.0        |
| 17 Presbyterian Hospital Philadelphia                     | Church           | 79.7        |
| 18 Columbus Hospital Chicago                              | Church           | 79.4        |
| 19 U. S. Marine Hospital Seattle                          | U. S. P. H. S.   | 78.9        |
| 20 Letterman General Hospital San Francisco               | Army             | 78.7        |
| 21 Wesley Memorial Hospital Chicago                       | Church           | 78.6        |
| 22 U. S. Naval Hospital Washington D. C.                  | Navy             | 77.8        |
| 23 U. S. Naval Hospital Bremerton Wash.                   | Navy             | 77.8        |
| 24 St. Elizabeth's Hospital Washington D. C.              | U. S. P. H. S.   | 77.6        |
| 25 U. S. Marine Hospital San Francisco                    | U. S. P. H. S.   | 77.5        |
| 26 Santa Fe Coast Lines Hospital Los Angeles              | Non Profit Ass'n | 76.6        |
| 27 U. S. Naval Hospital Mare Island Calif.                | Navy             | 75.9        |
| 28 Massachusetts Memorial Hospital Boston                 | Non Profit Ass'n | 75.9        |
| 29 Queens General Hospital Jamaica N. Y.                  | City             | 75.2        |
| 30 Fitzgerald Mercy Hospital Darby Pa.                    | Church           | 75.2        |
| 31 Passavant Memorial Hospital, Chicago                   | Non Profit Ass'n | 74.6        |
| 32 Kansas City General Hospital Kansas City Mo.           | City             | 74.1        |
| 33 Johns Hopkins Hospital Baltimore                       | Non Profit Ass'n | 73.9        |
| 34 St. Barnabas Hospital Minneapolis                      | Non Profit Ass'n | 73.7        |
| 35 St. Luke's Hospital Kansas City Mo.                    | Church           | 73.7        |
| 36 State of Wisconsin General Hospital Madison            | State            | 72.9        |
| 37 St. Mary's Hospital Duluth                             | Church           | 72.2        |
| 38 University of Kansas Hospitals Kansas City Kan.        | State            | 71.7        |
| 39 University Hospitals Minneapolis                       | State            | 71.7        |
| 40 Strong Memorial Hospital Rochester                     | Non Profit Ass'n | 71.2        |
| 41 St. Luke's Hospital Duluth                             | Non Profit Ass'n | 71.0        |
| 42 Lankenau Hospital Philadelphia                         | Non Profit Ass'n | 70.4        |

the highly commendable rate of 70 per cent or over, 121 had 50-69 per cent, 290 were in the 30-49 per cent group and 262 had 15-29 per cent, whereas 12 were below the minimum requirement of 15 per cent. In the accompanying table on Highest Necropsy Rates are



shown the hospitals in which postmortem examinations exceeded 70 per cent of the fatalities. This achievement not only serves to improve the quality of educational service in individual hospitals but helps to stimulate others to greater effort. It is particularly encouraging to note that small as well as large institutions are included and that private and public hospitals are about equally represented.

Classification of Approved Residencies and Fellowships—1942

| Specialty                           | Residencies | Asst Residencies | Fellowships | Total | No of Hospitals |
|-------------------------------------|-------------|------------------|-------------|-------|-----------------|
| Anesthesiology                      | 81          | 0                | 10          | 121   | 15              |
| Cardiology                          | 5           | 1                | 1           | 9     | 6               |
| Communicable Diseases               | 11          | 7                |             | 50    | 18              |
| Dermatology and Syphilology         | 1           | 22               | 22          | 78    | 1               |
| Ellipsy                             | 1           |                  |             | 1     | 1               |
| Fractures                           | 5           | 3                |             | 8     | 1               |
| Malignant Diseases                  | 18          | 15               | 11          | 77    | 17              |
| Medicine                            | 701         | 108              | 18          | 817   | 221             |
| Mixed                               | 1           | 15               |             | 118   | 61              |
| Neurology                           | 28          | 52               | 5           | 65    | 28              |
| Neurosurgery                        | 21          | 10               | 12          | 45    | 21              |
| Obstetrics and/or Gynecology        | 201         | 227              | 12          | 492   | 165             |
| Ophthalmology and/or Otolaryngology | 26          | 121              | 21          | 171   | 110             |
| Orthopedic Surgery                  | 115         | 30               | 21          | 199   | 80              |
| Pathology                           | 221         | 81               | 15          | 300   | 96              |
| Pediatrics                          | 160         | 200              | 22          | 400   | 120             |
| Physical Therapy                    | 2           |                  |             | 2     |                 |
| Plastic Surgery                     | 1           | 2                |             | 5     | 4               |
| Psychiatry                          | 320         | 71               | 17          | 437   | 125             |
| Radiology                           | 138         | 80               | 12          | 300   | 112             |
| Surgery                             | 415         | 180              | 83          | 978   | 228             |
| Thoracic Surgery                    | 21          | 8                | 11          | 40    | 20              |
| Traumatic Surgery                   |             | 1                |             | 1     | 2               |
| Tuberculosis                        | 214         | 51               | 1           | 266   | 90              |
| Urology                             | 66          | 40               | 10          | 121   | 72              |
| Totals                              | 3,010       | 1,978            | 320         | 5,487 | *               |

residencies, the number of inpatients in each service, outpatient visits, deaths, necropsies, number of residents, assistant residents, and fellows, and the initial monthly stipend. The present list offers similar data regarding the various residencies and fellowships in the 662 hospitals approved by the Council. In the table showing classification of services there are 3,010 residencies listed, 1,938 assistant residencies and 539 fellowships, a total of 5,487.

Those figures are based chiefly on information received in January 1942 and therefore represent the number of residencies and fellowships ordinarily available under normal conditions. Many of the services have since been curtailed because of military requirements, yet there is every indication that the present educational structure will be maintained in such a manner as to be able to meet both current and future residency needs. The Council will continue to gather information regarding educational services in hospitals in order that accurate and up to date information may be regularly available to the medical profession, governmental agencies and other interested groups.

OPPORTUNITIES FOR LATIN-AMERICAN  
PHYSICIANS

A program of graduate training has recently been formulated by the W K Kellogg Foundation whereby twenty-five carefully selected physicians of the Latin-American countries will be brought to the leading ophthalmologic institutions of the United States for a minimum of one year's training.

This program of graduate instruction in ophthalmology will be carried on with the cooperation of the Division of Cultural Relations of the Department of State which has previously made arrangements whereby selected medical graduates of Central and South American countries may secure an opportunity for intern training in approved hospitals in the United States. These opportunities for interns and graduate students are clearly indicative of continued progress in Pan American relationships in the field of medical education.

ESSENTIALS OF AN APPROVED INTERNSHIP

(Revised June 1942)

I Introduction

- 1 The primary function of a hospital is to provide facilities where the sick and injured may be given scientific medical care.
- 2 The operation of a well organized, effective program for the training of interns enhances the quality of care rendered to the sick and in no wise conflicts with the chief purpose for which the hospital is maintained.
- 3 An important purpose of the internship is to supplement the undergraduate medical course by a well rounded experience of closely supervised clinical practice in diagnosis and therapy.
- 4 Hospitals which are approved for the training of interns accept a serious responsibility to their interns and to the communities in which they may later practice.
- 5 The internship is one of the most important phases of medical education. Internships designed without a well supervised educational program, or arranged merely to provide hospitals with resident personnel to relieve visiting physicians of tasks which they do not wish to perform, cannot be approved.

II The Internship

- 1 BASIS OF THE INTERNSHIP—The internship is a form of apprenticeship. The intern assists in the care of patients and receives in return instruction from the hospital staff in the clinical and laboratory aspects of his profession.
- 2 LENGTH OF INTERNSHIP—An internship should be of not less than twelve months' duration. Longer periods of service

are desirable because they permit a more satisfactory educational program and allow the intern sufficient time in which to be trained adequately to assume increasing responsibility in various fields of medicine.

3 TYPES OF INTERNSHIP—The Council approves "rotating," "mixed" and "straight" internships.

A "rotating" internship is defined as one which provides supervised experience in internal medicine, surgery, pediatrics, obstetrics and their related subspecialties, together with experience in laboratory and radiologic diagnosis.

A "mixed" internship is defined as one which provides supervised experience in two or more, but not in all, of the clinical divisions named.

A "straight" internship is defined as one which provides supervised experience in a single department, although it may include limited opportunity for work in a related subspecialty. Straight internships are now approved in internal medicine, surgery, pediatrics, obstetrics (with or without gynecology) and pathology.

In rotating and mixed internships of a year's duration the time allotted to internal medicine should equal or exceed the time given to any other service. Not more than six months' time in a year's rotating or mixed internship should be devoted to any one branch of the service, including its related specialties. Too frequent a rotation of assignments in such intern



ships is undesirable. Arrangements should be made so that each intern shall devote at least two consecutive months respectively to internal medicine and to surgery.

### III Hospitals Eligible for Approved Internships

The experience of the Council indicates that the requirements for an approved internship can be met only in a general hospital registered by the American Medical Association admitting at least 2500 patients or more per year having an average daily census of at least 85 patients exclusive of the newborn and providing a sufficient number and variety of patients in the several branches of medicine in which it undertakes to train interns. For the purpose of this section patients who are not available to the interns for clinical study are not included.

### IV The Hospital Staff

1 **THE STAFF**—The staff both visiting and intern should be composed of physicians who are graduates of medical schools acceptable to the Council. The visiting staff should be composed of physicians (a) who are of unquestioned professional and moral integrity (b) who are proficient in the fields of practice to which they devote themselves (c) who give personal attention to the patients under their charge and (d) who pledge themselves both individually and as a group to provide ample instruction to the intern staff and to cooperate in their work.

### V Clinical Records

1 **HISTORIES**—Adequate records should be maintained. The attending physician or surgeon should be directly responsible for the accuracy and completeness of clinical records concerning all patients under his care.

2 **ENDORSEMENT OF RECORDS**—All case records should show by signature the names of the persons who have written them or their individual parts. Orders for treatment or for special diagnostic studies and progress notes should be signed by the person who writes them. Case histories and physical examinations completed by interns should give evidence of having been verified by the attending physician.

3 **FILING AND INDEXING RECORDS**—A competent medical record librarian should be in charge of the filing and indexing of records. To be of educational value all case records should be readily available for special study or for reference work. When a patient is readmitted to the hospital, all previous records of his case should be obtainable without undue loss of time. Besides the usual indexes of patients by name and number, there should be an index arranged according to primary and secondary diagnoses, all surgical procedures should be listed, and the names of physicians who refer patients to the hospital should also be recorded. Statistics concerning the hospital's clinical work should be compiled monthly and should be available at all times to the medical staff. An analysis of these figures should be included in the annual report and should be classified by departments, i. e. internal medicine, surgery, obstetrics, pediatrics (excluding the newborn), gynecology, ophthalmology, otolaryngology and so on, presenting for each department at least the following data concerning private and ward services:

Number of patients admitted or discharged  
Number of hospital days of care or average daily census  
Deaths and necropsies  
Surgical procedures

### VI Laboratories

1 **EQUIPMENT**—There should be clinical and pathologic laboratories in the hospital, under competent direction. The laboratory or laboratories should be equipped and staffed to perform ordinary routine tests, including bacteriologic, serologic, chemical, basal metabolic and tissue examination.

2 **THE PATHOLOGIST**—The pathologist should hold the degree of doctor of medicine from an approved medical school and should have qualifications in pathology acceptable to the Council. He should give to the hospital sufficient time to enable him (a) to supervise adequately the work done in the main pathologic laboratory of the hospital and in its branch laboratories if any, (b) to examine or supervise the examination of all tissues removed in surgical operations and to furnish reports of their gross and microscopic findings, (c) to perform or supervise the

performance of all necropsies conducted in the hospital and render a full report of the findings, (d) to assist in the teaching of interns (e) to be available for consultation with members of the attending and intern staff meetings and conduct or participate in clinical pathologic and departmental conferences.

3 **NECROPSIES**—The hospital should provide proper facilities for the conduct of postmortem examinations in the presence of interns and staff. The necropsy rate has come to be recognized as an index of the scientific interest of the medical staff, and well performed postmortem examinations enable progressive physicians to improve their clinical ability. No hospital will be approved for intern training which does not maintain each year a record of necropsies performed in at least 15 per cent of its deaths exclusive of stillbirths and cases released to legal authorities. Beginning with the calendar year 1943, a minimum of thirty-six necropsies a year will also be required.

4 **RECORDS**—A copy of each examination performed in the laboratory of pathology should be retained in the department in addition to the copy filed on the patient's clinical record. All these examination reports should be indexed by name, number and diagnosis. Slides for microscopic study of specimens removed at operation or by necropsy should also be filed in the laboratory.

### VII Radiology

1 **EQUIPMENT**—This department should be equipped with suitable shockproof apparatus. The rooms provided for fluoroscopy and for viewing roentgenograms should be large enough to accommodate comfortably both interns and attending physicians during the examination of patients or interpretation of films.

2 **THE RADIOLOGIST**—The radiologist should hold the degree of doctor of medicine from an approved medical school and should have qualifications in radiology acceptable to the Council. He should give to the hospital sufficient time to supervise adequately the technical work of the department, to perform or supervise fluoroscopic examinations, to interpret films to consult with staff physicians and to instruct the interns. He should also attend staff meetings and the meetings of his department.

3 **RECORDS**—A copy of each examination report should be kept in the department in addition to the one filed in the patient's record. These reports and their original films should be filed and indexed by name, number and diagnosis.

### VIII Medical Library

There should be a medical library, in charge of a competent librarian located where it is readily accessible to the interns and staff and containing a useful collection of recent editions of standard text and reference books and current files of not less than ten of the representative medical journals. Interns should be encouraged to use the library in connection with their clinical work and may properly be asked to report on current medical opinion concerning any special case at the bedside or to review current literature on any selected topic more formally at staff conferences or at journal club meetings that may be organized for the purpose of stimulating an interest in reading.

### IX Organization for Intern Training

1 **THE STAFF** should be organized into departments or sections representing such specialties as internal medicine, surgery, pediatrics, obstetrics, pathology and radiology, in order to administer the professional services of the hospital and to supervise the program of intern training to best advantage. Overdepartmentalization should be avoided, although in large hospitals departmentalization may extend to include such other specialties as ophthalmology, otolaryngology, orthopedic surgery, urology, neurology and psychiatry. Each department or section should have a chairman or department head to serve for at least a year. He should be well qualified for this position by experience in his special field, should be responsible for the general conduct of the clinical work in his department and should help to formulate and execute the intern training plan to be carried out in his department. Frequent rotation of attending physicians in charge of the various services should be avoided. Assignments should be made so that the intern has opportunity

each day to meet his attending physician for the conduct of systematic ward rounds or clinics and for the study of the patients under his care. In hospitals where the management of private patients is part of the intern's responsibility, no intern should be called on to assist at any one time an unreasonable number of attending or visiting physicians.

**2 CONFERENCES**—The staff, either as a whole or by departments, should conduct periodically and at least once a month, staff or departmental meetings in which the work of the various clinical or laboratory services is thoroughly analyzed. Interns should be expected to attend and to take an active part in these meetings. Each month there should be one or more clinical-pathologic conferences. In addition, there should be such departmental conferences as the current activities of the various departments may require. These conferences should be educational in nature and more than a perfunctory demonstration of interesting material. As has been suggested, the intern also should be encouraged to read medical literature in connection with his clinical work and may properly be asked to report formally on current medical opinion concerning any special case.

**3 INTERN COMMITTEE**—There should be a committee of the staff, chosen from the chairmen of the several departments in the hospital, charged with the duty of organizing, supervising and evaluating the plan of intern instruction. The teaching obligations of individual staff members cannot be delegated to this committee but should be supervised by it.

### X Nature of the Intern's Duties

Each intern on duty in any clinical department should write or dictate the history, physical examination and his own diagnostic impression of all patients assigned to him. He should have laboratory work assigned to him of such nature as to give him familiarity with clinical laboratory methods and to develop in him competence in the use of all those which the average physician may be called on to perform. The nonoperative treatment of each patient should, in the main, be his responsibility under critical guidance by the visiting physician.

The intern's record should be checked within twenty-four hours by a competent supervising physician, calling attention to errors in observation and adding supplementary notes containing any relevant data which the intern may have omitted. If the intern's record is acceptable, the attending physician should countersign and thus approve it. The intern should enter notes of progress on the record, describing the patient's clinical course from time to time and make sure that all treatments or special diagnostic studies are correctly recorded. When a patient is discharged, the intern should write a concluding note which describes the final diagnosis and the patient's condition as he leaves the hospital. This should be countersigned by the attending physician.

### XI Teaching Program

**1 BEDSIDE TEACHING**—The most important phase of intern instruction consists in well conducted teaching at the bedside. By this is meant systematic instruction of the intern by the attending physician with an ample discussion of the history, the clinical and laboratory findings, the diagnosis and the treatment of each patient. To conduct such teaching properly is the duty of the attending physician in direct charge of the patients assigned to the intern. It cannot be delegated to others, though it may be supplemented by supervision of the intern's work by junior staff members or resident physicians. Duties which have no educational value should be avoided as far as possible.

**2 ASSIGNMENT OF CASES**—The teaching program should provide ample time for the intern to study and give thorough care to all patients assigned to him. An excessive number of patients is not conducive to careful work, indeed, undue pressure of routine tasks in a hospital may lead an intern to form habits which are undesirable and even harmful. For each intern assigned to a major service, such as internal medicine, surgery, obstetrics or certain specialties, such as neurology, an admission rate averaging not more than two patients a day is desirable.

**3 INTERNAL MEDICINE**—This department should afford each intern an adequate amount of instruction and experience in general medicine and in such special medical technics as transfusion, intravenous and other parenteral therapy, and paracentesis. Preferably there should be facilities for the study of patients with tuberculosis, and with contagious, nervous and mental diseases. Each intern should receive careful instruction in modern diet therapy with technical assistance from trained dietitians. The social aspects of medicine should also receive proper emphasis.

**4 SURGERY**—Surgical training should be planned to emphasize diagnosis and preoperative and postoperative treatment of surgical cases rather than skill in operative technic. Thus the intern's work in surgery should be rather that of an assistant than of an operator. The dressing of surgical wounds should be regarded as an important part of his experience, thus giving him a particularly valuable opportunity to observe carefully the immediate effects of surgical procedures and their treatment. He should obtain instruction and experience in administration of various types of anesthetics under the supervision of a trained anesthetist.

**5 OBSTETRICS**—The intern should obtain training and experience by delivering under supervision at least 10 patients. At other deliveries he should act as an assistant, not merely as an anesthetist.

**6 PATHOLOGY**—The intern should receive experience in clinical laboratory work to perfect his skill in routine laboratory procedures. He should also receive instruction from the pathologist in the procedures of pathologic diagnosis. He should attend and, when possible, assist at necropsies, receiving instruction in technic and in pathologic interpretation. He should be required to be familiar with the pathologic studies of surgical specimens and necropsy material which concern his own patients. No other assignment should be permitted to interfere with his attendance at the postmortem examination of any case which has been under his care. Whenever possible, he should assist in the preparation and presentation of the clinical-pathologic conference when cases assigned to him are being reviewed.

**7 OUTPATIENT DEPARTMENT**—It is desirable that each intern should have supervised experience in outpatient work under circumstances comparable to the office practice of medicine. Outpatient clinics to which interns are assigned should be operated in close affiliation with corresponding services in the hospital, thus encouraging careful follow-up work and observation of patients over a long period of time.

### XII Miscellaneous

**1 RECORD OF INTERNS' WORK**—Certain state medical examining boards, medical schools and other agencies may desire detailed information regarding the interns' training, and therefore it is suggested that hospitals keep a record of each intern's work. Such information may be supplied to the superintendent or record office by the intern himself on special forms where space is provided for data such as the period of time covered, the service, the number of patients admitted on service, the number of histories and physical examinations completed by the intern, the number of anesthetics given by him, the number of operations performed by him and the number in which he has assisted, the number of deliveries conducted by him and the number in which he has assisted, the number of necropsies attended, the hours spent in the laboratory, and the number of lectures, clinics and conferences attended.

**2 RULES REGARDING INTERNS**—The hospital should supply each intern with written or printed rules defining his duties and privileges.

**3 INTERNS' LIVING QUARTERS**—The hospital should provide for the intern comfortable living quarters, healthful food and suitable recreational opportunities.

**4 INTERNS' HEALTH**—The hospital should be responsible for the interns' health, at least to the extent of providing at the beginning of each intern's service a careful physical examination, including a roentgenogram of the chest and immunization against communicable diseases. There should be at all times a readily accessible consultation service for interns with some member of the staff definitely assigned to this work. Periodic

A physical examination of each intern's chest at six month intervals during his term of service is desirable.

5. **RELATIONSHIP BETWEEN HOSPITAL AND INTERN**—To avoid misunderstanding it is desirable that each intern at the time of his appointment should enter into a formal agreement with the hospital defining mutual obligations. Such agreement should be honorably fulfilled by both parties. The breaking of it by either a hospital or an intern is not condoned by the Council. Whenever complaint is made of a breach of agreement it is the policy of the Council to ask each of the parties to submit an explanatory statement. Such statements become a part of the physician's and the hospital's record.

### XIII Admission to the Approved List

1. **APPLICATION FOR APPROVAL**—Hospitals that desire to be accredited for intern training should apply to the Council on Medical Education and Hospitals of the American Medical Association 535 North Dearborn Street Chicago. For this purpose forms in duplicate will be supplied on request. They should be filled out with care by the superintendent or by some member of the staff who is familiar with the hospital's intern program, and one copy should be returned to the Council.

2. Approval for the training of interns is granted for the current year only and is subject to renewal annually. When conditions warrant it approval may be withdrawn at any time.

## CONTINUATION STUDY FOR PRACTICING PHYSICIANS IN THE UNITED STATES, 1941-1942

The need for adequate clinical facilities where physicians who do not limit their practice to a specialty may find ample opportunity to learn by personal examination of patients and by conduct of essential laboratory tests has long been recognized. Since 1937 the Council on Medical Education and Hospitals has been actively engaged in the collection of information available and programs in effect throughout the country for the education of practicing physicians. A review of the developments and of the accomplishments in this phase of graduate medical education based on a two year field study were published in composite form by the Council in May 1940.<sup>1</sup> This publication further contains a review of the Association's interest in graduate medical education since 1913. A statistical report of the opportunities available obtained by correspondence and questionnaire have appeared annually in *THIS JOURNAL* since 1938. The opportunities for continuation study have been reviewed again for the year 1941-1942 and are presented in this report.

### RECENT DEVELOPMENTS IN STATE AND LOCAL PROGRAMS

Financed by the California Tuberculosis Association are special extension courses for individual physicians at the San Francisco Hospital under the direction of the tuberculosis staffs of Stanford University and the University of California medical schools. Individual doctors receive their expenses and a per diem for a week's intensive specially arranged course.

Physicians of the District of Columbia, Maryland and Virginia participated in a postgraduate course in modern treatment of burns and the prevention and treatment of chemical casualties in modern warfare sponsored by the Medical Society of the District of Columbia in May 1942. No fee was charged. The course consisted of one hour lectures followed by a question period.

The Chicago Maternity Center holds a four months postgraduate course in obstetrics. The center trains forty physicians a year. Registration fee is \$10. Entering dates are staggered.

A course in clinical discussions of war neuroses, designed for senior medical students, interns, house officers and others who may become medical officers in the armed forces, is planned by the Institute for Psychoanalysis, Chicago, and the Department of Neuropsychiatry of Michael Reese Hospital in October 1942. No registration fee.

The Iowa State Medical Society sponsors courses through its Speakers Bureau. They are general in nature and designed to refresh the general practitioner on certain fundamental aspects of various more common conditions. There is no limitation on the number of physicians attending. Recorded courses were initiated. This type of instruction was designed for the small audience of the more rural portions of the state. In addition recorded lectures have been sent to county medical societies and hospital staffs which do not have scheduled courses.

The Committee on Postgraduate Education of the Maine Medical Association has formulated plans for inaugurating home study courses in medicine, surgery, pediatrics, obstetrics and gynecology. They are being patterned after similar courses which have been carried on by the American Academy of Ophthalmology and Otolaryngology during the past three years.

The Department of Public Health at the Massachusetts Institute of Technology is offering an accelerated program of public health training which began June 8, and on completion of the course, Feb. 6, 1943 a Master's degree will be awarded. These training programs are organized for public health engineers, health educators and public health laboratories, as well as for administrators.

Courses for physicians in the Kenny technic for the management of acute phases of poliomyelitis sponsored by the National Foundation for Infantile Paralysis were given during six six day periods at the University of Minnesota Center for Continuation Study.

Two series of meetings on obstetrics and one on pediatrics were conducted during the past fiscal year by the Maternal and Child Health Committee of the Montana State Medical Association, which serves as an advisory committee to the Division of Maternal and Child Health of the state board of health. A total of twelve centers with two sessions at each center, covering the southeastern, northwestern and southwestern areas, was reached during this period.

Postgraduate clinics held by visiting lecturers from out of the state were given at Duke University School of Medicine, Durham, N. C., on the emergencies of civilian and war medicine and surgery. Weekly postgraduate courses in obstetrics and pediatrics are given at Duke Hospital through the cooperation of the North Carolina State Board of Health, the University of North Carolina School of Public Health and the United States Children's Bureau. The courses are limited to six physicians, and no tuition is charged.

A series of four day intensive courses for teaching the medical aspects of chemical warfare were given

(Continued on page 1298)

<sup>1</sup> Graduate Medical Education in the United States. I. Continuation Study for Practicing Physicians 1937 to 1940. American Medical Association 1940.

TABLE 1—CONTINUATION COURSES FOR PRACTICING PHYSICIANS, 1941-1942

A In Proximity to Their Homes

| Location of Course                                | Sponsoring Agencies   | Facilities for Graduate Programs                      | Director of Program                                       | Title of Course                        | Duration of Course            | Course Began                  | Type of Instruction                                      | Instructors                          | Eligible to Enroll                                    | Registration Fee and/or Tuition (M D \$ only) | Approximate Attendance (M D \$ only) | Additional Contributing Agencies and Funds |
|---|---|---|---|--|-------------------------------|-------------------------------|--|--------------------------------------|---|---|--------------------------------------|--|
| Home Study Courses<br>(Chicago, Ill.)             | American Academy of Ophthalmology & Otolaryngology  | Public mails  | Executive Secretary                                       | Ophthalmology & Otolaryngology         | 9 months                      | Fall                          | Selected readings, quizzes                               | Selected texts                       | M D \$ who wish to specialise                         | \$10  | 100                                  |  |
| (Boston, Mass.)                                   | Massachusetts Medical Society, Department of Public Health                                  | Public mails  | Chairman, District Committee on Post Graduate Information | General                                | Varied                        | Spring                        | Reading, quizzes   | Selected texts                       | M D \$ registered in Massachusetts                    | \$5   | Not stated                           | United States Public Health Service        |
| (Albany, N. Y.)                                   | Albany Medical College of New York, State Dept. of Health                                   | Office, hospital, sanatorium, clinic, sanitary plants | Director, Extension Course                                | Public Health                          | 1 year                        | Arranged                      | Reading, monthly conferences, week in residence          | In state out of state                | M D \$ registered in New York                         | \$10  | 52                                   |  |
| Alabama<br>22 centers<br>(4 circuits)             | Tulane U. of La. Dept. of Graduate Med., Medical Assn. of Ala., Ala. Dept. of Public Health | Local buildings                                       | Director, Dept. of Medicine                               | Gynecology and Non Operative Surgery   | 3 days                        | Monthly                       | Lectures, clinics, demonstrations, consultations         | Medical school out of state          | Members of local medical associations                 | \$5   | 211                                  | Commonwealth Fund of New York              |
| Arizona<br>23 centers                             | Arizona State Dept. of Health   | Hospitals, clinics, individual offices                | Director, Dept. of Maternal and Child Health              | Pediatrics                             | 2 weeks                       | Throughout the year           | Lectures, clinics, consultant service                    | Medical school, out of state         | M D \$ registered in Arizona                          | None  | 135                                  | United States Children's Bureau            |
| California<br>6 centers                           | California State Board of Health  | Local buildings                                       | Chairman, Committee on Post Graduate Activities           | Pediatrics Syphilology and Dermatology | 13 days                       | Winter                        | Lectures, symposiums, demonstrations, discussions        | Medical school in state              | Members of county and district medical associations   | None  | Not stated                           |  |
| 15 centers  | California Tuberculosis Assn., California Medical Assn.                                     | Hospitals   | Executive Secretary                                       | Diseases of the Chest                  | 1 day                         | Requested throughout the year | Lectures, clinics  | Medical school in state              | Members of county and district medical associations   | None  | 565                                  |  |
| Illinois<br>Belleville                            | State Medical Societies of Illinois and Missouri  | Hotel   | Chairman, Post-graduate Committee                         | General                                | 1 day                         | Spring                        | Lectures   | In state out of state                | Members of Illinois and Missouri medical associations | None  | Not stated                           |  |
| 2 centers   | Illinois State Medical Society  | Hospitals   | Chairman, Post Graduate Committee                         | Maternal Welfare                       | 1 evening a month             | Throughout the year           | Discussions  | Medical school in state              | Members of county medical societies                   | None  | Indeter mined                        | County Medical Societies                   |
| 9 centers   | Illinois State Medical Society  | Hotels, schools                                       | Chairman, Post Graduate Committee                         | General Medicine and Surgery           | 1 day                         | Repeated 10 times             | Conferences  | Medical school in state out of state | Members of Illinois State Medical Assn.               | None  | 1,200                                | Districts 1 to 9, Illinois                 |
| Indiana<br>5 centers                              | Indiana University, Indiana State Board of Health   | Medical school  | Director, Post graduate Education in Obstetrics           | Obstetrics                             | 1 evening a week for 5 weeks  | Spring                        | Lectures, moving pictures, consultations, demonstrations | In state                             | M D \$  | None  | 150                                  |  |
| Iowa<br>9 centers                                 | Iowa State Department of Health, Iowa State Medical Society                                 | Hospitals, public buildings                           | Chairman, Speakers Bureau                                 | Industrial Medicine                    | 1 day                         | Throughout the year           | Lectures, demonstrations                                 | In state                             | M D \$ nurses, industrialists                         | None  | 1,200                                | United States Public Health Service        |
| 13 centers <sup>1</sup><br>Kentucky<br>Louisville | Iowa State Medical Society, Kentucky Hospital   | Hospitals, hotels                                     | Chairman, Speakers Bureau                                 | Varied                                 | 1 evening                     | Throughout the year           | Lectures, discussions                                    | In state                             | M D \$  | \$0.5   | 662                                  | County Medical Societies                   |
| Massachusetts<br>Boston                           | Mass. Dept. of Public Health, Harvard School of Public Health                               | Hospital  | Head of Pediatrics Dept.                                  | Pediatrics                             | 1 morning a week for 10 weeks | Spring summer                 | Lectures, clinical demonstrations, discussions           | In state                             | M D \$  | \$5   | 20                                   |  |
|   |   | Medical school, clinic                                | Sec., Executive Committee on Public Health                | Child Health Services                  | 1 day a week for 6 weeks      | Spring                        | Lectures clinics   | Medical school in state              | M D \$  | None  | 16                                   |  |

<sup>1</sup> Ninety five lectures in all were offered of which twenty one in three counties were recorded lectures

|                              |   |  |  |   |                                      |                                    |   |  |      |      |   |
|------------------------------|---|--|--|---|--------------------------------------|------------------------------------|---|--|------|------|---|
| Michigan<br>10 centers       | Mich. State Med. Soc.<br>Wayne U. College<br>of Med., Mich.<br>Dept. of Health                                  | Local build-<br>ings   | Chairman, Dept.<br>of Postgraduate<br>Medicine, Univer-<br>sity Hospital                   | Varied  | 1 day a<br>week for<br>1 month       | Spring<br>fall                     | Lectures, demon-<br>strations, dis-<br>cussions             | Medical school<br>in state<br>out of state | None | 113  | Backham Fund  |
| Mississippi<br>10 centers    | Dept. of Grad.<br>Med. Tulane U.<br>of La. Miss. State<br>Med. Assn., Miss.<br>State Board of<br>Health         | Medical school<br>buildings  | Director, Dept. of<br>Graduate Medi-<br>cine   | Internal Medicine<br>Surgery and Bone<br>and Joint Injuries<br>and Diseases | 2 days a<br>month                    | Repeated<br>3 times                | Lectures, clinics,<br>demonstrations,<br>consultations      | Out of state<br>Members of the<br>A. M. A. | None | 70   | Commonwealth Fund of<br>New York  |
| Missouri<br>2 centers        | Missouri Tubercu-<br>losis Assn.<br>Tuberculosis Com-<br>mittee of the Mis-<br>souri State Medi-<br>cal Society | Local build-<br>ings   | Executive Sec.   | Pulmonary Tubercu-<br>losis   | 6 hours                              | Spring,<br>fall                    | Symposium dis-<br>cussions, demon-<br>strations             | In state<br>out of state                   | None | 117  |   |
| Montana<br>12 centers        | Montana State<br>Medical Assn.<br>Montana State<br>Board of Health  | Hospitals  | Chairman, Post-<br>graduate Tuber-<br>culation Division of<br>Maternal and<br>Child Health | Gynecology and<br>Pediatrics  | 2 sessions                           | Repeated<br>12 times               | Lectures, demon-<br>strations, demon-<br>strations, clinics | Out of state<br>M. D. s.                   | None | 117  |   |
| New Jersey<br>2 centers      | Medical Society<br>of New Jersey<br>Rutgers University<br>Extension Division                                    | Local build-<br>ings   | Officer in Charge,<br>Bureau of Post-<br>graduate Medi-<br>cine                            | General   | 1 day a<br>month for<br>6 months     | Fall<br>Spring                     | Lectures  | Medical<br>schools<br>out of state         | None | 119  | County Medical Society  |
| New York<br>3 centers        | Medical Society<br>of the State of<br>New York New<br>York State Dept.<br>of Health                             | Medical<br>schools hos-<br>pitals lab-<br>oratories<br>public build-<br>ings | Chairman, Council<br>Committee on<br>Public Health<br>and Education                        | Dental Caries   | 1 session                            | Repeated<br>throughout<br>the year | Lectures, clinics,<br>symposiums,<br>demonstrations         | Dental<br>schools<br>in state              | None | 117  | Division of Industrial<br>Hygiene of the New York<br>State Dept. of Labor New<br>York State Dental Society<br>College of Medicine of New<br>York state, local dental<br>societies |
| 20 centers                   |   |  |  | General   | 17 sessions                          | Repeated<br>throughout<br>the year | Lectures, clinics,<br>demonstrations                        | Medical<br>schools<br>in state             | None | 119  | Division of Industrial<br>Hygiene of the New York<br>State Dept. of Labor   |
| 10 centers                   |   |  |  | Maternal and Child<br>Welfare Industrial<br>Health, Cancer                  | 1 session                            | Repeated<br>throughout<br>the year | Lectures, clinics,<br>symposiums,<br>demonstrations         | Medical<br>schools<br>in state             | None | 1207 | Division of Industrial<br>Hygiene of the New York<br>State Dept. of Labor<br>College of Medicine of New<br>York state regional medi-<br>cal societies                             |
| Ohio<br>5 centers            | Ohio State Medi-<br>cal Assn.   | Local build-<br>ings   | Chairman, Com-<br>mittee on Edu-<br>cation   | General   | 1 day                                | Repeated<br>6 times                | Lectures  | In state                                   | None | 112  | County chairmen   |
| Oklahoma<br>40 centers       | Oklahoma State<br>Medical Assn.   | Local build-<br>ings   | Chairman, Post-<br>graduate Comm.  | Pediatrics and In-<br>ternal Medicine                                       | 1 evening<br>a week for<br>10 weeks  | Repeated<br>throughout<br>the year | Clinics lectures  | In state                                   | \$5  | 1000 | Oklahoma State Health<br>Dept. Commonwealth<br>Fund of New York   |
| Pennsylvania<br>Philadelphia | Temple Univer-<br>sity School of<br>Medicine  | Medical<br>school,<br>hospital   | Dean   | Cardiology  | 1 afternoon<br>a week for<br>4 weeks | Repeated<br>throughout<br>the year | Survey practical<br>exercises                               | Medical<br>school                          | \$25 | 10   |   |
| Rhode Island<br>0 centers    | Rhode Island<br>Dept. of Health,<br>Rhode Island<br>Medical Society   | Hospitals  | Chief, Bureau of<br>Child Hygiene  | General   | 1 day                                | Repeated<br>throughout<br>the year | Discussions   | In state                                   | None | 345  |   |
| Wisconsin<br>Madison         | University of Wis-<br>consin Medical<br>School  | Medical<br>school  | Dean   | Clinical Surgical<br>Anatomy  | 1 day a<br>week for<br>6 weeks       | Repeated<br>throughout<br>the year | Lectures, clinics   | Medical<br>school                          | \$25 | 8    |   |
| 3 centers                    | State Medical<br>Society of Wis.  | Local build-<br>ings   | Secretary  | Varied  | 1 day                                | Spring                             | Lectures confer-<br>ence clinics                            | In state                                   | \$5  | 350  | State Board of Health<br>Med. Society   |



*(Continued from page 1295)*

by the University of Cincinnati College of Medicine. The first group which took the course were physicians from New England, New York and the Middle Atlantic states. Later courses were offered to physicians from other parts of the country.

Courses in internal medicine in five teaching centers in nine separate circuits in the state of Tennessee are offered. The course is sponsored by the Commonwealth Fund of New York, Tennessee State Medical Association, Tennessee State Department of Health, Vanderbilt University School of Medicine and the University of Tennessee College of Medicine. The course is open to all licensed physicians in the state, and one lecture a week is given in each center for a period of ten weeks. This is a two year program, which commenced in February 1941.

The Texas State Tuberculosis Sanatorium presented a series of lectures and clinical demonstrations on diseases of the chest for physicians of Texas. There were no fees charged and the physician remained as a guest of the hospital for this two week course.

#### RECENT DEVELOPMENTS IN NATIONAL PROGRAMS

The American Academy of Ophthalmology and Otolaryngology sponsors two series of educational courses for their members. The first consists of three day lectures at the time of the annual meeting of the academy. The second course consists of a home study course. It is designed primarily for residents in these specialties but is open to any licensed physician. It is a home reading course accompanied by examination and covers nine months of the year.

The American College of Physicians continues to offer courses in special subjects for members of the college and for physicians preparing for certification by the American Board of Internal Medicine.

The annual Clinical Congress of the American College of Surgeons constitutes an important educational event for Fellows of the College and members of its Junior Candidate Group. During March the college held twenty-seven war sessions throughout the country which were open to the entire profession.

While the Commonwealth Fund of New York is not conducting directly any programs, it is giving considerable assistance in the field of postgraduate medical education.

From time to time the Division of Venereal Disease of the United States Public Health Service has sponsored a four week postgraduate course in clinical management and public health control of venereal diseases at the United States Public Health Service Medical Center, Hot Springs National Park, Ark.

Courses for medical officers of the Army on active duty are given repeatedly throughout the year.

The United States Department of Labor, Children's Bureau, Washington, D. C., continues to provide funds for the postgraduate education of practicing physicians.

#### CONTINUATION STUDY FOR PRACTICING PHYSICIANS, 1941-1942

Opportunities provided for practicing physicians during the fiscal year ended July 1, 1942 are outlined in tables 1-A, pages 1296-1297, 1-B, pages 1300-1305 and table 2, pages 1306-1310. Courses reported in table 1-A were of a peripatetic character in that instruction was offered to the practicing physician in a number of different places in or near his local community. Centers listed in table 1-B provide ample facilities for clinical instruction. In the first type of course the instructors usually do most of the traveling, while in the latter the

physician desiring continuation study travels to the center where clinical teaching may be emphasized over longer periods. In table 2 are summarized graduate assemblies of less than five days and study courses.

#### ORGANIZATION AND ADMINISTRATION

Opportunities for continuing professional study for practicing physicians near their home communities held a prominent place in nineteen states. These programs reached a total of two hundred and forty-eight centers. Of thirty-six sponsoring agencies, committees on postgraduate education of state medical societies, independently or with the state departments of health or medical schools, supervised programs in fifteen states. State health departments were active participants in eleven states, the extension division of six universities, two state tuberculosis associations, a school of public health and a hospital also cooperated in bringing programs to the practitioner.

In centers where ample clinical facilities are available (table 1-B) graduate courses of five days to one year's duration were offered in three hundred and eighteen educational institutions or agencies located in sixty-nine centers in thirty-two states and the District of Columbia. Ninety-two agencies or combinations of agencies participated in the planning of programs. Courses were sponsored by six state agencies and given outside the state.

Graduate schools of medicine, or postgraduate divisions of institutions, played the most prominent part in offering courses of five or more days' duration. Thirty-four undergraduate medical schools have given such courses. Thirteen state medical societies independently or in collaboration with state health departments planned courses for physicians of the state. Twelve health departments made contributions. In ten instances hospitals were the agencies offering short periods of study. Other sponsors included state departments of public health, the American College of Physicians, the American College of Surgeons, the American Academy of Ophthalmology and Otolaryngology, Georgia Warm Springs Foundation, the Mayo Foundation, National Foundation for Infantile Paralysis, the United States Public Health Service, tuberculosis associations, as well as local, state, national and international agencies organized primarily for the purpose of providing graduate opportunities.

In medical school programs the deans were indicated as directing officers of more than half of the postgraduate courses. The head or a member of the department in which the study is offered often directed the course. Chairmen of postgraduate educational committees in universities and of medical societies, directors of departments of health and the chief of staff of several hospitals acted as administrators.

#### METHODS OF INSTRUCTION

Opportunities for instruction in pediatrics seemed to be among the courses most generally offered for physicians continuing professional study near their home. Such programs were available in ninety-nine centers in seven states. Programs covering the general subjects of medicine and surgery were offered in ten states.

Instruction was given once weekly at intervals of from ten weeks to six months, while one offered a three day course. Sessions of one or two days were most commonly the stated duration.

In addition to lectures and round table discussions, many of the courses for physicians in their own communities were planned to include clinics, symposiums,

demonstrations and conferences. The traveling faculties for these extramural courses were chosen mainly from within the state sponsoring the course. The faculties of medical schools provided instructors in fourteen instances. Three home study courses were offered.

The description of intensive courses gave evidence that clinical instruction was primarily featured. The study of general medical subjects, the specialties and subspecialties was offered in various combinations in three hundred and eighteen medical centers. In the specialty group while courses in obstetrics and pediatrics were most commonly offered, many were offered in dermatology and syphilology, gynecology, ophthalmology, cardiology, orthopedic surgery, otolaryngology and psychiatry. Other special topics of study included allergy, anesthesia, fractures, chemotherapy, endocrinology, gastroscopy, hematology, plastic surgery, poliomyelitis, psychology, public health, radiology, tropical medicine and tuberculosis. Courses in preclinical subjects included anatomy, pathology and physiology. Intensive courses were also given in aviation medicine, emergency treatment of war casualties and varied civilian and military practice.

The duration of study in centers with clinical facilities varied from five days to one year. One hundred and fifty-five courses were completed within three weeks or less while one hundred and thirty-five lasted from one to four months and ten courses were offered for periods of five months to one year. Four were of a year's duration. In others the length of the course varied.

In only nine instances were the courses in centers with clinical facilities wholly didactic. Clinical instruction and practical experience included laboratory and operative demonstrations, symposiums, seminars, assignment of patients, case presentation, clinical pathologic and roentgen ray conferences, moving pictures, ward rounds, field trips and bedside teaching.

In addition to medical schools and hospitals, laboratories, outpatient departments, clinics and local health units cooperated by placing their facilities at the disposal of the students.

The faculties of the medical schools offering continuation courses were called on for assistance in instruction in two hundred and fifty-four courses. Additional instructors were specialists in their field, an equal number being chosen from within the state as from out of state.

#### REGISTRATION

The practicing physician was invited to twenty of the courses which had as their purpose the instruction of physicians practicing in or near the community in which the course was given. In nine others membership in the county or state medical society was a requirement. The number registered for any one course ranged from 8 to 1,540.

In the majority of courses featuring clinical instruction the M.D. degree was necessary for enrollment, although medical students were admitted to one course, while nurses, technicians, doctors of philosophy, sanitarians, engineers and public health workers registered in five specialized courses. M.D.'s reported attending this type of continuation course totaled 14,879. Two hundred and sixty-four courses had registrations of less than 40, in twenty-four the enrollment ranged from 41 to 75, in fifteen from 76 to 200 and in six over 201. In six instances the registration reached beyond 500. The greatest attendance at any one course was 3,100. For twenty courses the number registered was not obtained.

For seventeen of the itinerant continuation courses no charge to the physician was made. The fees for other courses averaged \$5, although in two instances a fee of \$25 was charged.

In continuation courses featuring clinical instruction of more than five days in one center the fees ranged from a registration fee of \$5 to tuition of \$1,000. In twenty-one no fees were charged the individual.

State medical societies made substantial contributions to all programs of continuation study. Likewise financial assistance was received from state departments of health, federal bureaus, medical schools, the Commonwealth Fund, Bingham Associates Fund, National Foundation for Infantile Paralysis, the Trudeau Foundation, Lilla Babbitt Hyde Foundation and others.

#### CLINICAL CONFERENCES, GRADUATE ASSEMBLIES AND STUDY COURSES

In twenty-eight states clinical conferences, graduate assemblies and study courses of less than five days were held during 1941-1942. These data are assembled in table 2, pages 1306-1310. Seventy-seven assemblies or short lecture courses held under the auspices of eighty-nine agencies either independently or in collaboration were reported. Fifteen state medical societies and twelve medical schools sponsored clinical conferences, assemblies and study courses. Seven tuberculosis associations and one heart association reported this type of study. Miscellaneous groups comprised the remainder. An especially appointed director of the clinics or chairman of the committee responsible was reported for most of the courses.

The majority of the large assemblies surveyed pertinent topics in general medicine and surgery. Scattered study courses sponsored by medical societies or agencies concentrating on certain fields included varied subjects, as chemotherapy, early clinical diagnosis of neoplastic diseases, pneumonia typing technique, interpartum care, medical aspects of gas warfare, problems of civil and military emergencies and sulfonamide therapy.

The assemblies were usually held in centers large enough to accommodate the registrants and with facilities for clinical and practical work and for scientific exhibits.

Of the seventy-seven courses, thirty were confined to didactic instruction. The remainder used the facilities of hospitals, medical schools, outpatient departments and laboratories to conduct clinics, demonstrations, clinical pathologic conferences and symposiums. Faculty members of medical schools took an active part in thirty-two of the courses. Instruction from other than faculties of medicine was evenly divided between physicians from the state and physicians from outside the state.

Practicing physicians were eligible for admission to all courses, but courses sponsored by three state medical societies was limited to members. Registration fees ranged from \$2 to \$25, but for the most part no fee was charged. The largest attendance recorded at any one assembly was 1,200. In a few instances no attendance was reported.

#### SUMMARY

In thirty-nine states some form of continuation study for practicing physicians was provided. In nine states, namely, Delaware, Idaho, Nevada, New Mexico, South Dakota, Utah, Washington, West Virginia and Wyoming no courses were reported. However, the state health departments of Arizona, Maine, Nevada, North Dakota, South Dakota, Utah and Washington sponsored courses outside the state.

(Continued on page 1310)

TABLE 1—CONTINUATION COURSES FOR PRACTICING PHYSICIANS, 1941-1942  
B Where There Are Ample Facilities for Clinical Instruction—Five or More Days

| Location of Course  | Sponsoring Agencies                           | Facilities for Graduate Programs               | Director of Program  | Title of Course   | Duration of Course  | Course Begun           | Type of Instruction  | Instructors  | Filable to 1941                            | Registration Fee and/or Tuition | Approximate Attendance (M D s only) | Additional Contributing Agencies and Funds                                   |
|---|---|--|--|---|---------------------|------------------------|--|--|--|---------------------------------|-------------------------------------|--|
| Alabama<br>Mobile   | State of Ala<br>Dep't of Public Health        | Hospital, clinic                               | Ass't Director<br>Bureau of Preven<br>tion of Diseases                         | Syphilology and<br>Other Venereal<br>Diseases   | 5 days              | Monthly                | Lectures, clinics,<br>seminar  | In state   | Veneral Disease<br>(Instructors of<br>Ala) | None                            | 72                                  | United States Public Health Service  |
| Tuskegee<br>Institute   | John A. Andrew<br>Memorial Hospital           | Hospital                                       | Medical Director   | Medicine Clinics<br>for Negro<br>Physicians   | 1 week              | Spring                 | Lectures, clinics,<br>demonstrations,<br>state out<br>conferences    | Medical<br>school in<br>state out<br>of state  | Negro M D s                                | 5                               | 133                                 |  |
| Arizona<br>23 centers   | Arizona State<br>Dep't of Health              | Hospitals,<br>clinics, indi<br>vidual officers | Director, Maternal<br>and Child Health   | Pediatrics  | 2 weeks             | Winter,<br>spring      | Lectures, clinics,<br>consultant<br>service                          | Medical<br>school out<br>of state  | M D s licensed<br>in Arizona               | None                            | 175                                 | United States Children's Bureau  |
| Arkansas<br>Hot Springs   | United States<br>Public Health<br>Service     | Medical<br>Center                              | Medical Officer in<br>Charge   | Veneral Diseases  | 4 weeks             | Spring,<br>fall        | Lectures, discus<br>sions  | In state out<br>of state   | M D s                                      | None                            | 65                                  |  |
| State San<br>atorium  | Arkansas Tuber<br>culosis San<br>atorium      | Sanatorium                                     | Superintendent   | Pneumothorax  | 1 week              | Weekly                 | Practical work,<br>all discussions<br>staff meetings                 | Staff mem<br>bers  | Members Arkan<br>sas Medical<br>Society    | None                            | Not stated                          |  |
| California<br>Los Angeles   | College of Medi<br>cal Evangelists            | Medical<br>school                              | Chairman, Comm<br>on Postgraduate<br>Education                                 | Cardiology, Oto<br>laryngology, Urol<br>ogy (3 courses)   | 20 hours<br>1 month | Winter                 | Lectures, clinics<br>demonstrations                                  | Medical<br>school  | M D s                                      | \$10-\$100                      | 27                                  |  |
| Research Study<br>Club of Los<br>Angeles  |   | Club medical<br>school                         | Secretary  | Ophthalmology<br>and Otolaryngology,<br>Applied Anatomy and<br>Cadaver Surgery of<br>the Head and Neck<br>(2 courses) | 2 weeks             | Winter                 | Lectures, clinics,<br>discussions<br>practical work                  | Medical<br>school in<br>state out<br>of state  | M D s                                      | \$0-\$100                       | 100                                 | University of California<br>Medical School College of<br>Medical Evangelists |
| U of Southern<br>California   |   | Medical<br>school                              | Ass't Dean   | Cellular Physi<br>ology and<br>Biophysics   | 4 months            | Winter<br>summer       | Lectures investi<br>gations  | Medical<br>school  | M D s                                      | \$2                             | 10                                  |  |
| San Francisco   | Arizona State<br>Dep't of Health              | Hospitals                                      | Acting Head,<br>Pediatrics Dept.,<br>U of California<br>Medical School         | Preventive and<br>Clinical<br>Pediatrics  | 2 weeks             | Winter                 | Lectures demon<br>strations,<br>seminars                             | Medical<br>school in<br>state  | M D s                                      | None                            | 2                                   |  |
| California Tuber<br>culosis Asso<br>ciation   |   | Hospital                                       | Tuberculosis staffs<br>of Stanford U and<br>U of California<br>Medical Schools | Tuberculosis  | 1 week              | Throughout<br>the year | Lectures discus<br>sions demonstra<br>tions                          | In state   | M D s licensed<br>in California            | None                            | 16                                  |  |
| Stanford U<br>School of<br>Medicine   |   | Hospitals,<br>clinics,<br>laboratories         | Committee of the<br>Faculty  | General   | 6 days              | Fall                   | Ward rounds,<br>conferences,<br>clinics demonstra<br>tions, lectures | Medical<br>school, in<br>state   | M D s                                      | \$25                            | 184                                 |  |
| U of California   |   | Medical<br>school                              | Director of Re<br>frresher Courses   | Drug Therapy  | 5 days              | Winter                 | Lectures clinics,<br>syposiums                                       | Medical<br>school  | M D s                                      | \$20                            | 97                                  |  |
| U of California<br>Medical School,<br>state health de<br>partments of Cal<br>ifornia, Nevada,<br>Utah and Arizona |   | Medical<br>school                              | Associate Profes<br>sor of Pediatrics,<br>U of California<br>Medical School    | Refresher Course<br>in Pediatrics   | 1 or 2 weeks        | Winter                 | Lectures clinics,<br>discussions                                     | Medical<br>school  | M D s                                      | None                            | 13                                  |  |
| Colorado<br>Denver  | American College<br>of Physicians             | Medical<br>school,<br>hospitals                | Executive Sec<br>retary  | Tuberculosis  | 6 days              | Spring                 | Lectures, clinics,<br>discussions                                    | Medical<br>school  | M D s                                      | \$20                            | 20                                  |  |
| State of Colo<br>Dep't of Public<br>Health  |   | Medical<br>school,<br>hospitals                | Director Div of<br>Maternal and<br>Child Health                                | Obstetrics and<br>Pediatrics  | 3 weeks             | Fall                   | Lectures, demon<br>strations   | In state   | M D s licensed<br>in Colorado              | \$10                            | 20                                  |  |
| District of Columbia<br>Washington  | George Washing<br>ton University<br>3 courses | Medical<br>school medi<br>cal museum           | Executive Officer  | Aviation Ophthal<br>mology, Aviation<br>Medicine, Orthoptics,<br>Ocular Surgery                                       | 5 6 days            | Spring,<br>Winter      | Lectures, demon<br>strations   | Medical<br>school, in<br>state out of<br>state mem<br>bers of the<br>Army Corps<br>Medical<br>school | M D s                                      | \$35-\$100                      | 205                                 |  |
| Howard Univer<br>sity   |   | Medical<br>school                              | Director Post<br>graduate Course   | Veneral Disease<br>Control  | 3 months            | Winter,<br>spring      | Lectures clinics,<br>discussions                                     | Medical<br>school  | M D s                                      | \$20                            | 17                                  | United States Public Health Service  |

|          |              |  |                         |   |   |         |                      |  |                         |  |      |
|----------|--------------|--|-------------------------|---|---|---------|----------------------|--|-------------------------|--|------|
| Florida  | Jacksonville | Florida Medical Association, Inc.<br>Board of Health               | Hospital                | Chairman of the Committee                     | General   | 6 days  | Summer               | Lectures and clinics                               | Medical school of state | New and white in Jacksonville, Florida | 1922 |
| Georgia  | Warm Springs | Georgia Warm Springs Foundation                                    | Foundation              | Director, Graduate School of Physical Therapy | Poliomyelitis. During the Venous and Convalescent Periods | 1 week  | Throughout the year  | Lectures and clinics                               | In state                | Medical students and clinicians        | 19   |
| Illinois | Chicago      | American Academy of Ophthalmology and Otolaryngology of Physicians | Hotel                   | Secretary for Instruction                     | Ophthalmology and Otolaryngology                          | 10 days | July                 | Lectures   | In state out of state   | Members of the Academy                 | 19   |
|          |              | The Children's Hospital  | Medical school hospital | Instructional Secretary                       | Gastroenterology  | 2 weeks | Spring               | Lectures, clinics, demonstrations of clinical work | In state out of state   | Medical students                       | 1922 |
|          |              | The Children's Hospital  | Hospital                | Medical Director                              | Pediatrics  | 1 month | Throughout the year  | Lectures and clinics                               | In state                | Medical students                       | 19   |
|          |              | The Children's Hospital  | Hospital                | Chief of Staff                                | Pediatrics and Allied Specialties                         | 6 days  | July                 | Lectures and clinics                               | In state                | Medical students                       | 19   |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics  | 1 week  | Reported to Illinois | Lectures and demonstrations                        | Medical school in state | Medical students                       | 19   |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 2 weeks | Arranged             | Observation  | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | School of Medicine   | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
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|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
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|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
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|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
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|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
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|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
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|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
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|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief, Division of Maternal and Child Hygiene | Obstetrics and Pediatrics                                 | 1 week  | Summer               | Lectures and demonstrations                        | Medical school in state | Medical students in Illinois           | 1922 |
|          |              | Ill. State Dept. of Public Health                                  | Medical school          | Chief   |   |         |                      |  |                         |  |      |

TABLE 1—CONTINUATION COURSES FOR PRACTICING PHYSICIANS, 1941-1942—Continued  
B Where There are Ample Facilities for Clinical Instruction—Five or More Days

| Location of Course       | Sponsoring Agencies   | Facilities for Graduate Programs              | Director of Program                          | Title of Course   | Duration of Course | Course Begun         | Type of Instruction   | Instructors                          | Eligible to Enroll  | Registration Fee and/or Tuition (M D \$ only) | Approximate Attendance (M D \$ only) | Additional Contributing Agencies and Funds |
|--------------------------|---|---|--|---|--------------------|----------------------|---|--------------------------------------|---|---|--------------------------------------|--|
| Louisiana<br>New Orleans | New Orleans Graduate Medical Assembly                             | Not stated                                    | Secretary                                    | Medicine  | 5 days             | Spring               | Lectures, clinics, demonstrations                                     | In state out of state                | M D \$  | \$10  | Not stated                           |  |
|                          | Louisiana State Dept't of Health, Louisiana State Medical Society | Medicent center hospital, clinics             | State Health Officer                         | Obstetrics  | 2 weeks            | Quarterly            | Lectures, demon- strations, dis- cussions                             | Medical school in state              | M D \$ licensed in Louisiana  | None  | 25                                   |  |
|                          | Tulane U of Louisiana   | Medical school hospitals                      | Director, Dep't Postgraduate Medicine        | Various subjects (6 courses)  | 1 week 1½ months   | Fall, winter, spring | Lectures, clinics, demonstrations, ward rounds                        | Medical school                       | M D \$  | \$150   | 173                                  |  |
|                          | American College of Physicians                                    | Medical school                                | Executive Secre- tary                        | Chemotherapy, Hematology, Nutrition Endocrinology Public Health   | 2 weeks            | Winter               | Lectures clinics, demonstrations                                      | Medical school in state out of state | M D \$  | \$10  | 49                                   |  |
| Maryland<br>Baltimore    | Johns Hopkins U   | School of Hygiene and Public Health Hospital  | Dean   | Internal Medicine   | 8 weeks            | Repeated 3 times     | Clinics, laboratory work  | Medical school                       | M D \$  | \$10, \$75                                    | 25                                   |  |
|                          | West Baltimore General Hospital                                   | Hospital                                      | Director, Post graduate Training             | Internal Medicine   | 3 months           | Monthly              | Clinics, demon- strations, ward rounds                                | In state                             | M D \$  | \$70 \$125                                    | Not stated                           |  |
|                          | American College of Physicians                                    | Hospitals                                     | Secretary                                    | Diagnosis and Treatment of Heart Disease  | 2 weeks            | Winter               | Clinics, lectures   | In state out of state                | Members A C P M D \$ seeking cer- tification in the American Board of Internal Medicine | \$10  | 41                                   |  |
| Massachusetts<br>Boston  | American College of Surgeons                                      | Hotels  | Secretary                                    | 11st Annual Clinical Congress   | 5 days             | Winter               | Symposiums dis- cussions clinics conferences                          | In state out of state                | M D \$  | Not stated                                    | Not stated                           |  |
|                          | Maine Medical Association   | Medical schools, hospitals                    | Secretary                                    | Preclinical, General and Special  | Varies             | Throughout the year  | Lectures, clinics, demonstrations                                     | Med sch                              | M D \$  | None  | 33                                   | The Commonwealth Fund, Bingham Fund        |
|                          | Harvard Med Sch Courses for Grad                                  | Med sch, hosp's, infirm- aries labora- tories | Dean   | Various subjects (27 courses)   | 6 days 3 months    | Throughout the year  | Lectures, clinics   | Medical school                       | M D \$ some limited to male M D \$  | \$10-\$600                                    | 211                                  |  |
|                          | Tufts College Medical School                                      | Medical school                                | Chairman Post graduate Division              | General and Special (14 courses)  | 5 days to 3 months | Throughout the year  | Lectures clinics, demonstrations, case presentations, laboratory work | Medical school                       | M D \$  | \$25 \$130                                    | 101                                  |  |
| Cambridge                | Massachusetts Institute of Technology                             | School  | Not stated                                   | Public Health   | 2 semesters        | Fall                 | Lectures demon- strations, ward rounds, field trips                   | Staff mem- bers                      | M D \$ en- cliners, etc   | \$700 per semester                            | 5                                    |  |
| Michigan<br>Ann Arbor    | Michigan Dep't of Health  | Hospital                                      | Director Bureau of Maternal and Child Health | Obstetrics  | 2 weeks            | Fall                 | Lectures, clinics, demonstrations, ward rounds, conferences           | In state                             | M D \$ licensed in Michigan   | None  | 15                                   |  |
| Ann Arbor, Detroit       | University of Michigan  | Medical school, hospital, laboratories        | Chairman, Dep't of Postgraduate Education    | Courses in Allergy Anatomy, Cardiology, Gastroenterology, Hematology, Medicine, Ophthalmology and Otolarvngology, Psy- chiatry and Neurology, Radiology | Varied             | Throughout the year  | Lectures, demon- strations, ward rounds, discus- sions, conferences   | Medical school in state              | M D \$  | \$10 \$25                                     | 431                                  |  |
| Lausang                  | Michigan Dep't of Health  | Medical school                                | Director Bureau of Maternal and Child Health | Obstetrics  | 2 weeks            | Throughout the year  | Lectures clinics, demonstrations, conferences                         | Medical school                       | M D \$  | None  | 55                                   |  |
| Minnesota<br>Minneapolis | American College of Physicians                                    | Medical school                                | Secretary                                    | Internal Medicine   | 2 weeks            | Spring               | Lectures, clinics   | Medical school in state out of state | Members A C P M D \$ seeking certification in the American Board of Internal Medicine   | \$40  | 51                                   |  |



|                        | Institutional Medical Assembly of Wisconsin                                     | Hospitals or medical schools | Municipal Director                                   | Medicine   | 7 days                      | Full                     | Lectures, clinics, demonstrations all cities   | Medical school in state              | MD's  | %          | Not stated |
|------------------------|---|------------------------------|--|--|-----------------------------|--------------------------|--|--------------------------------------|---|------------|------------|
|                        | North Dakota Dept of Health   | Medical school               | Acting State Health Officer of North Dakota          | Gynecology<br>Obstetrics<br>Pediatrics                         | 1 week                      | Thorough throughout year | Lectures, demonstrations all cities  | In state                             | MD's elected by medical society                 | Not stated | 13         |
|                        | South Dakota State Board of Health  | Medical school               | Director Division of Hygiene and Child Health Bureau | Obstetrics and Pediatrics<br>Various subjects (courses)        | 6 days<br>6 days<br>1 month | Winter spring summer     | Lectures, clinics, symposiums, demonstrations all cities, conferences, moving pictures, Clinics lectures | Medical school                       | MD's elected by medical society in South Dakota | None       | 11         |
| Rochester              | American College of Physicians  | Foundation clinic            | Secretary  | Arthritis and Rheumatism Diseases                              | 1 week                      | Spring                   | Clinics lectures   | Medical school                       | MD's elected by medical society in South Dakota | None       | 103        |
|                        | Mayo Foundation Clinic for Medical Education and Research                       |                              | Director   | Peripheral Vascular Disease, High Blood Pressure, Hypertension | 6 weeks                     | Spring                   | Clinics lectures   | In state out of state                | MD's elected by medical society in South Dakota | None       | 19         |
| St Paul                | American College of Physicians  | Medical school hospitals     | Secretary  | Internal Medicine and Allied Specialties                       | 5 days                      | Spring                   | Clinics, all cases, lectures, demonstrations   | In state out of state                | MD's elected by medical society in South Dakota | None       | 110        |
| Mississippi Sanatorium | Mississippi State Tuberculosis Sanatorium                                       | Sanatorium                   | Superintendent                                       | Tuberculosis   | 2 weeks                     | Throughout year          | Clinics, demonstrations, conferences, bedside teaching   | In state                             | MD's elected by medical society in South Dakota | None       | 3          |
| Missouri St Louis      | American College of Physicians  | Medical school               | Executive Secretary                                  | Allergy  | 2 weeks                     | Spring                   | Lectures, clinics, demonstrations, conferences   | Medical school in state out of state | MD's elected by medical society in South Dakota | None       | 8          |
|                        | American Congress on Obstetrics and Gynecology Washington University            | Hotel Medical School         | Secretary<br>Dean                                    | Obstetrics and Gynecology<br>Ophthalmology                     | 30 days<br>7 months         | Spring<br>Fall           | Discussions, clinics, demonstrations, lectures, all cases  | Medical school in state out of state | MD's elected by medical society in South Dakota | Not stated | Not stated |
| Nebraska Lincoln       | State Department of Health  | Medical school               | Director Maternal and Child Health                   | Obstetrics, Gynecology and Pediatrics                          | 7 months                    | Throughout year          | Lectures, clinics, demonstrations, conferences, practical work   | Medical school in state out of state | MD's elected by medical society in South Dakota | None       | Not stated |
| Omaha                  | American Academy of Ophthalmology and Otology Omaha Mid West Ophthalmic Society | Hotel                        | Secretary  | Ophthalmology  | 6 weeks                     | Fall                     | Lectures, clinics, demonstrations, conferences, practical work   | Medical school in state out of state | MD's elected by medical society in South Dakota | None       | Not stated |
| New Jersey Jersey City | Columbia University Faculty of Medicine   | Hospital                     | Dean   | Obstetrics   | 13 months                   | Throughout year          | Observation, practical work, discussions, conferences  | Medical school in state out of state | MD's elected by medical society in South Dakota | None       | 19         |
| Newark                 | New York University College of Medicine   | Hospital                     | Dean   | Peripheral Vascular Diseases                                   | 1 week                      | Winter                   | Lectures, clinics, demonstrations, conferences   | Medical school in state out of state | MD's elected by medical society in South Dakota | None       | 10         |

TABLE 1—CONTINUATION COURSES FOR PRACTICING PHYSICIANS, 1941-1942—Continued  
B Where There Are Ample Facilities for Clinical Instruction—Five or More Days

| Location of Course         | Sponsoring Agencies  | Facilities for Graduate Programs | Director of Program                               | Title of Course                              | Duration of Course             | Course Begun         | Type of Instruction  | Instructors              | Eligible to Enroll  | Registration Fee and/or Tuition (M D s only) | Approximate Attendance (M D s only) | Additional Contributing Agencies and Funds                            |
|----------------------------|--|----------------------------------|---|--|--------------------------------|----------------------|--|--------------------------|---|--|-------------------------------------|---|
| Trenton                    | Medical Society of New Jersey  | Medical School                   | Executive Officer                                 | Medicine                                     | 6 12 weeks                     | Winter, twice        | Lectures, clinics, demonstrations  | Medical school           | M D s   | \$150-225                                    | Not stated                          |   |
| New York Albany            | New York State Dept of Health, New York State Medical Society                      | Public buildings                 | Director  | Conference on Chemotherapy                   | 2 days                         | Fall                 | Lectures, discussions  | In state out of state    | M D s   | Not stated                                   | 107                                 |   |
| Brooklyn                   | Joint Committee on Post Graduate Education, Medical Society of the County of Kings | Hospital                         | Registrar   | Various subjects (15 courses)                | 3 5 weeks                      | Fall, winter, spring | Clinics, demonstrations, conferences, participation  | In state                 | M D s   | \$10-25                                      | 146                                 |   |
|                            |  | Auditorium                       | Director, Post graduate Education                 | Emergency Treatment of War Casualties        | 2 evenings a week, for 2 weeks | Spring, twice        | Lectures   | In state out of state    | M D s   | Not stated                                   | Not stated                          |   |
| Buffalo                    | U of Buffalo   | Medical school, hospitals        | Chairman Dept of Postgraduate and Continuing Work | General                                      | 2 weeks                        | Fall                 | Lectures, clinics, ward rounds   | Medical school, in state | M D s   | \$50   | 50                                  |   |
| New York                   | American Academy of Dermatology and Syphilology, American College of Physicians    | Hotel                            | Secretary   | Fourth Annual Meeting                        | 5 days                         | Winter               | Lectures, discussions, symposiums  | In state out of state    | Specialists   | Not stated                                   | Not stated                          |   |
|                            |  | Hospital                         | Secretary   | Allergy                                      | 2 weeks                        | Winter               | Clinics, lectures  | In state out of state    | Members of A C P M D s seeking certification in the American Board of Internal Medicine | \$10   | 7                                   |   |
|                            | Columbia U (98 courses)  | Medical school hospital          | Dean  | Practical, General and Special               | 5 days to 3 months             | Throughout the year  | Lectures, clinics, demonstrations, ward rounds, practical work, laboratory work, conferences | Medical school           | M D s   | \$20-100                                     | 1,153                               |   |
|                            | New York Academy of Medicine   | Medical school                   | Executive Secretary                               | Peripheral Vascular Diseases                 | 2 weeks                        | Fall                 | Lectures, clinics, demonstrations, exhibits  | Medical school           | M D s   | \$5  | 69                                  |   |
|                            | New York City Dept of Health   | Clinics, laboratories            | Director, Bureau of Social Hygiene                | Veneral Diseases                             | 18 weeks                       | Throughout the year  | Clinics, demonstrations, laboratory work   | Medical school in state  | M D s   | None   | 120                                 | Federal Venereal Disease Control Appropriation                        |
|                            | New York Eye and Ear Infirmary, School of Ophthalmology and Otolaryngology         | Infirmary                        | Registrar   | Ophthalmology and Otolaryngology (5 courses) | 1 week to 3 months             | Throughout the year  | Lectures, clinics, demonstrations, conferences, laboratory work                              | Medical school           | M D s   | \$10-250                                     | 197                                 |   |
|                            | New York Medical College, Flower and 5th Avenue Hospitals                          | Medical school, hospitals        | Dean  | Various subjects (12 courses)                | 10 hours 5 weeks               | Throughout the year  | Lectures, demonstrations, conferences  | Medical school           | M D s   | \$75-250                                     | 52                                  |   |
|                            | New York Polytechnic Medical School and Hospital (13 courses)                      | Medical school, hospital         | Medical, Executive Officer                        | General and Special (11 courses)             | 1 to 9 months                  | Throughout the year  | Lectures, clinics, ward rounds, demonstrations, practical work                               | Medical school           | M D s   | \$70-100                                     | 62                                  |   |
|                            | New York U   | Medical school                   | Ass't Dean  | Various subjects (11 courses)                | 3 15 weeks                     | Fall, spring, summer | Lectures, discussions, practical work  | Medical school           | M D s   | \$150  | 52                                  |   |
| Saratoga Lake              | Trudeau Foundation   | Sanatoriums, laboratories        | Director, Trudeau eulosis                         | Tuberculosis                                 | 1 month                        | Fall                 | Lectures, clinics, ward rounds, demonstrations   | In state out of state    | M D s senior medical students   | \$100  | 20                                  | Lilla Babbitt Hyde Foundation of New York City                        |
| North Carolina Chapel Hill | North Carolina State Board of Health, U of North Carolina School of Public Health  | School of Public Health          | Chairmen Joint Committee                          | Veneral Disease Control                      | 6 days                         | Fall, 5 times        | Lectures, demonstrations, participation  | In state                 | M D s working in Venereal Disease Clinics   | None   | 25                                  | Zachary Smith Reynolds Foundation United States Public Health Service |
|                            | U of North Carolina  | School of Public Health          | Dean  | Public Health                                | 3 or 4 months                  | Fall                 | Lectures, laboratory work, trips   | Public health school     | M D s public health workers   | \$100  | 11                                  | United States Public Health Service                                   |



TABLE 2—CLINICAL CONFERENCES, GRADUATE ASSEMBLIES, STUDY COURSES, ETC., 1941-1942

| Location of Course        | Sponsoring Agencies   | Facilities for Graduate Programs | Director of Program                                       | Title of Course                                       | Duration of Course | Course Begin | Type of Instruction   | Instructors                            | Eligible to Enroll                              | Registration Fee and/or Tuition (M D \$ only) | Approximate Attendance (M D \$ only) | Additional Contributing Agencies and Funds |
|---------------------------|---|----------------------------------|---|---|--------------------|--------------|---|--|---|---|--------------------------------------|--|
| Arkansas<br>Little Rock   | Arkansas Medical Society  | Medical school                   | Chairman, Committee on Post graduate Study                | Varied  | 2 days             | Fall         | Symposiums, lectures, discussions   | In state                               | M D \$ licensed in Arkansas                     | \$3   | 100                                  |  |
| California<br>Los Angeles | California Tuberculosis Assn  | Hotel, sanatorium                | Associate Professor of Medicine, University of California | Graduate Assembly                                     | 3 days             | Spring       | Lectures, clinics, symposiums   | Medical schools, in state out of state | Members of county medical societies             | None  | 200                                  |  |
|                           | College of Medical Evangelists Alumni Assn Los Angeles Heart Assn   | Hospital                         | Secretary   | 8th Annual Post-graduate Assembly                     | 1 day              | Winter       | Lectures, discussions   | In state                               | M D \$ licensed in California                   | Not stated                                    | Not stated                           |  |
|                           |   | Hospitals, public buildings      | Chairman, Program Committee                               | Cardiology  | 2 days             | Winter       | Lectures, clinics, symposiums, demonstrations, discussions, moving pictures | Medical school in state                | M D \$  | \$5   | \$2                                  |  |
| Riverside                 | Southern California Medical Assn  | Hotel                            | Chairman, Committee on Post graduate Education            | 106th Annual Meeting                                  | 2 days             | Spring       | Symposiums  | In state out of state                  | M D \$ licensed in California                   | Not stated                                    | Not stated                           |  |
| San Francisco             | American Academy of Pediatrics and its San Francisco affiliates Postgraduate Symposium                        | Auditorium                       | Secretary   | Health Education                                      | 2 days             | Spring       | Lectures, discussions   | In state                               | M D \$ licensed in California                   | Not stated                                    | Not stated                           |  |
|                           |   | Hospitals                        | Chairman, Program Committee                               | Cardiology  | 3 days             | Fall         | Lectures, clinics, symposiums, demonstrations, discussions, moving pictures | Medical school in state                | M D \$  | \$15  | \$6                                  |  |
|                           | Univ of Calif State Dept of Public Health, Calif Med Assn   | Medical school                   | Director, Refresher Courses                               | Pediatrics  | Not stated         | Repeated     | Lectures, discussions   | Medical school                         | Selected M D \$ from Calif, Nev., Utah and Ariz | None  | 300                                  |  |
| San Jose                  | San Jose Hospital Assn  | Auditorium                       | Chairman of the Staff                                     | Early Clinical Diagnosis of Neoplastic Diseases       | 5 evenings         | Spring       | Lectures  | Out of state                           | M D \$  | Not stated                                    | Not stated                           |  |
| Colorado<br>Denver        | Colorado State Medical Society  | Public buildings Hospital        | Executive Secretary                                       | Postgraduate Clinics Orthopedic Surgery               | 3 days             | Winter       | Lectures, clinics   | In state out of state                  | M D \$  | \$5   | 125                                  |  |
|                           |   | Med school                       |   | Pneumonia   | 3 days             | Winter       | Lectures, discussions   | In state out of state                  | M D \$  | \$10  | 35                                   |  |
|                           |   | Hospital                         |   | Psychiatry and Neurology                              | 3 days             | Winter       | Lectures, discussions   | In state out of state                  | M D \$  | \$10  | 35                                   |  |
| Connecticut<br>New Haven  | Connecticut State Medical Society   | Yale Univ law bldgs, hospital    | Dean, Yale Univ School of Medicine                        | General   | 3 days             | Fall         | Lectures, demonstrations  | Medical schools in state out of state  | M D \$  | \$2   | 700                                  |  |
| Florida<br>Hollywood      | Florida Medical Assn  | Hotel                            | Secretary   | 99th Annual Convention                                | 3 days             | Spring       | Symposiums, clinics, exhibits   | In state out of state                  | M D \$  | None  | 400                                  |  |
| Georgia<br>Atlanta        | Emory University School of Medicine, Grady Hospital, State Board of Health                                    | Med school, hospital             | Chairman Program Committee                                | General   | 3 days             | Summer       | Clinics, lectures   | Medical schools, in state              | M D \$  | None  | 132                                  |  |
| Illinois<br>Chicago       | Central States Society of Industrial Medicine and Surgery, Chicago Society of Industrial Medicine and Surgery | Hotel hospital                   | Joint Program Chairman                                    | Joint Annual Meeting, War Surgery and Allied Subjects | 1 day              | Spring       | Clinics, symposium, discussions   | In state out of state                  | M D \$  | None  | 300                                  |  |

| Town or City             | State Hygiene Laboratory   | Laboratory     | Director                                  | Thematic Lecture                                   | 1 day                   | Threats of the year    | Lectures, demonstrations, laboratory work                             | Medical school                        | Medical and technical                      | None       | 1  |
|--------------------------|--|----------------|---|--|-------------------------|------------------------|---|---------------------------------------|--|------------|--|
| Kansas<br>Kansas City    | University of Kansas   | Medical school | Chairman Post Graduate Courses            | Medicine   | 1 day                   | Spring                 | Lectures, clinics, symposiums, demonstrations, conferences            | Medical school                        | None                                       | None       | 1  |
| Louisiana<br>Lafayette   | In State Dept. of Health, Louisiana State Dept. of Institutions, La State Medical Society  | Hospital       | State Health Officer                      | Obstetrics   | 1 day                   | Monthly                | Discussions   | In state                              | Medical in Louisiana                       | None       | 1.0  |
| New Orleans              | New Orleans Graduate Medical Assembly  | Not stated     | Secretary                                 | 6th Annual Meeting                                 | 1 day                   | Spring                 | Lectures, clinics, symposiums, conferences, exhibits, moving pictures | In state out of state                 | Medical                                    | 3.0        | 2  |
| Pineville                | In State Dept. of Health, In State Dept. of Institutions, La State Medical Society   | Hospital       | State Health Officer                      | Obstetrics   | 1 day                   | Monthly                | Discussions   | In state                              | Medical in Louisiana                       | None       | 5  |
| Maine<br>Portland        | Maine Medical Assn   | Hospitals      | Chairman, Selective Committee             | Clinical Medicine                                  | 2 days                  | Spring, fall           | Lectures, conferences, clinics  | In state out of state                 | Medical Maine                              | Not stated | Not stated                                 |
| Massachusetts<br>Boston  | Aero Medical Assn of the United States Commonwealth of Massachusetts Dept. of Public Health Harvard School of Public Health Tufts College Medical School | Hotel          | Secretary                                 | Aviation Medicine                                  | 3 days                  | Fall                   | Lectures, demonstrations, forums                                      | In state out of state                 | Medical                                    | Not stated | Not stated                                 |
|                          |  | Med school     | Chairman Graduate Committee               | Prenatal Care                                      | 1 day a week for 1 week | Spring                 | Clinic lectures   | Medical school in state               | Prenatal clinic only clinics of physicians | None       | 6  |
| Cambridge                | State Medical Society of Mass., New Hampshire, Rhode Island, Maine, Vermont and Conn   | Med school     | Chairman Post Graduate Division           | Electrocardiography                                | 3 days                  | Winter                 | Lectures, clinics, demonstrations, discussions                        | Medical school                        | Medical                                    | 0          | Not stated                                 |
| Michigan<br>Detroit      | Lorain on Allen, Hotel, clinic   | Med school     | Chairman Post Graduate Division Committee | New England Post Graduate Assembly                 | 2 days                  | Fall                   | Lectures, demonstrations  | In state out of state                 | Medical                                    | 3.0        | Harvard Medical School                     |
| Minnesota<br>Minneapolis | Minnesota Dept. of Health University of Minnesota  | Medical school | Secretary                                 | Obstetrics   | 3 days                  | Spring                 | Not stated  | Medical school                        | Medical                                    | Not stated | 27   |
|                          |  | Medical school | Director Dept. of Postgrad Medicine       | Discussions of Early Childhood                     | 3 days                  | Summer                 | Not stated  | Medical school                        | Medical                                    | Not stated | 6  |
|                          |  |                |   | Radiology (courses), Sulphonamide Therapy, Urology | 3 days, 3 days, 3 days  | Winter, spring, Winter | Not stated  | Medical school                        | Medical                                    | Not stated | 121  |
|                          |  |                |   | Urology  | 3 days                  | Winter                 | Not stated  | Medical school                        | Medical                                    | Not stated | 19   |
| St Paul                  | Western Surgical Assn  | Hotel          | President                                 | First Annual Meeting                               | 2 days                  | Winter                 | Lectures, clinics, forums   | In state, out of state                | Medical                                    | Not stated | 23   |
| Missouri<br>Kansas City  | Kansas City Clinical Society   | Auditorium     | Secretary                                 | Medicine Specialties                               | 4 days                  | July                   | Lectures, demonstrations, refreshers, courses                         | Medical schools in state out of state | Medical for students U Kansas              | 85         | Technical exhibitor Returns active members |



TABLE 2—CLINICAL CONFERENCES, GRADUATE ASSEMBLIES, STUDY COURSES, ETC., 1941-1942—Continued

| Location of Course       | Sponsoring Agencies   | Facilities for Graduate Programs | Director of Program                                  | Title of Course                            | Duration of Course | Course Began        | Type of Instruction                                    | Instructors                 | Eligible to Enroll   | Registration Approximate |                         | Additional Contributing Agencies and Funds |
|--------------------------|---|----------------------------------|--|--|--------------------|---------------------|--|-----------------------------|--|--------------------------|-------------------------|--|
|                          |   |                                  |  |  |                    |                     |  |                             |  | Fee and/or Tuition       | Attendance (M D s only) |  |
| St Louis                 | St Louis Clinics  | Clinics                          | Secretary  | Medicine                                   | 4 days             | Spring              | Lectures, demonstrations, clinics, conferences         | Medical school out of state | M D s  | \$10                     | 103                     |  |
| Nebraska Lincoln         | Southern Medical Assn., St. Louis Medical Society   | Hotel                            | Secretary  | 35th Annual Meeting                        | 4 days             | Winter              | Lectures, discussions                                  | In state out of state       | M D s  | Not stated               | Not stated              |  |
|                          | Nebraska Postgraduate Study Guild, International College of Surgeons  | Hospital, hotel                  | Chairman, Committee on Arrangements                  | Surgery                                    | 1 day              | Spring              | Clinics, discussions                                   | In state out of state       | M D s  | Not stated               | 200                     |  |
| New Jersey Atlantic City | American Academy of Orthopedic Surgeons   | Hotel                            | Secretary  | 10th Annual Convention                     | 2 days             | Winter              | Lectures, discussions, motion pictures                 | In state out of state       | M D s  | Not stated               | Not stated              |  |
| New York Albany          | New York State Dept. of Health, Med. Soc. of the State of N. Y.   | Local buildings                  | Director   | Chemotherapy                               | 2 days             | Fall                | Lectures, discussions                                  | In state out of state       | Members of Speakers Committee on Sulfonamide Therapy of N. Y. State Med. Soc. and interested key individuals | None                     | 125                     |  |
| New York                 | Tuberculosis Sanatorium Conference of Metropolitan New York National Foundation for Infantile Paralysis                                     | Medical school                   | Secretary  | Tuberculosis                               | 1 day              | Winter              | Clinics, lectures, discussions                         | Medical school              | M D s  | None                     | Not stated              |  |
|                          | New York Tuberculosis and Health Assn.  | Hospital, clinics                | Secretary  | 2nd Annual Meeting                         | 3 days             | Winter              | Reports, summaries, discussions                        | In state out of state       | M D s  | Not stated               | Not stated              |  |
|                          | State of New York Dept. of Health   | Not stated                       | Regional Medical Officer, 2d civilian Defense Region | Syphilis                                   | 4 sessions         | Throughout the year | Papers, discussions                                    | In state                    | Heads of syphilis clinics  | None                     | 50                      |  |
|                          | Tuberculosis Sanatorium Conference of Metropolitan New York, New York Tuberculosis and Health Assn.   | Medical college                  | Secretary  | Medical Aspects of Gas Warfare             | 2 days             | Spring              | Lectures, discussions                                  | In state out of state       | Emergency medical officers and selected M D s  | None                     | Not stated              |  |
|                          | University of Rochester School of Medicine and Dentistry, Medical Society of the County of Monroe, Medical Society of the State of New York | Medical school                   | Dean   | Chronic Pulmonary Diseases                 | 1 day              | Repeated 6 times    | Lectures, demonstrations                               | In state                    | M D s  | None                     | 200                     |  |
| Rochester                | Duke Hospital   | Hospital                         | Member of Staff                                      | Medicine                                   | 1 day              | Fall                | Forums, lectures, question box, discussions, symposium | In state out of state       | M D s  | Not stated               | 63                      |  |
| North Carolina Durham    | Duke University School of Medicine  | Medical school                   | Dean   | Problems of Civil and Military Emergencies | 3 days             | Fall                | Lectures, clinics, symposiums, demonstrations          | Medical school              | Negro M D s  | \$5                      | 59                      |  |
|                          | Boards of Health of various Southern States   | Sanatorium of various hospitals  | Registrar  | Pediatrics and Obstetrics                  | 2 weeks            | Summer              | Lectures, demonstrations, ward rounds                  | In state out of state       | M D s nurses   | \$25                     | 100                     |  |

| Ohio Cincinnati           | American Ass'n of Industrial Hygienists and University of Cincinnati | Hospitals        | Secretary   | Annual Meeting   | 4 days                    | Spring        | Clinical observations, lectures, symposia, exhibits      | In state out of state | MD's | Cost       |
|---------------------------|--|------------------|---|--|---------------------------|---------------|--|-----------------------|------|------------|
| Cleveland                 | Western Reserve University School of Medicine                        | Medical school   | Professor of Dermatology and Director of Laboratories | General  | 7 days a week for 1 month | Winter Spring | Lectures   | Medical school        | MD's | Not stated |
| Columbus                  | Ohio State University  | Medical school   | Dean  | Medicine   | 1 day                     | Spring        | Lectures, clinics, discussions                           | Medical school        | MD's | None       |
| Oklahoma Oklahoma City    | Medical Ass'n  | Hotel            | Program Chairman                                      | General Meeting  | 3 days                    | Spring        | Lectures, clinics, discussions, movies, pictures         | Medical school        | MD's | Not stated |
| Oregon                    | Okla. Soc. of Public Health  | Public buildings | Executive Secretary                                   | Medicine   | 1 day                     | Fall          | Lectures, symposia, discussions                          | Medical school        | MD's | None       |
| Portland                  | American College of Surgeons   | Medical school   | Secretary   | General  | 1 day                     | Spring        | Lectures, clinics  | Medical school        | MD's | Not stated |
|                           | North Pacific Ass'n  | Medical school   | Secretary   | General  | 1 day                     | Spring        | Lectures, clinics  | Medical school        | MD's | Not stated |
|                           | North Pacific Ass'n  | Medical school   | Secretary   | Annual Meeting   | 2 days                    | Winter        | Lectures, clinics  | Medical school        | MD's | Not stated |
|                           | Oregon State Ass'n   | Medical school   | Not stated  | Annual Meeting   | 1 day                     | Spring        | Lectures, clinics  | Medical school        | MD's | Not stated |
|                           | Oregon State Ass'n   | Medical school   | Secretary   | Annual Meeting   | 2 days                    | Spring        | Lectures, clinics  | Medical school        | MD's | Not stated |
|                           | Portland Ass'n   | Public buildings | Secretary   | Physiology, Pharmacology, Microbiology, Urology, Military Medicine | 1 day                     | Summer        | Lectures, clinics  | Medical school        | MD's | Not stated |
| Pennsylvania Philadelphia | Pacific Northwest Society of Pathologists                            | Medical school   | Secretary   | General  | 1 day                     | Spring        | Lectures, clinics  | Medical school        | MD's | Not stated |
|                           | Portland Ass'n   | Medical school   | Not stated  | General  | 3 days                    | Winter        | Lectures, clinics  | Medical school        | MD's | Not stated |
|                           | University of Oregon   | Medical school   | Acting Dean   | Pediatrics   | 1 day                     | Winter        | Lectures, clinics  | Medical school        | MD's | Not stated |
|                           | German town Dispensary and Hospital                                  | Hospital         | Director of Laboratories                              | Medicine   | 3 days                    | Winter        | Lectures, clinics, demonstrations, symposia, conferences | Medical school        | MD's | Not stated |
| Pittsburgh                | American Congress of Physical Therapy                                | Hotel            | Executive Director                                    | 21st Annual Scientific and Clinical Session                        | 1 day                     | Fall          | Lectures, clinics, discussions                           | Medical school        | MD's | None       |
|                           | Industrial Hygiene Association                                       | Institute        | Secretary   | Public Health  | 2 days                    | Winter        | Lectures, clinics, discussions                           | Medical school        | MD's | Not stated |
|                           | Tuberculosis League of America                                       | Not stated       | Chairman, Steering Committee                          | Public Health  | 1 day                     | Spring        | Lectures, clinics, discussions                           | Medical school        | MD's | Not stated |
|                           | Pittsburgh Postcard and Institute on Public Health                   | Not stated       | Chairman  | Third Annual Institute on Tuberculosis                             | 2 days                    | Spring        | Lectures, clinics, discussions                           | Medical school        | MD's | Not stated |
| Skytop                    | American Clinical Association and Ophthalmology Ass'n                | Hotel            | Secretary   | 57th Annual Convention   | 1 day                     | Winter        | Lectures, clinics, discussions                           | Medical school        | MD's | Not stated |
| Tennessee Memphis         | Mid South Post Graduate Medical Assembly                             | Hotel            | Secretary   | Cardiovascular Disease, Dermatology, Fractures, Obstetrics         | 3 days                    | Summer        | Lectures, clinics, discussions                           | Medical school        | MD's | Not stated |
| Texas Dallas              | Dallas Southern Clinical Society                                     | Hospital         | Secretary   | Cardiovascular Disease, Dermatology, Fractures, Obstetrics         | 3 days                    | Summer        | Lectures, clinics, discussions                           | Medical school        | MD's | Not stated |

TABLE 2—CLINICAL CONFERENCES, GRADUATE ASSEMBLIES, STUDY COURSES, ETC., 1941-1942—Continued

| Location of Course     | Sponsoring Agencies   | Facilities for Graduate Programs          | Director of Program   | Title of Course  | Duration of Course | Course Began | Type of Instruction                 | Instructors               | Eligible to Enroll            | Registration Fee and/or Tuition | Approximate Attendance (M D s only) | Additional Contributing Agencies and Funds                   |
|------------------------|---|---|---|--|--------------------|--------------|-------------------------------------|---------------------------|-------------------------------|---------------------------------|-------------------------------------|--|
| Houston                | Postgraduate Medical Assembly of Southern Tex   | Hospitals                                 | Program Chairman  | 11th Annual Meeting  | 3 days             | Winter       | Lectures, discussions, symposiums   | Medical school in state   | M D s nurses, technicians     | \$10                            | 760                                 | Technical exhibitors   |
| Marshall               | Northeast Texas Medical Assn  | Hotel                                     | Secretary   | General  | 1 day              | Winter       | Clinics, lectures                   | Medical schools, in state | M D s                         | \$2                             | 50                                  |  |
| Prairie View           | Texas Tubercu-<br>losis Assn<br>State Dept of Health<br>Lone Star<br>State Medical,<br>Dental and Phar-<br>maceutical Assn,<br>Prairie View<br>State College for Negroes, National<br>Tuberculosis Assn | Lecture rooms, hospital                   | Exec Secretary<br>Texas Tubercu-<br>losis Assn<br>Director for Maternal and Child Health,<br>Texas State Health Dept,<br>Steering Committee of 16<br>Negro Physicians | Tuberculosis, Syphilis, Pediat-<br>rics, Obstetrics, Heart Disease | 4 days             | Spring       | Clinics, lectures                   | In state out of state     | Negro M D s                   | None                            | 56                                  | The Hogg Memorial Foun-<br>dation of the University of Texas |
| Vermont<br>Burlington  | Vermont State Medical Society   | Medical school                            | Secretary   | 127th Annual Meeting   | 2 days             | Fall         | Lectures discussions                | In state out of state     | M D s                         | None                            | 123                                 |  |
| Virginia<br>University | University of Virginia  | Medical school                            | Chairman, Graduate Clinics  | Gastroenterology   | 2 days             | Winter       | Symposium                           | In state out of state     | M D s                         | \$15.25                         | 47                                  |  |
| Wisconsin<br>Madison   | State Medical Society of Wisconsin  | Medical school, univer-<br>sity buildings | Secretary   | General  | 3 days             | Fall         | Lectures confer-<br>ences, exhibits | In state out of state     | Members State Medical Society | None                            | 1,500                               |  |

(Continued from page 1299)

There were nineteen states that offered continuation study for the practicing physician in or near their home communities. Continuation study in centers where there are ample clinical facilities were offered in thirty-two states and the District of Columbia. Graduate assemblies in twenty-eight states.

The approximate attendance reported at these circuit courses totaled 37,611. The individual registration of these groups was 11,029 for courses offered in or near home communities, 14,879 for centers where there are ample clinical facilities and 11,703 for clinical conferences, graduate assemblies and study courses.

The study of general medical and surgical subjects the specialties and subspecialties in various combinations were offered. Clinical instruction and practical experience included laboratory and operative demonstrations, symposiums, seminars, assignment of patients, case presentation, clinical pathologic and roentgen ray conferences, movies, ward rounds, field trips and bedside teaching.

COMMENT

The registration for these three types of courses was lower than that reported for the session 1940-1941, when 43,621 individuals attended courses. The drop in attendance was in courses offered to physicians in or near their home communities and in the graduate assemblies, while in centers providing ample clinical facilities the attendance exceeded that for 1940-1941 by 2,331. As a result of the exigencies of the war, several programs were canceled. Furthermore, medical schools report that, because of unsettled conditions, the institution of the accelerated program of undergraduate medical education and because their faculties have been so depleted, it would be difficult for them to plan any activity aside from undergraduate instruction in the immediate future. Many state medical societies and departments of health are curtailing or discontinuing refresher courses because of lack of adequate personnel to conduct them.

Although the many difficulties in connection with the conduct of continuation and refresher courses during the war are fully appreciated, it is hoped that they will be continued as far as possible. Considerable thought should be given to the selection of subjects for the programs offered. These will naturally differ in the various localities. The war will undoubtedly present to the physicians in civilian practice many new and difficult problems. Thus state medical societies and other agencies may be in a position to make a great contribution by dealing with these problems in such continuation and refresher courses as they are in a position to offer.

For the past year the Council has gathered data on proposed courses and has published this material at quarterly intervals in THE JOURNAL. Included in this summary, in addition to the name of the institution and location, is given the date when instruction begins, the length and content of the courses, the type of instruction offered, the number of physicians accepted for each course and their eligibility, the instructors participating and the fee charged.

The House of Delegates of the American Medical Association, at its annual meeting in June 1942, instructed the Council to develop a program of refresher courses for physicians returning to civilian practice after the war and study the problem involved in the provision of opportunities for the further training of young men who have entered the armed forces after the completion of one year of internship.

# APPROVED INTERNSHIPS

Council on Medical Education and Hospitals of the American Medical Association  
335 North Dearborn Street Chicago

Revised to Aug 15 1942

The following general hospitals are considered in position to furnish acceptable internships of at least one year duration. They are also accredited to furnish internships which represent general assignments following an approved intern service. The + sign indicates additional approval for residents in specialties.

HOSPITALS, 739 INTERNSHIPS, 8,349  
CAPACITY, 258,660 BEDS

The terms used in the column Type of Internship are defined as follows:  
1. A full rotating intern provides training in medicine, surgery, pediatrics, obstetrics, pathology and radiology. (May and laboratory duties may be combined with clinical services or constitute separate assignments.)

A mixed or limited rotating internship covers more than one of the clinical specialties but does not include all of the divisions listed above.  
A straight internship is an assignment limited to a single department but may include the subspecialties of the same branch. Straight internships are now approved in the divisions of medicine, surgery, pediatrics, pathology, obstetrics and obstetrics-gynecology.

## ABBREVIATIONS

|      |                         |       |                       |       |                                     |
|------|-------------------------|-------|-----------------------|-------|-------------------------------------|
| Army | United States Army      | Indiv | Individual            | Part  | Partnership                         |
| CoCo | City and County         | M     | Mixed                 | Req   | Required                            |
| Corp | Corporation (unrelated) | NP    | Nonprofit association | R     | Rotating                            |
|      | not for profit          | NP    | Nonprofit association | S     | Straight                            |
| Fed  | Federal                 | Op    | Optional              | USPHS | United States Public Health Service |

The following list of approved internships has been revised to date of publication in order to record the changes that have recently occurred in relation to military needs and the requirements of the present accelerated program of medical education. The clinical data included in this list are for the year 1941 but information concerning the type of internship offered, number of interns, length of service, date of appointment, beginning of service and monthly stipend is reported as at July 1942. The bed capacity and admissions in federal hospitals included in this list are identical with the data published in the Hospital Number of THE JOURNAL A M A March 28 1942.

| Name of Hospital  | Location       | Control | Capacity | Total Patients Admitted | % Service Cases | % Priv. vs. Worked Up by Interns | Type of Internship | Interns Appointed Annually | Length of Service in Months | Service Commences | Admitted Service | Outpatient Service | Autopsy Percentage | Stipend per Month | Appointments Made |
|---|----------------|---------|----------|-------------------------|-----------------|----------------------------------|--------------------|----------------------------|-----------------------------|-------------------|------------------|--------------------|--------------------|-------------------|-------------------|
| <b>ALABAMA</b>  |                |         |          |                         |                 |                                  |                    |                            |                             |                   |                  |                    |                    |                   |                   |
| Hallman Hospital +  | Birmingham     | County  | 47       | 10,100                  | 100             | 0                                | R                  | 10                         | 12                          | Quarterly         | No               | Req                | 25                 | No                | Quarterly         |
| Norwood Hospital +  | Birmingham     | Church  | 21       | 7,000                   | 100             | 0                                | R                  | 0                          | 12                          | Varies            | No               | Req                | 50                 | 200               | Nov               |
| Employees Hospital of the Tennessee Coal, Iron and Railroad Company + | Fairfield      | NP      | 327      | 87,200                  | 100             | 87                               | R                  | 12                         | 12                          | July              | No               | Req                | 32                 | \$27.50           | Varies            |
| City Hospital   | Mobile         | CoCo    | 145      | 3,400                   | 87              | 75                               | R                  | 0                          | 12                          | Varies            | No               | Req                | 23                 | \$25(d)           | Varies            |
| <b>ARIZONA</b>  |                |         |          |                         |                 |                                  |                    |                            |                             |                   |                  |                    |                    |                   |                   |
| Good Samaritan Hospital   | Phoenix        | Church  | 196      | 4,500                   | 80              | 0                                | R                  | 0                          | 12                          | July              | No               | None               | 29                 | \$30              | Varies            |
| St. Vincent's Hospital  | Phoenix        | Church  | 216      | 6,000                   | 3               | 90                               | R                  | 6                          | 12                          | Varies            | No               | None               | 35                 | \$30              | Varies            |
| <b>ARKANSAS</b>   |                |         |          |                         |                 |                                  |                    |                            |                             |                   |                  |                    |                    |                   |                   |
| Baptist State Hospital +  | Little Rock    | Church  | 265      | 5,500                   | 14              | 100                              | R                  | 6                          | 12                          | July              | No               | None               | 20                 | \$40              | Nov               |
| St. Vincent's Infirmary   | Little Rock    | Church  | 265      | 6,100                   | 12              | 17                               | R                  | 6                          | 12                          | June              | No               | None               | 20                 | \$40              | Nov               |
| University Hospital   | Little Rock    | State   | 110      | 3,712                   | 100             | 0                                | R                  | 12                         | 12                          | July              | No               | Req                | 35                 | \$25              | Nov               |
| <b>CALIFORNIA</b>   |                |         |          |                         |                 |                                  |                    |                            |                             |                   |                  |                    |                    |                   |                   |
| General Hospital of Fresno County +                                   | Fresno         | County  | 540      | 8,151                   | 100             | 0                                | R                  | 12                         | 12                          | July              | No               | Req                | 35                 | \$25              | Nov               |
| Glendale Sanitarium and Hospital +                                    | Glendale       | Church  | 225      | 5,210                   | 90              | 90                               | R                  | 4                          | 12                          | July              | No               | Req                | 19                 | \$75(a)           | Nov               |
| Loma Linda Sanitarium and Hospital +                                  | Loma Linda     | Church  | 134      | 3,200                   | 80              | 90                               | R                  | 4                          | 12                          | July              | No               | Req                | 49                 | \$60(n)           | Sept              |
| California Hospital +   | Los Angeles    | Church  | 293      | 9,700                   | 90              | 0                                | R                  | 12                         | 12                          | Varies            | (4)              | Req                | 30                 | \$20(s)           | Varies            |
| Cedars of Lebanon Hospital +  | Los Angeles    | NP      | 295      | 8,500                   | 15              | 0                                | R                  | 13                         | 12                          | July              | (5)              | Req                | 35                 | \$20              | Nov               |
| Hospital of the Good Samaritan +                                      | Los Angeles    | Church  | 444      | 10,011                  | 90              | 0                                | R                  | 20                         | 12                          | July              | (6)              | Req                | 32                 | \$40              | Oct               |
| Los Angeles County Hospital +   | Los Angeles    | County  | 4,011    | 49,376                  | 100             | 0                                | R                  | 125                        | 12                          | April             | No               | Req                | 60                 | \$25              | Oct               |
| Presbyterian Hospital—Olmsted Memorial +                              | Los Angeles    | NP      | 370      | 8,200                   | 0               | 0                                | R                  | 6                          | 12                          | Varies            | (5)              | None               | 31                 | \$20              | Varies            |
| Queen of Angels Hospital  | Los Angeles    | Church  | 309      | 10,918                  | 100             | 0                                | R                  | 10                         | 12                          | Varies            | No               | Req                | 41                 | \$30              | Nov               |
| St. Vincent's Hospital +  | Los Angeles    | Church  | 200      | 5,000                   | 100             | 0                                | R                  | 6                          | 12                          | Feb/July          | No               | None               | 47                 | \$40              | Varies            |
| Santa Fe Coast Lines Hospital   | Los Angeles    | NP      | 190      | 4,000                   | 100             | 0                                | R                  | 8                          | 12                          | July              | (7)              | Req                | 77                 | \$30              | Dec               |
| White Memorial Hospital +   | Los Angeles    | Church  | 227      | 5,000                   | 67              | 100                              | R                  | 16                         | 12                          | July              | No               | Req                | 50                 | \$60(a)           | Oct               |
| United States Naval Hospital  | Mare Island    | Navy    | 450      | 9,616                   | 100             | 0                                | R                  | 12                         | 12                          | July              | No               | Req                | 76                 | (b)               | Varies            |
| Highland Alameda County Hospital +                                    | Oakland        | County  | 511      | 10,413                  | 100             | 0                                | R                  | 30                         | 12                          | Varies            | (8)              | Op                 | 54                 | \$20              | Varies            |
| Orange County General Hospital  | Orange         | County  | 552      | 3,633                   | 100             | 0                                | R                  | 10                         | 12                          | Feb/July          | No               | Req                | 42                 | \$20              | Nov               |
| Colles P. and Howard Huntington Memorial Hospital +                   | Pasadena       | NP      | 235      | 6,700                   | 0               | 0                                | R                  | 6                          | 12                          | Apr/July          | (9)              | Req                | 62                 | \$30              | Varies            |
| Sacramento County Hospital  | Sacramento     | County  | 500      | 8,231                   | 100             | 0                                | R                  | 12                         | 12                          | April             | No               | Req                | 40                 | \$30              | Oct               |
| San Bernardino County Charity Hospital +                              | San Bernardino | County  | 341      | 4,402                   | 100             | 0                                | R                  | 9                          | 12                          | April             | No               | Req                | 55                 | \$40              | Sept              |
| San Diego County General Hospital +                                   | San Diego      | County  | 569      | 6,607                   | 100             | 0                                | R                  | 10                         | 12                          | Varies            | No               | Req                | 33                 | \$20              | Varies            |
| United States Naval Hospital  | San Diego      | Navy    | 1,184    | 9,711                   | 100             | 0                                | R                  | 17                         | 12                          | July              | (10)             | Req                | 85                 | (b)               | Varies            |
| Children's Hospital +   | San Francisco  | NP      | 150      | 6,200                   | 20              | 82                               | R                  | 10                         | 12                          | July              | No               | Req                | 41                 | \$60 yr           | July              |
| Franklin Hospital +   | San Francisco  | NP      | 248      | 5,092                   | 60              | 85                               | R                  | 10                         | 12                          | July              | No               | Op                 | 43                 | \$25              | Nov               |
| French Hospital +   | San Francisco  | NP      | 232      | 4,230                   | 90              | 100                              | R                  | 7                          | 12                          | April             | No               | Req                | 49                 | \$30(e)           | Aug               |
| Letterman General Hospital +  | San Francisco  | Army    | 1,262    | 9,664                   | 100             | 0                                | R                  | 10                         | 12                          | July              | No               | Req                | 79                 | \$60              | Varies            |
| Mary's Help Hospital +  | San Francisco  | Church  | 150      | 3,619                   | 7               | 100                              | R                  | 5                          | 12                          | July              | No               | Req                | 40                 | \$35              | Nov               |
| Mount Zion Hospital +   | San Francisco  | NP      | 157      | 4,275                   | 23              | 100                              | R                  | 7                          | 12                          | Mar/Oct           | No               | Req                | 54                 | \$15              | Apr/Sept          |
| St. Joseph's Hospital   | San Francisco  | Church  | 209      | 6,214                   | 0               | 0                                | R                  | 8                          | 12                          | Mar/July          | No               | None               | 23                 | \$20              | Varies            |
| St. Luke's Hospital +   | San Francisco  | Church  | 230      | 5,411                   | 10              | 100                              | R                  | 10                         | 12                          | Quarterly         | No               | Req                | 48                 | \$20(e)           | Varies            |
| St. Mary's Hospital   | San Francisco  | Church  | 355      | 9,491                   | 12              | 100                              | R                  | 8                          | 12                          | July              | No               | Req                | 24                 | \$20              | Varies            |
| San Francisco Hospital +  | San Francisco  | CoCo    | 1,476    | 16,740                  | 100             | 0                                | R                  | 72                         | 12                          | July              | (11)             | Req                | 47                 | \$10              | Nov               |
| Southern Pacific General Hospital                                     | San Francisco  | NP      | 400      | 6,034                   | 100             | 0                                | R                  | 16                         | 12                          | July              | (12)             | Req                | 43                 | \$30              | Oct               |
| Stanford University Hospital  | San Francisco  | NP      | 345      | 8,911                   | 46              | 0                                | S                  | 15                         | 12                          | July              | No               | Req                | 50                 | \$0               | Jan               |
| United States Marine Hospital +                                       | San Francisco  | USPHS   | 450      | 6,211                   | 100             | 0                                | R                  | 12                         | 12                          | July              | (13)             | Op                 | 78                 | \$62.50           | Varies            |
| University of California Hospital +                                   | San Francisco  | State   | 309      | 7,233                   | 84              | 30                               | S                  | 21                         | 12                          | July              | No               | Req                | 85                 | \$0 yr            | Nov               |
| Santa Clara County Hospital +   | San Jose       | County  | 571      | 7,501                   | 100             | 0                                | R                  | 10                         | 12                          | July              | No               | Req                | 23                 | \$25              | Nov               |
| Santa Clara Hospital +  | Santa Barbara  | Church  | 105      | 2,245                   | 3               | 100                              | R                  | 3                          | 12                          | July              | No               | None               | 54                 | \$40(f)           | July              |
| Santa Barbara Cottage Hospital +                                      | Santa Barbara  | NP      | 150      | 3,921                   | 100             | 0                                | R                  | 6                          | 12                          | July              | No               | None               | 65                 | \$0               | Nov               |
| Santa Barbara General Hospital +                                      | Santa Barbara  | County  | 312      | 2,227                   | 100             | 0                                | R                  | 6                          | 12                          | June              | No               | Req                | 66                 | \$25              | Sept              |

Numerical and other references will be found on page 1321

| Name of Hospital   | Location         | Control | Capacity | Total Patients Admitted | % Service Cases | % Priv Pts Worked Up by Interns | Type of Internship | Interns Appointed Annually | Length of Service in Months | Service Commences | Affiliated Service | Outpatient Service | Autopsy Percentage | Stipend per Month | Appointments Made |
|--|------------------|---------|----------|-------------------------|-----------------|---------------------------------|--------------------|----------------------------|-----------------------------|-------------------|--------------------|--------------------|--------------------|-------------------|-------------------|
| <b>COLORADO</b>  |                  |         |          |                         |                 |                                 |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| Boulder Colorado Sanit and Hospital <sup>1</sup>                     | Boulder          | Church  | 107      | 1,274                   | 75              | 100                             | R                  | 2                          | 12                          | Jan               | (14)               | Op                 | 26                 | \$50              | Nov               |
| Beth El General Hospital and Sanatorium <sup>1</sup>                 | Colorado Springs | Church  | 210      | 2,262                   |                 |                                 | R                  | 2                          | 12                          | July              | No                 | None               | 33                 | \$50              | Nov               |
| St Francis Hospital and Sanatorium                                   | Colorado Springs | Church  | 165      | 1,675                   |                 | 100                             | R                  | 2                          | 12                          | Jan               | No                 | None               | 47                 | \$50              | Varies            |
| Colorado General Hospital <sup>1</sup> +                             | Denver           | State   | 265      | 1,585                   | 100             |                                 | R                  | 17                         | 12                          | April             | No                 | Op                 | 01                 | \$20              | Aug               |
| Denver General Hospital <sup>1</sup> +                               | Denver           | CyCo    | 700      | 8,106                   | 100             |                                 | R                  | 18                         | 12                          | JanJuly           | No                 | Op                 | 57                 | \$30              | May               |
| Mercy Hospital   | Denver           | Church  | 240      | 7,875                   | 10              | 90                              | R                  | 5                          | 12                          | March             | No                 | None               | 43                 | \$25(f)           | Sept              |
| Presbyterian Hospital  | Denver           | Church  | 175      | 5,667                   |                 |                                 | R                  | 5                          | 12                          | JanAprilJuly      | No                 | Req                | 20                 | \$25              | Varies            |
| St Anthony Hospital  | Denver           | Church  | 220      | 4,040                   | 10              | 100                             | R                  | 3                          | 12                          | July              | No                 | Op                 | 38                 | \$20(e)           | Fall              |
| St Joseph's Hospital   | Denver           | Church  | 300      | 7,397                   | 75              |                                 | R                  | 8                          | 12                          | July              | No                 | Op                 | 27                 | \$50              | Nov               |
| St Luke's Hospital <sup>1</sup> +                                    | Denver           | Church  | 250      | 7,625                   |                 | 90                              | R                  | 8                          | 12                          | Varies            | No                 | None               | 47                 | \$25              | Varies            |
| <b>CONNECTICUT</b>   |                  |         |          |                         |                 |                                 |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| Bridgeport Hospital  | Bridgeport       | NP Assn | 100      | 10,176                  | 32              |                                 | R                  | 10                         | 12                          | July              | No                 | None               | 39                 | \$10              | Dec               |
| St Vincent's Hospital  | Bridgeport       | Church  | 125      | 8,410                   |                 |                                 | R                  | 8                          | 12                          | MarJuly           | No                 | None               | 44                 | \$25              | Varies            |
| Danbury Hospital   | Danbury          | NP Assn | 210      | 1,213                   | 73              | 100                             | R                  | 4                          | 12                          | July              | No                 | None               | 36                 | \$40              | Nov               |
| Hartford Hospital <sup>1</sup> +                                     | Hartford         | NP Assn | 863      | 19,715                  | 46              | 100                             | R                  | 12                         | 12 24                       | Varies            | No                 | None               | 52                 | No                | Varies            |
| Municipal Hospitals <sup>1</sup> +                                   | Hartford         | City    | 319      | 3,817                   | 100             |                                 | R                  | 12                         | 12                          | March             | No                 | Req                | 55                 | \$50              | Varies            |
| St Francis Hospital <sup>1</sup> +                                   | Hartford         | Church  | 600      | 14,555                  | 11              | 56                              | R                  | 14                         | 12                          | AprJuly           | No                 | Req                | 35                 | No                | JulyOct           |
| Meriden Hospital   | Meriden          | NP Assn | 140      | 2,812                   | 21              | 41                              | R                  | 1                          | 12                          | July              | No                 | None               | 46                 | \$50              | Varies            |
| Middletown Hospital  | Middletown       | NP Assn | 167      | 3,507                   | 71              | 67                              | R                  | 4                          | 12                          | Varies            | No                 | None               | 35                 | \$20(f)           | Varies            |
| New Britain General Hospital   | New Britain      | NP Assn | 250      | 6,021                   | 12              | 80                              | R                  | 8                          | 12                          | April             | No                 | None               | 40                 | \$30              | Fall              |
| Grace Hospital <sup>1</sup> +  | New Haven        | NP Assn | 270      | 6,090                   | 30              | 70                              | R                  | 12                         | 12                          | Varies            | No                 | Req                | 36                 | \$10              | Varies            |
| Hospital of St Raphael <sup>1</sup>                                  | New Haven        | Church  | 250      | 7,603                   | 78              | 90                              | R                  | 4                          | 24                          | July              | No                 | None               | 29                 | \$20              | Nov               |
| New Haven Hospital <sup>1</sup> +                                    | New Haven        | NP Assn | 571      | 11,458                  | 61              | 01                              | S                  | 35                         | 12 24                       | Varies            | No                 | Req                | 57                 | No                | Nov               |
| Lawrence and Memorial Associated Hospitals                           | New London       | NP Assn | 248      | 3,775                   | 60              |                                 | R                  | 4                          | 12                          | July              | No                 | None               | 41                 | \$75              | Varies            |
| Norwalk General Hospital   | Norwalk          | NP Assn | 211      | 5,417                   | 25              | 25                              | R                  | 6                          | 12                          | July              | No                 | None               | 57                 | \$50              | Nov               |
| William W. Backus Hospital <sup>1</sup>                              | Norwich          | NP Assn | 160      | 3,193                   | 39              | 160                             | R                  | 2                          | 12                          | Varies            | No                 | Req                | 49                 | \$125             | April             |
| Stamford Hospital  | Stamford         | NP Assn | 306      | 5,777                   | 33              | 100                             | R                  | 9                          | 18                          | JanJuly           | No                 | Req                | 34                 | \$40(f)           | Varies            |
| St Mary's Hospital <sup>1</sup>                                      | Waterbury        | Church  | 181      | 10,657                  | 27              | 90                              | R                  | 6                          | 12                          | July              | No                 | Req                | 37                 | \$25              | Oct               |
| Waterbury Hospital   | Waterbury        | NP Assn | 360      | 7,207                   | 26              | 100                             | R                  | 6                          | 12                          | July              | No                 | Req                | 35                 | \$25              | Oct               |
| <b>DELAWARE</b>  |                  |         |          |                         |                 |                                 |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| Delaware Hospital  | Wilmington       | NP Assn | 400      | 5,452                   | 45              | 56                              | R                  | 12                         | 12                          | April             | No                 | Req                | 41                 | \$25              | Varies            |
| Memorial Hospital <sup>1</sup> +                                     | Wilmington       | NP Assn | 253      | 4,671                   |                 | 100                             | R                  | 7                          | 12                          | July              | No                 | Req                | 39                 | \$35              | Nov               |
| St Francis Hospital <sup>1</sup>                                     | Wilmington       | Church  | 140      | 1,963                   | 41              | 59                              | R                  | 3                          | 12                          | July              | No                 | Req                | 42                 | \$50              | Dec               |
| Wilmington General Hospital <sup>1</sup>                             | Wilmington       | NP Assn | 218      | 4,885                   | 45              | 100                             | R                  | 7                          | 12                          | March             | No                 | Req                | 34                 | \$50              | Dec               |
| <b>DISTRICT OF COLUMBIA</b>  |                  |         |          |                         |                 |                                 |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| Central Disp and Emergency Hospital <sup>1</sup> +                   | Washington       | NP Assn | 250      | 7,107                   | 8               | 100                             | R                  | 13                         | 12                          | July              | (15)               | Req                | 50                 | \$10              | Nov               |
| Doctors Hospital <sup>1</sup>  | Washington       | Corp    | 295      | 7,770                   |                 | 100                             | R                  | 12                         | 12                          | MarJuly           | No                 | None               | 71                 | \$50              | SeptDec           |
| Irreeden's Hospital <sup>1</sup> +                                   | Washington       | USPHS   | 450      | 5,418                   | 100             |                                 | R                  | 16                         | 12                          | JulyOct           | No                 | Req                | 40                 | \$10              | Nov               |
| Gallinger Municipal Hospital <sup>1</sup> +                          | Washington       | City    | 1,446    | 16,949                  | 103             |                                 | R                  | 30                         | 12                          | MarJuly           | No                 | Op                 | 50                 | \$10              | Sept              |
| Garfield Memorial Hospital <sup>1</sup> +                            | Washington       | NP Assn | 437      | 9,649                   | 25              | 75                              | R                  | 13                         | 12                          | MarJuly           | No                 | Req                | 66                 | \$10(f)           | AprOct            |
| Georgetown University Hospital <sup>1</sup> +                        | Washington       | NP Assn | 274      | 6,224                   | 24              | 76                              | R                  | 10                         | 12                          | AprJuly           | (16)               | Req                | 53                 | \$10              | Aug               |
| George Washington University Hospital <sup>1</sup> +                 | Washington       | NP Assn | 114      | 2,773                   | 17              |                                 | R                  | 4                          | 12                          | July              | No                 | Req                | 51                 | \$15              | Nov               |
| Providence Hospital <sup>1</sup> +                                   | Washington       | Church  | 325      | 8,519                   | 16              | 100                             | R                  | 12                         | 12                          | July              | (17)               | Req                | 32                 | No                | Nov               |
| St Elizabeths Hospital, Medical and Surgical Department <sup>1</sup> | Washington       | USPHS   | 456      | 2,201                   | 100             |                                 | R                  | 12                         | 12                          | JanJuly           | (18)               | Req                | 75                 | (b)               | Varies            |
| Sibley Memorial Hospital <sup>1</sup> +                              | Washington       | Church  | 349      | 8,837                   |                 |                                 | R                  | 11                         | 12                          | FebJuly           | No                 | None               | 50                 | \$20              | AugDec            |
| United States Naval Hospital   | Washington       | Navy    | 205      | 2,177                   | 100             |                                 | R                  | 12                         | 12                          | Varies            | (19)               | None               | 78                 | (b)               | Varies            |
| Walter Reed General Hospital <sup>1</sup> +                          | Washington       | Army    | 1,421    | 8,467                   | 100             |                                 | R                  | 12                         | 12                          | July              | No                 | Op                 | 56                 | \$60              | March             |
| Washington Sanitarium and Hospital, <sup>1</sup> Takoma Park         | Washington       | Church  | 210      | 3,940                   | 61              | 65                              | R                  | 5                          | 12                          | Varies            | No                 | Req                | 33                 | \$15(a)           | Varies            |
| <b>FLORIDA</b>   |                  |         |          |                         |                 |                                 |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| Duval County Hospital <sup>1</sup> +                                 | Jacksonville     | County  | 240      | 4,220                   | 100             |                                 | R                  | 10                         | 12                          | AprJuly           | No                 | Req                | 36                 | \$15              | Sept              |
| St Luke's Hospital   | Jacksonville     | NP Assn | 207      | 5,921                   | 13              | 90                              | R                  | 6                          | 12                          | July              | No                 | None               | 16                 | \$25(e)           | Varies            |
| St Vincent's Hospital  | Jacksonville     | Church  | 270      | 7,295                   | 20              | 100                             | R                  | 8                          | 12                          | July              | No                 | None               | 23                 | \$30              | Nov               |
| James M. Jackson Memorial Hospital <sup>1</sup> +                    | Miami            | City    | 525      | 14,671                  | 56              | 100                             | R                  | 14                         | 12                          | JanMarApr         | No                 | Req                | 26                 | \$20              | Varies            |
| Orange General Hospital <sup>1</sup>                                 | Orlando          | NP Assn | 234      | 4,041                   |                 |                                 | R                  | 4                          | 12                          | July              | No                 | None               | 30                 | \$50              | Nov               |
| Pensacola Hospital <sup>1</sup>                                      | Pensacola        | Church  | 190      | 4,635                   |                 |                                 | R                  | 6                          | 12                          | July              | No                 | None               | 24                 | \$35              | Varies            |
| United States Naval Hospital   | Pensacola        | Navy    | 142      | 1,252                   | 100             |                                 | R                  | 15                         | 12                          | Varies            | (20)               | Req                | 67                 | (b)               | Varies            |
| <b>GEORGIA</b>   |                  |         |          |                         |                 |                                 |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| Crawford W. Long Memorial Hospital <sup>1</sup>                      | Atlanta          | NP Assn | 250      | 10,018                  | 2               | 100                             | R                  | 4                          | 12                          | July              | No                 | None               | 24                 | \$50              | Nov               |
| Georgia Baptist Hospital   | Atlanta          | Church  | 194      | 6,303                   |                 |                                 | R                  | 7                          | 12                          | Varies            | (21)               | None               | 23                 | \$30(g)           | Nov               |
| Grady Hospital <sup>1</sup> +  | Atlanta          | City    | 696      | 21,797                  | 100             |                                 | R & S              | 34                         | 12                          | April             | No                 | Req                | 49                 | \$10              | Varies            |
| Piedmont Hospital <sup>1</sup> +                                     | Atlanta          | NP Assn | 147      | 4,094                   | 2               | 100                             | R                  | 6                          | 12                          | AprJuly           | (21)               | None               | 51                 | \$35(g)           | Varies            |
| St Joseph's Infirmary <sup>1</sup> +                                 | Atlanta          | Church  | 152      | 4,710                   | 38              | 63                              | R                  | 4                          | 12                          | July              | No                 | Req                | 30                 | \$50(f)           | Nov               |
| University Hospital <sup>1</sup> +                                   | Augusta          | City    | 345      | 10,305                  | 40              | 100                             | R                  | 12                         | 12                          | July              | No                 | Req                | 32                 | \$10              | Nov               |
| Columbus City Hospital <sup>1</sup>                                  | Columbus         | City    | 286      | 6,039                   | 62              | 39                              | R                  | 6                          | 12                          | July              | No                 | Req                | 18                 | \$50              | Sept              |
| Emory University Hospital <sup>1</sup> +                             | Emory Univ       | NP Assn | 270      | 6,764                   | 16              | 100                             | R                  | 10                         | 12                          | AprJuly           | No                 | Req                | 38                 | \$25              | July              |
| Macon Hospital   | Macon            | CyCo    | 244      | 6,101                   |                 | 100                             | R                  | 8                          | 12                          | July              | No                 | Req                | 15                 | \$25              | Nov               |
| <b>ILLINOIS</b>  |                  |         |          |                         |                 |                                 |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| St Joseph's Hospital <sup>1</sup>                                    | Alton            | Church  | 150      | 4,687                   | 1               |                                 | M                  | 2                          | 12                          | July              | No                 | None               | 17                 | \$50              | Varies            |
| Alexian Brothers Hospital (v)  | Chicago          | Church  | 273      | 4,827                   | 11              | 100                             | R                  | 7                          | 12                          | MarJuly           | (22)               | None               | 32                 | \$75              | MarJuly           |
| American Hospital <sup>1</sup>                                       | Chicago          | NP Assn | 194      | 4,003                   | 60              | 100                             | R                  | 4                          | 12                          | July              | No                 | Op                 | 46                 | \$25              | April             |
| Augustana Hospital <sup>1</sup> +                                    | Chicago          | Church  | 300      | 6,132                   | 15              | 25                              | M                  | 12                         | 12                          | Varies            | No                 | None               | 30                 | No                | Varies            |
| Belmont Community Hospital <sup>1</sup>                              | Chicago          | NP Assn | 125      | 2,880                   |                 |                                 | R                  | 4                          | 12                          | July              | No                 | None               | 48                 | \$30              | Jan               |
| Chicago Memorial Hospital <sup>1</sup>                               | Chicago          | NP Assn | 108      | 2,649                   |                 | 100                             | R                  | 5                          | 12                          | Varies            | No                 | Req                | 55                 | \$25              | Varies            |
| Columbus Hospital  | Chicago          | Church  | 170      | 4,557                   | 18              | 100                             | R                  | 5                          | 12                          | July              | No                 | None               | 79                 | \$50(f)           | Nov               |
| Cook County Hospital <sup>1</sup> +                                  | Chicago          | County  | 3,525    | 80,581                  | 100             |                                 | R & M              | 114                        | 12                          | Quarterly         | No                 | Req                | 23                 | \$12              | 3 mo adv          |
| Edgewater Hospital   | Chicago          | NP Assn | 165      | 5,447                   |                 | 100                             | R                  | 5                          | 12                          | JanJuly           | No                 | None               | 34                 | \$50              | DecJune           |
| Englewood Hospital   | Chicago          | NP Assn | 170      | 4,323                   | 35              |                                 | R                  | 6                          | 12                          | JanJuly           | No                 | None               | 25                 | \$25(f)           | Varies            |
| Evangelical Hospital <sup>1</sup>                                    | Chicago          | Church  | 240      | 8,128                   |                 |                                 | R                  | 6                          | 12                          | Varies            | No                 | None               | 27                 | \$50              | Dec               |
| Garfield Park Community Hospital                                     | Chicago          | NP Assn | 182      | 4,766                   |                 | 100                             | R                  | 5                          | 12                          | July              | No                 | None               | 27                 | No                | Varies            |
| Grant Hospital <sup>1</sup> +  | Chicago          | NP Assn | 277      | 6,840                   | 5               | 103                             | R                  | 9                          | 12                          | July              | No                 | Req                | 29                 | No                | Nov               |
| Henrotin Hospital <sup>1</sup> +                                     | Chicago          | NP Assn | 120      | 3,046                   | 2               | 40                              | R                  | 4                          | 12                          | JanJuly           | No                 | Req                | 57                 | \$25              | Varies            |



| Name of Hospital                         | Location       | Control  | Capacity | Total Patients Admitted | % Service Cases | % Priv. Pts. Worked Up by Interns | Type of Internship | Interns Appointed Annually | Length of Service in Months | Service Commences | Unfilled Service | Outpatient Service | Autopsy Percentage | Stipend per Month | Appointments Made |
|--|----------------|----------|----------|-------------------------|-----------------|-----------------------------------|--------------------|----------------------------|-----------------------------|-------------------|------------------|--------------------|--------------------|-------------------|-------------------|
| ILLINOIS—Continued                       |                |          |          |                         |                 |                                   |                    |                            |                             |                   |                  |                    |                    |                   |                   |
| Holy Cross Hospital                      | Chicago        | Church   | 101      | 463                     |                 |                                   | R                  | 6                          | 12                          | July              | No               | None               | 35                 | \$35              | Varies            |
| Hospital of St. Anthony de Padua         | Chicago        | Church   | 2        | 50                      | 12              | 100                               | R                  | 5                          | 12                          | July              | No               | None               | 20                 | \$6               | Varies            |
| Illinois Central Hospital                | Chicago        | N.A.A.   | 240      | 723                     | 51              | 1                                 | R                  | 5                          | 12                          | Quarterly         | No               | Req                | 35                 | \$30              | Quarterly         |
| Illinois Masonic Hospital                | Chicago        | N.A.A.   | 140      | 400                     | 10              | 100                               | R                  | 5                          | 12                          | July              | No               | Req                | 35                 | \$25              | July              |
| Jackson Park Hospital                    | Chicago        | Corp     | 115      | 200                     | 5               | 100                               | R                  | 6                          | 12                          | Varies            | No               | None               | 37                 | \$25              | Varies            |
| Leet Hospital                            | Chicago        | Church   | 112      | 250                     | 5               |                                   | R                  | 6                          | 12                          | Varies            | No               | None               | 42                 | \$35              | Varies            |
| Lutheran Deaconess Home and Hospital     | Chicago        | Church   | 218      | 500                     | 18              | 1                                 | R                  | 7                          | 12                          | July              | No               | None               | 25                 | \$50              | Nov               |
| McKee Hospital—Loyola University Clinics | Chicago        | Church   | 218      | 710                     | 18              | 52                                | R                  | 12                         | 12                          | Varies            | No               | Req                | 44                 | No                | Varies            |
| Michael Reese Hospital                   | Chicago        | N.A.A.   | 100      | 110                     |                 |                                   | R(r)               | 12                         | 12                          | Varies            | (2)              | Op                 | 61                 | No                | July              |
| North Central Men's Hospital             | Chicago        | Church   | 100      | 410                     | 2               | 100                               | R                  | 4                          | 12                          | July              | No               | None               | 36                 | \$40              | Varies            |
| North Star Hospital                      | Chicago        | N.P.A.   | 210      | 100                     |                 | 100                               | R                  | 10                         | 12                          | June              | No               | Op                 | 47                 | No                | Oct               |
| Norwegian American Hospital              | Chicago        | N.P.A.   | 210      | 610                     | 1               | 90                                | R                  | 6                          | 12                          | July              | No               | None               | 32                 | \$25              | Nov               |
| Peasant Memorial Hospital                | Chicago        | N.P.A.   | 210      | 600                     | 12              | 100                               | R(j)               | 10                         | 12                          | Jan/July/Oct      | No               | Req                | 70                 | No                | 6 mo adv          |
| Protestant Hospital                      | Chicago        | Church   | 412      | 1100                    | 100             | RAS                               | 25                 | 12                         | (1)                         | No                | Op               | 50                 | No                 | Varies            |                   |
| Ravenwood Hospital                       | Chicago        | N.P.A.   | 100      | 250                     | 60              | 100                               | R                  | 8                          | 12                          | July              | No               | Req                | 49                 | \$10              | Jan               |
| Research and Educational Hospital        | Chicago        | N.P.A.   | 200      | 500                     |                 |                                   | R                  | 12                         | 12                          | July              | No               | None               | 27                 | \$75(f)           | Nov               |
| St. Ann's Hospital                       | Chicago        | State    | 400      | 600                     | 100             |                                   | R                  | 15                         | 12                          | Varies            | No               | Op                 | 91                 | No                | Sept              |
| Poland Community Hospital                | Chicago        | N.A.A.   | 120      | 310                     |                 |                                   | R                  | 4                          | 12                          | Jan/July          | No               | None               | 23                 | \$75              | Jan/July          |
| St. Anne's Hospital                      | Chicago        | Church   | 760      | 800                     |                 |                                   | R                  | 5                          | 12                          | Varies            | No               | None               | 23                 | \$30              | Varies            |
| St. Bernard's Hospital                   | Chicago        | Church   | 212      | 600                     |                 |                                   | R                  | 5                          | 12                          | July              | No               | None               | 50                 | \$50              | July              |
| St. Elizabeth's Hospital                 | Chicago        | Church   | 207      | 800                     | 40              |                                   | R                  | 6                          | 12                          | July              | No               | None               | 17                 | \$30              | Nov               |
| St. Joseph's Hospital                    | Chicago        | Church   | 200      | 400                     | 12              |                                   | R                  | 5                          | 12                          | Quarterly         | No               | Req                | 20                 | No                | Varies            |
| St. Luke's Hospital                      | Chicago        | N.A.A.   | 520      | 1100                    | 15              | 100                               | R                  | 25                         | 12                          | Jan/July          | No               | Req                | 60                 | No                | Jan/Nov           |
| St. Mary of North Hospital               | Chicago        | Church   | 220      | 800                     | 5               |                                   | R                  | 8                          | 12                          | Quarterly         | No               | None               | 35                 | \$50              | Quarterly         |
| St. Michael's Hospital                   | Chicago        | Church   | 220      | 510                     |                 | 100                               | R                  | 7                          | 12                          | Quarterly         | No               | None               | 33                 | \$40              | Quarterly         |
| United States Marine Hospital            | Chicago        | U.S.H.S. | 201      | 200                     | 100             |                                   | R                  | 7                          | 12                          | July              | (24)             | Op                 | 52                 | \$67.50           | Varies            |
| University Hospital                      | Chicago        | N.P.A.   | 121      | 400                     | 35              | 100                               | R                  | 4                          | 12                          | July              | No               | None               | 25                 | \$15              | Jan               |
| University of Chicago Clinics            | Chicago        | N.P.A.   | 600      | 110                     | 1               | 100                               | R                  | 49                         | 12                          | Quarterly         | No               | Req                | 81                 | No                | 6 mo adv          |
| Walther Memorial Hospital                | Chicago        | Church   | 100      | 500                     | 10              | 5                                 | R                  | 4                          | 12                          | Varies            | No               | None               | 40                 | \$25              | Varies            |
| West Memorial Hospital                   | Chicago        | Church   | 655      | 300                     |                 |                                   | R                  | 16                         | 12                          | Quarterly         | No               | None               | 70                 | No                | Quarterly         |
| Women and Children's Hospital            | Chicago        | N.P.A.   | 121      | 200                     | 20              | 100                               | R                  | 6                          | 12                          | Jan/July          | No               | Req                | 55                 | \$25              | Varies            |
| Woodlawn Hospital                        | Chicago        | N.P.A.   | 140      | 400                     |                 | 100                               | R                  | 4                          | 12                          | Jan/July          | No               | None               | 35                 | \$50              | Jan/Oct           |
| St. Mary's Hospital                      | East St. Louis | Church   | 275      | 400                     |                 |                                   | R                  | 7                          | 12                          | July              | No               | None               | 29                 | \$25(f)           | Nov               |
| Evangelical Hospital                     | Evansville     | N.P.A.   | 240      | 515                     | 12              | 100                               | R                  | 15                         | 12                          | Jan/May/Sept      | No               | Req                | 80                 | No                | Sp-Fall           |
| St. Francis Hospital                     | Evansville     | Church   | 212      | 700                     |                 | 100                               | R                  | 10                         | 12                          | June              | No               | None               | 39                 | \$20              | Nov               |
| Little Company of Mary Hospital          | Evansville     | Church   | 213      | 700                     |                 |                                   | R                  | 7                          | 12                          | July              | No               | None               | 23                 | \$25              | Jan               |
| United States Naval Hospital             | Great Lakes    | Navy     | 200      | 300                     | 100             |                                   | R                  | 16                         | 12                          | Varies            | (25)             | Op                 | 100                | (b)               | Varies            |
| Moline Public Hospital                   | Moline         | City     | 200      | 400                     | 1               | 100                               | R                  | 3                          | 12                          | July              | No               | None               | 17                 | \$75(f)           | Fall              |
| Oak Park Hospital                        | Oak Park       | Church   | 100      | 500                     |                 |                                   | R                  | 6                          | 12                          | Feb               | No               | None               | 29                 | \$50              | Varies            |
| West Suburban Hospital                   | Oak Park       | N.P.A.   | 412      | 900                     |                 | 100                               | R                  | 12                         | 12                          | Apr/Jul/Oct       | No               | None               | 34                 | \$25              | Varies            |
| Methodist Hospital of Central Illinois   | Peoria         | Church   | 240      | 600                     |                 | 100                               | R                  | 8                          | 12                          | July              | No               | None               | 29                 | \$25              | Jan               |
| St. Francis Hospital                     | Peoria         | Church   | 400      | 1000                    | 40              |                                   | R                  | 10                         | 12                          | July              | No               | None               | 34                 | \$25              | Varies            |
| St. Mary's Hospital                      | Quincy         | Church   | 215      | 300                     | 55              | 45                                | R                  | 3                          | 12                          | July              | No               | None               | 15                 | \$25              | Varies            |
| St. Anthony's Hospital                   | Rockford       | Church   | 200      | 700                     | 60              |                                   | R                  | 2                          | 12                          | Varies            | No               | None               | 45                 | \$50              | Varies            |
| INDIANA                                  |                |          |          |                         |                 |                                   |                    |                            |                             |                   |                  |                    |                    |                   |                   |
| St. Catherine's Hospital                 | East Chicago   | Church   | 310      | 500                     |                 |                                   | R                  | 7                          | 12                          | July              | No               | None               | 17                 | \$50              | Nov               |
| Lutheran Hospital                        | Fort Wayne     | Church   | 204      | 400                     | 1               | 30                                | R                  | 3                          | 12                          | Jan               | No               | None               | 26                 | \$75(f)           | Varies            |
| St. Joseph Hospital                      | Fort Wayne     | Church   | 200      | 500                     |                 |                                   | R                  | 5                          | 12                          | Jan/July          | No               | None               | 50                 | \$50              | Varies            |
| Methodist Hospital                       | Cary           | Church   | 140      | 450                     | 60              |                                   | R                  | 4                          | 12                          | July              | No               | None               | 29                 | \$50.75           | Varies            |
| St. Mary's Mercy Hospital                | Cary           | Church   | 265      | 600                     |                 |                                   | R                  | 4                          | 12                          | Varies            | No               | None               | 22                 | \$60(q)           | Varies            |
| St. Margaret Hospital                    | Hammond        | Church   | 265      | 700                     |                 |                                   | R                  | 10                         | 12                          | Jan/July/Sept     | No               | None               | 19                 | \$70              | Jan/Oct           |
| Indianapolis City Hospital               | Indianapolis   | City     | 724      | 1000                    | 100             |                                   | R                  | 33                         | 12                          | Varies            | No               | Req                | 56                 | \$10              | Varies            |
| Indiana University Medical Center        | Indianapolis   | State    | 604      | 1000                    | 5               | 100                               | R                  | 23                         | 12                          | July              | No               | Req                | 50                 | \$12.50           | Nov               |
| Methodist Hospital                       | Indianapolis   | Church   | 600      | 1500                    | 6               | 100                               | R                  | 22                         | 12                          | Varies            | No               | None               | 37                 | \$25              | Varies            |
| St. Vincent's Hospital                   | Indianapolis   | Church   | 326      | 700                     |                 |                                   | R                  | 12                         | 12                          | Jan/July          | No               | None               | 17                 | \$50              | Nov               |
| St. Elizabeth Hospital                   | Indianapolis   | Church   | 200      | 600                     | 5               | 100                               | R                  | 5                          | 12                          | July              | No               | None               | 19                 | \$40              | Nov               |
| Ball Memorial Hospital                   | La Fayette     | N.P.A.   | 242      | 500                     | 6               | 94                                | R                  | 8                          | 12                          | July              | No               | None               | 47                 | \$30              | Varies            |
| Epworth Hospital                         | Muncie         | N.P.A.   | 192      | 600                     | 4               | 33                                | R                  | 4                          | 12                          | July              | No               | Req                | 31                 | \$50              | Jan               |
| St. Joseph's Hospital                    | South Bend     | Church   | 192      | 400                     | 6               | 100                               | R                  | 4                          | 12                          | Varies            | No               | Req                | 42                 | \$30(l)           | Varies            |
| St. Anthony's Hospital                   | Terre Haute    | Church   | 202      | 300                     |                 |                                   | R                  | 3                          | 12                          | July              | No               | None               | 50                 |                   | Varies            |
| IOWA                                     |                |          |          |                         |                 |                                   |                    |                            |                             |                   |                  |                    |                    |                   |                   |
| Mercy Hospital                           | Cedar Rapids   | Church   | 152      | 300                     |                 |                                   | R                  | 2                          | 12                          | July              | No               | None               | 22                 | \$25              | Varies            |
| Mercy Hospital                           | Council Bluffs | Church   | 150      | 300                     |                 |                                   | R                  | 4                          | 12                          | July              | No               | None               | 25                 | \$25              | Nov               |
| Wiley Hospital                           | Davenport      | Church   | 157      | 400                     |                 | 100                               | R                  | 3                          | 12                          | Varies            | No               | None               | 16                 | \$30.50           | Varies            |
| Broadlawn Polk County Public Hospital    | Des Moines     | County   | 148      | 400                     | 100             |                                   | R                  | 10                         | 12                          | Varies            | No               | Req                | 36                 | \$25              | Varies            |
| Iowa Lutheran Hospital                   | Des Moines     | Church   | 145      | 300                     | 4               | 100                               | R                  | 4                          | 12                          | Varies            | (26)             | Req                | 15                 | \$50              | Fall              |
| Iowa Methodist Hospital                  | Des Moines     | Church   | 279      | 700                     |                 | 100                               | R                  | 8                          | 12                          | March             | No               | Op                 | 54                 | \$35(m)           | Nov               |
| Mercy Hospital                           | Des Moines     | Church   | 187      | 400                     |                 |                                   | R                  | 6                          | 12                          | July              | No               | None               | 22                 | \$25              | Nov               |
| University Hospitals                     | Iowa City      | State    | 934      | 21,564                  | 95              | 5                                 | R                  | 23                         | 12                          | March             | No               | Req                | 55                 | \$100 yr          | Varies            |
| St. Joseph Mercy Hospital                | Sioux City     | Church   | 220      | 500                     |                 |                                   | R                  | 4                          | 12                          | July              | No               | Req                | 35                 | \$25              | Jan               |
| KANSAS                                   |                |          |          |                         |                 |                                   |                    |                            |                             |                   |                  |                    |                    |                   |                   |
| Providence Hospital                      | Kansas City    | Church   | 105      | 200                     |                 | 100                               | R                  | 3                          | 12                          | July              | No               | None               | 37                 | \$35              | Oct               |
| St. Margaret's Hospital                  | Kansas City    | Church   | 200      | 400                     | 12              | 100                               | R                  | 7                          | 12                          | July              | No               | None               | 59                 | \$25              | Sept              |
| University of Kansas Hospitals           | Kansas City    | State    | 370      | 600                     | 70              |                                   | R                  | 15                         | 12                          | June              | (27)             | Req                | 72                 | \$10              | Nov               |
| St. Francis Hospital                     | Wichita        | Church   | 330      | 800                     |                 | 100                               | R                  | 10                         | 12                          | July              | (28)             | Req                | 43                 | \$40              | Nov               |
| West Hospital                            | Wichita        | Church   | 267      | 500                     |                 |                                   | R                  | 6                          | 12                          | July              | (29)             | None               | 26                 | \$40(s)           | Nov               |
| Wichita Hospital                         | Wichita        | Church   | 125      | 300                     |                 |                                   | R                  | 4                          | 12                          | July              | (25)             | None               | 31                 | \$40              | Dec               |
| KENTUCKY                                 |                |          |          |                         |                 |                                   |                    |                            |                             |                   |                  |                    |                    |                   |                   |
| St. Elizabeth Hospital                   | Covington      | Church   | 323      | 500                     | 24              |                                   | R                  | 6                          | 12                          | July              | No               | Req                | 17                 | \$25              | Nov               |
| Good Samaritan Hospital                  | Lexington      | Church   | 283      | 700                     | 85              | 95                                | R                  | 4                          | 12                          | July              | No               | None               | 33                 | \$25              | Dec               |
| St. Joseph Hospital                      | Lexington      | Church   | 243      | 500                     | 32              | 85                                | R                  | 4                          | 12                          | July              | No               | Req                | 45                 | \$25              | Nov               |
| Kentucky Baptist Hospital                | Louisville     | Church   | 150      | 500                     | 100             |                                   | R                  | 5                          | 12                          | April             | (30)             | None               | 27                 | \$25              | Nov               |
| Louisville General Hospital              | Louisville     | City     | 557      | 1000                    | 100             |                                   | R                  | 21                         | 12                          | July              | (31)             | Req                | 29                 | \$10.17           | Sept              |
| Norton Memorial Infirmary                | Louisville     | N.P.A.   | 167      | 400                     | 10              | 70                                | R                  | 6                          | 12                          | July              | (30)             | Req                | 19                 | \$25              | Varies            |
| St. Anthony's Hospital                   | Louisville     | Church   | 163      | 300                     | 4               |                                   | R                  | 4                          | 12                          | July              | (30)             | None               | 20                 | \$10.35           | Feb               |
| St. Joseph Infirmary                     | Louisville     | Church   | 365      | 900                     | 11              |                                   | R                  | 8                          | 12                          | July              | (30)             | None               | 21                 | \$15(e)           | Jan               |
| St. Mary and Elizabeth Hospital          | Louisville     | Church   | 155      | 400                     |                 |                                   | R                  | 4                          | 12                          | July              | No               | None               | 23                 | \$40              | Varies            |

| Name of Hospital                              | Location     | Control | Capacity | Total Patients Admitted | % Service Cases | % Priv Pts Worked Up by Interns | Type of Internship | Interns Appointed Annually | Length of Service in Months | Service Commences | Admitted Service | Outpatient Service | Autopsy Percentage | Stipend per Month | Appointments Made |
|---|--------------|---------|----------|-------------------------|-----------------|---------------------------------|--------------------|----------------------------|-----------------------------|-------------------|------------------|--------------------|--------------------|-------------------|-------------------|
| LOUISIANA                                     |              |         |          |                         |                 |                                 |                    |                            |                             |                   |                  |                    |                    |                   |                   |
| Charity Hospital of Louisiana 1 2+            | New Orleans  | State   | 3,116    | 68,272                  | 100             |                                 | R                  | 125                        | 12                          | March             | No               | Req                | 43                 | \$10              | Fall              |
| Hotel Dieu, Sisters Hospital                  | New Orleans  | Church  | 283      | 10,720                  |                 |                                 | R                  | 15                         | 12                          | Mar July          | No               | None               | 32                 | \$50              | Varies            |
| Merey Hospital—Soniat Memorial                | New Orleans  | Church  | 144      | 3,111                   |                 |                                 | R                  | 4                          | 12                          | July              | No               | None               | 36                 | \$50              | Nov               |
| Southern Baptist Hospital +                   | New Orleans  | Church  | 153      | 15,970                  | 16              | 8                               | R                  | 17                         | 12                          | July              | No               | None               | 30                 | \$30(c)           | Nov               |
| Touro Infirmary 1+                            | New Orleans  | NP Assn | 110      | 12,363                  |                 |                                 | R                  | 23                         | 12                          | Varies            | No               | Req                | 69                 | \$10              | Varies            |
| United States Marine Hospital 3               | New Orleans  | USPHS   | 672      | 5,112                   | 100             |                                 | R                  | 12                         | 12                          | July              | (32)             | Req                | 59                 | \$62 50           | Varies            |
| Highland Sanitarium                           | Shreveport   | Corp    | 116      | 3,176                   |                 |                                 | R                  | 4                          | 12                          | July              | No               | None               | 41                 | \$50              | Jan               |
| North Louisiana Sanitarium                    | Shreveport   | Corp    | 111      | 3,121                   |                 | 100                             | R                  | 3                          | 12                          | Varies            | No               | Req                | 56                 | \$50              | Varies            |
| T. I. Schumpert Memorial Sanitarium           | Shreveport   | Church  | 167      | 2,202                   |                 |                                 | R                  | 3                          | 12                          | Varies            | No               | None               | 16                 | \$50              | Varies            |
| Shreveport Charity Hospital 1+                | Shreveport   | State   | 861      | 15,491                  | 110             |                                 | R                  | 31                         | 12                          | July              | No               | Req                | 45                 | \$20              | Nov               |
| Tri State Hospital 1                          | Shreveport   | Corp    | 119      | 1,205                   |                 | 75                              | R                  | 4                          | 12                          | July              | No               | None               | 37                 | \$50(c)           | Varies            |
| MAINE   |              |         |          |                         |                 |                                 |                    |                            |                             |                   |                  |                    |                    |                   |                   |
| Eastern Maine General Hospital 1              | Bangor       | NP Assn | 243      | 5,241                   | 40              | 10                              | R                  | 5                          | 12                          | July              | No               | Req                | 21                 | \$50              | Varies            |
| Central Maine General Hospital 1              | Lewiston     | NP Assn | 232      | 4,285                   | 68              | 32                              | R                  | 6                          | 12                          | Mar July          | No               | Op                 | 49                 | No                | Varies            |
| St. Mary's General Hospital 1                 | Lewiston     | Church  | 175      | 3,093                   | 27              | 21                              | R                  | 3                          | 12                          | July              | No               | None               | 42                 | \$20              | Nov               |
| Maine General Hospital                        | Portland     | NP Assn | 281      | 6,087                   | 55              | 35                              | R                  | 10                         | 12                          | Apr July          | No               | Req                | 29                 | No                | Jan June          |
| MARYLAND                                      |              |         |          |                         |                 |                                 |                    |                            |                             |                   |                  |                    |                    |                   |                   |
| United States Naval Hospital                  | Annapolis    | Navy    | 192      | 1,576                   | 100             |                                 | R                  | 6                          | 12                          | Varies            |                  | None               | 67                 | (b)               | Varies            |
| Baltimore City Hospitals 1 2+                 | Baltimore    | City    | 1,355    | 7,118                   | 100             |                                 | RMS                | 25                         | 12                          | Varies            | No               | Req                | 54                 | No                | Varies            |
| Bon Secours Hospital +                        | Baltimore    | Church  | 190      | 2,597                   | 20              | 100                             | R                  | 4                          | 12                          | Mar Dec           | No               | Req                | 20                 | \$20              | Varies            |
| Church Home and Infirmary 1+                  | Baltimore    | Church  | 191      | 4,061                   | 27              | 100                             | R & S              | 7                          | 12                          | Varies            | No               | Req                | 47                 | \$15              | Varies            |
| Franklin Square Hospital 1+                   | Baltimore    | NP Assn | 237      | 4,669                   | 50              | 100                             | R & S              | 12                         | 12                          | 1 Feb July        | No               | Req                | 28                 | \$10(f)           | Nov               |
| Hospital for Women 1+                         | Baltimore    | NP Assn | 162      | 3,220                   | 20              | 100                             | R                  | 7                          | 12                          | Oct               | No               | Req                | 28                 | No                | April             |
| Johns Hopkins Hospital 1 2+                   | Baltimore    | NP Assn | 969      | 16,640                  | 61              | 100                             | S                  | 76                         | 12                          | Varies            | No               | Req                | 74                 | No                | Varies            |
| Maryland General Hospital 1+                  | Baltimore    | Church  | 261      | 5,116                   | 26              | 100                             | R                  | 10                         | 12                          | July              | No               | Req                | 18                 | \$10              | Varies            |
| Merey Hospital +                              | Baltimore    | Church  | 312      | 5,182                   |                 |                                 | R                  | 15                         | 12                          | April             | No               | Req                | 32                 | No                | Sept              |
| Provident Hospital and Free Dispensary +      | Baltimore    | NP Assn | 148      | 2,335                   | 75              | 75                              | R                  | 7                          | 12                          | July              | No               | Req                | 22                 | \$10              | Varies            |
| St. Agnes' Hospital 1+                        | Baltimore    | Church  | 218      | 4,587                   | 32              | 100                             | R                  | 6                          | 12                          | July              | No               | Req                | 25                 | \$5               | Nov               |
| St. Joseph's Hospital 2+                      | Baltimore    | Church  | 299      | 6,551                   | 52              | 100                             | R                  | 8                          | 12                          | July              | No               | Req                | 19                 | \$5               | Nov               |
| Sinai Hospital 1 2+                           | Baltimore    | NP Assn | 300      | 5,481                   | 35              | 100                             | M & S              | 18                         | 12                          | July              | No               | Req                | 38                 | No                | Nov               |
| South Baltimore General Hospital 1+           | Baltimore    | NP Assn | 170      | 3,418                   | 21              | 100                             | R                  | 6                          | 12                          | Sept              | No               | Req                | 25                 | \$75              | April             |
| Union Memorial Hospital +                     | Baltimore    | NP Assn | 768      | 7,281                   | 14              | 100                             | R                  | 16                         | 12                          | July              | No               | Req                | 31                 | No                | Nov               |
| United States Marine Hospital 3               | Baltimore    | USPHS   | 511      | 5,597                   | 100             |                                 | R                  | 12                         | 12                          | July              | (32)             | Op                 | 63                 | \$67 50           | Dec               |
| University Hospital 1 2+                      | Baltimore    | State   | 485      | 9,280                   | 47              | 100                             | R & S              | 24                         | 12                          | April             | (34)             | Req                | 48                 | No                | Sept              |
| West Baltimore General Hospital +             | Baltimore    | NP Assn | 174      | 3,991                   | 39              | 100                             | R                  | 7                          | 12                          | July              | (35)             | Req                | 51                 | \$25              | Nov               |
| MASSACHUSETTS                                 |              |         |          |                         |                 |                                 |                    |                            |                             |                   |                  |                    |                    |                   |                   |
| Beverly Hospital +                            | Beverly      | NP Assn | 217      | 3,114                   | 51              |                                 | R                  | 4                          | 12                          | July Sept         | No               | Req                | 83                 | No                | Varies            |
| Beth Israel Hospital +                        | Boston       | NP Assn | 215      | 6,165                   | 45              | 55                              | M                  | 12                         | 12                          | (k)               | No               | Req                | 57                 | No                | Sept              |
| Boston City Hospital 1 2+                     | Boston       | City    | 2,509    | 43,181                  | 100             |                                 | S                  | 101                        | 12 24                       | Varies            | No               | Req                | 70                 | No                | Jan               |
| Carney Hospital +                             | Boston       | Church  | 210      | 5,111                   | 44              | 99                              | R & S              | 10                         | 12                          | Varies            | No               | Req                | 23                 | No                | Oct               |
| Faulkner Hospital                             | Boston       | NP Assn | 183      | 3,751                   | 5               |                                 | R                  | 3                          | 12                          | June Oct          | No               | Req                | 49                 | No                | Sept              |
| Massachusetts General Hospital 1 2+           | Boston       | NP Assn | 502      | 7,622                   | 100             |                                 | S                  | 36                         | 12                          | Varies            | (36)             | Req                | 62                 | No                | Varies            |
| Massachusetts Memorial Hospitals 1 2+         | Boston       | NP Assn | 132      | 6,895                   |                 | 100                             | S                  | 18                         | 12                          | April             | No               | Req                | 76                 | No                | Sept              |
| New England Hospital for Women and Children 2 | Boston       | NP Assn | 260      | 3,667                   | 53              | 21                              | R                  | 8                          | 12                          | Jan July          | No               | Req                | 56                 | No                | Jan July          |
| Peter Bent Brigham Hospital 2+                | Boston       | NP Assn | 247      | 5,175                   |                 |                                 | S                  | 25                         | 12                          | Monthly           | (37)             | Req                | 65                 | No                | Varies            |
| St. Elizabeth's Hospital                      | Boston       | Church  | 302      | 6,422                   | 21              | 75                              | R                  | 6                          | 12                          | Varies            | No               | Req                | 17                 | No                | Varies            |
| United States Marine Hospital 3               | Boston       | USPHS   | 356      | 2,076                   | 100             |                                 | R                  | 6                          | 12                          | July              | No               | Op                 | 49                 | \$62 50           | July              |
| Cambridge City Hospital                       | Cambridge    | City    | 400      | 6,333                   | 77              |                                 | R                  | 8                          | 12                          | Varies            | No               | Req                | 23                 | \$10              | Feb               |
| Cambridge Hospital 1+                         | Cambridge    | NP Assn | 269      | 5,195                   | 27              |                                 | R                  | 4                          | 12                          | Apr July          | No               | Req                | 36                 | No                | Sept              |
| Chelsea Memorial Hospital                     | Chelsea      | Corp    | 115      | 2,113                   | 40              | 20                              | R                  | 2                          | 12                          | June Dec          | No               | None               | 30                 | \$50              | Apr Oct           |
| United States Naval Hospital                  | Chelsea      | Navy    | 161      | 3,593                   | 100             |                                 | R                  | 10                         | 12                          | June              | No               | None               | 57                 | (b)               | Varies            |
| Union Hospital 1                              | Fall River   | NP Assn | 186      | 3,514                   | 45              | 90                              | R                  | 3                          | 12                          | June July         | No               | Req                | 25                 | \$62 50           | Dec               |
| Burbank Hospital 1                            | Fitchburg    | Corp    | 236      | 4,109                   | 55              |                                 | L                  | 4                          | 12                          | Varies            | No               | Req                | 33                 | \$25              | Varies            |
| Haverhill Municipal Hospital (Hale)           | Haverhill    | City    | 198      | 4,750                   | 42              |                                 | R                  | 2                          | 12                          | July              | No               | None               | 20                 | \$25              | Sept              |
| Holyoke Hospital                              | Holyoke      | NP Assn | 141      | 2,444                   |                 |                                 | R                  | 3                          | 12                          | July              | No               | Req                | 19                 | \$25              | Jan               |
| Providence Hospital                           | Holyoke      | Church  | 200      | 3,662                   | 11              | 89                              | R                  | 3                          | 12                          | Jan June          | No               | None               |                    | \$50              | Dec May           |
| Lawrence General Hospital                     | Lawrence     | NP Assn | 214      | 3,107                   | 38              |                                 | R                  | 3                          | 12                          | July              | No               | Req                | 56                 | \$10              | Nov               |
| Lowell General Hospital                       | Lowell       | NP Assn | 188      | 3,187                   | 39              |                                 | R                  | 3                          | 12                          | July              | No               | Req                | 25                 | \$25              | Fall              |
| St. John's Hospital                           | Lowell       | Church  | 200      | 4,088                   | 55              | 10                              | R                  | 4                          | 12                          | July              | No               | Req                | 30                 | \$20              | Nov               |
| St. Joseph's Hospital                         | Lowell       | Church  | 133      | 3,057                   | 75              |                                 | R                  | 2                          | 12                          | June              | No               | Req                | 17                 | \$18              | Nov               |
| Lynn Hospital                                 | Lynn         | NP Assn | 272      | 5,922                   | 28              |                                 | R                  | 6                          | 12                          | July              | No               | Req                | 32                 | \$25              | Oct               |
| St. Luke's Hospital                           | New Bedford  | NP Assn | 339      | 7,150                   |                 |                                 | R                  | 6                          | 12                          | July              | No               | Req                | 18                 | No                | Varies            |
| Newton Hospital                               | Newton       | NP Assn | 304      | 5,772                   | 47              | 3                               | R                  | 6                          | 12                          | June              | No               | Req                | 41                 | No                | Fall              |
| House of Mercy Hospital                       | Pittsfield   | NP Assn | 275      | 3,989                   | 20              | 2                               | R                  | 3                          | 12                          | July              | No               | Req                | 29                 | \$40              | Nov               |
| St. Luke's Hospital 1                         | Pittsfield   | Church  | 189      | 3,559                   | 21              | 1                               | R                  | 3                          | 12                          | Jan July          | No               | None               | 24                 | \$50              | Nov               |
| Quincy City Hospital 1                        | Quincy       | City    | 324      | 8,308                   | 65              | 50                              | R                  | 6                          | 12                          | Jan July          | No               | None               | 26                 | \$50              | June              |
| Salem Hospital 3                              | Salem        | NP Assn | 285      | 4,794                   | 37              | 10                              | R                  | 6                          | 12                          | July              | (38)             | Req                | 42                 | \$25              | Nov               |
| Merey Hospital                                | Springfield  | Church  | 365      | 7,347                   | 30              | 90                              | R                  | 6                          | 12                          | June July         | No               | None               | 21                 | \$25              | Sept              |
| Springfield Hospital 1                        | Springfield  | NP Assn | 285      | 6,586                   | 35              | 75                              | R                  | 12                         | 12 24                       | July              | (39)             | Req                | 41                 | No                | Varies            |
| Wesson Memorial Hospital 1                    | Springfield  | NP Assn | 116      | 2,696                   | 39              |                                 | R                  | 6                          | 18                          | Varies            | (40)             | None               | 19                 | \$25              | Varies            |
| Waltham Hospital 1                            | Waltham      | NP Assn | 218      | 2,885                   | 41              | 90                              | R                  | 4                          | 12                          | July              | No               | Req                | 39                 | \$25              | Nov               |
| Memorial Hospital +                           | Worcester    | NP Assn | 216      | 6,355                   |                 | 100                             | R                  | 10                         | 12                          | Varies            | No               | Req                | 41                 | No                | Varies            |
| St. Vincent Hospital                          | Worcester    | Church  | 299      | 5,307                   | 21              | 95                              | R                  | 6                          | 12                          | Varies            | No               | None               |                    | \$20              | Varies            |
| Worcester City Hospital 2+                    | Worcester    | City    | 550      | 10,015                  | 85              | 97                              | R                  | 18                         | 12                          | Varies            | No               | Req                | 30                 | No                | July              |
| Worcester Hahnemann Hospital 1                | Worcester    | NP Assn | 140      | 2,830                   | 9               |                                 | R                  | 4                          | 12                          | July              | No               | None               | 33                 | \$35              | Mar               |
| MICHIGAN                                      |              |         |          |                         |                 |                                 |                    |                            |                             |                   |                  |                    |                    |                   |                   |
| University Hospital 1 2+                      | Ann Arbor    | State   | 1,235    | 17,551                  | 100             |                                 | R                  | 38                         | 12                          | Feb July          | No               | Req                | 66                 | No                | Aug               |
| Iella Y Post Montgomery Hospital              | Battle Creek | Church  | 161      | 4,136                   | 5               | 100                             | R                  | 3                          | 12                          | Feb               | No               | Req                | 23                 | \$50              | Sept              |
| Merey Hospital 1                              | Bay City     | Church  | 140      | 3,826                   |                 |                                 | R                  | 3                          | 12                          | July              | No               | None               | 19                 | \$50              | Varies            |
| City of Detroit Receiving Hospital 1+         | Detroit      | City    | 649      | 18,506                  | 100             |                                 | R                  | 32                         | 12                          | Varies            | (41)             | Req                | 34                 | \$50              | Varies            |
| Evangelical Deaconess Hospital 1              | Detroit      | Church  | 225      | 6,728                   | 34              |                                 | R                  | 5                          | 12                          | July              | No               | Req                | 20                 | \$100             | Nov               |
| Grace Hospital 1+                             | Detroit      | NP Assn | 605      | 17,367                  | 20              | 100                             | R                  | 36                         | 12                          | Varies            | No               | Req                | 34                 | \$25              | Nov               |
| Harper Hospital +                             | Detroit      | NP Assn | 685      | 18,388                  | 9               | 100                             | R                  | 36                         | 12                          | Varies            | (42)             | Op                 | 38                 | No                | Varies            |
| Henry Ford Hospital 2+                        | Detroit      | NP Assn | 695      | 16,268                  | 94              | 100                             | R                  | 28                         | 12                          | Varies            | No               | Op                 | 51                 | \$125(a)          | Varies            |
| Mount Carmel Merey Hospital                   | Detroit      | Church  | 385      | 10,875                  |                 | 100                             | R                  | 10                         | 12                          | Varies            | No               | Req                | 28                 | \$100             | Varies            |
| Providence Hospital +                         | Detroit      | Church  | 424      | 11,602                  |                 |                                 | R                  | 17                         | 12                          | Mar July          | No               | None               | 57                 | \$125(a)          | Sept Dec          |

| Name of Hospital   | Location     | Control | Capacity | Total Patients Admitted | % Service Cases | % Priv Pts Worked Up by Interns | Type of Internship | Interns Appointed Annually | Length of Service in Months | Service Commences | Affiliated Service | Outpatient Service | Autopsy Percentage | Stipend per Month | Appointments Made |
|--|--------------|---------|----------|-------------------------|-----------------|---------------------------------|--------------------|----------------------------|-----------------------------|-------------------|--------------------|--------------------|--------------------|-------------------|-------------------|
| <b>LOUISIANA</b>   |              |         |          |                         |                 |                                 |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| Charlity Hospital of Louisiana <sup>1 3+</sup>           | New Orleans  | State   | 3,110    | 58,272                  | 100             |                                 | R                  | 125                        | 12                          | March             | No                 | Req 43             | \$10               |                   | Fail              |
| Hotel Dieu, Sisters' Hospital                            | New Orleans  | Church  | 251      | 10,720                  |                 |                                 | R                  | 15                         | 12                          | Mar July          | No                 | None 32            | \$50               |                   | Varies            |
| Mercy Hospital—Soulard Memorial                          | New Orleans  | Church  | 111      | 3,111                   |                 |                                 | R                  | 1                          | 12                          | July              | No                 | None 36            | \$50               |                   | Nov               |
| Southern Baptist Hospital <sup>+</sup>                   | New Orleans  | Church  | 351      | 15,970                  | 16              | 81                              | R                  | 17                         | 12                          | July              | No                 | None 30            | \$0(e)             |                   | Nov               |
| Touro Infirmary <sup>1+</sup>                            | New Orleans  | NP Assn | 110      | 12,600                  |                 |                                 | R                  | 21                         | 12                          | Varies            | No                 | Req 69             | \$10               |                   | Varies            |
| United States Marine Hospital <sup>3</sup>               | New Orleans  | USPHS   | 572      | 5,112                   | 100             |                                 | R                  | 12                         | 12                          | July              | (32)               | Req 59             | \$62.50            |                   | Varies            |
| Highland Sanitarium                                      | Shreveport   | Corp    | 110      | 1,176                   |                 |                                 | R                  | 1                          | 12                          | July              | No                 | None 41            | \$50               |                   | Jan               |
| North Louisiana Sanitarium                               | Shreveport   | Corp    | 111      | 1,121                   |                 | 100                             | R                  | 3                          | 12                          | Varies            | No                 | Req 56             | \$50               |                   | Varies            |
| T. I. Schumpert Memorial Sanitarium                      | Shreveport   | Church  | 167      | 3,202                   |                 |                                 | R                  |                            | 12                          | Varies            | No                 | None 16            | \$50               |                   | Varies            |
| Shreveport Charity Hospital <sup>1+</sup>                | Shreveport   | State   | 861      | 15,191                  | 100             |                                 | R                  | 31                         | 12                          | July              | No                 | Req 48             | \$20               |                   | Nov               |
| Tril State Hospital <sup>1</sup>                         | Shreveport   | Corp    | 119      | 1,203                   |                 | 75                              | R                  | 1                          | 12                          | July              | No                 | None 37            | \$50(e)            |                   | Varies            |
| <b>MAINE</b>   |              |         |          |                         |                 |                                 |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| Eastern Maine General Hospital <sup>1</sup>              | Bangor       | NP Assn | 213      | 5,211                   | 10              | 10                              | R                  | 5                          | 12                          | July              | No                 | Req 21             | \$50               |                   | Varies            |
| Central Maine General Hospital <sup>1</sup>              | Jewiston     | NP Assn | 212      | 4,285                   | 63              | 12                              | R                  | 6                          | 12                          | Mar July          | No                 | Op 49              | No                 |                   | Varies            |
| St. Mary's General Hospital <sup>1</sup>                 | Jewiston     | Church  | 175      | 1,091                   | 17              | 21                              | R                  | 3                          | 12                          | July              | No                 | None 12            | \$20               |                   | Nov               |
| Maine General Hospital                                   | Portland     | NP Assn | 251      | 6,057                   | 53              | 35                              | R                  | 10                         | 12                          | Apr July          | No                 | Req 29             | No                 |                   | Jan June          |
| <b>MARYLAND</b>  |              |         |          |                         |                 |                                 |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| United States Naval Hospital                             | Annapolis    | Navy    | 192      | 1,570                   | 100             |                                 | R                  | 6                          | 12                          | Varies            |                    | None 67            | (b)                |                   | Varies            |
| Baltimore City Hospitals <sup>1 3+</sup>                 | Baltimore    | City    | 1,355    | 71,180                  | 100             |                                 | RMS                | 25                         | 12                          | Varies            | No                 | Req 54             | No                 |                   | Varies            |
| Bon Secours Hospital <sup>+</sup>                        | Baltimore    | Church  | 190      | 1,097                   | 20              | 100                             | R                  | 1                          | 12                          | Mar Dec           | No                 | Req 39             | \$20               |                   | Varies            |
| Church Home and Infirmary <sup>1+</sup>                  | Baltimore    | Church  | 191      | 1,661                   | 27              | 100                             | RAS                | 7                          | 12                          | Varies            | No                 | Req 47             | \$15               |                   | Varies            |
| Franklin Square Hospital <sup>1+</sup>                   | Baltimore    | NP Assn | 217      | 1,669                   | 50              | 100                             | RAS                | 12                         | 12                          | Feb July          | No                 | Req 28             | \$10(1)            |                   | Nov               |
| Hospital for Women <sup>1+</sup>                         | Baltimore    | NP Assn | 162      | 3,220                   | 29              | 100                             | R                  | 7                          | 12                          | Oct               | No                 | Req 23             | No                 |                   | April             |
| Johns Hopkins Hospital <sup>1 3+</sup>                   | Baltimore    | NP Assn | 969      | 16,680                  | 61              | 100                             | S                  | 76                         | 12                          | Varies            | No                 | Req 74             | No                 |                   | Varies            |
| Maryland General Hospital <sup>3+</sup>                  | Baltimore    | Church  | 261      | 5,116                   | 26              | 100                             | R                  | 10                         | 12                          | July              | No                 | Req 18             | \$10               |                   | Varies            |
| Mercy Hospital <sup>+</sup>                              | Baltimore    | Church  | 132      | 5,182                   |                 |                                 | R                  | 15                         | 12                          | April             | No                 | Req 32             | No                 |                   | Sept              |
| Provident Hospital and Free Dispensary <sup>+</sup>      | Baltimore    | NP Assn | 115      | 2,335                   | 75              | 75                              | R                  | 7                          | 12                          | July              | No                 | Req 22             | \$10               |                   | Varies            |
| St. Agnes' Hospital <sup>1+</sup>                        | Baltimore    | Church  | 215      | 1,557                   | 32              | 100                             | R                  | 6                          | 12                          | July              | No                 | Req 25             | \$5                |                   | Nov               |
| St. Joseph's Hospital <sup>3+</sup>                      | Baltimore    | Church  | 229      | 6,551                   | 52              | 100                             | R                  | 8                          | 12                          | July              | No                 | Req 19             | \$5                |                   | Nov               |
| Sinal Hospital <sup>1 3+</sup>                           | Baltimore    | NP Assn | 300      | 5,184                   | 35              | 101                             | MAS                | 18                         | 12                          | July              | No                 | Req 38             | No                 |                   | Nov               |
| South Baltimore General Hospital <sup>1+</sup>           | Baltimore    | NP Assn | 170      | 3,115                   | 21              | 100                             | R                  | 6                          | 12                          | Sept              | No                 | Req 25             | \$75               |                   | April             |
| Union Memorial Hospital <sup>+</sup>                     | Baltimore    | NP Assn | 68       | 7,281                   | 11              | 100                             | R                  | 10                         | 12                          | July              | No                 | Req 31             | No                 |                   | Nov               |
| United States Marine Hospital <sup>3</sup>               | Baltimore    | USPHS   | 511      | 5,097                   | 100             |                                 | R                  | 12                         | 12                          | July              | (37)               | Op 63              | \$67.50            |                   | Dec               |
| University Hospital <sup>1 3+</sup>                      | Baltimore    | State   | 185      | 9,219                   | 17              | 100                             | RAS                | 21                         | 12                          | April             | (31)               | Req 48             | No                 |                   | Sept              |
| West Baltimore General Hospital <sup>+</sup>             | Baltimore    | NP Assn | 171      | 3,921                   | 59              | 100                             | R                  | 7                          | 12                          | July              | (35)               | Req 54             | \$25               |                   | Nov               |
| <b>MASSACHUSETTS</b>                                     |              |         |          |                         |                 |                                 |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| Beverly Hospital <sup>+</sup>                            | Beverly      | NP Assn | 217      | 3,111                   | 51              |                                 | R                  | 1                          | 12                          | July Sept         | No                 | Req 83             | No                 |                   | Varies            |
| Beth Israel Hospital <sup>+</sup>                        | Boston       | NP Assn | 215      | 6,163                   | 45              | 75                              | M                  | 12                         | 12                          | (k)               | No                 | Req 55             | No                 |                   | Sept              |
| Boston City Hospital <sup>1 3+</sup>                     | Boston       | City    | 2,509    | 11,181                  | 100             |                                 | S                  | 101                        | 12 21                       | Varies            | No                 | Req 70             | No                 |                   | Jan               |
| Carney Hospital <sup>+</sup>                             | Boston       | Church  | 210      | 5,111                   | 41              | 50                              | RAS                | 10                         | 12                          | Varies            | No                 | Req 23             | No                 |                   | Oct               |
| Faulkner Hospital  | Boston       | NP Assn | 183      | 5,151                   | 5               |                                 | R                  | 3                          | 12                          | June Oct          | No                 | Req 49             | No                 |                   | Sept              |
| Massachusetts General Hospital <sup>1 3+</sup>           | Boston       | NP Assn | 502      | 7,622                   | 100             |                                 | S                  | 36                         | 12                          | Varies            | (16)               | Req 62             | No                 |                   | Varies            |
| Massachusetts Memorial Hospitals <sup>1 3+</sup>         | Boston       | NP Assn | 112      | 6,095                   |                 | 100                             | S                  | 18                         | 12                          | April             | No                 | Req 76             | No                 |                   | Sept              |
| New England Hospital for Women and Children <sup>2</sup> | Boston       | NP Assn | 160      | 1,667                   | 53              | 21                              | R                  | 8                          | 12                          | Jan July          | No                 | Req 56             | No                 |                   | Jan July          |
| Peter Bent Brigham Hospital <sup>3+</sup>                | Boston       | NP Assn | 217      | 5,171                   |                 |                                 | S                  | 25                         | 12                          | Monthly           | (37)               | Req 63             | No                 |                   | Varies            |
| St. Elizabeth's Hospital                                 | Boston       | Church  | 62       | 5,122                   | 21              | 75                              | R                  | 6                          | 12                          | Varies            | No                 | Req 17             | No                 |                   | Varies            |
| United States Marine Hospital <sup>3</sup>               | Boston       | USPHS   | 366      | 2,076                   | 100             |                                 | R                  | 6                          | 12                          | July              | No                 | Op 49              | \$62.50            |                   | July              |
| Cambridge City Hospital                                  | Cambridge    | City    | 100      | 6,303                   | 77              |                                 | R                  | 8                          | 12                          | Varies            | No                 | Req 23             | \$10               |                   | Feb               |
| Cambridge Hospital <sup>1+</sup>                         | Cambridge    | NP Assn | 261      | 5,195                   | 27              |                                 | R                  | 3                          | 12                          | Apr July          | No                 | Req 6              | No                 |                   | Sept              |
| Chelsea Memorial Hospital                                | Chelsea      | Corp    | 115      | 2,183                   | 10              | 20                              | R                  | 2                          | 12                          | June Dec          | No                 | None 30            | \$50               |                   | Apr Oct           |
| United States Naval Hospital                             | Chelsea      | Navy    | 161      | 1,503                   | 100             |                                 | R                  | 10                         | 12                          | June              | No                 | None 57            | (b)                |                   | Varies            |
| Union Hospital <sup>1</sup>                              | Fall River   | NP Assn | 186      | 1,511                   | 15              | 90                              | R                  | 3                          | 12                          | June July         | No                 | Req 25             | \$62.50            |                   | Dec               |
| Burbank Hospital <sup>1</sup>                            | Fitchburg    | Corp    | 26       | 1,109                   | 55              |                                 | R                  | 4                          | 12                          | Varies            | No                 | Req 33             | \$25               |                   | Varies            |
| Haverhill Municipal Hospital (Hut.)                      | Haverhill    | City    | 198      | 1,730                   | 12              |                                 | R                  | 2                          | 12                          | July              | No                 | None 20            | \$25               |                   | Sept              |
| Holyoke Hospital   | Holyoke      | NP Assn | 111      | 2,111                   |                 |                                 | R                  | 3                          | 12                          | July              | No                 | Req 19             | \$25               |                   | Jan               |
| Providence Hospital                                      | Holyoke      | Church  | 200      | 3,662                   | 11              | 50                              | R                  | 3                          | 12                          | Jan June          | No                 | None               | \$50               |                   | Dec May           |
| Lawrence General Hospital                                | Lawrence     | NP Assn | 214      | 3,107                   | 38              |                                 | R                  | 3                          | 12                          | July              | No                 | Req 56             | \$10               |                   | Nov               |
| Lowell General Hospital                                  | Lowell       | NP Assn | 188      | 3,187                   | 39              |                                 | R                  | 3                          | 12                          | July              | No                 | Req 25             | \$25               |                   | Fall              |
| St. John's Hospital                                      | Lowell       | Church  | 200      | 1,088                   | 75              | 10                              | R                  | 1                          | 12                          | July              | No                 | Req 30             | \$20               |                   | Nov               |
| St. Joseph's Hospital                                    | Lowell       | Church  | 133      | 3,057                   | 75              |                                 | R                  | 2                          | 12                          | June              | No                 | Req 17             | \$15               |                   | Nov               |
| Lynn Hospital  | Lynn         | NP Assn | 222      | 5,922                   | 28              |                                 | R                  | 6                          | 12                          | July              | No                 | Req 32             | \$25               |                   | Oct               |
| St. Luke's Hospital                                      | New Bedford  | NP Assn | 339      | 7,150                   |                 |                                 | R                  | 6                          | 12                          | July              | No                 | Req 18             | No                 |                   | Varies            |
| Newton Hospital  | Newton       | NP Assn | 301      | 5,372                   | 17              |                                 | R                  | 6                          | 12                          | June              | No                 | Req 41             | No                 |                   | Fall              |
| House of Mercy Hospital                                  | Pittsfield   | NP Assn | 215      | 1,989                   | 20              | 2                               | R                  | 3                          | 12                          | July              | No                 | Req 29             | \$10               |                   | Nov               |
| St. Luke's Hospital <sup>1</sup>                         | Pittsfield   | Church  | 199      | 1,559                   | 21              | 1                               | R                  | 3                          | 12                          | Jan July          | No                 | None 24            | \$50               |                   | Nov               |
| Quincy City Hospital <sup>1</sup>                        | Quincy       | City    | 321      | 8,085                   | 65              | 50                              | R                  | 6                          | 12                          | Jan July          | No                 | None 26            | \$50               |                   | June              |
| Salem Hospital <sup>3</sup>                              | Salem        | NP Assn | 285      | 4,794                   | 37              | 10                              | R                  | 6                          | 12                          | July              | (38)               | Req 42             | \$25               |                   | Nov               |
| Mercy Hospital   | Springfield  | Church  | 365      | 7,347                   | 50              | 90                              | R                  | 6                          | 12                          | June July         | No                 | None 21            | \$25               |                   | Sept              |
| Springfield Hospital <sup>1</sup>                        | Springfield  | NP Assn | 285      | 6,386                   | 35              | 75                              | R                  | 12                         | 12 24                       | July              | (39)               | Req 41             | No                 |                   | Varies            |
| Wesson Memorial Hospital <sup>1</sup>                    | Springfield  | NP Assn | 116      | 2,696                   | 9               |                                 | R                  | 5                          | 18                          | Varies            | (40)               | None 19            | \$25               |                   | Nov               |
| Waltham Hospital <sup>1</sup>                            | Waltham      | NP Assn | 218      | 2,885                   | 41              | 90                              | R                  | 4                          | 12                          | July              | No                 | Req 39             | \$25               |                   | Varies            |
| Memorial Hospital <sup>+</sup>                           | Worcester    | NP Assn | 215      | 6,355                   | 100             |                                 | R                  | 10                         | 12                          | Varies            | No                 | Req 41             | No                 |                   | Varies            |
| St. Vincent Hospital                                     | Worcester    | Church  | 299      | 5,007                   | 21              | 95                              | R                  | 6                          | 12                          | Varies            | No                 | None               | \$20               |                   | July              |
| Worcester City Hospital <sup>3+</sup>                    | Worcester    | City    | 550      | 10,015                  | 85              | 97                              | R                  | 18                         | 12                          | Varies            | No                 | Req 30             | No                 |                   | Mar               |
| Worcester Hahnemann Hospital <sup>1</sup>                | Worcester    | NP Assn | 140      | 2,830                   | 9               |                                 | R                  | 4                          | 12                          | July              | No                 | None 33            | \$35               |                   |                   |
| <b>MICHIGAN</b>  |              |         |          |                         |                 |                                 |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| University Hospital <sup>1 3+</sup>                      | Ann Arbor    | State   | 1,235    | 17,551                  | 100             |                                 | R                  | 38                         | 12                          | Feb July          | No                 | Req 66             | No                 |                   | Aug               |
| Lella Y. Post Montgomery Hospital                        | Battle Creek | Church  | 161      | 4,130                   | 5               | 100                             | R                  | 3                          | 12                          | Feb               | No                 | Req 23             | \$50               |                   | Sept              |
| Mercy Hospital <sup>1</sup>                              | Bay City     | Church  | 140      | 3,826                   |                 |                                 | R                  | 3                          | 12                          | July              | No                 | None 19            | \$50               |                   | Varies            |
| City of Detroit Receiving Hospital <sup>1+</sup>         | Detroit      | City    | 649      | 18,506                  | 100             |                                 | R                  | 32                         | 12                          | Varies            | (41)               | Req 34             | \$50               |                   | Varies            |
| Evangelical Deaconess Hospital <sup>1</sup>              | Detroit      | Church  | 225      | 6,728                   | 31              |                                 | R                  | 5                          | 12                          | July              | No                 | Req 20             | \$100              |                   | Nov               |
| Grace Hospital <sup>1+</sup>                             | Detroit      | NP Assn | 605      | 17,367                  | 20              | 100                             | R                  | 36                         | 12                          | Varies            | No                 | Req 34             | \$25               |                   | Nov               |
| Harper Hospital <sup>+</sup>                             | Detroit      | NP Assn | 685      | 18,388                  | 9               | 100                             | R                  | 36                         | 12                          | Varies            | (42)               | Op 38              | No                 |                   | Varies            |
| Henry Ford Hospital <sup>3+</sup>                        | Detroit      | NP Assn | 695      | 16,268                  | 94              | 100                             | R                  | 28                         | 12                          | Varies            | No                 | Op 51              | \$125(a)           |                   | Varies            |
| Mount Carmel Mercy Hospital                              | Detroit      | Church  | 385      | 10,875                  |                 | 100                             | R                  | 10                         | 12                          | Varies            | No                 | Req 28             | \$100              |                   | Varies            |
| Providence Hospital <sup>+</sup>                         | Detroit      | Church  | 424      | 11,602                  |                 |                                 | R                  | 17                         | 12                          | Mar July          | No                 | None 57            | \$125(a)           |                   | Sept Dec          |

Numerical and other references will be found on page 1321

| Name of Hospital  | Location       | Control  | Capacity | Total Patients Admitted | % Service Cases | % Priv Pts Worked Up by Interns | Type of Internship | Interns Appointed Annually | Length of Service in Months | Service Commences | Admitted Service | Outpatient Service | Autopsy Percentage | Stipend per Month | Appointments Made |
|---|----------------|----------|----------|-------------------------|-----------------|---------------------------------|--------------------|----------------------------|-----------------------------|-------------------|------------------|--------------------|--------------------|-------------------|-------------------|
| <b>OHIO—Continued</b>   |                |          |          |                         |                 |                                 |                    |                            |                             |                   |                  |                    |                    |                   |                   |
| Huron Road Hospital <sup>1+</sup>   | East Cleveland | NP Assn  | 327      | 11,006                  | 1               | 100                             | R                  | 12                         | 12                          | July              | No               | Req                | 16                 | \$20              | Nov               |
| Lima Memorial Hospital  | Lima           | NP Assn  | 115      | 1,525                   | 5               | 100                             | R                  | 5                          | 12                          | July              | No               | None               | 17                 | \$50              | Jan               |
| St Rita's Hospital  | Lima           | Church   | 110      | 2,900                   |                 |                                 | R                  | 1                          | 12                          | July              | No               | None               | 33                 | \$75              | Dec               |
| Springfield City Hospital <sup>1</sup>                                    | Springfield    | City     | 263      | 5,715                   | 18              | 50                              | R                  | 8                          | 12                          | July              | No               | Req                | 23                 | \$30              | Nov               |
| Lucas County General Hospital <sup>2+</sup>                               | Tokodo         | County   | 325      | 1,971                   | 100             |                                 | R                  | 12                         | 12                          | April             | No               | Req                | 37                 | \$25              | Oct               |
| Mercy Hospital <sup>1</sup>   | Tokodo         | Church   | 272      | 5,111                   | 6               | 65                              | R                  | 8                          | 12                          | Mar/July          | No               | None               | 31                 | \$100             | Varies            |
| St Vincent's Hospital <sup>1+</sup>                                       | Tokodo         | Church   | 116      | 8,742                   | 11              | 59                              | R                  | 11                         | 12                          | July              | No               | Req                | 30                 | \$50              | Jan/July          |
| Tokodo Hospital <sup>1</sup>  | Tokodo         | NP Assn  | 320      | 7,938                   | 6               |                                 | R                  | 10                         | 12                          | Apr/July          | No               | Req                | 52                 | \$25              | Varies            |
| St Elizabeth's Hospital <sup>1+</sup>                                     | Youngstown     | Church   | 335      | 9,550                   | 10              |                                 | R                  | 8                          | 12                          | March             | No               | Req                | 19                 | \$0               | Oct               |
| Youngstown Hospital <sup>2+</sup>   | Youngstown     | NP Assn  | 551      | 11,133                  | 10              | 100                             | R                  | 20                         | 12                          | Varies            | No               | Req                | 20                 | \$25              | Varies            |
| <b>OKLAHOMA</b>   |                |          |          |                         |                 |                                 |                    |                            |                             |                   |                  |                    |                    |                   |                   |
| St Anthony Hospital <sup>+</sup>  | Oklahoma City  | Church   | 160      | 9,023                   | 13              | 86                              | R                  | 9                          | 12                          | July              | No               | None               | 22                 | \$25              | Dec               |
| University Hospitals <sup>+</sup>   | Oklahoma City  | State    | 101      | 6,229                   | 99              |                                 | R                  | 12                         | 12                          | Varies            | (52)             | Req                | 48                 | \$25              | Varies            |
| Wesley Hospital <sup>1</sup>  | Oklahoma City  | Part     | 162      | 1,827                   | 10              | 90                              | R                  | 1                          | 12                          | July              | No               | None               | 23                 | \$50              | Jan               |
| Hillcrest Memorial Hospital <sup>1</sup>                                  | Tulsa          | NP Assn  | 219      | 5,170                   | 20              |                                 | R                  | 5                          | 12                          | July              | (118)            | Req                | 18                 | \$50              | Nov               |
| St John's Hospital  | Tulsa          | Church   | 250      | 7,733                   | 33              |                                 | R                  | 6                          | 12                          | Jan/July          | No               | None               | 21                 | \$50              | Oct               |
| <b>OREGON</b>   |                |          |          |                         |                 |                                 |                    |                            |                             |                   |                  |                    |                    |                   |                   |
| Immanuel Hospital <sup>1+</sup>   | Portland       | Church   | 313      | 8,161                   |                 | 100                             | R                  | 12                         | 12                          | June              | (53)             | None               | 42                 | \$20              | Oct               |
| Good Samaritan Hospital <sup>+</sup>                                      | Portland       | Church   | 116      | 9,010                   | 5               | 90                              | R                  | 12                         | 12                          | July              | No               | Req                | 36                 | \$20              | Nov               |
| Portland Sanitarium and Hospital <sup>1</sup>                             | Portland       | Church   | 161      | 5,773                   |                 |                                 | R                  | 5                          | 12                          | June              | No               | None               | 52                 | \$70(a)           | Nov               |
| St Vincent's Hospital <sup>+</sup>  | Portland       | Church   | 117      | 10,315                  |                 |                                 | R                  | 18                         | 12                          | July              | No               | None               | 50                 | \$25              | Oct               |
| University of Oregon Medical School Hospitals and Clinics <sup>1+2+</sup> | Portland       | Co State | 163      | 8,551                   | 100             |                                 | R                  | 16                         | 12                          | Apr/July          | No               | Op                 | 65                 | \$20              | Apr/July          |
| <b>PENNSYLVANIA</b>   |                |          |          |                         |                 |                                 |                    |                            |                             |                   |                  |                    |                    |                   |                   |
| Abington Memorial Hospital <sup>+</sup>                                   | Abington       | NP Assn  | 330      | 6,650                   | 51              | 95                              | R                  | 12                         | 12                          | April             | No               | Req                | 55                 | No                | Varies            |
| Allentown Hospital <sup>1+2</sup>   | Allentown      | NP Assn  | 375      | 5,278                   |                 | 100                             | R                  | 10                         | 12                          | July              | No               | Req                | 40                 | \$25              | Oct               |
| Sacred Heart Hospital <sup>1+</sup>                                       | Allentown      | Church   | 355      | 5,763                   | 3               | 99                              | R                  | 8                          | 12                          | July              | No               | Req                | 59                 | \$25              | Sept              |
| Altoona Hospital  | Altoona        | NP Assn  | 180      | 3,201                   |                 |                                 | R                  | 5                          | 12                          | Mar/July          | No               | Req                | 25                 | \$25              | Nov               |
| Mercy Hospital <sup>1</sup>   | Altoona        | NP Assn  | 180      | 3,511                   | 40              | 100                             | R                  | 5                          | 12                          | July              | No               | Req                | 31                 | \$25              | Fall              |
| St Luke's Hospital <sup>1+2+</sup>  | Richfield      | NP Assn  | 275      | 5,118                   | 29              | 100                             | R                  | 9                          | 12                          | July              | No               | Req                | 38                 | \$100 yr          | Varies            |
| Braddock General Hospital   | Braddock       | NP Assn  | 175      | 3,752                   | 20              |                                 | R                  | 5                          | 12                          | July              | No               | Req                | 22                 | \$25              | Nov               |
| Bryn Mawr Hospital <sup>+</sup>   | Bryn Mawr      | NP Assn  | 261      | 1,575                   | 15              | 100                             | R                  | 9                          | 12                          | July              | No               | Req                | 47                 | No                | Varies            |
| Chester Hospital <sup>1+2</sup>   | Chester        | NP Assn  | 250      | 5,682                   | 13              | 100                             | R                  | 8                          | 12                          | July              | No               | Req                | 25                 | \$15              | Varies            |
| George F. Giesinger Memorial Hospital <sup>1+</sup>                       | Danville       | NP Assn  | 171      | 6,151                   |                 | 100                             | R                  | 10                         | 12                          | Varies            | No               | Req                | 30                 | No                | Varies            |
| Fitzgerald Mercy Hospital   | Darby          | Church   | 251      | 5,126                   | 60              | 100                             | R                  | 8                          | 12                          | July              | No               | Req                | 75                 | \$25              | Dec               |
| Easton Hospital <sup>1+2</sup>  | Easton         | NP Assn  | 220      | 5,779                   | 50              | 15                              | R                  | 6                          | 12                          | July              | No               | Req                | 32                 | \$50              | Jan               |
| Hamot Hospital <sup>1</sup>   | Erie           | NP Assn  | 255      | 5,666                   | 11              |                                 | R                  | 8                          | 12                          | July              | No               | Req                | 32                 | \$25              | Nov               |
| St Vincent's Hospital   | Erie           | NP Assn  | 331      | 9,202                   | 11              |                                 | R                  | 8                          | 12                          | Apr/July          | No               | Req                | 29                 | \$25(e)           | Varies            |
| Harrisburg Hospital <sup>1</sup>  | Harrisburg     | NP Assn  | 261      | 5,958                   | 12              | 75                              | R                  | 10                         | 12                          | July              | No               | Req                | 25                 | \$15              | Varies            |
| Harrisburg Polytechnic Hospital   | Harrisburg     | NP Assn  | 180      | 1,112                   |                 | 98                              | R                  | 8                          | 12                          | July              | No               | Req                | 19                 | \$35              | Nov               |
| Conemaugh Valley Memorial Hospital <sup>1</sup>                           | Jonestown      | NP Assn  | 315      | 6,110                   |                 | 100                             | R                  | 8                          | 12                          | Varies            | No               | Req                | 26                 | \$50              | Varies            |
| Nesbitt Memorial Hospital <sup>1</sup>                                    | Kingston       | NP Assn  | 180      | 2,620                   | 20              | 30                              | R                  | 1                          | 12                          | July              | No               | Req                | 25                 | \$40              | Jan               |
| Lancaster General Hospital <sup>1</sup>                                   | Lancaster      | NP Assn  | 251      | 5,761                   |                 |                                 | R                  | 8                          | 12                          | July              | No               | Req                | 69                 | \$17.50           | Varies            |
| St Joseph's Hospital <sup>1</sup>   | Lancaster      | Church   | 250      | 1,301                   | 10              |                                 | R                  | 6                          | 12                          | July              | No               | Req                | 32                 | \$25              | Varies            |
| Montgomery Hospital   | Norristown     | NP Assn  | 160      | 1,695                   |                 | 100                             | R                  | 1                          | 12                          | July              | No               | Req                | 30                 | \$50              | Varies            |
| Chestnut Hill Hospital <sup>1</sup>                                       | Philadelphia   | NP Assn  | 111      | 2,516                   | 50              |                                 | R                  | 4                          | 12                          | April             | No               | Req                | 42                 | \$50              | Sept              |
| Frankford Hospital <sup>1</sup>   | Philadelphia   | NP Assn  | 192      | 1,011                   | 55              | 59                              | R                  | 7                          | 12                          | July              | No               | Req                | 27                 | No                | Varies            |
| Germantown Dispensary and Hospital <sup>2+</sup>                          | Philadelphia   | NP Assn  | 110      | 6,416                   | 60              | 100                             | R                  | 12                         | 12                          | July              | No               | Req                | 50                 | No                | Sept              |
| Graduate Hospital of the University of Pennsylvania <sup>+</sup>          | Philadelphia   | NP Assn  | 161      | 6,203                   |                 |                                 | R                  | 12                         | 12                          | Varies            | (54)             | Req                | 36                 | No                | July              |
| Hahnemann Hospital <sup>2+</sup>  | Philadelphia   | NP Assn  | 675      | 1,051                   | 53              | 100                             | R                  | 21                         | 12                          | July              | No               | Req                | 55                 | No                | June              |
| Hospital of the Protestant Episcopal Church <sup>1+2+</sup>               | Philadelphia   | Church   | 530      | 8,268                   |                 |                                 | R                  | 16                         | 12                          | July              | No               | Req                | 69                 | No                | April             |
| Hosp of the Univ of Pennsylvania <sup>1+2+</sup>                          | Philadelphia   | NP Assn  | 657      | 10,892                  | 1               | 75                              | R                  | 19                         | 12                          | Varies            | No               | Req                | 90                 | No                | Varies            |
| Hospital of the Woman's Medical College <sup>2+</sup>                     | Philadelphia   | NP Assn  | 173      | 3,302                   | 65              | 100                             | R                  | 5                          | 12                          | July/Sept         | No               | Req                | 51                 | No                | Nov               |
| Jefferson Medical College Hospital <sup>2+</sup>                          | Philadelphia   | NP Assn  | 717      | 11,999                  | 69              | 31                              | R                  | 25                         | 12                          | Varies            | No               | Req                | 51                 | No                | June              |
| Jewish Hospital <sup>1+2+</sup>   | Philadelphia   | NP Assn  | 179      | 7,888                   | 13              | 100                             | R                  | 18                         | 12                          | Varies            | (55)             | Req                | 61                 | No                | Varies            |
| Lankenau Hospital <sup>+</sup>  | Philadelphia   | NP Assn  | 291      | 1,171                   |                 | 100                             | R                  | 10                         | 12                          | Varies            | (56)             | Req                | 70                 | No                | Varies            |
| Memorial Hospital <sup>1+2</sup>  | Philadelphia   | NP Assn  | 111      | 2,112                   | 60              | 50                              | R                  | 4                          | 12                          | July              | No               | Req                | 25                 | \$72.50           | Varies            |
| Mercy Hospital  | Philadelphia   | NP Assn  | 125      | 2,082                   |                 | 100                             | R                  | 1                          | 12                          | July              | (57)             | Req                | 30                 | \$10              | Nov               |
| Methodist Hospital <sup>1</sup>   | Philadelphia   | Church   | 206      | 3,712                   |                 |                                 | R                  | 8                          | 12                          | July              | No               | Req                | 67                 | No                | Oct               |
| Misericordia Hospital <sup>1+2</sup>                                      | Philadelphia   | Church   | 250      | 1,918                   | 30              | 49                              | R                  | 9                          | 12                          | Varies            | No               | Req                | 42                 | No                | Varies            |
| Mount Sinai Hospital <sup>1+2+</sup>                                      | Philadelphia   | NP Assn  | 317      | 6,869                   | 48              | 90                              | R                  | 13                         | 12                          | Varies            | No               | Req                | 57                 | No                | Varies            |
| Northeastern Hospital <sup>1+2</sup>                                      | Philadelphia   | NP Assn  | 102      | 2,215                   | 80              | 100                             | R                  | 4                          | 12                          | July              | No               | Req                | 34                 | \$20              | Jan               |
| Pennsylvania Hospital <sup>2+</sup>                                       | Philadelphia   | NP Assn  | 563      | 8,991                   |                 | 100                             | R                  | 21                         | 12                          | Varies            | (58)             | Req                | 66                 | No                | Varies            |
| Philadelphia General Hospital <sup>1+2+</sup>                             | Philadelphia   | City     | 2,756    | 27,115                  | 100             |                                 | R                  | 61                         | 12                          | July              | (55)             | Req                | 66                 | No                | June              |
| Presbyterian Hospital <sup>2+</sup>                                       | Philadelphia   | Church   | 469      | 5,513                   |                 | 100                             | R                  | 12                         | 12                          | July              | No               | Req                | 80                 | No                | Aug               |
| St Joseph's Hospital <sup>1</sup>   | Philadelphia   | Church   | 220      | 2,721                   | 20              | 97                              | R                  | 6                          | 12                          | March             | No               | Req                | 30                 | \$20              | Sept              |
| St Luke's and Children's Medical Center <sup>1</sup>                      | Philadelphia   | NP Assn  | 262      | 6,157                   | 62              | 100                             | R                  | 8                          | 12                          | July              | No               | Req                | 31                 | No                | Nov               |
| St Mary's Hospital <sup>1</sup>   | Philadelphia   | Church   | 250      | 1,070                   |                 | 100                             | R                  | 6                          | 12                          | July              | No               | Req                | 42                 | No                | Sept              |
| Temple University Hospital <sup>1+2+</sup>                                | Philadelphia   | NP Assn  | 473      | 9,017                   |                 | 100                             | R                  | 20                         | 12                          | July              | (59)             | Req                | 63                 | No                | Varies            |
| United States Naval Hospital  | Philadelphia   | Navy     | 951      | 8,025                   |                 | 100                             | R                  | 20                         | 12                          | Varies            | (90)             | Op                 | 46                 | (b)               | Jan               |
| Woman's Hospital <sup>1+2+</sup>  | Philadelphia   | NP Assn  | 166      | 2,972                   |                 | 100                             | R                  | 6                          | 12                          | Mar/July/Sept     | (91)             | Op                 | 37                 | No                | Varies            |
| Women's Homeopathic Hospital <sup>1</sup>                                 | Philadelphia   | NP Assn  | 200      | 2,688                   | 68              |                                 | R                  | 1                          | 12                          | July              | No               | Req                | 45                 | \$15              | Apr/July          |
| Allegheny General Hospital <sup>1+</sup>                                  | Pittsburgh     | NP Assn  | 598      | 9,137                   | 50              | 100                             | R                  | 16                         | 12                          | Apr/July          | No               | Req                | 22                 | No                | Varies            |
| Mercy Hospital <sup>1+</sup>  | Pittsburgh     | Church   | 680      | 13,185                  |                 |                                 | R                  | 24                         | 12                          | July              | (92)             | Req                | 32                 | (s)               | Varies            |
| Montefiore Hospital <sup>+</sup>  | Pittsburgh     | NP Assn  | 257      | 6,101                   | 25              | 100                             | R                  | 10                         | 12                          | July              | No               | Req                | 49                 | No                | Nov               |
| Passavant Hospital <sup>1</sup>   | Pittsburgh     | Church   | 99       | 1,711                   | 19              |                                 | R                  | 3                          | 12                          | July              | No               | Req                | 26                 | \$10              | Nov               |
| Pittsburgh Hospital <sup>1</sup>  | Pittsburgh     | NP Assn  | 210      | 4,227                   | 90              |                                 | R                  | 6                          | 12                          | July              | No               | Req                | 17                 | \$25              | Varies            |
| Presbyterian Hospital <sup>1+</sup>                                       | Pittsburgh     | NP Assn  | 205      | 3,870                   | 66              | 90                              | R                  | 20                         | 12                          | Apr/July          | (93)             | Req                | 35                 | No                | Sept              |
| St Francis Hospital <sup>2+</sup>   | Pittsburgh     | NP Assn  | 709      | 12,419                  |                 |                                 | R                  | 20                         | 12                          | July              | (94)             | Req                | 26                 | No                | Nov               |
| St John's General Hospital <sup>1</sup>                                   | Pittsburgh     | NP Assn  | 232      | 5,055                   | 50              | 90                              | R                  | 7                          | 12                          | July              | No               | Req                | 30                 | (f)               | Varies            |
| St Joseph's Hospital and Dispensary                                       | Pittsburgh     | Church   | 130      | 2,459                   |                 | 100                             | R                  | 6                          | 12                          | Mar/July          | No               | Req                | 31                 | (s)               | Sept              |
| Shadyside Hospital  | Pittsburgh     | NP Assn  | 310      | 5,967                   | 33              | 100                             | R                  | 10                         | 12                          | July              | (94)             | Req                | 20                 | \$25              | Jan               |
| South Side Hospital <sup>1</sup>  | Pittsburgh     | NP Assn  | 225      | 5,005                   | 75              |                                 | R                  | 7                          | 12                          | July              | No               | Req                | 30                 | No                | Varies            |
| Western Pennsylvania Hospital <sup>1+</sup>                               | Pittsburgh     | NP Assn  | 661      | 10,729                  | 86              |                                 | R                  | 18                         | 12                          | July              | No               | Req                | 30                 | \$100             | Nov               |
| Pottsville Hospital <sup>1</sup>  | Pottsville     | NP Assn  | 171      | 2,912                   | 73              |                                 | R                  | 5                          | 12                          | July              | No               | Req                | 32                 | \$50              | Nov               |
| Homeopathic Hospital  | Reading        | NP Assn  | 131      | 2,896                   | 56              |                                 | R                  | 4                          | 12                          | June              | No               | Req                | 59                 | No                | Nov               |
| Reading Hospital <sup>1+2+</sup>  | Reading        | NP Assn  | 325      | 5,810                   | 36              | 99                              | R                  | 10                         | 12                          | July              | (95)             | Req                | 32                 | \$35              | Nov               |
| St Joseph's Hospital  | Reading        | Church   | 210      | 3,963                   |                 |                                 | R                  | 6                          | 12                          | Varies            | No               | Req                | 47                 | No                | Aug               |
| Robert Packer Hospital <sup>+</sup>                                       | Sayre          | NP Assn  | 325      | 6,942                   |                 |                                 | R                  | 10                         | 12                          | Varies            | No               | Req                | 47                 | No                | Aug               |



| Name of Hospital                            | Location        | Control  | Capacity | Total Patients Admitted | % Priv. Pts. Worked Up by Interns | Type of Internship | Interns Appointed Annually | Length of Service in Months | Service Commences | Affiliated Service | Outpatient Service | Autopsy Percentage | Stipend per Month | Appointments Made |
|---|-----------------|----------|----------|-------------------------|-----------------------------------|--------------------|----------------------------|-----------------------------|-------------------|--------------------|--------------------|--------------------|-------------------|-------------------|
| PENNSYLVANIA—(Continued)                    |                 |          |          |                         |                                   |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| Moore Taylor Hospital                       | Scranton        | NPA Assn | 170      | 1,971                   | 100                               | R                  | 4                          | 12                          | July              | (96)               | Req                | 27                 | \$20              | Fall              |
| Scranton State Ho pital                     | Scranton        | State    | 80       | 564                     | 5                                 | R                  | 10                         | 12                          | July              | No                 | Req                | 19                 | \$25              | Varies            |
| Seawick's Valley Ho pital                   | Seawick's       | NPA Assn | 15       | 116                     | 100                               | R                  | 5                          | 12                          | July              | No                 | Req                | 23                 | \$25              | Varies            |
| Uniontown Ho pital                          | Uniontown       | NPA Assn | 15       | 107                     | 7                                 | R                  | 5                          | 12                          | July              | No                 | Req                | 31                 | \$20              | Feb               |
| Washington Ho pital                         | Washington      | NPA Assn | 10       | 100                     | 100                               | R                  | 6                          | 1                           | July              | No                 | Req                | 31                 | \$20              | Sept              |
| Chatham County Ho pital                     | W. Chatham      | NPA Assn | 170      | 107                     | 5                                 | R                  | 5                          | 12                          | Varies            | No                 | Req                | 30                 | \$20              | Varies            |
| Mercy Hospital                              | Wilkes Barr     | Church   | 10       | 1                       | 5                                 | R                  | 6                          | 12                          | Feb/July          | No                 | Req                | 30                 | \$25              | Sept              |
| Wilkes Barr Central Ho pital                | Wilkes Barr     | NPA Assn | 103      | 700                     | 100                               | R                  | 12                         | 12                          | July              | No                 | Req                | 27                 | \$20              | Nov               |
| Columbia Ho pital                           | Wilkes Barr     | Church   | 19       | 10                      | 100                               | R                  | 5                          | 12                          | July              | No                 | Req                | 30                 | \$25              | Jan               |
| Williamport Ho pital                        | Williamport     | NPA Assn | 25       | 5                       | 5                                 | R                  | 7                          | 12                          | Mar/July          | No                 | Req                | 45                 | \$40              | Jan               |
| Wyndham Ho pital                            | Wyndham         | NPA Assn | 117      | 2                       | 5                                 | R                  | 1                          | 12                          | July              | No                 | Req                | 21                 | \$25              | July              |
| York Ho pital                               | York            | NPA Assn | 210      | 5,111                   | 100                               | R                  | 5                          | 12                          | Mar/July          | No                 | Req                | 31                 | \$25              | Fall              |
| RHODE ISLAND                                |                 |          |          |                         |                                   |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| United States Naval Ho pital                | Newport         | Navy     | 745      | 2,143                   | 100                               | R                  | 6                          | 12                          | July              | No                 | Req                | 34                 | No                | June              |
| Memorial Ho pital                           | Providence      | NPA Assn | 130      | 515                     | 6                                 | R                  | 5                          | 12                          | April/July        | No                 | Req                | 34                 | \$20              | July              |
| Homopathic Ho pital                         | Providence      | NPA Assn | 103      | 12                      | 100                               | RAS                | 11                         | 12                          | Monthly           | (97)               | Req                | 45                 | No                | Nov               |
| Rhode Island Ho pital                       | Providence      | Church   | 225      | 6,007                   | 20                                | R                  | 5                          | 12                          | Varies            | No                 | Req                | 24                 | No                | Varies            |
| St. Joseph's Ho pital                       | Providence      | Church   | 225      | 6,007                   | 20                                | R                  | 5                          | 12                          | Varies            | No                 | Req                | 25                 | (b)               | Varies            |
| SOUTH CAROLINA                              |                 |          |          |                         |                                   |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| Roper Ho pital                              | Charleston      | NPA Assn | 200      | 8,500                   | 70                                | R                  | 21                         | 12                          | July              | No                 | Req                | 42                 | \$10              | Oct               |
| United States Naval Ho pital                | Charleston      | Navy     | 11       | 50                      | 100                               | R                  | 5                          | 12                          | Varies            | (93)               | Req                | 46                 | (b)               | Varies            |
| Columbia Ho pital                           | Columbia        | County   | 65       | 9,037                   | 9                                 | R                  | 10                         | 12                          | July              | No                 | Req                | 17                 | \$30(f)           | Nov               |
| Greenville Central Ho pital                 | Greenville      | City     | 116      | 7,608                   | 100                               | R                  | 5                          | 12                          | July              | No                 | Req                | 19                 | \$35              | Varies            |
| United States Naval Ho pital                | Parris Island   | Navy     | 165      | 2,025                   | 100                               | R                  | 6                          | 12                          | Varies            | No                 | Req                | 25                 | (b)               | Varies            |
| TENNESSEE                                   |                 |          |          |                         |                                   |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| Barrow's Franklin Ho pital                  | Chattanooga     | CyCo     | 557      | 11,215                  | 45                                | R                  | 20                         | 12                          | July              | (99)               | Req                | 17                 | \$25              | Jan               |
| Knoxville General Ho pital                  | Knoxville       | City     | 25       | 9,154                   | 75                                | R                  | 6                          | 12                          | Quarterly         | No                 | Req                | 30                 | \$25              | Varies            |
| Baptist Memorial Ho pital                   | Memphis         | Church   | 500      | 11,111                  | 10                                | R                  | 14                         | 12                          | Monthly           | No                 | Req                | 30                 | \$20              | Sept              |
| Johnston Ho pital                           | Memphis         | City     | 500      | 11,111                  | 10                                | RAS                | 26                         | 12                          | Monthly           | No                 | Req                | 24                 | \$25              | Nov               |
| Methodist Ho pital                          | Memphis         | Church   | 500      | 8,817                   | 14                                | R                  | 9                          | 12                          | Quarterly         | No                 | None               | 33                 | \$20              | 6 mo adv          |
| St. Joseph's Ho pital                       | Memphis         | Church   | 25       | 7,472                   | 15                                | R                  | 9                          | 12                          | Quarterly         | No                 | None               | 20                 | \$20              | Quarterly         |
| George W. Hubbard Ho pital                  | Nashville       | NPA Assn | 180      | 2,511                   | 100                               | R                  | 5                          | 12                          | July              | No                 | Req                | 20                 | \$20(h)           | Nov               |
| Nashville General Hospital                  | Nashville       | City     | 200      | 7,000                   | 100                               | R                  | 17                         | 12                          | July              | No                 | R q                | 37                 | \$20              | Dec               |
| St. Thomas Hospital                         | Nashville       | Church   | 275      | 6,917                   | 100                               | R                  | 5                          | 12                          | Feb               | No                 | None               | 20                 | \$20              | Varies            |
| Vanderbilt University Ho pital              | Nashville       | NPA Assn | 501      | 6,105                   | 100                               | S                  | 21                         | 12                          | April             | (100)              | Op                 | 57                 | No                | June              |
| TEXAS                                       |                 |          |          |                         |                                   |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| Baylor University Ho pital                  | Dallas          | Church   | 400      | 14,679                  | 11                                | R                  | 18                         | 12                          | July              | No                 | Req                | 29                 | \$25              | Nov               |
| Methodist Ho pital                          | Dallas          | Church   | 150      | 4,600                   | 17                                | R                  | 6                          | 12                          | Varies            | No                 | Req                | 20                 | \$20(f)           | Fall              |
| Parkland Ho pital                           | Dallas          | CyCo     | 391      | 9,761                   | 95                                | R                  | 10                         | 12                          | Jan/July          | No                 | Req                | 21                 | \$10              | Nov               |
| St. Paul's Ho pital                         | Dallas          | Church   | 200      | 10,625                  | 24                                | R                  | 12                         | 12                          | Varies            | No                 | Req                | 17                 | \$25              | Varies            |
| El Paso City County Ho pital                | El Paso         | CyCo     | 212      | 4,300                   | 100                               | R                  | 5                          | 12                          | July              | No                 | Req                | 23                 | \$25(b)           | Nov               |
| William Leamont Central Hospital            | El Paso         | Army     | 707      | 9,919                   | 100                               | R                  | 4                          | 12                          | July              | No                 | Op                 | 95                 | \$62.50           | July              |
| City County Ho pital                        | Ft Worth        | CyCo     | 183      | 5,646                   | 100                               | R                  | 8                          | 12                          | July              | No                 | Req                | 33                 | \$25              | Nov               |
| Harris Memorial Methodist Ho pital          | Ft Worth        | Church   | 250      | 8,268                   | 11                                | R                  | 8                          | 12                          | Varies            | No                 | Req                | 43                 | \$25(h)           | Varies            |
| St. Joseph's Hospital                       | Ft Worth        | Church   | 250      | 6,413                   | 12                                | R                  | 5                          | 12                          | July              | No                 | None               | 17                 | \$10(h)           | Nov               |
| John Sealy Hospital                         | Galveston       | State    | 504      | 6,600                   | 72                                | R                  | 13                         | 12                          | July              | No                 | Req                | 61                 | No                | Oct               |
| Hermann Hospital                            | Houston         | NPA Assn | 250      | 4,005                   | 100                               | R                  | 12                         | 12                          | Jan-Apr/July      | (101)              | Req                | 52                 | \$20              | July/Oct          |
| Jefferson Davis Hospital                    | Houston         | CyCo     | 512      | 14,545                  | 100                               | R                  | 24                         | 12                          | Jan-Apr/July      | No                 | Req                | 23                 | \$25              | Varies            |
| Medical and Surgical Memorial Hospital      | San Antonio     | NPA Assn | 115      | 1,415                   | 6                                 | R                  | 5                          | 12                          | July              | No                 | Req                | 33                 | \$25              | Nov               |
| Nix Ho pital                                | San Antonio     | Corp     | 169      | 5,174                   | 100                               | R                  | 4                          | 12                          | July              | (102)              | None               | 24                 | \$20              | Varies            |
| Robert B. Green Memorial Hospital           | San Antonio     | County   | 255      | 4,400                   | 100                               | R                  | 12                         | 12                          | July              | No                 | Req                | 23                 | \$10              | Nov               |
| Santa Rosa Ho pital                         | San Antonio     | Church   | 321      | 9,142                   | 12                                | R                  | 10                         | 12                          | Jan/July          | No                 | Req                | 15                 | \$40              | Oct               |
| Stanton Hospital (Fort Sam Houston)         | San Antonio     | Army     | 1,223    | 11,250                  | 100                               | R                  | 10                         | 12                          | July              | No                 | Req                | 93                 | \$60              | Varies            |
| Kings Daughters Hospital                    | Temple          | NPA Assn | 115      | 3,194                   | 85                                | R                  | 3                          | 12                          | July              | No                 | Req                | 19                 | \$20              | Oct               |
| Scott and White Hospital                    | Temple          | Corp     | 210      | 4,031                   | 100                               | R                  | 8                          | 12                          | Mar/July          | (103)              | Req                | 45                 | \$50              | Varies            |
| UTAH  |                 |          |          |                         |                                   |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| Thomas D. Dee Memorial Hospital             | Ogden           | Church   | 250      | 5,460                   | 00                                | R                  | 6                          | 12                          | July              | No                 | Req                | 38                 | \$25              | Jan               |
| Dr. W. H. Groves Latter Day Saints Hosp     | Salt Lake City  | Church   | 400      | 9,639                   | 6                                 | R                  | 10                         | 12                          | June              | (104)              | None               | 34                 | \$20(s)           | Varies            |
| Holy Cross Hospital                         | Salt Lake City  | Church   | 250      | 5,166                   | 4                                 | R                  | 3                          | 12                          | Varies            | No                 | None               | 31                 | \$25(f)           | Varies            |
| St. Mark's Hospital                         | Salt Lake City  | Church   | 164      | 4,292                   | 3                                 | R                  | 4                          | 12                          | July              | No                 | None               | 31                 | \$25(f)           | Nov               |
| Salt Lake County General Hospital           | Salt Lake City  | County   | 253      | 4,036                   | 97                                | R                  | 9                          | 12                          | Varies            | No                 | Req                | 26                 | \$15(h)           | Varies            |
| VERMONT                                     |                 |          |          |                         |                                   |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| Bishop DeGoesbriand Hospital                | Burlington      | Church   | 140      | 2,653                   | 70                                | R                  | 3                          | 12                          | July              | No                 | None               | 34                 | \$25              | Nov               |
| Mary Fletcher Hospital                      | Burlington      | NPA Assn | 150      | 6,531                   | 67                                | R                  | 5                          | 12                          | July/Sept         | No                 | None               | 44                 | \$25              | Full              |
| VIRGINIA                                    |                 |          |          |                         |                                   |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| University of Virginia Hospital             | Charlottesville | State    | 571      | 11,113                  | 100                               | S                  | 24                         | 12                          | April             | (105)              | Req                | 39                 | No                | Aug               |
| Hospital of St. Vincent de Paul             | Norfolk         | Church   | 250      | 7,076                   | 21                                | R                  | 6                          | 12                          | July              | No                 | Req                | 20                 | \$25              | Nov               |
| Norfolk General Hospital                    | Norfolk         | NPA Assn | 333      | 9,359                   | 26                                | R                  | 10                         | 12                          | Mar/July/Oct      | No                 | Req                | 20                 | \$20              | Aug/Nov           |
| United States Marine Hospital               | Norfolk         | USPHS    | 360      | 3,69                    | 103                               | R                  | 12                         | 12                          | July              | (106)              | Req                | 64                 | \$67.50           | March             |
| Norfolk Naval Hospital                      | Portsmouth      | Navy     | 1,090    | 9,227                   | 100                               | R                  | 30                         | 12                          | July              | No                 | Req                | 47                 | (b)               | July              |
| Johnston Willis Hospital                    | Richmond        | Corp     | 144      | 5,371                   | 75                                | R                  | 3                          | 12                          | July              | No                 | None               | 47                 | \$15              | Oct               |
| Medical College of Virginia Hosp Div        | Richmond        | State    | 975      | 11,635                  | 72                                | R                  | 26                         | 12                          | April             | (107)              | Req                | 39                 | No                | Varies            |
| Stuart Circle Hospital                      | Richmond        | Corp     | 112      | 3,157                   | 100                               | R                  | 3                          | 12                          | April             | No                 | None               | 54                 | \$20              | Sept              |
| Jefferson Hospital                          | Roanoke         | NPA Assn | 115      | 3,097                   | 100                               | R                  | 2                          | 12                          | July              | No                 | Req                | 26                 | \$20              | Dec               |
| Lewis-Gale Hospital                         | Roanoke         | NPA Assn | 134      | 4,639                   | 100                               | R                  | 4                          | 12                          | July              | No                 | Req                | 33                 | \$20              | Nov               |
| WASHINGTON                                  |                 |          |          |                         |                                   |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| United States Naval Hospital                | Bremerton       | Navy     | 316      | 2,803                   | 100                               | R                  | 10                         | 12                          | July              | No                 | Req                | 78                 | (b)               | Varies            |
| Columbia Hospital                           | Seattle         | Church   | 239      | 4,562                   | 10                                | R                  | 4                          | 12                          | Varies            | (108)              | Req                | 23                 | \$20              | Varies            |
| King County Hospital Unit No 1 (Harborview) | Seattle         | County   | 505      | 13,204                  | 100                               | R                  | 24                         | 12                          | April             | No                 | Req                | 42                 | \$35              | July              |

| Name of Hospital                                   | Location     | Control  | Capacity | Total Patients Admitted | % Service Cases | % Priv Pts Worked Up by Interns | Type of Internship | Interns Appointed Annually | Length of Service in Months | Service Commences | Affiliated Service | Outpatient Service | Autopsy Percentage | Stipend per Month | Appointments Made |
|--|--------------|----------|----------|-------------------------|-----------------|---------------------------------|--------------------|----------------------------|-----------------------------|-------------------|--------------------|--------------------|--------------------|-------------------|-------------------|
| WASHINGTON—Continued                               |              |          |          |                         |                 |                                 |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| Providence Hospital                                | Seattle      | Church   | 413      | 11,807                  | 100             | R                               | 10                 | 12                         | July                        | (109)             | Req                | 15                 | \$30               | Nov               |                   |
| Seattle General Hospital <sup>1</sup>              | Seattle      | NPA Assn | 111      | 1,591                   | 100             | R                               | 3                  | 12                         | July                        | (110)             | None               |                    | \$50               | Varies            |                   |
| Swedish Hospital                                   | Seattle      | NPA Assn | 111      | 7,997                   | 97              | R                               | 10                 | 12                         | July                        | (110)             | None               | 29                 | \$30               | Aug               |                   |
| United States Marine Hospital <sup>2</sup>         | Seattle      | USPHS    | 100      | 3,177                   | 100             | R                               | 8                  | 12                         | July                        | (111)             | Req                | 79                 | \$67 50            | Varies            |                   |
| Virginia Mason Hospital <sup>4</sup>               | Seattle      | NPA Assn | 193      | 5,512                   | 100             | R                               | 8                  | 12                         | April                       | No                | Req                | 61                 | \$30               | Varies            |                   |
| Duanecon Hospital                                  | Spokane      | Church   | 223      | 5,717                   |                 | R                               | 5                  | 12                         | April                       | (112)             | None               | 24                 | \$50               | April             |                   |
| Sacred Heart Hospital <sup>1</sup>                 | Spokane      | Church   | 310      | 10,150                  | 100             | R                               | 7                  | 12                         | July                        | No                | None               | 33                 | \$35               | July              |                   |
| St Luke's Hospital <sup>1</sup>                    | Spokane      | NPA Assn | 210      | 3,511                   | 100             | R                               | 1                  | 12                         | Quarterly                   | (113)             | None               | 36                 | \$50               | Nov               |                   |
| Pierce County Hospital                             | Tacoma       | County   | 190      | 3,750                   | 100             | R                               | 6                  | 12                         | March                       | No                | Req                | 32                 | \$60               | Sept              |                   |
| St Joseph's Hospital                               | Tacoma       | Church   | 329      | 7,418                   |                 | R                               | 1                  | 12                         | Varies                      | No                | Req                | 41                 | \$100              | Varies            |                   |
| Tacoma General Hospital <sup>4</sup>               | Tacoma       | NPA Assn | 211      | 7,621                   |                 | R                               | 5                  | 12                         | Varies                      | No                | Req                | 28                 | \$50               | Varies            |                   |
| WEST VIRGINIA <sup>1</sup>                         |              |          |          |                         |                 |                                 |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| Charleston General Hospital <sup>1+4</sup>         | Charleston   | NPA Assn | 325      | 10,127                  | 50              | 50                              | R                  | 13                         | 12                          | Varies            | No                 | Req                | 11                 | \$35              | Varies            |
| Kanawha Valley Hospital                            | Charleston   | Corp     | 161      | 1,911                   | 57              | 75                              | R                  | 3                          | 12                          | Jan/July          | No                 | Req                | 39                 | \$75              | Jan/July          |
| Chesapeake and Ohio Hospital                       | Huntington   | NPA Assn | 140      | 2,823                   |                 |                                 | R                  | 1                          | 12                          | July              | No                 | Req                | 31                 | \$37 50           | Nov               |
| St Mary's Hospital                                 | Huntington   | Church   | 200      | 5,977                   | 100             | R                               | 1                  | 12                         | July                        | No                | Req                | 15                 | \$37 50            | Varies            |                   |
| St Joseph's Hospital                               | Parkersburg  | Church   | 139      | 2,836                   | 100             | R                               | 2                  | 12                         | July                        | No                | None               | 35                 | \$50               | Varies            |                   |
| Ohio Valley General Hospital <sup>2</sup>          | Wheeling     | NPA Assn | 705      | 7,111                   | 25              | 100                             | R                  | 10                         | 12                          | Varies            | No                 | Req                | 38                 | \$50              | Varies            |
| Wheeling Hospital                                  | Wheeling     | Church   | 200      | 1,013                   | 9               | 100                             | R                  | 3                          | 12                          | July              | No                 | None               | 18                 | \$40              | Oct               |
| WISCONSIN  |              |          |          |                         |                 |                                 |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| St Elizabeth Hospital <sup>1</sup>                 | Appleton     | Church   | 210      | 1,731                   |                 |                                 | R                  | 3                          | 12                          | June              | No                 | None               | 23                 | \$25              | Varies            |
| Luther Hospital <sup>1</sup>                       | Iau Claire   | NPA Assn | 176      | 3,884                   | 93              |                                 | R                  | 1                          | 12                          | Varies            | No                 | None               | 56                 | \$25(f)           | Nov               |
| St Agnes Hospital                                  | Iond du Lac  | Church   | 262      | 6,461                   |                 |                                 | R                  | 1                          | 12                          | June              | No                 | None               | 18                 | \$25              | Nov               |
| St Francis Hospital <sup>1</sup>                   | Ia Cross     | Church   | 292      | 5,101                   | 100             | R                               | 5                  | 12                         | Varies                      | No                | Req                | 48                 | \$30               | Varies            |                   |
| Madison General Hospital <sup>1</sup>              | Madison      | NPA Assn | 201      | 6,101                   | 100             | R                               | 7                  | 12                         | Varies                      | No                | None               | 38                 | \$30               | Varies            |                   |
| Methodist Hospital <sup>1</sup>                    | Madison      | Church   | 121      | 2,187                   |                 |                                 | R                  | 1                          | 12                          | April             | No                 | Req                | 22                 | \$60(g)           | Varies            |
| St Mary's Hospital                                 | Madison      | Church   | 225      | 6,879                   |                 |                                 | R                  | 6                          | 12                          | July              | No                 | None               | 38                 | \$25              | Varies            |
| State of Wisconsin General Hospital <sup>1+4</sup> | Madison      | State    | 790      | 13,296                  | 100             |                                 | R                  | 20                         | 12                          | April             | No                 | Req                | 72                 | No                | Sept              |
| St Joseph's Hospital <sup>1</sup>                  | Marshfield   | Church   | 216      | 1,692                   | 80              |                                 | R                  | 3                          | 12                          | Jan/July          | No                 | None               | 22                 | \$100             | Oct               |
| Columbia Hospital <sup>4</sup>                     | Milwaukee    | NPA Assn | 150      | 3,560                   | 1               | 100                             | R                  | 6                          | 12                          | Mar/July          | No                 | None               | 51                 | \$25              | June              |
| Evangelical Duanecon Hospital <sup>1</sup>         | Milwaukee    | Church   | 170      | 5,169                   | 1               | 99                              | R                  | 0                          | 12                          | July              | (114)              | Req                | 22                 | \$75              | Nov               |
| Milwaukee Hospital                                 | Milwaukee    | Church   | 265      | 6,839                   | 100             | R                               | 10                 | 12                         | March                       | (115)             | Req                | 57                 | \$25               | Sept              |                   |
| Misericordia Hospital                              | Milwaukee    | Church   | 112      | 1,117                   | 3               |                                 | R                  | 2                          | 12                          | Varies            | No                 | None               |                    | \$100             | Varies            |
| Mount Sinai Hospital                               | Milwaukee    | NPA Assn | 190      | 6,301                   | 9               | 100                             | R                  | 6                          | 12                          | July              | No                 | Req                | 32                 | \$25              | Nov               |
| St Joseph's Hospital <sup>1+4</sup>                | Milwaukee    | Church   | 180      | 8,630                   | 100             | R                               | 8                  | 12                         | June                        | No                | Req                | 27                 | \$75               | Varies            |                   |
| St Luke's Hospital                                 | Milwaukee    | Church   | 175      | 4,383                   | 100             | R                               | 1                  | 12                         | Jan/July                    | No                | Req                | 31                 | \$50               | Varies            |                   |
| St Mary's Hospital <sup>4</sup>                    | Milwaukee    | Church   | 200      | 7,180                   | 100             | R                               | 6                  | 12                         | July                        | No                | None               | 26                 | \$50               | Nov               |                   |
| St Michael Hospital <sup>1</sup>                   | Milwaukee    | Church   | 175      | 3,818                   | 20              |                                 | R                  | 3                          | 12                          | June              | No                 | Req                | 38                 | \$25              | Nov               |
| Verey Hospital                                     | Oshkosh      | Church   | 221      | 1,401                   | 80              |                                 | R                  | 3                          | 12                          | July              | No                 | None               | 22                 | \$35              | July              |
| St Mary's Hospital                                 | Racine       | Church   | 210      | 5,205                   |                 |                                 | R                  | 1                          | 12                          | July              | No                 | None               | 36                 | \$30              | Jan               |
| St Mary's Hospital <sup>1</sup>                    | Superior     | Church   | 161      | 2,071                   |                 |                                 | R                  | 2                          | 12                          | July              | No                 | None               | 19                 | \$25              | July              |
| Milwaukee County Hospital <sup>1+4</sup>           | Wauwatosa    | County   | 1,125    | 15,062                  | 100             |                                 | R                  | 40                         | 12                          | June              | (116)              | Req                | 29                 | \$10              | Nov               |
| CANAL ZONE   |              |          |          |                         |                 |                                 |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| Gorgas Hospital <sup>4</sup>                       | Ancon        | Fed      | 1,388    | 20,964                  | 100             |                                 | R                  | 25                         | 12                          | Varies            | No                 | Op                 | 60 (b)             | Varies            |                   |
| HAWAII   |              |          |          |                         |                 |                                 |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| Queen's Hospital <sup>4</sup>                      | Honolulu     | NPA Assn | 330      | 11,175                  |                 |                                 | R                  | 6                          | 12 & 24                     | (u)               | (117)              | None               | 37                 | \$45 90           | Jan               |
| United States Naval Hospital                       | Pearl Harbor | Navy     | 178      | 3,389                   | 100             |                                 | R                  | 8                          | 12                          | Varies            | No                 | None               | 100 (b)            | Varies            |                   |
| PHILIPPINES  |              |          |          |                         |                 |                                 |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| Philippine General Hospital                        | Manila       | Gov't    | 695      | 20,622                  |                 |                                 | R                  | 1                          | 12                          | March             |                    | Req                |                    |                   |                   |
| PUERTO RICO  |              |          |          |                         |                 |                                 |                    |                            |                             |                   |                    |                    |                    |                   |                   |
| Bayamón Charity District Hospital                  | Bayamón      | Gov't    | 343      | 5,214                   | 100             |                                 | R                  | 6                          | 12                          | July              | No                 | Req                | 37                 | \$25              | Jan               |
| Fajardo Charity District Hospital <sup>1</sup>     | Fajardo      | Gov't    | 375      | 4,789                   | 100             |                                 | R                  | 6                          | 12                          | July              | No                 | Req                | 30                 | \$25              | Nov               |
| Presbyterian Hospital <sup>1</sup>                 | San Juan     | Church   | 145      | 2,780                   | 46              | 80                              | R                  | 4                          | 12                          | July              | No                 | Req                | 23                 | \$10              | Jan/June          |

Numerical and other references will be found on page 1321

## HOSPITALS APPROVED FOR INTERNSHIPS IN THE DOMINION OF CANADA

For the benefit of graduates of approved medical colleges who desire an Internship in Canada, the Council on Medical Education and Hospitals of the American Medical Association has declared that hospitals which conform to the standards of the Department of Hospital Service of the Canadian Medical Association should be regarded as giving an Internship equivalent in educational value to that offered by hospitals in the United States approved for intern training by the Council. It is understood, however, that this statement applies only to hospitals that are unqualifiedly "Approved" under the Canadian plan and does not apply to that group referred to as "Commended."

The following list of hospitals, revised to June 1, 1942, has been furnished by the Department of Hospital Service

| Name of Hospital                      | Location      | Name of Hospital           | Location          | Name of Hospital             | Location         |
|---------------------------------------|---------------|----------------------------|-------------------|------------------------------|------------------|
| Victoria General Hospital             | Halifax, N S  | McKellar General Hospital  | Fort William, Ont | Hotel Dieu of St Joseph Hosp | Windsor, Ont     |
| St John General Hospital              | St John, N B  | Hamilton General Hospital  | Hamilton, Ont     | Children's Hospital          | Winnipeg, Man    |
| Hospital du St Sacrament              | Quebec, Que   | St Joseph's Hospital       | Hamilton, Ont     | Misericordia Hospital        | Winnipeg, Man    |
| Hotel Dieu de Quebec                  | Quebec, Que   | Ottawa Civic Hospital      | Ottawa, Ont       | Winnipeg General Hospital    | Winnipeg, Man    |
| Hospital of the Infant Jesus          | Quebec, Que   | Ottawa General Hospital    | Ottawa, Ont       | St Boniface Hospital         | St Boniface, Man |
| Jeffrey Hale's Hospital               | Quebec, Que   | Kingston General Hospital  | Kingston, Ont     | Regina Grey Nuns' Hospital   | Regina, Sask     |
| Children's Memorial Hosp              | Montreal, Que | Hospital for Sick Children | Toronto, Ont      | Regina General Hospital      | Regina, Sask     |
| Homeopathic Hospital                  | Montreal, Que | Mount Sinai Hospital       | Toronto, Ont      | St Paul's Hospital           | Saskatoon, Sask  |
| Hospital Notre Dame                   | Montreal, Que | St Joseph's Hospital       | Toronto, Ont      | Saskatoon City Hospital      | Saskatoon, Sask  |
| Hospital Ste Jeanne d'Arc             | Montreal, Que | St Michael's Hospital      | Toronto, Ont      | Holy Cross Hospital          | Calgary, Alta    |
| Hospital Ste Justine                  | Montreal, Que | Toronto East General Hosp  | Toronto, Ont      | Edmonton General Hospital    | Edmonton, Alta   |
| Hotel Dieu de Montreal                | Montreal, Que | Toronto General Hospital   | Toronto, Ont      | Misericordia Hospital        | Edmonton, Alta   |
| Hospital Ste Luc                      | Montreal, Que | Toronto Western Hospital   | Toronto, Ont      | Royal Alexandra Hospital     | Edmonton, Alta   |
| Jewish General Hospital               | Montreal, Que | Women's College Hospital   | Toronto, Ont      | University of Alberta Hosp   | Edmonton, Alta   |
| Montreal General Hospital             | Montreal, Que | Brantford General Hospital | Brantford, Ont    | St Paul's Hospital           | Vancouver, B C   |
| Royal Victoria Hospital               | Montreal, Que | St Joseph's Hospital       | London, Ont       | Vancouver General Hospital   | Vancouver, B C   |
| St Mary's Hospital                    | Montreal, Que | Victoria Hospital          | London, Ont       | Royal Jubilee Hospital       | Victoria, B C    |
| Woman's General Hospital, (Westmount) | Montreal, Que | Metropolitan General Hosp  | Windsor, Ont      | St Joseph's Hospital         | Victoria, B C    |

## NOTES

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| <p>(a) In lieu of maintenance<br/>(b) Salary established by government pay table<br/>(c) Plus three internships in pathology<br/>(d) Bonus of \$200<br/>1 Women internships limited<br/>2 Women interns only<br/>3 Dental interns employed</p> | <p>(e) Bonus of \$200<br/>(f) Bonus of \$100<br/>(g) Bonus of \$100<br/>(h) Bonus of \$100<br/>(i) Bonus of \$100<br/>(j) Plus one internship in pathology<br/>(k) Every two months<br/>(m) Bonus of \$100<br/>(n) Bonus of \$100</p> | <p>(p) Plus one internship in pathology and one in roentgenology<br/>(q) Bonus of \$200<br/>(r) Second year of straight internship available<br/>(s) Bonus of \$200<br/>(t) Plus one internship in medicine<br/>(u) Every ten weeks<br/>(v) Male patients only<br/>(w) Bonus of \$200<br/>(x) Bonus of \$125</p> |
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### Affiliation as Referred to in Column Headed "Affiliated Service"

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| <p>4 California Babies and Children's Hospital Los Angeles pediatrics<br/>Santa Monica Hospital Santa Monica emergency work<br/>5 Los Angeles Maternity Service<br/>6 Children's Hospital Los Angeles Maternity Service Coolidge<br/>Hospital Voluntary pediatrics, obstetrics outpatient service<br/>7 Children's Hospital Los Angeles<br/>8 Fairmont Hospital of Alameda County San Leandro and Arroyo<br/>Del Valle Sanatorium Livermore tuberculosis<br/>9 Women's Hospital Pasadena obstetrics<br/>10 Mercy Hospital San Diego obstetrics gynecology<br/>11 Laguna Honda Home San Francisco chronic diseases for health<br/>Home Inglewood City tuberculosis<br/>12 St. Francis Hospital Stanford University Hospital San Francisco<br/>obstetrics pediatrics<br/>13 Franklin Hospital San Francisco obstetrics gynecology pediatrics<br/>14 Porter Sanatorium at 11000 Denver general<br/>15 Callender Municipal Hospital Washington obstetrics<br/>16 Gallagher Municipal Hospital communicable diseases pediatrics<br/>17 Gallagher Municipal Hospital communicable diseases tuberculosis<br/>18 Gallagher Municipal Hospital Children's Hospital Washington<br/>obstetrics pediatrics<br/>19 George Washington University Hospital Washington obstetrics<br/>20 Pinacola Hospital Pinacola, obstetrics gynecology pediatrics<br/>21 Brady Hospital Atlanta<br/>22 Mercordia Hospital and Home for Infants Chicago obstetrics<br/>23 Winfield Sanatorium Winfield tuberculosis<br/>24 Chicago Maternity Center obstetrics gynecology pediatrics<br/>25 Chicago Lying In Hospital Children's Memorial Hospital Chicago<br/>obstetrics gynecology pediatrics<br/>26 Broadview Polk County Public Hospital, Des Moines, outpatient<br/>service<br/>27 Watkins Memorial Hospital Lawrence general<br/>28 Sedgewick County Hospital Wichita<br/>29 Salvation Army Home and Hospital Sedgewick County Hospital<br/>Wichita obstetrics, general<br/>30 Children's Free Hospital Louisville General Hospital pediatrics<br/>obstetrics gynecology<br/>31 Children's Free Hospital Crippled Children's Hospital Louisville<br/>pediatrics, orthopedics, Waverly Hills Sanatorium Waverly<br/>Hills tuberculosis<br/>32 Toussaint Infirmary New Orleans obstetrics gynecology pediatrics<br/>33 University Hospital Sydenham Hospital, Baltimore pediatrics<br/>obstetrics communicable diseases<br/>34 James Lawrence Kernan Hospital and Industrial School for Crippled<br/>Children Baltimore<br/>35 Sydenham Hospital Baltimore communicable diseases<br/>36 Haynes Memorial Hospital of Massachusetts Memorial Hospital<br/>Boston communicable diseases<br/>37 Children's Hospital, Boston pediatrics<br/>38 Essex Sanatorium Middleton tuberculosis<br/>39 Weeseon Maternity Hospital Shriner's Hospital for Crippled Children<br/>Springfield obstetrics orthopedics<br/>40 Weeseon Maternity Hospital Health Department Hospital Springfield<br/>field obstetrics communicable diseases<br/>41 Herman Kiefer Hospital Detroit<br/>42 Herman Kiefer Hospital Children's Hospital Detroit communicable<br/>diseases obstetrics pediatrics<br/>43 Grace Hospital Detroit obstetrics gynecology pediatrics<br/>44 Ingham Sanatorium Lansing tuberculosis<br/>45 Ingham Sanatorium Boys Vocational School Hospital Lansing<br/>46 Miller Memorial Hospital Duluth outpatient service<br/>47 Gillette State Hospital for Crippled Children St. Paul<br/>48 Children's Hospital St. Paul pediatrics<br/>49 Shriners Hospital for Crippled Children City Isolation Hospital<br/>St. Louis Children's Hospital Barnard Free Skin and Cancer<br/>Hospital, St. Louis<br/>50 Robert Koch Hospital Koch City Isolation Hospital St. Louis<br/>tuberculosis communicable diseases<br/>51 Alexian Brothers Hospital St. Louis outpatient service<br/>52 City Isolation Hospital City Sanatorium City Infirmary St. Louis<br/>Robert Koch Hospital Koch communicable diseases psychiatry<br/>tuberculosis<br/>53 St. Mary's Group of Hospitals includes the Firmin Desloge Hospital<br/>St. Mary's Hospital and Mount St. Rose Sanatorium<br/>54 St. Elizabeth Hospital Elizabeth obstetrics, gynecology<br/>55 Margaret Hague Maternity Hospital Hudson County Tuberculosis<br/>Hospital Jersey City obstetrics tuberculosis<br/>56 Margaret Hague Maternity Hospital Jersey City<br/>57 New Jersey State Hospital Marlboro psychiatry Allenwood Sana<br/>torium Allenwood tuberculosis<br/>58 Fairview Sanatorium New Lisbon tuberculosis<br/>59 Anthony A. Brady Maternity Home Albany<br/>60 Kingston Avenue Hospital Brooklyn communicable diseases</p> | <p>61 Brooklyn Thoracic Hospital tuberculosis<br/>62 French Hospital New York City obstetrics<br/>63 Emergency Hospital of the Sisters of Charity St. Mary's Infant<br/>Asylum and Maternity Hospital Providence Retreat Buffalo<br/>64 Edward J. Meyer Memorial Hospital, Buffalo pediatrics commu<br/>nity psychiatry<br/>65 Chautauque County Sanatorium Elmira tuberculosis<br/>66 Binghamton State Hospital Binghamton psychiatry<br/>67 Our Lady of Victory Infants Home Lackawanna obstetrics,<br/>pediatrics<br/>68 Jewish Maternity Hospital New York City<br/>69 Strong Memorial Hospital Rochester surgery<br/>70 Mercordia Hospital New York City obstetrics pediatrics<br/>71 Notation established between Hospital of the Good Shepherd<br/>Syracuse Memorial Hospital City Hospital and Syracuse Psycho<br/>pathic Hospital comprising Syracuse University Medical Center<br/>Hospital<br/>72 Children's Hospital Akron pediatrics Chicago Lying In Hospital<br/>obstetrics<br/>73 Children's Hospital Akron pediatrics<br/>74 Molly Stark Sanatorium Canton tuberculosis Masillon State Hos<br/>pital Masillon psychiatry<br/>75 Children's Hospital Cincinnati pediatrics<br/>76 Hamilton County Tuberculosis Hospital Hamilton County Home<br/>and Chronic Disease Hospital Children's Hospital Cincinnati<br/>tuberculosis chronic diseases pediatrics<br/>77 Cincinnati General Hospital Cincinnati<br/>78 St. Ann Maternity Hospital Cleveland<br/>79 Children's Hospital Columbus pediatrics<br/>80 St. Ann's Maternity Hospital, Children's Hospital Columbus, obstet<br/>ric pediatrics<br/>81 Children's Hospital Columbus State Hospital pediatrics psychiatry<br/>82 Western Oklahoma Tuberculosis Sanatorium Clinton Central Okla<br/>homa State Hospital Norman psychiatry<br/>83 Shriner's Hospital for Crippled Children Portland<br/>84 Hospital of the University of Pennsylvania Philadelphia obstetrics<br/>85 Philadelphia Hospital for Contagious Diseases<br/>86 Children's Hospital of the Mary J. Drexel Home Philadelphia<br/>pediatrics<br/>87 Henry Phipps Institute of the University of Pennsylvania Phila<br/>delphia tuberculosis<br/>88 Children's Hospital Philadelphia pediatrics<br/>89 Shriner's Hospital for Crippled Children Philadelphia Hospital for<br/>Contagious Diseases<br/>90 St. Joseph's Hospital St. Vincent's Hospital for Women and Chil<br/>dren Philadelphia obstetrics gynecology<br/>91 Pennsylvania Hospital Department for Mental and Nervous Diseases<br/>Philadelphia<br/>92 Rosetta Foundling and Maternity Hospital Municipal Hospital for<br/>Contagious Diseases Pittsburgh<br/>93 Elizabeth Steel Magee Hospital Children's Hospital Eye Ear Nose<br/>and Throat Hospital Woman's Hospital Pittsburgh<br/>94 Municipal Hospital for Contagious Diseases Pittsburgh<br/>95 Berks County Tuberculosis Sanatorium Reading<br/>96 Scranton State Hospital obstetrics<br/>97 Providence Lying In Hospital<br/>98 Roper Hospital Charleston general<br/>99 T. C. Thompson Children's Hospital Pine Breeze Sanatorium<br/>Chattanooga pediatrics tuberculosis<br/>100 Willard Parker Hospital New York City communicable diseases<br/>101 Southern Pacific Hospital Houston medicine surgery<br/>102 Salvation Army Women's Home Mission Home San Antonio<br/>obstetrics<br/>103 Gulf Colorado and Santa Fe Hospital Temple medicine surgery<br/>104 Utah State Hospital Provo psychiatry<br/>105 Blue Ridge Sanatorium Charlottesville, tuberculosis<br/>106 Norfolk General Hospital obstetrics<br/>107 Pine Camp Hospital Brook Hill tuberculosis<br/>108 King County Hospital Seattle outpatient service<br/>109 King County Hospital King County Tuberculosis Hospital Seattle<br/>outpatient service tuberculosis<br/>110 Children's Orthopedic Hospital Seattle<br/>111 King County Hospital Seattle obstetrics gynecology pediatrics<br/>112 Edgemoor Sanatorium Spokane tuberculosis<br/>113 Edgemoor Sanatorium Salvation Army Women's Hospital and Home<br/>Shriners Hospital for Crippled Children Spokane tuberculosis<br/>obstetrics orthopedics, pediatrics<br/>114 Milwaukee Children's Hospital pediatrics<br/>115 Salvation Army Martha Washington Women's Home and Hospital<br/>Wauwatosa<br/>116 South View Hospital Milwaukee communicable diseases<br/>117 Kaulkeolani Children's Hospital Honolulu<br/>118 Welfare Association Obstetric Service and Tulsa County Charity<br/>Clinic Tulsa Okla.</p> |
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# APPROVED RESIDENCIES AND FELLOWSHIPS

Council on Medical Education and Hospitals of the American Medical Association,  
535 North Dearborn Street, Chicago

Hospitals, 662, Residencies, 4,948, Fellowships, 539

The following institutions approved by the Council on Medical Education and Hospitals are considered in position to furnish acceptable training in various specialties as indicated below. Residencies in specialties, as defined by the Council, are straight services of one or more years following an approved internship. A fellowship is a form of apprenticeship which in some cases is indistinguishable from a residency, although it usually offers greater opportunity for the study of basic sciences and research. Ordinarily a fellowship is a university rather than a hospital appointment. Mixed residencies are general hospital assignments following internship. They include services classified as general residencies and chief residencies.

The star (\*) indicates hospitals that are also approved for the training of interns. All hospitals on the approved intern list are likewise accredited for general or mixed residencies.

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The information contained in the following list is based on reports received in January 1942 and thus represents the educational facilities that are ordinarily available in the specialty fields under normal conditions. Many residency programs have since been curtailed because of military requirements but there is every indication that the approved hospitals are maintaining their educational structure so as to be able to meet current and future residency needs.

## 1 ANESTHESIOLOGY

Revision of list is now taking place in collaboration with the American Board of Anesthesiology

|  | Chief of Service                  | Inpatients Treated | Total Anesthetics | Inhalation Anesthetics | Autopsy Percentage | Residents | Assistant Residents | Fellows | Service Begins | Length of Service (Years) | Beginning Stipend |
|--|-----------------------------------|--------------------|-------------------|------------------------|--------------------|-----------|---------------------|---------|----------------|---------------------------|-------------------|
| Los Angeles County Hospital *                        | Los Angeles A. Gaddell            | 49,376             | 11,847            | 3,460                  | 60                 | 2         | 0                   | 0       | 7/1            | 12                        | \$10              |
| White Memorial Hospital *                            | Los Angeles L. D. Lee             | 8,036              | 4,697             | 1,662                  | 50                 | 1         | 0                   | 0       | 7/1            | 13                        | \$80              |
| Stanford University Hospitals *                      | San Francisco W. B. Neff          | 8,911              | 5,233             | 3,186                  | 50                 | 1         | 1                   | 0       | 7/1            | 1                         | \$25              |
| University of California Hospital *                  | San Francisco H. R. Hathaway      | 7,225              | 6,193             | 3,130                  | 53                 | 1         | 0                   | 0       | Varies         | 13                        | \$25              |
| Hartford Hospital *                                  | Hartford, Conn. R. Towell         | 19,345             | 15,373            | 8,149                  | 52                 | 12        | 0                   | 0       | 1/1,7/1        | 2                         |                   |
| University Hospital *                                | Augusta, Ga. P. P. Volpitta       | 10,305             |                   |                        | 32                 | 0         | 1                   | 0       | 7/1            | 1                         | \$25              |
| Michael Reese Hospital *                             | Chicago C. Stein                  | 15,317             | 8,334             | 4,866                  | 64                 | 5         | 0                   | 0       | 1/1,7/1        | 12                        | \$30              |
| Research and Educational Hospital *                  | Chicago W. H. Cassels             | 5,694              | 2,574             | 1,595                  | 91                 | 4         | 0                   | 0       | 7/1            | 1                         | \$30              |
| University of Chicago Clinics *                      | Chicago H. Livingston             | 11,111             | 17,112            | 5,712                  | 81                 | 1         | 1                   | 1       | 1/1,7/1        | 12                        | \$25              |
| Methodist Hospital *                                 | Indianapolis J. M. Whithead       | 15,855             | 10,546            | 9,610                  | 37                 | 3         | 0                   | 0       | 7/1            | 12                        | \$75              |
| University Hospitals *                               | Iowa City, Iowa S. C. Cullen      | 21,564             | 8,933             | 5,100                  | 58                 | 1         | 1                   | 0       | 7/1            | 1+                        | \$20-\$3          |
| University of Kansas Hospitals *                     | Kansas City, Kan. P. Lorhan       | 6,613              | 2,460             | 1,821                  | 71                 | 1         | 1                   | 0       | 7/1            | 12                        |                   |
| Louisville General Hospital *                        | Louisville, Ky. D. M. Dollar      | 10,886             | 3,105             | 1,656                  | 29                 | 1         | 1                   | 0       | 7/1            | 12                        |                   |
| Boston City Hospital *                               | Boston S. C. Wiggin               | 43,181             | 8,312             | 2,444                  | 70                 | 1         | 0                   | 0       | Varies         | 1+                        | \$200             |
| Lahey Clinic   | Boston U. H. Eversole             |                    | 7,500             | 3,500                  |                    | 0         | 0                   | 5       | 1/1,7/1        | 12                        | \$100             |
| Massachusetts General Hospital *                     | Boston H. K. Beecher              | 7,622              | 5,378             |                        | 62                 | 1         | 0                   | 0       | Varies         | 13                        |                   |
| Massachusetts Memorial Hospital *                    | Boston E. B. Ferguson             | 6,895              | 3,301             | 1,365                  | 76                 | 2         | 1                   | 0       | 7/1            | 2                         | \$30              |
| Harper Hospital *                                    | Detroit F. J. Murphy              | 18,358             | 9,350             | 6,014                  | 38                 | 0         | 1                   | 0       | 7/1            | 1                         | \$25              |
| University Hospitals *                               | Minneapolis R. Knight             | 8,850              | 4,701             | 2,347                  | 72                 | 0         | 0                   | 3       | 7/1            | 13                        | \$50              |
| Mayo Foundation                                      | Rochester, Minn. J. S. Lundy      | (See page 1344)    |                   |                        |                    |           |                     |         |                |                           |                   |
| West Jersey Homeopathic Hospital *                   | Camden, N. J. H. S. Ruth          | 5,775              | 2,942             | 1,963                  | 27                 | 1         | 0                   | 0       | 10/1           | 12                        |                   |
| Jersey City Hospital *                               | Jersey City, N. J. W. Gleson      | 17,940             | 3,167             | 1,299                  | 23                 | 1         | 4                   | 0       | 1/1,7/1        | 1+                        | \$75              |
| Albany Hospital *                                    | Albany, N. Y. F. A. D. Alexander  | 12,154             | 5,451             | 4,472                  | 69                 | 1         | 2                   | 0       | Varies         | 23                        | \$30              |
| Buffalo General Hospital *                           | Buffalo P. W. Searls              | 10,499             | 6,776             | 4,500                  | 44                 | 1         | 0                   | 0       | 7/1            | 1                         | \$30              |
| Bellevue Hospital *                                  | New York City F. A. Royenstone    | 69,083             | 18,000            | 12,000                 | 39                 | 11        | 0                   | 0       | 1/1,7/1        | 23                        | Varies            |
| Flower and Fifth Avenue Hospital *                   | New York City D. E. Brace         | 7,803              | 6,002             | 4,159                  | 28                 | 2         | 0                   | 0       | 7/1            | 1                         | \$30              |
| French Hospital *                                    | New York City S. H. Lesinger      | 7,031              | 2,665             | 1,823                  | 30                 | 1         | 0                   | 0       | 7/1            | 1                         |                   |
| Lincoln Hospital *                                   | New York City I. Hayman           | 12,352             | 3,024             | 2,104                  | 36                 | 2         | 0                   | 0       | Varies         | 1+                        | \$100             |
| Metropolitan Hospital *                              | New York City D. E. Brace         | 11,577             | 3,222             | 1,912                  | 32                 | 3         | 0                   | 0       | 7/1            | 12                        | \$100             |
| New York Polytechnic Medical School and Hospital *   | New York City B. C. Sword         | 7,841              | 4,793             | 1,477                  | 20                 | 3         | 0                   | 0       | 1/1,7/1,10/1   | 2                         | \$100             |
| New York Post Graduate Medical School and Hospital * | New York City M. C. Peterson      | 9,213              | 5,196             | 3,975                  | 43                 | 1         | 5                   | 0       | 1/1,4/1,7/1    | 2                         | \$30              |
| Presbyterian Hospital *                              | New York City V. Apparg           | 18,440             | 12,030            | 9,011                  | 59                 | 5         | 0                   | 0       | 1/1,7/1        | 1                         | \$30              |
| St. Luke's Hospital *                                | New York City G. E. Burford       | 8,698              | 8,046             | 3,493                  | 51                 | 1         | 3                   | 0       | 1/1            | 1                         | \$100             |
| St. Vincent's Hospital *                             | New York City G. H. Van Gillewe   | 8,919              | 3,478             | 1,088                  | 49                 | 1         | 1                   | 0       | 1/1,7/1        | 1                         | \$15              |
| Grasslands Hospital *                                | Valhalla, N. Y. H. F. Bishop      | 4,949              | 1,512             | 602                    | 65                 | 0         | 1                   | 0       | 7/1            | 12                        | \$75              |
| Cincinnati General Hospital *                        | Cincinnati J. H. Bennett          | 16,576             | 6,102             | 3,172                  | 55                 | 0         | 1                   | 0       | 7/1            | 13                        | \$30              |
| Huron Road Hospital *                                | East Cleveland, O. J. Whitacre    | 11,066             | 7,172             | 3,918                  | 46                 | 0         | 2                   | 0       | 7/1            | 12                        |                   |
| University Hospitals *                               | Oklahoma City, Okla. H. E. Doudna | 6,229              | 4,795             | 3,090                  | 48                 | 2         | 0                   | 0       | 7/1            | 1                         | \$30              |
| University of Oregon Medical Hospitals and Clinics * | Portland, Ore. J. H. Hutton       | 8,854              | 10,810            | 3,623                  | 65                 | 1         | 0                   | 1       | 7/1            | 1                         | \$40              |
| Hahnemann Hospital *                                 | Philadelphia J. M. Godfrey        | 13,081             | 5,937             | 3,842                  | 55                 | 2         | 0                   | 0       | 9/1            | 1                         | \$50              |
| Hospital of the University of Pennsylvania *         | Philadelphia I. B. Taylor         | 10,892             | 9,935             | 3,150                  | 90                 | 2         | 0                   | 0       | Varies         | 23                        |                   |
| Presbyterian Hospital *                              | Philadelphia F. P. Haugen         | 5,543              | 4,122             | 3,386                  | 80                 | 1         | 0                   | 0       | 7/1            | 13                        | \$62.50           |
| Rhode Island Hospital *                              | Providence R. I. M. Saklad        | 9,236              | 6,635             | 3,114                  | 48                 | 1         | 0                   | 0       | 7/1            | 1                         | \$25              |
| State of Wisconsin General Hospital *                | Madison, Wis. R. M. Waters        | 13,296             | 4,857             | 4,076                  | 72                 | 3         | 3                   | 0       | 7/1            | 3                         | \$25              |
| Columbia Hospital *                                  | Milwaukee H. Cunningham           | 3,560              | 2,186             | 1,093                  | 51                 | 1         | 0                   | 0       | 7/1            | 1                         | \$30              |

## 2 CARDIOLOGY

|                                     | Inpatient Treated         | Outpatient Visits | Deaths | Autopsies | Residents | Assistant Residents | Fellows | Service Begins | Length of Service (Years) | Beginning Stipend |
|-------------------------------------|---------------------------|-------------------|--------|-----------|-----------|---------------------|---------|----------------|---------------------------|-------------------|
| Indiana University Medical Center * | Indianapolis G. S. Bond   | 269               |        |           | 1         | 0                   | 0       | 7/1            | 13                        | \$33              |
| House of the Good Samaritan *       | Boston W. D. Smith        | 744               | 7      | 5         | 1         | 0                   | 0       | 7/1            | 12                        | \$30              |
| Henry Ford Hospital *               | Detroit F. J. Smith       | 999               | 114    | 43        | 1         | 1                   | 2       | 7/1            | 13                        | \$130             |
| Pennsylvania Hospital *             | Philadelphia W. D. Stroud | 4,421             | 3      | 3         | 0         | 0                   | 1       | 7/1            | 1                         | \$35              |
| St. Francis Hospital *              | Pittsburgh A. P. D'Zmura  | 455               | 88     | 12        | 1         | 0                   | 0       | 9/1            | 1                         | \$30              |
| Rhode Island Hospital *             | Providence F. T. Fulton   | 2,655             | 693    |           | 1         | 0                   | 0       | 7/1            | 1                         | \$30              |

### 3 COMMUNICABLE DISEASES

|  |                 | Chief of Service | Inpatients<br>Treated | Outpatient<br>Visits | Deaths | Autopsies | Residents | Assistant<br>Residents | Fellows | Service<br>Begin | Length of<br>Service<br>(Years) | Beginning<br>Stipend |
|--|-----------------|------------------|-----------------------|----------------------|--------|-----------|-----------|------------------------|---------|------------------|---------------------------------|----------------------|
| Los Angeles County Hospital**                      | Los Angeles     | P Hamilton       | 1 25                  |                      | 183    | 125       | 2         | 0                      | 0       | Varies           | 1+                              |                      |
| Children's Hospital**                              | San Francisco   | F B Shry         | 1                     |                      | 11     | 0         | 1         | 0                      | 0       | 7/1              | 1                               | \$25                 |
| Municipal Hospital**                               | Hartford Conn   | C I Thet         | 466                   |                      | 15     | 2         | 1         | 0                      | 0       | 7/1              | 1                               | \$125                |
| Cook County Hospital**                             | Chicago         | A J Hoyme        | 1 02                  |                      | 50     | 25        | 1         | 0                      | 0       | 1/1 7/1          | 1                               | \$25                 |
| Municipal Hospital**                               | Chicago         | A J Hoyme        | 1 02                  |                      | 75     | 52        | 0         | 0                      | 0       | 1/1 7/1          | 1                               | \$100                |
| Sydenham Hospital**                                | Baltimore       | F R Lee          | 1 17                  |                      | 55     | 35        | 1         | 1                      | 0       | 7/1              | 1                               |                      |
| Lois City Hospital**                               | Boston          | F R Lee          | 1 1                   |                      | 10     | 6         | 2         | 0                      | 0       | Varies           | 1                               | \$150                |
| Massachusetts Memorial Hospital**                  | Boston          | C W Abbott       | 1 25                  |                      | 19     | 15        | 1         | 0                      | 0       | 7/1              | 1                               |                      |
| Mount Hope Hospital**                              | Worcester Ma    | W MacDonald      | 1 1                   |                      | 10     | 7         | 1         | 0                      | 0       | Varies           | 13                              | \$133                |
| Harvard Medical School                             | Detroit         | D C Young        | 7 06                  |                      | 58     | 49        | 4         | 0                      | 0       | 7/1              | 13                              | \$175                |
| Kansas City General Hospital**                     | Kansas City Mo  | I F Stookey      | 1 1                   |                      | 11     | 11        | 1         | 0                      | 0       | 7/1              | 1                               | \$50                 |
| City Hospital**                                    | St Louis        | R W Marx         | 1 05                  |                      | 45     | 17        | 1         | 1                      | 0       | 7/1              | 1                               | \$25                 |
| Essex County Hospital for Contagious<br>Diseases   | Levellville N J | F I Smith        | 1 00                  |                      | 45     | 21        | 4         | 0                      | 0       | 1/1 7/1          | 1                               | \$50                 |
| Kings County Hospital**                            | Brooklyn        | M B Corliss      | 1 00                  |                      | 67     | 37        | 6         | 0                      | 0       | 1/1 7/1          | 1                               | \$100                |
| Queens General Hospital**                          | Queens N Y      | H A Rabin        | 1 0                   |                      | 16     | 10        | 2         | 1                      | 0       | 7/1              | 1                               | \$13                 |
| Willard Parker Hospital**                          | New York City   | R W Hamilton     | 6 1                   |                      | 50     | 23        | 7         | 0                      | 0       | 1/1 7/1          | 1                               | \$100                |
| City Hospital**                                    | Cleveland       | H J Corbett      | 1 1                   |                      | 101    | 41        | 1         | 1                      | 0       | 7/1              | 13                              | \$624                |
| Philadelphia Hospital for Contagious Dis-<br>eases | Philadelphia    | P F Lucchi       | 4 15                  |                      | 67     | 51        | 2         | 2                      | 0       | 1/1 7/1          | 1                               | \$25                 |

### 4 DERMATOLOGY AND SYPHILOLOGY

The following Services are Approved by the Council and the American Board of Dermatology and Syphilology  
(See footnotes 2 3 and 4)

|  |                    | Chief of Service | Inpatients<br>Treated | Outpatient<br>Visits | Deaths | Autopsies | Residents | Assistant<br>Residents | Fellows | Service<br>Begin | Length of<br>Service<br>(Years) | Beginning<br>Stipend |
|--|--------------------|------------------|-----------------------|----------------------|--------|-----------|-----------|------------------------|---------|------------------|---------------------------------|----------------------|
| Los Angeles County Hospital**                                    | Los Angeles        | T N Let          | 753                   | 3 777                | 12     | 8         | 3         | 0                      | 0       | 7/1              | 3                               | \$40                 |
| Stanford University Hospital**                                   | San Francisco      | H A Alderson     | 11                    | 10 111               |        |           | 1         | 0                      | 0       | 7/1              | 1                               | \$25                 |
| University of California Hospital**                              | San Francisco      | H E Miller       | 12                    | 1 003                |        |           | 0         | 1                      | 0       | 7/1              | 13                              | \$25                 |
| Georgetown University Hospital**                                 | Washington D C     | F Flehman        | 22                    | 74 0                 | 1      |           | 0         | 0                      | 1       | 7/1              | 13                              | \$25                 |
| Research and Educational Hospital**                              | Chicago            | F E Seng         | 42                    | 14 100               | 1      | 1         | 1         | 0                      | 0       | 7/1              | 13                              | \$50                 |
| University of Chicago Clinics**                                  | Chicago            | S W Becker       | 145                   | 15 315               | 2      | 2         | 1         | 2                      | 1       | 7/1              | 13                              | None                 |
| University Hospital**  | Iowa City Iowa     | R Nomland        | 331                   | 3 407                | 4      | 3         | 1         | 1                      | 0       | 1/1              | 13                              | \$20 83              |
| Charity Hospital**   | New Orleans        | M Van Studdiford | 5 0                   | 160 329              | 19     | 5         | 5         | 5                      | 0       | 7/1              | 13                              | \$25                 |
| Boston City Hospital**   | Boston             | W P Pourduran    | 14                    | 54 093               | 2      | 0         | 1         | 0                      | 0       | Varies           | 1                               | \$100                |
| Massachusetts General Hospital**                                 | Boston             | C G Lane         | 262                   | 1 443                | 0      | 4         | 1         | 1                      | 1       | 7/1              | 13                              |                      |
| University Hospital**  | Ann Arbor Mich     | L W Shaffer      | 501                   | 10 224               | 7      | 4         | 2         | 1                      | 1       | 7/15             | 13                              | \$75                 |
| City of Detroit Receiving Hospital**                             | Detroit            | S E Sweitzer     | 232                   | 18 022               | 5      | 2         | 0         | 0                      | 2       | 1/1 7/1          | 3                               | \$25                 |
| Minneapolis General Hospital**                                   | Minneapolis        | H F Michelson    | 163                   | 8 901                | 1      | 1         | 0         | 0                      | 3       | 7/1              | 13                              | \$50                 |
| University Hospitals**   | Minneapolis        | P A O Leary      | 1 04                  | 10 475               | 6      | 3         |           |                        | 9       | Quart            | 35                              | \$5                  |
| Mayo Foundation  | Rochester Minn     | M F Frankman     | 35                    | 12 933               |        |           | 1         | 0                      | 0       | 7/1              | 13                              | \$25                 |
| Barnard Free Skin and Cancer Hospital**                          | St Louis           | F Frank          | 30                    | 31 165               |        |           | 1         | 0                      | 0       | 10/1             | 1                               | \$100                |
| Kings County Hospital**  | Brooklyn           | F D Osborne      | 202                   | 11 079               | 3      | 1         | 1         | 0                      | 0       | 7/1              | 1+                              | \$25                 |
| Buffalo General Hospital**                                       | Buffalo            | F D Osborne      | 360                   | 30 477               | 0      | 3         | 1         | 1                      | 0       | 7/1              | 3                               | \$50                 |
| Edward J Meyer Memorial Hospital**                               | Buffalo            | F C Combes       | 1 474                 | 1 490                |        |           | 1         | 2                      | 0       | 1/1 7/1          | 1+                              |                      |
| Bellevue Hospital**  | New York City      | I G Hopkins      | 31                    | 50 375               |        |           | 0         | 0                      | 1       | Varies           | 13                              |                      |
| Columbia Presbyterian Medical Center**                           | New York City      | E Wile           | 21                    | 1 684                | 3      | 2         | 1         | 0                      | 0       | 7/1              | 12                              | \$75                 |
| Montefiore Hospital**  | New York City      | A B Cannon       | 731                   | 15 529               | 10     | 2         | 1         | 0                      | 0       | 7/1              | 1                               | \$50                 |
| New York City Hospital**   | New York City      | G M MacKee       | 259                   | 107 540              | 1      |           | 1         | 2                      | 0       | 1/1 7/1          | 2                               |                      |
| New York Post Graduate Medical School and<br>Hospital**          | New York City      | J L Callaway     | 190                   | 5 175                |        |           | 1         | 0                      | 0       | 7/1              | 1                               | \$41                 |
| Duke Hospital**  | Durham N C         | H L Claassen     | 451                   | 26 652               | 10     | 5         | 2         | 1                      | 0       | 7/1              | 13                              | \$40                 |
| Cincinnati General Hospital**                                    | Cincinnati         | H N Cole         | 432                   | 23 832               | 7      | 4         | 1         | 2                      | 0       | 7/1              | 2                               | \$25                 |
| City Hospital**  | Cleveland          | H N Cole         | 226                   | 26 653               | 3      | 2         | 1         | 1                      | 0       | 7/1              | 3                               | \$30                 |
| University Hospitals**   | Portland Ore       | L B Kingery      | 14                    | 22 579               |        |           | 2         | 0                      | 0       | 7/1              | 13                              | None                 |
| University of Oregon Medical School Hos-<br>pitals and Clinics** | Philadelphia       | F D Weldman      | 50                    | 24 613               | 1      | 1         | 0         | 0                      | 1       | 6/1              | 25                              | None                 |
| Graduate Hospital of the University of<br>Pennsylvania**         | Philadelphia       | J H Stokes       | 224                   | 23 071               |        |           | 0         | 0                      | 1       | 7/1              | 1                               | \$50                 |
| Hosp of the University of Pennsylvania**                         | Philadelphia       | F C Knowles      | 12                    | 20 735               |        |           | 1         | 0                      | 0       | 7/1              | 1                               | \$30                 |
| Jefferson Medical College**                                      | Philadelphia       | A Strickler      | 159                   | 60 850               | 3      | 2         | 1         | 1                      | 0       | 7/1              | 1                               | \$50                 |
| Skin and Cancer Hospital**                                       | Philadelphia       | D C Smith        | 162                   | 10 452               |        |           |           |                        |         |                  |                                 |                      |
| University of Virginia Hospital**                                | Charlottesville Va |                  |                       |                      |        |           |           |                        |         |                  |                                 |                      |

### 5 EPILEPSY

|                       |             |              |       |    |    |    |   |   |   |     |   |      |
|-----------------------|-------------|--------------|-------|----|----|----|---|---|---|-----|---|------|
| Monson State Hospital | Palmer Mass | M B Hodskins | 1 065 | 63 | 85 | 23 | 1 | 0 | 0 | 7/1 | 1 | None |
|-----------------------|-------------|--------------|-------|----|----|----|---|---|---|-----|---|------|

### 6 FRACTURES

|                                      |                |              |       |        |    |    |   |   |   |         |   |      |
|--------------------------------------|----------------|--------------|-------|--------|----|----|---|---|---|---------|---|------|
| Denver General Hospital*             | Denver         | H W Wilcox   | 1 495 | 1 612  | 40 | 20 | 1 | 0 | 0 | 7/1     | 1 | \$50 |
| City of Detroit Receiving Hospital** | Detroit        | A D LaFerte  | 1 014 | 12 178 |    |    | 1 | 1 | 0 | 7/1     | 2 |      |
| Presbyterian Hospital**              | New York City  | W Darrach    | 467   |        |    |    | 1 | 2 | 0 | 1/1 7/1 | 1 | \$50 |
| Rhode Island Hospital*               | Providence R I | M S Danforth | 601   | 7 331  | 23 | 4  | 2 | 0 | 0 | 7/1     | 1 | \$50 |

### 7 MALIGNANT DISEASES

|   |                 |                                 |       |        |     |     |    |   |   |         |    |          |
|---|-----------------|---------------------------------|-------|--------|-----|-----|----|---|---|---------|----|----------|
| Albert Steiner Clinic for Cancer and Allied<br>Diseases | Atlanta Ga      | R H Fike                        | 559   | 43 578 | 35  | 32  | 2  | 0 | 0 | 7/1     | 12 | \$75     |
| Michael Reese Hospital*                                 | Chicago         | E Uhlmann                       | 2 256 |        |     |     | 1  | 0 | 0 | 7/1     | 13 | \$25     |
| Massachusetts General Hospital*                         | Boston          |                                 |       |        |     |     | 1  | 0 | 1 |         | 1  |          |
| New England Deaconess Hospital                          | Boston          | L S McKittick                   | 679   | 365    |     |     | 2  | 0 | 0 | 3/1 7/1 | 1  | \$33 33  |
| Westfield State Sanatorium                              | Westfield Mass  | C Binnig                        | 709   | 6 394  | 61  | 41  | 2  | 0 | 0 | Varies  | 1+ | \$150    |
| Pondville Hospital at Norfolk                           | Wrentham Mass   | G L Parker                      | 1 484 | 7 650  | 150 | 105 | 10 | 0 | 0 | Varies  | 1+ | \$150    |
| Eloise Hospital**                                       | Eloise Mich     | W I Seymour                     | 449   | 363    | 205 | 104 | 1  | 0 | 0 | 7/1     | 1  | \$111 24 |
| Barnard Free Skin and Cancer Hospital                   | St Louis        | W E Leighton and<br>F J Taussig | 1 061 | 10 441 | 20  | 7   | 1  | 2 | 0 | 7/1     | 1  | \$25     |
| Jersey City Hospital**                                  | Jersey City N J | J B Falson                      | 575   | 4 619  | 212 | 14  | 1  | 0 | 0 | 1/1 7/1 | 1  | \$75     |
| Brooklyn Cancer Institute of Kings County<br>Hospital   | Brooklyn        | W E Howes                       | 908   | 8 517  | 199 | 47  | 6  | 0 | 0 | 7/1 9/1 | 1  | \$75     |
| State Institute for the Study of Malignant<br>Diseases  | Buffalo         | B T Simpson                     | 1 670 | 39 422 | 36  | 24  | 4  | 0 | 0 | 7/1     | 12 | \$150    |
| Meadowbrook Hospital*                                   | Hempstead N Y   | A C Martin                      | 563   | 4 653  | 95  | 43  | 1  | 0 | 0 | 7/1     | 1  | \$75     |

Numerical and other references will be found on page 1344



## 7 MALIGNANT DISEASES—(Continued)

|   | Chief of Service | Inpatients Treated | Outpatient Visits | Deaths | Autopsies | Residents | Assistant Residents | Fellows | Service Begins | Length of Service (Years) | Beginning Stipend |
|---|------------------|--------------------|-------------------|--------|-----------|-----------|---------------------|---------|----------------|---------------------------|-------------------|
| Memorial Hospital for the Treatment of Cancer and Allied Diseases | New York City    | C P Rhoads         | 1,617             | 77,445 | 209       | 88        | 1                   | 12      | 10             | 1/1, 7/1                  | 12 \$15           |
| New York City Cancer Institute Hospital                           | New York City    | M Lan/             | 1,127             | 0,213  | 565       | 88        | 0                   | 0       | 0              | 1/1                       | 1 \$100           |
| Duke Hospital *1  | Durham, N C      | R Jones            | 1,381             | 1,769  |           |           | 1                   | 1       | 0              | 7/1                       | 3 None            |
| American Oncologic Hospital                                       | Philadelphia     | G M Dorrance       | 571               | 7,986  | 33        | 23        | 0                   | 0       | 3              | 7/1                       | 13 \$100          |
| Cancer Hospital   | Philadelphia     | R W Trahan         | 617               | 8,261  | 66        | 39        | 2                   | 0       | 0              | 7/1                       | 13 \$125          |

## 8 MEDICINE

Revision of list is now taking place in collaboration with the American Board of Internal Medicine and the American College of Physicians

|   |                      |                                 |        |         |       |     |    |    |     |                |            |
|---|----------------------|---------------------------------|--------|---------|-------|-----|----|----|-----|----------------|------------|
| Hillman Hospital *  | Birmingham, Ala      | J S McIester and H R Carter, Jr | 2,207  | 19,359  | 129   | 125 | 1  | 0  | 0   | 7/1            | 1 \$50     |
| Norwood Hospital *1   | Birmingham, Ala      | I D Linberry                    | 819    | 3,717   | 51    | 21  | 1  | 0  | 0   | 7/1            | 1 \$150    |
| Employees' Hospital of the Tennessee Coal Iron and Railroad Company * | Laurelfield, Ala     | G F Walsh                       | 2,212  | 20,742  | 140   | 40  | 2  | 0  | 0   | 7/1            | 1 \$150    |
| Baptist State Hospital *  | Little Rock, Ark     | I W Harris                      | 2,231  |         | 130   | 18  | 1  | 0  | 0   | 7/1            | 13 \$50    |
| General Hospital of Fresno County *                                   | Fresno, Calif        |                                 | 1,301  | 33,300  | 315   | 93  | 1  | 1  | 0   | 7/1            | 1 \$65     |
| Cedars of Lebanon Hospital *  | Los Angeles          |                                 | 2,113  | 9,183   | 177   | 53  | 1  | 0  | 0   | 7/1            | 1 \$75     |
| Los Angeles County Hospital *1  | Los Angeles          | D D Comstock                    | 11,179 | 63,985  | 1,888 | 928 | 18 | 0  | 0   | 7/1            | 3 \$10     |
| White Memorial Hospital *   | Los Angeles          | D D Comstock                    | 1,395  | 26,987  | 97    | 41  | 1  | 0  | 0   | 7/1            | 13 \$50    |
| Highland Alameda County Hospital *1                                   | Oakland, Calif       |                                 | 2,667  |         | 190   | 1   | 1  | 0  | 0   | 7/1            | 13 \$40    |
| Collis P and Howard Huntington Memorial Hospital *                    | Pasadena, Calif      | F D Kremers                     | 2,197  | 6,136   | 189   |     | 1  | 0  | 0   | 7/1            | 1 \$110    |
| San Diego County General Hospital *                                   | San Diego, Calif     | C L Stanley                     | 1,191  | 15,693  | 501   | 126 | 2  | 0  | 0   | 7/1            | 1 \$115    |
| Children's Hospital *1  | San Francisco        | D Atkinson                      | 577    | 3,270   | 27    |     | 1  | 0  | 0   | 7/1            | 1 \$25     |
| Mount Zion Hospital *   | San Francisco        | A L Cohn and J J Sampson        | 1,218  | 6,827   | 07    | 51  | 1  | 2  | 0   | 7/1            | 1 \$50     |
| St Luke's Hospital *  | San Francisco        | H P Hill                        | 1,949  | 3,783   | 153   | 53  | 1  | 0  | 0   | 7/1            | 1 \$75     |
| San Francisco Hospital *1   | San Francisco        | L H Briggs and G D Barnett      | 1,402  |         |       |     | 0  | 6  | 0   | 7/1            | 1          |
| Stanford University Hospitals *1                                      | San Francisco        | A L Bloomfield                  | 2,101  | 23,621  | 54    | 18  | 1  | 6  | 0   | 7/1            | 1 \$25     |
| University of California Hospital *1                                  | San Francisco        | W J Kerr                        | 1,732  | 41,020  | 71    | 60  | 1  | 5  | 0   | 8/1            | 1 \$25     |
| Santa Clara County Hospital *   | San Jose, Calif      | G Gray                          | 1,524  | 26,949  | 125   | 2   | 0  | 0  | 0   | 7/1            | 1 \$75     |
| Fairmount Hospital of Alameda County *                                | San Leandro, Calif   |                                 | 2,035  | 14,786  | 410   | 155 | 1  | 2  | 0   | 7/1            | 1 \$95     |
| Colorado General Hospital *   | Denver               | J J Warner                      | 1,031  | 26,711  | 139   | 124 | 2  | 0  | 0   | 8/1            | 2 \$40     |
| Denver General Hospital *   | Denver               | M Katzman                       | 3,081  | 1,591   | 494   | 150 | 2  | 0  | 0   | 7/1            | 12 \$50    |
| Kitsumons General Hospital, Denver                                    | Denver               |                                 |        |         |       |     |    |    |     |                |            |
| Grace Hospital *  | New Haven, Conn      | S J Goldberg                    | 970    | 2,022   | 126   | 45  | 1  | 0  | 0   | 7/1            | 3 \$90     |
| New Haven Hospital *  | New Haven, Conn      | F G Blake                       | 2,696  | 10,889  | 269   | 143 | 1  | 4  | 0   | 1/1, 7/1       | 1+         |
| Central Dispensary and Emergency Hosp *                               | Washington, D C      | H Kaufman                       | 1,840  | 6,503   | 93    | 31  | 1  | 1  | 0   | 7/1            | 1 \$5      |
| Fredmen's Hospital *1   | Washington, D C      | J L Hall                        | 772    | 11,291  | 134   | 52  | 1  | 4  | 0   | 10/1           | 13 \$20    |
| Gallinger Municipal Hospital *1                                       | Washington, D C      | W M Yater                       | 2,737  | 1,725   | 415   | 183 | 2  | 8  | 0   | 7/1            | 1          |
| Garfield Memorial Hospital *  | Washington, D C      | B F Weems                       | 3,216  | 2,534   | 185   |     | 1  | 1  | 0   | 7/1            | 12 \$50    |
| Georgetown University Hospital *                                      | Washington, D C      | W M Yater                       | 1,305  | 11,120  | 90    | 56  | 1  | 1  | 0   | 7/1            | 13 \$75    |
| George Washington University Hospital *                               | Washington, D C      | W A Bloodorn                    | 566    |         | 55    | 26  | 0  | 0  | 1   | 7/1            | 1 \$33 33  |
| Duval County Hospital *   | Jacksonville, Fla    | L Limbaugh                      | 777    |         | 206   | 57  | 1  | 2  | 0   | 7/1            | 1 \$30     |
| James M Jackson Memorial Hospital *                                   | Miami, Fla           |                                 | 4,973  | 12,418  | 519   | 146 | 1  | 2  | 0   | 7/1            | 1 \$75     |
| Grady Hospital *  | Atlanta, Ga          |                                 | 2,665  | 73,452  | 451   | 179 | 2  | 0  | 0   | 7/1            | 1 \$40     |
| St Joseph Infirmary *1  | Atlanta, Ga          | J Hines                         | 1,202  | 695     | 39    | 10  | 1  | 0  | 0   | 7/1            | 13 \$150   |
| University Hospital *1  | Augusta, Ga          | V P Sydenstricker               | 2,318  | 3,838   | 225   | 51  | 1  | 3  | 0   | 7/1            | 12 \$40    |
| Emory University Hospital *   | Emory University, Ga |                                 | 9,600  |         | 63    | 21  |    |    |     |                |            |
| Cook County Hospital *1   | Chicago              | C C Maher                       | 19,596 | 31,027  | 3,920 | 667 | 27 | 0  | 2   | 1/1, 7/1       | 13 \$25    |
| Mersey Hospital Loyola University Clinics *                           | Chicago              | I F Vollm                       | 1,450  | 25,234  | 98    | 30  | 1  | 0  | 0   | 7/1            | 1 \$50     |
| Michael Reese Hospital *1   | Chicago              | J Meyer                         | 2,137  | 14,229  | 186   | 98  | 2  | 3  | 0   | 1/1, 7/1       | 12 \$50    |
| Mount Sinai Hospital *1   | Chicago              |                                 | 1,358  | 10,597  | 135   | 54  | 1  | 0  | 0   | 6/15           | 1 \$30     |
| Norwegian American Hospital *1  | Chicago              | D E Markson                     | 1,433  |         | 130   | 36  | 1  | 0  | 0   | 7/1            | 1 \$35     |
| Passavant Memorial Hospital *1  | Chicago              | N C Gilbert                     | 1,976  | 36,976  | 58    | 41  | 3  | 0  | 3   | 7/1            | 1          |
| Presbyterian Hospital *   | Chicago              | W Post                          | 3,606  | 66,679  | 121   | 72  | 2  | 0  | 0   | 7/1            | 13 \$50    |
| Provident Hospital *1   | Chicago              | A F Connor                      | 668    | 37,957  | 58    | 27  | 1  | 0  | 0   | 7/1            | 13 \$50    |
| Research and Educational Hospitals *                                  | Chicago              | R W Keeton                      | 451    |         | 42    | 40  | 4  | 0  | 0   | 7/1            | 13 \$25    |
| St Luke's Hospital *1   | Chicago              | R W Keeton                      | 2,537  | 13,318  | 135   | 77  | 3  | 0  | 0   | 7/1            | 13 \$25    |
| University of Chicago Clinics *1                                      | Chicago              | G F Dick                        | 2,260  | 36,751  | 95    | 65  | 1  | 3  | 9   | 1/1, 7/1, 10/1 | 13 None    |
| Wesley Memorial *   | Chicago              | G H Marquardt                   | 646    |         | 39    | 23  | 2  | 0  | 0   | 7/1            | 1+         |
| Evanston Hospital *   | Evanston, Ill        | L D Snorff                      | 2,424  | 9,925   | 130   | 97  | 2  | 0  | 0   | 7/1, 9/1       | 12 \$50    |
| St Francis Hospital *   | Evanston, Ill        | R W Keeton                      | 2,000  |         | 155   | 47  | 1  | 0  | 0   | 7/1            | 1 \$41     |
| St Francis Hospital *   | Peoria, Ill          | J E McCorvie                    | 2,623  |         | 241   | 67  | 1  | 0  | 0   | 7/1            | 1 \$45     |
| Indianapolis City Hospital *  | Indianapolis         | C J Clark                       | 2,171  | 35,007  | 400   | 206 | 3  | 0  | 5   | 7/1            | 13 \$41 64 |
| Indiana University Medical Center *1                                  | Indianapolis         | J O Ritchey                     | 1,875  | 8,042   | 141   | 71  | 2  | 2  | 0   | 7/1            | 13 \$66 34 |
| University Hospital *1  | Iowa City, Iowa      | F M Smith                       | 2,605  | 4,308   | 154   | 93  | 1  | 4  | 0   | 7/1            | 1 \$20 83  |
| University of Kansas Hospitals *1                                     | Kansas City, Kan     | R H Major                       | 1,495  | 16,226  | 111   | 73  | 1  | 2  | 0   | 7/1            | 13 \$50    |
| Louisville General Hospital *1  | Louisville, Ky       | J W Moore                       | 1,693  | 33,979  | 373   | 103 | 3  | 6  | 0   | 7/1            | 13 \$13 91 |
| Charity Hospital *1   | New Orleans          |                                 | 11,740 | 104,406 | 1,479 | 428 | 13 | 20 | 0   | 7/1            | 14 \$25    |
| Touro Infirmary *   | New Orleans          | R Lyons                         | 1,468  | 24,423  | 126   | 67  | 2  | 0  | 1   | 7/1            | 12 \$25    |
| Baltimore City Hospitals *  | Baltimore            | J T King, Jr                    | 1,945  |         | 442   | 252 | 1  | 6  | 0   | 7/1            | 1 \$12 50  |
| Church Home and Infirmary *1  | Baltimore            | Z R Morgan                      | 601    | 908     | 74    | 31  | 1  | 0  | 0   | 7/1            | 1 \$25     |
| Hospital for Women *1   | Baltimore            | W Baetjer                       | 508    | 3,044   | 32    | 7   | 1  | 1  | 0   | 7/1            | 1 \$50     |
| Johns Hopkins Hospital *1   | Baltimore            | W T Longeop                     | 4,558  | 39,423  | 255   | 186 | 1  | 6  | 0   | 7/1, 9/1       | 16         |
| Maryland General Hospital *   | Baltimore            | E B Freeman                     | 780    | 910     | 106   | 15  | 1  | 0  | 0   | 7/1            | 12 \$25    |
| Mersey Hospital *   | Baltimore            | M C Pineoffs                    | 1,416  | 2,780   |       |     | 1  | 3  | 0   | 7/1            | 2 \$25     |
| Provident Hospital and Free Dispensary *                              | Baltimore            | E B Jarrett                     | 444    | 652     | 79    | 17  | 1  | 0  | 0   | 7/1            | 1 \$35     |
| St Agnes' Hospital *  | Baltimore            | L P Gundry                      | 984    | 1,297   | 102   | 22  | 1  | 0  | 0   | 7/1            | 1          |
| St Joseph's Hospital *  | Baltimore            | F J Geraghty                    | 928    | 2,659   | 121   | 19  | 1  | 2  | 0   | 7/1            | 23 \$10    |
| Sinal Hospital *  | Baltimore            | C W Austrian                    | 1,585  | 9,754   | 155   | 52  | 1  | 2  | 0   | 7/1            | 1 \$50     |
| South Baltimore General Hospital *                                    | Baltimore            | G McLean                        | 519    | 2,002   | 77    | 11  | 1  | 1  | 0   | 7/1            | 12 \$12 50 |
| Union Memorial Hospital *   | Baltimore            | W C Baetjer                     | 1,683  |         | 140   | 26  | 1  | 4  | 0   | 7/1            | 13 \$25    |
| University Hospital *   | Baltimore            | M C Pineoffs                    | 1,690  | 6,034   | 129   | 61  | 1  | 3  | 0   | 7/1            | 2 \$30     |
| West Baltimore General Hospital *                                     | Baltimore            | L Krause                        | 672    | 1,082   | 76    | 33  | 2  | 0  | 0   | 7/1            | 12 \$79 16 |
| Beth Israel Hospital *  | Boston               |                                 | 2,028  | 10,187  | 151   | 74  | 1  | 0  | 0   | 7/1            | 1+ \$33 33 |
| Boston City Hospital *  | Boston               | G R Minot                       | 11,744 |         | 1,593 | 902 | 2  | 9  | 8   | Varies         | 12 \$41 67 |
| Joseph H Pratt Diagnostic Clinic                                      | Boston               |                                 | 1,671  | 650     | 24    | 12  | 4  | 0  | 0   | 7/1            |            |
| Lahey Clinic *  | Boston               | L M Hurvath and F N Allen       | 3,000  | 30,000  |       |     | 0  | 0  | 16+ | 1/1, 7/1       | 12 \$100   |
| Massachusetts General Hospital *1                                     | Boston               | J H Means                       | 2,485  | 27,607  | 163   | 116 | 4  | 0  | 0   | 7/1            | 1+ \$50    |
| Massachusetts Memorial Hospitals *                                    | Boston               | C S Keefer                      | 853    | 5,376   | 80    | 54  | 1  | 4  | 3   | Varies         | 12 \$41 67 |
| Peter Bent Brigham *  | Boston               |                                 | 2,361  | 40,269  | 230   | 147 | 1  | 4  | 0   | 7/1            | 1 \$25     |
| Worcester City Hospital *   | Worcester, Mass      | G W Haigh                       | 2,014  | 9,121   | 348   | 95  | 1  | 0  | 0   | 7/1            | 14 \$25    |
| University Hospital *1  | Ann Arbor, Mich      | R C Sturgis                     | 3,741  | 23,030  | 165   | 123 | 7  | 8  | 7   | 7/1            | 12 \$100   |
| Alexander Blain Hospital  | Detroit              | C L Fisher                      | 483    | 23,124  | 21    | 8   | 1  | 0  | 0   | 7/1            | 13 \$75    |
| City of Detroit Receiving Hospital *1                                 | Detroit              | G B Meyers                      | 3,099  | 14,507  | 538   | 290 | 1  | 6  | 3   | 7/15           |            |

8 MEDICINE—(Continued)

Revision of list is now taking place in collaboration with the American Board of Internal Medicine and the American College of Physicians

|   |                     | Chief of Service                   | Inpatients<br>Treated | Outpatient<br>Visits | Deaths | Autopsies | Residents | Assistant<br>Residents | Fellows | Service<br>Refusals | Length of<br>Service<br>(Years) | Beginning<br>Salary |      |
|---|---------------------|------------------------------------|-----------------------|----------------------|--------|-----------|-----------|------------------------|---------|---------------------|---------------------------------|---------------------|------|
| Grace Hospital*                                     | Detroit             | C. R. Hoop                         | 3,215                 | 9,277                | 275    | 71        | 1         | 1                      | 0       | 7/1 9/1             | 12                              | \$100               |      |
| Harper Hospital*                                    | Detroit             | H. A. Frum                         | 1,700                 | 5,612                | 225    | 65        | 1         | 6                      | 0       | 7/1                 | 1                               | \$25                |      |
| Hennepin Hospital*                                  | Detroit             | F. I. Stulen                       | 1,840                 | 5,612                | 244    | 95        | 6         | 6                      | 0       | 7/1                 | 15                              | \$130               |      |
| Protestant Hospital*                                | Detroit             | M. McQuinn                         | 1,300                 |                      | 202    | 75        | 1         | 1                      | 0       | 7/1                 | 1                               | \$1                 |      |
| St. Mary's Hospital*                                | Detroit             | W. J. Wilson Sr.                   | 2,062                 | 5,476                | 273    | 77        | 1         | 0                      | 0       | 7/1                 | 23                              | \$125               |      |
| Western Hospital*                                   | Detroit             | M. J. Johnson                      | 1,011                 |                      | 36     | 14        |           |                        |         | 7/1                 | 12                              | \$100               |      |
| Eastern Hospital and Infirmary*                     | Detroit             | M. R. McQuinn                      | 4,111                 | 34,767               | 545    | 240       | 3         | 8                      | 2       | 7/1                 | 1                               | \$24.58             |      |
| Hercules Hospital*                                  | East Mich           | W. M. Hall                         | 1,000                 |                      | 215    | 75        | 0         | 1                      | 0       | 7/1                 | 1                               | \$41.68             |      |
| Robertson Memorial Hospital*                        | Grand Rapids Mich   | A. M. Hill                         | 1,011                 |                      | 35     | 23        | 1         | 0                      | 0       | 1/1 7/1             | 1                               | \$75                |      |
| Lawrence Hospital*                                  | Grand Rapids Mich   | A. T. Baker                        | 1,441                 |                      | 152    | 62        | 1         | 0                      | 0       | 7/1                 | 13                              | \$100               |      |
| Minneapolis General Hospital*                       | Minneapolis         | G. Faber                           | 1,135                 | 2,881                | 0      | 152       | 0         | 0                      | 0       | 1/1 1/7             | 13                              | \$25                |      |
| University Hospital*                                | Minneapolis         | C. I. Watson                       | 1,250                 | 1,160                | 110    | 80        | 0         | 0                      | 0       | 7/1                 | 13                              | \$50                |      |
| Mayo Foundation                                     | Rochester Minn      | R. M. Widler                       | (See page 1344)       |                      |        |           |           |                        |         |                     |                                 |                     |      |
| Walker Hospital*                                    | St. Paul Minn       | A. Hoff                            | 1,034                 | 3,063                | 320    | 150       | 6         | 0                      | 0       | 7/1                 | 1                               | \$50                |      |
| St. Louis County Hospital*                          | Clayton Mo          | H. S. Haggitt                      | 2,110                 | 4,212                | 187    | 105       | 1         | 1                      | 0       | 7/1                 | 13                              | \$25                |      |
| Kansas City General Hospital*                       | Kansas City Mo      | L. A. Bell                         | 2,000                 | 15,663               | 312    | 207       | 3         | 0                      | 0       | 7/1                 | 2                               | \$50                |      |
| St. Joseph Hospital*                                | Kansas City Mo      | H. J. Jones                        | 1,100                 |                      | 120    | 72        | 1         | 0                      | 0       | 7/1                 | 13                              | \$50                |      |
| St. Mary's Hospital*                                | Kansas City Mo      | I. F. Stooky                       | 1,135                 |                      | 102    | 119       | 1         | 3                      | 0       | 7/1                 | 1                               | \$75                |      |
| Lawrence Hospital*                                  | St. Louis           |                                    | 4,410                 |                      | 164    | 91        | 0         | 1                      | 0       | 7/1                 | 13                              | \$25                |      |
| St. Paul Hospital*                                  | St. Louis           | F. P. Punt                         | 1,147                 | 1,164                | 164    | 91        | 0         | 1                      | 0       | 7/1                 | 13                              | \$75                |      |
| Homer G. Phillips Hospital*                         | St. Louis           | H. I. Talbot                       | 2,235                 | 15,200               | 35     | 55        | 1         | 2                      | 0       | 7/1                 | 1                               | \$50                |      |
| Lebanon Hospital*                                   | St. Louis           | I. Sall                            | 2,000                 | 5,740                | 160    | 55        | 1         | 2                      | 0       | 7/1                 | 1                               | \$50                |      |
| St. Anthony's Hospital*                             | St. Louis           | R. V. Powell                       | 1,100                 |                      | 105    | 28        | 1         | 0                      | 0       | 7/1                 | 12                              | \$50                |      |
| St. Louis City Hospital*                            | St. Louis           | D. Sexton                          | 3,771                 | 24,000               | 68     | 25        | 0         | 1                      | 0       | 7/1                 | 1                               | \$50                |      |
| St. Luke's Hospital*                                | St. Louis           | A. R. Day                          | 1,000                 |                      | 122    | 43        | 275       | 0                      | 4       | 0                   | 7/1                             | 3                   | \$25 |
| St. Mary's Group of Hospitals*                      | St. Louis           | H. A. Kinell                       |                       |                      | 153    | 144       | 1         | 1                      | 0       | 7/1                 | 1                               | \$75                |      |
| Crichton Memorial St. Joseph's Hospital*            | Quincy              | A. Sachs                           | 1,100                 | 3,100                | 112    | 32        | 1         | 0                      | 0       | 7/1                 | 1                               | \$50                |      |
| Jersey City Hospital*                               | Jersey City N. J.   | T. J. White                        | 3,005                 | 31,700               | 572    | 144       | 1         | 1                      | 0       | 1/1 7/1             | 1                               | \$75                |      |
| Albany Hospital*                                    | Albany N. Y.        | I. W. Gorham                       | 1,100                 |                      | 112    | 42        | 1         | 2                      | 1       | 7/1                 | 2+                              | \$25                |      |
| Concy Island Hospital*                              | Brooklyn            | I. J. Tomko                        | 1,500                 | 29,722               | 252    | 47        | 1         | 0                      | 0       | 7/1                 | 1                               | \$100               |      |
| Cumtland Hospital*                                  | Brooklyn            | J. F. Cuttman                      | 1,204                 | 44,075               | 177    | 64        | 1         | 1                      | 0       | 1/1 7/1             | 1                               | \$13                |      |
| Croton Hospital*                                    | Brooklyn            | A. Klein                           | 1,010                 | 25,616               | 165    | 21        | 1         | 0                      | 0       | 9/1                 | 1                               | \$15                |      |
| Jersey Hospital*                                    | Brooklyn            |                                    | 1,000                 | 42,273               | 210    | 80        | 2         | 0                      | 0       | 7/1                 | 1                               | \$25                |      |
| Kings County Hospital*                              | Brooklyn            | H. M. Canfield                     |                       |                      |        |           |           |                        |         |                     |                                 |                     |      |
| Long Island College Hospital*                       | Brooklyn            | J. Crawford                        | 17,000                | 60,000               |        |           | 4         | 4                      | 0       | 1/1 7/1             | 12                              | \$15                |      |
| Norwegian Lutheran Deaconess Home and Hospital*     | Brooklyn            | T. Howard                          | 1,614                 | 15,019               | 122    |           | 1         | 2                      | 0       | 7/1                 | 3-4                             | \$22.50             |      |
| Buffalo General Hospital*                           | Buffalo             | B. A. Fuchs and<br>H. W. Glavin    | 1,070                 | 604                  |        |           | 1         | 0                      | 0       | 7/1                 | 1                               | \$25                |      |
| Edward J. Meyer Memorial Hospital*                  | Buffalo             | A. H. Aaron                        | 2,494                 |                      | 346    | 127       | 1         | 7                      | 0       | 7/1                 | 1                               | \$25                |      |
| Millard Fillmore Hospital*                          | Buffalo             | D. H. Miller                       | 2,311                 | 25,127               | 374    | 120       | 1         | 5                      | 0       | 7/1                 | 4                               | \$50                |      |
| Mary Imogene Bassett Hospital*                      | Buffalo             | I. Hoffman                         | 1,015                 | 1,741                | 79     | 92        | 1         | 0                      | 0       | 7/1                 | 1                               | \$25                |      |
| Meadowbrook Hospital*                               | Cooperstown N. Y.   | G. M. Mackenz                      | 740                   |                      | 51     | 50        | 1         | 0                      | 0       | 7/1                 | 1                               | \$125               |      |
| Queens General Hospital*                            | Hempstead N. Y.     | F. C. Hup                          | 727                   |                      | 78     | 39        | 1         | 0                      | 0       | 7/1                 | 1                               | \$50                |      |
| Charles S. Wilson Memorial Hospital*                | Jamaica N. Y.       | A. W. Victor                       | 2,272                 | 40,500               | 455    | 200       | 1         | 1                      | 0       | 7/1                 | 1                               | \$100               |      |
| New Rochelle Hospital*                              | Johnston City N. Y. | F. M. Jones                        |                       |                      |        |           |           |                        |         |                     |                                 |                     |      |
| Bellvue Hospital*                                   | New Rochelle N. Y.  | C. Read                            | 1,034                 | 2,995                | 162    | 57        | 1         | 0                      | 0       | 7/1                 | 1                               | \$50                |      |
| Flower and Fifth Avenue Hospitals*                  | New York City       |                                    | 11,000                | 4,134                |        |           | 3         | 0                      | 0       |                     |                                 |                     |      |
| Metropolitan Hospital*                              | New York City       | L. F. Boyd                         | 5,000                 | 11,505               | 80     | 20        | 1         | 0                      | 4       | 7/1                 | 1                               | \$25                |      |
| Montefiore Hospital*                                | New York City       | L. F. Boyd                         | 3,122                 | 15,460               | 517    | 146       | 2         | 0                      | 0       | 7/1                 | 12                              | \$100               |      |
| Mount Sinai Hospital*                               | New York City       | I. Liekhtwitz                      | 400                   | 3,402                | 102    | 62        | 1         | 2                      | 2       | 1/1 7/1             | 1 1/2                           | \$50                |      |
| New York City Hospital*                             | New York City       | J. H. Cudmore and<br>M. A. Ramirez | 2,717                 | 19,355               | 455    | 147       | 2         | 0                      | 0       | 7/1                 | 1                               | \$50                |      |
| New York Hospital*                                  | New York City       | D. P. Barr                         | 1,476                 | 59,752               | 97     | 64        | 1         | 9                      | 0       | 7/1                 | 15                              | \$25                |      |
| New York Infirmary for Women and Children*          | New York City       | D. M. Manter                       | 322                   | 8,656                | 9      | 3         | 1         | 0                      | 0       | 9/1                 | 1                               | \$45                |      |
| New York Polyclinic Medical School and Hospital*    | New York City       |                                    | 973                   | 3,706                |        |           | 1         | 0                      | 0       | 7/1                 | 2                               |                     |      |
| New York Post-Graduate Medical School and Hospital* | New York City       | I. S. Wright                       | 1,055                 | 51,751               | 85     | 31        | 1         | 0                      | 0       | 7/1                 | 1                               | \$50                |      |
| Presbyterian Hospital*                              | New York City       | W. W. Palmer                       | 4,335                 |                      | 225    | 120       | 1         | 3                      | 0       | 7/1                 | 1                               | \$41.67             |      |
| St. Luke's Hospital*                                | New York City       | F. W. Bishop and<br>G. M. Goodwin  | 2,775                 | 53,857               | 250    | 115       | 1         | 5                      | 0       | 1/1 7/1             | 12                              |                     |      |
| Wellfare Hospital for Chronic Diseases*             | New York City       |                                    | 2,046                 | 1,057                | 360    | 155       | 7         | 11                     | 21      | 7/1                 | 1+                              | \$50                |      |
| Genesee Hospital*                                   | Rochester N. Y.     | D. B. Jewett                       | 1,141                 | 5,609                |        |           | 1         | 0                      | 0       | 7/1                 | 1                               | \$75                |      |
| Rochester General Hospital*                         | Rochester N. Y.     | C. P. Thomas                       | 1,617                 | 4,652                | 120    | 63        | 0         | 1                      | 0       | 7/1                 | 1                               | \$50                |      |
| St. Mary's Hospital*                                | Rochester N. Y.     | B. J. Duffy                        | 2,834                 | 4,376                | 154    | 25        | 1         | 0                      | 0       | 7/1                 | 1                               | \$50                |      |
| Strong Memorial and Rochester Municipal Hospitals*  | Rochester N. Y.     | W. S. McCann                       | 3,679                 | 26,159               | 353    | 257       | 4         | 6                      | 0       | 7/1                 | 14                              | \$41.67             |      |
| Hospital of the Good Shepherd*                      | Syracuse N. Y.      | E. C. Reifstein                    | 1,195                 |                      |        |           | 1         | 1                      | 0       | 7/1                 | 1                               | \$20.53             |      |
| Graceland Hospital*                                 | Syracuse N. Y.      | M. D. Touart                       | 855                   | 5,967                | 129    | 118       | 1         | 1                      | 0       | 7/1                 | 12                              | \$75                |      |
| Duke Hospital*                                      | Durham N. C.        | F. M. Hanes                        | 3,067                 | 23,694               | 129    | 67        | 1         | 13                     | 0       | 7/1                 | 1                               | \$41                |      |
| Watts Hospital*                                     | Durham N. C.        |                                    |                       |                      |        |           |           |                        |         |                     |                                 |                     |      |
| City Hospital*                                      | Winston Salem N. C. |                                    | 2,002                 | 8,317                | 233    | 83        | 2         | 0                      | 0       | 7/1                 | 12                              | \$50                |      |
| North Carolina Baptist Hospital*                    | Winston Salem       | T. R. Harrison                     | 1,700                 |                      | 42     | 22        | 5         | 0                      | 0       | 7/1                 | 16                              | \$12                |      |
| Triality Hospital*                                  | Winston Salem       | P. H. Rowe                         | 1,100                 |                      | 72     | 55        | 1         | 0                      | 0       | 7/1                 | 1                               | \$50                |      |
| City Hospital*                                      | Alton N. D.         |                                    | 2,480                 | 6,499                | 238    | 90        | 1         | 0                      | 0       | 7/1                 | 2                               | \$50                |      |
| Albany Hospital*                                    | Alton O.            | J. D. O'Brien                      | 1,904                 |                      | 158    | 44        | 1         | 1                      | 0       | 7/1                 | 12                              | \$50                |      |
| Christ Hospital*                                    | Canton O.           | D. A. Tucker                       | 2,191                 | 3,832                | 171    | 49        | 4         | 0                      | 0       | 6-24                | 13                              | \$75                |      |
| Cincinnati General Hospital*                        | Cincinnati          | M. A. Blankenhorn                  | 2,452                 | 42,800               | 548    | 295       | 1         | 14                     | 0       | 7/1                 | 13                              |                     |      |
| Deaconess Hospital*                                 | Cincinnati          | D. Osborn and<br>H. H. Shook       | 2,065                 |                      | 133    | 26        | 1         | 0                      | 0       |                     | 1                               | \$75                |      |
| Good Samaritan Hospital*                            | Cincinnati          | G. Topmoeller                      | 4,835                 | 562                  | 230    | 80        | 1         | 1                      | 0       | 7/1                 | 12                              | \$40                |      |
| Jewish Hospital*                                    | Cincinnati          | W. Str                             | 1,757                 |                      | 142    | 37        | 2         |                        |         | 6/23                | 12                              | \$45                |      |
| City Hospital*                                      | Cleveland           | R. V. Scott                        | 2,679                 | 37,477               | 523    | 227       | 2         | 10                     | 0       | 7/1                 | 13                              | \$50                |      |
| Cleveland Clinic Foundation Hospital*               | Cleveland           | R. L. Haden                        | 2,570                 |                      | 82     | 27        | 0         | 0                      | 16      | 7/1                 | 13                              | \$50                |      |
| Mount Sinai Hospital*                               | Cleveland           | S. S. Berger                       | 1,735                 | 21,343               | 146    | 69        | 1         | 0                      | 0       | 7/1                 | 1                               | \$50                |      |
| St. Alexis Hospital*                                | Cleveland           | H. V. Parzyk                       | 2,224                 | 8,944                | 209    | 67        | 1         | 0                      | 0       | 7/1                 | 1                               | \$45                |      |
| St. John's Hospital*                                | Cleveland           | C. E. Steyer                       | 1,003                 |                      | 107    | 23        | 1         | 0                      | 0       | 7/1                 | 12                              | \$50                |      |
| St. Luke's Hospital*                                | Cleveland           | C. T. Way                          | 2,662                 | 23,620               | 194    | 94        | 1         | 2                      | 0       | 6/23                | 2                               |                     |      |
| St. Vincent Charity Hospital*                       | Cleveland           | C. Oldenburg                       | 2,176                 | 18,805               | 227    | 64        | 0         | 2                      | 0       | 7/1                 | 12                              | \$50                |      |
| University Hospitals*                               | Cleveland           | J. T. Wearn                        | 3,900                 | 31,390               | 311    | 190       | 1         | 6                      | 3       | 7/1                 | 2                               | \$25                |      |
| St. Francis Hospital*                               | Columbus, O.        | L. H. Van Buren                    | 821                   | 624                  | 155    | 77        | 1         | 0                      | 0       | 7/1                 | 12                              | \$25                |      |
| Starling-Loving University Hospital*                | Columbus, O.        | C. A. Doan                         | 1,106                 | 23,502               |        |           | 1         | 3                      | 1       | 7/1                 | 1                               | \$75                |      |
| Miami Valley Hospital*                              | Dayton O.           | B. Olich                           | 1,105                 |                      | 104    | 77        | 1         | 0                      | 0       | 7/1                 | 1                               | \$75                |      |
| Huron Road Hospital*                                | East Cleveland O.   |                                    | 1,269                 | 4,172                | 102    | 48        | 1         | 0                      | 0       | 7/1                 | 1                               | \$75                |      |
| Lucas County General Hospital*                      | Toledo O.           | F. Meyers                          | 1,659                 | 28,034               | 325    | 113       | 1         | 0                      | 0       | 7/1                 | 1+                              | \$15                |      |
| St. Vincent's Hospital*                             | Toledo O.           | C. W. Waggoner                     | 1,933                 | 3,605                | 174    | 53        | 1         | 0                      | 0       | 7/1                 | 1                               | \$100               |      |
| St. Elizabeth Hospital*                             | Youngstown O.       | A. M. Rosenblum                    | 2,252                 | 1,052                | 207    | 29        | 1         | 0                      | 0       | 7/1                 | 1                               | \$55                |      |

Numerical and other references will be found on page 1344

## 8 MEDICINE—(Continued)

Revision of list is now taking place in collaboration with the American Board of Internal Medicine and the American College of Physicians

|   |                     | Chief of Service           | Inpatients Treated | Outpatient Visits | Deaths | Autopsies | Residents Assistant Residents | Fellows | Service Begins | Length of Service (Years) | Beginning Stipend |
|---|---------------------|----------------------------|--------------------|-------------------|--------|-----------|-------------------------------|---------|----------------|---------------------------|-------------------|
| Youngstown Hospital *                                       | Youngstown, O       | W H Bunn                   | 3,977              | 1,122             | 339    | 90        | 1 0 0                         | 0       | 7/1            | 1                         | \$75              |
| St Anthony Hospital *                                       | Oklahoma City       | P M McNeill                | 1,785              |                   |        |           | 1 0 0                         | 0       | 7/1            | 1                         | \$60              |
| University Hospitals *                                      | Oklahoma City       | A W White                  | 917                | 10,011            | 139    | 59        | 1 1 0                         | 0       | 7/1            | 1                         | \$50              |
| University of Oregon Medical School Hospitals and Clinics * | Portland, Ore       | L Selling                  | 3,669              | 25,654            | 389    | 245       | 1 2 0                         | 0       | 7/1            | 3                         | \$30              |
| Abington Memorial Hospital *                                | Abington, Pa        | G M Piersol                | 1,403              | 1,485             | 135    | 47        | 1 0 0                         | 0       | 7/1            | 1+                        | \$25              |
| Bryn Mawr Hospital *  | Bryn Mawr, Pa       | I C Sharpless              | 892                |                   | 65     | 30        | 1 0 0                         | 0       | 10/1           | 1                         | \$30              |
| George F Geisinger Memorial Hospital *                      | Danville, Pa        | W J Stainsby               | 1,659              | 7,738             | 139    | 45        | 1 0 0                         | 0       | 9/1            | 1                         | \$50              |
| Germantown Dispensary and Hospital *                        | Philadelphia        |                            | 1,718              | 19,174            | 104    | 48        | 1 0 0                         | 0       | 9/1            | 13                        | \$50              |
| Graduate Hospital of the University of Pennsylvania *       | Philadelphia        | G M Piersol                | 1,031              | 14,878            | 83     | 29        | 1 0 0                         | 0       | 7/1            | 1                         | None              |
| Hahnemann Hospital *  | Philadelphia        | G H Wells                  | 1,312              | 11,029            | 211    | 96        | 1 0 0                         | 0       | 9/1            | 2                         | \$50              |
| Hospital of the University of Pennsylvania *                | Philadelphia        | O H P Pepper               | 2,130              | 22,415            | 101    | 66        | 1 0 5                         | 0       | 7/1            | 1+                        | None              |
| Jefferson Medical College Hospital *                        | Philadelphia        | H A Reimann                | 1,395              | 7,190             | 144    | 66        | 1 0 0                         | 0       | 9/1            | 1                         | \$50              |
| Jewish Hospital *   | Philadelphia        | J C Douane                 | 1,721              | 5,102             | 195    | 103       | 1 0 0                         | 0       | 6/15           | 12                        | None              |
| Mount Sinai Hospital *                                      | Philadelphia        |                            | 1,728              |                   | 133    | 41        | 1 1 0                         | 0       | 7/15           | 23                        | \$25              |
| Pennsylvania Hospital *                                     | Philadelphia        | D L Lantry and G G Duncan  | 1,817              | 9,055             | 189    | 126       | 2 0 0                         | 0       | 9/1            | 12                        | \$20              |
| Philadelphia General Hospital *                             | Philadelphia        |                            | 5,117              | 22,003            | 1,099  |           | 2 0 1                         | 0       | 8/1            | 12                        | \$50              |
| Presbyterian Hospital *                                     | Philadelphia        |                            | 1,208              | 3,855             | 145    | 105       | 1 0 0                         | 0       | 9/1            | 1+                        | None              |
| Temple University Hospital *                                | Philadelphia        |                            | 1,423              | 8,457             | 128    | 40        | 3 0 0                         | 0       | 7/1            | 3                         | \$40              |
| Woman's Hospital *  | Philadelphia        | M H Easby                  | 707                | 3,257             | 30     | 21        | 1 0 0                         | 0       | 7/1            | 1                         | \$25              |
| Allegheny General Hospital *                                | Pittsburgh          | I W Willetts               | 1,601              | 10,332            | 258    | 56        | 1 0 0                         | 0       | 9/1            | 1                         | \$35              |
| Elizabeth Steel Magee Hospital                              | Pittsburgh          | J D Heard                  | 1,135              | 5                 | 73     | 24        | 1 1 0                         | 0       | 9/1            | 2                         | \$83.33           |
| Mercy Hospital *  | Pittsburgh          | W W MacLachlan             | 1,797              |                   | 218    |           | 1 0 0                         | 0       | 9/1            | 1                         |                   |
| St Francis Hospital *                                       | Pittsburgh          | A W Sherrill and I B Utley | 1,352              | 2,411             | 197    | 41        | 2 0 0                         | 0       | 9/1            | 13                        | \$35              |
| Reading Hospital *  | Reading, Pa         | W S Bartolet               | 1,078              | 1,261             | 169    | 122       | 1 0 0                         | 0       | 9/1            | 1                         | \$3               |
| Robert Paerl Hospital *                                     | Smyrna, Pa          | S D Conklin                | 1,697              | 3,919             | 76     | 35        |                               | 3       | 9/1            | 1                         | \$50              |
| Roger Hospital *  | Charleston, S C     | R Wilson                   | 1,951              | 20,485            | 211    | 96        | 1 2 1                         | 0       | 7/1            | 14                        | \$11              |
| John Gaston Hospital *                                      | Memphis, Tenn       | C H Sanford                | 2,572              | 20,919            | 474    | 75        | 1 2 0                         | 0       | 7/1            | 1                         | \$33              |
| George W Hubbard Hospital *                                 | Nashville, Tenn     | E L Turner                 | 852                | 3,851             | 72     | 13        | 1 0 0                         | 0       | 7/1            | 2                         | \$75              |
| Nashville General Hospital *                                | Nashville, Tenn     | O N Bryan                  | 1,991              | 18,211            | 175    | 65        | 1 0 0                         | 0       | 7/1            | 12                        | \$35              |
| Vanderbilt University Hospital *                            | Nashville, Tenn     | H J Morgan                 | 1,708              | 30,491            | 112    | 59        | 1 3 0                         | 0       | 7/1            | 1                         | \$50              |
| Baylor University Hospital *                                | Dallas, Tex         | H M Winana                 | 3,501              | 5,556             | 146    | 42        | 1 2 0                         | 0       | 7/1            | 13                        | \$37.50           |
| Parkland Hospital *   | Dallas, Tex         | W G Reddick                | 1,503              | 31,618            | 241    | 54        | 2 2 0                         | 0       |                |                           | \$25              |
| John Sealy Hospital *                                       | Galveston, Tex      | C T Stone                  | 1,924              | 15,234            |        |           | 1 5 0                         | 0       | 7/1            | 13                        | \$25              |
| Hermann Hospital *  | Houston, Tex        | F R Lummis                 | 1,015              | 3,784             | 83     | 40        | 1 0 0                         | 0       | 7/1            | 12                        | \$50              |
| Jefferson Davis Hospital *                                  | Houston, Tex        | S B Weil                   | 2,117              | 15,359            | 667    | 120       | 1 0 0                         | 0       | 7/1            | 1                         | \$50              |
| Southern Pacific Hospital                                   | Houston, Tex        | M D Levy                   | 66                 | 9,995             | 27     | 12        | 1 0 0                         | 0       | 7/1            | 12                        | \$100             |
| Mary Fletcher Hospital *                                    | Springfield, Vt     | C H Beecher                | 1,014              |                   | 50     | 22        | 1 0 0                         | 0       | 7/1            | 1                         | \$150             |
| University of Virginia Hospital *                           | Charlottesville, Va | E M Landis                 | 2,751              | 8,887             | 127    | 10        | 1 2 1                         | 0       | 7/1            | 1                         | \$50              |
| Chesapeake and Ohio Hospital                                | Clifton Forge, Va   |                            | 1,443              |                   |        |           | 1 0 0                         | 0       | 7/1            | 3                         | \$50              |
| Norfolk General Hospital *                                  | Norfolk, Va         |                            | 2,575              | 3,030             | 177    | 43        | 1 0 0                         | 0       | 7/1            | 12                        | \$50              |
| Medical College of Virginia, Hospital Division *            | Richmond, Va        | W B Porter                 | 2,053              |                   | 254    | 106       | 2 3 0                         | 0       | 7/1            | 1                         |                   |
| King County Hospital *                                      | Seattle, Wash       | C E Watts                  | 2,569              | 53,733            | 579    | 203       | 1 0 0                         | 0       | 7/1            | 1                         | \$130             |
| Virginia Mason Hospital *                                   | Seattle, Wash       | J M Blackford              | 2,477              |                   | 99     | 54        | 1 1 0                         | 0       | 6/25           | 1                         | \$50              |
| State of Wisconsin General Hospital *                       | Madison             | W S Middleton              | 4,026              | 17,841            | 113    | 78        | 3 5 0                         | 0       | 7/1            | 3                         | \$25              |
| Columbia Hospital *   | Milwaukee           | J I Pink                   | 810                |                   | 48     | 22        | 1 0 0                         | 0       | 7/1            | 34                        | \$50              |
| St Joseph's Hospital *                                      | Milwaukee           | R Fitzcraud                | 1,788              |                   |        |           | 1 0 0                         | 0       | 6/15           | 1                         | \$40              |
| Milwaukee County Hospital *                                 | Wauwatosa, Wis      | F D Murphy                 | 5,816              | 36,381            | 652    | 201       | 3 11 0                        | 0       | 7/1, 7/15      | 1                         | \$50              |
| Queen's Hospital *  | Honolulu, T H       |                            | 5,072              |                   | 166    |           | 1 0 0                         | 0       | 1/1            | 1                         | \$115             |

## 9 MIXED

In addition to the hospitals listed below, all hospitals approved for intern training are likewise accredited for mixed residencies

|   |                      |                |       |        |     |     |       |   |        |    |         |
|---|----------------------|----------------|-------|--------|-----|-----|-------|---|--------|----|---------|
| Baptist Hospital                                      | Birmingham, Ala      | I Berry        | 6,960 |        | 171 | 38  | 5 0 0 | 0 | 7/1    | 1+ | \$150   |
| St Vincent's Hospital *                               | Birmingham, Ala      | F C Wilson     | 3,867 |        | 119 | 25  | 3 0 0 | 0 | 7/1    | 12 | \$75    |
| South Highland Infirmary                              | Birmingham, Ala      | D S Moore      | 4,786 | 3,992  | 169 | 51  | 4 0 0 | 0 | 7/1    | 1  | \$120   |
| St Margaret's Hospital                                | Montgomery, Ala      | J H Blue       | 4,755 |        | 212 | 30  | 2 0 0 | 0 | 7/1    | 1  | \$100   |
| St Mary's Hospital and Sanatorium                     | Tucson, Ariz         | D F Hill       | 4,595 |        | 197 | 43  | 4 0 0 | 0 | 7/1    | 1  | \$75    |
| Leo N Levi Memorial Hospital                          | Hot Springs, Ark     | D C Lee        | 873   | 21,578 | 49  | 11  | 1 0 0 | 0 | 7/1    | 1  |         |
| Paradise Valley Hospital and Sanitarium               | National City, Calif | C E Nelson     | 2,407 | 16,854 | 100 | 22  | 1 0 0 | 0 |        |    |         |
| Sonoma County Hospital *                              | Santa Rosa, Calif    | C M Fleissner  | 2,912 | 23,118 | 176 | 117 | 1 6 0 | 0 | 7/1    | 1  | \$100   |
| St Mary Hospital                                      | Pueblo, Colo         | J F Snedec     | 2,903 |        | 211 | 18  |       |   |        |    |         |
| Bristol Hospital                                      | Bristol, Conn        |                | 4,065 |        | 117 | 44  | 1 0 0 | 0 |        |    |         |
| Riverside Hospital                                    | Jacksonville, Fla    | T Z Cason      | 1,495 | 9,014  | 38  | 10  | 1 0 0 | 0 | 7/1    | 1  | \$50    |
| St Francis Hospital                                   | Blue Island, Ill     | R Carmichael   | 2,928 |        | 107 | 30  | 2 0 0 | 0 | 7/1    | 1  | \$50    |
| St Anthony's Hospital                                 | Rock Island, Ill     | C M Murrell    | 2,629 | 1,749  | 160 | 43  | 1 0 0 | 0 | 7/1    | 1  | \$50    |
| Clinic Hospital (Caylor Nickel Clinic)                | Bluffton, Ind        | C E Caylor     | 1,436 | 3,218  | 38  | 13  | 2 0 0 | 0 | 7/1    | 1  | \$100   |
| St Mary's Hospital                                    | Evansville, Ind      | G M Hartz      | 4,171 |        | 191 | 62  | 3 0 0 | 0 | 7/1    | 1  | \$100   |
| Lafayette Home Hospital                               | Lafayette, Ind       | D C McClelland | 3,392 |        | 174 | 44  | 1 0 0 | 0 | 7/1    | 1  | \$125   |
| St Luke's Methodist Hospital                          | Oedar Rapids, Ia     | R Y Netolicky  | 4,671 |        | 180 | 41  | 2 0 0 | 0 | 7/1    | 1  |         |
| Bethany Hospital *                                    | Kansas City, Kan     | O W Davidson   | 3,278 |        | 164 | 73  | 2 0 0 | 0 | 7/1    | 1  | \$50    |
| Jewish Hospital *                                     | Louisville, Ky       | J W Helm       | 2,325 | 174    | 92  | 19  | 2 0 0 | 0 | 7/1    | 1  | \$50    |
| Flint Goodrich Hospital of Dillard Univ               | New Orleans, La      |                | 2,078 | 55,502 | 60  | 6   | 4 0 0 | 0 | 7/1    | 1  | \$50    |
| Long Island Hospital                                  | Boston               | J R Cunningham | 1,992 |        | 186 | 83  | 1 5 0 | 0 |        |    |         |
| Frammingham Union Hospital                            | Frammingham, Mass    | J O Merriam    | 3,482 |        | 160 | 39  | 2 0 0 | 0 | Varies | 1  | \$41.67 |
| Malden Hospital                                       | Malden, Mass         | I J Walker     | 4,716 |        | 2 6 | 29  | 4 0 0 | 0 | 7/1    | 1+ | \$50    |
| Tewksbury State Hospital and Infirmary                | Tewksbury, Mass      | L K Kelley     | 2,433 |        | 361 | 51  |       |   |        |    |         |
| St Joseph's Mercy Hospital                            | Ann Arbor, Mich      | H H Cummings   | 4,438 |        | 135 | 40  | 2 0 0 | 0 | 7/1    | 1  | \$100   |
| Charles Godwin Jennings Hospital                      | Detroit              | A F Jennings   | 2,171 |        | 48  | 15  | 2 0 0 | 0 | 7/1    | 1  | \$125   |
| Parkside Hospital                                     | Detroit              | D McLean       | 1,295 |        | 101 | 7   | 3 0 0 | 0 | 7/1    | 1  | \$75    |
| Mercy Hospital  | Muskegon, Mich       | G L LeFevre    | 4,993 |        | 191 | 23  |       |   | 1/1    | 1  | \$150   |
| St Joseph's Mercy Hospital *                          | Pontiac, Mich        | J H Gordon     | 6,324 | 4,041  | 247 | 33  | 4 0 0 | 0 | 7/1    | 1  | \$100   |
| Eitel Hospital  | Minneapolis          | G J Thomas     | 5,281 |        | 116 | 47  | 2 0 0 | 0 | 7/1    | 1  | \$100   |
| Fairview Hospital *                                   | Minneapolis          | F L Gilles     | 4,757 |        | 176 | 176 | 3 0 0 | 0 | 7/1    | 1  | \$100   |
| Lutheran Deaconess Home and Hospital                  | Minneapolis          | M Pfunder      | 4,924 |        | 187 | 46  | 1 0 0 | 0 | 7/1    | 1  | \$100   |
| Midway Hospital                                       | St Paul              | G Earl         | 3,426 | 3,003  | 107 | 57  | 1 0 0 | 0 | 1/3    | 1  | \$100   |
| Northern Pacific Beneficial Association Hospital      | St Paul              | A W Ide        | 2,833 | 12,798 | 89  | 19  | 2 0 0 | 0 | Varies | 1  | \$250   |
| Alexian Brothers Hospital                             | St Louis             | L F Hayden     | 1,804 | 24,587 | 131 | 24  | 2 0 0 | 0 | 7/1    | 1  | \$100   |
| Christian Hospital                                    | St Louis             | G A Melles     | 2,075 |        | 105 | 23  | 2 0 0 | 0 | 7/1    | 1  | \$100   |
| Douglas County Hospital                               | Omaha                | F J Wearne     | 2,855 | 7,175  | 320 | 101 | 3 0 0 | 0 | 7/1    | 1  | \$50    |
| Elliot Hospital                                       | Manchester, N H      | D W Parker     | 2,367 | 3,431  | 78  | 31  | 2 0 0 | 0 | Varies | 1  | \$15    |
| Auburn City Hospital                                  | Auburn, N Y          | W B Wilson     | 5,232 | 5,386  | 217 | 62  | 2 0 0 | 0 | 7/1    | 1  | \$50    |
| Jewish Sanitarium and Hospital for Chronic Diseases * | Brooklyn             | B Koven        | 236   |        | 154 | 49  | 2 0 0 | 0 | 7/1    | 1  | \$50    |

### 9 MIXED—(Continued)

In addition to the hospitals listed below all hospitals approved for intern training are likewise accredited for mixed residencies

|                            | Chief of Serv      | Inpatient<br>Treated | Outpatient<br>Visits | Deaths | Autopsies | Residents | Assistant<br>Residents | Interns | Service<br>Begin | Length of<br>Service<br>(Years) | Beginning<br>Stipend |
|----------------------------|--------------------|----------------------|----------------------|--------|-----------|-----------|------------------------|---------|------------------|---------------------------------|----------------------|
| Kriston Hospital           | Albion N.Y.        | O. D. B. Inkham      | 100                  | 200    | 73        | 2         | 0                      | 0       | 7/1              | 1                               | \$100                |
| Rockland Memorial Hospital | Staten Island N.Y. | M. S. Floyd          | 100                  | 113    | 31        | 4         | 0                      | 0       | Quart            | 1                               | \$37.50              |
| Rockland Hospital          | Fayetteville N.C.  | J. E. H. Smith Jr.   | 100                  | 107    | 21        | 1         | 0                      | 0       |                  |                                 |                      |
| St. Ann's Hospital         | Raleigh N.C.       | H. A. Royter         | 100                  | 107    | 21        | 1         | 0                      | 0       |                  |                                 |                      |
| St. Ann's Hospital         | Rocky Mount N.C.   | F. S. Foster         | 100                  | 107    | 21        | 1         | 0                      | 0       | 7/1              | 1                               | \$50                 |
| St. John's Hospital        | Fargo N.D.         | D. McKay             | 100                  | 107    | 21        | 1         | 0                      | 0       | 7/1              | 1                               | \$50                 |
| St. John's Hospital        | Cleveland          | M. F. Omer           | 100                  | 107    | 21        | 1         | 0                      | 0       | 7/1              | 1                               | \$100                |
| St. John's Hospital        | Columbus O.        | H. A. Baldwin        | 100                  | 107    | 21        | 1         | 0                      | 0       | 7/1              | 1                               | \$100                |
| St. John's Hospital        | Mansfield O.       | F. D. Bonar          | 100                  | 107    | 21        | 1         | 0                      | 0       | 7/1              | 1                               | \$100                |
| St. John's Hospital        | Little Rock        | G. K. Vincent        | 100                  | 107    | 21        | 1         | 0                      | 0       | 7/1              | 1                               | \$100                |
| St. John's Hospital        | Little Rock        | C. Ro                | 100                  | 107    | 21        | 1         | 0                      | 0       | 7/1              | 1                               | \$100                |
| St. John's Hospital        | Little Rock        | J. A. Garbath        | 100                  | 107    | 21        | 1         | 0                      | 0       | 7/1              | 1                               | \$100                |
| St. John's Hospital        | Little Rock        | J. A. Garbath Jr.    | 100                  | 107    | 21        | 1         | 0                      | 0       | 7/1              | 1                               | \$100                |
| St. John's Hospital        | Little Rock        | Q. B. Le             | 100                  | 107    | 21        | 1         | 0                      | 0       | 1/1 7/1          | 12                              | \$100                |
| St. John's Hospital        | Little Rock        | R. Buxton            | 100                  | 107    | 21        | 1         | 0                      | 0       | 7/1              | 1                               | \$75                 |
| St. John's Hospital        | Little Rock        | A. F. Herrick        | 100                  | 107    | 21        | 1         | 0                      | 0       | 7/1              | 1                               | \$50                 |
| St. John's Hospital        | Little Rock        | J. S. Horley         | 100                  | 107    | 21        | 1         | 0                      | 0       | 7/1              | 13                              | \$100                |
| St. John's Hospital        | Little Rock        | S. McGuire           | 100                  | 107    | 21        | 1         | 0                      | 0       | 7/1              | 1                               | \$75                 |
| St. John's Hospital        | Little Rock        | I. Haman Jr.         | 100                  | 107    | 21        | 1         | 0                      | 0       | 7/1              | 1                               | \$100                |
| St. John's Hospital        | Little Rock        | G. C. Robertson      | 100                  | 107    | 21        | 1         | 0                      | 0       | 7/1              | 1                               | \$55                 |
| St. John's Hospital        | Little Rock        | R. H. Boke           | 100                  | 107    | 21        | 1         | 0                      | 0       | 7/1              | 1                               | \$100                |
| St. John's Hospital        | Little Rock        | O. Overton           | 100                  | 107    | 21        | 1         | 0                      | 0       | 7/1              | 1                               | \$75                 |
| St. John's Hospital        | Little Rock        | A. Cunder            | 100                  | 107    | 21        | 1         | 0                      | 0       | 7/1              | 1                               | \$100                |

### 10 NEUROLOGY

Revision of list is now taking place in collaboration with the American Board of Psychiatry and Neurology

|                                       |                 |                                   |     |     |     |     |   |   |   |                  |       |         |
|---------------------------------------|-----------------|-----------------------------------|-----|-----|-----|-----|---|---|---|------------------|-------|---------|
| Los Angeles County Hospital           | Los Angeles     | S. D. Inkham                      | 100 | 300 | 407 | 214 | 1 | 0 | 0 | 7/1              | 2     | \$10    |
| Gallatin Municipal Hospital           | Washington D.C. | F. W. Watt                        | 100 | 300 | 407 | 214 | 1 | 0 | 0 | 7/1              | 1     |         |
| George Washington University Hospital | Washington D.C. | R. B. Rieker                      | 100 | 300 | 407 | 214 | 1 | 0 | 0 | 7/1              | 1     | \$33.33 |
| University of Chicago Clinics         | Chicago Ill.    | C. Van Epp                        | 100 | 300 | 407 | 214 | 1 | 0 | 0 | 7/1              | 3     | \$75    |
| University Hospital                   | Iowa City Ia.   | Frank R. Ford                     | 100 | 300 | 407 | 214 | 1 | 0 | 0 | 7/1              | 1     | \$20.63 |
| University Hospital                   | Baltimore       | D. F. Denny Brown                 | 100 | 300 | 407 | 214 | 1 | 0 | 0 | Varies           | 1+    | \$3.33  |
| University Hospital                   | Boston          | I. B. Ayer                        | 100 | 300 | 407 | 214 | 1 | 0 | 0 | 7/1              | 1-4   | \$25    |
| University Hospital                   | Ann Arbor       | C. Camp                           | 100 | 300 | 407 | 214 | 1 | 0 | 0 | 7/1              | 1-4   | \$25    |
| University Hospital                   | Detroit         | T. J. Hekitt                      | 100 | 300 | 407 | 214 | 1 | 0 | 0 | (See psychiatry) |       |         |
| University Hospital                   | Holmes Mich.    | R. Costello                       | 100 | 300 | 407 | 214 | 1 | 0 | 0 | 7/1              | 1     | \$94.53 |
| University Hospital                   | Hochel Minn.    | H. W. Woltman                     | 100 | 300 | 407 | 214 | 1 | 0 | 0 | (See page 1344)  |       |         |
| University Hospital                   | St. Louis       | David M. Riech                    | 100 | 300 | 407 | 214 | 1 | 0 | 0 | 7/1              | 12    | \$100   |
| University Hospital                   | Brooklyn        | H. R. Merwarth                    | 100 | 300 | 407 | 214 | 1 | 0 | 0 | 7/1              | 1     | \$50    |
| University Hospital                   | Brooklyn        | J. Smith                          | 100 | 300 | 407 | 214 | 1 | 0 | 0 | 7/1              | 2     | \$18    |
| University Hospital                   | New York City   | F. Kennedy                        | 100 | 300 | 407 | 214 | 1 | 0 | 0 | 1/1 7/1          | 1     | \$53    |
| University Hospital                   | New York City   | F. K. Davi                        | 100 | 300 | 407 | 214 | 1 | 0 | 0 | 1/1              | 1     | \$25    |
| University Hospital                   | New York City   | S. P. Jewett                      | 100 | 300 | 407 | 214 | 1 | 0 | 0 | 7/1              | 12    | \$75    |
| University Hospital                   | New York City   | S. P. Goodhart                    | 100 | 300 | 407 | 214 | 1 | 0 | 0 | 1/1 7/1          | 1 1/2 |         |
| University Hospital                   | New York City   | N. Savitzky                       | 100 | 300 | 407 | 214 | 1 | 0 | 0 | 1/1              | 1     | \$18    |
| University Hospital                   | New York City   | T. J. Putnam                      | 100 | 300 | 407 | 214 | 1 | 0 | 0 | 1/1 7/1, 9/1     | 1 1/2 | \$50    |
| University Hospital                   | New York City   | H. V. Wildman                     | 100 | 300 | 407 | 214 | 1 | 0 | 0 | Quart            | 12    | \$40    |
| University Hospital                   | New York City   | H. V. Wildman                     | 100 | 300 | 407 | 214 | 1 | 0 | 0 | 7/1              | 1     | \$50    |
| University Hospital                   | New York City   | H. V. Wildman                     | 100 | 300 | 407 | 214 | 1 | 0 | 0 | 7/1              | 1+    | \$50    |
| University Hospital                   | Durham N.C.     | R. W. Graves                      | 100 | 300 | 407 | 214 | 1 | 0 | 0 | 7/1              | 1     | \$11    |
| University Hospital                   | Cincinnati      | H. D. McIntyre and<br>C. D. Aring | 100 | 300 | 407 | 214 | 1 | 0 | 0 | 7/1              | 1     |         |
| University Hospital                   | Philadelphia    | B. J. Alpers                      | 100 | 300 | 407 | 214 | 1 | 0 | 0 | 9/1              | 1     | None    |
| University Hospital                   | Philadelphia    | T. S. Fay                         | 100 | 300 | 407 | 214 | 1 | 0 | 0 | 7/1              | 3     | \$40    |

### 11 NEUROSURGERY

|   |                |                  |                 |        |     |    |   |   |   |             |    |         |
|---|----------------|------------------|-----------------|--------|-----|----|---|---|---|-------------|----|---------|
| Los Angeles County Hospital *                       | Los Angeles    | C Rand           | 2 112           | 708    | 201 | 23 | 2 | 0 | 0 |             |    |         |
| University of California Hospital *                 | San Francisco  | H C Naffziger    | 410             |        | 17  | 13 | 2 | 0 | 0 | 7/1         | 1+ | \$25    |
| Pasadena Hospital *                                 | Chicago        | Loyal Davis      | 227             | 3 996  | 14  | 0  | 0 | 1 |   |             | 5+ | \$100   |
| Presbyterian Hospital *                             | Chicago        | A Verbrugghen    | 125             |        | 13  | 5  | 1 | 0 | 0 | 1/1         | 12 |         |
| Illinois Neuropsychiatric Institute                 | Chicago        | E Oldberg        | 300             |        | 32  | 29 | 5 | 0 | 0 | 7/1         | 3  | \$50    |
| St Luke s Hospital *                                | Chicago        | E Oldberg        | 237             |        | 17  | 15 | 1 | 0 | 0 | 7/1         | 13 | \$25    |
| Johns Hopkins Hospital *                            | Baltimore      | W E Dandy        | 663             |        | 51  | 25 | 1 | 0 | 0 | 7/1 9/1     | 12 |         |
| Boston City Hospital *                              | Boston         | D Munroe         | 448             |        | 61  | 46 | 1 | 1 | 0 | Varies      | 1+ | \$3.33  |
| Lahey Clinic *                                      | Boston         | C Horrax         | 600             |        |     |    | 0 | 0 | 4 | 1/1 7/1 9/1 | 12 | \$100   |
| Massachusetts General Hospital *                    | Boston         | J C White        | 217             |        | 40  | 18 | 1 | 2 | 0 |             |    |         |
| Henry Ford Hospital *                               | Detroit        | A C Crawford     | 300             | 924    | 29  | 14 | 1 | 0 | 0 | 7/1         | 23 | \$130   |
| University Hospitals *                              | Minneapolis    | William T Peyton | 311             | 345    | 24  | 18 | 0 | 0 | 1 | 7/1         | 13 | \$50    |
| Mayo Foundation                                     | Rochester Minn | (See page 1344)  |                 |        |     |    |   |   |   |             |    |         |
| Barnes Hospital *                                   | St Louis       |                  | 317             |        | 34  | 22 | 0 | 0 | 1 | 1/1 7/1     | 13 | \$75    |
| Albany Hospital *                                   | Albany N Y     | E H Campbell     | 400             |        | 36  | 32 | 1 | 1 | 0 | 7/1         | 2+ | \$25    |
| Jewish Hospital *                                   | Brooklyn       | L M Davidoff     | 353             | 545    | 44  | 24 | 1 | 1 | 1 | 1/1         | 2  | \$25    |
| Kings County Hospital *                             | Brooklyn       | E J Browder      | 300             | 1056   |     |    | 1 | 1 | 0 | 1/1, 7/1    | 12 | \$18    |
| Edward J Meyer Memorial Hospital *                  | Buffalo        | W B Hamby        | 54              | 112    | 6   | 3  | 1 | 0 | 0 | 7/1         | 3  | \$50    |
| Neurological Institute of New York                  | New York City  | T J Putnam       | 3 332           | 20 019 | 104 | 54 | 1 | 3 | 0 | 7/1 10/1    | 12 | \$40    |
| Strong Memorial and Rochester Municipal Hospitals * | Rochester N Y  | W P Van Wagenen  | 426             | 503    |     |    | 1 | 0 | 0 | 7/1         | 12 | \$68.60 |
| Cleveland Clinic Foundation Hospital *              | Cleveland      | W J Gardner      | 730             |        | 47  | 29 | 0 | 0 | 2 | 7/1         | 13 | \$65    |
| Hospital of the University of Pennsylvania *        | Philadelphia   | F C Grant        | 497             | 162    | 47  | 36 | 1 | 0 | 2 | 7/1         | 3  | None    |
| Temple University Hospital *                        | Philadelphia   | T S Fay          | (See Neurology) |        |     |    |   |   |   |             |    |         |
| Medical College of Virginia Hospital                | Richmond       | C C Coleman      | 1 012           |        | 82  | 25 | 1 | 1 | 0 | 7/1         | 1  |         |
| Division *  |                |                  |                 |        |     |    |   |   |   |             |    |         |

## 12 OBSTETRICS AND GYNECOLOGY

The following services are approved by the Council and the American Board of Obstetrics and Gynecology

|   | Chief of Service     | Residencies<br>Approved        | Inpatients |                 | Outpatient |               | Residents | Assistant<br>Residents | Fellows | Service<br>Begins | Length of<br>Service<br>(Years) | Beginning<br>Stipend |
|---|----------------------|--------------------------------|------------|-----------------|------------|---------------|-----------|------------------------|---------|-------------------|---------------------------------|----------------------|
|   |                      |                                | Treated    | OB Gyn          | OB         | Visits<br>Gyn |           |                        |         |                   |                                 |                      |
| Hillman Hospital *  | Birmingham, Ala      | J R Garber and<br>S G Stubbins | OBG        | 2,201           | 011        | 6,460         | 13,799    | 1                      | 0       | 0                 | 7/1                             | 13 \$50              |
| Employees' Hospital of the Tennessee Coal,<br>Iron and Railroad Company * | Fairfield, Ala       | J H Williams                   | OB         | 1,581           |            | 8,712         |           | 1                      | 0       | 0                 | 7/1                             | 1 \$150              |
| Los Angeles County Hospital *   | Los Angeles          | I M Lazard                     | OBG        | 0,111           | 1,860      | 3,181         | 10,351    | 5                      | 0       | 0                 | 1/1, 7/1                        | 3 \$10               |
| White Memorial Hospital *   | Los Angeles          | R J Thompson                   | OBG        | 1,301           | 702        | 1,069         | 7,033     | 3                      | 0       | 0                 | 7/1                             | 13 \$80              |
| Highland Alameda County Hospital *  | Oakland, Calif       | C W Page and<br>O A DePay      | OBG        | 1,231           | 638        | 5,563         | 3,309     | 1                      | 2       | 0                 | 7/1                             | 13 \$40              |
| Children's Hospital *   | San Francisco        | H A Stephenson                 | OB         | 1,457           |            | 2,691         |           | 1                      | 1       | 0                 | 7/1                             | 1 \$25               |
| San Francisco Hospital *  | San Francisco        | Gyn                            |            | 512             |            | 1,117         |           | 0                      | 1       | 0                 | 7/1                             | 1 \$25               |
| Stanford University Hospitals *   | San Francisco        | A V Pettit                     | OBG        | 811             | 958        | 5,083         |           | 2                      | 2       | 0                 | 7/1                             | 12 \$50              |
| University of California Hospital *                                       | San Francisco        | I A Emke                       | OBG        | 712             | 751        | 4,011         | 13,930    | 1                      | 2       | 0                 | 7/1                             | 1+ \$25              |
| Santa Clara County Hospital *   | San Jose, Calif      | F W Lynch                      | OBG        | 771             | 798        | 4,812         | 0,252     | 1                      | 4       | 0                 | 7/1                             | 1+ \$                |
| New Haven Hospital *  | New Haven, Conn      | A Shufelt                      | OBG        | 910             | 518        | 3,707         | 5,765     | 1                      | 0       | 0                 | 7/1                             | 1 \$125              |
| Columbia Hospital for Women and Lyng,<br>In Asylum *                      | Washington, D C      | A H Morse                      | OBG        | 1,331           | 809        | 4,501         | 2,866     | 1                      | 2       | 0                 | 7/1                             | 13 \$                |
| Freedman's Hospital *   | Washington, D C      | I W Ross                       | OBG        | 2,937           | 1,355      | 8,078         | 3,515     | 4                      | 3       | 0                 | 1/1, 7/1                        | 1+ None              |
| Gallinger Municipal Hospital *  | Washington, D C      | H F Kane                       | OBG        | 1,568           | 670        | 6,521         | 4,701     | 1                      | 2       | 0                 | 7/1                             | 13 \$20              |
| Garfield Memorial Hospital *  | Washington, D C      | A Y P Garnett                  | OB         | 3,517           | 585        | 2,811         | 2,902     | 2                      | 2       | 0                 | 7/1                             | 1                    |
| Grady Hospital *  | Atlanta, Ga          | R Torph                        | OBG        | 2,125           |            | 3,025         |           | 1                      | 1       | 0                 | 7/1                             | 12 \$50              |
| University Hospital *   | Augusta, Ga          |                                | OBG        | 1,903           | 1,160      | 23,723        | 24,127    | 2                      | 6       | 0                 | 7/1                             | 1+ \$40              |
| Chicago Lyng In Hospital and Dispensary                                   | Chicago              |                                | OBG        | 1,537           | 853        | 3,831         | 1,470     | 1                      | 2       | 0                 | 7/1                             | 13 \$35              |
| Chicago Maternity Center *  | Chicago              | B I Tucker                     | OB         | 3,990           |            | 18,170        |           | 1                      | 10      | 0                 | 1/1                             | 1                    |
| Cook County Hospital *  | Chicago              | D S Mills                      | OB         | 8,731           |            | 17,650        |           | 7                      | 0       | 2                 | 1/1                             | 2 \$25               |
| Hennepin Hospital *   | Chicago              | I I Cornell                    | OB         | 137             |            |               |           | 1                      | 0       | 0                 | 7/1                             | 1 \$25               |
| Mercy Hospital Loyola University Clinics *                                | Chicago              | H J Schmitz                    | OBG        | 818             | 733        | 1,327         | 5,353     | 2                      | 0       | 0                 | 7/1                             | 12 \$50              |
| Michael Reese Hospital *  | Chicago              | I F Stein                      | OBG        | 1,815           | 1,701      | 2,003         | 3,632     | 2                      | 3       | 0                 | 1/1, 7/1                        | 12 \$50              |
| Mount Sinai Hospital *  | Chicago              |                                | OBG        | 1,211           | 576        | 1,635         | 2,785     | 1                      | 0       | 0                 | 0/15                            | 1 \$30               |
| Pasavant Memorial Hospital *  | Chicago              | A H Curtis                     | Gyn        |                 | 637        |               | 4,381     | 1                      | 0       | 0                 |                                 | 1 Nona               |
| Presbyterian Hospital *   | Chicago              | N S Hecaney                    | OBG        | 1,141           | 1,151      | 2 176         | 5 885     | 3                      | 0       | 0                 | Varies                          | 2 1/2 \$50           |
| Research and Educational Hospital *                                       | Chicago              | F Jalls                        | OB         | 770             |            |               |           | 3                      | 0       | 0                 | 7/1                             | 13 \$50              |
| St Joseph Hospital *  | Chicago              | C Glicker                      | OB         | 1,201           |            | 2,773         |           | 1                      | 0       | 0                 |                                 | 1 \$50               |
| St Luke's Hospital *  | Chicago              | H O Jones                      | OBG        | 1,279           | 747        | 3,348         | 5,121     | 2                      | 1       | 0                 | 7/1                             | 13 \$25              |
| University of Chicago Clinics *   | Chicago              | F L Adair                      | OBG        | 3,621           | 731        | 25,817        | 13,581    | 3                      | 5       | 0                 | 1/1, 7/1                        | 3                    |
| Women and Children's Hospital *   | Chicago              | B Tucker                       | OBG        | 667             | 512        | 2,205         | 2,364     | 1                      | 0       | 0                 | 7/1                             | 1 \$50               |
| Little Company of Mary Hospital *   | Livergreen Park, Ill | P E Lawler                     | OB         | 1,830           |            |               |           | 1                      | 0       | 0                 | 7/1                             | 1 \$50               |
| St Francis Hospital *   | Peoria, Ill          | W A Muelohn                    | OBG        | 1,743           | 111        |               |           | 1                      | 0       | 0                 | 7/1                             | 2 \$75               |
| Indiana University Medical Center *                                       | Indianapolis         | H F Beckman                    | OB         | 1,150           |            | 5,103         |           | 1                      | 1       | 0                 | 7/1                             | 12 \$50 33           |
| Methodist Hospital *  | Indianapolis         | G W Gustafson                  | OB         | 2,411           |            |               |           | 1                      | 0       | 0                 | 7/1                             | 12 \$35              |
| University Hospitals *  | Iowa City, Iowa      | E D Pfaff                      | OBG        | 2,247           | 1,042      | 522           | 2,370     | 1                      | 4       | 0                 | 7/1                             | 13 \$20 33           |
| University of Kansas Hospitals *  | Kansas City, Kan     | L A Calkins                    | OBG        | 533             | 622        | 4 251         | 3,596     | 1                      | 3       | 0                 | 7/1                             | 14 \$50              |
| Louisville General Hospital *   | Louisville, Ky       | C W Hibblitt                   | OBG        | 1,761           | 790        | 8,010         | 8,533     | 2                      | 4       | 0                 | 7/1                             | 14 \$13 91           |
| Charity Hospital *  | New Orleans          |                                | OBG        | 8,300           | 6,251      | 37,237        | 30,741    | 6                      | 12      | 0                 | 7/1                             | 13 \$25              |
| Touro Infirmary *   | New Orleans          | A F Hebert                     | OB         | 1,415           |            | 10,759        |           | 2                      | 0       | 0                 | 7/1                             | 12 \$25              |
| Baltimore City Hospital *   | Baltimore            | H Miller                       | Gyn        |                 | 1,271      |               | 4,431     | 1                      | 1       | 0                 | 7/1                             | 1+ \$12              |
| Johns Hopkins Hospital *  | Baltimore            | L H Douglass                   | OB         | 2,277           |            |               |           | 1                      | 2       | 0                 | 7/1                             | 1+ \$                |
|   |                      | N J Fastman                    | OB         | 2,309           |            | 14,105        |           | 1                      | 4       | 0                 | 7/1, 9/1                        | 1-6                  |
|   |                      | R W T. Linde                   | Gyn        |                 | 2,076      |               | 13,836    | 1                      | 4       | 0                 | 7/1, 9/1                        | 1-6                  |
| Maryland General Hospital *   | Baltimore            | E H Klonman                    | OBG        | 614             | 423        | 851           | 314       | 1                      | 1       | 0                 | 7/1                             | 12 \$25              |
| Mersey Hospital *   | Baltimore            | E P Smith and<br>A Samuel      | OBG        | 965             | 671        | 2,360         | 1,105     | 1                      | 2       | 0                 | 9/1                             | 3 \$75               |
| St Joseph's Hospital *  | Baltimore            | T K Galvin                     | OBG        | 1,356           | 351        | 2,973         | 1,026     | 1                      | 2       | 0                 | 7/1                             | 23 \$10              |
| Sinal Hospital *  | Baltimore            | M W Aaronson                   | OB         | 997             |            | 3,431         |           | 1                      | 1       | 0                 | 7/1                             | 1 \$50               |
| University Hospital *   | Baltimore            | L H Douglass                   | OB         | 1,626           |            | 13,422        |           | 1                      | 3       | 0                 | 7/1                             | 13 \$25              |
|   |                      | J H Hundley                    | Gyn        |                 | 835        |               | 7,787     | 1                      | 2       | 0                 | 7/1                             | 13 \$25              |
| Boston City Hospital *  | Boston               | R M Green                      | OBG        | 3,009           | 2,507      | 10,736        | 8,158     | 1                      | 0       | 0                 | Varies                          | 1                    |
| Boston Lyng In Hospital   | Boston               | C Irving                       | OB         | 3,835           |            | 31,431        |           | 1                      | 2       | 0                 | 1/1, 7/1                        | 1 1/2 \$50           |
| Carney Hospital *   | Boston               | L E Phaneuf                    | OBG        | 804             | 389        | 3,352         | 3,550     | 1                      | 0       | 0                 | 1/1, 5/1, 9/1                   | 1+ None              |
| Free Hospital for Women   | Brookline, Mass      | J A Pemberton                  | Gyn        |                 | 2,656      |               | 18,601    | 1                      | 3       | 0                 | Varies                          | 1 None               |
| University Hospital *   | Ann Arbor, Mich      | N T Miller                     | OBG        | 1,417           | 939        | 5,166         | 6,405     | 2                      | 1       | 0                 | 7/1                             | 14 \$25              |
| City of Detroit Receiving Hospital *                                      | Detroit              | W F Seeley                     | OBG        | m               | 847        | m             | 4,007     | 1                      | 1       | 0                 | 7/15                            | 14                   |
| Florence Crittenton Hospital  | Detroit              | H A Pears                      | OBG        | 2,441           | 730        | 2,965         | 456       | 1                      | 2       | 0                 | 7/1                             | 3 \$75               |
| Grace Hospital *  | Detroit              | M A Darling                    | OBG        | 3,066           | 1,553      | 152           | 2,725     | 1                      | 2       | 0                 | 7/1, 9/1                        | 13 \$100             |
| Harper Hospital *   | Detroit              | G Kannerman                    | OBG        | 1,795           | 496        |               |           | 1                      | 2       | 0                 | 7/1                             | 13 \$25              |
| Henry Ford Hospital *   | Detroit              | J P Pratt                      | OBG        | 1,143           | 896        | 6,026         | 17,290    | 1                      | 2       | 0                 | 7/1                             | 4 \$130              |
| Herman Kiefer Hospital *  | Detroit              | W F Seeley                     | OBG        | 2,085           | n          | n             |           | 2                      | 0       | 0                 | 7/1                             | 14 \$175             |
| Providence Hospital *   | Detroit              | R W Alles                      | OB         | 2,901           |            |               |           | 1                      | 1       | 0                 | 7/1                             | 1 \$125              |
| St Mary's Hospital *  | Detroit              | V J Turcotte                   | OBG        | 1,610           | 664        | 684           | 1,398     | 1                      | 1       | 0                 | 7/1                             | 34 \$125             |
| Minneapolis General Hospital *  | Minneapolis          | J H Simons                     | OBG        | 1,231           | 609        | 4,828         | 4,345     | 0                      | 0       | 2                 | 1/1, 7/1                        | 3 \$25               |
| University Hospitals *  | Minneapolis          | J L McKelvey                   | OBG        | 534             | 628        | 2,703         | 4,231     | 0                      | 0       | 4                 | 7/1                             | 13 \$50              |
| Mayo Foundation   | Rochester, Minn      | R D Mussey                     | OBG        | (See page 1344) |            |               |           |                        |         |                   |                                 |                      |
| Acker Hospital *  | St Paul              | A G Schulze                    | OBG        | 1,212           | 391        | 3,559         | 5,301     | 1                      | 0       | 0                 | 7/1                             | 3 \$50               |
| Homier G Phillips Hospital *  | St Louis             | T K Brown                      | OBG        | 1,611           | 980        | 1,203         | 2,925     | 3                      | 2       | 0                 | 7/1                             | 13 \$75              |
| Jewish Hospital *   | St Louis             | S A Weintraub                  | OBG        | 800             | 794        | 1,026         | 1,277     | 1                      | 0       | 0                 | 7/1                             | 1+ \$65              |
| St Louis City Hospital *  | St Louis             | G Jones                        | OBG        | 1,969           | 1,491      | 3,650         | 7,948     | 1                      | 4       | 0                 | 7/1                             | 13 \$50              |
| St Louis Maternity Hospital *   | St Louis             | W M Allen                      | OBG        | 2,366           | 0          | 0             | 0         | 1                      | 1       | 0                 | 7/1                             | 13 \$25              |
| St Luke's Hospital *  | St Louis             | C D O'Keefe                    | OBG        | 664             | 469        |               |           | 1                      | 0       | 0                 | 7/1                             | 1                    |
| Creighton Memorial St Joseph's Hospital *                                 | Omaha                | M E Grier                      | OBG        | 1,271           | 604        | 2,020         | 2,268     | 1                      | 0       | 0                 | 7/1                             | 12 \$50              |
| University of Nebraska Hospital *   | Omaha                | E Sage                         | OBG        | 564             | 303        | 2,582         | 982       | 1                      | 0       | 0                 | 7/1                             | 1 \$50               |
| Cooper Hospital *   | Camden, N J          | A B Davis and<br>G B German    | OB         | 1,811           |            | 8,011         |           | 1                      | 0       | 0                 | 7/1                             | 3 \$53 33            |
|   |                      | F C Holden                     | Gyn        |                 | 611        |               | 6,000     | 1                      | 0       | 0                 | 1/1, 7/1                        | 1 \$75               |
| Jersey City Hospital *  | Jersey City, N J     | S A Cosgrove                   | OB         | 6,974           |            | 32,916        |           | 7                      | 0       | 0                 | Quart                           | 1 1/2 \$100          |
| Margaret Hague Maternity Hospital *                                       | Jersey City, N J     | A J Wallingford                | Gyn        |                 | 2,350      |               |           | 1                      | 1       | 0                 | 7/1                             | 2 \$25               |
| Albany Hospital *   | Albany, N Y          | G E Lochner                    | OB         | 1,521           |            | 2,673         |           | 1                      | 0       | 0                 | 10/1                            | 13 \$75              |
| Anthony N Brady Maternity Home *  | Albany, N Y          | S Lubin                        | OB         | 1,304           |            | 7,839         |           | 1                      | 1       | 0                 | 1/1, 7/1                        | 1 \$13               |
| Cumberland Hospital *   | Brooklyn             | T S Welton                     | OBG        | 1,276           | 604        | 7,263         | 4,625     | 2                      | 0       | 0                 | 9/1                             | 1+ \$13              |
| Greenpoint Hospital *   | Brooklyn             |                                | OBG        | 3,705           | 1,192      | 3,285         | 3,290     | 2                      | 5       | 0                 | 1/1, 7/1                        | 3 \$25               |
| Jewish Hospital *   | Brooklyn             |                                |            |                 |            |               |           |                        |         |                   |                                 |                      |
| Kings County Hospital *   | Brooklyn             | R Garhek and<br>C Gordon       | OBG        | 3,903           | 3,790      | 15,356        | 10,778    | 4                      | 0       | 0                 | 7/1                             | 12 \$18              |
|   |                      | A C Beech                      | OBG        | 1,712           | 827        | 9,647         | 3,440     | 1                      | 2       | 0                 |                                 | 3 \$12 50            |
| Long Island College Hospital *  | Brooklyn             | R M Beech                      | OB         | 2,118           |            | 9,251         |           | 1                      | 1       | 0                 | 1/1, 7/1                        | 1                    |
| Methodist Hospital *  | Brooklyn             |                                |            |                 |            |               |           |                        |         |                   |                                 |                      |
| Norwegian Lutheran Deaconesses' Home<br>and Hospital *                    | Brooklyn             | B Harris and<br>J B Dowd       | OB         | 882             |            | 880           |           | 1                      | 1       | 0                 | 7/1                             | 1 \$25               |
|   |                      | E A Keyes                      | OBG        | 1,447           | 411        |               |           | 1                      | 1       | 0                 | 7/1                             | 12 \$40              |
| St Mary's Hospital *  | Brooklyn             | F C Goldsborough               | OBG        | 851             | 1,468      |               |           | 1                      | 2       | 0                 | 7/1                             | 1+ \$25              |
| Buffalo General Hospital *  | Buffalo              |                                |            |                 |            |               |           |                        |         |                   |                                 |                      |

Numerical and other references will be found on page 1344





## 12 OBSTETRICS AND GYNECOLOGY—(Continued)

The following services, approved by the Council, are now being reviewed in collaboration with the American Board of Obstetrics and Gynecology

|  |                   | Chief of Service                            | Residencies<br>Approved | Inpatients |       | Outpatients |               | Residents | Assistant<br>Residents | Fellows | Service<br>Begins | Length of<br>Service<br>(Years) | Beginning<br>Stipend |
|--|-------------------|---|-------------------------|------------|-------|-------------|---------------|-----------|------------------------|---------|-------------------|---------------------------------|----------------------|
|  |                   |   |                         | Treated    | Gyn   | OB          | Visits<br>Gyn |           |                        |         |                   |                                 |                      |
| Massachusetts Memorial Hospitals *<br>Woman's Hospital * | Boston<br>Detroit | C W Scwall<br>L I Daniels and<br>H M Nelson | OB<br>OBG<br>OBG        | 971        |       |             | 6,574         | 1         | 1                      | 0       | 7/1               | 12                              | \$30                 |
| Kansas City General Hospital *                           | Kansas City, Mo   | R R Wilson                                  | OBG                     | 3,252      | 1,119 | 917         | 750           | 2         | 0                      | 2       | 7/1               | 13                              | \$50                 |
| St Mary's Group of Hospitals *                           | St Louis          | W H Voigt Sr                                | OBG                     | 1,125      | 662   | 3,966       | 4,308         | 3         | 0                      | 0       | 7/1               | 3                               | \$50                 |
| New York Polytechnic Medical School and<br>Hospital *    | New York City     | D N Barrows                                 | OB                      | 1,931      | 1,032 | 6,000       | 5,118         | 1         | 2                      | 0       | 7/1               | 3                               | \$25                 |
| Queens General Hospital *                                | Jamaica, N Y      | I A Ilemmling                               | Gyn                     | 1,015      |       | 3,200       |               | 1         | 0                      | 0       | 7/1               | 2                               | \$128 25             |
| Watts Hospital *   | Durham, N C       | R A Ross                                    | OBG                     |            | 877   | 3,926       |               | 1         | 0                      | 0       | 7/1               | 2                               |                      |
| St John's Hospital *                                     | Cleveland         | C A O'Connell                               | OB                      | 2,061      | 881   | 0,176       | 4,602         | 1         | 1                      | 0       | 7/1               | 1                               | \$18                 |
| Starling Lying-in University Hospital *                  | Columbus, Ohio    | P J Reel                                    | Gyn                     | 719        |       | 861         |               | 1         | 0                      | 0       | 7/1               | 12                              | \$50                 |
| Miami Valley Hospital *                                  | Dayton, Ohio      | P O Rounds                                  | OB                      | 1,493      | 250   |             | 3,285         | 1         | 0                      | 0       | 7/1               | 1                               | \$25                 |
| St Vincent's Hospital *                                  | Toledo, Ohio      | R O Kline                                   | OB                      |            | 408   |             |               | 1         | 1                      | 0       | 7/1               | 1                               | \$75                 |
| Baroness Blianger Hospital *                             | Chittanooga, Tenn | H P Hewitt                                  | OB                      | 129        |       |             |               | 1         | 0                      | 0       | 7/1               | 1                               | \$100                |
|  |                   |   |                         | 917        |       | 511         |               | 1         | 0                      | 0       | 7/1               | 1                               | \$100                |
|  |                   |   |                         | 1,331      |       |             |               | 1         | 0                      | 0       | 7/1               | 13                              | \$40                 |

## 13 OPHTHALMOLOGY AND OTOLARYNGOLOGY

|   |                  | Chief of Service                | Residencies<br>Approved | Inpatients |       | Outpatients |         | Residents | Assistant<br>Residents | Fellows | Service<br>Begins | Length of<br>Service<br>(Years) | Beginning<br>Stipend |
|---|------------------|---------------------------------|-------------------------|------------|-------|-------------|---------|-----------|------------------------|---------|-------------------|---------------------------------|----------------------|
|   |                  |                                 |                         | Oph        | Otol  | Oph         | Otol    |           |                        |         |                   |                                 |                      |
| Children's Hospital *                               | Los Angeles      | T M Brown                       | Otol                    |            | 1,139 |             | 3,638   | 1         | 0                      | 0       | 7/1               | 1                               | \$30                 |
| Los Angeles County Hospital *                       | Los Angeles      | W Boyce and<br>R Irvine         | Oph                     | 798        |       | 10,212      |         | 2         | 0                      | 0       | 1/1               | 2                               | \$10                 |
| White Memorial Hospital *                           | Los Angeles      | P Viola                         | Otol                    |            | 2,550 |             | 16,452  | 3         | 0                      | 0       | 4/1, 7/1          | 3                               | \$10                 |
| San Diego County General Hospital *                 | San Diego, Calif | W A Boyce<br>B C Colver         | Oph                     | 221        |       | 11,253      |         | 1         | 0                      | 0       | 7/1               | 13                              | \$50                 |
|   |                  | I M Bond and<br>C W Brown       | Otol                    |            | 1,291 |             | 10,211  | 2         | 0                      | 0       | 7/1               | 13                              | \$50                 |
| Children's Hospital *                               | San Francisco    | R O Martin                      | OpOt                    | 657        |       | 7,003       |         | 1         | 0                      | 0       | 7/1               | 1                               | \$115                |
| Greens' Eye Hospital                                | San Francisco    | M I Green                       | OpOt                    | 1,051      |       | 1,324       | 2,804   | 1         | 0                      | 0       | 7/1               | 1                               | \$25                 |
| San Francisco Hospital *                            | San Francisco    |                                 | Oph                     | 989        |       | 21,973      |         | 0         | 2                      | 0       | 7/1               | 12                              | \$50                 |
|   |                  |                                 | Oph                     | 435        |       |             |         | 0         | 1                      | 0       | 7/1               | 1                               |                      |
| Stanford University Hospitals *                     | San Francisco    | H Barkan                        | Otol                    |            | 202   |             |         | 0         | 2                      | 0       | 7/1               | 1                               | \$25                 |
|   |                  | T A Baehner                     | Otol                    | 511        |       | 10,223      |         | 1         | 2                      | 0       | 7/1               | 1                               | \$25                 |
| University of California Hospital *                 | San Francisco    | I C Cordis                      | Oph                     |            | 996   |             | 11,283  | 1         | 1                      | 0       | 7/1               | 1                               | \$25                 |
|   |                  | W B Smith                       | Otol                    | 237        |       | 15,867      |         | 0         | 2                      | 0       | 7/1               | 1                               | \$25                 |
| Colorado General Hospital *                         | Denver           | W M Bane                        | Otol                    |            | 587   |             | 7,116   | 0         | 1                      | 0       | 7/1               | 1                               | \$75                 |
| New Haven Hospital *                                | New Haven, Conn  | N Canfield                      | Oph                     | 181        |       | 11,723      |         | 2         | 0                      | 0       | 8/1               | 2                               | \$10                 |
| Episcopal Eye, Ear and Throat Hospital              | Washington, D C  |                                 | Otol                    |            | 889   |             | 5,118   | 1         | 1                      | 0       | 7/1               |                                 |                      |
|   |                  |                                 | Oph                     | 1,341      |       | 20,817      |         | 1         | 0                      | 0       | 3/1, 7/1, 11/11   | 1 1/2                           | \$22 50              |
| Gallinger Municipal Hospital *                      | Washington, D C  | D Davis                         | OpOt                    |            | 4,832 |             | 12,479  | 3         | 0                      | 0       | 7/1               | 1                               | \$22 50              |
| Grady Hospital *                                    | Atlanta, Ga      |                                 | OpOt                    | 80         | 893   |             | 2,630   | 1         | 1                      | 0       | 7/1               | 1                               |                      |
| Cook County Hospital *                              | Chicago          | W F Moneroff<br>J Lifschutz     | OpOt                    | 350        | 1,126 |             | 9,174   | 2         | 4                      | 0       | 7/1               | 3                               | \$20                 |
|   |                  |                                 | Oph                     | 638        |       | 23,338      |         | 4         | 1                      | 0       | 1/1, 7/1          | 12                              | \$25                 |
|   |                  |                                 | Otol                    |            | 5,794 |             | 24,372  | 2         | 3                      | 0       | 1/1, 7/1          | 1 1/2                           | \$75                 |
| Illinois Eye and Ear Infirmary *                    | Chicago          |                                 | Oph                     | 2,313      |       | 204,225     |         | 13        | 0                      | 0       | 1/1, 7/1          | 12                              | None                 |
|   |                  |                                 | Otol                    |            | 2,820 |             | 101,136 | 8         | 0                      | 0       | 1/1, 7/1          | 12                              | None                 |
| Michael Reese Hospital *                            | Chicago          | S J Meyer                       | Oph                     |            | 613   |             | 7,804   | 1         | 0                      | 0       | 7/1               | 12                              | \$50                 |
|   |                  | J F Strauss                     | Otol                    |            | 1,085 |             | 3,837   | 1         | 0                      | 0       | 7/1               | 12                              | \$50                 |
| Passavant Memorial Hospital *                       | Chicago          | S R Gifford                     | Oph                     | 460        |       | 8,448       |         | 1         | 0                      | 0       | 7/1               | 1                               | None                 |
|   |                  | J Delph                         | Otol                    |            | 275   |             | 4,804   | 1         | 0                      | 0       | 7/1               | 1                               | None                 |
| Presbyterian Hospital *                             | Chicago          | E V L Brown                     | Oph                     | 170        |       | 8,429       |         | 2         | 0                      | 0       | 1/1, 7/1          |                                 | \$75                 |
|   |                  | D B Hayden                      | Otol                    |            | 1,543 |             | 12,602  | 2         | 0                      | 0       | 1/1, 7/1          |                                 | \$50                 |
| Provident Hospital *                                | Chicago          | C L Forney                      | OpOt                    | 57         | 458   |             | 8,365   | 1         | 0                      | 0       | 7/1               | 13                              | \$50                 |
| Research and Educational Hospitals *                | Chicago          | H Beard                         | Oph                     | 226        |       |             |         | 2         | 0                      | 0       | 7/1               | 1                               | \$50                 |
|   |                  | F Lederer                       | Otol                    |            | 021   |             |         | 1         | 0                      | 0       | 7/1               | 12                              | \$50                 |
| St Luke's Hospital *                                | Chicago          | F F Brawley and<br>W H Theobald | OpOt                    | 522        | 883   |             | 2,733   | 1         | 0                      | 0       | 7/1               | 13                              | \$25                 |
|   |                  | A Kransse                       | Oph                     | 196        |       | 9,431       | 3,029   | 0         | 4                      | 4       | 7/1               | 14                              |                      |
| University of Chicago Clinics *                     | Chicago          | J R Lindsay                     | Otol                    |            | 798   |             | 12,518  | 2         | 0                      | 1       | 7/1               | 12                              |                      |
| Wesley Memorial Hospital *                          | Chicago          | W A Vann                        | Oph                     |            |       |             |         | 1         | 0                      | 0       | Varies            | 2 1/2                           | None                 |
| Indianapolis City Hospital *                        | Indianapolis     | B I Larkin                      | Oph                     | 165        |       | 6,527       |         | 1         | 1                      | 0       | 7/1               | 12                              | \$11 64              |
|   |                  | R Dearmin                       | Otol                    |            | 1,221 |             | 6,855   | 1         | 0                      | 0       | 7/1               | 12                              | \$41 64              |
| Indiana University Medical Center *                 | Indianapolis     | W F Hughes                      | Oph                     | 371        |       | 4,129       |         | 1         | 0                      | 0       | 7/1               | 13                              | \$56 33              |
|   |                  | C H McCaskey                    | Otol                    |            | 639   |             | 2,494   | 2         | 0                      | 0       | 7/1               | 12                              | \$56 33              |
| University Hospitals *                              | Iowa City        | C S O'Brien                     | Oph                     | 1,219      |       | 6,931       |         | 1         | 2                      | 0       | 1/1, 7/1          | 1                               | \$20 83              |
|   |                  | D M Lierle                      | Otol                    |            | 2,360 |             | 5,929   | 1         | 2                      | 0       | 7/1               | 1                               | \$20 83              |
| University of Kansas Hospitals *                    | Kansas City Kan  | S L Roberts                     | Otol                    |            | 772   |             | 3,038   | 1         | 0                      | 0       | 7/1               | 1                               | \$50                 |
| Louisville General Hospital *                       | Louisville, Ky   | C D Townes and<br>W Dean        | OpOt                    | 234        | 827   |             | 6,329   | 1         | 0                      | 0       | 7/1               | 13                              | \$25                 |
|   |                  |                                 | OpOt                    | 6,699      |       | 69,869      |         | 6         | 12                     | 0       | 7/1               | 2                               | None                 |
| Charity Hospital *                                  | New Orleans, La  | W R Buffington                  | Oph                     | 3,076      |       | 16,296      |         | 3         | 1                      | 0       | 7/1               | 2                               | None                 |
| Eye, Ear, Nose and Throat Hospital *                | New Orleans, La  | F F LeJeune                     | Otol                    |            | 5,447 |             | 27,450  | 6         | 6                      | 0       | 7/1               | 2                               | None                 |
| Touro Infirmary *                                   | New Orleans, La  | E F Allgeyer and<br>A Weil      | OpOt                    |            | 1,360 |             | 5,257   | 2         | 0                      | 0       |                   | 1                               | \$25                 |
| Baltimore Eye, Ear and Throat Charity<br>Hospital * | Baltimore        |                                 | OpOt                    | 657        | 2,281 |             | 13,034  | 1         | 1                      | 0       | 7/1               | 12                              | None                 |
| Johns Hopkins Hospital *                            | Baltimore        | A C Woods                       | Oph                     | 1,293      |       | 20,786      |         | 1         | 5                      | 0       | 7/1, 9/1          | 14                              | None                 |
|   |                  | S J Crowe                       | Otol                    |            | 968   |             | 13,061  | 1         | 1                      | 0       | 7/1, 9/1          | 14                              | None                 |
| University Hospital *                               | Baltimore        | C A Clapp and<br>E A Looper     | OpOt                    | 54         | 894   |             | 5,832   | 0         | 1                      | 0       | 7/1               | 12                              | None                 |
|   |                  |                                 | Otol                    |            | 888   |             | 5,391   | 1         | 0                      | 0       | 7/1               | 1                               | None                 |
| Beth Israel Hospital *                              | Boston           | J J Regan and<br>L M Freedman   | OpOt                    | 601        | 3,984 |             | 26,181  | 0         | 0                      | 1       | Varies            | 1+                              | \$100                |
| Boston City Hospital *                              | Boston           | W B Hoover                      | Otol                    |            | 500   |             | 10,000  | 8         | 0                      | 0       | 7/1               | 2                               | None                 |
| Lahey Clinic *                                      | Boston           | E B Dunphy                      | Oph                     |            |       |             |         | 7         | 0                      | 0       | Quart             | 13 1/2                          | None                 |
| Massachusetts Eye and Ear Infirmary                 | Boston           | L A Schall                      | Otol                    | 6,702      |       | 89,678      |         | 1         | 0                      | 0       | Quart             | 1                               | \$41 67              |
|   |                  | G Berry                         | Otol                    |            | 1,684 |             | 2,199   | 1         | 0                      | 0       | 7/1               | 14                              | \$25                 |
| Memorial Hospital *                                 | Worcester, Mass  | F B Frallick                    | Oph                     | 755        |       | 12,256      |         | 2         | 1                      | 0       | 7/1               | 14                              | \$25                 |
| University Hospital *                               | Ann Arbor, Mich  | C E Badgley                     | Otol                    |            | 1,151 |             | 10,290  | 2         | 2                      | 1       | 7/1               | 14                              | \$25                 |
| City of Detroit Receiving Hospital *                | Detroit          | P Heath and<br>J M Robb         | OpOt                    |            | 966   |             | 9,015   | 0         | 2                      | 0       | 7/15              | 1                               | \$103 33             |
|   |                  |                                 | OpOt                    | 2,507      |       | 3,504       | 1,892   | 1         | 0                      | 0       | 9/1               | 2                               | \$100                |
| Grace Hospital *                                    | Detroit          | N Bentley                       | OpOt                    |            |       |             |         | 1         | 0                      | 0       |                   |                                 |                      |
| Harper Hospital *                                   | Detroit          | P Heath and<br>J M Robb         | OpOt                    | 3,482      |       |             |         | 1         | 1                      | 1       | 7/1               | 1                               | \$25                 |

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Numerical and other references will be found on page 1344

## 13. OPHTHALMOLOGY AND OTOLARYNGOLOGY—(Continued)

|  | Chief of Service    | Residency Approved         | Inpatients Treated |       | Outpatients Treated |        | Residents | Assistant Residents | Fellows | Service Begins | Length of Service | Beginning Salary |
|--|---------------------|----------------------------|--------------------|-------|---------------------|--------|-----------|---------------------|---------|----------------|-------------------|------------------|
|  |                     |                            | Oph                | Otol  | Oph                 | Otol   |           |                     |         |                |                   |                  |
| Memphis Eye, Ear, Nose and Throat Hosp     | Memphis, Tenn       | E C Lilett and L Levy      | OpOt               | 1,571 |                     | 17,139 | 4         | 0                   | 0       | 1/1, 7/1       | 2                 | None             |
| Nashville General Hospital *               | Nashville, Tenn     | F L Roberts                | OpOt               | 126   | 568                 | 5,717  | 1         | 1                   | 0       | 7/1            | 12                | \$35             |
| Vanderbilt University Hospital *           | Nashville, Tenn     | G M Maness                 | Otol               |       | 855                 | 1,214  | 1         | 0                   | 0       | 7/1            | 23                | \$35             |
| Parkland Hospital *                        | Dallas, Tex         | G Jones and J D Singleton  | OpOt               | 158   | 171                 | 2,978  | 1         | 0                   | 0       | 7/1            | 1                 | \$25             |
| Jefferson Davis Hospital *                 | Houston, Tex        | E W Griffey                | Oph                | 351   |                     | 1,100  | 1         | 0                   | 0       | 7/1            | 1                 | \$50             |
|  |                     | G C Parrish                | Otol               |       | 658                 | 4,877  | 1         | 0                   | 0       | 7/1            | 1                 | \$50             |
| University of Virginia Hospital *          | Charlottesville, Va | R D Woodward               | OpOt               | 1,369 |                     | 7,021  | 1         | 2                   | 0       | 7/1            | 1                 | \$25             |
| Medical College of Virginia Hospital Div * | Richmond, Va        | R H Courtney and P Pastore | OpOt               | 268   | 1,015               |        | 1         | 0                   | 0       | 7/1            | 1                 | \$50             |
| Gill Memorial Eye Ear and Throat Hosp      | Roanoke, Va         | E G Gill                   | OpOt               | 151   | 911                 | 5,255  | 1         | 2                   | 0       | 1/1, 7/1       | 13                | \$50             |
| King County Hospital *                     | Seattle             | A T Wanamaker              | OpOt               | 237   | 683                 | 4,455  | 1         | 0                   | 0       | 7/1            | 1                 | \$80             |
| State of Wisconsin General Hospital *      | Madison             | F A Davis and W M Nesbit   | OpOt               |       |                     |        | 1         | 2                   | 0       | 7/1            | 3                 | \$23             |
| Milwaukee County Hospital *                | Wauwatosa, Wis      | E R Ryan and W E Grove     | OpOt               | 195   | 1,162               | 14,012 | 1         | 3                   | 0       | 7/1, 7/15      | 1                 | \$50             |

## 14 ORTHOPEDIC SURGERY

Revision of list is now taking place in collaboration with the American Board of Orthopaedic Surgery

|   |                    | Chief of Service               | Inpatients Treated | Outpatient Visits | Deaths | Autopsies | Residents | Assistant Residents | Fellows | Service Begins | Length of Service (Years) | Beginning Stipend |
|---|--------------------|--------------------------------|--------------------|-------------------|--------|-----------|-----------|---------------------|---------|----------------|---------------------------|-------------------|
| Hillman Hospital *                        | Birmingham, Ala    | J D Sherrill                   | 720                | 5,552             | 29     | 7         | 1         | 0                   | 0       | 7/1            | 1                         | \$50              |
| Children's Hospital *                     | Los Angeles        | J Wilson                       | 352                | 4,652             |        | 1         | 0         | 0                   | 0       | 7/1            | 1                         | \$50              |
| Los Angeles County Hospital *             | Los Angeles        | J Dunlop                       | 3,966              | 36,771            | 145    | 15        | 4         | 0                   | 0       | 7/1            | 3                         | \$10              |
| Orthopaedic Hospital                      | Los Angeles        |                                | 2,047              | 36,886            | 1      |           | 2         | 0                   | 0       | 7/1            | 23                        | \$50              |
| White Memorial Hospital *                 | Los Angeles        | G M Taylor                     | 431                | 9,133             | 7      |           |           |                     |         |                |                           |                   |
| Children's Hospital *                     | San Francisco      | L C Abbott                     | 310                | 1,491             | 4      |           | 1         | 0                   | 0       | 7/1            | 1                         | \$25              |
| San Francisco Hospital *                  | San Francisco      |                                |                    |                   |        |           |           |                     |         |                |                           |                   |
| Shriners' Hospital for Crippled Children  | San Francisco      | S L Haus                       | 300                | 3,161             | 1      |           | 1         | 0                   | 0       | 7/1            | 1                         | \$50              |
| University of California Hospital *       | San Francisco      | L C Abbott                     | 251                | 8,922             |        |           | 0         | 2                   | 0       | 9/1            | 1+                        | \$25              |
| Children's Hospital *                     | San Francisco      |                                | 655                | 5,140             | 1      | 1         | 2         | 0                   | 0       | 1/1, 7/1       | 12                        | \$50              |
| New Haven Hospital *                      | Denver             |                                | 590                | 6,610             | 13     | 13        | 1         | 0                   | 0       | 7/1            | 1+                        | \$75              |
| Central Dispensary and Emergency Hos      | New Haven, Conn    | A Bassin                       |                    |                   |        |           |           |                     |         |                |                           |                   |
| pital *                                   | Washington, D C    | G Leadbetter                   | 1,292              |                   | 21     | 4         | 1         | 0                   | 0       | 7/1            | 1                         | \$75              |
| Georgia Warm Springs Foundation           | Warm Springs, Ga   | C E Irwin                      | 378                | 358               | 0      | 0         | 1         | 1                   | 0       | 7/1            | 13                        | \$50              |
| Children's Memorial Hospital *            | Chicago            | F A Chandler                   |                    | 3,251             |        |           | 1         | 0                   | 0       | 7/1            | 1+                        | \$50              |
| Cook County Hospital *                    | Chicago            | P Lewin                        | 921                | 19,227            | 18     | 10        | 2         | 0                   | 0       | 1/1, 7/1       | 2                         | \$25              |
| Michael Reese Hospital *                  | Chicago            | P Lewin                        | 613                | 4,955             | 2      |           | 1         | 0                   | 0       | 7/1            | 12                        | \$50              |
| Research and Educational Hospitals *      | Chicago            | H B Thomas                     | 403                |                   | 2      | 2         | 3         | 0                   | 0       | 7/1            | 13                        | \$50              |
| Shriners' Hospital for Crippled Children  | Chicago            | B H Moore                      | 231                | 2,320             | 2      |           | 1         | 1                   | 0       | 7/1            | 1                         | \$50              |
| University of Chicago Clinics *           | Chicago            | H O Hatcher                    | 552                | 6,423             | 6      | 5         | 3         | 1                   |         | 7/1            | 13                        | None              |
| Indiana University Medical Center *       | Chicago            | L A Ensminger                  | 1,343              | 12,743            | 13     | 7         | 2         | 2                   | 0       | 7/1            | 13                        | \$50              |
| University Hospitals *                    | Chicago            | L A Steindler                  | 4,516              | 6,623             | 7      | 6         | 1         | 8                   | 0       | 7/1            | 1                         | \$25              |
| Kosair Crippled Children's Hospital       | Iowa City          | W B Owen                       | 1,032              |                   | 1      |           | 1         | 1                   | 0       | 7/1            | 12                        | \$50              |
| Louisville General Hospital *             | Louisville, Ky     | W B Owen                       | 1,130              | 9,795             | 59     | 15        | 1         | 0                   | 0       | 7/1            | 13                        | \$25              |
| Charity Hospital *                        | Louisville, Ky     |                                | 3,937              | 38,311            | 26     | 3         | 0         | 12                  | 0       | 7/1            | 12                        | \$125             |
| Shriners' Hospital for Crippled Children  | New Orleans        | H A Durham                     | 200                | 1,153             |        |           | 1         | 0                   | 0       | Varies         | 12                        | \$125             |
| James Lawrence Kernan Hospital for Crip   | Shreveport, La     |                                |                    |                   |        |           |           |                     |         |                |                           |                   |
| pled Children                             | Baltimore          | A F Voshell                    | 306                | 5,734             | 7      | 1         | 1         | 1                   | 0       | 7/1            | 1                         | \$92              |
| Johns Hopkins Hospital *                  | Baltimore          | G E Bennett                    | 682                | 16,232            | 14     | 7         | 1         | 2                   | 0       | 7/1, 9/1       | 1+                        | \$50              |
| Boston City Hospital *                    | Boston             | O J Hermann                    | 1,482              |                   | 26     | 24        | 1         | 1                   | 0       | Varies         | 1                         | \$50              |
| Children's Hospital                       | Boston             | F R Ober                       | 478                | 11,841            |        |           | 1         | 0                   | 0       | 9/1            |                           |                   |
| Lahey Clinic                              | Boston             |                                |                    |                   |        |           |           |                     |         |                |                           |                   |
| Massachusetts General Hospital *          | Boston             | N N Smith Petersen             | 502                | 13,180            | 7      | 1         | 1         | 0                   | 0       | 1/1            | 1                         | \$25              |
| Shriners' Hospital for Crippled Children  | Springfield, Mass  | R N Hatt                       | 361                | 2,738             |        |           | 1         | 0                   | 0       | 7/1            | 14                        | \$25              |
| University Hospital *                     | Ann Arbor, Mich    | C E Badgley                    | 1,763              | 10,290            | 13     | 6         | 1         | 3                   | 0       | 7/1            | 23                        | \$150             |
| Henry Ford Hospital *                     | Detroit            | C L Mitchell                   | 1,111              | 13,108            | 3      | 1         | 1         | 1                   | 0       |                |                           |                   |
| Mayo Foundation                           | Rochester, Minn    | M S Henderson and R K Ghormley |                    |                   |        |           |           |                     |         |                |                           |                   |
| Gillette State Hospital for Crippled Chil | St Paul            | C O Chatterton                 | 938                | 7,000             | 9      | 9         | 0         | 0                   | 2       | 1/1, 7/1       | 1                         | \$50              |
| dren *                                    | Columbia, Mo       | W J Stewart                    | 719                | 1,592             | 1      | 1         | 1         | 0                   | 0       | 1/1            | 1                         | \$50              |
| State Hospital for Crippled Children      | Kansas City, Mo    | H L Hess                       | 910                | 4,659             | 36     | 23        | 1         | 0                   | 0       | 7/1            | 1                         | \$50              |
| Kansas City General Hospital *            | Kansas City, Mo    | F Dickson                      | 741                | 4,680             | 2      | 1         | 1         | 0                   | 0       | 7/1            | 3                         | \$25              |
| St Luke's Hospital *                      | Kansas City, Mo    | A O'Reilly                     | 477                | 4,281             | 9      | 3         | 0         | 1                   | 0       | 7/1            | 12                        | Varies            |
| St Mary's Group of Hospitals *            | St Louis           | J Schwartzmann                 | 418                | 245               | 3      | 2         | 1         | 0                   | 0       | 1/1            | 12                        | \$50              |
| Shriners' Hospital for Crippled Children  | St Louis           | H W Orr                        | 408                | 2,363             | 4      | 3         | 1         | 0                   | 0       | 1/1, 7/1       | 1+                        | \$100             |
| Nebraska Orthopaedic Hospital             | Lincoln            | S Sprague                      | 1,228              | 12,851            | 40     | 2         | 1         | 2                   | 0       | 7/1            | 1                         | \$100             |
| Jersey City Hospital *                    | Jersey City, N J   | J E Toye                       | 384                | 6,903             | 6      |           | 1         | 0                   | 0       |                |                           |                   |
| Hospital and Home for Crippled Children   | Newark, N J        |                                |                    |                   |        |           |           |                     |         |                |                           |                   |
| New Jersey Orthopaedic Hospital and Dis   | Orange, N J        | H W Smith                      | 496                | 24,790            | 4      |           | 1         | 2                   | 0       |                | 1+                        | \$50              |
| pensary                                   | Brooklyn           | J B L'Episcopo                 | 476                | 14,693            |        |           | 1         | 2                   | 0       | 7/1            | 3                         | \$18              |
| Kings County Hospital *                   | Brooklyn           | J B L'Episcopo                 | 408                | 11,616            | 6      |           | 1         | 1                   | 0       | 7/1            | 23                        | \$22.50           |
| Long Island College Hospital *            | Buffalo            | W W Plummer                    | 140                |                   | 14     | 2         | 1         | 0                   | 0       | 7/1            | 1                         | \$50              |
| Buffalo General Hospital *                | Buffalo            | A A Gartner                    | 616                | 3,563             | 1      | 1         | 1         | 1                   | 0       | 7/1            | 13                        | \$50              |
| Edward J Meyer Memorial Hospital *        | Buffalo            | A Krida                        | 266                | 109               |        |           |           |                     |         |                |                           |                   |
| Bellevue Hospital *                       | New York City      |                                | 3,050              | 35,491            | 21     | 11        | 13        | 0                   | 0       | 1/1            | 2 1/2                     | \$25              |
| Hospital for Joint Diseases *             | New York City      | P D Wilson                     | 1,698              | 27,856            | 3      | 1         | 7         | 0                   | 1       | Quart          | 2                         | \$20              |
| Hospital for Special Surgery              | New York City      | M J Wilson                     | 926                | 2,066             | 25     | 4         | 1         | 0                   | 0       | 7/1            | 12                        | \$75              |
| Metropolitan Hospital *                   | New York City      |                                |                    |                   |        |           | 1         | 0                   | 0       |                | 1                         | \$50              |
| Mount Sinai Hospital *                    | New York City      |                                |                    |                   |        |           |           |                     |         |                |                           |                   |
| New York Orthopaedic Dispensary and Hos   | New York City      | A D Smith                      | 1,128              | 16,639            | 4      | 2         | 8         | 0                   | 7       | 7/1            | 3                         | \$25              |
| pital                                     | New York City      | M Cleveland                    | 371                | 5,646             | 4      | 2         | 1         | 0                   | 0       | 7/1            | 12                        | \$50              |
| St Luke's Hospital *                      | New York City      |                                |                    |                   |        |           |           |                     |         |                |                           |                   |
| Strong Memorial and Rochester Municipal   | Rochester, N Y     | R P Schwartz                   | 601                | 7,321             | 17     | 7         | 2         | 0                   | 0       | 1/1, 7/1       | 1                         | \$100             |
| Hospitals *                               | Staten Island, N Y | D Bosworth                     | 304                |                   | 1      | 1         | 2         | 1                   | 0       | 7/1            | 12                        | \$100             |
| Sea View Hospital *                       | W Haverstraw, N Y  | H Hallock                      | 201                | 205               | 8      | 3         | 1         | 2                   | 0       | 7/1            | 1                         | \$41              |
| New York State Reconstruction Home        | Durham, N O        | L D Baker                      | 662                | 6,103             | 4      | 1         | 0         | 2                   | 0       | 7/1            | 12                        | \$50              |
| Duke Hospital *                           | Cincinnati         | J Freiberg                     | 414                | 4,050             | 5      | 2         | 0         | 0                   | 3       | 7/1            | 13                        | \$50              |
| Cincinnati General Hospital *             | Cleveland          | J A Dickson                    | 496                |                   | 4      | 2         | 1         | 0                   | 0       | 7/1            | 1                         | \$25              |
| Cleveland Clinic Foundation Hospital *    | Cleveland          | R S Relch                      | 854                | 7,330             | 6      | 2         | 1         | 0                   | 0       | 7/1            | 2                         | \$50              |
| Mount Sinai Hospital *                    | Cleveland          | M Harbin                       | 532                | 6,829             | 4      |           |           |                     |         |                |                           |                   |
| University Hospitals *                    | Cleveland          |                                |                    |                   |        |           |           |                     |         |                |                           |                   |
| Bone and Joint Hospital and McBride       | Oklahoma City      | E D McBride                    | 649                |                   |        |           | 1         | 0                   | 0       | 7/1            | 12                        | \$40              |
| Clinic *                                  | Oklahoma City      | W K West                       | 933                |                   |        |           | 1         | 0                   | 0       | 7/1            | 1                         | \$50              |
| St Anthony Hospital *                     |                    |                                |                    |                   |        |           |           |                     |         |                |                           |                   |

Numerical and other references will be found on page 1344

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|  |                    | Chief of Service | Inpatients<br>treated | Surgeons<br>Specimens | Number<br>Microscopically | Autopsy<br>Percentage | Residents | Assistant<br>Residents | Yellows | Service<br>Begins | Length of<br>Service<br>(Years) | Beginning<br>Stipend |
|--|--------------------|------------------|-----------------------|-----------------------|---------------------------|-----------------------|-----------|------------------------|---------|-------------------|---------------------------------|----------------------|
| University Hospital*   | Oklahoma City      | P. C. Colonna    | 100                   | 1000                  | 21                        | 8                     | 3         | 0                      | 1       | 7/1               | 13                              | \$50                 |
| Naval Hospital or Crippled Children                            | Tulsa, Okla.       | W. S. L. F.      | 100                   | 1000                  | 10                        | 1                     | 1         | 0                      | 0       | 7/1               | 12                              | \$100                |
| Edward Ho. ptal*   | Portland Ore       | R. R. Dill hunt  | 100                   | 1000                  | 22                        | 10                    | 1         | 0                      | 0       | 7/1               | 1                               | \$40                 |
| Shriner Ho. ptal for Crippled Children                         | Portland Ore       | R. R. Dill hunt  | 100                   | 1000                  | 22                        | 10                    | 1         | 0                      | 0       | 7/1               | 1                               | \$40                 |
| University of Oregon Medical School Hos-<br>pital and Clinics* | Portland Ore       | R. R. Dill hunt  | 100                   | 1000                  | 22                        | 10                    | 1         | 0                      | 0       | 7/1               | 1                               | \$40                 |
| State Ho. ptal or Crippled Children                            | Portland Ore       | R. R. Dill hunt  | 100                   | 1000                  | 22                        | 10                    | 1         | 0                      | 0       | 7/1               | 1                               | \$40                 |
| Texas University Ho. ptal*                                     | Charlottesville Va | R. A. H. H. H.   | 100                   | 1000                  | 22                        | 10                    | 1         | 0                      | 0       | 9/1               | 2                               | \$100                |
| Robert Packer Ho. ptal*  | Charlottesville Va | R. A. H. H. H.   | 100                   | 1000                  | 22                        | 10                    | 1         | 0                      | 0       | 7/1               | 3                               | \$40                 |
| For Ho. ptal*  | Charlottesville Va | R. A. H. H. H.   | 100                   | 1000                  | 22                        | 10                    | 1         | 0                      | 0       | 9/1               | 23                              | \$50                 |
| Wisc. Co. Camped Ho. ptal                                      | Charlottesville Va | R. A. H. H. H.   | 100                   | 1000                  | 22                        | 10                    | 1         | 0                      | 0       | 7/1               | 1                               | \$50                 |
| Arkland Ho. ptal*  | Charlottesville Va | R. A. H. H. H.   | 100                   | 1000                  | 22                        | 10                    | 1         | 0                      | 0       | 1/1 7/1           | 3                               | \$50                 |
| Texas Scott White Ho. ptal for Crippled<br>Children*           | Dallas, Tex        | L. M. Christ     | 100                   | 1000                  | 22                        | 10                    | 1         | 0                      | 0       | 7/1               | 1                               | \$25                 |
| University of Virginia Ho. ptal*                               | Dallas, Tex        | W. B. Carr B.    | 100                   | 1000                  | 22                        | 10                    | 1         | 0                      | 0       | 7/1               | 1                               | \$25                 |
| Children's Orthopedic Ho. ptal*                                | Charlottesville Va | R. A. H. H. H.   | 100                   | 1000                  | 22                        | 10                    | 1         | 0                      | 0       | 7/1               | 1                               | \$33                 |
| State of Wisc. General Ho. ptal*                               | St. Louis          | H. F. Wyckoff    | 100                   | 1000                  | 22                        | 10                    | 1         | 0                      | 0       | 7/1               | 1                               | \$100                |
| State of Wisc. General Ho. ptal*                               | Madison            | R. E. R.         | 100                   | 1000                  | 22                        | 10                    | 1         | 0                      | 0       | 7/1               | 3                               | \$25                 |
| Milwaukee County Ho. ptal*                                     | Madison            | C. C. Schiller   | 100                   | 1000                  | 22                        | 10                    | 1         | 0                      | 0       | 7/1 7/15          | 1                               | \$50                 |

Revision of list is now taking place in collaboration with the American Board of Pathology

|  |                     |                            |                  |        |        |    |   |   |    |         |     |         |
|--|---------------------|----------------------------|------------------|--------|--------|----|---|---|----|---------|-----|---------|
| Hillman Ho pital *                                 | Indianapolis Ma     | G S Graham                 | 10 7             | 4 10   | 2 031  | 28 | 1 | 0 | 0  | 7/1     | 1   | \$50    |
| Cour of Honor Ho pital *                           | Los Angeles         | A H Zeller                 | 8 1              | 4 013  | 1 384  | 31 | 0 | 0 | 0  | 7/1     | 1   | \$75    |
| Childrens Ho pital *                               | Los Angeles         | A Wright                   | 1 1              | 6      | 11     | 83 | 1 | 0 | 0  | 7/1     | 1   | \$50    |
| Los Angeles County Ho pital *                      | Los Angeles         | N Evans                    | 1 1              | 5 001  | 7 140  | 60 | 3 | 0 | 0  | 1/1 7/1 | 2 3 | \$100   |
| St Vincent's Ho pital *                            | Los Angeles         | J F Kahler                 | 8 0              | 5      | 1 11   | 47 | 1 | 0 | 0  | 7/1     | 1   | \$50    |
| White Memorial Ho pital *                          | Los Angeles         | O B Pratt                  | 8 0              | 1 11   | 1 120  | 30 | 1 | 0 | 0  | 7/1     | 13  | \$100   |
| Highland Park Co Ho pital *                        | Oakland Calif       | G Moon                     | 10 11            | 3 371  | 1 884  | 34 | 1 | 0 | 0  | 7/1     | 13  | \$20    |
| Cox T and Howard Huntington Memorial<br>Ho pital * | Los Angeles Calif   | A G Poor                   | 6 1              | 4 211  | 2 704  | 62 | 1 | 0 | 0  | 8/1     | 1   | \$100   |
| France Ho pital *                                  | San Francisco       | D A Wool                   | 1 10             | 8 57   | 1 100  | 49 | 1 | 0 | 0  | 7/1     | 1   | \$50    |
| Moulton Ho pital *                                 | San Francisco       | C A Birk                   | 1 1              | 1 71   | 8 34   | 0  | 1 | 1 | 1  | 7/1     | 1   | \$50    |
| San Francisco Ho pital *                           | San Francisco       | R J Bittel                 | 10 10            | 2 132  | 2 162  | 47 | 0 | 2 | 0  | 7/1     | 1   |         |
| Stanford Univer ity Ho pital *                     | San Francisco       | A F Cox Jr                 | 8 11             | 6 1    | 3 85   | 00 | 2 | 0 | 1  | 7/1     | 1   | \$25    |
| Univer of California Ho pital *                    | San Francisco       | J E Blumhart               | 7 25             | 2 45   | 2 45   | 88 | 1 | 0 | 0  | 7/1     | 1+  | \$25    |
| Santa Barbara Cottage Ho pital *                   | Santa Barbara Calif | W J Tomlinson              | 3 11             | 68     | 4 18   | 63 | 1 | 0 | 0  | 7/1     | 1   | \$25    |
| Deaver General Ho pital *                          | Dover               | F Maynor                   | 8 106            | 2 121  | 2 164  | 07 | 1 | 0 | 0  | 7/1     | 1   | \$50    |
| St. Francis Hospital *                             | Hartford Conn       | J P Hastings               | 11 1             | 3 71   | 2 363  | 36 | 1 | 0 | 0  | 7/1     | 1   | \$25    |
| New Haven Ho pital *                               | New Haven Conn      | M C Winterhiz              | 11 1             | 3 13   | 3 133  | 07 | 4 | 0 | 1  | 7/1     | 1 1 | \$10    |
| Chadwell Ho pital                                  | Washington D C      | J W Linday and<br>F C Rice | 7 06             | 1 1    | 32     | 89 | 1 | 0 | 0  | Varies  | 1 2 | \$50    |
| Gallagher Municipal Ho pital *                     | Washington D C      | F R Whitmore               | 10 1             | 2 3    | 1 93   | 00 | 1 | 0 | 0  | 7/1     | 12  | None    |
| Garfield Memorial Ho pital *                       | Washington D C      |                            | 1 8              | 3 00   | 1 710  | 66 | 1 | 0 | 0  | 7/1     | 12  | \$50    |
| Georgetown Univer ity Hospital *                   | Washington D C      | A I Dordinski              | 1 221            | 2 620  | 3 48   | 03 | 1 | 0 | 4  | 7/1     | 13  | \$50    |
| George Washington Univer ity Ho pital *            | Washington D C      | R M Choler                 | 2 73             | 3 42   | 4 51   | 2  | 0 | 0 | 0  | 7/1     | 12  | \$3 33  |
| Levy Memorial Ho pital *                           | Washington D C      | O B Humler                 | 8 37             | 2 76   | 1 832  | 50 | 1 | 0 | 0  | 7/1     | 1   | \$65    |
| Grady Ho pital *                                   | Atlanta Ga          | R Mosteller                | 21 07            | 6 810  | 6 810  | 49 | 1 | 2 | 0  | 7/1     | 13  | \$20    |
| University Ho pital *                              | Augusta             | F R Tucker                 | 10 10            | 2 774  | 2 774  | 32 | 1 | 0 | 0  | 7/1     | 13  | \$40    |
| Emory Univer ity Hospital *                        | Emory Univer ity Ga | R R Kracke                 | 1 064            | 1 703  | 1 701  | 35 | 2 | 0 | 0  | 7/1     | 13  | \$50    |
| Childrens Memorial Ho pital *                      | Chicago             | W C Illinois               | 4 196            | 2 241  | 2 23   | 09 | 1 | 0 | 0  | 1/1 7/1 | 1   | \$19 16 |
| Cook County Hospital *                             | Chicago             | W Schiller                 | 4 081            | 8 001  | 6 102  | 23 | 3 | 0 | 12 | 1/1 7/1 | 13  | \$25    |
| Michael Reese Ho pital *                           | Chicago             | O Saphir                   | 1 17             | 4 297  | 4 297  | 64 | 2 | 4 | 1  | Varies  | 13  | \$15    |
| Mount Sinai Ho pital *                             | Chicago             | J Davkohn                  | 6 275            | 3 261  | 2 309  | 47 | 1 | 1 | 0  | 6/15    | 1   | \$50    |
| Paravart Memorial Hospital *                       | Chicago             | D O Manhardt               | 1 00             | 1 041  | 1 041  | 75 | 2 | 0 | 0  | Varies  | 13  | None    |
| Providence Hospital *                              | Chicago             | C Applebach                | 11 1             | 2 110  | 2 110  | 38 | 2 | 0 | 0  | 7/1     | 13  | \$50    |
| Research and Educational Ho pital *                | Chicago             | J H Lewis                  | 3 832            | 815    | 815    | 49 | 1 | 0 | 0  | 7/1     | 13  | \$50    |
| St Luke's Hospital *                               | Chicago             | S A Foxson                 | 5 691            | 1 600  | 1 600  | 91 | 2 | 0 | 0  | 7/1     | 1   | \$50    |
| Univer ity of Chicago Clinics *                    | Chicago             | F H Hirsch                 | 11 301           | 4 748  | 3 840  | 60 | 2 | 0 | 3  | 7/1     | 15  | \$25    |
| Evangelical Hospital *                             | Chicago             | P R Cannon                 | 11 534           | 2 770  | 1 618  | 51 | 1 | 0 | 1  | 1/1 7/1 | 1   | \$25    |
| St Francis Hospital *                              | Evansville Ill      | F J Benjamin               | 8 148            | 3 003  | 1 664  | 60 | 1 | 0 | 0  | 5/1     | 1   | \$50    |
| Methodist Hospital *                               | Evansville Ill      | O T Schultz                | 7 053            | 2 404  | 649    | 39 | 1 | 0 | 0  | 7/1     | 1+  | \$50    |
| St Francis Hospital *                              | Peoria Ill          | O O Christman              | 6 044            | 2 136  | 2 234  | 29 | 1 | 0 | 0  | 7/1     | 13  | \$50    |
| Indianapolis City Ho pital *                       | Peoria Ill          | J F Kraus                  | 10 323           | 2 504  | 2 504  | 34 | 1 | 0 | 0  | 7/1     | 1+  | \$100   |
| Indiana University Medical Center *                | Indianapolis        | H C Thornton               | 10 963           | 2 348  | 2 281  | 56 | 1 | 0 | 0  | 7/1     | 1   | \$1 64  |
| Methodist Hospital *                               | Indianapolis        | C G Culbertson             | 10 066           | 3 815  | 3 815  | 50 | 1 | 2 | 1  | 7/1     | 13  | \$66 33 |
| Bell Memorial Hospital *                           | Indianapolis        | H M Banks                  | 10 835           | 5 013  | 5 013  | 37 | 2 | 0 | 0  | 7/1     | 12  | \$50    |
| Epworth Hospital *                                 | Muncie Ind          | L C Montgomery             | 3 655            | 1 739  | 1 739  | 47 | 1 | 0 | 0  | 7/1     | 1   | \$75    |
| University Ho pital *                              | South Bend Ind      | A S Giordano               | 16 823           | 3 400  | 2 151  | 35 | 1 | 0 | 0  | 1/1 7/1 | 12  | \$100   |
| Univer of Kansas Ho pital *                        | Iowa City Ia        | H P Smith                  | 21 564           | 3 922  | 3 925  | 58 | 3 | 0 | 0  | 7/1     | 13  | \$55    |
| St Francis Hospital *                              | Kansas City Kan     | H R Wahl                   | 6 643            | 2 340  | 2 346  | 72 | 1 | 2 | 0  | 7/1     | 13  | \$50    |
| Louisville General Ho pital *                      | Wichita Kan         | C A Hellwig                | 8 761            | 3 426  | 3 426  | 43 | 1 | 0 | 0  | 7/1     | 1   | \$100   |
| Charity Hospital *                                 | New Orleans Ky      | A J Miller                 | 10 856           | 2 130  | 2 123  | 29 | 1 | 0 | 0  | 7/1     | 12  | \$13 91 |
| Touro Infirmary *                                  | New Orleans         | E S Moss                   | 28 272           | 11 502 | 11 502 | 43 | 6 | 0 | 0  | 7/1     | 14  | \$25    |
| Shreveport Charity Ho pital *                      | New Orleans         | S H Colvin Jr              | 12 569           | 3 063  | 3 063  | 69 | 2 | 1 | 0  | 7/1     | 13  | \$25    |
| Baltimore City Ho pital *                          | Shreveport La       | W R Mathews                | 1 491            | 3 273  | 3 273  | 48 | 1 | 0 | 0  | 7/1     | 1   | \$100   |
| Johns Hopkins Hospital *                           | Baltimore           | F D Kindell                | 6 061            | 831    | 840    | 54 | 1 | 1 | 0  | 7/1     | 1   | \$12 50 |
| University Ho pital *                              | Baltimore           | F G MacCallum              | 16 6             | 2 047  | 2 047  | 74 | 1 | 2 | 0  | 7/1 3/1 | 1+  |         |
| Boston City Hospital *                             | Baltimore           | H R Spencer                | 9 289            | 2 315  | 2 315  | 48 | 0 | 1 | 0  | 7/1     | 1   |         |
| Boston Lying In Hospital *                         | Boston              | F Parker Jr                | 43 181           | 4 440  | 4 440  | 70 | 3 | 0 | 0  | 7/1     | 3 4 | \$ 3 33 |
| Childrens Hospital                                 | Boston              | A T Hertig                 | 6 367            | 3 673  | 3 673  | 41 | 1 | 0 | 0  | 1/1 7/1 | 1   | \$50    |
| Massachusetts General Hospital *                   | Boston              | S B Wolbach                | 5 701            | 736    | 736    | 80 | 1 | 0 | 0  | 7/1     | 1   | \$50    |
| Massachusetts Memorial Ho pital *                  | Boston              | T B Mallory                | 7 622            | 8 000  | 8 000  | 62 | 1 | 0 | 0  |         |     |         |
| New England Deaconess Hospital                     | Boston              | C F Branch                 | 6 899            | 1 484  | 1 484  | 76 | 1 | 0 | 0  | 7/1     | 13  | \$50    |
| Peter Brent Brigham Hospital *                     | Boston              | S Warren                   | 7 551            | 5 663  | 5 663  | 38 | 3 | 2 | 1  | 7/1 9/1 | 12  | \$25    |
| Worcester City Ho pital *                          | Boston              | S B Wolbach                | 5 173            | 1 591  | 1 591  | 63 | 1 | 0 | 0  | 1/1 7/1 | 12  | \$33 33 |
| Worcester State Ho pital *                         | Worcester Mass      | R H Goodale                | 10 015           | 3 513  | 3 025  | 30 | 1 | 0 | 0  | 7/1     | 1   | None    |
| Univerity Ho pital *                               | Worcester Mass      | W Freeman                  | 935              | 355    | 38     | 33 |   |   |    |         |     |         |
| City of Detroit Receiving Hospital *               | Ann Arbor Mich      | C V Weller                 | 17 531           | 6 282  | 6 282  | 66 | 0 | 1 | 1  | 7/1     | 13  | \$25    |
| Harper Ho pital *                                  | Detroit             | O A Brines                 | 18 506           | 2 504  | 1 886  | 34 | 1 | 0 | 0  | 7/15    | 13  | \$100   |
| Henry Ford Ho pital *                              | Detroit             | P F Morse                  | 18 388           | 6 735  | 6 735  | 38 | 2 | 0 | 0  | 7/1     | 15  | \$125   |
| Providence Ho pital *                              | Detroit             | F W Hartman                | 15 208           | 4 120  | 4 120  | 51 | 2 | 0 | 1  | 7/1     | 13  | \$150   |
| Woman's Ho pital *                                 | Detroit             | D H Kaump                  | 11 692           | 3 432  | 3 432  | 57 | 2 | 0 | 0  | 7/1     | 1   | \$140   |
| Fiel e Ho pital and Infirmary *                    | Detroit             | D G Beaver                 | 8 213            | 4 098  | 3 692  | 46 | 1 | 0 | 0  | 7/1     | 1   | \$75    |
| Hurley Ho pital *                                  | Eloise Mich         | S E Gould                  | 14 285           | 1 650  | 1 540  | 47 | 1 | 1 | 1  | 7/1     | 1   | \$94 53 |
| St Luke's Ho pital *                               | Flint Mich          | G R Baekus                 | 9 335            | 4 725  | 4 725  | 29 | 0 | 1 | 0  | 7/1     | 1   | \$100   |
| St Mary's Ho pital *                               | Duluth Minn         | A H Wells                  | 6 805            | 1 626  | 1 700  | 71 | 1 | 0 | 0  | 7/1     | 1   | \$25    |
| Mayo Foundation                                    | Duluth Minn         | G Berdez                   | 7 240            | 1 448  | 1 448  | 72 |   |   |    |         |     |         |
| Rock Hospital *                                    | Rochester Minn      | H E Robertson              | (\$ e page 1344) |        |        |    |   |   |    |         |     |         |
|  | St Paul             | J F Noble                  | 10 079           | 1 394  | 1 184  | 69 | 1 |   |    | 7/1     | 1   | \$50    |

Numerical and other references will be found on page 1344



## 15—PATHOLOGY—(Continued)

Revision of list is now taking place in collaboration with the American Board of Pathology

|  | Chief of Service | Inpatients<br>Treated      | Surgical<br>Specimens | Number<br>Examined<br>Microscopically | Autopsy<br>Percentage | Residents | Assistant<br>Residents | Fellows | Service<br>Begins | Length of<br>Service<br>(Years) | Beginning<br>Stipend |
|--|------------------|----------------------------|-----------------------|---------------------------------------|-----------------------|-----------|------------------------|---------|-------------------|---------------------------------|----------------------|
|  |                  |                            |                       |                                       |                       |           |                        |         |                   |                                 |                      |
| Kansas City General Hospital *                                   | Kansas City, Mo  | V Buhler                   | 10,183                | 2,590                                 | 2,327                 | 71        | 2                      |         | 7/1               | 1                               | \$50                 |
| St Joseph Hospital *   | Kansas City, Mo  | R W Kerr                   | 7,117                 | 3,402                                 | 2,396                 | 62        | 1                      |         | 7/1               | 13                              | \$50                 |
| St Luke's Hospital *   | Kansas City, Mo  | F O Helwig                 | 6,966                 | 3,757                                 | 2,512                 | 71        | 1                      |         | 7/1               | 13                              | \$50                 |
| Barnes Hospital *  | St Louis         | R A Moore                  | 11,723                | 3,051                                 | 3,054                 | 60        |                        |         | 7/1               | 1                               | \$25                 |
| Homer G Phillips Hospital *                                      | St Louis         | S H Gray                   | 11,230                | 1,129                                 | 1,129                 | 35        | 0                      | 1       | 7/1               | 1                               | \$75                 |
| Jewish Hospital *  | St Louis         | S H Gray                   | 7,301                 | 1,668                                 | 1,594                 | 33        |                        | 1       | 7/1               | 1                               | \$30                 |
| St Louis City Hospital *   | St Louis         | S H Gray                   | 1,151                 | 2,063                                 | 2,703                 | 53        | 1                      |         | 7/1               | 13                              | \$125                |
| Crichton Memorial St Joseph's Hospital *                         | Omaha            | B O Russum                 | 9,338                 | 8,611                                 | 0,601                 | 20        | 1                      |         | 7/1               | 13                              | \$75                 |
| University of Nebraska Hospital *                                | Omaha            | J P Tolman                 | 3,261                 | 1,260                                 | 1,243                 | 81        | 1                      |         | 7/1               | 1                               | \$50                 |
| Mary Hitchcock Memorial Hospital *                               | Hanover, N H     | R L Miller                 | 5,281                 | 1,460                                 | 1,279                 | 84        | 1                      |         | 1/1, 7/1          | 13                              | \$100                |
| Newark Beth Israel Hospital *                                    | Newark, N J      | W Antopol                  | 11,129                | 3,994                                 | 3,991                 | 14        | 1                      |         | 1/1               | 12                              | \$25                 |
| Albany Hospital *  | Albany, N Y      | A W Wright                 | 12,151                | 5,637                                 | 5,647                 | 69        | 1                      | 5       | 7/1               | 1                               | \$62.50              |
| Bender Hygiene Laboratory  | Albany, N Y      | J J Clemmer                |                       | 7,110                                 | 7,110                 |           | 1                      | 1       | 7/1               | 34                              | \$100                |
| Brooklyn Hospital *  | Brooklyn         | J A deVeer                 | 7,111                 | 1,979                                 | 1,979                 | 19        | 1                      |         | 7/1               | 13                              | \$75                 |
| Cumberland Hospital *  | Brooklyn         | S H Polayes                | 6,900                 | 1,201                                 | 1,201                 | 59        | 1                      |         | 7/1               | 1                               | \$18                 |
| Israel Zion Hospital *   | Brooklyn         | I M Rayld                  | 10,913                | 2,533                                 | 2,533                 | 27        | 1                      |         | 7/1               | 12                              | \$25                 |
| Jewish Hospital *  | Brooklyn         | M Lederer                  | 13,231                | 6,623                                 | 6,623                 | 40        | 1                      | 1       | 7/1               | 1                               | \$25                 |
| Kings County Hospital *  | Brooklyn         | W W Hala                   | 56,919                | 11,533                                | 14,533                | 17        | 1                      | 4       | 7/1               | 12                              | \$50                 |
| Long Island College Hospital *                                   | Brooklyn         | J R Oliver                 | 8,352                 | 2,806                                 | 2,806                 | 11        | 1                      |         | 7/1               | 1                               | \$45                 |
| St John's Hospital *   | Brooklyn         | A R Craue                  | 1,776                 | 1,290                                 | 1,083                 | 15        | 1                      |         | 1/1, 6/1          | 1                               | \$25                 |
| Buffalo General Hospital *                                       | Buffalo          | K Terplan                  | 10,492                | 3,768                                 | 3,768                 | 15        | 1                      | 1       | 7/1               | 1                               | \$25                 |
| Edward J Meyer Memorial Hospital *                               | Buffalo          | W P Jacobs and<br>S Sances | 9,525                 | 2,129                                 | 2,129                 | 36        | 1                      |         | 7/1               | 13                              | \$50                 |
| Millard Fillmore Hospital *                                      | Buffalo          | A Ecker                    | 8,718                 | 1,190                                 | 3,967                 | 35        | 1                      |         | 7/1               | 1                               | \$25                 |
| Meadowbrook Hospital *   | Hempstead, N Y   | T F Curphy                 | 6,983                 | 1,482                                 | 1,444                 | 54        | 2                      |         | 7/1               | 12                              | \$100                |
| Queens General Hospital *  | Jamaica, N Y     | A A Anglist                | 12,185                | 3,961                                 | 2,905                 | 75        | 1                      | 1       | 7/1               | 1                               | \$18                 |
| Beth Israel Hospital *   | New York City    | A Plaut                    | 8,511                 | 2,383                                 | 2,313                 | 12        | 2                      | 0       | 7/1               | 1                               | \$15                 |
| Fordham Hospital *   | New York City    | I R Ferraro                | 12,163                | 1,559                                 | 1,559                 | 31        | 1                      |         | 7/1               | 1                               | \$18                 |
| Harkness Hospital *  | New York City    | S Weintraub                | 17,316                | 3,113                                 | 3,113                 | 24        | 1                      | 1       | 1/1, 7/1          | 1                               | \$18                 |
| Lanox Hill Hospital *  | New York City    | G L Rohdenburg             | 10,911                | 2,183                                 | 2,183                 | 10        | 1                      |         | 7/1               | 1                               | None                 |
| Lincoln Hospital *   | New York City    | C Brown                    | 12,882                | 2,051                                 | 2,051                 | 36        | 2                      |         | 7/1               | 1                               | \$18                 |
| Metropolitan Hospital *  | New York City    | A Saccocc                  | 10,777                | 1,561                                 | 1,513                 | 32        | 1                      |         | 7/1               | 12                              | \$10                 |
| Montefiore Hospital *  | New York City    | D Marlin                   | 1,809                 | 518                                   | 518                   | 61        | 1                      | 2       | 7/1               | 12                              | \$50                 |
| Morrisania City Hospital *                                       | New York City    | W Kronson                  | 12,551                | 2,593                                 | 2,593                 | 30        | 1                      |         | 7/1               | 1                               | \$18                 |
| Mount Sinai Hospital *   | New York City    | P Kumpfer                  | 16,355                | 6,546                                 | 6,536                 | 18        | 2                      | 8       | 1/1, 7/1, 9/1     | 1                               | None                 |
| New York City Hospital *   | New York City    | I R Hsu                    | 9,181                 | 1,923                                 | 1,567                 | 37        | 1                      |         | 7/1               | 1                               | \$100                |
| New York Hospital *  | New York City    | W Dock                     | 16,567                | 5,577                                 | 3,532                 | 67        | 1                      |         | 7/1               | 12                              | \$25                 |
| New York Post Graduate Medical School and<br>Hospital *          | New York City    | M N Richter                | 9,211                 | 6,149                                 | 5,715                 | 13        | 1                      | 2       | 1/1, 7/1          | 1                               | \$50                 |
| Presbyterian Hospital *  | New York City    | J W Jobling                | 14,110                | 1,511                                 | 1,113                 | 59        | 1                      | 2       | 7/1               | 1                               | None                 |
| Roosevelt Hospital *   | New York City    | W W Brandes                | 7,263                 | 2,151                                 | 2,131                 | 15        | 1                      |         | 7/1               | 12                              | \$11.60              |
| St Luke's Hospital *   | New York City    | I C Wood                   | 8,693                 | 2,162                                 | 2,162                 | 31        | 1                      |         | 7/1               | 14                              | \$100                |
| St Vincent's Hospital *  | New York City    | A Rottino                  | 5,919                 | 2,031                                 | 1,607                 | 19        | 1                      |         | 7/1               | 1                               |                      |
| Sydenham Hospital *  | New York City    | A M Glazier                | 4,651                 | 2,933                                 | 2,691                 | 45        | 1                      |         | 7/1               | 14                              | None                 |
| Welfare Hospital for Chronic Diseases *                          | New York City    | J Rosenthal                | 2,076                 | 910                                   | 910                   | 17        | 1                      | 0       | 7/1               | 1                               | \$50                 |
| Willard Parker Hospital  | New York City    | A B Dolgopoi               | 6,111                 | 0                                     | 0                     | 75        | 1                      |         | 7/1               | 1                               | \$100                |
| Rochester General Hospital *                                     | Rochester, N Y   | I Gaspar                   | 6,683                 | 6,796                                 | 3,851                 | 69        | 1                      |         | 7/1               | 1                               | \$50                 |
| Strong Memorial and Rochester Municipal<br>Hospitals *           | Rochester, N Y   | G H Whipple                | 13,669                | 3,055                                 | 3,055                 | 71        | 1                      | 2       | 7/1               | 12                              | \$11.60              |
| Samaritan Hospital *   | Troy, N Y        | G Klinck                   | 1,743                 | 2,316                                 | 2,316                 | 56        | 1                      | 0       | 7/1               | 12                              | \$35                 |
| Grasslands Hospital *  | Valhalla, N Y    | G Daldorf                  | 1,919                 | 1,155                                 | 1,157                 | 65        | 1                      | 1       | 7/1               | 12                              | \$117.50             |
| Duke Hospital *  | Durham, N C      | W D Forbus                 | 11,564                | 8,225                                 | 5,225                 | 55        | 4                      |         | 7/1               | 1                               | \$41                 |
| North Carolina Baptist Hospital *                                | Winston Salem    | C C Carpenter              | 1,196                 | 7,115                                 | 7,115                 | 13        | 1                      | 0       | 7/1               | 14                              | \$11.61              |
| City Hospital *  | Akron, Ohio      | I Catron                   | 11,221                | 3,737                                 | 3,717                 | 45        | 1                      | 0       | 7/1               | 1                               | \$10                 |
| Christ Hospital *  | Cincinnati       | J W Lehlhiter              | 9,662                 | 3,069                                 | 1,733                 | 12        | 1                      |         | 6/24              | 1                               | \$10                 |
| Cincinnati General Hospital *                                    | Cincinnati       | R S Austin                 | 16,306                | 1,575                                 | 1,563                 | 36        | 5                      |         | 7/1               | 12                              | \$11.5               |
| City Hospital *  | Cleveland        | R Innd                     | 12,917                | 2,172                                 | 2,122                 | 41        | 1                      | 1       | 7/1               | 13                              | \$11.5               |
| Mount Sinai Hospital *   | Cleveland        | B S Kline                  | 8,017                 | 2,165                                 | 2,165                 | 62        | 1                      | 1       | 7/1               | 14                              | \$50                 |
| St Luke's Hospital *   | Cleveland        | R Dominguez                | 10,132                | 2,903                                 | 2,703                 | 41        | 1                      | 1       | 6/25              | 2                               | \$50                 |
| St Vincent Charity Hospital *                                    | Cleveland        | W P Tomlinson              | 7,327                 | 1,367                                 | 1,351                 | 31        | 1                      | 0       | 7/1               | 1                               | \$10                 |
| University Hospitals *   | Cleveland        | H T Karsner                | 15,691                | 1,100                                 | 1,100                 | 53        | 2                      | 2       | 7/1               | 14                              | \$25                 |
| Starling Loving University Hospital *                            | Columbus         | H L Rohhart                | 5,518                 | 1,783                                 | 1,769                 | 49        | 1                      | 1       | 7/1               | 1                               | \$25                 |
| White Cross Hospital *   | Columbus         | R S Elder                  | 7,570                 | 3,791                                 | 3,791                 | 47        | 1                      |         | 7/1               | 1                               | \$25                 |
| Miami Valley Hospital *  | Dayton, O        | W M Simpson                | 10,880                | 4,206                                 | 4,206                 | 38        | 1                      |         | 7/1               | 13                              | \$75                 |
| Youngstown Hospital *  | Youngstown, O    | G B Kraimer                | 14,135                | 5,923                                 | 4,294                 | 26        | 1                      |         | 7/1               | 1                               | \$300                |
| University Hospitals *   | Oklahoma City    | H Kter                     | 6,229                 | 2,267                                 | 1,665                 | 48        | 1                      |         | 7/1               | 1                               | \$50                 |
| Emanuel Hospital *   | Portland Ore     | H H Foskett                | 8,164                 | 4,122                                 | 1,818                 | 42        | 1                      | 0       | 7/1               | 1                               | \$50                 |
| St Vincent's Hospital *  | Portland Ore     | T D Robertson              | 10,315                | 3,135                                 | 3,455                 | 50        | 1                      |         | 7/1               | 1                               | \$50                 |
| University of Oregon Medical School Hos-<br>pitals and Clinics * | Portland Ore     | F R Menne                  | 8,554                 | 2,245                                 | 2,243                 | 65        | 3                      |         | 7/1               | 13                              | \$50                 |
| Abington Memorial Hospital *                                     | Abington Pa      | J Elman                    | 6,650                 | 3,315                                 | 2,021                 | 53        | 1                      |         | 10/1              | 14                              | \$100                |
| Bryn Mawr Hospital *   | Bryn Mawr Pa     | M M Strumla                | 4,577                 | 1,704                                 | 1,704                 | 46        | 1                      | 0       | 7/1               | 12                              | \$50                 |
| George F Gelsinger Memorial Hospital *                           | Danville Pa      | H I Hunt                   | 5,381                 | 1,411                                 | 1,380                 | 30        | 1                      |         | 7/1               | 1                               | \$50                 |
| Pittsburgh City Home and Hospitals *                             | Mayfield, Pa     | G H Litterman              | 1,669                 | 165                                   | 165                   | 20        | 1                      | 1       | 9/1               | 13                              | \$150                |
| Germantown Dispensary and Hospitals *                            | Philadelphia     | I B Lynch Jr               | 6,986                 | 1,297                                 | 957                   | 50        | 1                      |         | 7/1               | 13                              | \$175                |
| Graduate Hospital of the University of<br>Pennsylvania *         | Philadelphia     | F A Case                   | 6,203                 | 1,840                                 | 1,840                 | 36        | 1                      |         | 7/1               | 1                               | None                 |
| Hahnemann Hospital *   | Philadelphia     | S W Sappington             | 13,081                | 3,233                                 | 2,944                 | 55        | 2                      |         | 9/1               | 1                               | \$50                 |
| Hospital of the Protestant Episcopal<br>Church *                 | Philadelphia     | W P Bick                   | 8,268                 | 1,333                                 | 1,333                 | 69        | 1                      |         | 7/1               | 1                               | None                 |
| Hospital of the University of Pennsylvania *                     | Philadelphia     | F B Krumbhaar              | 10,892                | 4,173                                 | 3,350                 | 90        | 1                      |         | 7/1               | 1                               | None                 |
| Jewish Hospital *  | Philadelphia     | E Steinfeld                | 7,885                 | 2,201                                 | 2,201                 | 61        | 1                      |         | 7/15              | 1                               | \$50                 |
| Mount Sinai Hospital *   | Philadelphia     | D R Mcranza                | 6,889                 | 1,960                                 | 1,960                 | 57        | 1                      |         | 7/1               | 12                              | \$50                 |
| Pennsylvania Hospital *  | Philadelphia     | J T Bauer                  | 8,993                 | 2,112                                 | 2,112                 | 65        | 2                      |         | 8/1               | 12                              | \$50                 |
| Philadelphia General Hospital *                                  | Philadelphia     | H H Clark                  | 27,115                | 3,153                                 | 3,132                 | 66        | 2                      |         | 9/1               | 14                              | \$50                 |
| Presbyterian Hospital *  | Philadelphia     | R P Custer                 | 5,543                 | 1,178                                 | 1,478                 | 80        | 2                      |         | 7/1               | 13                              | \$50                 |
| Temple University Hospital *                                     | Philadelphia     | L W Smith                  | 9,047                 | 20,744                                | 20,744                | 63        | 1                      |         | 9/1               | 1                               | \$50                 |
| Allegheny General Hospital *                                     | Pittsburgh       | S R Huythorn               | 9,437                 | 3,312                                 | 1,774                 | 22        | 2                      |         | 9/1               | 1                               | \$50                 |
| Children's Hospital *  | Pittsburgh       | M I Menten                 | 3,892                 | 112                                   | 112                   | 61        |                        | 2       | 9/1               | 1                               | \$11.67              |
| Elizabeth Steel Magee Hospital *                                 | Pittsburgh       | M Cohen                    | 6,875                 | 1,774                                 | 1,774                 | 25        |                        | 2       | 9/1               | 1                               | \$50                 |
| Mersey Hospital *  | Pittsburgh       | H H Permar                 | 13,185                | 3,515                                 | 3,339                 | 32        | 2                      | 2       | 7/1               | 13                              | \$50                 |
| Montefiore Hospital *  | Pittsburgh       | K Yardumlan                | 6,304                 | 1,461                                 | 1,461                 | 49        | 1                      |         | 9/1               | 13                              | \$11.60              |
| Presbyterian Hospital *  | Pittsburgh       | G R Lucy                   | 3,570                 | 1,857                                 | 1,400                 | 35        | 1                      | 1       | 9/1               | 1                               | \$50                 |
| St Francis Hospital *  | Pittsburgh       | A J Bruceken               | 12,419                | 5,589                                 | 1,605                 | 26        | 4                      |         | 7/1               | 1                               | \$50                 |
| Western Pennsylvania Hospital *                                  | Pittsburgh       | P Gross                    | 10,729                | 2,045                                 | 2,045                 | 30        | 1                      |         | 9/1               | 1                               | \$50                 |
| Reading Hospital *   | Reading, Pa      | F D Funk                   | 5,810                 | 1,688                                 | 1,203                 | 59        | 1                      |         | 7/1               | 1                               | \$50                 |
| Rhode Island Hospital *  | Providence R I   | B E Clarke                 | 9,236                 | 3,004                                 | 3,004                 | 48        | 1                      |         | 7/1               | 1                               | \$50                 |
| John Gaston Hospital *   | Memphis, Tenn    | H C Schmelisser            | 17,603                | 2,036                                 | 2,036                 | 24        | 1                      | 1       | 7/1               | 12                              | \$50                 |
| Nashville General Hospital *                                     | Nashville, Tenn  | W A DeMombreun             | 7,056                 | 887                                   | 724                   | 37        | 1                      | 1       | 7/1               | 17                              | \$50                 |
| Vanderbilt University Hospital *                                 | Nashville, Tenn  | E W Goodpasture            | 0,105                 | 2,697                                 | 1,483                 | 57        | 1                      | 2       | 7/1               | 1                               | \$50                 |
| Baylor University Hospital *                                     | Dallas, Tex      | J M Hill                   | 14,649                | 3,837                                 | 3,827                 | 29        | 1                      | 1       | 7/1               | 1                               | \$50                 |

15 PATHOLOGY—(Continued)

|                                      | Chief of Service   | Inpatient<br>Examinations | Outpatient<br>Examinations | Deaths | Autopsies | Residents | Assistant<br>Residents | Fellows | Service<br>Begin | Length of<br>Service<br>(Years) | Beginning<br>Stipend |
|--------------------------------------|--------------------|---------------------------|----------------------------|--------|-----------|-----------|------------------------|---------|------------------|---------------------------------|----------------------|
| Palmer Hospital*                     | Dallas Tex         | A B Cairns                | 115                        | 20     | 20        | 21        | 1                      |         | 7/1              | 1                               | \$25                 |
| Jackson Davis Hospital*              | Houston Tex        | D G Henderson             | 115                        | 20     | 20        | 21        | 1                      |         | 7/1              | 1                               | \$25                 |
| Mary Fletcher Hospital*              | Birmingham Ala     | F A Huttel                | 115                        | 20     | 20        | 21        | 1                      |         | 7/1              | 1                               | \$100                |
| Medical College of Virginia Hospital | Richmond Va        | I I Apperly               | 115                        | 20     | 20        | 21        | 1                      |         | 7/1              | 1                               | \$12.50              |
| Tacoma General Hospital*             | Tacoma Wash        | C L Furr                  | 115                        | 20     | 20        | 21        | 1                      |         | 7/1              | 1                               | \$100                |
| Charlottesville General Hospital*    | Charlottesville Va | W L Hurr                  | 115                        | 20     | 20        | 21        | 1                      |         | 7/1              | 1                               | \$50                 |
| State of Wisconsin General Hospital* | Milwaukee          | W D Stovall               | 115                        | 20     | 20        | 21        | 1                      |         | 7/1              | 3                               | \$25                 |
| Columbia Hospital*                   | Milwaukee          | C H Hume                  | 115                        | 20     | 20        | 21        | 1                      |         | 7/1              | 3                               | \$75                 |
| St. Joseph's Hospital*               | Milwaukee          | T A Hume                  | 115                        | 20     | 20        | 21        | 1                      |         | 6/15             | 1+                              | \$50                 |
| Missouri County Hospital*            | Watsonville Cal    | T A Hume                  | 115                        | 20     | 20        | 21        | 1                      |         | 7/1              | 7/15                            | \$50                 |
| Utah Hospital*                       | Provo Utah         | R L Cavallaro             | 115                        | 20     | 20        | 21        | 1                      |         | 7/1              | 1                               | \$100                |
| Queen's Hospital*                    | Honolulu Hawaii    | I Hirsch                  | 115                        | 20     | 20        | 21        | 1                      |         | 7/1              | 1                               | \$100                |

16—PEDIATRICS

Revision of list is now taking place in collaboration with the American Board of Pediatrics

|   |                 |                            |     |    |    |    |   |   |                 |     |         |
|---|-----------------|----------------------------|-----|----|----|----|---|---|-----------------|-----|---------|
| Children's Hospital*                                | Birmingham Ala  | A A Walker                 | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 12  | \$50    |
| Hennepin Hospital*                                  | Birmingham Ala  | A A Walker                 | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$50    |
| Norwood Hospital*                                   | Birmingham Ala  | F B Smith                  | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$250   |
| California State Children's Hospital                | Los Angeles     | I W St. John               | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$100   |
| Children's Hospital*                                | Los Angeles     | I W St. John               | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$50    |
| Los Angeles County Hospital*                        | Los Angeles     | M B Cook                   | 115 | 20 | 20 | 21 | 2 | 0 | 4/1 7/1         | 3   | \$10    |
| White Memorial Hospital*                            | Los Angeles     | M B Cook                   | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 13  | \$50    |
| Children's Hospital of the East Bay*                | Oakland Calif   | C Sweet                    | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$25    |
| Children's Hospital*                                | San Francisco   | C F Gordon                 | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$25    |
| San Francisco Hospital*                             | San Francisco   | C F Gordon                 | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$25    |
| Stanford University Hospital*                       | Stanford Calif  | H K Faler                  | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$25    |
| University of California Hospital*                  | San Francisco   | F S Smyth                  | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$25    |
| Children's Hospital*                                | Denver          | F S Smyth                  | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 12  | \$50    |
| Duane General Hospital*                             | Denver          | F S Smyth                  | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$50    |
| New Haven Hospital*                                 | New Haven Conn  | C S Fower                  | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$50    |
| Children's Hospital*                                | Washington D C  | C S Fower                  | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 12  | \$10    |
| Frederick's Hospital*                               | Washington D C  | A D Smith                  | 115 | 20 | 20 | 21 | 2 | 0 | 10/1            | 13  | \$20    |
| Gallagher Memorial Hospital*                        | Washington D C  | W M Yater                  | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$50    |
| Grady Hospital*                                     | Atlanta Ga      | W A Anderson               | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$40    |
| Hennepin Hospital for Children*                     | Atlanta Ga      | H Roberts                  | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$40    |
| University Hospital*                                | Atlanta Ga      | M H Roberts                | 115 | 20 | 20 | 21 | 2 | 0 | 1/1 7/1         | 1   | \$40    |
| Children's Memorial Hospital*                       | Chicago         | C M Burge                  | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 12  | \$50    |
| Cook County Hospital*                               | Chicago         | C M Burge                  | 115 | 20 | 20 | 21 | 2 | 0 | 1/1 7/1         | 1   | \$50    |
| Mercy Hospital Loyola University Chicago*           | Chicago         | M I Blatt                  | 115 | 20 | 20 | 21 | 2 | 0 | 1/1 7/1         | 12  | \$25    |
| Michael Reese Hospital*                             | Chicago         | R A Black                  | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$50    |
| Presbyterian Hospital*                              | Chicago         | I H Robinson               | 115 | 20 | 20 | 21 | 2 | 0 | 1/1 7/1         | 12  | \$50    |
| Presbyterian Hospital*                              | Chicago         | C Crane                    | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$50    |
| Research and Educational Hospital*                  | Chicago         | F W Benney                 | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 13  | \$50    |
| St Vincent's Infant and Maternity Hospital*         | Chicago         | I H Robinson               | 115 | 20 | 20 | 21 | 2 | 0 | 1/1 7/1         | 12  | \$50    |
| University of Chicago Hospital*                     | Chicago         | M I Blatt                  | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 13  | \$50    |
| Indianapolis City Hospital*                         | Indianapolis    | F W Benney                 | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$11.64 |
| Louisiana University Medical Center*                | Indianapolis    | C J Carter                 | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 12  | \$63    |
| University Hospital*                                | Iowa City       | M I Winters                | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$20.83 |
| University of Kansas Hospital*                      | Kansas City Kan | I C Leary                  | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$50    |
| Louisville General Hospital*                        | Louisville      | C S Neff                   | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 13  | \$13.91 |
| Shawnee Hospital*                                   | New Orleans     | I W Hirsch                 | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 12  | \$25    |
| Touro Infirmary*                                    | New Orleans     | I W Hirsch                 | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 13  | \$25    |
| Baltimore City Hospital*                            | Baltimore       | C Bloom                    | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$50    |
| Johns Hopkins Hospital*                             | Baltimore       | T C Goodwin                | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$50    |
| Union Memorial Hospital*                            | Baltimore       | F A Park                   | 115 | 20 | 20 | 21 | 2 | 0 | 7/1 9/1         | 1-6 | \$12.50 |
| University Hospital*                                | Baltimore       | D C Park                   | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 12  | \$25    |
| Boston City Hospital*                               | Boston          | C L Johnson                | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 12  | \$25    |
| Boston Floating Hospital*                           | Boston          | M I Finkels                | 115 | 20 | 20 | 21 | 2 | 0 | Varies          | 1+  | \$33.33 |
| Children's Hospital*                                | Poston          | F W Hirsch                 | 115 | 20 | 20 | 21 | 2 | 0 | Varies          | 1   | \$10    |
| Massachusetts General Hospital*                     | Boston          | J L Camble                 | 115 | 20 | 20 | 21 | 2 | 0 | 1/1 5/1 9/1     | 1+  | \$50    |
| University Hospital*                                | Boston          | A M Butler                 | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 14  | \$25    |
| Children's Hospital*                                | Ann Arbor       | C F McKhann                | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$25    |
| Henry Ford Hospital*                                | Detroit         | J L Wilson                 | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 2   | \$130   |
| Minneapolis General Hospital*                       | Detroit         | J A Johnston               | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 13  | \$25    |
| University Hospital*                                | Minneapolis     | J A Johnston               | 115 | 20 | 20 | 21 | 2 | 0 | 1/1 7/1         | 13  | \$50    |
| Mayo Foundation                                     | Minneapolis     | I McQuarrie                | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 13  | \$50    |
| Children's Mercy Hospital*                          | Roche Minn      | H F Helmholtz              | 115 | 20 | 20 | 21 | 2 | 0 | (See page 1344) |     |         |
| Kansas City General Hospital*                       | Kansas City Mo  | C Bloom                    | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$25    |
| Wheatley Provident Hospital*                        | Kansas City Mo  | E H Sehorer                | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 12  | \$50    |
| Homer G Phillips Hospital*                          | Kansas City Mo  | F S Hogue                  | 115 | 20 | 20 | 21 | 2 | 0 | 3/1             | 1   | \$63    |
| St. Louis Children's Hospital*                      | St Louis        | W A Rupe                   | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 13  | \$75    |
| St. Louis Children's Hospital*                      | St Louis        | A F Hartmann               | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | None    |
| St. Mary's Group of Hospitals*                      | St Louis        | R Cook                     | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 12  | \$50    |
| Jersey City Hospital*                               | St Louis        | J Zahorsky                 | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 3   | \$25    |
| Albany Hospital*                                    | Jersey City N J | C DeFueo                   | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1+  | \$25    |
| Cumberland Hospital*                                | Albany N Y      | O A Faust                  | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 2+  | \$25    |
| Jewish Hospital*                                    | Brooklyn        | T B Glynn                  | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$18    |
| Kings County Hospital*                              | Brooklyn        | B Kramer                   | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$25    |
| Long Island College Hospital*                       | Brooklyn        | G Brockway and L Krahulka  | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 2   | \$18    |
| Norwegian Lutheran Deaconesses Home and Hospital*   | Brooklyn        | C A Weymuller              | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 2   | \$22.50 |
| Children's Hospital*                                | Buffalo         | C M Fieber and J A Monfort | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$25    |
| Edward J Meyer Memorial Hospital*                   | Buffalo         | D P Arnold                 | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$40    |
| Queens General Hospital*                            | Buffalo         | F J Gustina                | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 3   | \$50    |
| Babies Hospital*                                    | Jamaica N Y     | H A Reisman                | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$18    |
| Bellerue Hospital*                                  | New York City   | R McIntosh                 | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$100   |
| Flower and Fifth Avenue Hospitals*                  | New York City   | C H Smith                  | 115 | 20 | 20 | 21 | 2 | 0 | 7/1 1/1         | 1   | \$50    |
| Lincoln Hospital*                                   | New York City   | M A Benson                 | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$25    |
| Metropolitan Hospital*                              | New York City   | R Gleib                    | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$18    |
| Morrisania City Hospital*                           | New York City   | A T Martin                 | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1+  | \$18    |
| Mount Sinai Hospital*                               | New York City   | R A Benson                 | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 12  | \$18    |
| New York City Hospital*                             | New York City   | L H Barenberg              | 115 | 20 | 20 | 21 | 2 | 0 | 1/1 7/1         | 1   | \$50    |
| New York Foundling Hospital                         | New York City   | C S Boyd                   | 115 | 20 | 20 | 21 | 2 | 0 | 7/1             | 1   | \$50    |
| New York Hospital*                                  | New York City   | S Z Levine                 | 115 | 20 | 20 | 21 | 2 | 0 | 1/1 7/1         | 1   | \$25    |
| New York Post Graduate Medical School and Hospital* | New York City   | A G DeSanctis              | 115 | 20 | 20 | 21 | 2 | 0 | 1/1 7/1         | 1+  | \$25    |

Numerical and other references will be found on page 1344

## 16. PEDIATRICS—(Continued)

|  |                       | Chief of Service             | Inpatients Treated | Outpatient Visits | Deaths | Autopsies | Residents | Assistant Residents | Fellows | Service Begins | Length of Service (Years) | Beginning Stipend |
|--|-----------------------|------------------------------|--------------------|-------------------|--------|-----------|-----------|---------------------|---------|----------------|---------------------------|-------------------|
| St. Luke's Hospital * <sup>1</sup>                               | New York City         | T. I. Johnson                | 100                | 8,735             | 11     | 9         | 1         | 1                   | 0       | 1/1, 7/1       | 12                        | \$25              |
| Strong Memorial and Rochester Municipal Hospitals * <sup>1</sup> | Rochester, N. Y.      | W. W. Clausen                | 1,108              | 11,699            | 61     | 50        | 2         | 2                   | 1       | 7/1            | 14                        | \$41.66           |
| Sea View Hospital * <sup>1</sup>                                 | Staten Island, N. Y.  | B. Schiek                    | 111                |                   | 21     | 6         | 1         | 0                   | 0       | 1/1, 7/1       | 1                         | \$100             |
| Syracuse Memorial Hospital * <sup>1</sup>                        | Syracuse, N. Y.       | B. C. Doust                  | 1,266              |                   | 25     | 17        | 1         | 0                   | 0       | 7/1            | 1                         | \$50              |
| Grasslands Hospital *  | Valhalla, N. Y.       | I. D. Barnes                 | 135                | 1,359             | 13     | 12        | 1         | 1                   | 0       | 1/1, 7/1       | 1                         | \$15              |
| Duke Hospital * <sup>1</sup>                                     | Durham, N. C.         | W. O. Davison                | 757                | 9,002             | 81     | 11        |           | 3                   | 0       | 7/1            | 1                         | \$41              |
| Watts Hospital * <sup>7</sup>                                    | Durham, N. C.         |                              | 731                | 1,595             |        |           | 0         | 1                   | 0       | 7/1            | 1                         | \$25              |
| North Carolina Baptist Hospital *                                | Whinston Salem, N. C. | I. J. Butler                 |                    |                   |        |           |           |                     |         | 1/1, 7/1       | 1                         |                   |
| Trinity Hospital * <sup>1, 18</sup>                              | Minot, N. D.          | R. Dyson                     | 616                | 3,180             | 10     | 10        | 1         | 0                   | 0       |                | 1                         |                   |
| Children's Hospital  | Akron, O.             | R. T. Rowe                   | 1,510              | 8,911             | 81     | 13        | 1         | 0                   | 0       | 7/1            | 1                         |                   |
| Children's Hospital *  | Cincinnati            | A. A. Welch                  | 5,011              | 21,851            | 132    | 81        | 1         | 15                  | 0       | 7/1            | 12                        | \$25              |
| Cincinnati General Hospital *                                    | Cincinnati            | A. A. Welch                  | 1,107              | 9,817             | 132    | 76        | 0         | 10                  | 0       | 7/1            | 12                        |                   |
| University Hospitals *   | Cleveland             | H. J. Gerstenberger          | 1,211              | 24,553            | 59     | 35        | 1         | 2                   | 0       | 7/1            | 2                         | \$25              |
| Children's Hospital *  | Columbus, O.          | I. H. Baxter                 | 2,387              | 77,839            | 126    | 61        | 1         | 2                   | 0       | 7/1            | 12                        | \$30              |
| University Hospitals *   | Oklahoma City         | C. H. Hall                   | 703                | 1,637             | 89     | 16        | 1         | 0                   | 0       | 7/1            | 1                         | \$50              |
| University of Oregon Medical School Hospitals and Clinics *      | Portland Ore          | I. B. Bilderback             | 3,013              | 7,223             | 59     | 47        | 1         | 0                   | 0       | 7/1            | 1                         | \$40              |
| Babies' Hospital *   | Philadelphia          | L. E. McGinnis               | 291                | 3,553             | 12     | 4         | 2         | 0                   | 0       | 7/1            | 1                         | \$33.33           |
| Children's Hospital *  | Philadelphia          | J. Stokes Jr.                | 2,180              | 10,618            | 67     | 12        | 1         | 2                   | 0       | 7/1            | 1                         |                   |
| Children's Hospital of the Mary J. Drexel Home *                 | Philadelphia          |                              | 811                | 12,565            | 18     | 9         | 1         | 0                   | 0       | 7/1            | 1                         | \$100             |
| Hahnemann Hospital *   | Philadelphia          | C. S. Ruvo                   | 883                | 1,821             | 42     | 22        | 1         | 0                   | 0       | 9/1            | 1                         | \$50              |
| Hospital of the University of Pennsylvania *                     | Philadelphia          | I. Stokes Jr.                | 1,102              | 4,356             | 18     | 9         | 1         | 0                   | 0       | 7/1            | 1                         | None              |
| Jewish Hospital *  | Philadelphia          | W. Solls Cohen               | 520                | 965               | 19     | 17        | 1         | 0                   | 0       | 6/15           | 12                        | None              |
| Philadelphia General Hospital *                                  | Philadelphia          |                              | 1,890              |                   | 52     |           | 1         | 0                   | 0       | 5/1            | 12                        | \$50              |
| St. Christopher's Hospital for Children *                        | Philadelphia          | F. Krauss                    | 1,911              | 55,262            | 23     | 11        | 1         | 4                   | 0       | 9/1            | 1                         | \$50              |
| Temple University Hospital *                                     | Philadelphia          |                              | 350                | 5,716             | 21     | 15        | 2         | 0                   | 0       | 7/1            | 3                         | \$40              |
| Children's Hospital *  | Pittsburgh            | H. T. Price                  | 2,139              | 5,783             | 111    | 81        | 1         | 3                   | 0       | 9/1            | 1                         | \$40              |
| Roper Hospital *   | Charleston, S. C.     | M. W. Beach                  | 731                | 10,970            | 81     | 39        | 1         | 1                   | 1       | 7/1            | 12                        |                   |
| T. C. Thompson Children's Hospital *                             | Chattanooga, Tenn.    | J. W. Hoeker                 | 727                | 17,560            | 106    | 19        | 1         | 2                   | 0       | 7/1            | 12                        | \$50              |
| John Gaston Hospital *   | Memphis, Tenn.        | A. G. Jacobs                 | 1,517              | 6,513             | 63     | 22        | 1         | 0                   | 0       | 7/1            | 1                         | \$65              |
| George W. Hubbard Hospital of Meharry Medical College *          | Nashville, Tenn.      | I. W. Jones                  | 401                | 3,118             | 33     | 11        | 1         | 0                   | 0       | 7/1            | 12                        | \$75              |
| Vanderbilt University Hospital *                                 | Nashville, Tenn.      | H. R. Casparis               | 631                | 9,833             | 76     | 42        | 1         | 2                   | 0       | 7/1            | 1                         | \$35              |
| Children's Memorial Medical Center * <sup>1, 19</sup>            | Dallas, Tex.          | J. G. Young, and H. L. Moore | 1,770              | 29,997            | 83     | 6         | 1         | 5                   | 0       | 1/1, 7/1       | 13                        | \$25              |
| John Sealy Hospital *  | Galveston, Tex.       | B. Reading                   | 711                | 7,801             |        |           | 1         | 2                   | 0       | 7/1            | 13                        | \$25              |
| Jefferson Davis Hospital *                                       | Houston, Tex.         | R. Cohen                     | 1,276              | 9,151             | 120    | 41        | 1         | 0                   | 0       | 7/1            | 1                         | \$50              |
| University of Virginia Hospital *                                | Charlottesville, Va.  | L. T. Royster                | 1,161              | 5,237             | 58     | 25        | 1         | 1                   | 0       | 7/1            | 1                         | \$50              |
| Medical College of Virginia, Hospital Division *                 | Richmond              | L. E. Sutton                 | 1,716              |                   | 110    | 30        | 0         | 2                   | 0       | 7/1            | 1                         |                   |
| Children's Orthopedic Hospital *                                 | Seattle               | J. I. Durand                 | 708                | 2,583             | 21     | 15        | 1         | 0                   | 0       | 7/1            | 1                         |                   |
| State of Wisconsin General Hospital *                            | Madison               | I. F. Gonce                  | 503                | 2,098             | 10     | 26        | 1         | 0                   | 0       | 7/1            | 3                         | \$25              |
| Milwaukee Children's Hospital * <sup>1, 14</sup>                 | Milwaukee             | F. R. Jancy                  | 3,625              | 31,117            | 73     | 38        | 2         | 5                   | 0       | 7/1            | 1                         | \$30              |
| Milwaukee County Hospital *                                      | Wauwatosa, Wis.       | R. P. Schowalter             | 1,751              | 5,613             | 10     | 4         | 1         | 0                   | 0       | 7/1, 7/15      | 1                         | \$50              |

## 17. PHYSICAL THERAPY

|   |                  |                |       |       |  |  |   |   |   |                 |   |      |
|---|------------------|----------------|-------|-------|--|--|---|---|---|-----------------|---|------|
| Stanford University Hospitals * <sup>1, 7</sup> | San Francisco    | W. H. Northway | 2,751 | 5,073 |  |  | 1 | 0 | 0 | 7/1             | 1 | \$25 |
| Michael Reese Hospital *                        | Chicago          | C. O. Molander | 150   | 5,801 |  |  | 1 | 0 | 0 | 7/1             | 1 |      |
| Mayo Foundation                                 | Rochester, Minn. | F. H. Krusen   |       |       |  |  |   |   |   | (See page 1311) |   |      |

## 18. PLASTIC SURGERY

|   |                  |               |     |       |   |   |   |   |   |                 |    |      |
|---|------------------|---------------|-----|-------|---|---|---|---|---|-----------------|----|------|
| Mayo Foundation                                       | Rochester, Minn. | G. B. New     |     |       |   |   |   |   |   | (See page 1311) |    |      |
| Kings County Hospital *                               | Brooklyn         | W. A. Coakley | 925 | 1,631 |   |   | 1 | 1 | 0 | 7/1             | 2  | \$13 |
| Presbyterian Hospital *                               | New York City    | A. O. Whipple |     |       |   |   | 1 | 1 | 0 | 7/1             | 12 |      |
| Graduate Hospital of the University of Pennsylvania * | Philadelphia     | R. H. Ivy     | 236 | 740   | 2 | 1 | 1 | 0 | 0 | 7/1             | 1  | None |

## 19. PSYCHIATRY

Revision of list is now taking place in collaboration with the American Board of Psychiatry

|   |                   |                  |       |       |     |     |    |   |   |           |    |          |
|---|-------------------|------------------|-------|-------|-----|-----|----|---|---|-----------|----|----------|
| Compton Sanitarium                                    | Compton, Calif.   | G. Myers         | 373   |       | 1   |     | 1  | 0 | 0 | Varies    | 1  | \$200    |
| Mount Zion Hospital *                                 | San Francisco     | J. Kasanin       |       | 1,355 |     |     | 0  | 1 | 1 | 7/1       | 1  | \$50     |
| Stanford University Hospitals * <sup>1, 10</sup>      | San Francisco     | G. S. Johnson    | 420   | 9,083 | 5   | 4   | 1  | 2 | 0 | 7/1       | 1  | \$25     |
| University of California Hospital *                   | San Francisco     | E. W. Twitcheall | 110   | 3,253 |     |     | 1  | 0 | 0 | 7/1       | 1  | \$25     |
| Mendocino State Hospital *                            | Tahoe, Calif.     | R. B. Toller     | 3,707 |       | 137 | 36  |    |   |   | 9/1       | 13 | \$100    |
| Colorado Psychopathic Hospital                        | Denver            | F. G. Ebaugh     | 897   | 7,156 | 22  | 14  | 2  | 0 | 6 |           | 1+ |          |
| Colorado State Hospital                               | Pueblo, Colo.     | I. Schatz        | 807   |       | 254 | 45  | 7  | 0 | 0 | Varies    | 1+ |          |
| Neuro Psychiatric Institute of the Hartford Retreat * | Hartford, Conn.   | C. O. Burlingame | 913   |       | 12  | 1   | 0  | 0 | 5 | Varies    | 1+ | \$225    |
| Connecticut State Hospital *                          | Middletown, Conn. | R. L. Lank       | 3,805 | 14    | 253 | 62  | 3  | 0 | 0 | Varies    | 1+ | \$15     |
| New Haven Hospital *                                  | New Haven, Conn.  | E. Kahn          | 355   |       | 5   | 2   | 1  | 7 | 0 | 7/1       | 1+ | \$50     |
| Norwich State Hospital                                | Norwich, Conn.    | L. H. Cohen      | 1,125 |       | 148 | 42  | 6  | 0 | 0 | Varies    | 1  |          |
| Delaware State Hospital                               | Farmhurst, Del.   | M. A. Tarumlanz  | 1,217 | 2,121 | 107 | 34  |    |   |   | 7/1       | 1  |          |
| Gallinger Municipal Hospital *                        | Washington, D. C. | J. L. Gilbert    | 3,481 |       | 126 | 58  | 13 | 0 | 0 | 7/1, 10/1 | 1  | \$106.66 |
| St. Elizabeth's Hospital *                            | Washington, D. C. | R. H. Guthrie    | 8,448 | 100   |     |     | 13 | 0 | 0 | 1/1, 7/1  | 1  | \$50     |
| Chicago State Hospital                                | Chicago           |                  | 6,035 | 1,075 | 586 | 125 | 5  | 0 | 0 | 7/1, 1/1  | 13 | \$25     |
| Cook County Hospital *                                | Chicago           | V. G. Urse       | 7,046 |       | 130 | 14  | 6  | 0 | 0 | 7/1       | 3  | \$100    |
| Illinois Neuropsychiatric Institute *                 | Chicago           | F. J. Gerty      | 144   |       | 3   | 1   | 0  | 0 | 3 | 7/1       | 2  | \$50     |
| Michael Reese Hospital * <sup>1, 8, 10</sup>          | Chicago           | R. R. Grinker    | 341   | 3,130 |     |     | 2  | 0 | 0 | 7/1       | 13 | \$5      |
| St. Luke's Hospital *                                 | Chicago           | R. P. Mackay     | 303   | 1,120 | 3   | 1   | 1  | 0 | 0 | 7/1       | 13 | None     |
| University of Chicago Clinics *                       | Chicago           | D. B. Silb, lit  | 256   | 3,767 |     |     | 1  | 1 | 0 | 7/1       | 12 | \$25.50  |
| Elgin State Hospital *                                | Elgin, Ill.       | E. Liebert       | 6,797 | 1,012 | 373 | 144 | 2  | 0 | 0 | Varies    | 1+ | \$25.00  |
| Manteno State Hospital                                | Manteno, Ill.     | W. H. Baer       | 7,712 |       | 373 | 109 | 6  | 0 | 0 | 7/1       | 1+ | \$25.00  |
| Peoria State Hospital                                 | Peoria, Ill.      |                  | 3,479 |       | 335 | 28  | 2  | 0 | 0 | 7/1       | 1+ | \$157    |
| Central State Hospital                                | Indianapolis      | M. A. Bahr       | 2,733 |       | 189 | 22  | 4  | 0 | 0 | 7/1       | 1  | \$41.61  |
| Indianapolis City Hospital * <sup>8, 10</sup>         | Indianapolis      | L. D. Carter     | 737   | 1,762 | 54  | 13  | 1  | 0 | 0 | 7/1       | 23 | \$150    |
| Logansport State Hospital *                           | Logansport, Ind.  | C. L. Williams   | 2,341 |       | 187 | 37  | 5  | 0 | 0 | 7/1       | 1  | \$50.00  |
| Iowa State Psychopathic Hospital *                    | Iowa City         | W. R. Miller     | 416   | 1,507 | 0   | 0   | 2  | 2 | 0 | 7/1       | 1  | \$120    |
| Menninger Sanitarium *                                | Topeka, Kan.      | W. C. Menninger  | 151   | 160   | 1   |     | 4  | 0 | 0 | 1/1, 7/1  | 1  |          |
| United States Public Health Service Hospital          | Lexington, Ky.    |                  |       |       |     |     |    |   |   | 7/1, 9/1  | 16 |          |
| Johns Hopkins Hospital *                              | Baltimore         | J. C. Whitehorn  | 322   | 4,128 | 5   | 2   | 1  | 3 | 0 | Varies    | 1  |          |
| Spring Grove State Hospital                           | Catonsville, Md.  | S. W. Weltmer    | 2,666 |       | 138 | 91  | 2  | 1 | 0 | 7/1       | 1  | \$125    |
| Springfield State Hospital *                          | Sykesville, Md.   | K. B. Jones      | 3,552 |       | 176 | 62  | 4  | 0 | 0 | 1/1, 7/1  | 13 | \$100    |
| Sheppard and Enoch Pratt Hospital *                   | Towson, Md.       | R. M. Chapman    | 685   |       | 9   | 4   | 8  | 0 | 0 | Varies    | 12 | \$10     |
| McLean Hospital *                                     | Belmont, Mass.    | K. J. Thillotson | 420   |       | 15  | 5   | 4  | 0 | 0 |           |    |          |

## 19 PSYCHIATRY—(Continued)

Revision of list is now taking place in collaboration with the American Board of Psychiatry

|                                  |                      | Chief of Service  | Inpatients Treated | Outpatient Visits | Deaths | Autopsies | Residents | Assistant Residents | Fellows | Average Day  | Length of Stay (days) | No. Inmates | No. Outpatients |
|----------------------------------|----------------------|-------------------|--------------------|-------------------|--------|-----------|-----------|---------------------|---------|--------------|-----------------------|-------------|-----------------|
| Foran Psychopathic Hospital      | London               | C. M. Campbell    | 2,043              | 7,112             | 16     | 3         | 8         | 0                   | 0       | 9/1          | 1                     | 75          |                 |
| London State Hospital            | London               | H. L. Norton      | 2,110              | 2,110             | 260    | 131       | 0         | 0                   | 0       | Varies       | 1                     | Noae        |                 |
| W. J. Bennett General Hospital   | London               | S. Cobb           | 113                |                   | 2      | 1         | 1         | 1                   | 0       |              |                       |             |                 |
| London State Hospital            | London, Ma.          | C. B. Pearson     | 1,711              | 71                | 111    | 41        |           |                     |         |              |                       |             |                 |
| London State Hospital            | London, Ma.          | C. L. Pearson     | 1,611              | 75                | 73     | 20        | 0         | 0                   | 0       | Varies       | 1                     | \$150       |                 |
| London State Hospital            | London, Ma.          | L. Mott           | 1,109              | 247               | 11     | 104       | 2         | 0                   | 0       | Varies       | 1                     | \$45        |                 |
| London State Hospital            | London, Ma.          | F. K. Hott        |                    |                   | 21     |           |           |                     |         |              |                       |             |                 |
| Northampton State Hospital       | Northampton, Ma.     | C. C. Kain's Pl   | 1,701              | 1,701             | 157    | 33        | 2         | 0                   | 0       | Varies       | 1                     |             |                 |
| Northampton State Hospital       | Northampton, Ma.     | H. L. Fild        | 1,101              | 1,711             | 87     | 33        | 2         | 0                   | 0       | Varies       | 1                     | None        |                 |
| Taunton State Hospital           | Taunton, Ma.         | L. M. Chantler    | 1,111              | 3,101             | 212    | 122       | 4         | 0                   | 0       | 7/1          | 12                    | \$10        |                 |
| Worcester State Hospital         | Worcester, Ma.       | W. L. Fild        | 1,111              | 1,111             | 156    | 30        | 3         | 0                   | 0       | Varies       | 12                    | \$150       |                 |
| Worcester State Hospital         | Worcester, Ma.       | W. M. Hild        | 1,111              | 1,111             | 114    | 5         | 0         | 0                   | 0       | 1/1 7/1      | 1                     | None        |                 |
| Worcester State Hospital         | Worcester, Ma.       | R. W. Wicks       | 1,111              | 3,110             | 1      | 1         | 2         | 2                   | 0       | 7/1          | 14                    | \$25        |                 |
| City of Detroit General Hospital | Detroit              | J. M. Statton     | 5,111              | 1,111             | 13     | 25        | 1         | 1                   | 0       | 7/15         | 12                    | \$103 33    |                 |
| Henry Ford Hospital              | Detroit              | L. L. Hild        | 1,111              | 8,010             | 14     | 15        | 1         | 0                   | 0       | 7/1          | 13                    | \$10        |                 |
| Henry Ford Hospital              | Detroit              | L. L. Hild        | 1,111              | 8,010             | 12     | 33        | 7         | 0                   | 0       | 7/1          | 2                     | \$175       |                 |
| Kalamazoo State Hospital         | Kalamazoo, Mich.     | R. V. Morter      | 1,111              | 1,110             | 15     | 43        | 3         | 0                   | 0       | Varies       | 2                     | \$150       |                 |
| Leontine State Hospital          | Leontine, Mich.      | F. L. Hild        | 1,111              | 411               | 14     | 74        |           |                     |         | Varies       | 13                    | \$50        |                 |
| Traverse City State Hospital     | Traverse City, Mich. | R. L. Shild       | 1,111              | 411               | 140    | 20        | 3         | 0                   | 0       | Varies       | 3                     |             |                 |
| Ypsilanti State Hospital         | Ypsilanti, Mich.     | C. L. Volter      | 1,111              | 411               | 200    | 61        | 5         | 0                   | 0       | Varies       | 13                    | \$165       |                 |
| Van Nuys General Hospital        | Van Nuys, Cal.       | J. C. Mchill      | 1,111              | 4,110             | 15     | 43        | 0         | 0                   | 1       | 1/1 7/1      | 13                    | \$25        |                 |
| Van Nuys General Hospital        | Van Nuys, Cal.       | J. C. Mchill      | 1,111              | 4,110             | 15     | 43        | 0         | 0                   | 3       | 7/1          | 13                    | \$50        |                 |
| Mayo Foundation                  | Mayo, Minn.          | H. W. Wolfman     | (S. page 14)       |                   |        |           |           |                     |         |              |                       |             |                 |
| St. Peter State Hospital         | St. Peter, Minn.     | G. H. Freeman     |                    |                   | 210    | 45        | 1         | 0                   | 0       | Varies       | 12                    | \$75        |                 |
| State Hospital No. 1             | Fulton, Mo.          | F. K. Hild        |                    |                   | 213    | 47        | 5         | 0                   | 0       | 7/1          | 13                    | \$100       |                 |
| St. Louis City General Hospital  | St. Louis, Mo.       | F. T. Hild        | 1,111              | 1,111             | 20     | 25        | 1         | 0                   | 0       | 7/1          | 13                    | \$50        |                 |
| State Hospital No. 2             | St. Louis, Mo.       | F. T. Hild        | 1,111              | 1,111             | 20     | 25        | 4         | 0                   | 0       | Varies       | 1                     | \$75        |                 |
| City Sanitarium                  | St. Louis, Mo.       | L. H. Hild        | 1,111              | 1,111             | 103    | 67        | 5         | 0                   | 0       | 7/1          | 1                     | \$150       |                 |
| St. Louis City Hospital          | St. Louis, Mo.       | L. H. Hild        | 1,111              | 1,111             | 2      | 1         | 1         | 1                   | 0       | 7/1          | 12                    | \$100       |                 |
| St. Louis City Hospital          | St. Louis, Mo.       | L. H. Hild        | 1,111              | 1,111             | 2      | 1         | 1         | 1                   | 0       | 7/1          | 13                    | \$50        |                 |
| St. Louis State Hospital         | St. Louis, Mo.       | L. H. Hild        | 1,111              | 1,111             | 2      | 1         | 1         | 1                   | 0       | Varies       | 12                    | \$140       |                 |
| Norfolk State Hospital           | Norfolk, Neb.        | C. F. Christman   | 1,111              | 1,111             | 114    | 64        | 2         | 0                   | 0       |              |                       |             |                 |
| Babyp Clinicon Memorial Hospital | Omaha                | C. F. Christman   | 1,111              | 1,111             | 75     | 42        | 4         | 0                   | 0       | Varies       | 1                     | \$120       |                 |
| New Hampshire State Hospital     | Concord, N. H.       | C. D. Hild        | 1,111              | 1,111             | 20     | 59        | 1         | 0                   | 0       | 7/1          | 1                     | \$50        |                 |
| New Jersey State Hospital        | Croton, N. J.        | M. A. Curry       | 1,111              |                   | 510    | 116       | 13        | 0                   | 0       | Varies       | 1                     | \$160       |                 |
| New Jersey State Hospital        | Croton, N. J.        | L. B. Gordon      | 1,111              | 977               | 265    | 152       | 1         | 0                   | 0       | 7/1          | 1                     | \$50        |                 |
| New Jersey State Hospital        | Croton, N. J.        | R. G. Stone       | 1,111              | 6,210             | 297    | 51        | 2         | 0                   | 0       | 7/1          | 1                     |             |                 |
| New Jersey State Hospital        | Croton, N. J.        | D. E. Cameron     | 1,111              |                   | 46     | 32        | 1         | 1                   | 0       | 7/1          | 27                    | \$25        |                 |
| New Jersey State Hospital        | Croton, N. J.        | L. Wendt          | 1,111              |                   |        |           | 3         | 0                   | 0       | 1/1 7/1 10/1 | 1                     | \$10        |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | W. C. Garvin      | 3,110              | 3,31              | 250    | 53        | 4         | 0                   | 0       | Varies       | 1                     | \$150       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | C. Fletcher       | 3,173              | 1,757             | 151    | 25        | 3         | 0                   | 0       | Varies       | 17                    | \$150       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | A. I. Cirlch      | 1,110              | 1,241             | 10     | 49        |           |                     |         | 7/1          | 3                     | \$59        |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | D. Corcoran       | 1,110              | 3,317             | 529    | 183       | 12        | 0                   | 0       | 1/1 7/1      | 13                    | \$150       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | F. V. Gray        | 2,01               |                   | 175    | 60        |           |                     |         |              |                       |             |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | L. H. Shull-ton   | 7,091              | 2,183             | 376    | 125       |           |                     |         |              |                       |             |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | W. W. Wright      | 3,314              | 1,941             | 297    | 16        | 5         | 0                   | 0       | Varies       | 17                    | \$150       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | W. A. Schmitt     | 3,743              | 1,045             | 177    | 76        | 2         | 2                   | 0       | Varies       | 1                     | \$140       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | C. N. Collett     | 31,722             |                   |        |           | 12        | 0                   | 7       | 1/1 7/1      | 1                     | \$100       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | O. Dethelm        | 342                | 6,170             | 1      | 1         | 1         | 9                   | 0       | 7/1          | 15                    | \$25        |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | N. D. C. Lewis    | 431                | 1,617             | 0      | 0         | 5         | 0                   | 0       | 1/1 7/1      | 12                    | \$25        |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | S. D. Vestermarck | 509                | 91                |        |           | 2         | 0                   | 0       | 7/1          | 1                     | \$150       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | J. A. Pritchard   | 2,061              | 552               | 141    | 37        | 3         | 0                   | 0       | Varies       | 17                    | \$150       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | R. E. Baldell     | 5,619              | 4,412             | 569    | 151       | 6         | 0                   | 0       | Varies       | 17                    | \$150       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | J. R. Ro          | 5,274              | 5,297             | 334    | 95        | 3         | 0                   | 0       | Varies       | 17                    | \$150       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | G. W. Mills       | 5,293              | 4,066             | 405    | 156       | 2         | 0                   | 0       | Varies       | 2                     | \$150       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | J. L. Van De Mark | 3,976              | 56                | 300    | 71        | 2         | 0                   | 0       | Varies       | 17                    | \$150       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | R. C. A. Jaenik   | 464                | 1,071             |        |           | 1         | 0                   | 0       | 7/1          | 1                     | \$125       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | W. E. Merriman    | 2,407              | 1,025             | 224    | 31        | 3         | 0                   | 0       | 7/1          | 1                     | \$125       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | T. P. Brennan     | 1,155              | 604               | 46     | 31        | 3         | 0                   | 0       | 1/1 7/1      | 12                    | \$75        |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | C. O. Cheaney     | 764                |                   | 10     | 4         | 5         | 0                   | 0       | 1/1 7/1      | 13                    | \$125       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | J. R. Ro          | 4,937              | 2,075             | 230    | 49        | 3         | 0                   | 0       | Varies       | 17                    | \$150       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | R. S. Lyman       | 2,60               | 1,546             |        |           | 1         | 2                   | 0       | 7/1          | 12                    | \$41        |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | J. Romano         | 1,265              | 2,63              | 21     | 9         | 1         | 2                   | 0       | 7/1          | 12                    | \$75        |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | E. A. Baber       | 3,357              | 754               | 75     | 75        | 2         | 0                   | 0       | 7/1          | 1                     | \$75        |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | L. I. Karnosh     | 510                | 2,126             | 51     | 15        | 1         | 2                   | 0       | 7/1          | 13                    | \$40        |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | J. F. Bateman     | 3,100              | 3,073             | 174    | 100       | 1         | 1                   | 0       | 7/1          | 1                     | \$100       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | A. G. Hyde        | 4,265              | 1,342             | 222    | 31        | 4         | 0                   | 0       | 1/1 7/1      | 12                    | \$50        |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | G. T. Harding     | 253                |                   | 7      | 0         | 1         | 0                   | 0       | 5/1          | 1                     | \$150       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | J. D. Plamondon   | 3,200              | 3,006             | 303    | 112       | 2         | 0                   | 0       | 7/1          | 1                     | \$100       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | L. R. Chamberlain | 2,555              | 3,006             | 143    | 29        | 1         | 0                   | 0       | Varies       | 1                     |             |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | H. K. Petry       | 2,561              | 304               | 162    | 44        | 2         | 0                   | 0       | 9/1          | 17                    | \$125       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | A. P. Noyes       | 4,355              | 1,190             | 237    | 65        |           |                     |         |              |                       |             |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | T. L. Dehne       | 259                |                   | 16     | 5         | 2         | 0                   | 0       | 7/1          | 12                    | \$100       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | L. H. Smith       | 316                | 3,215             | 1      | 0         | 0         | 0                   | 4       | 7/1          | 1                     | Varies      |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | L. H. Smith       | 461                | 1,721             | 13     | 4         | 0         | 0                   | 6       | 7/1          | 1                     | Varies      |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | L. H. Smith       | 4,641              | 635               |        |           | 1         | 0                   | 0       | 5/1          | 12                    | \$50        |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | L. H. Smith       | 215                | 1,307             |        |           | 1         | 0                   | 0       | 7/1          | 3                     | \$40        |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | G. J. Wright and  |                    |                   |        |           |           |                     |         |              |                       |             |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | H. L. Mitchell    | 3,018              | 397               | 113    | 23        | 3         | 0                   | 0       | 9/1          | 13                    | \$55        |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | R. H. Israel      | 3,255              | 534               | 217    | 53        | 2         | 2                   | 0       | Varies       | 13                    | \$125       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | C. P. Fitzpatrick | 3,466              | 411               | 267    | 86        | 4         | 0                   | 0       | 7/1          | 12                    | \$75        |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | A. H. Ruggles     | 342                | 562               | 18     | 6         | 3         | 0                   | 0       | 1/1 7/1      | 1                     | \$50        |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | H. E. Aene        | 733                | 933               | 37     |           | 1         | 0                   | 0       | 1/1          | Varies                | \$75        |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | G. A. Kempf       |                    |                   |        |           | 3         | 0                   | 0       | 7/1          | 12                    | \$150       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | T. H. Harris      | 511                |                   | 2      | 1         | 1         | 1                   | 0       | 7/1          | 13                    | \$100       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | T. H. Harris      | 905                | 254               |        |           | 1         | 2                   | 0       | 7/1          | 13                    | \$25        |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | D. C. Wilson      | 467                | 1,291             | 7      | 3         | 1         | 1                   | 0       | 7/1          | 1                     | \$50        |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | G. W. Brown       | 529                |                   | 143    | 62        | 4         | 0                   | 0       | 7/1          | 12                    | \$50        |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | R. H. Ren         | 3,395              |                   | 253    | 165       | 2         | 0                   | 0       | 7/1          | 13                    | \$150       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | M. W. Conway      | 2,329              | 103               | 172    | 5         | 3         | 0                   | 0       | 7/1          | 1                     | \$100       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | J. W. Doughty     | 2,556              |                   | 172    | 95        | 2         | 0                   | 0       | Varies       | 12                    | \$100       |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | W. F. Lorenz      | 1,224              | 299               | 30     | 22        | 1         | 0                   | 1       | 7/1          | 1                     | \$5         |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | M. Kasak          | 1,515              | 1,157             | 32     | 9         | 4         | 0                   | 0       | 1/1 7/1      | 3                     | \$50        |                 |
| Buffalo State Hospital           | Buffalo, N. Y.       | L. H. Ziegler     | 479                |                   | 10     | 3         | 2         | 0                   | 0       | 7/1          | 13                    | \$50        |                 |

Numerical and other references will be found on page 1344

## 20 RADIOLOGY

The following services are approved by the Council and the American Board of Radiology  
(See footnotes 11, 12 and 13)

|   |                    | Chief of Service | Type of Training | Röntgenographic Examinations | X-Ray Treatments | Radium Treatments | Autopsy Percentage | Residents | Assistant Residents | Fellows | Service Begins                                | Length of Service (Years) | Beginning Stipend |
|---|--------------------|------------------|------------------|------------------------------|------------------|-------------------|--------------------|-----------|---------------------|---------|---|---------------------------|-------------------|
| Los Angeles County Hospital *1 12                     | Los Angeles        | R A Carter       | Rad              | 61,862                       | 10,378           | 11,000            | 60                 | 3         | 0                   | 0       | 7/1   | 3                         | \$15              |
| St Vincent's Hospital *1-                             | Los Angeles        | K S Davis        | Rad              | 8,399                        | 1,360            | 200               | 47                 | 1         | 0                   | 0       | 7/1   | 12                        |                   |
| White Memorial Hospital *12                           | Los Angeles        | W L Stillson     | Rad              | 7,533                        |                  |                   | 50                 | 2         | 0                   | 0       | 7/1   | 13                        | \$80              |
| San Francisco Hospital *1 12                          | San Francisco      | L H Gurnand and  | Rad              |                              | 6,510            |                   |                    |           |                     |         |   |                           |                   |
| Stanford University Hospital *1 12                    | San Francisco      | R R Swell        | Rad              | 62,101                       | 1,000            | 10                | 47                 | 4         | 0                   | 0       | 7/1   | 2                         | \$80              |
| University of California Hospital *1 12               | San Francisco      | R S Stone        | Rad              | 13,669                       | 7,679            | 213               | 50                 | 1         | 3                   | 0       | 7/1   | 1                         | \$25              |
| Colorado General Hospital *12                         | Denver             | I A Schmidt      | Rad              | 11,396                       | 9,717            | 327               | 88                 | 1         | 3                   | 0       | 7/1   | 3                         | \$25              |
| Hartford Hospital *12                                 | Hartford, Conn     | D I Roberts      | Rad              | 8,015                        | 3,772            | 35                | 91                 | 2         | 0                   | 0       | 7/1   | 23                        | \$40              |
| New Haven Hospital *1 12                              | New Haven, Conn    | H Wilson         | Rad              | 12,017                       | 6,621            | 91                | 52                 | 1         | 0                   | 1       | 1/1, 7/1                                      | 23                        |                   |
| Garfield Memorial Hospital *12                        | Washington, D C    | I A Merritt      | Rad              | 22,538                       | 3,415            | 71                | 57                 | 1         | 2                   |         | 7/1   | 1                         | None              |
| Georgetown University Hospital *12                    | Washington, D C    | I O Co           | Rad              | 6,611                        | 13,002           | 117               | 60                 | 1         | 0                   | 1       | 7/1   | 1                         |                   |
| Sibley Memorial Hospital *12                          | Washington, D C    | I F Edward       | Rad              | 6,230                        | 2,957            | 27                | 31                 | 0         | 0                   | 2       | 7/1   | 2                         |                   |
| Veterans Administration Facility 12                   | Washington, D C    | W P Hyman        | Rad              | 2,766                        | 86               | 31                | 50                 | 1         | 0                   | 0       | 7/1   | 13                        |                   |
| Walter Reed General Hospital *1 12                    | Washington, D C    | W L Thompson     | Rad              | 4,097                        | 1,652            | 5                 | 46                 | 1         | 0                   | 0       | Varies  | 1+                        |                   |
| James M Jackson Memorial Hospital *12                 | Miami Fla          | C P Truitt       | Rad              | 22,843                       | 5,288            | 319               | 82                 | 1         | 0                   | 1       | Varies  | 23                        |                   |
| Grady Hospital *12                                    | Atlanta, Ga        | P J Kline        | Roent            | 16,885                       | 2,867            | 27                | 20                 | 1         | 0                   | 0       | 7/1   | 3                         | \$100             |
| Piedmont Hospital *12                                 | Atlanta, Ga        | G Hradick        | Rad              | 22,177                       | 618              | 19                | 1                  | 0         | 0                   | 0       | 7/1   | 1                         | \$20              |
| Cook County Hospital *1 12                            | Chicago            |                  | Rad              | 2,232                        | 1,115            | 15                | 51                 | 0         | 2                   | 0       | 7/1   | 1                         | \$80              |
| Michael Reese Hospital *1 12                          | Chicago            | R A Arons        | Rad              | 91,368                       | 26,816           | 153*              | 23                 | 1         | 0                   | 2       | 1/1, 7/1                                      | 13                        |                   |
| Mount Sinai Hospital *1 12                            | Chicago            | G Danahy         | Roent            | 28,674                       | 8,186            | 3,623             | 61                 | 1         | 2                   | 2       | 1/1, 7/1                                      | 3                         | \$25              |
| Passavant Memorial Hospital *1 12                     | Chicago            | I J Case         | Rad              | 7,492                        | 2,397            | 25                | 47                 | 1         | 0                   | 0       | 1/1   | 3                         | \$25              |
| Presbyterian Hospital *12                             | Chicago            | F H Squire       | Rad              | 3,911                        | 1,613            | 75                | 0                  | 0         | 2                   |         | 1/1, 7/1                                      | 3                         |                   |
| Provident Hospital *1 12                              | Chicago            | B W Anthony      | Rad              | 21,302                       | 1,822            | 16                | 58                 | 0         | 0                   | 2       | Varies  | 3                         | \$80              |
| Research and Educational Hospitals *12                | Chicago            | A Hartung        | Rad              | 1,926                        | 1,091            | 10                | 49                 | 1         | 0                   | 0       | 7/1   | 13                        | \$80              |
| St Luke's Hospital *12                                | Chicago            | F L Jenkinson    | Rad              | 9,279                        | 7,113            | 87                | 91                 | 3         | 0                   | 0       | 7/1   | 13                        | \$80              |
| University of Chicago Clinics *12                     | Chicago            | P C Holmes       | Rad              | 15,101                       | 4,885            | 22                | 60                 | 0         | 0                   | 1       | 7/1   | 13                        | \$75              |
| Evanston Hospital *12                                 | Evanston, Ill      | I R Crowder and  | Rad              | 19,06                        | 9,208            | 73                | 81                 | 1         | 2                   | 3       | 1/1, 7/1                                      | 3                         | \$25              |
| Veterans Administration Facility 12                   | Illness, Ill       | A F Williams     | Rad              | 11,290                       | 983              | 20                | 80                 | 0         | 1                   | 0       | 7/1   | 3                         | \$83              |
|   |                    | C W McClanahan   | Rad              | 16,303                       | 21,111           | 1,888             | 40                 |           |                     |         | (Training open to medical officers, U S V, B) |                           |                   |
| St Margaret's Hospital *12                            | Hammond Ind        | C W Rauschbaueh  | Roent            |                              | 466              | 0                 | 19                 | 1         | 0                   | 0       | 7/1   | 1+                        | \$100             |
| Indiana University Medical Center *1 12               | Indianapolis       | A P Lichterbach  | Rad              | 15,671                       | 8,211            | 117               | 50                 | 0         | 0                   | 2       | 7/1   | 3                         | \$63              |
| Methodist Hospital *12                                | Indianapolis       | H Ochener        | Rad              | 12,567                       | 3,851            | 19                | 37                 | 2         | 0                   | 0       | 7/1   | 12                        | \$80              |
| University Hospital *1 12                             | Iowa City          | H D Kerr         | Rad              | 32,976                       | 12,260           | 80                | 58                 | 2         | 4                   | 0       | 7/1   | 3                         | \$20 83           |
| University of Kansas Hospital *1 12                   | Kansas City, Kan   | G M Tice         | Rad              | 22,116                       | 5,139            | 178               | 72                 | 1         | 0                   | 0       | 7/1   | 3                         | \$80              |
| Charity Hospital *1 12                                | New Orleans        | I J Manville     | Rad              | 69,246                       | 23,130           | 318               | 43                 | 3         | 3                   | 0       | 7/1   | 13                        | \$25              |
| Southern Baptist Hospital *12                         | New Orleans        | I W Makruder     | Rad              | 6,737                        | 3,717            | 101               | 30                 | 1         | 1                   | 0       | 7/1   | 24                        | \$100             |
| Touro Infirmary *12                                   | New Orleans        | M D Zeltzbbaum   | Roent            | 38,499                       |                  | 69                | 1                  | 0         | 0                   | 0       | 7/1   | 1                         |                   |
| Shreveport Charity Hospital *12                       | Shreveport, La     | R W Cooper       | Rad              | 7,519                        | 7,155            | 104               | 48                 | 2         | 0                   | 0       | 6/1   | 23                        | \$80              |
| Johns Hopkins Hospital *12                            | Baltimore          | I W Pearson      | Rad              | 118,612                      | 8,714            | 250               | 74                 | 1         | 1                   | 1       | 7/1, 9/1                                      | 13                        |                   |
| University Hospital *12                               | Baltimore          | W L Kelly        | Rad              | 17,273                       | 6,836            | 302               | 48                 | 1         | 1                   | 1       | 7/1   | 3                         | \$25              |
| Beth Israel Hospital *12                              | Boston             | S A Robins       | Rad              | 12,782                       | 3,251            | 13                | 55                 | 1         | 0                   | 0       | 7/1   | 3                         | \$35 40           |
| Boston City Hospital *12                              | Boston             | P I Butler       | Rad              | 65,629                       | 5,742            | 59                | 70                 | 1         | 3                   | 0       | Varies  | 1+                        | \$33 33           |
| Children's Hospital *12                               | Boston             | E B D Neuhauser  | Roent            | 14,407                       | 751              | 80                | 1                  | 0         | 0                   | 0       | 7/1   | 14                        |                   |
| Lahay Clinic *12                                      | Boston             | H F Hare         | Rad              | 50,000                       | 6,000            | 50                | 0                  | 0         | 1                   |         | 7/1   | 13                        | \$100*            |
| Massachusetts General Hospital *12                    | Boston             | I O Hampton      | Rad              | 30,867                       | 8,333            | 68                | 62                 | 1         | 2                   | 0       | 7/1   | 3                         |                   |
| Massachusetts Memorial Hospital *1 12                 | Boston             | G Levene         | Rad              | 9,596                        | 2,279            | 41                | 76                 | 2         | 1                   | 1       | Varies  | 3                         | \$42              |
| New England Deaconess Hospital *12                    | Boston             | I H Marks        | Rad              | 7,084                        | 5,051            | 252               | 58                 | 1         | 0                   | 0       | 7/1   | 13                        |                   |
| Peter Bent Brigham Hospital *12                       | Boston             | M C Soeman       | Rad              | 15,285                       | 3,715            | 282               | 68                 | 1         | 1                   | 0       | 7/1   | 3                         | \$12              |
| University Hospital *1 12                             | Ann Arbor, Mich    | I J Hodges       | Rad              | 34,887                       | 13,880           | 232               | 66                 | 3         | 3                   | 0       | 7/1   | 3                         | \$25              |
| City of Detroit Receiving Hospital *1 1-              | Detroit            | I O Kennlin      | Roent            | 30,619                       |                  | 34                | 1                  | 1         | 0                   | 0       | 7/15  | 2                         | \$103             |
| Grace Hospital *12                                    | Detroit            | R H Stevens      | Rad              | 13,872                       | 5,098            | 25                | 34                 | 2         | 0                   | 0       | 1/1, 4/1                                      | 3                         | \$100             |
| Harper Hospital *12                                   | Detroit            | I Reynolds       | Rad              | 16,000                       | 14,083           | 340               | 38                 | 1         | 1                   | 0       | 7/1   | 1                         | \$25              |
| Henry Ford Hospital *12                               | Detroit            | H P Donb         | Rad              | 28,871                       | 3,400            | 177               | 51                 | 1         | 1                   | 0       | 7/1   | 3                         | \$130             |
| Hurley Hospital *12                                   | Flint, Mich        | W W Clift        | Rad              | 12,355                       | 3,672            | 16                | 29                 | 1         | 0                   | 0       | 7/1   | 13                        |                   |
| Mayo Foundation 12                                    | Rochester Minn     | B R Kirklin      | Rad              | 161,201                      | 18,925           | 3,000             | 78                 | 0         | 0                   | 8       | Quart   | 3                         | \$83              |
| University Hospitals *12                              | Minneapolis        | L Rigler         | Rad              | 32,272                       | 12,209           | 597               | 72                 | 0         | 0                   | 4       | 7/1   | 13                        | \$80              |
| St Joseph Hospital *12                                | Kansas City, Mo    | C F Virden       | Rad              | 5,093                        | 2,084            | 109               | 62                 | 1         | 0                   | 0       | 7/1   | 13                        |                   |
| Barnes Hospital *12                                   | St Louis           | S Moore          | Rad              | 52,011                       | 1,058            | 116               | 60                 | 1         | 1                   | 0       | 7/1   | 13                        | \$25              |
| Homer G Phillips Hospital *12                         | St Louis           | E W Spinzlg      | Rad              | 13,820                       | 1,144            | 12                | 35                 | 1         | 0                   | 0       | 7/1   | 13                        | \$75              |
| St Louis City Hospital *1 12                          | St Louis           | L R Saute        | Rad              | 30,801                       | 1,784            | 400               | 53                 | 1         | 2                   | 1       | 7/1   | 13                        |                   |
| St Luke's Hospital *12                                | St Louis           | O C Zink         | Rad              | 4,122                        | 844              | 183               | 38                 | 1         | 0                   | 0       | 7/1   | 3                         | \$75              |
| Orelinton Memorial St Joseph Hosp *12                 | Omaha              | I F Kelly        | Rad              | 2,234                        | 2,674            | 94                | 26                 | 1         | 0                   | 0       | 7/1   | 13                        | \$15              |
| University of Nebraska Hospital *12                   | Omaha              | H B Hunt         | Rad              | 4,978                        | 3,514            | 220               | 84                 | 1         | 0                   | 1       | 1/1, 7/1                                      | 1                         | \$50              |
| Mary Hitchcock Memorial Hospital *12                  | Hanover N H        | L K Symmore      | Rad              | 6,181                        | 2,659            | 36                | 84                 | 1         | 0                   | 0       | 7/1   | 2                         | \$42              |
| Newark Beth Israel Hospital *1 12                     | Newark, N J        | N J Furst        | Rad              | 7,535                        | 2,440            | 148               | 44                 | 1         | 0                   | 0       | 7/1   | 2                         | \$25              |
| Brooklyn Hospital *1-                                 | Brooklyn           | I Pope           | Rad              | 5,590                        | 1,942            | 83                | 40                 | 1         | 0                   | 0       | Varies  | 12                        |                   |
| Jewish Hospital *1 12                                 | Brooklyn           | M G Waseh        | Rad              | 17,000                       | 3,641            | 14                | 46                 | 1         | 1                   | 0       | 7/1 1/1                                       | 1 1/2                     | \$25              |
| Kings County Hospital * (D R 1-, Ther Rad 12)         | Brooklyn           | R A Rendleth     | D R              | 69,315                       |                  | 17                | 1                  | 1         | 0                   | 0       | 7/1   | 23                        | \$18              |
|   |                    | A B Iriehuan     | Ther Rad         |                              | 19,633           | 137               | 17                 | 1         | 0                   | 0       | 9/1   | 1                         | \$18              |
| Long Island College Hospital *1 12                    | Brooklyn           | A L L Bell       | Rad              | 15,337                       | 2,765            | 254               | 44                 | 2         | 1                   | 0       | 7/1   | 3                         | \$22 50           |
| Methodist Hospital *1-                                | Brooklyn           | G B Craup        | Rad              | 6,332                        | 1,262            | 74                | 34                 | 1         | 0                   | 0       | 7/1   | 1                         | \$10              |
| Edward J Meyer Memorial Hospital *1 12                | Buffalo            | G N Seatehard    | Rad              | 13,052                       | 3,481            | 11                | 30                 | 0         | 2                   | 0       | 7/1   | 34                        | \$80              |
| Queens General Hospital *1 1-                         | Jamaica, N Y       | I S Startz       | Rad              | 24,191                       | 8,157            | 97                | 75                 | 2         | 0                   | 0       | 7/1   | 2                         | \$18              |
| New Rochelle Hospital *1-                             | New Rochelle, N Y  | J F Miller       | Roent            | 8,394                        | 3,338            | 24                | 48                 | 1         | 0                   | 0       | Var es  | 12                        | \$80              |
| Bellevue Hospital *1, (D R 12, The Rad 12)            | New York City      | L R Frierhnan    | D R              | 110,346                      |                  | 39                | 5                  | 0         | 0                   | 0       | 1/1, 7/1                                      | 1 1/2                     | \$18              |
|   |                    | I I Kaplan       | Ther Rad         |                              | 10,660           | 793               | 39                 | 1         | 3                   | 2       | 1/1, 7/1                                      | 1                         | \$18              |
| Beth Israel Hospital *1 12                            | New York City      |                  | Rad              | 7,859                        | 2,564            | 135               | 12                 | 2         | 0                   | 0       | 1/1, 10/1                                     | 1                         | \$15              |
| Bronx Hospital *1-                                    | New York City      | W Snow           | Rad              | 6,769                        | 2,176            | 10                | 44                 | 1         | 1                   | 0       | 1/1, 7/1                                      | 1                         | \$25              |
| Flower and Fifth Avenue Hospitals *12                 | New York City      | C Howard         | Rad              | 5,817                        | 2,068            | 45                | 28                 | 1         | 0                   | 0       | 7/1   | 1                         |                   |
| Lenox Hill Hospital *1 1-                             | New York City      | F Huber          | Roent            | 14,610                       | 2,876            | 27                | 40                 | 1         | 0                   | 0       | 1/1   | 1                         | \$25              |
| Montefiore Hospital *1 12                             | New York City      | A J Bendick and  |                  |                              |                  |                   |                    |           |                     |         |   |                           |                   |
|   |                    | J R Freid        | Rad              | 7,753                        | 7,994            | 22                | 64                 | 3         | 0                   | 0       | 1/1, 7/1                                      | 12                        |                   |
| Morrisania City Hospital *12                          | New York City      | S Weltzner       | Rad              | 23,374                       | 5,170            | 121               | 30                 | 1         | 0                   | 0       | 1/1   | 1                         | \$18              |
| Mount Sinai Hospital *1 12                            | New York City      | M L Sussman      | Rad              | 23,283                       | 12,613           | 48                | 2                  | 2         | 0                   | 0       | 1/1 7/1                                       | 2                         | \$80              |
| New York City Hospital *12                            | New York City      | E Kraft          | D R              | 12,801                       | 73               | 37                | 1                  | 0         | 0                   | 0       | 7/1   | 1                         | \$100             |
| New York Hospital *12                                 | New York City      | J R Carty        | Rad              | 45,745                       | 8,213            | 43                | 67                 | 1         | 2                   | 0       | 7/1   | 34                        | \$25              |
| New York Polytechnic Medical School and Hospital *12  | New York City      | E E Smith        | Rad              | 5,932                        | 2,662            | 6                 | 20                 | 1         | 0                   | 0       | 7/1   | 2                         | \$30              |
| New York Post Graduate Hospital *12                   | New York City      | W H Meyer        | Rad              | 10,374                       | 6,005            | 731               | 43                 | 1         | 2                   | 0       | 1/1, 7/1                                      | 1 1/2                     | \$12              |
| Presbyterian Hospital *1 12                           | New York City      | R Golden         | Rad              | 26,232                       | 12,879           | 303               | 59                 | 1         | 2                   | 0       | 9/1   | 3                         | \$12              |
| Roosevelt Hospital *12                                | New York City      | W H Boone        | Rad              | 16,542                       | 2,063            | 64                | 45                 | 1         | 1                   | 0       | 7/1   | 12                        | \$25              |
| St Luke's Hospital *12                                | New York City      | E J Ryann        | Rad              | 21,504                       | 4,972            | 142               | 61                 | 1         | 1                   | 0       | 7/1   | 2                         | \$80              |
| Welfare Hosp for Chronic Diseases *1 12               | New York City      | H K Taylor       | Roent            | 11,936                       | 730              | 47                | 1                  | 0         | 0                   | 0       | 7/1   | 1+                        | \$100             |
| Strong Memorial and Rochester Municipal Hospitals *12 | Rochester, N Y     | S L Warren       | Rad              | 20,000                       | 8,400            | 511               | 71                 | 1         | 2                   | 0       | 7/1   | 14                        | \$83              |
| Sea View Hospital *1 12                               | Staten Island, N Y | A V Shapiro      | D R              | 22,537                       |                  | 30                | 1                  | 0         | 0                   | 0       | 7/1   | 1                         | \$100             |

Numerical and other references will be found on page 1344



The following services are approved by the Council and the American Board of Radiology  
(See footnotes 11, 12 and 13)

## 21 SURGERY

|  |                  |       | Chief of Service            | Inpatients<br>Treated | Outpatient<br>Visits | Deaths | Amputations | Residents | Assistant<br>Residents | Follows | Service<br>Days | Length of<br>Service<br>(Years) | Beginning<br>Stipend |
|--|------------------|-------|-----------------------------|-----------------------|----------------------|--------|-------------|-----------|------------------------|---------|-----------------|---------------------------------|----------------------|
| Hillmann Hospital *  | Birmingham       | Ala   | D S Moore                   | 1,661                 | 11,566               | 101    | 63          | 2         | 0                      | 0       | 7/1             | 1                               | \$30                 |
| Norwood Hospital *   | Birmingham       | Ala   | C N Carraway                | 2,166                 | 16,602               | 41     | 19          | 1         | 0                      | 0       | 7/1             | 1                               | \$150                |
| Employees Hospital of the Tennessee Coal<br>Iron and Railroad Co * | Fairfield        | W Va  | L Noland                    | 13,10                 | 10,090               | 20     | 5           | 1         | 0                      | 0       | 7/1             | 1                               | \$150                |
| Baptist State Hospital *   | Little Rock      | Ark   | W M Eubanks                 | 2,637                 |                      | 49     | 9           | 1         | 0                      | 0       | 7/1             | 13                              | \$40                 |
| General Hospital of Fresno County *                                | Fresno           | Calif |                             | 1,12                  |                      | 34     | 13          | 4         | 0                      | 0       | 7/1             | 4                               | \$55                 |
| Cedars of Lebanon Hospital *                                       | Los Angeles      |       | L Fehler and<br>M H Rubwin  | 2,029                 | 3,340                | 84     | 29          | 1         | 0                      | 0       | 7/1             | 1                               | \$45                 |
| Los Angeles County Hospital *                                      | Los Angeles      |       | P Cunnane                   | 4,391                 | 26,431               | 212    | 149         | 7         | 0                      | 0       | 1/1 7/1         | 314                             | \$10                 |
| White Memorial Hospital *  | Los Angeles      |       | G Thomason                  | 1,522                 | 12,102               | 47     | 23          | 12        | 0                      | 0       | 7/1             | 13                              | \$10                 |
| Highland Alameda County Hospital *                                 | Oakland          | Calif |                             | 1,367                 |                      | 27     | 1           | 1         | 0                      | 0       | 7/1             | 1                               | \$0                  |
| San Bernardino County Charity Hospital *                           | San Bernardino   | Calif | C G Hilliard                | 52                    | 4,362                | 56     |             | 1         | 0                      | 0       | 7/1             | 1                               | \$10                 |
| San Diego County General Hospital *                                | San Diego        | Calif | C M Fox                     | 3,26                  | 16,043               | 255    | 66          | 12        | 0                      | 0       | 7/1             | 1                               | \$15                 |
| Franklin Hospital *  | San Francisco    |       | T F Mullen                  | 1,164                 |                      | 7      | 5           | 1         | 1                      | 0       | 7/1             | 1                               | \$40                 |
| Children's Hospital *  | San Francisco    |       | A Kilgore                   |                       | 2,351                | 17     |             | 0         | 1                      | 0       | 7/1             | 1                               | \$5                  |
| Mary's Help Hospital *   | San Francisco    |       | E Carlson                   | 491                   | 5,865                | 20     | 3           | 1         | 0                      | 0       | 7/1             | 1                               | \$25                 |
| Mount Zion Hospital *  | San Francisco    |       | F I Harris                  | 2,031                 | 2,357                | 21     | 10          | 1         | 2                      | 0       | 7/1             | 1                               | \$30                 |
| St. Luke's Hospital *  | San Francisco    |       | A Weeks                     | 4,027                 |                      | 59     | 32          | 1         | 0                      | 0       | 7/1             | 1                               | \$100                |
| San Francisco Hospital *   | San Francisco    |       | H Brunn and<br>L Etocesser  | 4,453                 |                      |        |             | 2         | 9                      | 0       | 7/1             | 1                               | \$30                 |
| Stanford University Hospital *                                     | San Francisco    |       | E Holman                    | 1,65                  | 15,335               | 24     | 8           | 1         | 4                      | 0       | 7/1             | 1                               | \$25                 |
| University of California Hospitals *                               | San Francisco    |       | H C Naffziger               | 13.6                  | 14,449               | 32     | 24          | 1         | 8                      | 0       | 9/1             | 14                              | \$25                 |
| Santa Clara County Hospital *                                      | San Jose         | Calif | C Sullivan                  | 3,996                 |                      |        | 14          | 1         | 0                      | 0       | 7/1             | 15                              | \$30                 |
| Colorado General Hospital *  | Denver           |       | G B Packard                 | 906                   | 5,918                | 46     | 42          | 12        | 0                      | 0       | 8/1             | 2                               | \$10                 |
| St. Luke's Hospital *  | Denver           |       | C McLauthlin                | 3,336                 |                      | 44     | 24          | 12        | 0                      | 0       | 7/1             | 2                               | \$30                 |
| Grace Hospital *   | New Haven        | Conn  | R Nichols                   | 1,549                 | 691                  | 47     | 11          | 1         | 0                      | 0       | 7/1             | 3                               | \$40                 |
| New Haven Hospital *   | New Haven        | Conn  | S C Harvey                  | 2,744                 | 12,017               | 107    | 61          | 12        | 6                      | 0       | 7/1             | 1                               | \$                   |
| Memorial Hospital *  | Wilmington       | Del   | J G Spackman                | 2,205                 | 1,641 <sup>b</sup>   |        |             | 1         | 2                      | 0       | 9/1             | 3                               | \$50                 |
| Central Dispensary and Emergency Hos-<br>pital *                   | Washington       | D C   | J F Mitchell                | 2,624                 |                      | 53     | 29          | 12        | 3                      | 0       | 7/1             | 1                               | \$10.50              |
| Freedmen's Hospital *  | Washington       | D C   | C Drew                      | 995                   | 8,476                | 49     | 13          | 1         | 3                      | 0       | 10/1            | 13                              | \$20                 |
| Gallinger Municipal Hospital *                                     | Washington       | D C   | C S White                   | 1,451                 | 6,924                | 63     | 27          | 1         | 2                      | 0       | 7/1             | 1                               |                      |
| Garfield Memorial Hospital *                                       | Washington       | D C   | H H Kerr                    | 4,043                 | 1,61                 | 67     |             | 1         | 2                      | 0       | 7/1             | 12                              | \$50                 |
| Georgetown University Hospital *                                   | Washington       | D C   | J A Cabell Jr               | 1,748                 | 2,652                | 44     | 22          | 1         | 1                      | 0       | 7/1             | 13                              | \$75                 |
| Providence Hospital *  | Washington       | D C   | J Cabell                    | 2,713                 | 12,015               | 63     | 13          | 1         | 1                      | 0       | 7/1             | 1                               |                      |
| Sibley Memorial Hospital *   | Washington       | D C   | P S Putzki                  | 1,923                 |                      |        |             | 1         | 0                      | 0       | 7/1             | 2                               | \$75                 |
| Dural County Hospital *  | Jacksonville     | Fla   | E Jells                     | 674                   |                      | 74     | 34          | 1         | 2                      | 0       | 7/1             | 1                               | \$30                 |
| James M Jackson Memorial Hospital *                                | Miami            | Fla   |                             | 2,617                 | 6,631                | 114    | 46          | 1         | 2                      | 0       | 7/1             | 1                               | \$45                 |
| Grady Hospital *   | Atlanta          | Ga    | B H Clifton and<br>G Fuller | 4,184                 | 42,427               | 239    | 69          | 2         | 10                     | 2       | 7/1             | 4                               | \$40                 |
| St. Joseph's Infirmary *   | Atlanta          | Ga    | G Pope Huguley              | 2,004                 | 450                  | 13     | 3           | 1         | 0                      | 0       | 7/1             | 13                              | \$100                |
| University Hospital *  | Augusta          | Ga    | J H Sherman                 | 2,941                 | 4,543                | 115    | 30          | 0         | 3                      | 0       | 7/1             | 14                              | \$15                 |
| Emory University Hospital *  | Emory University | Ga    |                             | 7,340                 |                      | 15     | 5           | 1         | 1                      | 0       | 7/1             | 1                               | \$50                 |

Numerical and other references will be found on page 1344

## 21 SURGERY—(Continued)

|  |                    | Chief of Service              | Inpatients Treated | Outpatient Visits | Deaths | Autopsies | Residents | Residents Assistant | Fellows | Service Begins | Length of Service (Years) | Beginning Stipend |
|--|--------------------|-------------------------------|--------------------|-------------------|--------|-----------|-----------|---------------------|---------|----------------|---------------------------|-------------------|
| Augustana Hospital *                       | Chicago            | N M Perey                     | 1,595              | 707               |        |           |           |                     |         | 1/1            | 1                         | None              |
| Cook County Hospital *                     | Chicago            | M Davison                     | 18,132             | 12,025            | 1,118  | 139       | 12        | 0                   | 0       | 1/1            | 13                        | \$25              |
| Grant Hospital *                           | Chicago            |                               | 3,098              | 7,000             | 30     | 9         | 2         | 0                   | 0       | 7/1            | 13                        | \$25              |
| Mercy Hospital—Loyola University Clinics * | Chicago            | H A Oberhelman                | 2,095              | 5,082             | 60     | 27        | 2         | 0                   | 0       | 7/1            | 1                         | \$50              |
| Michael Reese Hospital *                   | Chicago            | M I Parker                    | 2,311              | 7,538             | 81     | 36        | 3         | 3                   | 0       | 1/1, 7/1       | 12                        | \$50              |
| Mount Sinai Hospital *                     | Chicago            |                               | 1,572              | 4,286             | 31     | 12        | 1         | 0                   | 0       | 6/15           | 1                         | \$30              |
| Norwegian American Hospital *              | Chicago            | J V Towler Sr                 | 1,030              |                   | 6      | 0         | 1         | 0                   | 0       | 7/1            | 1                         | \$35              |
| Passavant Memorial Hospital *              | Chicago            | I Davis                       | 2,031              | 8,601             | 18     | 33        | 1         | 3                   | 0       | 1/1, 7/1       | 1                         |                   |
| Presbyterian Hospital *                    | Chicago            | V C David                     | 2,220              | 12,312            | 14     | 25        | 2         | 0                   | 0       | Varies         | 13                        | \$50              |
| Provident Hospital *                       | Chicago            | H P Cooper                    | 972                | 11,773            | 35     | 23        | 1         | 0                   | 1       | 7/1            | 15                        | \$50              |
| Research and Educational Hospital *        | Chicago            | W H Cole                      | 1,110              |                   | 21     | 20        | 3         | 0                   | 0       | 7/1            | 13                        | \$50              |
| St Joseph Hospital *                       | Chicago            | H McKenna                     | 1,118              | 769               | 52     | 21        | 1         | 0                   | 0       | 7/1            | 1                         | \$50              |
| St Luke's Hospital *                       | Chicago            | F L McMillan                  | 1,509              | 1,470             | 91     | 19        | 1         | 4                   | 0       | 7/1            | 13                        | \$25              |
| University of Chicago Clinics *            | Chicago            | D B Phumister                 | 1,587              | 21,071            | 69     | 59        | 1         | 4                   | 1       | 7/1            | 16                        | \$25              |
| Wesley Memorial Hospital *                 | Chicago            | R W McNally                   | 2,107              |                   | 51     | 33        | 3         | 0                   | 0       | 7/1            | 12                        | \$35              |
| Women and Children's Hospital *            | Chicago            | P M Stetler                   | 851                | 1,899             | 9      | 2         | 1         | 0                   | 0       | 1/1            | 13                        | \$50              |
| Ivanston Hospital *                        | Ivanston, Ill      | F Christopher                 | 2,793              | 11,175            | 97     | 75        | 1         | 1                   | 0       | 9/1            | 12                        | \$50              |
| St Francis Hospital *                      | Ivanston, Ill      | C L Courtois                  | 2,693              |                   | 41     | 8         | 1         | 0                   | 0       | 7/1            | 1                         | \$41              |
| St Francis Hospital *                      | Picoria, Ill       | W R Roche                     | 1,299              |                   | 26     | 9         | 1         | 0                   | 0       | 7/1            | 1                         | \$75              |
| Indianapolis City Hospital *               | Indianapolis       | M N Hadley                    | 1,155              | 11,081            | 66     | 31        | 2         | 0                   | 0       | 7/1            | 12                        | \$11.64           |
| Indiana University Medical Center *        | Indianapolis       | W D Gatch                     | 2,083              | 8,180             | 76     | 10        | 2         | 3                   | 0       | 7/1            | 13                        | \$66.33           |
| Methodist Hospital *                       | Indianapolis       |                               | 12,652             |                   | 116    | 50        | 2         | 0                   | 0       | 7/1            | 12                        | \$35              |
| University Hospitals *                     | Iowa City          | F R Patterson                 | 3,391              | 1,640             | 165    | 100       | 1         | 7                   | 0       | 7/1            | 1                         | \$20.63           |
| University of Kansas Hospitals *           | Kansas City, Kan   | T G Orr                       | 766                | 1,917             | 45     | 34        | 1         | 4                   | 0       | 7/1            | 14                        | \$50              |
| St Joseph's Hospital *                     | Lexington, Ky      | I W Rankin and W O Bullock    | 1,937              |                   | 52     | 24        | 1         | 2                   | 0       | 7/1            | 13                        | \$30              |
| Louisville General Hospital *              | Louisville, Ky     | R A Griswold                  | 1,911              | 19,895            | 115    | 50        | 15        | 4                   | 0       | 7/1            | 15                        | \$13.91           |
| St Joseph Infirmary *                      | Louisville, Ky     | I Abell Sr                    | 6,897              |                   |        |           | 1         | 2                   | 0       | 7/1            | 12                        | \$5               |
| Charity Hospital *                         | New Orleans        |                               | 13,281             | 61,283            | 505    | 176       | 11        | 16                  | 0       | 7/1            | 14                        | \$25              |
| Touro Infirmary *                          | New Orleans        | I R Lundy                     | 1,017              | 14,085            | 66     | 37        | 1         | 2                   | 0       | 7/1            | 13                        | \$25              |
| Baltimore City Hospitals *                 | Baltimore          | T B Aycock                    | 1,919              |                   | 312    | 150       | 1         | 7                   | 0       | 7/1            | 1                         | \$12.50           |
| Bon Secours Hospital *                     | Baltimore          | T B Aycock                    | 1,181              | 1,012             | 31     | 16        | 1         | 3                   | 0       | 7/1            | 14                        | \$50              |
| Church Home and Infirmary *                | Baltimore          | T G Calkin                    | 2,121              | 1,791             | 53     | 28        | 1         | 3                   | 0       | 7/1            | 24                        | \$20              |
| Franklin Square Hospital *                 | Baltimore          | F S Johnson                   | 871                |                   |        |           | 1         | 1                   | 0       | 7/1            | 1                         |                   |
| Hospital for Women *                       | Baltimore          | W Rinhoff                     | 746                | 3,871             | 22     | 9         | 1         | 2                   | 0       | 7/1            | 1                         | \$50              |
| Johns Hopkins Hospital *                   | Baltimore          | A Huleok                      | 2,361              | 42,130            | 50     | 49        | 1         | 6                   | 0       | 7/1 or 9/1     | 18                        |                   |
| Maryland General Hospital *                | Baltimore          | W J Coleman and G A Rawdon    | 2,101              | 2,228             | 91     | 15        | 1         | 5                   | 0       | 7/1            | 13                        | \$25              |
| Mercy Hospital *                           | Baltimore          | W D Wisc                      | 2,297              | 5,312             |        |           | 1         | 4                   | 0       | 9/1            | 3                         | \$50              |
| Provident Hospital and Free Dispensary *   | Baltimore          | G S Finney                    | 720                | 1,050             | 54     | 12        | 1         | 1                   | 0       | Varies         | 14                        | \$0               |
| St Agnes Hospital *                        | Baltimore          | G A Stewart and R Shackelford | 1,220              | 2,100             | 44     | 14        | 4         | 1                   | 0       | 10/1           | 1                         |                   |
| St Joseph's Hospital *                     | Baltimore          | W R Garaghty                  | 2,001              | 5,469             | 61     | 9         | 1         | 4                   | 0       | 7/1            | 34                        | \$10              |
| Sinal Hospital *                           | Baltimore          | A Ullman                      | 1,414              |                   | 42     | 16        | 1         | 5                   | 0       | 7/1            | 1                         | \$50              |
| South Baltimore General Hospital *         | Baltimore          | C W Maxson                    | 1,301              | 4,210             | 55     | 7         | 1         | 3                   | 0       | 7/1            | 14                        | \$50              |
| Union Memorial Hospital *                  | Baltimore          | I M T Finney                  | 1,519              |                   | 91     | 39        | 1         | 6                   | 0       | 7/1            | 14                        | \$12.50           |
| University Hospital *                      | Baltimore          | A M Shipley                   | 2,712              | 10,949            | 95     | 33        | 1         | 5                   | 0       | 9/1            | 18                        | \$25              |
| West Baltimore General Hospital *          | Baltimore          | N O Marvel                    | 1,106              | 4,491             | 33     | 9         | 3         | 0                   | 0       | 7/1            | 1                         | \$50              |
| Beverly Hospital *                         | Beverly, Mass      | P P Johnson                   | 1,428              |                   | 42     | 33        | 1         | 0                   | 0       | 9/3            | 23                        |                   |
| Beth Israel Hospital *                     | Boston             |                               | 2,890              | 2,474             | 66     | 43        | 1         | 2                   | 0       | 1/1            | 1                         | \$76.16           |
| Boston City Hospital *                     | Boston             | R C Cochrane                  | 13,247             | 65,670            | 598    | 313       | 5         | 2                   | 0       | Varies         | 1+                        | \$50              |
| Children's Hospital                        | Boston             | W F Fadd                      | 1,796              | 13,911            | 67     | 47        | 2         | 0                   | 0       | 9/1            | 1                         | \$53.33           |
| Lahay Clinic                               | Boston             | F H Fahy                      | 3,500              |                   |        |           | 0         | 0                   | 7       | Quart          | 13                        | \$100             |
| Massachusetts General Hospital *           | Boston             | E D Churchill and A W Allen   | 4,745              | 23,376            | 92     | 56        | 2         | 21                  | 0       |                |                           |                   |
| Massachusetts Memorial Hospitals *         | Boston             | H M Clute                     | 2,968              | 3,053             | 54     | 33        | 1         | 1                   | 0       | 7/1            | 12                        | \$50              |
| Peter Bent Brigham Hospital *              | Boston             | F C Cutler                    | 2,594              | 32,678            | 84     | 49        | 1         | 4                   | 3       | Varies         | 1+                        | \$41.67           |
| Cambridge Hospital *                       | Cambridge, Mass    | H P Stevens                   | 1,274              | 3,794             | 43     | 13        | 0         | 0                   | 0       | 7/1            | 12                        |                   |
| Truesdale Hospital                         | Fall River, Mass   | P F Truesdale                 | 860                |                   | 18     | 11        | 2         | 0                   | 0       | 1/1, 7/1       | 12                        | \$50              |
| Memorial Hospital *                        | Worcester, Mass    | B H Alton                     | 2,427              | 1,907             | 43     | 18        | 1         | 0                   | 0       | 8/1            | 13                        | \$100             |
| Worcester City Hospital *                  | Worcester, Mass    | B F Andrews                   | 2,058              | 6,097             | 84     | 26        | 1         | 1                   | 0       | 7/1            | 12                        | \$50              |
| University Hospital *                      | Ann Arbor, Mich    | F A Collier                   | 2,366              | 8,866             | 107    | 66        | 5         | 12                  | 6       | 7/1            | 13                        | \$25              |
| Alexander Blain Hospital                   | Detroit            | A W Blain and I G Downer      | 1,161              | 17,130            | 22     | 9         | 3         | 0                   | 0       | 7/1            | 14                        | \$100             |
| City of Detroit Receiving Hospital *       | Detroit            | C F Vule and C G Johnston     | 4,596              | 38,901            | 192    | 68        | 2         | 4                   | 2       | 7/15           | 13                        | \$75              |
| Graec Hospital *                           | Detroit            | F A Kelly                     | 6,037              | 2,055             | 150    | 37        | 1         | 2                   | 0       | 9/1            | 13                        | \$100             |
| Harper Hospital *                          | Detroit            | A D McAlpin                   | 11,125             |                   | 158    | 64        | 1         | 1                   | 8       | 7/1            | 1                         | \$25              |
| Henry Ford Hospital *                      | Detroit            | R D McClure                   | 7,517              | 101,520           | 137    | 65        | 14        | 12                  | 0       | 7/1            | 15                        | \$130             |
| Provident Hospital *                       | Detroit            | R C Andries                   | 6,685              |                   | 111    | 56        | 1         | 3                   | 0       | 7/1            | 1                         | \$125             |
| St Mary's Hospital *                       | Detroit            | G K Glasgow                   | 4,675              | 936               | 96     | 24        | 0         | 2                   | 0       | 7/1            | 34                        | \$175             |
| Eloise Hospital and Infirmary *            | Eloise, Mich       | W J Seymour                   | 1,833              | 6,479             | 109    | 39        | 2         | 3                   | 0       | 7/1            | 1                         | \$94.58           |
| Hurley Hospital *                          | Flint, Mich        | A H Kretchmar                 | 1,611              |                   | 54     | 15        | 0         | 3                   | 0       | 7/1            | 1                         | \$41.68           |
| Blodgett Memorial Hospital *               | Grand Rapids, Mich | H J Vanden Berg               | 867                |                   | 30     | 15        | 1         | 0                   | 0       | 1/1, 7/1       | 1                         | \$100             |
| Butterworth Hospital *                     | Grand Rapids, Mich | G H Southwick                 | 5,361              |                   | 100    | 40        | 1         | 2                   | 0       | 7/1            | 13                        | \$100             |
| St Mary's Hospital *                       | Grand Rapids, Mich | C F Snapp                     | 3,415              | 1,075             | 107    | 18        | 1         | 1                   | 0       | 7/1            | 1                         | \$50              |
| Minneapolis General Hospital *             | Minneapolis        | A A Zierold                   | 2,035              | 14,550            | 149    | 53        | 0         | 0                   | 6       | 1/1, 7/1       | 3                         | \$25              |
| University Hospitals *                     | Minneapolis        | O H Wagensteen                | 1,564              | 11,083            | 95     | 69        | 0         | 0                   | 8       | 7/1            | 15                        | \$50              |
| Mayo Foundation                            | Rochester, Minn    | D C Ballour                   | (See page 1344)    |                   | 94     | 77        | 3         | 0                   | 0       | 7/1            | 3                         | \$50              |
| Aneker Hospital *                          | St Paul            | A R Colvin                    | 1,674              | 4,428             | 111    | 67        | 1         | 3                   | 0       | 7/1            | 12                        | \$25              |
| St Louis County Hospital *                 | Clayton, Mo        | L A Will                      | 1,994              | 41,352            | 65     | 50        | 3         | 0                   | 0       | 7/1            | 3                         | \$50              |
| Kansas City General Hospital *             | Kansas City, Mo    | J E Stowers                   | 1,142              | 4,777             | 41     | 40        | 1         | 0                   | 0       | 7/1            | 13                        | \$50              |
| St Luke's Hospital *                       | Kansas City, Mo    | P I Willson                   | 3,505              |                   |        |           |           |                     |         |                |                           |                   |
| St Mary's Hospital *                       | Kansas City, Mo    | M J Owens and J R McVay       | 1,618              |                   | 120    | 72        | 1         | 0                   | 0       | 7/1            | 1                         | \$75              |
| Barnes Hospital *                          | St Louis           |                               | 4,432              |                   | 57     | 31        | 1         | 8                   | 0       | 7/1            | 13                        | \$25              |
| De Paul Hospital *                         | St Louis           | H A Hassett                   | 1,960              | 575               | 95     | 19        | 1         | 0                   | 0       | 7/1            | 12                        |                   |
| Homer G Phillips Hospital *                | St Louis           | R Elman                       | 2,015              | 10,196            | 137    | 25        | 2         | 0                   | 0       | 7/1            | 13                        | \$75              |
| Jewish Hospital *                          | St Louis           | M W Myer                      | 1,484              | 3,446             | 54     | 23        | 1         | 1                   | 0       | 7/1            | 1                         | \$30              |
| Missouri Baptist Hospital *                | St Louis           |                               | 2,037              |                   |        |           | 1         | 0                   | 0       | 7/1            | 1                         |                   |
| St Anthony's Hospital *                    | St Louis           | F J Tainter                   | 1,398              |                   | 77     | 17        | 1         | 0                   | 0       | 7/1            | 1                         | \$50              |
| St Louis City Hospital *                   | St Louis           | P Heinbecker                  | 1,953              | 10,514            | 80     | 33        | 0         | 1                   | 0       | 7/1            | 13                        | \$50              |
| St Luke's Hospital *                       | St Louis           | E V Mastin                    | 987                |                   |        |           | 3         | 8                   | 0       | 7/1            | 1                         | \$50              |
| St Mary's Group of Hospitals *             | St Louis           | L Rassieur                    | 2,480              | 7,215             | 94     | 64        | 1         | 1                   | 0       | 7/1            | 3                         | \$25              |
| Bishop Clarkson Memorial Hospital *        | Omaha              | R R Best                      | 885                |                   | 28     | 15        | 1         | 0                   | 0       | 7/1            | 1                         | \$50              |
| Crelghton Memorial St Joseph's Hospital *  | Omaha              | C McMartin                    | 1,109              | 3,864             | 29     | 7         | 1         | 0                   | 0       | 7/1            | 12                        | \$50              |
| Cooper Hospital *                          | Camden, N J        | P McMeeray Sr and I E Delbert | 1,704              | 25,042            | 148    | 79        | 1         | 0                   | 0       | 12/1           | 13                        | \$53.33           |
| Jersey City Hospital *                     | Jersey City, N J   | E Burke                       | 4,028              | 23,360            | 125    | 41        | 1         | 3                   | 0       | 10/1           | 23                        | \$100             |
| Mountainside Hospital *                    | Montclair, N J     | V B Seidler                   | 3,597              | 6,917             | 56     | 21        | 1         | 0                   | 0       | 7/1            | 1+                        | \$100             |
| Burlington County Hospital *               | Mount Holly, N J   | W E Lee                       | 1,074              | 2,289             | 48     | 22        | 1         | 0                   | 0       | 7/1            | 1                         | \$100             |
| Albany Hospital *                          | Albany, N Y        | J L Donhauser                 | 2,780              |                   | 75     | 47        | 1         | 2                   | 0       | 7/1            | 2+                        | \$25              |

21 SURGERY—(Continued)

|   |                     | Chief of Service                     | Inpatients<br>Treated | Outpatient<br>Visits | Deaths | Autopsies | Residents | Residents<br>Assistant | Fellows | Service<br>Began | Length of<br>Service<br>(Years) | Beginning<br>Stipend |
|---|---------------------|--------------------------------------|-----------------------|----------------------|--------|-----------|-----------|------------------------|---------|------------------|---------------------------------|----------------------|
| Coney Island Ho pital *   | Brooklyn            | D A Mc Moor                          | 1 14                  | 1 671                | 120    | 16        | 1         | 1                      | 0       | 7/1              | 1                               | \$100                |
| Cumberland Ho pital *   | Brooklyn            | M S Fook                             | 1 03                  | 32 67                | 80     | 19        | 1         | 1                      | 0       | 7/1              | 1                               | \$18                 |
| Emory Ho pital *  | Brooklyn            | John Smith                           | 1 61                  | 12 17                | 67     | 8         | 1         | 0                      | 0       | 9/1              | 1                               | \$18                 |
| Kew Ho pital *  | Brooklyn            | F M Daykoff                          | 1 57                  | 5 93                 | 73     | 40        | 1         | 3                      | 1       | 8/1              | 4                               | \$25                 |
| Kings County Ho pital *   | Brooklyn            | J Tenopay and<br>R Barber            | 141 25                | 51 029               |        |           | 3         | 3                      | 0       | 7/1              | 2                               | \$18                 |
| Long Island College Ho pital *                                  | Brooklyn            | E Guet ch                            | 2 90                  | 16 055               | 66     |           | 1         | 3                      | 0       |                  | 5 6                             | \$22 50              |
| Norwegian Lutheran Benevo (s) Home and<br>Ho pital *            | Brooklyn            |                                      | 1 51                  | 11 171               |        |           | 1         | 0                      | 0       | 7/1              | 1                               | \$25                 |
| St Mary's Ho pital *  | Brooklyn            | W A Truand                           | 1 101                 |                      | 34     | 8         | 1         | 0                      | 0       | 7/1              | 1                               | \$50                 |
| Buffalo General Ho pital *                                      | Buffalo             | H A Smith                            | 1 15                  |                      | 105    | 50        | 1         | 4                      | 0       | 7/1              | 1                               | \$25                 |
| Parson Ho pital *   | Buffalo             |                                      | 1 1                   | 1 191                |        |           | 1         | 0                      | 0       | 7/1              | 1                               | \$100                |
| Edward J Meyer Memorial Ho pital *                              | Buffalo             | I D St wart                          | 1 82                  | 6 105                | 111    | 40        | 2         | 1                      | 0       | 7/1              | 3                               | \$50                 |
| Ward Fillmore Ho pital *  | Buffalo             | H N Kenwell                          | 2 45                  | 3 6                  | 66     | 15        | 2         | 0                      | 0       | 7/1              | 1                               | \$25                 |
| Clifton Springs Sanitarium and Clinic                           | Clifton Springs N Y | C S Taylor                           | 8 5                   |                      | 50     | 15        | 1         | 1                      | 0       | 7/1              | 1-3                             | \$50                 |
| Mary Immaculate Ho pital *                                      | Cooper town N Y     | M A Melver                           | 66                    |                      | 25     | 12        | 1         | 0                      | 0       | 7/1              | 1                               | \$125                |
| Manhasset Ho pital *  | Hempstead N Y       | C A Hettshammer and<br>A S Warlander | 1 65                  |                      | 59     | 35        | 2         | 0                      | 0       | 7/1              | 12                              | \$50                 |
| Mary Immaculate Ho pital *                                      | Jamaica N Y         |                                      | 1 86                  | 2 067                | 49     | 10        | 1         | 0                      | 0       | 7/1              | 1                               | None                 |
| Queens Central Ho pital *                                       | Jamaica N Y         | F N Daily                            | 3 44                  | 17 051               | 188    | 140       | 1         | 1                      | 0       | 7/1              | 2                               | \$18                 |
| Charles S Wilson Memorial Ho pital *                            | John on City N Y    | J O Smith                            | 2 51                  |                      | 51     | 13        | 1         | 0                      | 0       | 7/1              | 13                              | \$75                 |
| New Rochelle Ho pital *   | New Rochelle N Y    | G C Volk                             | 2 55                  | 6 614                | 59     | 29        | 1         | 1                      | 0       | 7/1              | 1                               | \$50                 |
| Bellevue Ho pital *   | New York City       |                                      | 10 95                 | 3 622                |        |           | 3         | 0                      | 0       |                  |                                 |                      |
| Power Fifth Avenue Hospital *                                   | New York City       | I R Kaufman                          | 2 13                  | 11 83                | 51     | 10        | 0         | 2                      | 11      | 7/1              | 1                               | \$25                 |
| Harlem Ho pital *   | New York City       | R H Young                            | 3 19                  | 5 155                |        |           | 1         | 1                      | 0       | 1/1 7/1          | 1                               | \$18                 |
| Hospital for Special Surgery                                    | New York City       | C G Burdick                          | 1 19                  | 0 012                | 13     | 6         | 3         | 0                      | 0       | 1/1, 9/1, 9/1    | 1                               | \$50                 |
| Lenox Hill Ho pital *   | New York City       |                                      | 1 82                  | 5 822                |        |           | 2         | 0                      | 0       | 1/1              | 2                               | \$50                 |
| Metropolitan Ho pital *   | New York City       | I R Kaufman                          | 1 12                  | 0 16                 | 126    | 43        | 2         | 0                      | 0       | 7/1              | 1+                              | \$100                |
| Montefiore Ho pital for Chronic Diseases *                      | New York City       | S Standard                           | 1 3                   | 2 0                  | 7      | 3         | 1         | 3                      | 0       | 1/1 7/1          | 1 1 1/2                         | \$50                 |
| Mount Sinai Ho pital *  | New York City       |                                      |                       |                      |        |           | 5         | 6                      | 0       | 1/1 7/1          | 12                              | \$50                 |
| New York City Ho pital *  | New York City       | F W Baneroff                         | 2 0 0                 | 7 717                | 130    | 32        | 1         | 1                      | 0       | 7/1              | 1                               | \$15                 |
| New York Ho pital *   | New York City       | G L Hauer                            | 1 121                 | 47 217               | 57     | 51        | 4         | 22                     | 0       | 7/1 7/1          | 17                              | \$25                 |
| New York Infirmary for Women and Child<br>ren *                 | New York City       | A Hubart                             | 1 53                  | 9 953                | 9      | 7         | 1         | 0                      | 0       | 9/1              | 1                               | \$45                 |
| New York Polytechnic Medical School and<br>Ho pital *           | New York City       |                                      | 1 50                  |                      | 35     | 8         | 8         | 0                      | 0       | Quart            | 2                               |                      |
| New York Post Graduate Medical School<br>and Ho pital *         | New York City       | T H Russell                          | 2 604                 | 12 933               | 59     | 41        | 3         | 13                     | 0       | 1/1 7/1          | 13                              | \$30                 |
| Probyterian Ho pital *  | New York City       | A O Whipple                          | 3 00                  |                      | 103    | 55        | 2         | 16                     | 0       | 1/1 7/1          | 14                              | None                 |
| Rockefeller Ho pital *  | Rochester N Y       | C Sumner                             | 2 55                  | 4 156                |        |           | 1         | 2                      | 0       | 7/1              | 1                               | \$41                 |
| Poche-ter General Hospital *                                    | Rochester N Y       | W Woodin                             | 4 032                 | 6 643                | 57     | 59        | 2         | 2                      | 0       | 7/1              | 12                              | \$15                 |
| Strong Memorial and Rochester Municipal<br>Ho pital *           | Rochester N Y       | I I Morton                           | 2 471                 | 1 579                | 1 3    | 139       | 1         | 6                      | 1       | 7/1              | 14                              | \$41 66              |
| Ho pital of the Good Shepherd *                                 | Syracuse N Y        | A G Swift                            | 2 916                 |                      |        |           | 1         | 2                      | 0       | 7/1              | 1                               | \$20 83              |
| Graceland Ho pital *  | Valhalla N Y        | C C Volk                             | 6 11                  | 2 240                | 48     | 39        | 1         | 2                      | 0       | 7/1              | 13                              | \$75                 |
| Duke Ho pital *   | Durham N C          | D Hart                               | 1 40                  | 13 103               | 64     | 23        | 1         | 8                      | 0       | 7/1              | 1                               | \$41                 |
| Watts Ho pital *  | Durham N C          | E Roberson                           | 1 85                  | 3 526                |        |           | 1         | 2                      | 0       | 7/1              | 1                               | \$25                 |
| Rutherford Ho pital   | Rutherfordton N C   |                                      | 1 037                 | 2 050                | 12     | 2         | 1         | 0                      | 0       | 7/1              | 1                               | \$50                 |
| City Ho pital *   | Winston-Salem N C   |                                      | 1 911                 | 3 545                | 63     | 29        | 2         | 2                      | 0       | 7/1              | 3                               | \$50                 |
| North Carolina Baptist Ho pital *                               | Winston-Salem       | H H Bradshaw                         | 2 219                 | 661                  | 24     | 13        | 2         | 0                      | 0       | 7/1              | 15                              | \$53 33              |
| Trinity Ho pital *  | Minot N D           | A L Cameron                          | 651                   |                      | 14     | 14        | 1         | 0                      | 0       | 7/1              | 1                               | \$80                 |
| City Ho pital *   | Akron Ohio          |                                      | 5 15                  | 1 529                | 155    | 63        | 5         | 0                      | 0       | 7/1              | 14                              | \$50                 |
| People's Ho pital *   | Akron Ohio          |                                      | 929                   |                      | 43     | 7         | 1         | 0                      | 0       | 7/1              | 1                               | \$100                |
| St Thomas Ho pital *  | Akron Ohio          | H H Musser                           | 953                   |                      | 33     | 3         | 1         | 0                      | 0       | 7/1              | 1                               | \$60                 |
| Mercy Ho pital *  | Canton Ohio         | A W Warren                           | 7 179                 |                      | 113    | 22        | 1         | 1                      | 0       | 7/1              | 1                               | \$50                 |
| Christ Ho pital *   | Cincinnati          |                                      | 2 655                 | 1 756                | 104    | 46        | 2         | 0                      | 0       | 6/24             | 13                              | \$75                 |
| Cincinnati General Ho pital *                                   | Cincinnati          | M R Reid                             | 3 614                 | 25 973               | 208    | 95        | 2         | 11                     | 0       | 9/1              | 1-6                             |                      |
| Deaconess Ho pital *  | Cincinnati          | W R Crie and<br>R W Good             | 2 555                 |                      | 50     | 8         | 1         | 0                      | 0       | 7/1              | 1                               | \$75                 |
| Good Samaritan Ho pital *                                       | Cincinnati          | I L De Courcy                        | 6 696                 | 1 053                | 98     | 47        | 1         | 3                      | 1       | 7/1              | 15                              | \$50                 |
| Jewish Ho pital *   | Cincinnati          | J L Ransohoff                        | 972                   |                      | 35     | 15        | 2         | 0                      | 0       | 6/23             | 12                              | \$45                 |
| City Ho pital *   | Cleveland           | C H Lenhart                          | 2 595                 | 10 642               | 254    | 92        | 2         | 14                     | 0       | 1/1 7/1          | 15                              | \$50                 |
| Cleveland Clinic Foundation Ho pital *                          | Cleveland           | C W Crie Sr and<br>C W Crie Jr       | 2 910                 |                      | 50     | 32        | 0         | 0                      | 9       | 7/1              | 13                              | \$55                 |
| Fairview Park Ho pital *  | Cleveland           | H W Maunblmer                        | 967                   | 2 532                | 40     | 4         | 1         | 1                      | 0       | 7/1              | 1                               | \$40                 |
| Mount Sinai Ho pital *  | Cleveland           | A Strauss                            | 2 015                 | 7 390                | 69     | 22        | 2         | 0                      | 0       | 7/1              | 12                              | \$60                 |
| St Alexis Ho pital *  | Cleveland           | S J F Corrigan                       | 5 076                 | 6 595                | 110    | 33        | 4         | 0                      | 0       | 7/1              | 2                               | \$32 50              |
| St Johns Ho pital *   | Cleveland           | I E Haanibal                         | 1 905                 |                      | 53     | 6         | 3         | 0                      | 0       | 7/1              | 12                              | \$50                 |
| St Luke's Ho pital *  | Cleveland           | D M Clover                           | 3 923                 | 13 426               | 112    | 36        | 2         | 1                      | 0       | 6/25             | 3                               | \$50                 |
| St Vincent's Charity Ho pital *                                 | Cleveland           | O A Weber                            | 5 056                 | 16 710               | 147    | 50        | 2         | 1                      | 0       | 7/1              | 14                              | \$75                 |
| University Hospitals *  | Cleveland           | C H Lenhart                          | 4 501                 | 17 038               | 122    | 58        | 5         | 0                      | 0       | 7/1              | 2                               | \$25                 |
| St Francis Ho pital *   | Columbus Ohio       | I B Harris                           | 1 222                 | 929                  | 101    | 52        | 1         | 0                      | 0       | 7/1              | 1                               | \$25                 |
| Starling Loving Under Hy Ho pital *                             | Columbus Ohio       | A A Dodd                             | 1 356                 | 5 052                |        |           | 1         | 1                      | 0       | 7/1              | 1                               | \$25                 |
| Miami Valley Ho pital *   | Duynon Ohio         | R H Finley                           | 841                   |                      | 67     | 30        | 1         | 0                      | 0       | 7/1              | 1                               | \$75                 |
| Huron Road Ho pital *   | East Cleveland      |                                      | 2 755                 | 1 417                | 76     | 0         | 4         | 0                      | 0       | 7/1              |                                 |                      |
| Lucas County General Ho pital *                                 | Idol Ohio           | F J McCormick                        | 1 459                 | 11 801               | 93     | 30        | 1         | 0                      | 0       | 7/1              | 1+                              | \$50                 |
| St Vincent's Ho pital *   | Toledo Ohio         | F M Douglas                          | 1 563                 | 756                  | 98     | 42        | 1         | 0                      | 0       | 7/1              | 1                               | \$100                |
| St Elizabeth's Ho pital *                                       | Youngstown Ohio     | I M Ranz                             | 2 133                 | 3 59                 | 83     | 10        | 2         | 0                      | 0       | 7/1              | 1                               | \$55                 |
| St Anthony's Ho pital *   | Oklahoma City       | R M Howard                           | 4 705                 |                      |        |           | 1         | 1                      | 0       | 7/1              | 1                               | \$60                 |
| Univer Hy Ho pital *  | Oklahoma City       | R M Howard                           | 1 260                 | 4 156                | 102    | 55        | 1         | 1                      | 0       | 7/1              | 1                               | \$50                 |
| University of Oregon Medical School Hos<br>pitals and Clinics * | Portland Ore        | T M Joyce                            | 2 303                 | 10 303               | 83     | 45        | 1         | 2                      | 0       | 7/1              | 3                               | \$30                 |
| Abington Memorial Ho pital *                                    | Abington Pa         | D B Pfeiffer                         | 2 371                 | 3 723                | 79     | 43        | 1         | 1                      | 0       | 7/1              | 2                               | \$15                 |
| Sacred Heart Ho pital *   | Allentown Pa        | W A Hausman                          | 2 024                 | 3 324                | 132    | 51        | 1         | 0                      | 0       | 6/21             | 1                               | \$50                 |
| St Lues Ho pital *  | Bethlehem Pa        | W L Estes Jr                         | 2 216                 | 416                  | 84     | 29        | 0         | 0                      | 1       | 7/1              | 2                               | \$75                 |
| Lryn Mawr Ho pital *  | Bryn Mawr Pa        |                                      | 562                   | 2 531                | 25     | 17        | 0         | 0                      | 0       | 7/1              | 1                               | \$50                 |
| George F Giesinger Memorial Ho pital *                          | Danville Pa         | H L Foss                             | 2 215                 | 12 650               | 76     | 19        | 2         | 0                      | 0       | 7/1              | 12                              | \$50                 |
| Germantown Dispensary and Ho pital *                            | Philadelphia        | W E Lee and<br>W B Swartley          | 3 206                 | 33 711               | 41     | 29        | 2         | 0                      | 0       | 7/1              | 23                              | \$50                 |
| Graduate Ho pital of the University of<br>Pennsylvania *        | Philadelphia        | W E Lee and<br>W Bates               | 1 292                 | 19 053               | 56     | 17        | 2         | 0                      | 0       | 7/1              | 2                               | None                 |
| Hahnemann Ho pital *  | Philadelphia        | G A Van Lenn p                       | 2 051                 | 14 721               | 116    | 49        | 3         | 0                      | 0       | 9/1              | 2                               | \$50                 |
| Ho pital of the University of Pennsylvania *                    | Philadelphia        | E L Elason                           | 2 623                 | 7 304                | 51     | 32        | 0         | 0                      | 7       | 7/1              | 5                               | None                 |
| Ho pital of the Woman's Medical College<br>of Pennsylvania *    | Philadelphia        | J S Rodman                           | 711                   | 10 223               | 17     | 7         | 1         | 0                      | 0       | 6/1              | 12                              | \$50                 |
| Jefferson Medical College Ho pital *                            | Philadelphia        | T A Shallow and<br>G P Muller        | 3 564                 | 13 177               | 121    | 45        | 2         | 0                      | 0       | 9/1              | 1                               | \$50                 |
| Jewish Ho pital *   | Philadelphia        | M Behrend                            | 3 501                 | 3 900                | 116    | 53        | 1         | 0                      | 0       | 6/15             | 12                              | None                 |
| Lankenau Ho pital *   | Philadelphia        | D B Pfeiffer and<br>G P Muller       | 2 395                 | 14 253               | 29     | 21        | 1         | 0                      | 0       | 9/1              | 1+                              | \$50                 |
| Mount Sinai Ho pital *  | Philadelphia        |                                      | 929                   |                      | 19     | 7         | 1         | 0                      | 0       | 7/1              | 23                              | \$50                 |

## 21 SURGERY—(Continued)

|  |                     | Chief of Service                | Inpatients Treated* | Outpatient Visits  | Deaths | Autopsies | Residents | Assistant Residents | Fellows | Service Begins | Length of Service (Years) | Beginning Stipend |
|--|---------------------|---------------------------------|---------------------|--------------------|--------|-----------|-----------|---------------------|---------|----------------|---------------------------|-------------------|
| Manila Hospital *                                      | Philadelphia        | W I Lee and<br>J B Fleck        | 1,982               | 21,451             | 59     | 45        | 2         | 0                   | 0       | 10/1, 11/1     | 13                        | \$20              |
| Philadelphia General Hospital *                        | Philadelphia        |                                 | 3,581               |                    |        |           | 2         | 0                   | 1       | 8/1            | 12                        | \$83.33           |
| Presbyterian Hospital *                                | Philadelphia        |                                 | 1,557               | 7,558              | 74     | 43        | 1         | 0                   | 0       | 9/1            | 1+                        | None              |
| Temple University Hospital *                           | Philadelphia        |                                 | 1,717               | 1,886              | 95     | 37        | 3         | 0                   | 0       | 7/1            | 3                         | \$40              |
| Woman's Hospital *                                     | Philadelphia        | U M Smyth                       | 739                 | 3,513              | 14     | 8         | 1         | 0                   | 0       | 7/1            | 3                         | \$25              |
| Allegheny General Hospital *                           | Pittsburgh          | J C Burt                        | 2,417               | 10,430             | 124    | 18        | 1         | 0                   | 0       | 9/1            | 1                         | \$85              |
| Children's Hospital *                                  | Pittsburgh          | W O Sherman and<br>L W Meredith | 474                 | 1,623              | 8      | 3         | 0         | 1                   | 0       |                | 1                         | \$40              |
| McCreary Hospital *                                    | Pittsburgh          | J P Griffith                    | 1,065               |                    | 70     |           | 1         | 0                   | 0       | 9/1            | 3                         |                   |
| Montefiore Hospital *                                  | Pittsburgh          |                                 | 1,729               | 9,163              | 42     | 18        | 1         | 1                   | 0       | 9/1            | 13                        | \$50              |
| St Francis Hospital *                                  | Pittsburgh          |                                 | 2,591               | 2,333              | 60     | 16        | 2         | 0                   | 0       | 9/1            | 13                        | \$65              |
| Reading Hospital *                                     | Reading, Pa         | W A Iebklicher                  | 1,510               | 5,610              | 107    | 62        | 1         | 0                   | 0       | 9/1            | 1                         | \$50              |
| Robert Packer Hospital *                               | Sayre, Pa           | D Guthrie                       | 1,218               | 3,420              | 14     | 21        | 0         | 0                   | 2       | 9/1            | 2                         | \$3               |
| Roper Hospital *                                       | Charleston, S C     | R S Cuthbert                    | 1,810               | 9,304              | 86     | 34        | 1         | 2                   | 1       | 7/1            | 13                        |                   |
| Baroness Blandner Hospital *                           | Chattanooga, Tenn   | A M Patterson                   | 1,669               |                    | 73     | 13        | 1         | 0                   | 0       | 7/1            | 13                        | \$40              |
| John Gaston Hospital *                                 | Memphis, Tenn       | J L McGhee                      | 1,911               | 11,581             | 123    | 28        | 1         | 1                   | 0       | 7/1            | 1                         | \$33              |
| George W Hubbard Hospital of McHurry Medical College * | Nashville, Tenn     | I H Hale                        | 333                 | 4,682              | 40     | 4         | 1         | 0                   | 0       | 7/1            | 2                         | \$75              |
| Nashville General Hospital *                           | Nashville, Tenn     | I A Kirtley                     | 1,338               | 21,218             | 78     | 17        | 1         | 1                   | 0       | 7/1            | 12                        | \$35              |
| Vanderbilt University Hospital *                       | Nashville, Tenn     | B Brooks                        | 2,285               | 10,577             | 77     | 49        | 1         | 0                   | 0       | 7/1            | 1+                        | \$35              |
| Baylor University Hospital *                           | Dallas, Tex         | U B Carter                      | 1,616               | 2,419              | 62     | 10        | 1         | 2                   | 0       | 7/1            | 13                        | \$37.50           |
| Parkland Hospital *                                    | Dallas, Tex         | L Hudson                        | 1,526               | 15,036             | 128    | 23        | 2         | 2                   | 0       | 1/1, 7/1       | 2                         | \$25              |
| John Sealy Hospital *                                  | Galveston, Tex      | A O Singleton                   | 1,110               | 5,910              |        |           | 1         | 5                   | 0       | 7/1            | 13                        | \$25              |
| Hermann Hospital *                                     | Houston, Tex        | J L Taylor                      | 1,703               | 1,702              | 30     | 15        | 1         | 0                   | 0       | 7/1            | 13                        | \$30              |
| Jefferson Davis Hospital *                             | Houston, Tex        | P H Senellino                   | 1,174               | 4,600              | 110    | 30        | 0         | 2                   | 0       | 7/1            | 1                         | \$25              |
| Southern Pacific Hospital                              | Houston, Tex        | J L Taylor                      | 102                 | 2,813              | 18     | 10        | 1         | 0                   | 0       | 7/1            | 12                        | \$100             |
| University of Virginia Hospital *                      | Charlottesville, Va | L P Lehman                      | 2,095               | 8,566              | 87     | 43        | 1         | 1                   | 1       | 7/1            | 1                         | \$10              |
| Chesapeake and Ohio Hospital                           | Chilton Forge, Va   |                                 | 2,475               |                    |        |           | 2         | 0                   | 0       | 7/1            | 3                         | \$50              |
| Norfolk General Hospital *                             | Norfolk, Va         |                                 | 4,560               | 4,574              | 65     | 12        | 1         | 0                   | 0       | 7/1            | 12                        | \$30              |
| Medical College of Virginia, Hospital Division *       | Richmond            | I A Bigler                      | 2,750               |                    | 126    | 45        | 2         | 5                   | 0       | 7/1            | 1                         |                   |
| Jefferson Hospital *                                   | Roanoke, Va         | H H Trout                       | 521                 |                    | 24     | 9         | 1         | 1                   | 0       | 7/1            | 1                         | \$150             |
| King County Hospital *                                 | Seattle             | H T Buckner                     | 2,335               | 23,231             | 71     | 31        | 1         | 0                   | 0       | 7/1            | 1                         | \$130             |
| Virginia Mason Hospital *                              | Seattle             | J W Baker and<br>C S Stone      | 2,305               |                    | 37     | 24        | 1         | 1                   | 0       | 6/25           | 1                         | \$30              |
| Charlestown General Hospital *                         | Charleston, W Va    | I E Cannaday                    | 2,311               | 1,771              | 33     | 8         | 1         | 2                   | 0       | 7/1            | 13                        | \$25              |
| Laird Memorial Hospital                                | Montgomery, W Va    | W R Laird                       | 2,290               | 6,561              | 40     | 16        | 1         | 1                   | 0       | 7/1            | 13                        | \$100             |
| State of Wisconsin General Hospital *                  | Madison             | F R Schunkdt                    | 2,270               | 2,211              | 79     | 53        | 2         | 5                   | 0       | 7/1            | 3                         | \$25              |
| Columbia Hospital *                                    | Milwaukee           | H C Schumann                    | 611                 |                    | 29     | 17        | 1         | 0                   | 0       | 7/1            | 3+                        | \$30              |
| Milwaukee Children's Hospital *                        | Milwaukee           | A A Schaefer                    | 3,623               | 31,447             | 73     | 38        | 1         | 1                   | 0       | 7/1            | 1                         | \$30              |
| St Joseph's Hospital *                                 | Milwaukee           | F A Stratton                    | 5,304 <sup>b</sup>  | 2,659 <sup>b</sup> |        |           | 2         | 0                   | 0       | 6/15           | 12                        | \$40              |
| St Mary's Hospital *                                   | Milwaukee           | W C F Witte                     | 2,740               | 730                | 53     | 11        | 1         | 0                   | 0       | 7/1            | 1                         | \$90              |
| Milwaukee County Hospital *                            | Wauwatosa, Wis      | J M King                        | 3,263               | 12,209             | 64     | 30        | 4         | 4                   | 0       | 7/1 7/15       | 1                         | \$30              |

## 22 THORACIC SURGERY

|   |                    |                                 |                              |       |    |    |   |   |   |                    |    |       |
|---|--------------------|---------------------------------|------------------------------|-------|----|----|---|---|---|--------------------|----|-------|
| Olive View Sanatorium *                                     | Olive View, Calif  | J Skillen                       | 420                          |       |    |    | 3 | 0 | 0 | Varies             | 1+ | \$250 |
| Norwich State Tuberculosis Sanatorium (Uneas on Thames)     | Norwich, Conn      | R G Urquhart                    | 383                          |       |    |    | 2 | 0 | 0 | 7/1                | 2  | \$175 |
| City of Chicago Municipal Tuberculosis Sanitarium           | Chicago            | R M Davison                     | 255 <sup>b</sup>             |       |    |    | 1 | 1 | 0 | 1/1                | 12 | \$100 |
| Sanatorium Division of the Boston City Hospital             | Boston             | H Binney                        | 502                          |       |    |    | 1 | 0 | 0 | 1/1                | 1  | \$150 |
| University Hospital *                                       | Ann Arbor, Mich    | I Alexander                     | 150                          | 1,014 | 25 | 13 | 1 | 1 | 4 | 7/1                | 14 | \$25  |
| Barnes Hospital *   | St Louis           | F A Graham                      | 314                          |       | 42 | 17 | 0 | 0 | 7 | 7/1                | 12 | \$125 |
| Hudson County Tuberculosis Hospital                         | Jersey City, N J   | F Bortone                       | 140                          | 200   | 4  | 0  |   |   |   |                    |    |       |
| Kings County Hospital *                                     | Brooklyn           | R Harloe                        | 251 <sup>b</sup>             | 466   |    |    | 1 | 0 | 0 | 7/1                | 1  | \$100 |
| Edward J Meyer Memorial Hospital *                          | Buffalo            | J D Stewart                     | (Combined with Surgery)      |       |    |    |   |   |   |                    |    |       |
| Herman M Biggs Memorial Hospital *                          | Ithaca, N Y        |                                 | 170                          | 15    | 7  | 5  | 1 | 0 | 0 | 12/1               | 1  | \$100 |
| Triboro Hospital  | Jamaica, N Y       | D A Mulvihill and<br>H W Louria | (See Tuberculosis)           |       |    |    | 2 | 2 | 0 | 1/1, 7/1           | 12 | \$30  |
| Mount Morris Tuberculosis Hospital                          | Mount Morris, N Y  | E F Butler                      | 152                          |       | 3  | 3  | 1 |   |   | 7/1                | 12 | \$150 |
| Bellevue Hospital *   | New York City      | J B Amberson                    | (Combined with Tuberculosis) |       |    |    |   |   |   |                    |    |       |
| Metropolitan Hospital *                                     | New York City      | S Thompson                      | 194                          | 1,407 | 14 | 7  | 1 | 0 | 0 | 7/1                | 1+ | \$75  |
| Homer Polk Tuberculosis Hospital                            | Oneonta, N Y       | J M Chamberlain                 | 197                          | 25    | 4  | 4  | 1 | 0 |   | Varies             |    | \$150 |
| Sea View Hospital *   | Staten Island, N Y | L R Davidson                    | 426                          |       | 37 | 11 | 3 | 1 | 0 | 1/1, 7/1           | 2  | \$100 |
| North Carolina Baptist Hospital *                           | Winston Salem, N C | H H Bradshaw                    | 240                          |       | 22 | 4  | 2 | 0 | 0 | 7/1                | 15 | \$42  |
| City Hospital *   | Cleveland          | S O Friedlander                 |                              |       |    |    | 1 | 0 | 0 | 7/1                | 1  | \$90  |
| University of Oregon Medical School Hospitals and Clinics * | Portland, Ore      | R Matson                        | 233                          | 5,801 | 29 | 20 | 1 | 2 | 0 | 7/1                | 3  | \$30  |
| Murdale Sanatorium  | Wauwatosa, Wis     | J D Steele                      | 226                          |       |    |    |   |   |   | (See Tuberculosis) |    |       |

## 23 TRAUMATIC SURGERY

|                               |                  |             |       |        |     |   |   |   |  |          |     |      |
|-------------------------------|------------------|-------------|-------|--------|-----|---|---|---|--|----------|-----|------|
| Morrisania City Hospital      | New York City    | G E Millani | 2,672 | 15,005 | 120 | 5 | 1 | 1 |  | 1/1, 7/1 | 1   | \$18 |
| Charleston General Hospital * | Charleston, W Va | H A Swart   | 1,178 | 5,690  | 15  | 5 | 2 |   |  | 7/1      | 1-3 | \$25 |

## 24 TUBERCULOSIS

|   |                    |                |       |       |     |     |   |   |   |           |    |       |
|---|--------------------|----------------|-------|-------|-----|-----|---|---|---|-----------|----|-------|
| Los Angeles Sanatorium *                                | Duarte, Calif      | J Rosenblatt   | 303   | 3,842 | 41  | 13  | 2 | 0 | 0 | 1/1       | 1+ | \$100 |
| Arroyo Del Valle Sanatorium                             | Livermore, Calif   | O Bush         | 532   | 786   | 34  | 8   | 1 | 0 | 0 | 7/1       | 1+ | \$140 |
| Barlow Sanatorium *                                     | Los Angeles        | H W Bosworth   | 171   | 1,428 | 2   | 1   | 2 | 0 | 0 | 7/1       | 1  | \$100 |
| Los Angeles County Hospital *                           | Los Angeles        | C Howson       | 1,110 | 2,683 | 361 | 134 | 3 | 0 | 0 | Varies    | 1+ | \$10  |
| Pottenger Sanatorium and Clinic *                       | Monrovia, Calif    | F M Pottenger  | 231   | 1,876 | 16  | 4   | 0 | 1 | 0 | 7/1       | 1  | \$50  |
| Bret Harte Sanatorium                                   | Murphys, Calif     | E P Smart      | 339   | 44    | 4   |     | 1 | 0 | 0 | 7/1       | 2  | \$150 |
| Olive View Sanatorium *                                 | Olive View, Calif  | J D Davis      | 1,586 |       | 65  | 22  |   | 2 | 0 | Varies    | 1+ | \$115 |
| San Diego County General Hospital *                     | San Diego, Calif   | R S Schneiders | 249   | 2,550 | 52  | 25  | 1 | 0 | 0 | 7/1       | 1+ |       |
| San Francisco Hospital *                                | San Francisco      | S J Shipman    | 874   |       |     |     | 0 | 2 | 0 | 7/1       | 1+ | \$150 |
| Santa Clara County Hospital *                           | San Jose, Calif    | O L Ianne      | 205   | 6,407 |     |     | 1 | 0 | 0 | 7/1       | 1  | \$175 |
| Fairmont Hospital of Alameda County *                   | San Leandro, Calif | H G Trimble    | 541   | 1,721 | 88  | 36  | 1 | 0 | 0 | 7/1       | 1  | \$30  |
| Denver General Hospital *                               | Denver             | O L Lincoln    | 1,876 | 1,524 | 37  | 7   | 1 | 0 | 0 | 7/1       | 1  | \$100 |
| National Jewish Hospital *                              | Denver             | O J Kaufman    | 444   | 4,252 | 28  | 19  | 3 | 0 | 0 | 1/1, 7/1  | 3  | \$100 |
| Sanatorium of the Jewish Consumptives' Relief Society   | Spivak, Colo       | A Rest         | 367   | 1,643 | 27  | 13  | 4 | 0 | 0 | Varies    | 1+ | \$100 |
| Underhill, Meriden State Tuberculosis Sanatorium        | Meriden, Conn      |                | 373   | 2,095 | 63  | 8   | 2 | 0 | 0 | 7/1, 10/1 | 12 | \$75  |
| Norwich State Tuberculosis Sanatorium (Uneas on Thames) | Norwich, Conn      | H B Campbell   | 692   |       | 94  | 31  | 2 | 0 | 0 | 7/1       | 1  | \$75  |
| Laurel Heights State Tuberculosis Sanatorium            | Shelton, Conn      | E J Lynch      | 708   | 1,426 | 76  | 33  | 1 | 0 | 0 | 7/1       | 12 | \$10  |
| Gaylord Farm Sanatorium                                 | Wallingford, Conn  | D R Lyman      | 334   | 2,800 | 3   | 1   | 2 | 0 | 0 | Varies    | 1+ | \$100 |

## Chief of System

[illegible]

Revision of list is now taking place in collaboration with the American Board of Urology

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|--|---------------------|-------------------------------|-------|----|------|-----|-----|---|---|---|---------|----------|
| Hillman Hospital *   | Birmingham Ala      | W F Scott                     | 431   | 55 | 435  | 39  | 14  | 1 | 0 | 0 | 7/1     | 1        |
| Los Angeles County Hospital *  | Los Angeles         | J Negley                      | 2 279 | 13 | 990  | 190 | 107 | 6 | 0 | 0 | 1/1 7/1 | 3 \$10   |
| White Memorial Hospital *  | Los Angeles         | R W Barnes                    | 531   | 9  | 076  | 19  | 8   | 1 | 0 | 0 | 7/1     | 13 \$20  |
| San Francisco Hospital *   | San Francisco       | C M Johnson and<br>J R Dillon | 660   |    |      |     |     | 0 | 2 | 0 | 7/1     | 1        |
| Stanford University Hospitals *  | San Francisco       | J R Dillon                    | 456   | 10 | 630  | 11  | 4   | 0 | 1 | 0 | 7/1     | 1 \$25   |
| University of California Hospital *  | San Francisco       | F Hinman                      | 427   | 13 | 933  | 10  | 6   | 1 | 0 | 0 | 7/1     | 1 \$25   |
| New Haven Hospital *   | New Haven Conn      | C Deming                      | 524   | 2  | 570  | 35  | 15  | 1 | 0 | 0 | 7/1     | 1+ *     |
| Callinger Municipal Hospital *   | Washington D C      | W P Herbst                    | 701   |    |      | 247 | 33  | 1 | 0 | 0 | 7/1     | 1        |
| St Vincent's Hospital *  | Jacksonsonville Fla | R B Melver                    | 317   |    |      | 34  | 10  | 1 | 0 | 0 | 7/1     | 1 \$75   |
| Grady Hospital *   | Atlanta Ga          | M K Bailey and<br>E Floyd     | 535   | 12 | 554  | 45  | 9   | 2 | 2 | 0 | 7/1     | 1 \$40   |
| Michael Reese Hospital *   | Chicago             | A E Jones                     | 375   | 2  | 324  | 21  | 12  | 1 | 1 | 0 | 1/1     | 1 2 \$30 |
| Frederick Hospital *   | Chicago             | H L Kretschmer                | 750   | 7  | 515* | 11  | 7   | 1 | 0 | 0 | 7/1     | 1 \$30   |
| St Luke's Hospital *   | Chicago             | H Cuiver                      | 614   | 2  | 252  | 20  | 10  | 1 | 0 | 0 | 7/1     | 13 \$25  |

Numerical and other references will be found on page 1344



## 25 UROLOGY—(Continued)

|   |                     | Chief of Service | Inpatients<br>Treated | Outpatient<br>Visits | Deaths | Autopsies | Residents<br>Assistant<br>Residents | Fellows   | Service<br>Begins | Length of<br>Service<br>(Years) | Beginning<br>Stipend |
|---|---------------------|------------------|-----------------------|----------------------|--------|-----------|-------------------------------------|-----------|-------------------|---------------------------------|----------------------|
| University of Chicago Clinics *                                 | Chicago             | C H Hughes       | 270                   | 5,351                |        |           |                                     |           |                   |                                 |                      |
| Indianapolis City Hospital *                                    | Indianapolis        | W P Morton       | 571                   | 5,911                |        |           |                                     |           |                   |                                 |                      |
| University Hospitals *  | Iowa City           | N G Alcock       | 1,530                 | 2,220                | 16     | 25        | 0 1 1                               | 7/1       | 12                | None                            |                      |
| Charity Hospital *  | New Orleans         | I Burns          | 3,715                 | 31,520               | 86     | 41        | 1 0 0                               | 7/1       | 1+                | \$41.64                         |                      |
| Touro Infirmary *   | New Orleans         | H H Young        | 592                   | 5,809                | 124    | 43        | 1 0 0                               | 7/1       | 1                 | \$20.83                         |                      |
| Johns Hopkins Hospital *  | Baltimore           | H H Howard       | 1,027                 | 7,709                | 11     | 10        | 1 0 0                               | 7/1       | 13                | \$25                            |                      |
| h Israel Hospital *   | Boston              | I I Iwert        | 309                   | 812                  | 35     | 19        | 1 0 0                               | 7/1, 9/1  | 14                | \$25                            |                      |
| Ston City Hospital *  | Boston              | G G Smith        | 577                   | 10,603               | 11     | 6         | 1 0 0                               | 7/1       | 23                | \$30.58                         |                      |
| Massachusetts General Hospital *                                | Boston              | S N Vost         | 100                   | 6,000                |        |           | 0 0 1                               | Varies    | 1+                | \$50                            |                      |
| Massachusetts Memorial Hospital *                               | Boston              | R M Nesbit       | 170                   | 11,712               | 23     | 12        | 1 2 0                               | Quart     | 2                 |                                 |                      |
| University Hospital *   | Boston              | I G Marth and    | 112                   | 2,120                | 9      | 0         | 1 0 0                               | 7/1       | 1                 | \$50                            |                      |
| City of Detroit Receiving Hospital *                            | Ann Arbor, Mich     | W L Keene        | 1,103                 | 8,325                |        |           | 1 2 0                               | 7/1       | 14                | \$25                            |                      |
| Harper Hospital *   | Detroit             | F H Cole         | 637                   | 5,889                | 10     | 20        | 1 1 0                               | 7/15      | 12                | \$108.33                        |                      |
| Henry Ford Hospital *   | Detroit             | I K Ormond       | 510 <sup>b</sup>      | 2,119 <sup>b</sup>   | 18     | 0         | 1 0 0                               | 7/1       | 1                 | \$50                            |                      |
| Floise Hospital and Infirmary *                                 | Flint, Mich         | W L Sherman      | 527                   | 12,011               | 16     | 8         | 1 1 0                               | 7/1       | 3                 | \$130                           |                      |
| University Hospitals *  | Flint, Mich         | C D Crevy        | 179                   | 1,410                | 55     | 31        | 1 1 0                               | 7/1       | 1                 | \$94.58                         |                      |
| Mayo Foundation   | Rochester, Minn     | W P Braunsch and | 701                   | 3,855                | 29     | 23        | 0 0 2                               | 7/1       | 13                | \$50                            |                      |
| Ancker Hospital *   | St Paul             | G J Thompson     | (See data below)      |                      |        |           |                                     |           |                   |                                 |                      |
| Kansas City General Hospital *                                  | Kansas City, Mo     | I I Boley        | 137                   | 2,710                | 39     | 32        | 1 0 0                               | 7/1       | 1                 | \$50                            |                      |
| St. Louis City Hospital *                                       | St. Louis           | R L Hoffman      | 393                   | 1,731                | 37     | 26        | 1 0 0                               | 7/1       | 12                | \$50                            |                      |
| St. Mary's Group of Hospitals *                                 | St. Louis           | C Carroll        | 637 <sup>b</sup>      | 3,086 <sup>b</sup>   | 27     | 15        | 0 1 0                               | 7/1       | 1                 | \$100                           |                      |
| Atlantic City Hospital *  | Atlantic City, N J  | C I Burford      | 301                   | 3,160                | 5      | 4         | 0 0 1                               | 7/1       | 3                 | \$25                            |                      |
| Bayonne Hospital and Dispensary *                               | Bayonne, N J        | C H D Shivers    | 211                   | 15,120               | 7      | 2         | 1 1 0                               | 6/1       | 2                 |                                 |                      |
| Jersey City Hospital *  | Jersey City, N J    | F Daly           | 121                   | 135                  | 15     | 8         | 1 1 0                               | 1/1, 7/1  | 1                 |                                 |                      |
| Newark City Hospital *  | Newark, N J         | C O'Crowley      | 723                   | 11,801               | 37     | 2         | 1 0 0                               | 1/1, 7/1  | 1                 |                                 |                      |
| Albany Hospital *   | Albany, N Y         | I I Howell       | 523                   |                      | 20     | 16        | 1 1 0                               | 7/1       | 1+                | \$25                            |                      |
| Kings County Hospital *   | Brooklyn            | C S Cochrane     | 66                    |                      |        |           | 1 1 0                               | 7/1       | 2                 | \$18                            |                      |
| Long Island College Hospital *                                  | Brooklyn            | I I Senker       | 2,223                 | 4,719                | 23     | 11        | 1 0 0                               | 7/1       | 2                 | \$22.50                         |                      |
| Buffalo General Hospital *                                      | Buffalo             | F I Parmenter    | 392                   | 4,074                | 33     | 16        | 1 0 0                               | 7/1       | 1                 | \$25                            |                      |
| Edward T. Moyer Memorial Hospital *                             | Buffalo             | I M Watson       | 633                   |                      | 25     | 21        | 1 1 0                               | 7/1       | 3                 | \$50 <sup>c</sup>               |                      |
| Queens General Hospital *                                       | Jamaica, N Y        | I G Riley        | 311                   | 5,858                |        |           | 1 0 0                               | 7/1       | 1                 | \$18                            |                      |
| Bulwer Hospital *   | New York City       | H S Jeck         | 700                   | 4,659                | 11     | 17        | 1 0 0                               | 7/1       | 1+                | \$75                            |                      |
| Metropolitan Hospital *   | New York City       | S Carleton       | 1,352                 | 432                  | 45     | 12        | 1 3 0                               | 1/1, 7/1  | 2                 | \$18                            |                      |
| Morrisania City Hospital *                                      | New York City       | I Duff           | 360                   | 1,609                | 31     | 7         | 1 0 0                               | 7/1       | 1                 | \$50                            |                      |
| New York City Hospital *  | New York City       | J J Kirwin       | 855                   | 4,460                | 18     | 11        |                                     |           |                   |                                 |                      |
| New York Hospital *   | New York City       | B O Lowsky       | 272                   | 2,885                |        |           |                                     |           |                   |                                 |                      |
| New York Polytechnic Medical School and Hospital *              | New York City       | J F McCarthy     | 432                   | 10,468               |        |           |                                     |           |                   |                                 |                      |
| New York Post Graduate Medical School and Hospital *            | New York City       | I A Hyams        | 305                   | 4,056                | 15     | 1         |                                     |           |                   |                                 |                      |
| Presbyterian Hospital *   | New York City       | G Cahill         | 491                   | 8,856                | 14     | 4         | 1 2 0                               | 1/1, 7/1  | 2                 | None                            |                      |
| Roosevelt Hospital *  | New York City       | S A Belser       | 1,099                 |                      | 21     | 8         | 1 5 0                               | 1/1, 7/1  | 3                 | \$20.83                         |                      |
| St. Luke's Hospital *   | New York City       | H G Bugbee       | 460                   | 6,261                | 12     | 7         | 1 1 0                               | 7/1       | 2                 | \$25                            |                      |
| Strong Memorial and Rochester Municipal Hospitals *             | Rochester, N Y      | W W Scott        | 135                   | 1,486                |        |           | 1 0 0                               | 7/1       | 1                 | \$25                            |                      |
| Sea View Hospital *   | Staten Island, N Y  | A J Greenberger  | 663                   | 7,359                | 5      | 0         | 1 0 0                               | 7/1       | 4                 | \$41.66                         |                      |
| Duke Hospital *   | Durham, N C         | E P Ayea         | 350                   |                      | 8      | 6         | 1 1 0                               | 1/1, 7/1  | 1                 | \$100                           |                      |
| Watts Hospital *  | Durham, N C         | H Truttner       | 653                   | 5,661                |        |           | 1 0 0                               | 7/1       | 12                | \$41                            |                      |
| City Hospital *   | Cleveland           | W L Lower        | 313                   | 457                  | 32     | 18        | 1 0 0                               | 7/1       | 1                 | \$65                            |                      |
| Cleveland Clinic Foundation Hospital *                          | Cleveland           | J Y Jockson      | 315                   | 4,221                |        |           | 0 0 4                               | 7/1       | 13                | \$65                            |                      |
| University Hospitals *  | Cleveland           | W N Taylor       | 699 <sup>b</sup>      | 11,949 <sup>b</sup>  | 18     | 7         | 1 0 0                               | 7/1       | 2                 | \$25                            |                      |
| Starling Loving University Hospital *                           | Columbus, Ohio      | J G Strohm       | 771                   | 9,179                |        |           | 1 1 0                               | 7/1       |                   | \$25                            |                      |
| University of Oregon Medical School Hos<br>pitals and Clinics * | Portland Ore        | J C Birdsall and | 400 <sup>b</sup>      | 3,826 <sup>b</sup>   |        |           |                                     |           |                   |                                 |                      |
| Graduate Hospital of the University of<br>Pennsylvania *        | Philadelphia        | W MacInney       | 463                   | 6,408                | 26     | 16        | 0 1 0                               | 7/1       | 3                 | \$50                            |                      |
| Hospital of the University of Pennsylvania *                    | Philadelphia        | A Randall        | 192                   | 6,497                | 13     | 5         | 1 0 0                               | 7/1       | 2                 | None                            |                      |
| Pennsylvania Hospital *   | Philadelphia        | L Herman         | 471                   | 3,969                | 14     | 7         | 1 0 0                               | 9/1       | 2                 | None                            |                      |
| Presbyterian Hospital *   | Philadelphia        | I C Birdsall     | 461                   | 6,556                | 14     | 6         | 2 0 0                               | 7/1       | 13                | \$20                            |                      |
| Mersey Hospital *   | Pittsburgh          | E J McCague      | 312                   | 10,715               | 21     | 19        | 1 0 0                               | 9/1       | 1                 | None                            |                      |
| Parkland Hospital *   | Dallas, Tex         | I A Folsom       | 591                   |                      | 17     | 1         | 0 0 0                               | 9/1       | 1                 |                                 |                      |
| University of Virginia Hospital *                               | Charlottesville, Va | S Vest           | 352                   | 1,113                | 21     | 9         | 1 0 0                               | 7/1       | 1                 | \$25                            |                      |
| State of Wisconsin General Hospital *                           | Madison             | I R Sisk         | 473                   | 3,647                | 24     | 10        | 1 1 1                               | 7/1       | 1                 | \$25                            |                      |
| Wauwaukee County Hospital *                                     | Wauwatosa, Wis      | R S Irwin        | 720                   | 200                  | 20     | 14        | 1 2 0                               | 7/1       | 3                 | \$25                            |                      |
|   |                     |                  | 418                   | 6,804                | 39     | 5         | 1 1 0                               | 7/1, 7/15 | 1                 | \$50                            |                      |

Mayo Foundation Fellowships—The Mayo Foundation for Medical Education and Research, Rochester, Minnesota, D C Balfour director three year fellowships beginning quarterly leading to the degree of M S or Ph D with field named from the University of Minnesota in Anesthesiology, Dermatology and Syphilology, Internal Medicine, Neurology and Psychiatry, Neurosurgery, Obstetrics and Gynecology, Ophthalmology, Orthopedic Surgery, Otolaryngology, Pathology, Pediatrics, Physical Medicine, Plastic Surgery, Proctology, Radiology, Surgery, Urology, stipend \$900 per year, (clinical fellowships including pathology and radiology—268)

- Compensation arranged by medical school and hospital
- As reported in 1940
- In lieu of maintenance
- Additional teaching material in outside clinics
- Central Free Dispensary, Chicago
- Includes two fellowships in gastroenterology
- Affiliated with Falk Clinic, Pittsburgh
- Clinical data includes neurosurgery
- Outpatient and home delivery service only
- Assistant residents serve four months
- Obstetrical training at Herman Klefer Hospital, Detroit
- Training in Gynecology at City of Detroit Receiving Hospital
- Training in Gynecology at Barnes Hospital, St. Louis
- House staff includes 8 interns
- Includes 9 months at Chicago Lying In Hospital
- Separate residencies of eighteen to thirty six months also available
- Appointments made every two months
- Affiliated with Washington University Clinics
- March November 1941
- In affiliation with Northwestern University and Passavant Hospital
- Additional surgical material at Worcester Hahnemann Hospital
- Residencies open to women
- Approved by the Board as offering satisfactory one year training
- Approved by the Board as offering satisfactory two year training

- Approved by the Board as offering satisfactory three year training
- Includes orthopedics
- Inputients Numbers refer to total inpatients treated in specialty
- Obstetrical admissions do not include newborns in pathology and anesthesiology total hospital admissions are used
- Data as reported in 1940
- Includes neurosurgery
- Includes affiliate service at South Bend Medical Laboratory, St. Joseph Hospital, South Bend, Elkhart General Hospital, Elkhart, and St. Joseph's Hospital, Mishawaka
- Affiliated with Free Hospital for Women, Brookline Mass
- Approved by the Board as offering satisfactory one year training
- Approved by the Board as offering satisfactory two year training
- Approved by the Board as offering satisfactory three year training
- Medical and surgical pediatrics included in statistical data
- Represents training acceptable to Board in (1) radiology, (2) roentgenology, (3) therapeutic radiology or (4) diagnostic roentgenology
- Affiliated with Pima County Hospital, Tucson
- Includes acceptable affiliate assignment at Urologic Clinic, Phila
- Affiliated with Northwest Clinic, Minot
- Includes Neurology
- Includes Bradford Memorial Hospital for Babies, Children's Hospital of Texas, and Freeman Memorial Children's Clinic, Dallas, Texas

## APPROVED EXAMINING BOARDS IN MEDICAL SPECIALTIES

In 1933 the Council on Medical Education and Hospitals of the American Medical Association was authorized by the House of Delegates of the American Medical Association to formulate standards and approve examining boards in the medical specialties. The resolution urged that the machinery of the American Medical Association including the publication of the American Medical Directory be used in furthering the work of boards accredited under this plan. Examining and certifying boards had already been established in ophthalmology, otolaryngology, obstetrics and gynecology, and dermatology and syphilology but it was believed that there was need for a universal standard governing all fields of medical practice in order that properly qualified physicians might readily be recognized.

Standards governing the approval of specialty boards were compiled by the Council and approved by the House of Delegates in 1934 and have since been revised. The Essentials of Approved Examining Boards in Specialties include, in addition to regulations relating to the organization and operation of specialty boards the minimum qualifications deemed necessary for certification as a specialist, namely, graduation from a medical school approved by the Council on Medical Education and Hospitals, an internship in a hospital approved by the Council and a period of specialized training in a selected field.

Eleven boards have been organized since 1933. These boards, together with the four previously operating are now fully approved by the Council and represent the specialties of anesthesiology, dermatology and syphilology, internal medicine, neurologic surgery, obstetrics and gynecology, ophthalmology, orthopedic surgery, otolaryngology, pathology, pediatrics, plastic surgery, psychiatry and neurology, radiology, surgery and urology. The American Board of Internal Medicine by special examination certifies specialists in allergy, cardiovascular disease, gastroenterology and tuberculosis. Similarly the American Board of Surgery certifies specialists in proctology.

A key number has been assigned to each approved specialty board such as A B I and the biographic records of physicians published in the American Medical Directory include by this means reference to those certified by these boards.

Early in 1939 there was published by the Advisory Board for Medical Specialties the first edition of the Directory of Medical Specialists containing the names and biographic data of all men certified by the several specialty boards as well as information regarding the organization and functions of these boards. The second edition appeared early in 1942 and contains the names of about 18,000 certified specialists, including their biographic records and hospital and teaching appointments.

Each of these boards has published a booklet containing a brief statement regarding its organization, personnel, purposes and qualifications for eligibility for certification. The data contained in these announcements are reproduced herewith.

The national emergency will greatly curtail the future training of young men to meet the requirements of the specialty boards, since no provision has been made for

military determent beyond the internship. In February 1942 the Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association appointed a committee to formulate plans to submit to the military authorities whereby a percentage of interns may be given an opportunity to continue their training in the special fields of medicine. This committee was informed that until the immediate needs of the Army for medical personnel were satisfied it would be difficult to expect determent of young men for graduate training. However, later when the Medical Corps of the Army is more adequately filled it is hoped that consideration will be given to the determent of certain men for graduate training.

The specialty boards have not lowered their requirements because of war conditions, but the majority of them will grant some credit for military service. In response to a recent inquiry the specialty boards have indicated such allowances as follows:

*Anesthesiology*—Credit of one year toward the five year period regardless of the type of service. If assigned to the specialty in the armed forces of the United States, applicants may receive a maximum credit of one year toward the two year specific training period.

*Dermatology and Syphilology*—If a candidate is called into active military or naval service he will receive full credit for dermatologic training already finished at that time. The extent to which medical service in the Army or Navy will count toward the required training in dermatology and syphilology will be decided in each case on evidence submitted by the candidate. The board will accept not more than one year of military or naval medical service as part of the required two years' experience in dermatology and syphilology to be eligible for examination. A candidate who is called into military or naval service after completion of three years of training in dermatology and syphilology may take the complete examination of the board and if this examination is satisfactory a certificate will be issued after satisfactory completion of two years of further approved experience in dermatology and syphilology.

*Internal Medicine*—One year of military service in the United States Army, Navy or Marine Corps may be applied toward the satisfaction of one year of graduate training or one year of the practice of the specialty of internal medicine. This ruling admits of a substitution of military or naval service for one year of the three years of graduate training required, or one year of the two years of the practice of internal medicine.

*Neurologic Surgery*—Each case will be determined individually.

*Obstetrics and Gynecology*—An applicant entering military service and assigned to work in general surgery under conditions satisfactory to the board may receive credit toward the required special training up to a maximum of six months, applicable toward his three years of special training. Emergency military service may be counted as years of practice.

*Ophthalmology*—Every case will be considered individually on its own merits.

*Orthopedic Surgery*—During the present national emergency the board will recognize up to a maximum of one year for work done in the orthopedic division of the Army or Navy. If the foregoing fills out the three years of special required training for examination, further time spent in the orthopedic division of the armed forces, up to a maximum of one year, will be credited toward the practice requirement.

*Otolaryngology*—Each case will be determined on its merits.

*Pathology*—Each applicant from the military services will be considered individually and as much credit as possible will be

given for training and experience in the military services, depending on the station, supervision and equipment

*Pediatrics*—One year of credit will be allowed for one year of military service toward the required two years of specialized practice and/or study. Military service cannot be substituted for preliminary training

*Plastic Surgery*—Each case will be determined on its merits

*Psychiatry and Neurology*—Credit will be granted for military service to the extent of one year to the prescribed three year training period. It will also count for whatever experience is necessary to complete the two to three year requirement

*Radiology*—In the current emergency, one year of military service spent in a radiologic department in the United States Army, Navy or Marine Corps may be applied toward the satisfaction of one year of graduate training

*Surgery*—Full credit will be allowed for work done in the surgical division of a regularly constituted Army or Naval Hospital

*Urology*—Routine credit for military service will not be given. Each case will be determined on its merits

## AMERICAN BOARD OF ANESTHESIOLOGY, Inc

JOHN S LUNDY, President, Rochester, Minn  
HENRY S RUTH, Vice President, Merion Station, Pa  
PAUL M WOOD, Secretary-Treasurer, 745 Fifth Avenue, New York  
CHARLES F McCUSKEY, Glendale, Calif  
EMERY A ROVLASTINE, New York  
HARRY BOYD STEWART, Tulsa, Okla  
RALPH M TOVELL, Hartford, Conn  
RALPH M WATERS, Madison, Wis  
PHILIP D WOODBRIDGE, Philadelphia

### HISTORY

The plan for organization was devised to conform with those of other examining boards in medical specialties, by a committee representing the American Society of Anesthetists, Inc, the American Society of Regional Anesthesia, Inc, and the Section on Surgery of the American Medical Association. These organizations adopted the tentative plans submitted, and the formation of the American Board of Anesthesiology, Inc, an affiliate of the American Board of Surgery, Inc, was completed on June 2, 1937. The Advisory Board for Medical Specialties, and the Council on Medical Education and Hospitals of the American Medical Association approved the affiliation in 1938.

In 1941 the Advisory Board for Medical Specialties approved the establishment of the American Board of Anesthesiology, Inc, as a separate major board, with the unanimous consent of the participating societies and the surgical boards which are members of the Advisory Board.

Diplomates of this board will be designated "A B 13" in the Directory and Biographical Departments of the American Medical Association.

### PERSONNEL

The original members of the examining board were elected by the American Society of Regional Anesthesia, Inc, the American Society of Anesthetists, Inc, and the Section on Surgery of the American Medical Association. Each cooperating society had three representatives, thus giving national and regional representation in the composition of the board.

With the establishment of a separate major board, the members now represent the Section on Anesthesiology of the American Medical Association, the American Society of Anesthetists, Inc, the Section on Anesthesia of the Southern Medical Association and the New England Society of Anesthesiology.

The term of membership is for six years. Each cooperating association has the nominating power of its representatives, subject to the approval of the board.

### PURPOSES

- 1 To establish criteria of fitness to be designated a specialist in the practice of anesthesiology
- 2 To improve educational facilities and practice in medical schools and hospitals, and furnish lists of these, together with

lists of individual instructors who give adequate instruction and training in anesthesiology

3 To arrange, control, and conduct examinations to determine the qualifications, and grant a certificate to those who voluntarily apply and meet the required standards. Such certification will serve to provide the public and the professions with the opportunity to select the best available service. (Conferring of degrees is a prerogative of the universities, and the Board of Anesthesiology makes no attempt to grant degrees, regulate or control the practice of anesthesiology in any way whatsoever, by license or restriction.)

### VALUE OF CERTIFICATE

The organizations which participate in forming this board and sponsoring the activities as well as other societies or institutions, attach considerable importance to its certificate. The medical and lay public, as well as hospital directors, utilize the certification by this board in determining those who are well qualified as specialists in anesthesiology.

Although the Directory of the American Medical Association indicates those practicing in the various specialties the lists of holders of certification by specialty boards are available in the form of the Directory of Medical Specialists.

The American Board of Anesthesiology will cooperate with institutions and individuals in preparing plans for instruction in anesthesiology and in offering suggestions for the organization of new departments in the specialty.

### QUALIFICATIONS FOR ELIGIBILITY TO CERTIFICATION

A *General*—1 An applicant's moral and ethical standing in the profession must be satisfactory to the entire board. The board must be assured that the applicant is engaged in the practice of anesthesiology as a specialty and that he intends to continue to be so engaged.

2 Membership is required in the American Medical Association or membership in such other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association. Membership in other societies shall not be required.

3 Practice must be *limited* to anesthesiology.

4 In exceptional instances the board may, in its discretion, accept for examination candidates who have met all the preliminary requirements and have clearly demonstrated their identity as an anesthetist over a period of years but whose formal training does not comply with the full requirements to be exacted in the future.

B *Professional Standing*—1 An applicant must be a graduate of a grade A school in the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association, or a graduate of an approved foreign school.

2 Satisfactory evidence must be supplied of completion of an internship of not less than one year in a hospital approved by the same council, or its equivalent in the opinion of the board.

3 An applicant must establish in a manner satisfactory to the Board of Anesthesiology that he is a physician duly licensed by law to practice medicine, that he is of high ethical and professional standing, and that he has received adequate special training in anesthesiology.

C *Special Training and Practice*—1 Before certification the candidate must have had an active experience limited to anesthesiology of not less than five (5) calendar years (including period of training).

2 The board recommends the inclusion of at least two years of carefully supervised instruction in the clinical phases of anesthesiology in hospital clinics, dispensaries, and diagnostic laboratories recognized by the Council on Medical Education and Hospitals of the American Medical Association as competent in the teaching and practice of anesthesiology. In addition, instruction in anatomy, physiology, pharmacology, biochemistry and other basic sciences which are necessary to the proper understanding of the problems involved in the specialty of anesthesiology is required.

(The board believes that for those entering the specialty after Jan 1, 1944, the facilities for special training in anesthesiology will be available and such training will be sufficiently standardized that special training in anesthesiology may be interpreted to include after that date.

(a) A period of study, after the internship, of not less than three years in clinics, dispensaries, hospitals, and laboratories recognized by the Council on Medical Education and Hospitals of the American Medical Association as competent to provide a satisfactory training in the special field of anesthesiology.)

# EXAMINATIONS

The qualifying examination will be divided into Part I, written, Part II, oral, and Part III, practical

## PART I

1 An applicant, to be eligible for Part I, must meet all requirements and his credentials must be approved by the board

2 At the board's discretion a candidate may apply for certification and may take the written examination on basic science and clinical practice on the completion of two years of his course of special training. Subsequently it shall be necessary for him to await the prescribed length of time to proceed with further examinations. Candidates who successfully pass Part I examinations (and satisfy the time requirement) proceed automatically to Part II examination

3 Part I may be given simultaneously in several centers throughout the United States, which the board may determine suitable for the purpose

## PART II

1 In order to be eligible for Part II a candidate must have successfully passed Part I in addition to having met the necessary requirements and having presented definite evidence of an adequate experience in anesthesiology satisfactory to the board

2 It is probable that Part II examinations will be held near the time and at the place of the annual convention of the American Medical Association. Later, however, as the demand grows, it may be necessary to establish subsidiary centers where this part may be held

## PART III

1 It is believed that the practical examination in this field is slightly different from that in most specialties. The examiners will observe the work of the candidates in their own or similar operating room surroundings, their relations to other staff members, and investigate their professional standing

## CONDUCT OF EXAMINATION

Carefully conducted and thorough examinations will be required of candidates. The aim will be to avoid unduly exacting standards above present facilities for study and practice in anesthesiology and on the other hand to prevent laxity, which would nullify the main purpose of the certificate. Thus the type of the examination will depend on a careful review of the work done years of practice, special courses of study, and professional standing of the applicant

Written examinations will cover such topics as anatomy, biochemistry, physiology, pharmacology, pathology, physical diagnosis, therapeutics, clinical practice, and public health in relation to anesthesiology

Oral examinations will cover topics in the foregoing list, especially as to their clinical application and such questions on physics and mechanics as are important in anesthesiology, especially dealing with electrical theories and the proper handling of high pressure gases and flammable agents

Practical demonstrations will be required of the management of the candidate's clinical practice in his local surroundings. This may include inspection of clinical records, records of departmental activities, library facilities, available apparatus, and demonstrations of application of anesthetic agents, methods and all techniques included in anesthesiology

## GRADES

A candidate must receive a passing average for each part to be entitled to certification. No candidate shall pass a part who does not receive a grade of 60 per cent or more in each subject of such part. An average grade of 75 per cent shall be required for passing

A candidate who fails in his examination in Part I will have his papers reviewed by the entire board and will be entitled to reexamination at yearly intervals for two consecutive years without further payment of fee. The board may, however, for sufficient reason, deny a candidate the privilege of reexamination

Applicants who fail to exercise the examination privilege within three (3) years of the date of filing the application are required to file a new application and pay a new application fee

## FEES

The fee shall be \$75. Twenty-five dollars shall be paid on filing the application (of which sum \$15 will be returned if the candidate is not accepted for examination) and the remaining \$60 shall be paid before taking the examinations

This board is a nonprofit organization, all fees to be used to extend the existing facilities for training in anesthesiology,

after deducting necessary expenses for maintenance of the office and the conducting of examinations. The board reserves the right to increase the fee when found necessary

## REVOCATION OF CERTIFICATE

All certificates issued by the board shall be subject to revocation by the board at any time, in case it shall determine in its sole judgment that a candidate who has received a certificate either was not properly qualified to receive it or has become disqualified since its receipt

## ADDITIONAL INFORMATION

Every candidate applying for certification must personally appear before the board before being certified

Application blanks must be made on special blanks which may be procured from the Secretary of the American Board of Anesthesiology. They must be completely and accurately filled out accompanied by the other required credentials, and filed with the secretary of the board at least ninety days prior to the date of examination

The Council cannot make any eligibility rulings. These are made only by the Committee on Preliminary Examinations and the Committee on Requirements and Credentials after reviewing the candidate's formal application. Applications cannot be considered for classification and action by these committees unless accompanied by an application fee of \$25.00, \$10.00 of which is not returnable

Application blanks contain the following statement

I hereby make application to the American Board of Anesthesiology, Inc. for the issuance to me of a Certificate of Qualification as a Specialist in Anesthesiology and for examination relative thereto all in accordance with and subject to its rules and regulations and enclose fee of seventy-five dollars (\$75.00). I agree to disqualification from examination or from the issuance of a Certificate of Qualification or to surrender of such certificate as directed by the board in the event that any of the statements hereinafter made by me are false or in the event that any of the rules governing such examinations are violated by me or in the event that I did not comply with or shall violate any of the provisions of the Certificate of Incorporation or Constitution and By-Laws<sup>2</sup> of the American Board of Anesthesiology, Inc. or both, as then constituted. I agree to hold the American Board of Anesthesiology, Inc., its members, examiners, officers and agents free from any damage or complaint by reason of any action they or any of them, may take in connection with this application, such examinations, the grade or grades given with respect to any examination, or the failure of said board or corporation to issue to me such Certification of Qualification"

Proper forms for making application and other information will be furnished by the secretary-treasurer

## AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY

HOWARD FOX, President, New York  
FREDERICK D. WEIDMAN, Vice President, Philadelphia  
C. GUY LANE, Secretary-Treasurer, 416 Marlboro Street, Boston  
CHARLES C. DENNIE, Kansas City, Mo.  
JOSEPH GARDNER HOPKINS, New York  
HENRY E. MICHELSON, Minneapolis  
PAUL A. O'LEARY, Rochester, Minn.  
FRANCIS E. SENEAR, Chicago  
JESSIE BEDFORD SHELWIRE, Dallas, Texas

## ORGANIZATION

At the 1931 meeting of the American Dermatological Association, a committee was appointed to determine the advisability of forming an American board for the certification of competent practitioners in this specialty similar to boards created by the ophthalmologists, the otolaryngologists and by the obstetricians and gynecologists. A similar committee was appointed by the Section on Dermatology and Syphilology of the American Medical Association at its meeting in the same year. A favorable report was rendered by each committee at the 1932 meeting of each of the above organizations

The American Dermatological Association voted to accept the report of this committee, and the president appointed the fol-

1 This may be paid as follows: \$25 with application (\$10 registration fee not returnable) and \$50 before examination

2 Ignorance of the provisions of the Certificate of Incorporation and of the Constitution and By-Laws is not considered by the board to be a valid excuse for violations

lowing four members to represent the association on the newly formed American Board of Dermatology and Syphilology

Dr Jay F Schamberg, Philadelphia  
Dr Howard Fox, New York  
Dr Harold N Cole, Cleveland  
Dr Arthur W Stillians, Chicago

The Section on Dermatology and Syphilology of the American Medical Association also accepted the report of its committee and the chairman appointed the following members to serve as its representatives

Dr Howard Morrow, San Francisco  
Dr William H Mook, St Louis  
Dr George M MacKee, New York  
Dr C Guy Lane, Boston

The first meeting of the board was held in New Orleans on May 11, 1932, at which time officers were elected. At another meeting held on Nov 11, 1932, in Philadelphia the organization was completed and resolutions were adopted concerning the proper procedure to be followed by the board. On Nov 29, 1932, the board was incorporated under the laws of the state of Delaware.

In 1937 the American Academy of Dermatology and Syphilology was formed, and in November 1939 a plan was finally approved whereby the board would be composed of three representatives from each national dermatologic society, viz, the American Dermatological Association, the Section on Dermatology and Syphilology of the American Medical Association, and the American Academy of Dermatology and Syphilology.

These representatives are the members of the board. *Diplomat* refers to a physician who fulfils the requirements of the board and is awarded a certificate.

#### PURPOSES

The board has been established primarily to determine the competence of physicians who specialize in dermatology and syphilology. It will therefore establish minimum standards of education and training, examine applicants and certify properly qualified specialists in this field, prepare lists of those qualified and arrange for the publication of such lists. Because of its interest also in the fulfillment of these standards, it will attempt to stimulate the development of adequate training facilities, investigate institutions and individuals planning to train specialists, and lend its aid to the approval of those institutions and individuals offering adequate training in the specialty. The board, in addition, will always be glad to advise physicians desiring to enter this special field of medicine.

#### REQUIREMENTS FOR CERTIFICATION

##### I General Requirements

- 1 High ethical and professional standing
- 2 Graduation from a medical school recognized by the Council on Medical Education and Hospitals of the American Medical Association
- 3 Satisfactory completion of an internship of not less than one year in a hospital approved by the same Council
- 4 A license to practice medicine
- 5 Membership in the American Medical Association or membership in a similar society recognized as having the same purpose as the American Medical Association
- 6 Citizenship in the United States or citizenship—meaning native citizens—in Canada and Cuba

##### II Special Requirements

Applicants for certification by the board are classed in two groups as follows

Group A consists of physicians who have limited their practice mainly to dermatology and syphilology for ten or more years, including a period of training satisfactory to the board. This group will, in all probability, be abolished in 1949.

Group B consists of physicians who have practiced dermatology and syphilology at least five years, including their period of training. For such physicians who will be examined up to Jan 1, 1945, the board will require two years of full-time planned training in clinical dermatology including adequate instruction in the following subjects as related to the skin: histopathology, mycology, allergy and physics of physical therapy.

##### III Future Special Requirements

For candidates beginning their training after Jan 1, 1940, who will appear for examination subsequent to Jan 1, 1945, additional requirements are effective in accordance with the

program recommended to the various specialty boards by the Advisory Board for Medical Specialties. These minimum requirements of special training for admission to examination are as follows:

1 A period of study, after the internship, of not less than three years in clinics, dispensaries, hospitals or laboratories recognized by the Council on Medical Education and Hospitals of the American Medical Association and approved by the American Board of Dermatology and Syphilology as competent to provide a satisfactory training in dermatology and syphilology. This period of specialized training shall include:

(a) Graduate training in the basic medical sciences which are necessary for the proper understanding and treatment involved in this specialty.

Instruction in the following fundamental subjects as related to the skin is deemed advisable by the board: embryology, histology, chemistry, physiology, bacteriology, mycology, parasitology, pathology, immunology, serology, pharmacology and materia medica, and physics of physical therapy.

(b) An active experience of not less than eighteen months in hospitals, clinics, dispensaries or diagnostic laboratories recognized by the same Council and approved by the American Board of Dermatology and Syphilology as competent to provide an adequate preparation.

(c) Examinations, written and oral, in the clinical, laboratory and public health aspects of dermatology and syphilology.

2 An additional period of not less than two years of study and/or practice.

Therefore, for certification by this board, candidates beginning their training after Jan 1, 1940 must plan for a three years course of systematic training.

#### APPLICATION AND FEE

The board desires to appraise the candidate's educational opportunities (premedical, medical and dermatologic), the character of the men under whom he has worked, his hospital and teaching positions, original investigations, contributions to dermatologic literature, membership in medical societies and local and general reputation.

For this purpose, application must be made on a special blank, which may be obtained from the secretary. No application will be considered unless made on the regular application blank. Applications should be filed early in order to obtain full advantage of the sets of histopathological slides which are available through the Army Medical Museum in Washington. The completed application should be sent, at least two months before the date of examination, to the secretary of the board, together with the required reprints, photographs and the fee of \$50. This fee will not be returned, and no application will be considered until the fee is received. This fee has been carefully computed and is used entirely for administrative purposes. Members of the board do not receive any compensation except for actual expenses connected with holding the examinations.

Make checks payable to American Board of Dermatology and Syphilology, Inc.

#### EXAMINATIONS

Applicants classified in group B will be required to pass a written examination. This written examination on clinical and laboratory subjects including cutaneous pathology will be held simultaneously at stated intervals in different parts of the country, approximately two months before the oral examination.

Applicants classified in either Group A or Group B will be required to pass an oral, clinical and laboratory examination. This examination will be conducted in a clinic or hospital ward where individual cases will be discussed with each candidate as well as various subjects related to the skin such as histopathology, mycology, allergy and physics of physical therapy. The board reserves the right to add to this list other subjects within the field of dermatology and syphilology.

Any candidate for a certificate may take the written examination at the next regular examination of the board after he has completed three full years of training in the specialty.

Examinations are designed to test the candidate's fitness to practice dermatology and syphilology as a specialty. The board will try especially to ascertain the breadth of his clinical experience, his knowledge of recent literature of dermatology and syphilology and his general qualifications as a specialist in this branch of medicine.

Whenever an applicant fails to pass the examination, the board, if requested, will make suggestions as to suitable courses of instruction for the purpose of overcoming deficiencies in the applicant's knowledge of the specialty.



Except in special circumstances applicants shall take the examination within the year following the filing of application and file deposit of fee.

The oral examination will be held near the time and place of the annual meeting of the American Academy of Dermatology and Syphilology. This examination will be held only at the time of regular meetings of the boards.

#### EXAMINATIONS

If the candidate fails or is 'conditioned' in an examination he will be admitted to a second examination after one year but with a three year, and must give sixty days notice of his intention to appear for reexamination. If a candidate who has failed or has been conditioned does not appear for reexamination before the expiration of three years he will be required to make a new application and pay an additional fee of \$35 before reexamination.

A candidate having failed twice must file a new application and pay an additional fee of \$35.

#### CERTIFICATES

A certificate will be issued to each candidate who meets the requirements of the board to the effect that the holder of the certificate has had adequate training in dermatology and syphilology and has successfully fulfilled the requirements of the board.

It is expected that medical schools, hospitals and physicians, as well as the lay public will utilize the certificate from this board as a proof of adequate preparation in the field of dermatology and syphilology and of fitness of candidates for positions under their control. For this purpose lists of those holding certificates from the board will be available for inspection and will be published from time to time in the Directory of Medical Specialists. Diplomates will be identified in the Directory of the American Medical Association.

A certificate granted by this board does not of itself confer or purport to confer, any degree, or legal qualifications, privileges, or license to practice dermatology or syphilology. The board does not intend to limit or interfere with the professional activity of any duly licensed physician. Its aim is to improve the standards of practice of dermatology and syphilology by encouraging improvement in the opportunities for and quality of training for specialists in this field of medicine and to certify, as specialists those who voluntarily comply with the requirements of the board.

Upon the board rests the responsibility of determining the standards or knowledge to be acquired while upon the candidate will always rest the responsibility of acquiring the knowledge to fulfill these standards.

Certificates will be issued only to physicians in the United States, and its possessions, in Canada and in Cuba.

#### REVOCAION OF CERTIFICATES

The certificates issued by the board are issued subject to the provisions of the certificate of incorporation and of the by laws, and each certificate is subject to revocation in the event that (a) the issuance of such certificate or its receipt by the physician so certified shall have been contrary to any of the provisions of the certificate of incorporation or by-laws or (b) the physician so certified shall not have been eligible to receive such certificate irrespective of whether or not the facts constituting him so ineligible were known to or could have been ascertained by the directors of the board at the time of the issuance of such certificate, or (c) the physician so certified shall have made any misstatement of fact in his application for such certificate or in any other statement or representation to the board or its representatives, or (d) the physician so certified shall have been convicted by a court of competent jurisdiction of a felony or of any misdemeanor involving, in the opinion of the board of directors, moral turpitude in connection with his practice of medicine, or (e) the physician so certified shall have had his license to practice medicine revoked or shall have been disciplined or censured as a physician by any court or other body having proper jurisdiction and authority.

#### TRAINING FACILITIES

Institutions in which the graduate training facilities for the full three-year training program in dermatology and syphilology have been approved by the American Board of Dermatology and Syphilology and the Council on Medical Education and Hospitals of the American Medical Association

#### CREDIT FOR MILITARY SERVICE

(1) If a candidate is called into active military or naval service he will receive full credit for dermatological training

already finished at that time, (2) the extent to which medical service in the army or navy will count towards the required training in dermatology and syphilology will be decided in each case upon evidence submitted by the candidate, (3) the board will accept not more than one year of military or naval medical service as part of the required two years' experience in dermatology and syphilology to be eligible for examination, (4) a candidate who is called into military or naval service after completion of three years of training in dermatology and syphilology may take the complete examination of the board, and that if this examination is satisfactory a certificate will be issued after satisfactory completion of two years of further approved experience in dermatology and syphilology.

#### PUBLICATIONS OF THE BOARD

1 Pocket of Information

2 Opportunities for Graduate and Postgraduate Students in Dermatology and Syphilology, containing a list of places where instruction may be obtained and details about these places (In preparation)

3 The complete register of diplomates is published in the Directory of Medical Specialists, which can be obtained from the Columbia University Press New York City \$7.00

4 Syllabus of graduate training

(a) To inform the student physician, intending to specialize, of the field to be covered in his preparation and the methods by which his preparation can be accomplished

(b) To aid the medical schools and the dermatologic department of medical schools and hospitals by outlining the scope of teaching deemed advisable for specialization in dermatology and syphilology

Further information may be obtained from the secretary-treasurer

#### INSTRUCTIONS TO APPLICANTS

Fill out application blank in detail

Enclose fee of \$50 (Make check payable to the American Board of Dermatology and Syphilology, Inc.)

Include photographs as directed on application blank

Enclose reprint of each published paper, if possible

Send completed applications and above items to the secretary

Please indicate under No 13 on the application blank as complete data as possible about your training in dermatology and syphilis. Indicate the month and year, if possible, or at least the number of months of the various parts of your training and also whether full time or part time. If part time indicate whether one-half day, six days a week or three days a week, etc. If dispensary service is considered as part of your training, please indicate details here as well as under No 14.

In No 16 indicate clearly when you limited your practice to dermatology and syphilis.

If your training and your practice overlap, please explain under No 19.

#### AMERICAN BOARD OF INTERNAL MEDICINE, Inc

ERNEST E IRONS Chairman Chicago

REGINALD FITZ Vice Chairman Boston

WILLIAM S MIDDLETON Secretary-Treasurer WILLIAM A

WERRELL, Assistant Secretary-Treasurer, 1301 University Ave, Madison Wis

DAVID P BARR New York

WILLIAM J KERR, San Francisco

WILLIAM S MCCANN, Rochester, N Y

JONATHAN F MEAKINS, Montreal, Quebec

JOHN H MUSSEY, New Orleans

GEORGE GILL RICHARDS, Salt Lake City

"the membership of the board shall be maintained at the ratio of five members from the American College of Physicians and four members from the Section on the Practice of Medicine of the American Medical Association and that at least three of the members of the board from the American College of Physicians and two members of the board from the Section on the Practice of Medicine of the American Medical Association shall be of professorial rank in approved medical schools of the United States or Canada."

"Sec 5, Art 5, Articles of Incorporation"

## HISTORY AND AUTHORITY FOR ORGANIZATION

The American College of Physicians, through its Board of Regents at the annual session in Philadelphia on April 30, 1935, adopted a resolution for the establishment, with the Section on the Practice of Medicine of the American Medical Association, of an "American Board for the Certification of Internists." This board to consist of nine members, six to be appointed by the American College of Physicians, and three by the Section on the Practice of Medicine of the American Medical Association.

At the annual meeting of the American Medical Association at Atlantic City, N J, June 10-14, 1935, the Section on the Practice of Medicine adopted the following resolution: "Resolved, that a committee of three, including a chairman, be appointed by the chairman of the Section on the Practice of Medicine, to discuss with a committee from the American College of Physicians, ways and means by which an examining board, comparable to such boards already existing in certain specialties, may be set up for the purpose of certification of specialists in internal medicine."

President James Alexander Miller of the American College of Physicians appointed the following as representatives of the College on the joint committee: David P Barr, St Louis, Jonathan C Meakins, Montreal, William S Middleton, Madison, John H Musser, New Orleans, O H Perry Pepper, Philadelphia, G Gill Richards, Salt Lake City. William J Kerr, Chairman of the Section on the Practice of Medicine of the American Medical Association, appointed Walter L Bierring, Des Moines, Reginald Fitz, Boston, and Ernest E Irons, Chicago, as representatives of that section. Walter L Bierring was named as chairman of the joint committee.

The joint committee of nine members held its first meeting in Philadelphia Dec 14, 1935. At this meeting a resolution was adopted to submit an application in due form to the Advisory Board for Medical Specialties requesting authority to organize the American Board of Internal Medicine and for admission to membership in the said advisory board. In the preliminary draft of the constitution and by-laws, the ratio of the representation on the board was changed to five members from the American College of Physicians and four members from the Section on the Practice of Medicine of the American Medical Association.

On Feb 16, 1936 a subcommittee consisting of Walter L Bierring, Reginald Fitz, Ernest E Irons, Jonathan C Meakins and William S Middleton held a meeting in the Palmer House, Chicago, to formulate and complete the details of the application to be presented to the executive committee of the Advisory Board for Medical Specialties, which body approved the organization of the American Board of Internal Medicine and directed that articles of incorporation be completed and filed.

In keeping with the ratio of membership to be maintained on the American Board of Internal Medicine, James Alexander Miller, President, officially designated David P Barr, Jonathan C Meakins, William S Middleton, O H Perry Pepper and G Gill Richards as representatives from the American College of Physicians, and William J Kerr, Chairman, designated Walter L Bierring, Reginald Fitz, Ernest E Irons and John H Musser to represent the Section on the Practice of Medicine of the American Medical Association.

The articles of incorporation were filed for record with the county recorder of Polk County at Des Moines, Polk County, Iowa, Feb 28, 1936.

At the annual session of the American College of Physicians, Detroit, March 1-6, 1936, the Board of Regents officially approved the American Board of Internal Medicine. On May 10, 1936 the Advisory Board for Medical Specialties, meeting in Kansas City, gave its final approval to the American Board of Internal Medicine, granting at the same time admission to membership in the Advisory Board for Medical Specialties.

The Council on Medical Education and Hospitals of the American Medical Association approved the board at its meeting May 12, 1936. The Section on the Practice of Medicine of the American Medical Association gave its final approval May 13, 1936. The first meeting of the board was held at the Palmer House, Chicago, June 14-15, 1936.

Subspecialty certification was authorized by the Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association, Feb 16, 1941. The mechanism for instrumenting this program has been perfected through the cooperation of advisory committees in allergy, cardiovascular disease, gastroenterology and tuberculosis.

## PURPOSE

- 1 To improve the standards of practice and the quality of service in the field of internal medicine
- 2 To determine the eligibility of candidates who request admission to examination in accordance with regulations published herein
- 3 To conduct examinations of eligible candidates who seek qualification by this board
- 4 To issue certificates of qualification to all those meeting the requirements of the board
- 5 To aid in improving the educational opportunities for the training of internists
- 6 To administer the regulations which pertain to certification in the medical subspecialties referred to herein

## VALUE OF CERTIFICATION

- 1 Evidence of special training in the broader aspects of the field of internal medicine and recognition of qualifications for the practice of internal medicine as a specialty
- 2 A requirement for admission to Fellowship in the American College of Physicians

## QUALIFICATIONS OF CANDIDATES

Each applicant for admission to the examination shall be required to present evidence that he has met the following standards:

## 1 GENERAL

- A Satisfactory moral and ethical standing in the profession
- B Membership in the American Medical Association or, by courtesy, membership in such Canadian or other medical society or societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association. Except as here provided membership in other societies shall not be required.

## 2 PROFESSIONAL

- A Graduation from a medical school of the United States or Canada approved by the Council on Medical Education and Hospitals of the American Medical Association
- B Completion of an internship of not less than one year in a hospital approved by the same council
- C In the case of an applicant whose training has been received outside of the United States and Canada, his credentials must be satisfactory to the aforementioned council and the Advisory Board for Medical Specialties

## 3 SPECIAL TRAINING

A minimum of five years must elapse after completion of a year of internship in a hospital approved for intern training before the candidate is eligible for admission to an examination.

A Three years of this period must be devoted to special training in internal medicine. This requirement should include a period of at least several months of graduate work under proper supervision in anatomy, physiology, biochemistry, pathology, bacteriology or pharmacology, particularly as related to the practice of internal medicine. This work may be carried on in any domestic or foreign medical school or laboratory recognized by the Council on Medical Education and Hospitals of the American Medical Association as offering appropriate facilities for this type of postgraduate training, or it may include a period of at least two years of graduate work under proper supervision in internal medicine or in its restricted and specialized branches in any domestic or foreign hospital, clinic or dispensary, or under the immediate preceptorship of an internist recognized by the board as offering appropriate facilities for this type of postgraduate experience.

B A period of not less than two years of special practice in the field of internal medicine or in its more restricted and specialized branches.

## MEMORANDUM FOR THE GUIDANCE OF CANDIDATES

The American Board of Internal Medicine does not propose to establish fixed rules for the preliminary training of candidates for certification in this field. Broad general principles for training, however, may be outlined, although such suggestions as are made must of necessity be subject to constant changes reflecting the dynamic nature of the specialty.

1 A sound knowledge of physiology, biochemistry, pharmacology, anatomy, bacteriology and pathology in so far as they apply to disease is essential for continued progress of the individual who practices internal medicine. Such knowledge may be obtained in a number of ways.

A By properly arranged and supervised graduate courses,

B By the opportunities for study afforded by the appointment to a junior position in a department of physiology, biochemistry, pathology, etc. (see above) with attendance upon advanced lectures in the other subjects,

C By advanced study in these subjects while an intern or resident medical officer, and by the application of the principles involved to patients under one's control,

D By the detailed study under supervision of a problem or topic in medicine in which the student brings the basic facts of physiology, pathology, etc., into direct relation with the concrete clinical problem. The analysis of a problem with detailed knowledge of its fundamental pathologic or physiologic background does much to stimulate thoroughness, clear thinking and progress.

2 A portion of the written examination is designed to test the candidate's knowledge in these preclinical subjects and especially in their application to disease rather than their purely laboratory aspects.

3 The mere factual knowledge of medicine and its basic sciences is not sufficient. The candidate must have had training in their use in furthering his understanding in clinical medicine. This implies practical experience under the guidance of older men who bring to their clinical problems ripe knowledge and critical judgment. Preparation to meet this requirement adequately may be even more difficult to obtain than the so-called scientific training. It may, however, be required in the following ways:

A By work in a well organized hospital outdoor clinic conducted by competent physicians.

B By a prolonged period of resident hospital appointments likewise directed by skilled physicians.

C By a period of training in intimate association with a well trained and critical physician who takes the trouble to teach and guide his assistant rather than to expect him only to carry out the minor drudgery of a busy practice.

4 The board does not consider it to the best interests of internal medicine in this country that rigid rules be formulated as to where or how the training outlined above is to be obtained. Medical teaching and knowledge are international. The opportunities of all prospective candidates are not the same. Some may have the opportunity of widening their knowledge by a period of study abroad. Others at the other extreme may be restricted to a comparatively narrow geographic area and their more detailed training must be obtained in short periods of good study scattered over a longer time. Although it is required that at least five years must elapse between the termination of the first intern year and the date when the candidate is eligible to take the examination, a longer period is advisable. The board wishes to emphasize that time and training are but a means to the end of acquiring a broadness and depth of knowledge of internal medicine which the candidate must demonstrate to the board in order to justify it in certifying that he is competent to practice internal medicine as a specialty. The responsibility of acquiring the knowledge as best he may rests with the candidate, while the responsibility of maintaining the standard of knowledge required for certification devolves on the board.

5 Applicants who graduated before the foundation of the American Board of Internal Medicine in 1936 will not be held to the strict interpretation of the published requirements in formal graduate training. Under such circumstances the board will accept the results of the examination as evidence of the qualifications for certification.

6 The board will recognize one year of basic science training which leads to a *higher degree* in the basic sciences, as one year of formal graduate training whether taken previous to or subsequent to the first year of internship.

7 The board will recognize a second year of internship which is confined strictly to internal medicine as one year of the graduate training period.

8 The board will recognize one year of training in pediatrics, neurology or any medical subspecialty as one year of the graduate training period of three years as published herein.

9 In all instances the board will require a minimum of two years training in internal medicine.

10 In the current emergency the board will allow one year of military service in the United States Army, Navy, or Marine Corps to be applied toward the satisfaction of one year of graduate training, or one year of the practice of the specialty of internal medicine. This ruling admits of a substitution of military or naval service for only one year of the three years of graduate training, or one year of the two years of the practice of internal medicine as outlined in the published qualifications for admission to the examination of this board.

#### METHOD OF EXAMINATION

The examination required of candidates for certification as specialists in internal medicine will comprise Part I (written), and Part II (practical or clinical).

Part I The written examination is to be held simultaneously in different sections of the United States and Canada on the third Monday of February and October of each year. This examination will be divided into a morning and an afternoon session of three hours each, and the two sessions A and B will include the following:

A Questions in applied physiology, anatomy, physiological chemistry, pathology, bacteriology and pharmacology as related to internal medicine as well as the cultural aspects of medicine.

B Questions in general internal medicine.

The location of the written examination is determined by the number of candidates from any given area. In all instances, however, the board will make every effort to meet the convenience of all concerned with a minimum of expense and time.

All candidates must successfully pass the written examination before being admitted to the oral examination.

Part II Candidates successful in the written tests will be eligible for the practical or clinical examination, which will be conducted by the members of the board near the time and place of the annual meeting of the American College of Physicians and of the American Medical Association and at such other times and places as the board may designate. This examination is conducted at the bedside, and each candidate will be assigned one or more patients in the hospital.

#### REEXAMINATIONS

1 Any candidate unsuccessful in the written examination may upon request repeat the examination after a period of two years. No additional fee is required for this examination. Any candidate unsuccessful in a second written examination may upon request repeat the examination after a further period of two years. A fee of \$10 is required for admission to a third written examination.

2 Any candidate unsuccessful in the oral examination may upon request repeat the examination after a period of one year. The period of one year is construed as the interval between annual meetings of the American College of Physicians or annual meetings of the American Medical Association. No additional fee is required for this examination. Candidates unsuccessful in the second oral examination may, upon request, repeat the examination after a period of two more years. A fee of \$10 is required for admission to the third oral examination.

#### APPLICATION

Candidates for examination shall make their application on a prescribed form which may be obtained from the office of the secretary-treasurer.

The application shall contain a record of the candidate's premedical and medical training as well as of internships, graduate study, hospital or dispensary staff appointments, teaching positions, membership in medical societies, medical papers published and the names of two well known internists to whom the board may refer for professional and character reference.

The application shall also be accompanied by one recent signed photograph mounted on the application, and the registration and examination fee of \$40, which fee will cover both the written and practical examinations. An additional fee of \$10 will be required when the certificate is issued.

#### CERTIFICATES

The certificate issued by the American Board of Internal Medicine shall be in such form as to comply with the articles of incorporation and the by-laws and shall be signed by the officers and members of the board, and shall bear the official seal of the board.

Certificates of the board will be issued to candidates who have satisfactorily completed the written and practical examinations and been found qualified by the board to practice the specialty of internal medicine.

Subspecialty certification will be designated on the certificate.

#### CERTIFICATION IN MEDICAL SUBSPECIALTIES

In association with the advisory committees in allergy, cardiovascular disease, gastroenterology and tuberculosis, the American Board of Internal Medicine will

1 Certify without examination candidates who have been certified by this board and who have been recommended by the advisory committee of the sub-specialty concerned for certification without examination.

2 Admit to further examination and certify if qualified, candidates who have been certified by this board and who have been recommended by the advisory committee of the sub-specialty concerned as eligible for admission to the examination

3 Examinations for certification in the sub-specialties indicated will be conducted by guest examiners, nominated by the advisory committee concerned and selected by the American Board of Internal Medicine, at the time and place of the regular board examinations. A fee of \$10 is required to meet the expense of this examination

4 Candidates who have not been certified by the American Board of Internal Medicine are ineligible for admission to examination in any sub-specialty

The American Board of Internal Medicine and members of advisory committees in the sub-specialties referred to herein, recognize the value of a broad general training in internal medicine before attempting to qualify in a sub-specialty of medicine. It is, therefore, agreed that all candidates shall first be certified by the American Board of Internal Medicine as a prerequisite for certification in a sub-specialty

#### REVOCATION OF CERTIFICATES

The American Board of Internal Medicine shall have the sole power, jurisdiction and right to determine and decide whether or not the evidence or information placed before it is sufficient to constitute grounds for revocation of any certificate issued by this board, and the decision of the board in the premises shall be final

All official correspondence should be addressed to the secretary-treasurer

### AMERICAN BOARD OF NEUROLOGICAL SURGERY, INC

HOWARD C NAFFZIGER, Chairman, San Francisco  
MAX M PEET, Vice-Chairman, Ann Arbor, Mich  
R GLEN SPURLING, Secretary-Treasurer, 404 Brown Building, Louisville, Ky  
PAUL C BUCY, Chicago  
WINCHELL MCK CRAIG, Rochester, Minn  
LEO M DAVIDOFF, Brooklyn  
LOYAL DAVIS, Chicago  
TEMPLE FAY, Philadelphia  
GILBERT HORRAN, Boston  
R EUSTACE SEMMES, Memphis, Tenn  
BYRON STOOKEY, New York  
WILLIAM P VANWAGENEN, Rochester, N Y

#### ORGANIZATION

Recognizing the need for detailed training and special qualifications for the practice of neurological surgery, representatives of both the Society of Neurological Surgeons and the Harvey Cushing Society held an informal meeting in Chicago on March 27, 1939, to consider the advisability of the formation of a national certification board. Later the group was enlarged by representatives from the Section on Nervous and Mental Diseases of the American Medical Association, the Section on Surgery of the American Medical Association, the American Neurological Association, and the American College of Surgeons. Approval of the board by the Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association was given. The American Board of Neurological Surgery was incorporated in the State of Delaware on Aug 1, 1940

The membership of the corporation was nominated as follows: five from the Society of Neurological Surgeons, three from the Harvey Cushing Society, one each from the American College of Surgeons, the Section on Nervous and Mental Disease of the American Medical Association, the Section on Surgery of the American Medical Association, and the American Neurological Association

#### PURPOSES

A To encourage the study, improve the practice, elevate the standards and advance the science of neurological surgery and thereby to serve the cause of public health

B To grant and issue to physicians duly licensed by law, certificates or other recognition of special knowledge in neurological surgery and to suspend and revoke the same

C Certificates granted or issued by the corporation shall not confer or purport to confer on any person any legal qualification, privilege or license to practice neurological surgery,

nor purport to be issued under or in pursuance to or by virtue of any statutory or governmental sanction or authority

D To determine by examination, investigation and otherwise the fitness and competence of specialists in neurological surgery who shall apply for certificates and to prepare, provide, control and conduct examinations, written, oral and otherwise, for such purpose and to determine the results of such examination

E To furnish to the public, hospitals, medical schools, medical societies and practitioners of medicine and surgery lists of neurological surgeons who from time to time have been granted certificates by this corporation

#### GENERAL REQUIREMENTS

##### A General qualifications

1 Satisfactory moral and ethical standing in the profession

2 License to practice medicine

3 Membership in the American Medical Association or, by courtesy, membership in such Canadian or other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association

4 That the surgical activity of the applicant shall be limited to neurological surgery

##### B Professional education

1 Graduation from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association, or graduation from a foreign school which is acceptable to the American Board of Neurological Surgery, Inc

##### C Special training, to be effective Jan 1, 1940

1 Completion of a surgical internship of not less than one year in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association, or its equivalent in the opinion of the board

2 A period of graduate study in a recognized graduate school of medicine of not less than three years beyond the intern year, or in an approved hospital or under a sponsorship acceptable to the American Board of Neurological Surgery, Inc, for the training of neurological surgeons. This period of special training shall be of such a character that the relation of the basic sciences of anatomy, physiology, pathology, bacteriology and biochemistry is emphasized. Knowledge of these sciences as applied to the practice of neurological surgery will be required in the examination

3 An additional period of not less than two years in the practice of neurological surgery

##### D Certification without examination

1 On invitation by the board and written application made within two years from Jan 1, 1940, the following may be accepted as eligible for certification upon approval of the board of directors and on the production of evidence of satisfactory moral and ethical standing in the profession

(a) Individuals of professorial rank in approved medical schools of the United States or Canada whose surgical practice is limited to neurological surgery

(b) Those who have specialized in neurological surgery for ten years prior to Jan 1, 1940

#### APPLICATION BLANK AND FEE

Application must be made on the special form which may be procured from the secretary. The application and examination fee for candidates is \$75 whether certified with or without examination. The completed application form should be returned to the secretary accompanied by an application fee of \$25. When notified by the secretary that he is eligible for examination he shall send the examination fee of \$50 to the secretary-treasurer at least two weeks before the date of examination. The application fee will be returned if the candidate is not accepted by the board for examination

A candidate who has failed in one examination is eligible to reexamination in the subject, or subjects, in which he failed, within three years, on payment of a reexamination fee of \$10. A candidate who has failed in one examination and who does not apply for reexamination within three years or a person who has applied within that time but who has failed a second time will be considered a new applicant

#### EXAMINATIONS

Examinations will be held in the spring and fall of each year at or near the time and place of a national meeting at the discretion of the board. Examinations will be oral and based upon broad principles of neurological surgery. The subject



matter of the examination will be divided into six parts (1) neuroanatomy and neurophysiology, (2) neuropathology and bacteriology (3) ophthalmology and x-ray diagnosis (4) neuro-surgical problems, (5) organic neurology and (6) general surgery

All communications should be addressed to the secretary-treasurer

## AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, Inc

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### ORGANIZATION

In 1930 the American Association of Obstetricians Gynecologists and Abdominal Surgeons, the American Gynecological Society and the Section on Obstetrics and Gynecology of the American Medical Association, each elected three Fellows to constitute the American Board of Obstetrics and Gynecology

Dr Walter T Dambrecht of New York, Dr Paul Titus of Pittsburgh and Dr Grandison D Rowson of St Louis were appointed to represent the American Association of Obstetricians Gynecologists and Abdominal Surgeons, Dr Jennings C Litzberg of Minneapolis, Dr Joseph L Bacr of Chicago and Dr E A Schumann of Philadelphia were appointed to represent the American Gynecological Society, Dr Fred L Adair of Chicago, Dr R D Muesey of Rochester, Minn and Dr E D Plase of Iowa City were appointed to represent the Section on Obstetrics and Gynecology of the American Medical Association. Since formation of the board several of the original members have resigned and others have been duly appointed to fill their places

The board was incorporated and organized and held its first meeting in September 1930. At that time the By-Laws were adopted and provision was made by resolutions for its proper functioning

This board had been in the process of organization since 1927 and put into action a determined effort on the part of these three national organizations to improve the standards of practice of obstetrics and gynecology

### PURPOSES

First. To elevate the standards and advance the cause of obstetrics and gynecology

Second. To determine the competence of practitioners professing to be specialists in obstetrics and gynecology

Third. To arrange, control and conduct examinations to test the qualifications of voluntary candidates appearing before the board for certification as specialists in obstetrics and gynecology

Fourth. To grant and issue certificates of qualification as specialists in the field of obstetrics and gynecology to candidates successful in demonstrating their proficiency

Fifth. To serve the public hospitals and the medical schools by preparing lists of specialists certified by the board

These activities proceed from the certificate of incorporation in which it is stated that "the nature of the business and the objects or purposes proposed to be transacted, promoted and carried on by it" are as follows

To encourage the study, improve the practice, and advance the cause of obstetrics and gynecology, subjects which should be inseparably interwoven, and to grant and to issue to physicians duly licensed by law, certificates or other equivalent recognition of special knowledge in obstetrics and gynecology

### NO DEGREES OR LEGAL RESTRICTIONS

Each certificate granted or issued does not of itself confer or purport to confer upon any person any degree or legal qualifications, privileges or license to practice obstetrics or gynecology, nor does the board intend in any way to interfere with or limit the professional activities of any duly licensed physician. Its chief aim is to standardize qualification for specialists in obstetrics and gynecology, and to certify as specialists those who voluntarily appear before the board for such recognition and certification, according to its regulations and requirements

### VALUE OF CERTIFICATE

The national obstetrical and gynecological organizations, which have participated in the formation of the board and are sponsoring its activities, as well as other societies, attach considerable importance to its certificate. Both the medical and the lay public including hospital directors, have come to utilize the certificate from this board freely as a means of determining who are well grounded as specialists in obstetrics and gynecology

Lists of those holding certificates from this board who are limiting their practice to obstetrics and gynecology are published in the Directory of Medical Specialists, similar lists are published by the *American Journal of Obstetrics and Gynecology* and also appear in the *American Medical Directory*. This latter indicates diplomates of this and other boards by means of numerical symbols appearing in the biographic records but does not give such special recognition to diplomates who are not members of the American Medical Association

A joint directory of specialists certified by the fifteen major special boards was published in 1940 by the Advisory Board for Medical Specialties, a second edition appeared in February 1942 and a third is planned for publication in 1944. This board holds active membership in the Advisory Board for Medical Specialties

This board in cooperation with the Council on Medical Education and Hospitals of the American Medical Association, is conducting a survey of institutions providing acceptable residencies and internships in obstetrics and gynecology

### PREREQUISITES TO ELIGIBILITY

Each applicant before he shall become eligible to receive such certificate or other evidence of recognition

1. Must have had conferred upon him a degree in medicine by an institution of learning approved by the Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association

2. Must establish in a manner satisfactory to the board of directors that he is a physician duly licensed to practice medicine

a. That he is of high ethical and professional standing  
b. That he has received adequate training in obstetrics and gynecology as a specialty

Each candidate should have certain fundamental knowledge of the basic essentials of anatomy, pathology, bacteriology, physiology, pharmacology, and therapeutics as related to the practice of obstetrics and gynecology. Clinical training should consist subsequent to graduation, of at least one year's general rotating internship, and thereafter a special residency in obstetrics and gynecology for a period of at least three (3) years, not necessarily consecutive. The board accepts the fifth or "intern" medical school year required at some schools in lieu of the usual fifth or intern "clinical training" year following graduation. As a substitute for special training, service with a qualified obstetrician-gynecologist preceptor, preferably one who has been certified by the board, may be acceptable. The exact time basis for this has not been specified, and each case must be reviewed and decided individually by the credentials committee after the application is submitted in the regular manner. The time allowance for this type of training will vary with the amount of work done with the preceptor. Opportunity for personal responsibility during this period of training is highly desirable. At least a fundamental knowledge of both obstetrics and gynecology is essential regardless of whether a candidate's practice is limited to one or the other branch. As heretofore, all candidates will be required to stand examination in both branches of the specialty, regardless of the fact that the major part of their practice may be in one or the other branch of the specialty

An applicant entering military service in the present national emergency and assigned to work in general surgery under conditions satisfactory to the credentials committee may receive credit toward the required special training up to a maximum of six (6) months, applicable toward his three years of special training. Emergency military service may be counted as years of practice

3. Must make application for investigation of his credentials and a survey of his character

4. Must assure the board that he is limiting his practice to obstetrics and/or gynecology and that he intends to continue to do so having limited for at least six (6) months before making application

This board deprecates engagement in other fields of practice than that in which candidates profess to be specialists. The



board does not exclude from examination, however, obstetricians or gynecologists who practice abdominal surgery and urology in the female, as well as breast surgery, because of the correlation of these activities.

Emergency military service or any other similar patriotic service, such as work with Selective Service Boards, will not be construed as nonlimitation of practice in violation of the board regulations. Proof of this necessity must be shown.

The board has ruled that physicians who accept male patients in their private or other practice, for operative or other care, cannot be regarded as specialists in obstetrics and gynecology. Special certifying boards in general surgery and internal medicine have been organized and such individuals should apply to one of these boards.

5 Must have membership in the American Medical Association, or membership in such Canadian or other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association.

6 This board will no longer accept applicants for examination who are not full citizens of the United States or of Canada, though they be residents of either country. Applicants must have been certified by either the National Board of Medical Examiners or licensed to practice medicine in the United States or Canada by a state or provincial board of licensure. Notarized statements, *not* citizenship papers, must be furnished when the application is filed, attesting to the fact of full citizenship in the United States or Canada, if the applicant is foreign born.

Further, there will be required a probationary period of at least three (3) years from the date of licensure in the practice of medicine in these countries before such a candidate may be admitted to examination.

#### APPLICATION AND FEES

Application must be made on a special blank which will be furnished by the secretary's office, 1015 Highland Building, Pittsburgh, Pa., and must be forwarded with the other required credentials and the application fee to the secretary's office. The secretary cannot make any eligibility rulings. These are made only by the credentials committee after reviewing the candidate's formal application, which must be completely filled out and previously filed with the secretary.

Application fee \$15 00  
Make checks payable to American Board of Obstetrics and Gynecology. Not returnable.

(Applications will not be considered for classification and action by the credentials committee unless accompanied by the application fee.)

Applications and application fees must be in the office of the secretary at least ninety (90) days prior to the scheduled date of the examinations.

Applicants who fail to exercise the examination privilege within three (3) years of the date of filing the application are required to file a new application and to pay a new application fee.

Applicants declared ineligible for admission to examination may reopen their applications within one (1) year of the filing date without payment of an additional application fee.

Examination fee \$85 00

(Payable when the candidate is notified of acceptance for examination. Not returnable after the candidate has been officially accepted by the credentials committee and notified to report for examination, except if the candidate is prevented from appearing for examination because of induction into military service.)

Total fee \$100 00

The fees have been carefully computed on a basis of cost of examinations and are used entirely for administrative expenses. Examiners serve without compensation other than actual expenses.

All candidates must comply with board regulations in effect for the year in which the examination is taken, regardless of when the original application was filed.

#### REQUIREMENTS

The requirements for all candidates are uniform, as follows:

1 Completion of at least one year in a general rotating intern service in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association.

(A second year general internship is to be considered as one of a candidate's years of practice. No credit will be given

toward special training during a second year general internship.)

2 A minimum of seven (7) years of practice after the intern year, including at least three (3) years of special training in approved institutions, or adequate preceptorship training in approved institutions or by approved individuals in obstetrics and gynecology satisfactory to the Board of Directors.

3 Limitation of practice to obstetrics and/or gynecology. The candidate's practice must have been so limited for a period of at least six (6) months prior to the date of making application.

4 Membership in the American Medical Association or membership in such Canadian or other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association is required.

5 This board will no longer accept applicants for examination who are not full citizens of the United States or Canada, though they be residents of either country. Foreign born applicants must have been certified by either the National Board of Medical Examiners or licensed to practice medicine in the United States or Canada by a state or provincial board of licensure. Notarized statements, *not* citizenship papers, must be furnished when the application is filed, attesting to the fact of full citizenship in the United States or Canada, if the applicant is foreign born.

(Emergency military service or any other similar patriotic service, such as work with Selective Service boards, etc., will not be construed as nonlimitation of practice in violation of the board regulation. Proof of this necessity must be shown. The same regulations as above, regarding emergency civilian practice, will be allowable for diplomats.)

#### EXAMINATIONS

Applicants not qualifying before the 1942 examinations, as well as those who have previously applied and been accepted for examination but who have failed until this time to appear, will be subject to the new plan of general grouping and uniform examination which went into effect after the final examination in June 1942. Former Group A candidates undergoing reexamination in Part II will not be required to take Part I.

All applicants accepted for examination will be required to attain a passing grade in both a written examination and a review of case records (Part I), before becoming eligible for the oral clinical, and pathological examination (Part II).

The next examination is scheduled for Saturday, Feb. 13, 1943. Application on an official application form, for admission to this examination must be filed in the office of the secretary with the application fee of fifteen dollars (\$15) at least ninety (90) days prior to this date. Grades cannot be mailed from the secretary's office until about April 1, 1943.

Arrangements will be made for candidates to report in any convenient city where there may be a diplomate of this board to conduct or supervise the written examination which will be sent out under sealed cover from the board's office.

Applicants accepted for examination have three years from date of filing to appear for examination. After that time a new application with its fee is required.

Examination consists of

1 A comprehensive written examination, given once yearly, including questions on both obstetrics and gynecology, as evidence of a fundamental knowledge of both branches is required of all candidates.

The filing of a total of twenty-five obstetric and gynecologic case reports, in condensed form. 5 cases may concern major illnesses not necessarily operative.

No candidate is eligible for the general oral clinical, and pathological examinations (Part II) until he has passed the written portion and his case reports have been found satisfactory. The passing grade for the written examination and case reports is 75 per cent, and a candidate whose grade in either or both falls below 75 per cent is conditioned. Either or both of these conditions must be removed before the candidate is eligible for Part II.

Reexamination for the removal of conditions in Part I may be taken at any regular Part I examination after one year but within three years after the first failure, without payment of an additional fee.

Candidates who successfully complete the Part I examination proceed automatically to the Part II examination held later in the year.

The general oral clinical and pathological examinations given all candidates are conducted by the entire board and the assistant examiners near the time and place of the annual meeting of one or more of the national societies represented on this board, usually that of the American Medical Association.

Examination consists of:

1 Oral examination before from two to four examiners. An endeavor is made to adapt the details of the oral examination to each candidate's experience and practice, and the examination is particularly directed to ascertain his familiarity with recent obstetrical and gynecological literature, the breadth of his clinical experience, and his general qualifications as a specialist in obstetrics and gynecology.

2 Pathology examination. The candidate is expected to identify and discuss several obstetrical and gynecological pathological specimens and histologic sections.

As heretofore, all candidates will be required to stand examination in both branches of the specialty regardless of the fact that the major part of their practice may be in one or the other branch of the specialty.

Examiners report orally upon each candidate to the assembled board after which the results of their examinations are considered jointly by the entire board and assistant examiners. After a general consideration of the details of the candidates' oral and pathology examinations including a review of his capability and general adaptability, the candidate is passed or failed by the entire board. No conditions are given in Part II of the examination. When a candidate fails in Part II of the examination, he is not required to repeat Part I but to take a reexamination in the oral clinical and pathological portions only. Reexamination may be taken within three (3) years of the original examination or first failure without payment of an additional fee.

Candidates may be reexamined as often as they desire on satisfactory evidence of adequate additional preparation and payment of reexamination fee. A minimum of one year must elapse between examinations. The board may, at its discretion, deny the candidate the privilege of reexamination.

Candidates must reapply and pay a new fee following a second failure in either part of the board examinations, if they wish to appear again before the board.

#### CASE REPORTS

Case records to be submitted for reexamination will come under the new regulations.

A total of twenty-five obstetric and gynecologic case reports, in condensed form, are required, 5 cases may concern major illnesses, not necessarily operative.

These reports must be of cases treated within four (4) years of the date of the candidate's application. The number of cases from one's residency service should not be more than half the total number.

The group of reports must include a variety of material rather than a number of cases of one type.

These reports should be prepared in condensed form in line with the following items:

1 Hospital admission number and date, with identifying initials, or name, of each patient, and name of operator (candidate), at the top of the page.

2 (a) Preoperative diagnosis, and basis for this, in brief  
(b) Postoperative diagnosis, based on findings.

3 Nature of operation, omitting descriptive technical details, but including pathologist's findings on tissue removed. Obstetric case reports should show:

(a) Date of first antepartum visit and any special features bearing on the case.

(b) The weight and condition of the child at birth and at time of discharge from the hospital.

Obstetric reports which omit measurements of the pelvic inlet and outlet will be considered incomplete.

4 Critical summary or analysis of cases, with critical deductions derived from correctness or incorrectness of diagnosis, operative findings, postoperative course and from final results on discharges from hospital and at six months "follow-up" examination.

5 Two (2) separate index lists must accompany these reports, with verifications of these and of the fact that the candidate was the operator.

*Preparation of Reports.* These are not to be copied verbatim from hospital records, but must be sufficiently complete so that

the examiner can evaluate the judgment of the candidate in his choice of procedure.

Each report must include the items listed above, and amplified below:

1 Including each separate case report must be the hospital number, name of the hospital at which the patient was operated upon with all pertinent dates, together with the candidate's name, or identifiable initials.

2 Histories must be typewritten on standard size paper, 8" by 11 inches.

3 Must be assembled by individual cases.

4 Must not be bound with any form of binding other than light weight paper folders or covers.

The critical summary or analysis which must be prepared for each case must include:

1 An account of the candidate's personal observations of the case both prior to and subsequent to operation.

2 The basis for the diagnosis.

3 The facts that determined the course of treatment. Details of operative technique should not be included.

4 Critical conclusions to be drawn from the outcome of the case.

Case reports which do not include such discussion and comments will not be reviewed or graded by the examiners.

Two separate index lists must be made for each individual hospital at which operations were performed. These must state:

Candidate's name at head of each page.

Name and address of the hospital.

Patient's name or identifiable initials.

Patient's admission number.

Date of admission.

Date of operation.

Date of discharge.

Lists must be verified by the superintendent or by the medical director or each individual hospital from which the reports come. All verifications must be formally signed by the responsible hospital official, attesting in each instance that the candidate was the operator.

Case reports are to be presented with the completed examination paper to the examiner conducting the written examination. They are not to be sent by the candidate to the secretary.

The final action of the board is based upon the candidate's ethical and professional record, training and attainments, as well as on the results of his formal examination.

#### REVOCATION OF CERTIFICATES

Each Certificate of Qualification may be revoked by this board in the event that:

1 Any representation or statement made to the board or to any of its representatives by the physician so certified, including the statements contained in his application for certification, shall have been false or intentionally misleading.

2 The physician so certified shall not *in fact* have been eligible to receive certification, irrespective of whether or not the facts constituting such ineligibility were known to or could have been ascertained by this board, its members, directors, examiners, officers, or agents at or before the time of issuance of such Certificate of Qualification.

3 Any rule governing examination for certification shall have been violated by the physician so certified and the fact of such violation shall not have been ascertained until after the issuance of the Certificate of Qualification.

4 The physician so certified shall fail to abide by the regulations governing the limitation of his practice to the specialty as hereinabove defined.

5 The physician so certified shall violate the standards of ethical practice of medicine then accepted by organized medicine in the locality in which he shall be practicing and, without limitation of the foregoing, the forfeiture, revocation or suspension of his license to practice medicine, or the expulsion from, or suspension from the rights and privileges of membership in, the American Medical Association or any state or county society affiliated therewith, any recognized Canadian medical society, the American Association of Obstetricians and Gynecologists and Abdominal Surgeons or the American Gynecological Society shall be conclusive evidence of a violation of such standards of ethical practice of medicine.

6 The physician so certified shall fail to comply with or violate, or the issuance or receipt by him of such Certificate of Qualification shall have been contrary to or in violation of, the Certificate of Incorporation, the By-Laws or the Rules and Regulations of this board

The board recognizes the shortage of physicians for civilian needs during the war period, and for an indeterminate period thereafter, and will not enforce its existing regulations against nonlimitation of practice among its present holders of certificates, provided it can be justified by military duties and local conditions. Proof of such necessity must be shown.

Upon revocation of any Certificate of Qualification by this board as aforesaid, the holder thereof shall return his Certificate of Qualification and all other evidence of certification to the secretary of the board and his name shall be removed from the list of diplomates or certificate holders by this board.

Make checks payable to the American Board of Obstetrics and Gynecology. Communications should be addressed to the secretary-treasurer.

## AMERICAN BOARD OF OPHTHALMOLOGY

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### ORIGIN, AIMS AND METHODS

In 1913 the American Ophthalmological Society, the Section on Ophthalmology of the American Medical Association, and the American Academy of Ophthalmology and Otolaryngology appointed committees to report on ophthalmic education.

In 1914 these committees recommended that medical schools of the first class establish graduate courses in ophthalmology leading to an appropriate degree, and that these courses should represent not less than two years of systematic work subsequent to taking the degree of Doctor of Medicine. There was unanimous agreement as to the need of systematized and standardized training of those who are to practice ophthalmology, but it was clear that, in the near future, the number who would take the complete course leading to such a degree would be small. Moreover, such a course would not solve the problem of differentiating, in some degree, between the competent and the incompetent among those now in practice in ophthalmology. The committees were continued and, in 1915, they made further recommendations, as a result of which a joint board was created consisting of three representatives from each of the three special societies.

In 1916, after much preliminary work, this board was organized as the American Board for Ophthalmic Examinations (later changed to "American Board of Ophthalmology"). It was incorporated May 3, 1917.

In 1934 the plan of organization was changed so that each component society elects four members, instead of three, to form the board. The members of this board are chosen in the same manner as the presiding officers of these societies are chosen. One is elected each year by each of the societies represented on the board, to serve for four years.

As other specialties formed boards similar to the American Board of Ophthalmology the need for some supervising and coordinating control led to action by the American Medical Association in 1933 authorizing the Council on Medical Education and Hospitals (1) to formulate standards of administration, based on those of the American Board of Ophthalmology, of Otolaryngology, of Gynecology and Obstetrics, and of Dermatology and Syphilology, and (2) to recognize officially new boards meeting these standards.

The Constitution of the Advisory Board for Medical Specialties which was organized in 1934 states that "This board shall act in an advisory capacity to such organizations as may seek its advice concerning the coordination of the education and certification of medical specialists."

### CHIEF FUNCTIONS

1 To establish standards of fitness to practice ophthalmology cooperating with hospitals and graduate schools of medicine

2 To arrange and conduct examinations to test the qualifications of those who practice ophthalmology, and to confer certificates upon those who meet the standards established by the board

3 To act as preceptors for prospective students of ophthalmology

### NO DEGREES

The conferring of a degree is left to the universities, where it belongs, and the board makes no attempt to control the practice of ophthalmology by any license or legal regulation whatever. It simply aims to establish a standard of fitness to practice ophthalmology, and to certificate any who, voluntarily, apply and satisfy the board of their qualifications.

The following is the wording of the present certificate

The American Board of Ophthalmology hereby certifies that (name) has pursued an accepted course of graduate study and clinical work, and has successfully passed the examination in ophthalmology conducted under the authority of this Board.

Date

*Signatures of members of the Board*

Many special eye hospitals as well as general hospitals in all parts of the country require the certificate for appointment or promotion on their staffs. In addition, many societies now require the certificate as a prerequisite for membership.

The number of institutions and societies which require the certificate of the board is increasing.

The American College of Surgeons recognizes the certificate of this board as evidence of academic fitness in ophthalmology. It requires from candidates for its Fellowship who hold such certificates only half as many case histories as from those who are not so certificated.

Up to July 1, 1941 approximately 1,875 ophthalmologists have received the certificate of the board.

### FEES

The fee for the examination and the certificate of the American Board of Ophthalmology is \$50. Of this sum \$25, which is not returnable, must accompany the application. The balance of \$25 must be paid before the candidate is admitted to examination.

Applications expire three years from date of application. If a candidate has not appeared for examination before expiration of his application, he will be required to apply again and pay an additional application fee of \$25.

The fees of candidates are used solely for defraying the actual expenses of the board. The members of the board and their associates receive no emoluments.

### GENERAL REQUIREMENTS FOR ALL CANDIDATES

1 Application on special blank, which may be obtained from the secretary, must be filled out accurately. Letters of endorsement from two well known physicians (preferably ophthalmologists) together with any other required credentials must accompany the application and must be sent to the secretary at least before December 1 preceding date when the candidate expects to appear for examination.

2 The candidate must have high ethical and professional standing in his community.

3 Membership in the American Medical Association or such other societies as are recognized for the purpose by the Council on Medical Education and Hospitals of the American Medical Association. In the case of an applicant whose training has been received outside of the United States and Canada, his credentials must be satisfactory to the board, if he has been in practice less than ten years he should obtain the certificate of the National Board of Medical Examiners.

4 A list of papers or books published by the candidate must be submitted.

5 Reports of ten cases of varied character which have been observed and treated by the applicant are required.

6 An examination divided into Part I (oral) and Part II (clinical, practical and laboratory). In both of these examinations a knowledge of the practical application of the basic sciences of ophthalmology will be required.

7 Citizenship in country where candidate practices. The final action of the board is based on the candidate's professional record, training and attainments as well as on the results of his formal examinations.

### GENERAL EDUCATIONAL REQUIREMENTS (Applicable as far as possible after 1944)

1 A degree from a medical school of high standing satisfactory to the board and approved by the Council on Medical Education and Hospitals of the American Medical Association. In the case of an applicant whose training has been received outside of the United States and Canada his credentials must be satisfactory to the board. He may be required to obtain the certificate of the National Board of Medical Examiners.

2 Completion of an internship of not less than one year in a hospital approved by the same Council.

### SPECIAL TRAINING

(Applicable as far as possible after 1944)

A period of combined study, training and practice of not less than three years in approved medical schools, hospitals, clinics, dispensaries, laboratories, preceptorships and private practice.

(A total of five years will be required of candidates practicing eye, ear, nose and throat.)

1 This shall include graduate study of the basic medical sciences which are fundamental to the intelligent practice of ophthalmology, particularly anatomy, histology, embryology, optics, physiologic optics, visual physiology and psychology, pathology, bacteriology, pharmacology. Mere factual knowledge of these subjects is not sufficient. The candidate must have had training in their application and in their use in clinical ophthalmology, especially in refraction disorders of motility and binocular vision, perimetry, and in the slit lamp adjustment and use of instruments such as the ophthalmoscope, retinoscope, slit lamp and microscope.

2 Active clinical experience in approved hospitals, clinics, dispensaries and private practice. Library and laboratory facilities should be utilized for the intensive study of cases.

The subject matter to be covered under 1 and 2 is outlined in the syllabus prepared by the board.

These requirements may be met in various ways.

### BASIC STUDIES

A—By courses in approved graduate medical schools.

B—By the opportunities for study afforded by the appointment to a junior position in one of the departments with attendance at advanced lectures in the other subjects.

C—By advanced study of these subjects while a resident and by application of the principles involved to patients under one's control.

D—By the detailed study, under supervision or as assistant to an experienced research worker, of some problem or topic which brings the basic facts of physiology, pathology, etc. into direct relation with the concrete clinical problem. The analysis of a problem with detailed knowledge of its fundamental physiologic and pathologic background does much to stimulate thoroughness, clear thinking and progress.

### CLINICAL EXPERIENCE

A—By residency in an approved hospital. The most desirable of these residencies have regular lectures covering the whole field of clinical ophthalmology and of the basic subjects as applied in clinical practice. Many of these have seminars at which residents report cases which they have carefully worked up. These are discussed by the other residents and by the staff and the method of presentation as well as the subject matter critically considered.

B—There are many residencies, usually of 12 months which do not furnish regular instruction by lectures and quizzes and seminars. If he has access to a good library and laboratory the student can learn a great deal and has some advantages over the man who expects to be "spoon-fed." The syllabus prepared by the board will guide him in his selection of topics to be studied.

C—There are some opportunities to continue the study and experience by securing appointments as fellows.

D—By a period of training in association with a well trained and critical ophthalmologist who takes the trouble to teach and guide his assistant.

E—After completing a residency it is of great advantage to secure a position in a clinic as fellow or assistant. This may require only part time work, but due credit will be given. Its value to the student depends on how much study he puts into it and on how competent his seniors are.

F—Research under competent critical and sympathetic supervision will give first hand insight into (1) the methods whereby old knowledge was and new knowledge is acquired, and (2) the pitfalls which accompany attempts to enlarge the sphere of knowledge. Only in this way can the candidate evaluate facts

of the past and present in the intelligent critical way which is expected of the specialist.

The candidate who cannot secure the type of residency he desires should not despair, for his progress depends far more on how he uses his opportunities than on the opportunities themselves.

### WHAT CONSTITUTES THE EXAMINATION

In determining the question of certification, the examiners rely on the following criteria:

- 1 The applicant's professional and ethical record,
- 2 Oral examination,
- 3 Clinical, practical, and laboratory examination.

### CASE REPORTS

Detailed instructions for the preparation of case reports should be obtained from the secretary.

### ORAL EXAMINATION PART I

These examinations will be given just prior to the practical and clinical examination.

The oral examination will be on subjects as follows:

|                            |   |
|----------------------------|---|
| External Diseases          | Relation of the Eye to General Diseases                   |
| Pathology-Histopathology   |   |
| Bacteriology               | Therapeutics and Operations (including Practical Surgery) |
| Refraction and Retinoscopy | Optics and Visual Physiology                              |
| Anatomy and Embryology     |   |
| Perimetry and Campimetry   |   |

### PRACTICAL AND CLINICAL EXAMINATION PART II

The purpose of the examination is to determine the competence of the candidate to practice ophthalmology.

Candidates must be prepared to be examined in the whole field covered by the syllabus of the board. The time spent in preparation will count less than the knowledge and experience acquired as shown on examination.

The subdivisions of the practical examination are as follows:

1 External diseases of the eye, lacrimal passages, etc., including inspection, focal illumination, use of loupe and slit lamp, examination of reactions of the pupil, of tension by tonometer and by fingers.

2 Ophthalmoscopy. Several patients will be examined by the candidate and the findings described or drawn. The ability to see with the ophthalmoscope and to interpret what is seen, and the systematic and thorough methods of examination used by the candidate will count for more than mere statement of diagnosis. A candidate should bring his own ophthalmoscope so that he may not suffer the handicap of an unfamiliar instrument.

3 Pathology. The candidate should be familiar with general clinical pathology as well as the etiology, pathology, and bacteriology of diseases of the eye. He will be asked to examine microscopic slides and to recognize ordinary normal and pathologic histology of the eye and to identify the commoner microorganisms.

4 Refraction. A candidate will examine patients and show mastery of various methods, and of the principles of refraction and of retinoscopy. He should bring his own retinoscope.

5 Ocular Motility. The candidate will demonstrate upon patients his familiarity with routine methods of examination for abnormalities of the ocular muscles.

6 Practical Surgery. A candidate will demonstrate his surgical technic upon animals' eyes. To have the advantage of using instruments with which he is familiar, he should bring his own equipment for performing a regular combined extraction of the lens.

### DATES OF EXAMINATION

Examinations will be held annually at or near the time and place of the meeting of the American Medical Association, also at other times and places at the discretion of the board, depending on the number of applications from any region.

Notices of all examinations will be found in The Journal of the American Medical Association, and in the special journals of ophthalmology.

### REEXAMINATION

Candidates may be reexamined as often as they desire, provided they give satisfactory evidence of adequate preparation. One year must elapse between examinations and the board may, at its discretion, deny the candidate the privilege of reexamination.

### REVOCATION OF CERTIFICATE

Any certificate issued by the board shall be subject to revocation by the board at any time in case it shall determine in its sole judgment that a candidate, who has received the certificate



of the American Board of Ophthalmology, either was not properly qualified to receive it, or has since its receipt become disqualified

Communications should be addressed to the secretary-treasurer

## AMERICAN BOARD OF ORTHOPAEDIC SURGERY, Inc

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### INTRODUCTION

The rapid growth of specialization and the increasing number of physicians limiting themselves in their practice to one branch of medicine or surgery emphasize the need for the proper certification of specialists in the various branches of the medical science. In recognition of this condition the American Board of Orthopaedic Surgery, Inc, aims to elevate the standard of qualifications for the practice of orthopaedic surgery and to certify those surgeons who voluntarily comply with its requirements.

In order to place orthopaedic surgery on the highest possible plane, the American Orthopaedic Association, the Section on Orthopaedic Surgery of the American Medical Association and the American Academy of Orthopaedic Surgeons united in organizing a certifying board which was incorporated in the year 1934 as the American Board of Orthopaedic Surgery, Inc.

The American Board of Orthopaedic Surgery, Inc, has been officially approved by the Advisory Board for Medical Specialties and by the Council on Medical Education and Hospitals of the American Medical Association.

### WHAT THE BOARD WILL ACCOMPLISH

1 Certification by the board will establish a criterion to both interested lay and professional groups for judging the qualifications of an orthopaedic surgeon. Thus a reliable guide will be furnished for the choosing of consultants.

2 Hospitals and other organizations will no doubt establish rules limiting service on their permanent staffs to those certified by the board.

3 It will gradually tend to limit the practice of orthopaedic surgery to those properly qualified.

4 Certification by the American Board of Orthopaedic Surgery is one of the essential requirements for membership in the American Orthopaedic Association and the American Academy of Orthopaedic Surgeons.

Excerpts from Articles 1, 2, 7 and 8 of the By-Laws

Article 1 *Section 1* DEFINITION Orthopaedic Surgery is that branch of surgery especially concerned with the preservation and restoration of the functions of the skeletal system, its articulations and associated structures.

Article 2 *Section 2* PURPOSES To test and determine the qualifications of applicants for registration and to issue certificates to those found qualified.

*Section 3* To prepare and maintain a registry of the holders of the certificates issued by the board.

*Section 4* To serve the public, physicians, hospitals and medical schools by furnishing lists of those who have received the certificate of the board, and thus to assist in protecting the public against irresponsible and unqualified practitioners who profess to specialize in orthopaedic surgery.

Article 7 *Section 1* APPLICATION FOR CERTIFICATE Each application for a certificate shall be filed with the secretary upon the prescribed form, and shall be accompanied by the fee which the board may fix from time to time. It shall also be accompanied by an unmounted autographed recent photograph of the applicant and the names of two orthopaedic surgeons acceptable to the board, who may be referred to for information in regard to the applicant.

*Section 2* The applicant must have the following qualifications

(a) He must be a graduate of a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association.

(b) He must be of high ethical and professional standing.

(c) He must be a citizen of the United States or Canada.

(d) He must be duly authorized to practice medicine in the state or province of his residence.

(e) He must be a member of the American Medical Association or another society approved by the Council on Medical Education and Hospitals of the American Medical Association.

(f) He must have had one year of internship in a general hospital acceptable to the board.

(g) After Jan 1, 1940, he must have had three years of concentrated instruction in orthopaedic surgery approved by and acceptable to the board. (A residency of at least two years on an orthopaedic service of a hospital recognized by the Council of the American Medical Association is desirable.)

(h) He must have knowledge of the basic medical sciences related to orthopaedic surgery.

(i) He must have had at least two years' further experience in the actual practice of orthopaedic surgery. Continuation of training (g) beyond the three years required will not be considered as actual practice unless the position of the candidate is considered permanent or his responsibilities equivalent to those encountered in private practice. This means that interns, residents, fellows, graduate students and assistants will not be credited with additional periods of training unless they are permanent members of the organizations with which they are associated.

(j) He must have limited his work to the field of orthopaedic surgery for at least two years prior to the submission of his application for examination.

(k) In the case of an applicant whose training has been received outside of the United States and Canada, his credentials must be satisfactory to the Council on Medical Education and Hospitals of the American Medical Association and to the National Board of Medical Examiners. In addition, he must have been engaged in the practice of orthopaedic surgery in the United States (or Canada) for at least three years prior to the submission of his application.

(l) During the present national emergency, the board will recognize up to a maximum of one year for work done in the orthopaedic division of the Army or Navy. If the above fills out the three years of special required training for examination, further time spent in the orthopaedic division of the armed forces, up to a maximum of one year, will be credited towards the practice requirement.

*Section 3* Each applicant shall be examined and his qualifications determined by the board in such manner as it may designate, and his record shall be reviewed by the board in the light of all assembled information.

Article 8 *Section 1* CERTIFICATE If the applicant be found qualified therefor, a certificate that he has been found by this board qualified to practice orthopaedic surgery shall be issued to him. The certificate shall be in such form as may be adopted by the board, and shall be signed by the officers and members of the board.

### EXAMINATION

Examinations will be held once a year. If feasible, these examinations will be in conjunction with meetings of the major orthopaedic societies.

Oral and written examinations will be held on clinical, anatomical and pathological phases of orthopaedic surgery. Anatomical and pathological laboratories and hospital wards will be used when practicable.

### APPLICATION FOR CERTIFICATION

Application forms may be obtained from the secretary of the board. These should be filled in accurately and returned not less than ninety days prior to the next examination. An autographed photograph and the fee must accompany the application.

### FEES

The examination fees have been adjusted so as to be in closer accord with the other specialty boards. A fee of \$50 will accompany the application and cover the expenses of the first examination. Candidates appearing before the board for second and third examinations will pay additional fees of \$25 for each of the subsequent examinations following the first. This will take effect as of Jan 15, 1941 and will not be retroactive.

Communications should be addressed to the secretary.



# AMERICAN BOARD OF OTOLARYNGOLOGY

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## ORIGIN, AIMS AND METHODS

### SOURCE OF AUTHORITY

In 1916 the American Academy of Ophthalmology and Otolaryngology appointed a committee on examinations, consisting of Drs Thomas E Carmody, Harris P Mosher and Ross Hall Skillern before whom candidates professing otolaryngology as a specialty were to appear to be qualified as such.

In 1924 through the efforts of Dr George Shambaugh the committee was enlarged to include representatives from each of the following societies: the American Laryngological Association, the American Otolaryngological Society, the American Rhinological and Otolaryngological Society, the American Academy of Ophthalmology and Otolaryngology and the Section of Laryngology, Otolaryngology and Rhinology of the American Medical Association. Each organization appointed two representatives, making a total of ten, which constituted the first American Board of Otolaryngology. The organization members

Dr J C Beck of Chicago, Dr T E Carmody of Denver, Dr T H Halstead of Syracuse, N Y, Dr H W Loeb of St Louis, Dr R C Lynch of New Orleans, Dr H P Mosher of Boston, Dr B R Shurly of Detroit, Dr R H Skillern of Philadelphia, Dr F R Spencer of Boulder, Colo., and Dr W P Wherry of Omaha.

## CHIEF ACTIVITIES OF THE BOARD

First, to establish the qualifications for the practice of otolaryngology and to hold examinations and to certify those otolaryngologists whom the board finds qualified and competent.

Second, these activities proceed from the object of the corporation which is stated in the articles of incorporation to be:

'The object of the corporation shall be to elevate the standard of otolaryngology to familiarize the public with its aims and ideals, to protect the public against irresponsible and unqualified practitioners, to receive applications for examination in otolaryngology, to conduct examinations of applicants, to issue certificates of qualification in otolaryngology and to perform such duties as will advance the cause of otolaryngology.'

## NO DEGREES

It is not the function of the board to grant a degree.

## AIM OF CERTIFICATION

It is the aim of the board that societies representing the specialty of otolaryngology, teaching institutions and hospitals shall require the certificate of the board for admission to the special societies and for advancement in hospitals or teaching institutions.

## CLASSIFICATION OF CANDIDATES

Applicants for examination and for the Certificate of the Board are divided into classes according to the length of time they have practiced otolaryngology.

(Limited practice in otolaryngology interpreted as ninety (90) per cent otolaryngological practice—ophthalmology excepted.)

Class I—Limited Practice, fifteen years or more

Class II—Limited Practice, ten to fifteen years

Class III—Limited Practice, five to ten years

Class IV—Limited Practice, three to five years

(Basic course in otolaryngology and residency in otolaryngology required in this group—Class IV.)

## REQUIREMENTS

The following are required by the board:

First, a candidate acceptable for the examination must be a graduate of a school approved by the Council on Medical Education and Hospitals of the American Medical Association and he must have had at least one year of general internship in an approved hospital.

Second, membership in the American Medical Association or, by courtesy, membership in such Canadian or other medical societies as is recognized by the Council on Medical Education and Hospitals of the American Medical Association. Except as here provided, membership in other societies will not be required.

In rare cases the board may make exceptions to the foregoing.

Third, a candidate must have completed an acceptable basic science course and at least a one year residency in otolaryngology. A two year residency however is recommended. The minimum preparation accepted for examination is three years graduate work.

Fourth, five years specialized practice or its equivalent in the judgment of the board may be accepted in lieu of the requirements in paragraph 3.

Fifth, application must be made on a printed blank procured from the secretary. The executed instrument must be returned to the secretary together with other required credentials at least ninety days in advance of the examination at which the candidate desires to appear.

Sixth, with the application printed verification from the institutions with dates of examination obtained.

Seventh, a recommendation from the local otolaryngological society or societies.

Eighth, a certificate from the central committee of the American Medical Association.

Ninth, a certificate from the local medical association.

Ninth, the fee for the examination is \$50, and check for this amount must accompany the application blank. No application will be acted on until the fee is paid. Under no circumstances is the fee returnable.

Tenth, the application remains valid only five years. An applicant must appear for examination within this time or forfeit the fee.

Eleventh, if the candidate fails in an examination he will be admitted to a second examination after one year, or at any time within the five year limit of his application. Ninety days' notice of intention to appear is required. If a candidate who has failed does not appear before five years after the filing of his application he will be required to make a new application and pay an additional fee of \$50 before the reexamination.

An applicant having failed twice, must file a new application, pay an additional fee of \$50 and convince the board of additional postgraduate study previous to being assigned an appointment for another examination.

Twelfth, examinations covering two or three days will be held biannually at, or near, the time and place of meeting of the American Medical Association, and of the American Academy of Ophthalmology and Otolaryngology.

Thirteenth, candidates are required to sign the following pledge:

I hereby apply to the American Board of Otolaryngology for examination by the said board in accordance with its rules and herewith enclose the fee of \$50. I hereby agree that prior to an examination, or subsequent to my examination, the Board may investigate my standing and reputation as a physician, including my reputation for complying with the standard of ethics of the profession, and may refuse to examine me, or, having examined me, may refuse a certificate, and such refusal to grant a certificate, whether justified or otherwise, may not and shall not be questioned by me in any court of law or equity or other tribunal, nor shall I have any claim, in the event of such refusal, to a return of the fee accompanying this application.

#### PRACTICAL EXAMINATION

The complete examination consists of three or four parts: clinical, didactic, pathology, and possibly written.

All candidates will be examined in both didactic and clinical phases of otolaryngology. In addition to the foregoing:

Written examination may be given at the discretion of the board.

Candidates in Class III take the examination in gross pathology.

Candidates in Class IV take microscopy and gross pathology.

The didactic examination is a private oral examination covering all aspects of otolaryngology.

The clinical examination of patients includes history taking, physical and functional examinations, the use of laboratory and x-ray findings, and a discussion of differential diagnosis.

Communications should be addressed to the secretary, Dr. Dean M. Lierle, 1500 Medical Arts Building, Omaha, Neb.

### AMERICAN BOARD OF PATHOLOGY, Inc

A. H. SANFORD, President, Rochester, Minn.

FREDERICK H. LAMB, Vice President, Davenport, Iowa.

FRANK W. HARTMAN, Secretary-Treasurer, Henry Ford Hospital, Detroit.

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NATHAN CHANDLER FOOT, New York.

HOWARD T. KARSNER, Cleveland.

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JOSIAH J. MOORE, Chicago.

#### ORGANIZATION AND OBJECTIVES

In June 1935 the Section on Pathology and Physiology of the American Medical Association and the American Society of Clinical Pathologists appointed committees which acted jointly in consideration of the feasibility and necessity of a national qualifying board. The joint committees agreed unanimously that such a board should be established and proceeded to draw up by-laws for such a board. In May 1936 the American Society of Clinical Pathologists and the Section on Pathology and Physiology of the American Medical Association accepted the proposed by-laws, authorized the nomination of four members each to the board and suggested incorporation in the state

of Michigan. Approval of the board by the Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association was given. On July 19, 1936, the organization of the board was carried out in Chicago.

#### PURPOSES

A To encourage the study and promote the practice of pathology.

B To elevate the standards and advance the cause of pathology, by encouraging its study and improving its practice.

C To determine the competence of those wishing to practice this specialty of pathology and to arrange, conduct, and control investigations and examinations to determine the qualifications of such individuals who voluntarily apply for the certificates issued by the corporation.

D To grant and issue certificates in the special field of pathology to voluntary applicants therefor and to maintain a registry of holders of such certificates.

E To serve the public, the medical profession, hospitals and medical schools by preparing and furnishing lists of specialists who have been certified by the corporation.

#### VALUE OF THE CERTIFICATE

Judging from the experience of other specialties operating a certifying board it is anticipated that the certificate will be of value in that the medical profession, the lay public, and hospital administrators will utilize certificates from the board as a means of discriminating between those that are thoroughly qualified in pathology and those that are not. Lists of those holding certificates will be made available from time to time by this board through the publication of the same in pamphlets and in national medical journals.

#### BOARD NOT AN EDUCATIONAL INSTITUTION

The board is in no sense an educational institution and the certificates of the board are not to be considered degrees. Therefore the certificate does not confer on any person legal qualifications, privileges, or license to practice medicine or the specialty of pathology. The board does not purport in any way to interfere with or limit the professional activities of any licensed physician. Its chief aim, as stated above, is to standardize the qualifications for the specialty of pathology and to issue certificates to those voluntarily complying with the requirements of the board.

#### GENERAL REQUIREMENTS

A General qualifications.

1 Satisfactory moral and ethical standing in the profession.

2 License to practice medicine.

3 Membership or associate membership in the American Medical Association or by courtesy membership in such Canadian or other national medical societies as are approved by the Council on Medical Education and Hospitals of the American Medical Association is suggested.

4 That the applicant devotes his time primarily and principally to the practice of pathology.

B Professional education.\*

1 Graduation from a medical school in the United States or Canada, approved by the Council on Medical Education and Hospitals of the American Medical Association.

C Special training, to be effective after July 1, 1938.

1 Completion of an internship of not less than one year in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association.

2 A period of study, exclusive of internship, of not less than three calendar years, exclusive of reasonable vacation periods, in an institution or department of pathology recognized by the same council and the board of trustees as competent to provide a satisfactory training in the field of pathology. This period of special training preparation shall include the following:

(a) Graduate training for one year in the various phases of clinical pathology.

(b) Training and experience of not less than two years in a department of pathologic anatomy.

(c) Such training may be combined or in sequence.

3 A fifth year of training or practice in pathology.

D Special qualifications.

1 The board may accept candidates without special training as outlined in Section C above provided that:

(a) The candidate shall have been for a period of five years of professorial rank in a department of pathology in an approved medical school, or

\* NOTE: In case of an applicant whose education and/or training has been received outside the United States or Canada, his credentials must be acceptable to the National Board of Medical Examiners and the American Board of Pathology.

(b) The candidate shall have been practicing pathology for ten years in a senior position in a hospital, having an adequate department of pathology, and approved by the Council on Medical Education and Hospitals of the American Medical Association

Candidates with special qualifications, as outlined in Section D above, may be certified without examination, at the discretion of the board

#### APPLICATION BLANK AND FEE

Application must be made on the special form which may be procured from the secretary and forwarded with other required credentials and the application fee. Applications cannot be given consideration by the board unless accompanied by the application fee

The application or examination fee for candidates is \$35. If certified without examination \$10 of fee will be refunded. If the candidate fails in his examination he will be admitted to a second examination after one year, but not later than three years, without additional fee. After two reexaminations the applicant must file a new application and pay an additional fee before a fourth examination will be given

The examination fee of \$35 has been arrived at after careful consideration and is based on actual estimates of the expense of examination and administration. None of the board members receive any compensation for their services except actual expenses incurred

If the applicant, for any reason, is deemed ineligible for examination by the board his fee will be returned, however the application fee is not returnable after the candidate has officially been accepted for examination and notified to report for the same

#### EXAMINATIONS

Written and oral examinations will be held at or near the time and place of national medical meetings at the discretion of the board. If a number of applications from any region of the country are received an examination in conjunction with a national medical meeting in that section will be arranged so that the financial outlay of the applicant in meeting the examiners will be as small as possible

The examinations are to be based on the broad principles of pathology with emphasis on diagnosis and interpretation. The applicant may apply for certification in either pathologic anatomy or clinical pathology, or both

#### DEFINITIONS

1 Pathologic anatomy is that branch of pathology which deals with the morphological aspects of disease, recognition being given that this definition covers two phases of pathology

(a) The applied phase, with special attention to biopsy description and diagnosis

(b) The academic phase of teaching and general morphological diagnosis

2 Clinical pathology is that branch of pathology which deals with bacteriology, immunology, biochemistry, parasitology, hematology, and clinical microscopy, in relation to the diagnosis, prognosis, and treatment of clinical disease

#### REEXAMINATIONS

In case the candidate fails in the qualifying examination he will be eligible for reexamination after one year has elapsed, but he must give written notice of his intention to appear for reexamination. Two reexaminations are allowed without an additional fee, providing they are taken within a three year period. The candidate who fails three times must file a new application and pay a second \$35 fee before he is eligible for further examination

#### REVOCATION OF CERTIFICATES

Certificates issued by the American Board of Pathology are subject to the provisions of the Articles of Incorporation No. VI, Section 4. Any certificate issued by the Board of Trustees shall be issued subject to revocation in the event that

(a) The physician or party so certified shall have made any misstatement or misrepresentation of a material fact in his application or in any other communication to the board or its representatives, which misstatement or misrepresentation affected the eligibility of the physician or the party so certified

(b) The issuance of such certificate has been made contrary to or in violation of any of the rules, laws, or regulations of this corporation

(c) It is ascertained that the physician or party so certified is not eligible in fact to receive such certificate

(d) The physician or party receiving such certificate shall prior to the issuance of such certificate or thereafter have been convicted by a court of competent jurisdiction of a felony or

of any misdemeanor, which misdemeanor in the opinion of the Board of Trustees, shall involve moral turpitude

(e) The physician or party receiving such certificate shall prior thereto, or thereafter, have his license to practice medicine revoked

(f) The physician or party receiving such certificate shall be expelled from any of the societies or organizations making him eligible to this corporation as an applicant for such certificate

All communications should be addressed to the secretary-treasurer

#### AMERICAN BOARD OF PEDIATRICS, Inc

HORTON CASPARI, President, Nashville, Tenn

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FRANKLIN PAUL GENGEBACH, Denver

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#### ORIGIN

The American Board of Pediatrics was established in June 1933 by joint action of the American Pediatric Society, the American Academy of Pediatrics and the Section on Pediatrics of the American Medical Association after consideration of the report of a committee on pediatrics as a special field of medical practice. The committee recommended that the certification plan adopted and in use in the fields of ophthalmology, otolaryngology, gynecology and obstetrics, and dermatology be adapted to pediatrics

Any method of certification in any specialty must be national in scope, must in its ultimate analysis be controlled by the men in each special field and must be independent of society membership or affiliation. The American Board of Pediatrics fulfills these three essentials. A uniform standard of competency is set up the character of which is assured through the affiliation with the Advisory Board on Medical Specialties. The board is controlled by pediatricians, its membership being composed of three men appointed by each of the three national pediatric societies. The board is not a medical society, however, and certification is independent of society affiliation

The American Board of Pediatrics was incorporated in the state of Delaware in November 1933 as a nonprofit organization

#### FUNCTION

The functions of the board are outlined in the articles of incorporation as follows

"To encourage the study, improve the practice and elevate the standards of pediatrics and to grant and issue to physicians, duly licensed by law, certificates or other equivalent recognition of special knowledge in pediatrics"

The board has interpreted this to mean that its efforts to encourage and improve the practice of pediatrics shall be limited to its function of certification of competency in the specialty. Obviously other organizations are better able to further the general improvements in pediatrics

The board specifically defines its activities as follows

1 To establish standards by which the competency of men to practice pediatrics may be estimated

2 To arrange, control and conduct examinations to test the qualifications of those desiring certification as pediatricians

3 To grant certificates of qualification to those applicants who meet the standards successfully

The board further feels that in carrying out these activities it is merely acting as the agent of the three societies which appointed its members and initiated the project

No financial recompense or any kind is made to any member of this board except to cover actual traveling expenses to meetings and examinations. The application fee is \$50

#### CERTIFICATE—NOT A DEGREE

Certificates granted are in no sense degrees nor do they purport to confer upon any person any legal qualification, privilege or license to practice pediatrics. Neither does the board intend in any way to limit the activities of any licensed physicians. It is merely attempting to standardize qualifications and to issue certificates to those who voluntarily comply with the requirements

#### VALUE OF THE CERTIFICATE

It is anticipated that the certificate will become of value in that both the medical and lay public including hospital directors will soon utilize the certificate from this board as a means of

discriminating between those who are well grounded as pediatricians and those who are not

A certificate is required as one of the qualifications for new members of the American Academy of Pediatrics. The certificate of the American Board of Pediatrics is recognized by the Council on Medical Education of the American Medical Association. Holders of certificates are so designated in the directory of the American Medical Association.

A joint Directory of Specialists certified by the fifteen specialty boards was published in 1942 by the Advisory Board for Medical Specialties.

Lists of those holding certificates from this board are published in this Directory of Medical Specialists and additional lists of new licentiates are published in the Journal of Pediatrics and the American Journal of Diseases of Children. The American Medical Directory indicates diplomates of this and other boards by means of abbreviations and symbols (A B I) appearing in the biographic records.

This board, in cooperation with the Council on Medical Education and Hospitals of the American Medical Association, is conducting a survey of institutions providing acceptable residencies and internships in pediatrics.

#### APPLICANTS FOR CERTIFICATES

*Requirements for Applicants*—Each applicant for a certificate must establish in a manner satisfactory to the board that he is of high ethical and professional standing, is a graduate of a medical school which is satisfactory to the board, and has received adequate training in pediatrics as a specialty in addition to passing the examination given by this board and is a citizen of the United States, of its dependencies, or of Canada.

Applicants are divided into two classes, according to the length of time they have been engaged in the specialty.

Following is the classification of applicants for certification. Changes may be made in future years based upon the general requirements as adopted by the Advisory Board of Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association.

*All applicants must take the examinations*

*Group I*—Physicians who have specialized in pediatrics for ten years or more. After July 1, 1943, Group I will be abolished.

*Group II*—The minimum requirements for this group are as follows:

Graduate of a Class A medical school

One year's intern service in a recognized hospital

Two years' service in a pediatric center

An additional term of two years of specialized study and/or practice

The board defines service in a pediatric center as full time devoted to rounded experience in an acceptable hospital or a graduate course, which includes ward and outpatient service and both therapeutic and preventive pediatrics. The time served in pediatric centers need not be continuous or spent in the same institution. In the case of a post-graduate course an academic year will meet the requirement of one year's work. A maximum of six months of this time may be spent in full time contagious work in a recognized hospital.

The application fee is \$50 and must be remitted with the application. Refund will be made only if the applicant is refused examination. The applicant who has failed in an examination will not be required to pay a second fee if he takes another examination after two years have elapsed and he has presented evidence of continued study and activity in pediatrics.

Application must be made on special blanks which may be secured from the secretary. These must be sent to the secretary at least *four months* before the date at which the candidate expects to take the examinations.

Letters from two competent pediatricians recommending each applicant must be sent to the secretary of the board. These letters are not to accompany the application, but should be sent directly to the secretary. No member of the board, or official examiner, may recommend any applicant.

A list of papers or books published must be sent with the application blank.

#### INFORMATION CONCERNING EXAMINATIONS

Examinations will be held at or near the time and place of meetings of the American Medical Association and of the American Academy of Pediatrics, or at other times and places at the discretion of the board, depending on the number of applicants from any region of the country. It is proposed to arrange examinations in different cities so that as little financial burden

as possible will be placed upon the applicants in meeting the examiners.

The purpose of these examinations is to determine the applicant's competency to practice pediatrics. This board feels that the best impression of an applicant's ability can be obtained by oral examination although written ones may be substituted at times. However, at the present time this board is also giving a written examination at least six weeks preceding the oral examination. This written examination is given locally under a monitor. It is not proposed at the present time to require the applicant to send in case reports. The board feels that growth and development are fundamental parts of pediatric training.

It should be emphasized that competency in the *practice* rather than in the theory of pediatrics is required.

Communications should be addressed to the secretary.

## THE AMERICAN BOARD OF PLASTIC SURGERY, INC

JOHN STAIGE DAVIS, Chairman, Baltimore

GEORGE M. DORRANCE, Vice Chairman, Philadelphia

JAMES BARRETT BROWN, Secretary-Treasurer, 400 Metropolitan Building, St. Louis

GUSTAV AUFRICHT, New York

VIRRAY P. BLAIR, St. Louis

ROBERT H. IVY, Philadelphia

HAROLD L. D. KIRKHAM, Houston, Texas

WILLIAM S. KISKADDEN, Los Angeles

SUMNER L. KOCII, Chicago

WILLIAM C. LADD, Boston

GORDON B. NEW, Rochester, Minn.

GEORGE WARREN PIERCE, San Francisco

ERNEST FULTON RISDON, Toronto, Ont., Canada

FERRIS SMITH, Grand Rapids, Mich.

JEROME P. WEBSTER, New York

#### HISTORY

The American Board of Plastic Surgery, tentatively organized in June 1937, by representatives of widely distributed groups interested in this special type of surgery, received recognition as a subsidiary of the American Board of Surgery in May 1938, and was given the status of a major board in May 1941 by the Advisory Board for Medical Specialties. It is composed of representatives from the American Association of Plastic Surgeons, the Surgical Section of the American Medical Association, the American Surgical Association, the Southern Surgical Association and the American College of Surgeons.

The aim of the American Board of Plastic Surgery is to encourage the study, improve the practice, and advance the cause of plastic surgery, and to grant and to issue certificates of recognition of special knowledge in plastic surgery to surgeons meeting the requirements.

#### PURPOSES OF THE BOARD

The purposes of the board are:

1 To elevate and establish standards of fitness to practice plastic surgery.

2 To arrange and conduct examinations for determining the qualifications of those who request a certificate of their ability in the field of plastic surgery, to establish qualification requirements for applicants, and to confer certificates upon those who meet the requirements of the board.

3 To improve and widen the existing opportunities for the training of the plastic surgeon.

4 To study and evaluate local and foreign teaching centers and opportunities for experience in and the study of plastic surgery.

#### GENERAL QUALIFICATION REQUIREMENTS

1 Moral and ethical standing in the profession satisfactory to the board.

2 Membership in the American Medical Association, or, by courtesy, membership in such Canadian or other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association.

#### PROFESSIONAL QUALIFICATION REQUIREMENTS

1 Graduation from a medical school recognized by the Council on Medical Education and Hospitals of the American Medical Association.

2 Completion of an internship of not less than one year in a hospital approved by the said Council, or what would constitute in the opinion of the board, the equivalent of such training

3 A period of graduate study in surgery of not less than two years beyond the intern year to be taken in a recognized graduate school or hospital

4 An additional period of not less than two years of graduate study in plastic surgery, also to be taken in a recognized graduate school or hospital. This period of training shall cover the technical and clinical phases of plastic surgery, and the basic sciences of anatomy, physiology, pathology, bacteriology, and biochemistry as they are related to plastic surgery

5 An additional period of two years of surgical practice a fair percentage of which shall be in plastic surgery

The above training may be taken in a recognized graduate school of medicine, or as resident in surgery in an acceptable hospital, or under a sponsorship accredited by the American Board of Plastic Surgery for such training. By the latter statement is meant that one may secure the necessary training as an assistant to an accredited surgeon, provided suitable facilities for the education of the candidate are offered. It is understood that the board will accept a combination of such training as outlined above, for example, one may take a graduate course in an acceptable graduate school for one year, a residency for two years, and an assistantship in plastic surgery for two years. Where circumstances permit the applicant to major in plastic surgery during the second of the two years on a general surgical service, the second year of the two years of general training may, with the approval of this board, be credited on his period of special training in plastic surgery.

In exceptional instances, the board may, at its discretion accept for examination candidates who have met all the above preliminary requirements, have been graduated in medicine at least ten years but whose formal training does not comply with the full requirements to be exacted in the future

#### CLASSIFICATION OF APPLICANTS

**Group A—Founders Group**—Those to be certified without formal examination as to professional qualifications. This group shall be composed of men who have already amply demonstrated their fitness to do acceptable plastic surgery and who have been graduated in medicine at least ten years. (This group is now closed)

**Group B—Examinees Group**—Those to be formally examined as to professional qualifications. To be eligible for examination by this board, all candidates shall be required to possess the preliminary and basic medical qualifications accepted by the Advisory Board for Medical Specialties as applied to all specialties

Applicants who have qualified under Group B shall be required to submit twenty-five diversified case reports, together with photographs of before and after treatment made from unretouched negatives

#### EXAMINATIONS

The qualifying examination will be divided into Part I, written, and Part II, oral and practical

Part I shall consist of a written examination upon questions prepared by the examining committee which concern the theory and practice of plastic surgery. In addition to the above the examination shall include questions upon applied anatomy, applied physiology, pathology, clinical laboratory methods local and general anesthesia, shock, hemorrhage, the handling of tissues, wound healing, related bacteriology and surgical accidents all as related to plastic surgery

Part II shall as far as possible be of a practical nature and shall be conducted by no fewer than two competent judges, selected by the examining committee

The clinical examination shall include any or all of the following

(a) The exhibition of patients who have undergone or who are undergoing treatment.

(b) Examination diagnosis and presentation of a plan of correction by the applicant of cases provided by the examiners

(c) Oral examination of the applicant and observations made in the operating room, treatment rooms, and wards

In order to be eligible for Part II of the examination, a candidate shall have successfully passed Part I

A candidate shall be required to receive a passing average for each Part in order to receive the board's certificate. No

candidate shall pass Part I or Part II of the examination who does not receive a grade of 65 per cent or over in each subject or each Part. An average grade of 75 per cent shall be considered as passing

#### REEXAMINATIONS

Candidates may be reexamined as often as they desire, provided that one year shall elapse between examinations, except in such case as the board may, for good and sufficient reason, deny a candidate the privilege of reexamination

#### FEES

The fee for the examination and the certificate of the American Board of Plastic Surgery is \$100. Of this sum \$25, which is not returnable, must accompany the case reports, \$25 should be paid when Part I of the examination is taken, and \$50 when Part II is taken. There shall be no refunds

This fee may be increased at the discretion of the board, when the number of candidates decreases and when the expenses of the examinations and other activities of the board demand

This board is a nonprofit organization. The fees of candidates are used solely for defraying the actual expenses of the board. The members of the board and their associates receive no emoluments. All surplus moneys derived from fees will be used to aid in improving existing opportunities for the training of plastic surgery

#### CERTIFICATION

A certificate bearing the seal of the board and the signatures of its officers, will be issued to each successful candidate attesting his qualification in plastic surgery

It is the board's prerogative to determine the fitness professionally and ethically of any candidate for its certificate

The action or decision of the American Board of Plastic Surgery regarding the certification of any candidate shall be final

#### REVOCATION OF CERTIFICATE

The American Board of Plastic Surgery shall have the sole power, jurisdiction, and right to determine and decide whether or not the evidence or information placed before it is sufficient to constitute grounds for revocation of any certificate issued by the board and the decision of the board in the premises shall be final

Address communications to the secretary

## AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY, Inc

### OFFICERS

C MACFIE CAMPBELL President, Boston

HANS H REESE Vice President, Madison, Wis

WALTER FREEMAN Secretary-Treasurer, 1028 Connecticut Avenue N.W., Washington

### DIRECTORS

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TRACY J PUTNAM, New York

EDWARD A STRICKER Philadelphia

LYDD H ZIEGLER, Wauwata, Wis

#### HISTORY AND STATEMENT OF PURPOSES

The American Board of Psychiatry and Neurology was founded in 1934 following conferences of committees appointed by the American Psychiatric Association, the American Neurological Association and the Section on Nervous and Mental Diseases of the American Medical Association. This act was taken in response to a widespread demand for specialists in psychiatry and neurology for some years of delay. The fully qualified specialist from the world's medical profession was lacking in number and the training of the inferior training and inadequate experience. That this demand was by no means limited to those who practice psychiatry and neurology is indicated by the formation of corresponding boards covering internal medicine, surgery, and the other specialties. The success of this method of determining the quality of specialists is indicated by the increasing number of candidates for the



examinations, and by the listing accorded in the American Medical Directory to those specialists holding the certificates of the various boards

#### CONSTITUTION AND ACTIVITIES

The American Board of Psychiatry and Neurology is composed of twelve members, four each from the American Neurological Association and from the American Psychiatric Association and two neurologists and two psychiatrists elected by the Section on Nervous and Mental Diseases of the American Medical Association. Annual elections to fill the places of members whose terms have expired take place in each of the nominating associations with the understanding that neurology and psychiatry are always equally represented on the board. The board holds annual meetings in December of each year for the transaction of whatever business may come before it and also holds special meetings for the purpose of examining candidates and of passing upon the qualifications of those seeking the certificate without examination.

#### FUNCTIONS

- To determine the competence of specialists in psychiatry and neurology
- To arrange, control and conduct investigations and examinations to test the qualifications of voluntary candidates for certificates issued by the board
- To grant and issue certificates or other recognition of special knowledge in the field of psychiatry and neurology to successful voluntary applicants therefor
- To serve the public, physicians, hospitals and medical schools by preparing lists of practitioners who shall have been certified by the board
- To consider and advise as to any course of study and technical training, and to diffuse any information calculated to promote and ensure the fitness of persons desirous of qualifying for a certificate of qualification to be issued thereby

#### INFORMATION FOR APPLICANTS

##### EXCERPTS FROM ARTICLE VII OF THE BY-LAWS

**SECTION 1 Application for Certificate.** Application for certificates shall be considered by the secretary only when made formally on the official application blank in such form as may be adopted from time to time by the board of directors and when accompanied by an application fee in such amount as may be fixed from time to time by the board of directors.

**SECTION 2 Form of Certificate.** There shall be separate certification in psychiatry and in neurology and two certifications or a combined certification for those qualified in both fields. The certificates shall be in such form as is approved by the board of directors.

**SECTION 3 Requirements for Applicants.** Each applicant for a certificate must establish that—

- He is a physician duly licensed by law to practice medicine
- He is of satisfactory ethical and professional standing
- He is now a member of the American Medical Association, or a member of such medical societies as are recognized for purposes of certification by the Council on Medical Education and Hospitals of the American Medical Association. Exceptions to the foregoing may be made at the discretion of the board for good and sufficient reasons
- He has received adequate training in psychiatry or neurology, or both, as a specialty

**SECTION 4** No candidate is eligible for examination by the board until he has completed at least five years of special training and experience in neurology or psychiatry for a single certificate, or at least six years of training and experience for certification in both neurology and psychiatry.

#### CLASSES OF APPLICANTS AND FEES

Applicants may request certification in psychiatry, or in neurology, or in both psychiatry and neurology.

Limitation of practice to the specialty of psychiatry and/or neurology need not be complete provided a candidate both by his previous training, experience and standing, and by examination, can prove his competency to practice that specialty.

However, in case a physician has already been certified by one of the other boards as a specialist in another field, he will not be considered for certification in psychiatry and/or neurology except under special circumstances.

##### Class I

Physicians who graduated from medical school in 1919 or before and who have carried on specialized practice in neurology and/or psychiatry for at least fifteen years are to be considered on their professional record and passed, if satis-

factory to the Board, or further evidence of qualification or examination may be required.

A candidate in Class I who has received certification in either psychiatry or neurology may apply within three years for certification in the other field without additional fee. After three years such application shall be considered as a new application with corresponding fees.

When certification in Class I has been refused, the candidate may file application for reconsideration within three years without additional fee. After three years such application for reconsideration shall be considered as a new application with corresponding fees.

##### Class II

Physicians who graduated from medical school up to and including 1929 and who have practiced the specialty of psychiatry and/or neurology for at least five years will be required to pass an examination in psychiatry or neurology, or both.

##### Class III

Physicians who graduated after 1929, up to and including 1934, will be required to pass an examination to satisfy the board that they have adequate knowledge of all subjects specified in the by-laws for candidates graduating after 1934. Their previous training and experience must be acceptable to the board.

##### Class IV

Candidates graduating from medical school after 1934 shall fulfil the preceding general requirements as given in Section 3 of Article VII and the following special requirements.

#### PROFESSIONAL EDUCATION

(1) Graduation from a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association.

(2) Completion of a general internship of not less than one year in a hospital approved by the same Council.

#### SPECIAL TRAINING

(These requirements are to be placed in force as soon as practicable after Jan 1, 1944. In the meantime a syllabus covering the knowledge required of the candidate has been prepared and is available to those who request it.)

Admission to the examination for certification in neurology or psychiatry requires a total experience of not less than five years. This period shall include the following:

1. A period of study, after the general internship, of not less than three full years in institutes, hospitals, clinics, dispensaries, laboratories, and other institutions recognized by the Council of the American Medical Association and approved by the American Board of Psychiatry and Neurology as competent to provide a satisfactory training in psychiatry and/or neurology.

(i) As subject matter,

|                    |                     |
|--------------------|---------------------|
| Neuro-anatomy      | Psychobiology       |
| Neurophysiology    | Psychopathology     |
| Neuropathology     | Neuroroentgenology  |
| Clinical neurology | Clinical psychiatry |

and other basic medical sciences, which, in the opinion of this board, are necessary to the proper understanding and treatment of psychiatric and/or neurologic disorders.

2. An additional period of not less than two years of practice in psychiatry and/or neurology.

3. Candidates wishing to be admitted to the examinations for certification in both fields must have had a minimum of six years of experience in both fields.

#### PAYMENT OF FEES

The candidate on filing his application shall accompany it with an application fee of \$25. When notified by the secretary that he is eligible for examination he shall send the examination fee of \$25 to the secretary at least two weeks before the date of the examination. The certification fee of \$25 is payable upon notification by the board that certification has been awarded the candidate in Class I on his record. No fees will be returned.

The same examination is given whether a candidate applies for certification in psychiatry, or in neurology, or in both psychiatry and neurology. The board requires some proficiency in neurology on the part of those it certifies in psychiatry and vice versa, but judges the candidate in accordance with the certificate he seeks.

Should a candidate receive certification in either psychiatry or neurology, he may apply within three years for partial examination for the certificate in the complementary subject, upon payment of a complementary examination fee of \$10. After three years, the second application shall be considered a new application, with corresponding \$25 fees.

# EXAMINATIONS

Date and places of examination are set by the board at its discretion and are announced in *The Journal of the American Medical Association* in the *American Journal of Psychiatry*, in the *Journal of Nervous and Mental Disease*, and in the *Archives of Neurology and Psychiatry*.

The examinations are designed to test the ability of the candidates to meet the situations in which they might at any time be called upon as specialists to assume responsibility. They will be of such a type that no adequately trained individual will fail, yet they will be sufficiently searching so that the specialist-in-fact will be separated from the specialist-in-name. Each candidate is required to identify and to discuss the function of the more important anatomic structures in the brain and spinal cord, to discuss gross and microscopic pathologic specimens and to interpret roentgenograms dealing with neurologic disorders. He is examined orally on the subjects of psychobiology and psychopathology. These examinations in the preclinical subjects usually last about two hours. Each candidate examines two patients with neurologic disorders and two with psychiatric disorders, and discusses with the examiners the various problems involved. One hour, on the average, is allotted to each of these four clinical examinations. The manner of examining both neurologic and psychiatric patients and the reasoning and deductions therefrom constitute the most important part of the examination. Some acquaintance with the history of psychiatry and neurology, with the body of doctrine, and with the recent advances, is presupposed.

## REEXAMINATIONS

A candidate who has failed in one examination is eligible to reexamination in the whole subject within three years on payment of a reexamination fee of \$10. A candidate who has failed in one examination and who does not apply for reexamination within three years or a person who has applied within that time but who has failed a second time will be considered a new applicant, with corresponding \$25 fees. The \$10 reexamination fee also applies to candidates conditioned in one or more subjects at any time within three years of the first examination, and is payable before each reexamination.

## HANDLING OF APPLICATIONS

An application, in order to be considered at any meeting must be in the hands of the secretary of the board not less than seventy days before the date of such meeting.

The secretary of the board on receipt of an application shall forthwith make inquiries from those to whom the candidate refers and from such other persons as the secretary may deem desirable and shall verify the candidate's record from the biographical records of the American Medical Association after which he shall forward the application to the committee on credentials. This committee shall consider the application and other information available and notify the secretary whether the application is accepted. The certification of a candidate in either psychiatry or neurology, or both shall be approved by a majority of the members of the entire Board at any meeting held for such certification.

## PLEDGE

Each candidate is required to sign the following pledge:

"I hereby make application to the American Board of Psychiatry and Neurology, Incorporated, for the issuance to me of a certificate of qualification as a specialist in (a) Psychiatry (b) Neurology, (c) Psychiatry and Neurology (check the one desired) and for examination relative thereto, all in accordance with and subject to its rules and regulations. Upon the issuance of the certificate I agree to and do become bound by the by-laws of the American Board of Psychiatry and Neurology, Inc., insofar as applicable. I agree to disqualification from examination or from the issuance of a certificate of qualification or to forfeiture and redelivery of such certificate of qualification in the event that any of the rules governing such examination are violated by me or for any one of the reasons set forth in the by-laws. I agree to hold said American Board of Psychiatry and Neurology, Inc., its members, examiners, officers and agents free from any damage or claim for damage or complaint by reason of any action they, or any of them, may take in connection with this application, such examination, the grade or grades given with respect to any examination and/or the failure of said corporation to issue to me such certificate of qualification."

## RULES AND REGULATIONS

(ART VII SEC 5 OF THE BY LAWS)

The board or directors, from time to time, by resolution adopted by the affirmative vote of a majority then in office may adopt, amend and repeal rules and regulations respecting

requirements of applicants, the nature and extent of examinations and investigations and issuance of certificates.

## REVOCATION OF CERTIFICATES (ART VII SEC 6 OF THE BY LAWS)

All certificates issued by the corporation shall be subject to the provisions of the certificate of incorporation and of the by-laws of the American Board of Psychiatry and Neurology, Inc. Each such certificate shall be subject to revocation in the event that:

- The issuance of such certificate or its receipt by the physician shall have been contrary to or in violation of any of the provisions of the corporation's certificate of incorporation or by-laws; or
- The physician so certified shall not have been eligible in fact to receive such certificate, irrespective of whether or not the facts constituting him so ineligible were known to any or all of the directors of the corporation or could have been ascertained by any or all of the directors of the corporation at the time of the issuance of such certificate; or
- The physician so certified shall have made any deliberate misstatement of fact in his application for such certificate or in any other statement or representation to the corporation its directors, representatives or agents; or
- The physician so certified shall have been convicted by a court of competent jurisdiction of a felony or of any misdemeanor involving in the opinion of the board or directors of the corporation, moral turpitude in connection with his practice of medicine; or
- The physician so certified shall have had his license to practice medicine revoked or shall have been disciplined or censured as a physician by any court or other body having proper jurisdiction and authority.

## FORM OF CERTIFICATE

The secretary shall have prepared subject to the approval of the board members a form of certificate containing the following wording:

THE AMERICAN BOARD OF PSYCHIATRY AND  
NEUROLOGY, INC.

This is to certify that \_\_\_\_\_ has satisfied the requirements of the board and is hereby certified as qualified to practice the specialty of Psychiatry and/or Neurology.

(Signed) President  
Vice President  
Secretary

Communications should be addressed to the secretary.

## AMERICAN BOARD OF RADIOLOGY, Inc

GEORGE W HOLMES, President, Boston  
J W PIERSON, Vice President, Baltimore  
B R KIRKLYN Secretary-Treasurer 102 Second Avenue  
S W, Rochester, Minn  
D S CHILDS, Syracuse, N Y  
A C CHRISTIE Washington D C  
EDWIN C ERNST St Louis  
EDWARD L JENKINSON, Chicago  
LYELL C KINNEY, San Diego, Calif  
U V PORTMAN Cleveland  
DOUGLAS QUICK, New York  
LEROY SANTE St Louis  
E H SHINNER, Kansas City, Mo  
M C SOSMAN Boston  
ROLLIN H STEVENS, Detroit  
BERNARD P WIDMANN, Philadelphia.

## HISTORY AND AUTHORITY FOR ORGANIZATION

The medical profession has long felt that there should be a standard or minimal requirements for the practice of any specialty in medicine in order to protect the public. The profession in general, and the specialists themselves. Some of the states have attempted by statute to prescribe such requirements in certain branches. Unless a better method of regulation be found, the other states would be likely to enact similar laws. The result would be forty-eight different standards for each of the many medical specialties. Obviously, a more practical solution would be for each special group to put its own name in order and place its mark of approval on those qualified to practice as specialists in that particular field. Accordingly

1932, five nation-wide radiologic organizations, the Section on Radiology of the American Medical Association, the American Roentgen Ray Society, the Radiological Society of North America, the American College of Radiology, and the American Radium Society, each appointed a committee of three members to confer and investigate the feasibility of establishing a qualifying board. The following men were appointed by these five organizations: Dr G W Holmes, J W Pierson, E L Jenkinson, W E Chrummerlain, E C Ernst, W F Manges, L R Sante, L C Kinney, A C Christie, Albert Soiland, W W Wisson, Henry Schmitz, Lester Hollander, Rollin H Stevens and B R Kirklin.

This combined committee met at Milwaukee in 1933, during the meeting of the American Medical Association, agreed unanimously that such a board should be established and so reported to the respective organizations. Each of the organizations approved the report, appointed three representatives, and empowered them to proceed to the formation of a national radiologic board. The members of the board thus chosen were: Drs W F Manges, L R Sante and B R Kirklin, representing the American Roentgen Ray Society; Drs A C Christie, E C Ernst and E L Jenkinson (succeeding Dr Byron H Jackson, originally appointed) representing the American College of Radiology; Drs R H Stevens, Henry Schmitz and H K Pancoast, representing the American Radium Society; Drs L J McNeill, M C Sosman and Albert Soiland, representing the Radiological Society of North America; and Drs L C Kinney, J W Pierson and G W Holmes, representing the Section on Radiology of the American Medical Association.

The board was incorporated, organized and held its first meeting in Washington, D C, in May 1934, at that time the by-laws were adopted and provision was made by resolution for its proper function. The officers of the board elected at this meeting were:

Dr H K Pancoast President  
Dr A C Christie, Vice President  
Dr B R Kirklin, Secretary-Treasurer

This move put into action the determined effort on the part of these five national organizations to improve the standards of the practice of radiology. It expects to accomplish this by various activities, such as the investigation and encouragement of facilities for graduate extension study and active clinical assistantships for men desiring to specialize in radiology; it will endeavor by regular examinations to determine the competence of specialists in radiology who apply for the certificate.

During 1934 the American Board of Radiology was accepted for membership in the Advisory Board for Medical Specialties and was also approved by the Council on Medical Education and Hospitals of the American Medical Association. Hereafter the list of Diplomates of the Board will take the place of the Council's list of approved radiologists, and the latter list will be discontinued.

#### PURPOSES

*First* To encourage the study and promote and regulate the practice of radiology.

*Second* To elevate the standards and advance the cause of radiology by encouraging its study and improving its practice.

*Third* To determine the competence of specialists in radiology, to arrange, control and conduct investigations and examinations, and to test the qualifications of voluntary candidates for certificates to be issued by the board.

*Fourth* To serve the public, physicians, hospitals and medical schools by preparing lists of practitioners who shall have been certified by the board.

#### VALUE OF CERTIFICATE

The national radiologic organizations which have participated in the formation of the board and are sponsoring its activities, as well as other organizations, attach considerable importance to its certificate. It is expected that both the medical and the lay public, including hospital directors, will soon come to utilize the certificate from this board as a means of discriminating between those who are well grounded as specialists in radiology and those who are not.

To this end lists of those holding certificates from this board will be published and issued from time to time by the board. Similar lists will be published by the *American Journal of Roentgenology and Radium Therapy*, *Radiology*, and *The Journal of the American Medical Association*. The Directory of the American Medical Association will indicate by a numerical symbol in the biographic data of those whose names are eligible to appear on these lists that they are diplomates of this board.

For emphasis it is repeated that the board does not intend in any way to interfere with or limit the professional activities of any duly licensed physician, but it does aim toward standardized qualifications for those who claim to be specialists in radiology.

#### CERTIFICATES

A certificate will be issued to each candidate who meets the requirements of the board, to the effect that the holder of the certificate has had adequate training in radiology and has successfully fulfilled the requirements of the board.

A certificate granted by this board does not of itself confer, or purport to confer, any degree, or legal qualifications, privileges, or license to practice radiology. Certificates of the board shall be issued upon one of two forms:

1 A certificate to the effect that the applicant has been found qualified to practice radiology in all its branches.

2 A certificate to the effect that the applicant has been found qualified to practice radiology in one or more of the following special fields: (a) roentgenology, (b) diagnostic roentgenology, (c) therapeutic radiology.

#### DEFINITIONS

For the purposes of this board, the following definitions are adopted:

1 Radiology is that branch of medicine which deals with the diagnostic and therapeutic application of radiant energy including roentgen rays and radium.

2 Roentgenology is that branch of radiology which deals with diagnostic and therapeutic application of roentgen rays.

3 Diagnostic roentgenology is that branch of radiology which deals with the diagnostic application of roentgen rays.

4 Therapeutic radiology is that branch of radiology which deals with the therapeutic application of roentgen rays and radium.

#### GENERAL REQUIREMENTS

Each applicant for admission to the examination shall be required to present evidence that he has met the following standards:

##### (A) GENERAL QUALIFICATIONS

1 Satisfactory moral and ethical standing in the profession.

2 A license to practice medicine in the state or county in which he resides.

3 Membership in the American Medical Association, or membership in such Canadian or other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association. Except as herein provided, membership in other societies shall not be required.

4 That the applicant holds himself out to be a specialist in radiology or one of its branches as defined under "Definitions," and that he devotes his time primarily and principally (at least 75 per cent) to the practice of radiology or one of its branches.

5 That he is a citizen of the United States or Canada. Candidates from other countries must be permanent residents of that country and native citizens thereof.

##### (B) GENERAL PROFESSIONAL EDUCATION

1 Graduation from a medical school recognized by the Council on Medical Education and Hospitals of the American Medical Association. If the applicant is a resident of the United States or one of its possessions and is a graduate of a medical school outside the United States or Canada, he must have a certificate of The National Board of Medical Examiners.

2 Completion of an internship of not less than one year in a hospital approved by the same Council.

##### (C) SPECIAL TRAINING

(Applicable to candidates who begin their training on or after January 1, 1942, and to all candidates examined after January 1, 1945.)

1 After completion of the internship there shall be a period of special training in radiology of not less than three years in clinics, hospitals or dispensaries recognized and approved by The American Board of Radiology and the Council on Medical Education and Hospitals of the American Medical Association as competent to provide a satisfactory training in radiology. This period of specialized training shall include:

(a) Graduate training in pathology, radiation physics and radiobiology.

A period of six months full-time training in pathologic anatomy is recommended but where this is not possible to arrange the student, during his three-year training period may, by attending pathologic conferences, postmortem examinations and studying removed tissues, receive adequate training in pathology. It is recommended that radiation physics be taught by a combination of didactic lectures, practical examples, and direct clinical demonstrations.

(b) An active experience (residency) of not less than twenty-four months in an institution, the radiologic department of which is recognized and approved by The American Board of Radiology and the Council on Medical Education and Hospitals or the American Medical Association as capable of providing satisfactory training.

By special permission of the board all or part of this training may be obtained under the immediate preceptorship of a radiologist or group of radiologists recognized by The American Board of Radiology as offering appropriate facilities for this type of postgraduate experience. Or the board will accept a combination of training as outlined in (a) and (b)—for example, one may take a graduate course, including the basic sciences, in an accredited graduate school for one year, a residency for one year, and a preceptorship for one year, or he may take a graduate course for one year plus either a residency or preceptorship for two years.

(c) Examination in the basic sciences of radiology as well as the clinical aspects thereof.

These examinations should be given by the student's instructors in order to allow those responsible for his training to certify to the board that he is adequately prepared.

In the current emergency the board will allow one year of military service spent in a radiologic department in the United States Army, Navy or Marine Corps to be applied toward the satisfaction of one year of graduate training.

#### APPLICATIONS

The board desires to appraise the candidate's educational opportunities (premedical, medical and radiologic), the ability of his instructors, his hospital and teaching positions, his original investigations, his contributions to radiologic literature, his membership in medical societies, and his local and general reputation.

For this purpose, application must be made on a special blank which may be obtained from the secretary. No application will be considered unless made on the regular application blank. This application shall be forwarded with the required data, two unmounted photographs, and the fee of \$35, at least two months before the date of the examination.

#### FEE

A fee of \$35 must accompany each application blank. This fee will not be returned and no application will be considered until the fee is received. This fee has been carefully computed and is used entirely for administrative purposes. Members of the board and special examiners do not receive any compensation except for actual expenses connected with holding the examinations. As the number of candidates decreases, it may become necessary to raise the fee.

Checks should be made payable to the American Board of Radiology.

#### EXAMINATIONS

Each year the board will hold an examination in conjunction with the annual meeting of the American Medical Association, and, when sufficient applications are on file, a second examination will be held in conjunction with the annual meeting of the American Roentgen Ray Society and/or the Radiological Society of North America.

For the present, examinations consist of practical and oral examinations, although written examinations may be added later. The examinations are designed to test the candidate's fitness to practice radiology or one of its branches as a specialty. The board will endeavor to adapt this examination to the candidate's experience and years of practice. It will try especially to ascertain the breadth of his clinical experience, his knowledge of the basic sciences of radiology and likewise his knowledge of the recent literature on radiology, and his general qualifications as a specialist in this branch of medicine.

The examination consists of tests in film interpretation and an oral examination in pathology, physiology, radiophysics and

radiobiology as well as the clinical applications of roentgen rays and radium. The applicant is also examined in "professional adaptability" in an attempt to ascertain his attitude toward his fellow practitioners and his patients.

Whenever an applicant fails to pass the examination, the board if requested will make suggestions as to suitable courses of instruction for the purpose of overcoming his deficiencies.

#### REEXAMINATIONS

If the candidate fails in the first examination he will be admitted to a second examination after one year has elapsed but not more than three years. He must give sixty days' notice of his intention to appear for reexamination, and pay an additional fee of \$15. If a candidate who has failed does not appear for reexamination before the expiration of three years, he will be required to make a new application and pay an additional fee of \$35.

A candidate having failed twice may after one year have elapsed file a new application which must be accompanied by the fee of \$35.

#### FINAL ACTION OF THE BOARD

The final action of the board is based on the applicant's professional record, training and attainments in the field of radiology as well as on the results of his examination. Any radiologist who is practicing radiology honorably and efficiently should have no difficulty in obtaining a certificate. This board has been organized not to prevent qualified radiologists from obtaining certificates but to assist them in becoming recognized in their communities as men competent to practice in the special field of radiology.

#### REVOCATION OF CERTIFICATES

Certificates issued by this board are subject to the provisions of the Articles of Incorporation and the By-Laws. According to Article IX Section 4 of the By-Laws "Any certificate issued by the Board or Trustees shall be subject to revocation in the event that:

(a) The issuance of such certificate or its receipt by the physician so certified shall have been contrary to or in violation of any provision of the Certificate of Incorporation of this the American Board of Radiology or of these by-laws, or

(b) The physician or party so certified shall not have been eligible in fact to receive such certificate or

(c) The physician or party so certified shall have made any misstatement of fact in his application or in any other communication to the board or its representatives or

(d) The physician or party so certified shall have been convicted by a court of competent jurisdiction of a felony or of any misdemeanor involving, in the opinion of the Board of Trustees, moral turpitude, or

(e) If the physician or party so certified shall have had his license to practice medicine revoked or shall have been expelled from one of the societies or organizations which is represented by this corporation through eligibility of such society or organization to nominate and appoint members of this corporation."

Communications should be addressed to the secretary.

#### AMERICAN BOARD OF SURGERY, Inc

ALLEN O WHIPPLE Chairman, New York  
FRED W RANKIN Vice Chairman, Lexington Ky  
J STEWART RODMAN, Secretary-Treasurer 225 S 15th Street  
Philadelphia

EDWARD D CHURCHILL, Boston  
FREDERICK A COLLIER Ann Arbor, Mich  
VERNON C DAVID Chicago  
DANIEL C ELKIN, Atlanta Ga  
ARTHUR W ELTING Albany N Y  
THOMAS M JOYCE, Portland, Ore  
THOMAS G ORR, Kansas City, Kan  
MONT R REID Cincinnati  
ERWIN R SCHMIDT Madison Wis  
PHILEMON E TRUESDALE, Fall River, Mass

#### HISTORY

The organization of the American Board of Surgery was completed on Jan. 9 1937. A plan for this organization had been carefully studied by a general committee representative of certain general and sectional surgical societies called together



through the initiative of the American Surgical Association. As a result of the deliberations of this general committee a tentative plan of organization was adopted. This plan was reported to the cooperating surgical societies and was approved with the understanding that the board, when organized, would have the power to change or modify the proposed plan as it saw fit. This board has been created in accordance with the action of the Advisory Board for Medical Specialties as approved by the Council on Medical Education of the A M A, which has named certain specialty fields as being suitable to be represented by such boards. These boards have the two-fold purpose of certifying those found to be qualified after meeting reasonable requirements, and of improving existing opportunities for the training of specialists within the field concerned. This is to be done for the protection of the public and the good of the specialty.

#### PERSONNEL

\*The cooperating surgical societies selected jointly to form the board appointed their representatives as follows:

|  |    |
|--|----|
| The American Surgical Association      | 3  |
| The Surgical Section of the A M A      | 3  |
| The American College of Surgeons       | 3  |
| The Southern Surgical Association      | 1  |
| The Western Surgical Association       | 1  |
| The Pacific Coast Surgical Association | 1  |
| The New England Surgical Society       | 1  |
|  | —  |
|  | 13 |

The term of membership is for six years. Each cooperating association has the appointing power of its representatives subject to the approval of the board.

#### PURPOSES

(a) To conduct examinations of satisfactory candidates who seek certification by the Board.

(b) To issue certificates of qualification to all those meeting the board's requirements.

(c) To improve the opportunities for the training of the surgeon.

#### REQUIREMENTS

##### (A) GENERAL QUALIFICATIONS

1 Moral and ethical standing in the profession satisfactory to the board.

The board, believing that the practice of "fee splitting" is pernicious, leading as it does to a traffic in human life, will reserve the right to inquire particularly into any candidate's practice in regard to this question.

2 Membership in the American Medical Association or, by courtesy, membership in such Canadian or other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the A M A. Except as here provided, membership in other societies shall not be required.

3 Those who have limited their activities to the practice of surgery.

4 In exceptional instances the board may, in its discretion, accept for examination candidates who have met all preliminary requirements and have been in practice from six to sixteen years but whose formal training does not comply with the full requirements to be exacted in the future.

The board recognizes two groups of candidates who may be eligible for certification.

(A) The Founders Group—those who have already amply demonstrated their fitness as trained specialists in surgery. Application for membership in this group was open until Jan 9, 1940. Those who received the board's approval were accepted for membership without examination from the following:

1 Those who from the time of the board's organization, Jan 9, 1937, held the position of professor or associate professor of surgery in the approved medical schools of the United States or Canada.

2 Those who for fifteen years prior to the board's organization limited their practice to surgery and met the general qualifications required.

\*The first three of these associations, being national in scope, were allotted three representatives each, the remaining associations, one

3 Such members of the cooperating societies represented on the board, in good standing Jan 9, 1937, who were invited to membership in this group.

*This group was closed Jan 1, 1940, no further applications received.*

#### (B) Qualified by examination—

In addition to the general qualifications the requirements for this group shall be as follows:

##### (B) PROFESSIONAL STANDING

1 Graduation from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the A M A, or graduation from an approved foreign school.

2 Completion of an internship of not less than one year in a hospital approved by the same Council, or its equivalent in the opinion of the board. This internship may be rotating or one devoted to a single branch of medicine as, for example, surgery, medicine, pathology, etc.

##### (C) SPECIAL TRAINING

After the completion of the year's internship there shall be a period of special training in surgery of not less than five years. During this period one's entire time must be devoted to surgical training supplemented by sufficient experience in the basic sciences to comply with the provisions of paragraph 2. Such training may be taken in a recognized graduate school of medicine, as resident in surgery in an acceptable hospital, or under a sponsorship accredited by the American Board of Surgery for such training.† By the latter statement is meant that one may secure the necessary training as an assistant to an accredited surgeon, provided suitable facilities for the education of the candidate are offered. By an accredited surgeon is meant one who has been certified by the American Board of Surgery or whose professional standing is acceptable to this board. It is understood that the board will accept a combination of training as outlined above—

(For example, one may take a graduate course in an acceptable graduate school for one year, a residency for two years, and an assistantship of two years.)

This period of special training shall be of such character that the relation of the basic sciences of anatomy, physiology, pathology, bacteriology and biochemistry is emphasized. Knowledge of these sciences as applied to clinical surgery will be required in the examination.

Adequate operative experience in which the candidate has assumed the whole responsibility will be required.

The above requirements, especially those referring to surgical training, are subject to change from time to time as the existing opportunities for training in this field of specialization may be broadened.

In accordance with an action by the Advisory Board for Medical Specialties and subsequently approved by the American Board of Surgery a candidate who is not a citizen of the United States or Canada but who is a resident of either country shall have taken out first papers for citizenship and shall have been certified by either the National Board of Medical Examiners or licensed to practice medicine in the United States or Canada by a state board of licensure. A period of at least three years from the date of licensure to practice medicine in either of these countries must elapse before such a candidate may apply for qualification.

The American Board of Surgery will certify to the qualifications of those limiting their work to proctology in the following manner:

A The board will issue to those established in this field, who have been selected by a cooperating committee of recognized proctologists and approved by the American Board of Surgery, a certificate stating that such a candidate is qualified to practice proctology. This group is to be given this recognition without examination upon meeting the above requirements. As has been the custom for founder groups of all specialties this recog-

†The board makes no attempt to classify hospital residencies, usually accepting those approved by the American College of Surgeons and the Council on Medical Education and Hospitals of the American Medical Association.



dition will be extended to those properly qualified who shall apply within two years or until Jan 1, 1944

B For candidates who cannot be classified in Group A but who meet the following requirements the board will issue a certificate indicating that they have qualified by examination. The requirements exacted for this group are as follows

1 To meet all of the requirements as exacted of those wishing to qualify in the field of general surgery with the exception that one of the five required years of training in surgery may be devoted to the proctologic field

2 To pass the same examination as is given to those wishing to qualify in the general surgical field which is outlined elsewhere in this booklet

3 To pass a special examination in proctology which will be given by a committee appointed by the proctologic group. This examination will be given on the morning of the day following the examination in Part II and shall be a practical (bedside) examination in proctology, including diagnosis and surgery of diseases of the colon, rectum and anus

Those wishing to be certified in the proctologic field should so indicate when writing for an application blank

#### EXAMINATIONS

The qualifying examination will be divided into Part I (written) and Part II (clinical, bedside and laboratory). In both of these parts, as previously stated a knowledge of the practical application of the sciences fundamental to surgery will be required

##### PART I

This may be given simultaneously in as many centers as the board may determine suitable for the purpose. A candidate to be eligible for Part I must meet all the requirements for Group B candidates. A card of admission to this part of the examination will be forwarded to the candidate from the secretary's office, certifying that these requirements have been met as well as due notice as to the time and place of the examination

The examination in Part I shall cover a one-day period. There shall be two sessions of three hours each. This written examination shall concern itself primarily with general surgical problems and in addition the application of the basic sciences of surgery to these problems

##### PART II

In order to be eligible for Part II a candidate must have successfully passed Part I, in addition to having met the necessary preliminary requirements and having presented definite evidence of an adequate training in operative surgery satisfactory to the board

This part of the examination shall be oral and practical and cover a one-day period, the schedule being arranged somewhat as follows

#### 8-9 A M.—REGISTRATION

9 A M.-12 Noon—Clinical Surgery (diagnosis management and the application of Physiology, Biochemistry and Bacteriology, as the case being examined upon may offer an opportunity for doing so. X-ray plate interpretation will also be included)

2-5 P M.—Applied Anatomy and Surgical Pathology

The examinations in Part II are conducted in certain centers of the country selected by the board. It is the board's desire to arrange these centers so as to geographically meet the needs of the candidates, on condition that suitable examination facilities can be provided. The examination in this part will be conducted by members of the board living in the region of the country in which they are held, together with selected members of the Founders Group resident in the center chosen

#### GRADES

A candidate must receive a passing average for each part to be entitled to the board's certificate. No candidate shall pass a part who does not receive a grade of 60% or over in each subject of such a part. An average grade of 75% shall be considered as passing in each part. The following values have been assigned to Part II on the basis of a total of 100%: Clinical Surgery 50%, Anatomy 30%, Pathology 20%

A candidate who fails in his examination in Part I shall have his papers reviewed by the Examination Committee

#### REEXAMINATIONS

Candidates may be reexamined as often as they desire provided one year shall elapse between examinations, except that the board may for good and sufficient reason, deny a candidate the privilege of reexamination

#### FEEES

The fee for Group A Founders Group, (closed Jan 1, 1940) was \$25

The fee for Group B shall be \$75 payable as follows: \$5 registration fee which shall be returned if the candidate is not accepted for examination; \$20 for Part I and \$50 for Part II

Candidates shall be required to pay the same fees for Parts I and II at each reexamination in these parts

The fee for a reexamination in a single subject shall be as follows: Clinical Surgery, \$15; Anatomy, \$10; Pathology, \$10

For those wishing to be certified in the proctologic field the fees shall be as follows

The fee for the Founders Group in Proctology shall be \$25

The fee for the Examination Group in Proctology shall be as follows. In addition to the above fee of \$75 as required of all Group B candidates a fee of \$25 will be charged for the special examination in the proctologic field

This board is a nonprofit organization. All fees will be used, after a reasonable amount is set aside for necessary expenses in maintaining its office conducting examinations, etc., to aid in improving existing opportunities for the training of the surgeon

#### CERTIFICATE

A certificate attesting to a candidate's qualification in surgery after meeting the requirements will be issued by the board, having been signed by its officers

#### REVOCATION OF CERTIFICATE

Any certificate issued by the board shall be subject to revocation by the board at any time in case it shall determine in its sole judgment that a candidate who has received a certificate, either was not properly qualified to receive it or has become disqualified since its receipt

Proper forms for making application and other information will be furnished by the secretary

#### AMERICAN BOARD OF UROLOGY, Inc

HERMAN L. KRETSCHMER, President Chicago

CLARENCE G. BANDLER, Vice President, New York

GILBERT J. THOMAS, Secretary-Treasurer, 1409 Willow St., Minneapolis

NATHANIEL P. RATHBUN, Brooklyn

GEORGE GILBERT SMITH, Brookline, Mass

CHARLES C. HIGGINS, Cleveland

HENRY G. BUGBEE, New York

ALFRED I. FOLSON, Dallas, Texas

THOMAS LEON HOWARD, Denver

#### ORGANIZATION

At the annual meeting of the American Association of Genito-Urinary Surgeons held at Niagara Falls Ont. Canada May, 26-28, 1932 Dr. William F. Braasch called attention to the various qualification boards which had been established or were in the process of being established for the certification of specialists. He suggested that a committee should be appointed from this organization to investigate the advisability of establishing a similar board for the specialty of urology. A committee consisting of Dr. Braasch as Chairman, Dr. Henry G. Bugbee and Dr. Hugh H. Young was appointed. This committee reported to the society in 1933, was reappointed to continue its efforts and was given the power to act

At the meeting of the American Urological Association in 1933 Dr. George R. Livermore in his presidential address suggested that all candidates for specialization in urology should have some definite preparation and should be required to take a thorough examination before being recognized as specialists in urology. Dr. Livermore appointed Dr. Joseph F. McCartin chairman. Dr. George Gilbert Smith and Dr. Herman L. Kretschmer as a committee to study this suggestion

At the annual meeting of the American Medical Association in Milwaukee, June 12-16, 1933 a committee consisting of Dr.

Montague L. Boyd, chairman, Dr A. I. Folsom and Dr Frank Himman was appointed to cooperate with similar committees from the American Association of Genito-Urinary Surgeons and the American Urological Association in the establishment of the American Board of Urology.

The first combined meeting of the committees from these three organizations was held on Oct. 11, 1933, in Chicago. Dr. Herman L. Kretschmer was made president, Dr. Joseph F. McCarthy, vice president, and Dr. William F. Brunsch, secretary. These men were elected to serve as temporary officers. A permanent organization could not be effected, however, because the committee from the American Urological Association had not been given the power to act.

The second meeting of these committees was held in New York City, Feb. 2, 1934. Dr. Nathaniel P. Rathlum, president of the American Urological Association, was present at this meeting.

At the annual meeting of the American Urological Association held in Atlantic City, N. J., May 22-24, 1934, the committee reported the activities of the temporary "Board of Urology." This report, which contained suggestions for the guidance of future committees from this association, was accepted, and a new committee was elected by the association, and was given the power to act.

The permanent "American Board of Urology, Inc.," was organized at Chicago, Sept. 24, 1934. The committee members present from the American Association of Genito-Urinary Surgeons were Dr. William F. Brunsch, Dr. Henry G. Bugbee, and Dr. Gilbert J. Thomas; those from the American Urological Association were Dr. Nathaniel P. Rathlum, Dr. Herman L. Kretschmer, and Dr. George Gilbert Smith; those from the Section on Urology of the American Medical Association were Dr. A. I. Folsom, Dr. I. Leon Howard, and Dr. Clarence G. Bandler.

The officers of the board elected at this meeting were Dr. Herman L. Kretschmer, president; Dr. Clarence G. Bandler, vice president; Dr. Gilbert J. Thomas, secretary-treasurer.

The board was incorporated May 6, 1935, and held its first legal meeting May 10, 1935.

#### PURPOSES

The first objective of the American Board of Urology, Inc., is to render better service to the public by insuring the competence of any physician or surgeon who is specializing, or who wishes to specialize, in the field of urology. It will elevate the standards and advance the cause of urology. It will investigate the curricula of medical schools, and will encourage adequate facilities for graduate instruction in urology.

#### FUNCTIONS

(a) The board will arrange to control and conduct examinations testing the qualifications of volunteer candidates.

(b) The board will grant and issue certificates or other evidence of special knowledge in the field of urology to voluntary applicants or to candidates for certification.

(c) The board will endeavor to serve the public, hospitals, medical schools, medical societies and practitioners of medicine and surgery by preparing lists of urologists whom it has certified.

#### LIMITATIONS OF FUNCTIONS

The conferring of degrees, "Doctor of Medicine" or "Bachelor of Medicine" remains with the universities, where it belongs, and this board makes no attempt to control the practice of urology by license, or legal regulations. This board does not intend in any way to interfere with or limit the professional activities of any duly licensed physician.

#### REASON FOR APPLYING FOR A CERTIFICATE, ITS VALUE

The American Urological Association, the American Association of Genito-Urinary Surgeons, and the Section on Urology of the American Medical Association are interested in furthering the cause of urology and have participated in the formation of this board. They are sponsoring its activities. The various national medical societies, the public, hospital directors and others, will utilize the certification from this board as a means of discriminating between those well grounded as specialists in urology, and those who are not.

Lists of individuals who have certificates from this board, and who are engaged in the practice of urology may be published in the Directory of the American Medical Association and will be published in a booklet issued from time to time by the American Board of Urology, Inc. The directory of the

American Medical Association may indicate, by symbols in the biographical data, those whose names are eligible to appear on the list of diplomates of this board.

Application for this certificate is purely voluntary. There is only one type of certificate. No indication is given as to whether or not the candidate received his certificate with or without examination. All certificates are identical.

The Advisory Board for Medical Specialties working in conjunction with, and reporting to, the Council on Medical Education and Hospitals of the American Medical Association, has set certain standards of preparation for specialization which the American Board of Urology, Inc., wishes to adopt. The advisory board has drawn from the experience of all the present functioning boards, and has been of inestimable assistance in the formulation of the Constitution and By-Laws for the Board of Urology. Other organizations which now successfully operate boards of certification are:

The American Board of Ophthalmology, the American Board of Otolaryngology, the American Board of Obstetrics and Gynecology, the American Board of Dermatology and Syphilology, the American Board of Pediatrics, the American Board of Psychiatry and Neurology, the American Board of Radiology, the American Board of Orthopedic Surgery, the American Board of Internal Medicine, the American Board of Pathology and the American Board of Surgery. Among the organizations cooperating with the Advisory Board for Medical Specialties are the Association of American Medical Colleges, the American Hospital Association, the Federation of State Medical Boards of the U. S. A., and the National Board of Medical Examiners.

#### APPLICATION BLANK REQUIREMENTS FOR ALL APPLICANTS

Application for certification must be made on a special blank. This will be provided by the secretary and must be returned to him accompanied by other required data and credentials, and by \$15 of the examination fee.

Requirements for Applicants (Article VIII, Section 2, of the By-Laws of the American Board of Urology, Inc.)

Each applicant, before he shall become eligible to take the examination for certification in urology, must:

A. Have graduated from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association, and must have completed an internship of not less than one year in a hospital approved by the same council. (The former requirement is not applicable to a candidate who graduated from an institution now extinct, or whose graduation occurred before the American Medical Association had prepared a list of accredited medical schools.) All graduates of foreign medical schools must obtain a license in the state in which they propose to practice medicine and the certificate of the National Board of Medical Examiners before making application for certification.

B. Establish in a manner satisfactory to this board that he is a physician duly licensed by law to practice medicine, that he is of high ethical and professional standing and that he has received adequate special training in urology.

The board is attempting to increase and to standardize the facilities for urological training in teaching institutions, so that the expression "special training in Urology" may be interpreted to include:

1. A period of study, after the internship, of not less than three years in clinics, dispensaries, hospitals or laboratories recognized by the Council on Medical Education and Hospitals of the American Medical Association as competent to provide a satisfactory training in the special field of Urology.

This period of specialized preparation should include:

(a) graduate training in anatomy, physiology, pathology, and the other basic medical sciences which are necessary to the proper understanding of the disorders and treatment involved in the specialty of Urology.

(b) an active experience of not less than eighteen months in hospital clinics, dispensaries and diagnostic laboratories recognized by the Council on Medical Education and Hospitals of the American Medical Association as competent in the diagnosis and treatment of urologic conditions.

(c) examinations in the medical sciences basic to the specialty of Urology, as well as in the clinical laboratory and public health aspects of urology in the city from which he makes application.

2. An additional period of not less than two years in the private practice of urology in the city from which he makes application. These special requirements conform with the suggestions made by the Council on Medical Education and Hospitals of the American Medical Association.

C. Make application to the American Board of Urology, Inc., whose duty it shall be to investigate the applicant's credentials and make a survey of his character.

D. Assure the board that he is engaged in the practice of urology and that he intends to continue to be so engaged.

E. Membership in the American Medical Association, or comparable national medical society, is recommended.

## FEE

The examination fee will be \$75. Fifteen dollars must accompany the application. Sixty dollars is to be paid when the applicant is accepted as a candidate for certification. This is the total expense to the candidate. If a candidate fails in his examination, he will be permitted a second examination after one year, or within three years, without additional fee, but he must give sixty days notice of his intention to appear for reexamination. After an applicant has failed twice he must file a new application blank accompanied by a second fee. If an applicant is lacking in any of the requirements as stated above he will be considered ineligible for examination and classification and his fee will be returned. In no other instance, however, will a refund of the examination fee be possible.

## REQUIREMENTS FOR CERTIFICATION

According to the By-laws of the American Board of Urology, Inc., applications received from applicants for certification shall be examined by the Credentials Committee and reviewed by the board. When additional data are required to complete the application, these will be requested by the secretary's office.

The requirements for certification include: personal appearance before the board, preparation of fifty case reports of major urological cases under the candidate's own supervision which must contain all items essential for diagnosis, therapy, prognosis, results of treatment, etc.; oral and clinical examinations; written examinations.

In specific instances, the board may waive any part of these requirements with the exception of the item of personal appearance.

Each candidate will receive a notice of the time and place of the examinations, and an appointment for his personal appearance before the board.

## EXAMINATIONS, WHERE HELD, AND REPORTS OF CASE HISTORIES

The board will hold one examination a year. This will be held at a time or place that the board may select or deem expedient.

1 The *written examinations* are designed to test the candidate's preparation in, and his knowledge of, the whole subject of urology, including the fundamental subjects: pathology, anatomy, physiology, embryology, bacteriology, physiological chemistry and endocrinology. The examination in pathology will consist of the identification of gross specimens and of sections of tissue observed through the microscope. The examination in anatomy, physiology, embryology, bacteriology, physiological chemistry, and endocrinology will be a test of the candidate's working knowledge of these subjects as they are related to the practice of urology.

2 The oral and clinical examinations will consist of discussions of common urologic conditions. The subjects forming the basis of the oral examinations are urography, diseases of the genital organs, including the prostate, diseases of the urinary bladder, and diseases of the ureters and kidneys. The oral examination may deal directly with the reports of case histories which the candidate has submitted. This examination will ascertain the candidate's familiarity with recent urologic literature, the breadth of his clinical experience and his general qualifications as a specialist in urology. The applicant also will be examined in 'professional adaptability' in an attempt to ascertain his attitude toward his fellow practitioners and his patients.

3 The *reports of fifty major urological cases* must be consecutive and must have been under the candidate's own supervision. They must not be abstracted. Sufficient data should appear in these so the examiner will know that a proper history was taken and that a thorough examination, including a complete physical survey, was made.

Case reports that are copied verbatim from a hospital record are not desired. They must be identified by the name of the hospital and the case admission numbers with the pertinent dates. The reports must be typewritten (on 8½ by 11 inch paper) and in duplicate but need not be on any special forms.

The data should be placed under proper headings and the arrangement of these should conform to the sequence of events incidental to the patient's admission to the hospital or clinic. The examinations made and treatment prescribed.

Each candidate must assume personal responsibility for the data in his case reports, including autopsy findings and interpretations of urograms. If the reports are prepared by record clerks, interns, or fellows, they should be reviewed by the candidate and careful attention given to the spelling and the correct use of medical terms before submitting them to the secretary of the board. Case reports are documentary evidence of a candi-

date's method of practice, and the data in them and the manner in which these are presented reflect this.

Satisfactory case reports must be submitted before a candidate will be permitted to continue with other parts of his examination. If case reports are pronounced unsatisfactory by more than one examiner the candidate will be informed of this and requested to prepare others. Criticisms and unsatisfactory reports will be sent to the candidate upon request.

Case report must be submitted to the secretary of the board at least ninety days before the time set for the oral-clinical examination.

Although the board requires that all the essential points of the history and examination be given as well as a complete description of the surgical procedure, emphasis should be placed on the following items: preoperative diagnosis, clinical and pathological diagnosis, summary of postoperative course with special reference to morbidity, clinical findings at time of discharge from the hospital and subsequent 'follow-up' reports.

A short paragraph must be prepared for each case by the candidate. These data must include the candidate's interpretation of the history in terms of pathology, the basis for the diagnosis, the facts that determined the treatment prescribed, whether surgical or otherwise, the course of treatment to be pursued following discharge from the hospital or clinic, a critical discussion of the knowledge gained from the proper handling of the case or from the errors made (if any) in the diagnosis and method of treatment.

Complete separate index lists of the case history reports submitted must accompany the records. If the reports are obtained from more than one hospital they must be consecutive, as mentioned before, and a separate complete index list of each group of reports must be provided. These lists must state the operator's name at the head of each page, the name of the patient, the hospital and admission number and the date of operation. The lists will be filed in the secretary's office for verification purposes.

Case report will be reviewed by examiners living in localities other than those where the candidates practice.

## FINAL ACTION

Final action is based on the applicant's training, his professional record, his attainments in the field of urology, and the results of the examinations. Any well trained urologist will have no difficulty in obtaining the board's certification. This board is organized not to prevent qualified urologists from obtaining certificates but to assist them in becoming recognized in their communities as men competent to practice in the special field of urology.

The activities described above proceed from the certificate of incorporation in which is stated the nature of the business, objects and purposes proposed to be transacted and carried out by this corporation.

## REVOCATION OF CERTIFICATE

Certificates issued by this board are subject to the provisions of the Articles of Incorporation and the By-laws. According to Article IX, Section 4 of the By-laws, each certificate may be revoked in the event that:

(a) The issuance of such certificate or its receipt by the physician so certified shall have been contrary to or in violation of any provision of the Certificate of Incorporation of this the American Board of Urology, Inc. or of the By-laws; or

(b) The physician or party certified shall not have been eligible to receive such certificate, irrespective of whether or not the facts constituting him so ineligible were known to or could have been ascertained by the directors or the board at the time of the issuance of such certificate; or

(c) The physician or party so certified shall have made any misstatement of fact in his application for such certificate or in any other statement or representation to the board or its representatives; or

(d) The physician so certified at any time while continuing to practice shall cease to practice urology; or

(e) The physician so certified shall at any time have neglected to maintain the degree of competency in the practice of the specialty of urology as set up by the board and shall refuse to submit to reexamination by the board.

The Board or Trustees of this Corporation shall have the sole power jurisdiction and right to determine and decide whether or not the evidence or information before it is sufficient to constitute one of the grounds for revocation of any certificate issued by this corporation and the decision of such Board or Trustees in the premises shall be final.

Communications should be addressed to the secretary treasurer.

## ADVISORY BOARD FOR MEDICAL SPECIALTIES

Organized 1933-1934 to coordinate graduate education and certification of medical specialists in the United States and Canada

This board reports directly to its member groups, and functions in close cooperation with the Council on Medical Education and Hospitals of the American Medical Association and with the Advisory Council on Medical Education

The work of this Board has been aided by grants from the Josiah Macy Jr Foundation of New York, but the Board is now supported by its component groups

### OFFICERS AND EXECUTIVE COMMITTEE

WILLARD C RAPPELLE, President, New York  
C GUY LANE, Secretary-Treasurer, 416 Marlboro Street, Boston  
R C BURKE, Philadelphia  
WALTER B LANCASTER, Hanover, N H

### MEMBER ORGANIZATIONS AND REPRESENTATIVES

\*(Corresponding Officer)

The Association of American Medical Colleges  
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WILLARD C RAPPELLE, New York  
The American Hospital Association  
R C BURKE, Philadelphia  
RUSSELL H OPPENHEIMER, Atlanta, Ga  
The Federation of State Medical Boards of the U S A  
G M WILLIAMSON, Grand Forks, N D  
\*WALTER L BILKING, Des Moines, Iowa  
The National Board of Medical Examiners  
\*J STEWART RODMAN, Philadelphia  
WALLER S LEVINE, Nashville, Tenn  
The American Board of Ophthalmology  
CONRAD BERENS, New York  
WALTER B LANCASTER, Hanover, N H  
The American Board of Otolaryngology  
HARRIS P MOSHER, Marblehead, Mass  
The American Board of Obstetrics and Gynecology  
JOSEPH L BAER, Chicago  
\*PAUL TITUS, Pittsburgh  
The American Board of Dermatology and Syphilology  
HOWARD FOX, New York  
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The American Board of Pediatrics  
HORTON R CASPARIS, Nashville, Tenn  
\*C ANDERSON ALDRICH, Chicago  
The American Board of Psychiatry and Neurology  
FRANKLIN G EBAUGH, Denver  
\*WALTER FREEMAN, Washington, D C  
The American Board of Radiology  
GEORGE W HOLMES, Boston  
\*BYRL R KIRKLIN, Rochester, Minn  
The American Board of Orthopaedic Surgery  
FREMONT A CHANDLER, Chicago  
\*GUY A CALDWELL, New Orleans  
The American Board of Urology  
HERMAN L KRETSCHMER, Chicago  
\*GILBERT J THOMAS, Minneapolis  
The American Board of Internal Medicine  
ERNEST E IRONS, Chicago  
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ARTHUR H SANFORD, Rochester, Minn  
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The American Board of Surgery  
VERNON C DAVID, Chicago  
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The American Board of Anesthesiology  
RALPH M WATERS, Madison, Wis  
\*PAUL M WOOD, New York  
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JOHN STAIGE DAVIS, Baltimore  
\*James B Brown, St Louis, Mo  
The American Board of Neurological Surgery  
HOWARD NAFFZIGER, San Francisco  
\*R GLEN SPURLING, Louisville, Ky

### FOREWORD

The Advisory Board for Medical Specialties has prepared these data for the purpose of furnishing general information regarding its activities in connection with graduate medical education and the certification of medical specialists in the United States and Canada. It is designed also to give detailed

information concerning the procedure to be followed by examining boards in the various specialties in order to obtain membership in this Advisory Board and official recognition by the Council on Medical Education and Hospitals of the American Medical Association. This information is based in large part on the experience of previously formed boards during the past twenty-five years.

### ORGANIZATION

This Advisory Board was organized in 1933-1934 to coordinate graduate education and certification of medical specialties in the United States and Canada.

Several specialty boards had been functioning actively and successfully for a number of years prior to the organization of the Advisory Board for Medical Specialties. Their purposes were, primarily, to establish minimum standards of graduate educational and training requirements for physicians representing themselves to the public as being specialists, with certification by the boards of candidates after they had been able successfully to pass the boards' examinations. Secondly, these boards hoped to improve the general standards of graduate medical education and facilities for special training. This aim is being steadily and rapidly accomplished.

Credit for the improvement in undergraduate medical education, so noticeable in this country during the past twenty-five years, is due to the efforts of universities, educational foundations, medical schools, medical societies, and to public support along these lines. The same is true of the present transition in graduate education in the specialties, sharply stimulated by the establishment and activities of these certifying boards.

The American Board of Ophthalmology was the first special certifying board to be created in 1916, the American Board of Otolaryngology, established in 1924, was followed by the American Board of Obstetrics and Gynecology in 1930, and the American Board of Dermatology and Syphilology in 1932.

During part of this period of time plans for the organization of similar boards in other specialties were being actively projected, all of these groups being desirous of availing themselves of the experiences of the already existing boards.

It was soon recognized that some formal and official plan of organization must be established. It was clearly essential that an examining board must have the official sanction of the national societies in its given specialty as well as that of its section of the American Medical Association, but there was, at that time, nothing to prevent unofficial groups from organizing examining boards and using the title American Board.

Consequently, in order to avoid duplication of effort as well as to coordinate the work of the several boards and other interested groups into a concise and homogeneous plan for betterment, it was deemed advisable to create an Advisory Board which should give consideration to those problems common to all, and which should be representative of each organization concerned.

During the years 1933 and 1934 this Advisory Board was organized and began actively to function. Simultaneously at the Milwaukee session of the American Medical Association in 1933 a resolution was adopted authorizing the Council on Medical Education and Hospitals (1) to formulate standards of administration based in general upon those of the American Boards of Ophthalmology, of Otolaryngology, of Obstetrics and Gynecology, and of Dermatology and Syphilology and, (2) to recognize officially new boards meeting these standards, this recognition to be based upon previous approval and recommendation to the Council by the Advisory Board.

A constitution and by-laws for the Advisory Board was adopted at a meeting in Chicago on February 11, 1934. The original member organizations of the Advisory Board for Medical Specialties were the Association of American Medical Colleges, the American Hospital Association, the Federation of State Medical Boards of the U S A, the National Board of Medical Examiners, the American Board of Ophthalmology, founded 1916, the American Board of Otolaryngology, founded 1924, the American Board of Obstetrics and Gynecology, founded 1930, and the American Board of Dermatology and Syphilology, founded 1932. Two representatives were appointed from each of these organizations to serve on the Advisory Board. Since that time the American Board of Pediatrics (1934), of Psychiatry and Neurology (1934), of Radiology (1934), of Orthopaedic Surgery (1934), of Urology (1934), of Pathology (1936), of Internal Medicine (1936), of Surgery (1937), of Anesthesiology (1938), of Plastic Surgery (1938), and of Neurological Surgery (1940) have been properly organized, approved, and elected to membership in the Advisory Board and recommended to the Council on Medical Education and Hospitals of



the American Medical Association for official recognition. There are, therefore, fifteen examining boards now organized, approved and actively functioning in the fifteen specialties recognized as suitable fields for the certification of specialists.

The work of this board has been aided by grants from the Josiah Macy, Jr., Foundation of New York, but the board is now supported by its component groups.

#### PURPOSE

Article II of the Constitution states that, "This board shall act in an advisory capacity to such organizations as may seek its advice concerning the coordination of the education and certification of medical specialists." Specifically, this represents an official effort to advance the standards and improve the methods of graduate education and training in the medical specialties with certification of men thus educated and trained who qualify as specialists in the various branches. The common interest of the member organizations in these purposes is obvious. It is equally apparent that some fixed definition of specialties needed to be established, preferably on a graduate educational basis, that minimum standards of organization and conduct for new examining boards should be fixed, and that some official method of recognition be developed.

There is no desire on the part of these boards to interfere with any practitioners of medicine in any of their regular or legitimate activities. Their fundamental purpose is to ensure to the public, both lay and medical, and for its protection that physicians claiming to be specialists with presumably special proficiency in one or another branch of medicine actually possess the qualifications they claim. This presupposes special training and demonstrable capability along certain lines of work. Suitable evidence of this is the ability of an individual to satisfy an examining board about his training and then to pass the examination for certification.

Surveys of existing facilities for graduate training in the various specialties are being conducted at the present time. Residences as well as preceptorship and assistantship training are being studied. Preparations for stimulating medical school and hospital facilities for the required graduate training are going forward actively. Round table conferences furnish discussions of subjects of interest in regard to graduate medical education.

The Council on Medical Education and Hospitals of the American Medical Association has agreed, under the authority vested in it by the resolution passed at the Milwaukee meeting (1933) and referred to above, that applications of special examining boards for official approval are to be referred to the Council through the Advisory Board for Medical Specialties, recommendation by the Advisory Board for such approval to be based upon the standards mutually adopted. The understanding exists that the Council cannot be bound by recommendations of the Advisory Board but will consult the Advisory Board for Medical Specialties before acting upon any application so long as mutually adopted standards are in force.

Early in 1940 there was published the first edition of the Directory of Medical Specialists containing the names and biographic data of all men certified by the several specialty boards, as well as information regarding the organization and functions of these boards. In the last edition published early in 1942 appears the names and brief biographic records including hospital and teaching appointments, of about 18,000 diplomates or certified specialists.

In response to the generally recognized need for a clear formulation of the educational problems and principles involved in graduate and postgraduate medical training, the Advisory Board at its meeting in June 1937 voted to create a Commission on Graduate Medical Education to study the various aspects of the whole problem. This commission included representatives of the profession, the specialties, the universities, the hospitals, and the licensing bodies. The report of this commission comprising 304 pages appeared in 1940, published by the University of Chicago Press and is of real assistance to the various specialty boards, hospitals, medical schools, and regulatory bodies dealing with this phase of American medicine.

#### MEMBERSHIP

The Advisory Board is composed of two representatives from each of the approved examining boards in the medical specialties and such other national organizations as are interested in education, examination, and certification of medical specialists and duly elected to this body.

The Constitution provides that, "To be eligible for representation in this board an examining board in a specialty must be composed of members elected from or appointed by societies

recognized by this board as a national society in that specialty together with representation from the related section of the American Medical Association." Upon being accepted by the Advisory Board the board in question is recommended to the Council on Medical Education and Hospitals of the American Medical Association as qualified for recognition. Membership in the Advisory Board provides for the inclusion of the name of the organization in all lists and directories published by the Advisory Board for Medical Specialties and provides also for publication of the names of specialists certified by each individual examining board.

This board reports directly to its member groups, and functions in close cooperation with the Council on Medical Education and Hospitals of the American Medical Association, and with the Advisory Council on Medical Education.

The Advisory Board has voted that no more subsidiary boards be formed and that further special groups be provided for so far as possible, within the boards of medicine and surgery.

Meetings of the Advisory Board for Medical Specialties are held annually as required.

Traveling and other expenses of representatives in attendance are borne by member organizations.

#### ESSENTIALS FOR APPROVED SPECIAL EXAMINING BOARDS

##### I ORGANIZATION

1 A special examining board to be approved by the Advisory Board for Medical Specialties should represent a recognized and distinct specialty of medicine. (It is agreed between the Council and the Advisory Board that no board shall be organized in a special field having less than one hundred members engaged in special practice in the United States.)

2 It should be composed of representatives of the national organizations in that specialty including the related section of the American Medical Association.

3 It should be incorporated.

4 A special board should

(a) Determine whether candidates have received adequate preparation.

(b) Provide a comprehensive test of the ability and fitness of such candidates.

(c) Certify to the competence of those physicians who have satisfied its requirements.

##### II DEFINITION OF SPECIAL FIELDS

The following branches of medicine at present are recognized as suitable fields for the certification of specialists:

- 1 Internal Medicine
- 2 Surgery
- 3 Pediatrics
- 4 Obstetrics and Gynecology
- 5 Ophthalmology
- 6 Otolaryngology
- 7 Dermatology and Syphilology
- 8 Psychiatry and Neurology
- 9 Urology
- 10 Orthopaedic Surgery
- 11 Radiology
- 12 Pathology
- 13 Neurological Surgery
- 14 Anesthesiology
- 15 Plastic Surgery

##### III QUALIFICATION OF CANDIDATES

Each applicant for admission to the examination should be required to present evidence that he has met the following standards:

###### A General Qualifications

1 Satisfactory moral and ethical standing in the profession.

2 Membership in the American Medical Association or membership in such Canadian or other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association is recommended. Membership in other societies should not be required. (Exceptions to the foregoing may now be made at the discretion of any individual board for good and sufficient reasons.)

###### B Professional Standing

1 Graduation from a medical school recognized by the Council on Medical Education and Hospitals of the American Medical Association.

2 Completion of an internship preferably of the general rotating type or not less than one year in a hospital approved by the same Council.

###### C Special Training

(To be effective as far as practical not later than Jan. 1 1944)



1 A period of study, after the internship, of not less than three years in clinics, dispensaries, hospitals or laboratories recognized by the same Council as competent to provide a satisfactory training in the special field of study

2 This period of specialized preparation should include

(a) Graduate training in anatomy, physiology, pathology, and the other basic medical sciences which are necessary to the proper understanding of the specialty in question

(b) An active experience of not less than eighteen months in hospital clinics, dispensaries and diagnostic laboratories recognized by the Council as competent in the specialty

(c) Examinations in the basic medical sciences of a specialty as well as in the clinical, laboratory and public health aspects

3 An additional period of not less than two years of study and/or practice

These essentials were adopted by the Advisory Board for Medical Specialties June 10, 1934 and have had only minor changes since then. They are practically identical with an outline of Essentials for Approved Specialty Boards adopted June 10, 1934 by the Council on Medical Education and Hospitals of the American Medical Association and ratified June 11, 1934 by the House of Delegates of the American Medical Association

#### ORGANIZATION OF EXAMINING BOARDS

The foregoing essentials for approved special examining boards were followed in the organization of the existing boards

Official sponsorship of the national societies, and the related section of the American Medical Association, in a specialty organizing an examining board, has included the election or appointment of representatives from each of these national societies to serve on the board as examiners and directors

Each board was or is incorporated. Each application for organization and approval included

1 The name of the proposed board

2 A statement of its method of organization, the sponsoring societies, its list of officers, and the names and addresses of the elected or appointed members of the board, including the societies which each represents

3 A copy of the tentative constitution and by-laws

4 A copy of its proposed articles of incorporation

5 An outline of qualification requirements for applicants

6 An outline of proposed methods of examination

7 A copy of the application blank

8 Any general information or statement of importance

9 Approximate number of physicians practicing the specialty which the board represents

These data are submitted in duplicate to the office of the Secretary of the Advisory Board for Medical Specialties. An application for election to membership in the Advisory Board and the data listed above are referred immediately for review by the Committee on Standards and Examinations of the Advisory Board. Upon approval by the committee incorporation is then completed and a statement of this filed with the secretary. Action on the application will be taken at the succeeding meeting of the Advisory Board for Medical Specialties and each examining board as elected will be recommended to the Council on Medical Education and Hospitals of the American Medical Association for official recognition. One of the two sets of data submitted is forwarded to the Council on Medical Education and Hospitals of the American Medical Association with the Advisory Board's recommendations. Examination and certification of applicants in the specialty may begin immediately when the special board is given such approval. Communications should be addressed to the secretary

#### CONSTITUTION AND BY-LAWS

*Adopted at Organization Meeting, February 11, 1934*

##### ARTICLE I

###### NAME

The name of this organization shall be "The Advisory Board for Medical Specialties"

##### ARTICLE II

###### PURPOSE

This board shall act in an advisory capacity to such organizations as may seek its advice concerning the coordination of the education and certification of medical specialists. No action taken by this Board shall be binding upon any member organizations

##### ARTICLE III

###### MEMBERSHIP

###### Section I

This board shall be composed of two representatives from each of the examining boards of the medical specialties and such other national organizations as are interested in education, examination, or certification of medical specialists

###### Section II—Original Membership

At the time of the organization, this board shall be composed of representatives from each of the following bodies

The American Board of Ophthalmology

The American Board of Otolaryngology

The American Board of Obstetrics and Gynecology

The American Board of Dermatology and Syphilology

The Association of American Medical Colleges

The National Board of Medical Examiners

The Federation of State Medical Boards of the U S A

The American Hospital Association

The Council on Medical Education and Hospitals of the American Medical Association

###### Section III—Additional Membership

To be eligible for representation in this board an examining board in a specialty must be composed of members elected from or appointed by societies recognized by this board as national societies in that specialty together with representation from the related Section of the American Medical Association. Upon being accepted by this Advisory Board the board in question will be recommended to the American Medical Association as being qualified for recognition by that Association

###### Section IV—Quorum

A quorum at any meeting shall consist of a majority of the official representatives to the board and at least one third of the membership organizations shall be represented. Each member organization shall be entitled to two votes

#### ARTICLE IV

##### OFFICERS AND STANDING COMMITTEES

###### Section I—Officers

The officers of this board shall be (a) President, (b) Vice President, (c) Secretary Treasurer. These officers shall be elected at the annual meeting each year

###### Section II—Standing Committees

The standing committees shall be as follows

1 The Executive Committee

2 Standards and Examinations

3 Finance

The Executive Committee shall consist of the President, Vice President, Secretary Treasurer, and two members elected at the annual meetings. No organization should have more than one member on the Executive Committee. The President shall be the Chairman of the Executive Committee. The other standing committees shall be appointed by the President

#### ARTICLE V

##### AMENDMENTS TO THE CONSTITUTION

Amendments to this constitution may be made by a majority vote of the official representatives present at any annual meeting provided that thirty days' notice of the proposed amendment has been given each member of the board

#### BY-LAWS

##### ARTICLE I

###### DUTIES OF OFFICERS

###### Section I

The President shall preside at all meetings of the board, shall act as Chairman of the Executive Committee, and shall appoint all other standing committees. He shall call meetings of the Executive Committee at such time and place as may be deemed necessary

###### Section II

The Vice President shall assume the duties of the President in his absence

###### Section III

The Secretary Treasurer shall perform the usual duties of this office

##### ARTICLE II

###### EXECUTIVE COMMITTEE

The Executive Committee shall carry out the policies and activities decided upon by the board. It shall have ad interim authority to initiate policies subject to approval by the board at the annual or any special meeting. The two elected members shall serve for two years, the terms of office terminating in alternate years

##### ARTICLE III

###### MEETINGS

###### Section I

There shall be an annual meeting at such time and place as the board may determine. A special meeting may be called by the president upon ten days' notice to all members stating time, place and purpose of such meeting. The Executive Committee may present other business for consideration

###### Section II

The Executive Committee shall meet subject to the call of the President

###### Section III

Robert's Rules of Order shall be followed except where they conflict with this Constitution and By Laws

##### ARTICLE IV

###### AMENDMENTS TO THE BY LAWS

Amendments to these by laws may be made at any regular or special meeting of the board

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SATURDAY, AUGUST 15 1942

## CONTRIBUTION OF MEDICAL SCHOOLS TO THE WAR EFFORT

An educational institution is never better than its faculty. Regardless of physical and clinical facilities a medical school cannot offer opportunities for a high standard of medical education without a competent faculty to assume leadership, offer stimulus and maintain supervision over the work of its students.

As a war measure the medical schools of this country have increased the size of their entering classes by approximately 10 per cent. They have adopted an accelerated program which calls for the graduation of a class every nine months. They have been asked to make available for military service all members of their faculties except those who are absolutely essential for the conduct of their programs. The request is reasonable and is a contribution which the medical schools can and should make to the conduct of the war.

The medical schools have been asked not to lower the standards of medical education in connection with the adoption of the accelerated program or the increase in size of the student body. Competent teachers are rare, and relatively few members of a medical school faculty, valuable as they may be in assisting in the conduct of the school's program, are competent to assume major teaching responsibilities. All too prevalent is the idea that a teacher does not need special qualifications and that in a medical school any one with an M.D. degree may serve as a competent teacher. Hence many apparently believe that any member of a medical school faculty who happens to be disqualified for military service either because of age or because of physical condition is competent to replace any other man in his department who is deemed essential by the school but who otherwise meets the qualifications for military duty. It is competent teachers that are essential rather than simply manpower, if the medical schools are to meet satisfactorily the responsibilities they have assumed in connection with graduation of over twenty-one thousand qualified physicians during the next three years.

Medical teachers who are essential to the conduct of the medical school must appreciate their responsibility

to continue in their teaching positions. Furthermore, they should realize that by so doing they are making a great contribution to the war effort in the education of this unprecedented number of physicians, which is necessary to the continued conduct of the war. In many instances they will be called on to carry a much heavier routine and to make greater sacrifices as teachers than they would as commissioned officers in the military services. Enthusiasm for service, local attitudes and social pressure have already resulted in serious depletion of the medical school faculties in a few instances.

Mutual cooperation between the Office of Procurement and Assignment of Physicians, Dentists and Veterinarians and the medical schools should provide a reasonable allocation of responsibilities for the faculties of the medical schools. Only through such cooperation can the medical schools meet both their immediate and their continuing responsibilities in providing their share of physicians for the entire war effort.

## THE HEALTH OF MEDICAL STUDENTS

The importance of health in wartime has justly been stressed not alone by public health officials but by all governmental agencies. Extensive programs have been developed to protect the health of those in the armed forces and in war industries. The physicians of our country have a tendency to neglect their own health, as a national duty they must now do everything possible to protect it so that the medical profession may serve during this period with the highest efficiency.

Medical educators have for years been concerned because of the frequent "physical breakdowns" among the medical students of this country. With the adoption of the accelerated program of medical education, students will be called on to accomplish in three years what previously has caused many breaks in health when spread over a period of four years. Thus it is especially appropriate at this time to emphasize that medical schools should do everything possible to protect the health of their students, not alone in the best interest of students themselves, but as a part of the responsibility which the medical schools are assuming in preparing these young men to serve efficiently as physicians either with the armed or with the civilian forces.

Student health services in this country have been successful in discovering physical defects. The criticism is frequent that they do little to remedy such defects.

Reports from army physicians suggest that a similar criticism may be applied to medical school health services. One army medical officer recently reported that 41 per cent of two hundred and forty-five third and fourth year students from five different medical schools were disqualified for army service because of remediable defects. Medical students have been permitted by the federal authorities to continue their education in order that they may enter the military services as

qualified physicians. The medical schools have for the same reason sought the deferment of these students and have assumed the responsibility of preparing them for such service. The medical school and the medical student should cooperate to secure correction of remediable defects. Then as far as possible the graduates of our medical schools will be both physically and mentally qualified to meet their responsibilities.

### ARTIFICIAL ANTIBODIES

In vitro synthesis of type specific antipneumococcus precipitins and agglutinins has been reported recently by Pauling and Campbell<sup>1</sup> of the Department of Chemistry, California Institute of Technology. Substances simulating specific antibodies formed outside the animal body were demonstrated thirty years ago by Russian immunologists Ostromyschlenski and Petroff,<sup>2</sup> for example, incubated a mixture of diphtheria toxin and normal horse serum and obtained an end product with all the therapeutic properties of diphtheria antitoxin. By incubating diphtheria toxin with different protein fractions of normal horse serum, Kryshanowski<sup>3</sup> prepared two artificial diphtheria antitoxins of different therapeutic value. By somewhat different techniques, Sdrawosmisslow<sup>4</sup> and Kimmelstiel<sup>5</sup> incubated diphtheria toxin with commercial trypsin and reported the successful test tube synthesis of a "toxin trypsinate" with the therapeutic properties of an antidiphtheritic serum. In anticipation of future commercial value, artificial antitoxin made by incubating diphtheria toxin with normal serum plus pancreatin was promptly patented in Germany.<sup>6</sup>

By substituting bacteria for diphtheria toxin, other Soviet investigators<sup>7</sup> successfully synthesized specific agglutinins, bacteriolysins and complement deviating antibodies. This technic was promptly appropriated by German botanists,<sup>8</sup> mainly to avoid the trouble and expense of experimental animals. They incubated plant juices with normal serums and reported the production of artificial precipitins, interchangeable with natural immune precipitins, in their study of biochemical plant relationships. While most of these artificial precipitins were of low titer, Sasse<sup>9</sup> obtained an occasional product with which plant juices could be identified in dilutions as high as 1:6,400. Many unexpected overlapping specificities, however, were reported by other investigators,<sup>10</sup> suggesting plant relationships differing from those suggested by natural immune serums.

The first artificial precipitin for an animal protein was prepared by Kabelik<sup>11</sup> of Czechoslovakia. He, however, believed that his synthetic product was not a true antibody but only a biochemical precursor of such an antibody. This conclusion was confirmed by Manwaring,<sup>12</sup> who found that artificial precipitins formed by incubating one part of horse protein with twenty parts of normal rabbit serum usually show zone reactions and other qualitative differences from natural immune precipitins. He concluded that "hybridization" of horse proteins in artificial serum mixtures represents but the initial stage in the natural production of specific antibodies, necessitating the assumption of secondary and tertiary stages in the natural synthesis. It also seemed necessary to assume a continuous, quasiproliferative process in order to account for the relatively high titer in experimental animals. This proliferative process was conceivably similar to the quasiproliferation of bacteriophage in symbiosis with bacterial cells.

Subsequent advances in immunochemistry, particularly determination of the chemical nature of haptens and protein molecules, have made possible today the formulation of a more definite theory. Pauling,<sup>13</sup> for example, called attention to the fact that globulin molecules are "unfolded" or "uncoiled" under the influence of certain physical or chemical agents much in the way a fern leaf uncoils on approaching maturity. On removal of these conditions the unfolded molecule is again "coiled" to its original surface specificity. Pauling assumes that in the presence of a foreign antigen the refolding is atypical, the globulin molecule coiling around and assuming a surface configuration "complementing the surface regions of the antigen." Dissociated from the adherent antigen, the refolded globulin now functions as a specific antibody or specific receptor for the antigen. Artificial antibodies therefore differ from normal serum globulins only in the way in which the polypeptide chain is refolded or recoiled. This concept is in accord with data currently reported by Wright,<sup>14</sup> who concluded that "horse antibody protein is essentially the same as horse gamma globulin."

In order to test this theory, Pauling and Campbell<sup>1</sup> attempted to prepare antibodies against antigens of known chemical composition. They selected certain antigenic dyes, for example, and type III pneumococcus carbohydrate, bovine gamma globulin being the normal serum protein used in most of their tests. Successful unfolding and refolding of gamma globulin is readily effected by several methods, such as the addition of alkali and slow return to neutrality, the addition and slow removal of urea, or by heating to 65°C and slowly cooling. Their most satisfactory yield, however, was obtained by incubating the gamma globulin-antigen

1 Pauling, Linus, and Campbell, Dan H. *Science* **95** 440 (April 24) 1942.

2 Ostromyschlenski and Petroff. *Russ. Gesellsch. f. physikal. Chem.* **47** 263, 1915.

3 Kryshanowski, W. N. *Centralbl. f. Bakt.* **110** 1, 1929.

4 Sdrawosmisslow, W. H., and Kastromin, N. E. *Ztschr. f. Immunitätsforsch.* **54** 1, 1927.

5 Kimmelstiel, D. *Ztschr. f. Immunitätsforsch.* **62** 245, 1929.

6 Patent No. 293055, class 30 h, group 6.

7 Sdrawosmisslow, W. M., and Kistromine, N. *Bull. Inst. Pasteur* **21** 941, 1923. Bashkirzev, N. I. *Ztschr. f. Urol.* **23** 92, 1929.

8 Mez, C., and Ziegenspeck, H. *Botanisches Arch.* **12** 163, 1925.

9 Sasse, F. *Beitr. z. biol. Pflanzen* **16** 351, 1928.

10 Nahmacher, E. *Beitr. z. biol. Pflanzen* **17** 1, 1929.

11 Kabelik, J. *Biologické listy (Prague)*, 1927, p. 31.

12 Manwaring, W. H. *J. Immunol.* **19** 155 (Aug.) 1930.

13 Pauling, L. *J. Am. Chem. Soc.* **62** 2643, 1940.

14 Wright, G. G., Jr. *J. Infect. Dis.* **70** 103 (March-April) 1942.

mixture for several days at 57 C, a process similar to that originally adopted by the Soviet immuno-chemists

In a typical experiment, 1 per cent type III pneumococcus polysaccharide was added to a 1 per cent solution of bovine gamma globulin and the resulting mixture held at 57 C for fourteen days. The mixture was then freed from pneumopolysaccharide by a precipitation or salting out method. The resulting free modified gamma globulin ("purified antibody") was found to precipitate type III pneumopolysaccharide in vitro but gave negative reactions with type I or type VIII polysaccharide. The modified gamma globulin would also agglutinate type III pneumococci in vitro but not types I or II. Mouse protection tests and swelling tests have not yet been carried out.

The earlier Russian attempts to synthesize specific antibodies were mainly undertaken for their theoretical interest, since substitution of relatively low titer artificial antibodies for high titer natural immune serums was of little clinical promise. With the wide use of human plasma banks at the present time, however, practical interest is aroused. If a conversion of normal human plasma globulins into immune globulins is feasible, artificial immune human plasma banks may become a subject of future clinical research. In this eventuality the California biochemists will have rendered a distinct service to clinical medicine by suggesting a definite chemical theory to replace the tentative metaphors of the earlier immunologic theorists.

## Current Comment

### GRADUATE MEDICAL EDUCATION IN WARTIME

The graduate programs of thousands of physicians in the United States are necessarily being interrupted by their call to active duty with the armed forces. However, the time spent in the service of their country cannot be considered as time lost in their preparation for future careers in any of the specialties of medicine. Military service will in many instances provide a type of training and experience which, many physicians believe, will be extremely helpful in a satisfactory preparation for the practice of the medical specialties. Furthermore, as is indicated elsewhere in this issue of THE JOURNAL, the various specialty boards have adopted certain policies in regard to granting credit for military service which will compensate at least in part for the interruption of planned programs to meet their requirements for certification. The policies adopted by the specialty boards vary from the granting of an indefinite amount of credit to be determined by an evaluation of the experience of individual applicants to full credit allowed by the American Board of Surgery for work done in the surgical division of a regularly constituted army or naval hospital. The specialty boards are not lowering their standards by the adoption of these policies

but are indicating their willingness to give such credit as is justified for experience and training gained with the armed services as well as that secured in civilian hospitals or under other accredited sponsorship. The announcement of these policies, together with the avowed intention of the Council on Medical Education and Hospitals to attempt to formulate plans to provide opportunities for the continued training of recent graduates after the war, should offer considerable encouragement to those in active service who are looking forward to careers in the medical specialties.

### TUBERCULOSIS IN INDUSTRY

Pulmonary tuberculosis is frequently ascribed to conditions of employment, often on tenuous and insecure scientific grounds. This is particularly true when employment necessitates exposure to dust, although in most instances the nature of the dust may be unknown and neither x-ray study nor physical examination made in advance of employment as a basis for comparison. Pneumonocosis to many physicians means exposure to dust (any dust) with resultant specific susceptibility to infection of the respiratory tract and activation of healed or arrested pulmonary tuberculosis. Pneumonocosis and silicosis are still synonymous in too many professional minds. Exposure to gases such as sulfur dioxide has on occasion given rise to similar faulty beliefs as to cause and effect relationships. Often investigation demonstrates contact with open unrecognized tuberculosis at home. Admittedly there are many discrepancies in our knowledge of fatigue, nutrition and recreation as factors in predisposition to the development of active pulmonary tuberculosis. Until more precise knowledge is available, however, etiologic speculation is unwarranted in all statements by physicians about this important adult health problem. Social-economic considerations lend emphasis to the need for cautious statement about the relationship between employment and tuberculosis. Conflicting and unwarranted statements offered as medical testimony before courts of law and administrators of workmen's compensation lead to much confusion and injustice. Decisions on these claims must be based on medical facts established as evidence from testimony, a difficult situation when some individual theory rather than prevailing well founded medical opinion is in the record. The remedy, obviously, is to establish all available facts relating to occupational conditions as predisposing or activating factors in pulmonary tuberculosis. The symposium on tuberculosis in industry held at Saranac Lake, N. Y., during the past year is a step in the proper direction but demands periodic repetition.<sup>1</sup> There has been some fear that chest examinations among workers will lead to the development of groups of unemployable individuals. It is allowed to deter proper clinical inquiry, it will be impossible to expect the degree of success in industrial health that has been achieved in child health. During the past twenty-five years the child health campaign has led pediatric practice largely into the field of preventive medicine.

<sup>1</sup> Gardner, Leroy L. Tuberculosis in Industry. J. A. M. A. 115: 643 (Feb. 21) 1942.

# MEDICINE AND THE WAR

*In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession*

## RELATION OF EMERGENCY MEDICAL SERVICES TO INDUSTRIAL PLANTS

The Office of Civilian Defense, Washington, D C, in Medical Division memorandum number 14, points out that the primary responsibility for the protection of industrial plants rests on the operators, owners and local and state governments. The War and Navy departments have included in their program the responsibility for recommending protection in certain civilian plants engaged in the production of war material. The War and Navy departments have requested all civilian manufacturing plants having important war contracts to cooperate with the local Emergency Medical Service of the U S Office of Civilian Defense.

All industrial plants are expected to provide medical services and first aid equipment within the plant for the care of the injured. The Office of Civilian Defense recommends that each industrial plant, in addition to providing its own medical staff and first aid equipment, should plan in collaboration with the chief of Emergency Medical Services of the locality for (1) services of ambulances and emergency medical field units when needed, (2) available beds at one or more hospitals to which the severe casualties may be transported, (3) the establishment of a casualty station of the Emergency Medical Service within a short distance of the plant and (4) obtaining the services of emergency medical field units if needed to supplement the plant medical service during an emergency.

If a plant is miles from a hospital and there is a possibility that the injured might be obliged to remain at the casualty station for hours before transfer to the hospital, the casualty station should be larger than the average for a given number of employees and be adequately equipped. It must have cots, blankets, water and heating facilities and be equipped at least with the emergency medical supplies outlined in Medical Division bulletin number 2, equipment lists 1 and 2.

To implement these instructions, section V of Medical Division bulletin number 4 is amended to include the following additional duties of the local chief of Emergency Medical Service:

*During the period of preparation*

### 6 Protection of Industrial Plants

(a) Advising all employers concerning adequate emergency medical protection to be afforded within industrial, commercial and service installations, including location of casualty stations and medical supplies where needed.

(b) Arranging for direct telephone lines between important installations and control center to facilitate evacuation of casualties and to provide emergency medical service with the minimum of delay.

## ILLINOIS CIVILIAN BLOOD BANK

At the suggestion of Governor Green the state of Illinois has established a civilian blood bank, and a mobile blood collecting clinic has already collected the quota of donations for Champaign, Kane and Rock Island counties and the city of Peoria and at the time of this report was collecting blood from about sixty volunteers a day in Carbondale. The state health officer, Dr Roland R Cross, said that in every community visited by the mobile blood collecting unit the civic organizations, industries, defense councils and hospitals have cooperated. It was expected that the immediate quota of four thousand blood donations would be reached by July 25.

## AWARDS FOR SERVICE IN BURMA

The Order of the Purple Heart has been awarded to seven officers of noncombat branches of the U S Army for service in Burma. Lieut Gen Joseph W Stilwell's India headquarters announced on July 18, according to the *New York Times*. Those decorated were Major Gordon S Seagrave, Medical Corps, of Granville, Ohio, who was formerly a medical missionary in Burma, Major Donald M O'Hara of Janesville, Minn, a dentist who assisted Major Seagrave in performing operations on the porches of native dwellings in Burma, Col Adrian St John of Astoria, Queens, N Y, of the Chemical Warfare Service, who snatched "jeeps" under Japanese fire in Rangoon and put them in the hands of Chinese forces, Lieut Col Frank D Merrill of Cincinnati, Col Robert P Williams, Medical Corps, U S Army, who organized the medical service of the Fifth Chinese Army, Major Paul Jones of National City, Calif, who kept the Burma trains running when collapse threatened, and Capt John H Grundlay, Medical Corps, of Washington D C, who went to Burma from Chungking.

## INSTRUCTION IN CHEMICAL WARFARE

A course of instruction in the medical aspects of chemical warfare was given at the Los Angeles County Medical Association Building, Los Angeles, July 17-18 and again on July 24-25. While the courses were primarily intended for casualty station personnel, they were available to other interested persons also. Dr Kearney Sauer discussed the "History of Chemical Warfare," "Physical Properties of Gases," "Behavior of War Gases on Release," "Decontamination of Patients, Equipment and Materials," and "Hospital Investigation and Treatment of Gas Cases." Dr Grant H Lanphere discussed "Lung Irritants: Chlorine, Phosgene, Chlorpicrin." Drs Samuel Ayres and Maximilian Obermayer discussed "Vesicants: Mustard, Lewisite, Ethyldichlorarsine." Drs Clinton Wilson and A R Robbins, "Gas Injuries to the Eyes," and Raymond F Goudey, technical assistant gas officer, "Plans for Construction of Decontamination Stations."

## NEW YORK ORGANIZATION OF NURSES PERFECTED

The organization of New York City's trained nurses for duty in case of air raids is now perfected, with nearly six thousand nurses enrolled in field units, according to the *New York Times*. These private duty or public health nurses who have volunteered for community service are taking refresher courses weekly at hospitals as members of the Citizens Defense Nurse Corps under the Emergency Medical Service. One hundred nurses are assigned to each of fifty-four selected hospitals in the five boroughs. These mobile units of nurses will supplement emergency squads at the hospitals to which they are assigned.

## NO FIXED FIRST AID POSTS IN BUFFALO

Dr H F Brown, chief of the Emergency Medical Service in Buffalo, pointed out on June 20, according to the *Courier Express*, that casualty stations had been established in Buffalo and emergency medical field units organized. In case of emergency, teams will be sent out from these units, however, there will be no fixed first aid posts for air raid casualties in Buffalo. Field units and public and private school buildings will be used as first aid posts if necessary.



## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS EDUCATION AND PUBLIC HEALTH)

### CALIFORNIA

**Paralysis Activities in San Francisco**—The San Francisco chapter of the National Foundation for Infantile Paralysis Inc. recently financed the expenses of the assistant professor of medicine in charge of the physical therapy department at Stanford University School of Medicine, San Francisco to attend a course on the Kenny treatment of poliomyelitis given at the University of Minnesota Medical School Minneapolis. Funds were also authorized to defray the expenses of the director of physical therapy at the Hospital for Children San Francisco, to Minneapolis to obtain training in the Kenny method of treatment for physicians, of a nurse for a week's training to be taught the technic of applications of hot fomentations and a physical therapy technician to take the two months course for such technicians. Similar expenses were authorized to defray the cost of training for limited periods for three persons holding comparable positions on the staff of the San Francisco Hospital Isolation Division.

### CONNECTICUT

**Venereal Disease Control Conference**—As a part of the national campaign to reduce venereal disease, the Federal Bureau of Investigation state and local law enforcement agencies and members of the state department of health and the state medical society participated in a conference on the control of venereal disease and prostitution. The series opened in Torrington and Hartford on July 21, and meetings were held at Norwich and New London on the 22d, at Middletown and New Haven on the 23d and at Bridgeport and Stamford on the 24th.

**Biochemist Wakeman Retires**—Alfred J. Wakeman, Ph.D. for thirty years a member of the department of biochemistry at the Connecticut Agricultural Experimental Station at New Haven, has retired. Born at Green's Farms, Dr. Wakeman received his Ph.D. at Yale University, New Haven in 1887 and his Ph.D. at Leipzig in 1894. Prior to 1912 when he joined the experimental station staff, Dr. Wakeman had served at the Massachusetts Institute of Technology, Cambridge, the Sheffield Scientific School at Yale and the Herter Laboratories in New York. According to *Science*, Dr. Wakeman was associated at the station with Osborne and Mendel in their work on the nutritive properties of proteins and in the early studies of vitamin concentrates.

### GEORGIA

**Change in Health Personnel**—Dr. Clair A. Henderson, Savannah, has resigned as assistant city-county health officer of Savannah and Chatham County to become commissioner of health of Augusta and Richmond County effective July 1. He will succeed Dr. Thomas B. Phinizy, Augusta, who recently resigned.

**Activities of New Industrial Health Committee**—The committee on industrial health of the Medical Association of Georgia, which was organized in Atlanta in May, has begun a survey of essential defense industries and related industries throughout the state with a view to inaugurating campaigns on nutrition, safety and health. The committee aims further to have appointed in connection with local medical societies a committee on industrial health in districts and cities where there are essential war industries. A program is now under way to organize health and safety commissions composed of safety directors, managers of labor or plant managers, personnel directors, plant surgeons, health officers, nutrition experts in health work and representatives of labor unions. Through this project the committee on industrial health hopes to direct education along lines of proper diet in industrial cases as well as in homes of workers and coordinate efforts to increase production by staggering hours, rest periods and prolonging periods between shift changes. The entire program of the committee on industrial health seeks to tie in with the state association's plan to improve nutrition among citizens of the state and to fight vitamin deficiencies which are widespread among the lower income groups in industry. Dr. John W. Simmons, Brunswick, is chairman of the committee, and Dr. Lester M. Putrie, Albany, in charge of the department of hygiene of the state department of health, is secretary.

### ILLINOIS

**Physician Honored**—The staff of the Veterans Administration Facility at Dwight presented a silver plaque to Dr. Rhodric W. Browne who after seven years as managing officer of the hospital there is now on the retired list. Dr. Browne was also presented with a piece of airplane luggage from the entire personnel of the hospital. Dr. Browne with his wife left July 5 for New York, where they will make their future home.

### CHICAGO

**Dr. Apfelbach Made Medical Director of Presbyterian Hospital**—Dr. Carl W. Apfelbach, Rush professor of pathology, University of Illinois College of Medicine, has been appointed medical director of Presbyterian Hospital where he has been a member of the staff since 1924. Following his graduation at Rush Medical College in 1922, Dr. Apfelbach served an internship and residency at the hospital.

**Vinzenz Mueller Dies**—Mr. Vinzenz Mueller, manufacturer of surgical instruments, died in Oak Park, June 6, of a coronary attack at the age of 77. Mr. Mueller was born in Liptingen, Germany. For some years he was apprenticed to a manufacturer of instruments in Tuttlingen. Later he went to Berlin, Paris and London to serve as foreman in manufacturers' shops. He came to America in 1893 and served for a time in Chicago as foreman for the firm of Frank and Kratzmueller. In 1895 he with his wife established a small surgical instrument business in Chicago. Mr. Mueller was a founder and past president of the American Surgical Trade Association. In 1913 he started the publication of the association's journal, assuming the entire editorial and financial responsibility himself. Mr. Mueller had been chairman of the board of V. Mueller & Company for the past six years.

### INDIANA

**Dr. Rice Named Health Education Consultant**—Dr. Thurman B. Rice, chief of the bureau of health and physical education of the Indiana State Board of Health, Indianapolis, has been named health education consultant but will continue to serve as editor of the *Monthly Bulletin* of the department. Dr. Rice will be succeeded as director of the division by Frank S. Stafford, M.S., who has been teaching health and sports in several Indiana high schools. Dr. Rice was born in Landess in 1888. He was a teacher in several schools throughout the state and from 1921 to 1924 served on the faculty of the Indiana University School of Medicine, Indianapolis, where he has been professor of bacteriology and public health since 1926. In 1924 he became associated with the state department of health as director of the laboratory of hygiene and as assistant director of public health from 1933 to 1936 when he became chief. Dr. Rice has written numerous articles and textbooks on health for children and in 1933 wrote a set of sex education pamphlets published by the American Medical Association.

### MAINE

**State Medical Election**—Dr. Stephen A. Cobb, Sanford, was chosen president-elect of the Maine Medical Association at its annual meeting in Poland Spring in June and Dr. Carl H. Stevens, Belfast, was installed as president. Dr. Frederick R. Carter, Portland, was reelected secretary-treasurer.

### MARYLAND

**New Deputy State Health Officer**—Dr. Nels A. Nelson, Baltimore, director of the division of communicable diseases of the Massachusetts Department of Health since 1935, has been appointed deputy state health officer of Maryland. Dr. Nelson formerly served in the division of communicable diseases of the Massachusetts Department of Health. He is an associate in venereal diseases at the Johns Hopkins University School of Hygiene and Public Health and consultant to the U. S. Public Health Service.

**Forty Years as Epidemiologist**—On June 1, colleagues of Dr. Caleb W. G. Rohrer, Baltimore, chief of the Pastoral Division of the state department of health, presented to him a silver vase to observe his completion of forty years' service with the department. Dr. Charles H. Halliday, Baltimore, a former student of Dr. Rohrer's and assistant director of the department, gave the presentation address. Dr. Rohrer graduated at the College of Physicians and Surgeons of Baltimore in 1900. He served on the faculty there from 1907 to 1917. In 1902 he became a member of the staff of the state department of health.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

July 4, 1942

#### The Threat of the Falling Birth Rate

The minister of labor states that 22 million out of our total population of 35 million between the ages of 14 and 64 years are engaged in the war effort—in the armed forces, in civilian defense or in war industries. He claims that no other country has ever mobilized its manpower to this extent. Yet in the face of this greatest crisis in our history, and indeed in the history of the world, the country remains perfectly calm, and peacetime activities, except those which would in any way interfere with the war effort, continue. It is now shown by the publication (in limited form because of war conditions) of a memorandum by the Ministry of Health on "The Current Trend of Population in Great Britain." As stated in previous letters, the fall of the birth rate has reached a stage which, if the present rate continues, renders a decline of population inevitable in the near future. In the past century the population of Great Britain continuously increased. In the decade 1871-1881 the annual rate of increase was 1.30 per cent, since which time it has almost continuously fallen. The rate prior to the last war was of the order of 1 per cent, but during that war it abruptly fell to less than half that figure, at which it has remained since. This decline is reflected in the number of births. These rose from 600,000 per annum one hundred years ago to 1,000,000 between 1876 and 1914, with a peak of 1,082,000 in 1903. Then they declined to 700,000, at which level they remain today. As a result the population at the middle years of life is weighted compared with the youngest and oldest sections, for it has sprung from the period of highest births.

During the same period a great change has also occurred in the death rate, which has to some extent counteracted the effect on population of the fall in the birth rate. In the past seventy years the rate has been halved. The improvement has been greatest in the age groups 5 to 10, in which deaths are occurring at only a fourth of the frequency of the middle of the last century. This fall in the death rate has postponed a decline of population but cannot prevent it. There is an increased and an increasing proportion of the older persons in our population, but children are not being born in sufficient number for replacement. The annual birth rate in the quinquennium 1871-1875 was 35.4 per thousand. Since then it has almost continuously fallen until now it is below 16. This is only three fourths of the rate necessary for maintenance of the population.

The falling birth rate is a problem in many civilized countries. During the years before the war the women of France and of Scandinavia, as well as of Britain, were not producing enough female children to replace them when the new generation would in its turn be ready for motherhood. Though a decline of our population is certain under the present birth rate, the great social changes which seem likely to follow the war may counteract the trend. In the early part of the war there was a remarkable increase in the number of marriages, which seems to have been due to the incentive of allowances for the wives of men joining the armed forces. The result was that, notwithstanding the disruption of family life, the birth rate did not fall by more than 10 per cent. The Ministry of Health points out that our population could be maintained if the fertility of the female population was raised 19 per cent above the 1938 level. It is possible that the government may try to bring this about by family allowances.

#### Social Expenditure and the War

About half of the total national income is now being devoted to the war. Yet demands continue to be made for increase of the great expenditure on social relief. There are over four million old age and contributory pensioners, some eight hundred and sixty thousand widows in receipt of pension, and two hundred and fifty thousand allowances are paid in respect of dependent children of widows and orphans. A labor motion has been carried in the House of Commons asking the government to examine the difficulties of widows and old age pensioners created by the war with a view to action. A motion has also been tabled, with the support of all parties, urging the government to formulate a state paid scheme of allowances for dependent children as a means of safeguarding the health and well-being of the rising generation. To this an amendment has been put down, recognizing that under the stress of competition not all parents can fulfil their responsibility to maintain and educate their children, but asking the government to consider to what extent the health and well-being of such children can be safeguarded without impairing the privacy and continuity of family life and the responsibility of parentage. As pointed out in previous letters, the government is confronted by the fundamental dilemma that the increased cost of living due to the war produces demands for increased wages and increased grants, while yielding to these demands further increases the cost of living.

#### Nurseries for Working Mothers

Our women are playing a great part in the war effort. The younger ones who are not engaged in munition work are conscripted for the auxiliary war services. But the prior claim of young children on mothers is of course recognized. Nevertheless, many mothers are performing war work. To facilitate this the government is opening rapidly wartime nurseries for women doing war work. During May they were opened at the rate of nearly three a day. There are now 540 nurseries open, 576 will open soon and 216 are in preparation, a total of 1,332. The London region has just opened its hundredth day nursery and has 157 more in preparation. Premises which are being used for the purpose include first aid posts, vicarages, church and mission halls, hospitals, clinics and prefabricated huts.

#### Red Cross Makes Arrangements for First Leave of American Soldiers

Every American unit of five thousand men has its American Red Cross field director, who lives in the camp or barracks and acts as a link with their families. In London the Red Cross is making arrangements for the American soldiers whose first leave is due since their arrival in northern Ireland. Mr. Bernard S. Carter and Mr. William E. Stevenson, American Red Cross delegates to Great Britain, are in charge of the work, which includes the setting up of clubs and sleeping quarters for the men on leave and coordinating many offers of private hospitality. Thus an American might wish to visit Wales and get in some fishing there. This will be arranged with the right hosts. It is recognized as important that the people who are brought together should be likely to be congenial company.

#### Mobile Resuscitation Unit for Air Raid Casualties

A mobile resuscitation unit for the treatment of casualties due to air raids, the first of the kind, has been presented at Bradford to the regional commissioner for civil defense. It will be used under the Ministry of Health regional blood transfusion service. The unit has been given by the Bradford Red Cross and Services Comfort Fund. It has the great advantage that a miniature resuscitation ward can be set up wherever needed—in a first aid post or village hall or even by the roadside.

## Deaths

Richmond McKinney, Memphis, Tenn., Memphis Hospital Medical College, 1894, formerly professor of otology, laryngology and rhinology at the University of Tennessee College of Medicine, member of the American Academy of Ophthalmology and Otolaryngology, the American Laryngological Association, the American Laryngological, Rhinological and Otolological Society and the American Broncho-Esophagological Association, past president and secretary of the American Bronchoscopic Society, fellow of the American College of Surgeons, specialist certified by the American Board of Otolaryngology, aged 68, formerly on the staffs of the John Gaston and Baptist Memorial hospitals, at the latter of which he died June 30, of cerebral thrombosis.

Harry Albert Schneider, Coldwater, Mich., University of Vermont College of Medicine, Burlington, 1909, member of the Michigan State Medical Society and the American Psychiatric Association, specialist certified by the American Board of Psychiatry and Neurology, Inc., served in France with the Black Hawk Division during World War I, for several years was an executive officer of the Boston Psychopathic Hospital, formerly assistant superintendent and chief of the medical staff of the Michigan Home and Training School, Lapeer, medical superintendent of the Coldwater State Home and Training School, aged 56, died, May 25, in Boston of diabetes mellitus.

Marvin Fletcher Haygood, Des Moines Iowa, Atlanta (Ga.) Medical College, 1915, director of local health services and deputy health commissioner of the Iowa State Department of Health, formerly medical director of the Georgia emergency relief administration in Atlanta, director of county health work for the Georgia State Board of Health from 1918 to 1922, for six years city health officer of Knoxville Tenn., at one time superintendent of the Georgia Tuberculosis Sanatorium Alto, aged 57, died, June 28, in the Iowa Methodist Hospital of coronary thrombosis.

David Lawrence Williams, Winthrop, Mass., Tufts College Medical School, Boston, 1906, member of the New England Society of Psychiatry, assistant director, division of biological laboratories Massachusetts Department of Public Health from 1918 to 1921, member of the U. S. Public Health Service from 1921 to 1936, serving as bacteriologist and pathologist on the staffs of Veterans Administration facilities in Oteen, N. C., Rutland, Mass., West Roxbury, Mass., and Bedford, Mass., state commissioner of mental diseases from 1936 to 1938, aged 65, died suddenly, June 7, of myocarditis and bundle branch block.

Oliver Howard Jackson, Fall River, Mass., Long Island College Hospital, Brooklyn, 1894, specialist certified by the American Board of Otolaryngology, member of the American Laryngological, Rhinological and Otolological Society, the New England Ophthalmological Society and the New England Otolological and Laryngological Society, fellow of the American College of Surgeons, ophthalmologist, Union and St. Anne's hospitals, consulting ophthalmologist, Fall River General Hospital, aged 70, died June 1, of coronary occlusion, arteriosclerosis and hypertensive heart disease.

David Albert Doty, Denver, University of Nebraska College of Medicine, Omaha 1925, member of the Colorado State Medical Society, fellow of the American College of Surgeons, on the staffs of the Denver General, Presbyterian, St. Luke's, St. Joseph's hospitals and the Mercy Hospital, where he died, June 2, of massive collapse of the right lung and pneumonia following an operation for acute appendicitis, aged 41.

Charles V. Stephenson, Centerville Tenn., Vanderbilt University School of Medicine, Nashville 1894, University of Nashville Medical Department, 1902, member of the Tennessee State Medical Association, president of the Hickman County Medical Society, county health officer, aged 77, died, May 2, in the Vanderbilt Hospital, Nashville, of arteriosclerosis.

Charles Willis Larned, Baltimore, University of Maryland School of Medicine, Baltimore 1893, at one time professor of clinical medicine at the Woman's Medical College of Baltimore, formerly on the staffs of the Good Samaritan Hospital and the Johns Hopkins Hospital, aged 72, died, June 4, of hypertensive cardiovascular disease.

Benjamin Brunner Sr., Wamego, Kan., Kansas City (Mo.) Medical College, 1903, past president of the Golden Belt Medical Society and the Pottawatomie County Medical

Society, member of the state senate from 1916 to 1920, aged 63, died May 22, of sarcoma of the head or the right humerus.

Romaine C. Hoffman, Warberth, Pa., Hahnemann Medical College and Hospital of Philadelphia 1907, instructor of medicine at his alma mater, on the staff of the Hahnemann Hospital, Philadelphia, a member of the draft board during World War I, formerly county coroner, aged 59, died, May 11.

Daniel Leon Elkins, Long Beach, Calif., University of Kentucky Faculty of Medicine, Russia 1910, Columbia University College of Physicians and Surgeons, New York, 1924, served in the medical corps of the Imperial Army during World War I, aged 57, died June 8, of heart disease.

William John Moldenhauer, Chicago, College of Physicians and Surgeons of Chicago School of Medicine or the University of Illinois, 1906, on the staff of the Lutheran Deaconess Hospital, aged 60, died June 30, at his summer home in Birdwood, Wis., of myocarditis and nephritis.

Claus Peter Hoyer Kjaerbye, Fresno, Calif., Kobenhavn University Laegeviden kabet, Fakultet, Denmark, 1922, member of the American Psychiatric Association, specialist certified by the American Board of Psychiatry and Neurology, Inc., aged 74, died May 6.

George M. Hoover, Lancaster, Pa., Hahnemann Medical College and Hospital of Philadelphia 1889, formerly member of the city council, served on the civil service examining board of the police department, formerly police physician, aged 76, died May 19, in St. Joseph's Hospital.

Jefferson Davis Singleton, Maryville, Tenn., Vanderbilt University School of Medicine, Nashville, 1887, member of the Tennessee State Medical Association, formerly health officer of Maryville, aged 79, died, May 31, of pulmonary tuberculosis.

De Witt Price Higgs, Chula Vista, Calif., Bennett College of Eclectic Medicine and Surgery, Chicago, 1907, veteran of the Spanish-American War and World War I, aged 65, died May 17, of coronary occlusion and chronic myocarditis.

Daniel Lee High, Beverly Hills, Calif., George Washington University School of Medicine, Washington, D. C., 1907, formerly surgeon in the U. S. Public Health Service reserve, aged 68, died May 30, of chronic myocardial degeneration.

Libertad Roberts Gaetan, San Juan, P. R., Harvard Medical School, Boston, 1932, member of the Medical Association of Puerto Rico, medical director of the Insular Tuberculosis Sanatorium, Rio Piedras, aged 34, died, May 5.

Henry Max Lissack, Concordia, Mo., Homeopathic Medical College of Missouri, St. Louis, 1903, examining surgeon for the Bureau of Pensions, Department of the Interior, at Lexington, aged 78, died, June 20, of cerebral hemorrhage.

Joseph Henry Downing, Rising City, Neb., Rush Medical College, Chicago 1882, member of the Nebraska State Medical Association, aged 86, died May 27, in the Lutheran Hospital, Columbus, of shock due to a fractured hip.

John Davidson Frame, Resht, Iran, University of Pennsylvania Department of Medicine, Philadelphia 1904, for many years a medical missionary, in charge of general medical work at the American Hospital, aged 61, died, June 11.

C. D. Barres, Lakeland, Fla., Medical College of Alabama, Mobile 1897, aged 76, died June 1, in the Florida State Hospital, Chattahoochee, of carbuncle of the back and hypertensive cardiovascular disease.

Raymond W. Moore, Eureka, Kan., University Medical College of Kansas City, Mo. 1899, county health officer, aged 69, died, May 16, of uremia and cardiac insufficiency.

William Miller Thorne, Charleston, S. C., University of Michigan Department of Medicine and Surgery, Ann Arbor 1910, aged 61, died May 13, of coronary occlusion.

H. Clay Foster, Beaufort, S. C., University of Georgia Medical Department, Augusta 1900, aged 67, died May 22, of coronary thrombosis.

## DIED IN MILITARY SERVICE

Donald Stanley Gidley, Ontario, Calif., University of Oregon Medical School, Portland 1930, member of the California Medical Association, was called to active duty March 3, 1941, as a captain in the National Guard, Medical Detachment, 185th Infantry, aged 33, died July 1, at Fort Lewis, Wash., where he died of coronary occlusion.

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

#### American Journal of Diseases of Children, Chicago

63 839-1018 (May) 1942

Pectin and Galacturonic Acid and Intestinal Pathogens. S. C. Welch, R. W. Jung, H. Plenk, A. A. Day and A. C. Ivy, Chicago—p. 839.  
Monozygosity in Mongoloid Twins. Norma Ford, Toronto, Canada, and Sylvia Franklin, Greystone Park, N. J.—p. 847.

Erythroblastic Anemia Following Splenectomy in Cases of Chronic Familial Hemolytic Anemia. E. Strumsky and A. C. Regan, Manila, Philippine Islands—p. 859.

Study of Pertussis Antibodies. Protective, Agglutinating and Complement Fixing Antibodies in Patients with Pertussis. Persons Exposed to Pertussis and Persons with No Known Exposure. Lucy Mishulow, M. Siegel, William Leifer and Sadie R. Berkey, New York—p. 875.

Method of Assaying Trypsin Suitable for Routine Use in Diagnosis of Congenital Pancreatic Deficiency. Dorothy H. Andersen and Mari Luise V. Early, New York—p. 891.

Is the Presence of Bile and Food in Small Intestine Necessary for Formation of Prothrombin? Studies on Three Infants, One with Congenital Absence of the Gallbladder and Extrahepatic Ducts and Two with Congenital Atresia of the Esophagus. H. N. Sanford and Irene Shmigel'sky, Chicago—p. 894.

Respiratory Metabolism in Infancy and in Childhood. XIV. Specific Dynamic Action of Amino Acids in Infants. M. Dunn, M. D. Kelly, H. McNamara and J. C. Curtis, New York—p. 900.

Congenital Absence of the Four Extremities. Case Report. W. P. Killingsworth, Port Arthur, Texas, and R. Engleadow, Anaheim, Texas—p. 914.

\*Typhoid at the Age of Fourteen Months. Case Report. H. G. Bull, Ithaca, N. Y.—p. 919.

Enterogenous Pulmonary Cyst. Case Report. I. M. Ward and J. B. Krihl, Flint, Mich.—p. 924.

Design Characteristics of Double Cubicle System for Protecting Babies in Nurseries. J. A. Reymers, Notre Dame, Ind.—p. 934.

Retinoblastoma of Infants and Children. Its Significance as Pediatric Problem. S. J. Nickham, Detroit—p. 945.

**Typhoid at Age of Fourteen Months.**—According to Bull, symptoms of typhoid in children have always varied considerably from the clinical picture in adults. So variable is the picture that undoubtedly many cases are not discovered. Children with blood yielding typhoid bacilli on culture have been born during the course of typhoid in the mother, and there is evidence of transmission of the disease through the placenta and through breast milk. The author's patient, a girl aged 14 months, had not been out of town or eaten away from home, and no one among her associates had been ill. The mother had had typhoid thirty years previously. The father's stools did not contain typhoid bacilli, culture of the mother's stools yielded a luxuriant growth.

#### Bulletin New York Academy of Medicine, New York

18 367-430 (June) 1942

\*Neurocirculatory Asthenia and Related Problems in Military Medicine. B. S. Oppenheimer, New York—p. 367.

Present Status of the Diagnosis of Uncomplicated Syphilitic Aortitis. E. P. Maynard Jr., Brooklyn—p. 383.

Coagency in Approach to Problem of Rheumatic Heart Disease. E. S. Rogers, Albany, N. Y.—p. 392.

Studies on Headache. Mechanisms and Significance of Headache Associated with Brain Tumor. E. C. Kunkle, B. S. Ray and H. G. Wolff, New York—p. 400.

**Neurocirculatory Asthenia.**—Oppenheimer points out that neurocirculatory asthenia becomes more intensified, better defined and more common under military conditions than in civil life. An abnormal reactivity of the nervous system, including the innervation of the circulatory system, probably accounts for the varying neuropsychosomatic symptoms of the disorder. The symptoms are physiologic and psychologic. A history of constitutional physical asthenia is obtained in about 70 per cent of recruits or soldiers with psychoneurotic factors. Some of these soldiers, forced out of bed and obliged to take graduated

exercises for a period of weeks, return to high grades of physical exercise and to military duty. In exceptional instances the diagnosis is doubtful for weeks and is helped by the therapeutic test of physical training. Paroxysmal tachycardia, premature beats and sinus arrhythmia occur in the course of neurocirculatory asthenia. Pure fear can temporarily produce changes in the electrocardiogram which somewhat resemble those of coronary insufficiency. In the differential diagnosis pulmonary tuberculosis, toxic diffuse goiter, early organic valvular disease, rheumatic carditis and hypertension must be considered. The question of prognosis is divided into (1) immediate, based on response to graduated physical exercise, and (2) ultimate, after return to civil life. The ultimate prognosis of 601 soldiers followed by Grant for five years shows that 153 per cent were fit, 178 improved, 562 stationary, 32 worse, 87 had some serious disease and 23 per cent died. This general prognosis is modified by the age of the patient and tolerance to exercise. The younger the patient and the better his tolerance to exercise the greater are his chances of ultimate recovery. The latest statistics among 115,569 registrants in the New York City area were that 12,261, or 10.61 per cent, were rejected because of disease of the heart, blood vessels and circulation, 195 were rejected for neurocirculatory asthenia and many (1,180) instances of neurocirculatory asthenia were rejected under the caption of tachycardia or of one of the psychoneuroses. Registrants with neurocirculatory asthenia, unless it is mild, are disqualified by the draft board and classed IV-F, but if mild, they are classed I-A and accepted for full duty. Treatment is preventive and curative. The latter consists in attempts at physical and psychologic rehabilitation, best accomplished by the collaboration of the cardiologist and the neuropsychiatrist. Preventive treatment must allow a proper convalescent period after any infection or severe operation. After complete recovery, patients should be gradually hardened before returning to full duty. Neurocirculatory asthenia should be recognized early, especially in children, and measures taken to prevent the condition from becoming chronic.

#### Oklahoma State Medical Assn Jour, Oklahoma City

35 185-230 (May) 1942

Physiologic Approach to Gynecology. J. C. Burch and C. A. Mella Jr., Nashville, Tenn.—p. 185.

Obstetric Psychosis. B. R. Hinson, Enid—p. 190.

Hygiene in the Tropics. W. Morledge, Oklahoma City—p. 193.

Coronary Thrombosis. F. Moorman, Oklahoma City—p. 196.

#### Southern Surgeon, Atlanta, Ga

11 305-384 (May) 1942

Fractures of the Shaft of the Humerus. W. G. Stuck and J. J. Hinchey, San Antonio, Texas—p. 305.

Scalenus Anticus Syndrome. Compression of Trunks of Brachial Plexus and Subclavian Vessels. F. Jelsma, Louisville, Ky.—p. 316.

\*Sulfadiazine Treatment of Burns. W. M. Adams and J. K. Crawford, Memphis, Tenn.—p. 324.

Precautions in Surgery of the Stomach. W. H. Cole, Chicago—p. 341.

Training the Medical Department Soldier. G. H. Teasley, El Paso, Texas—p. 355.

Chronic Pelvic Disease Resulting from Childbirth. Improved Operative Technique. R. J. Wilkinson, Huntington, W. Va.—p. 359.

Early and Late Treatment of Face and Jaws as Applied to War Injuries. R. H. Ivy, Philadelphia—p. 366.

**Sulfadiazine Treatment of Burns.**—Since October 1941 Adams and Crawford have applied sulfadiazine as the initial therapeutic agent to all fresh burns. From their experience in 50 cases they feel that the preparation consisting of 3 per cent sulfadiazine in 8 per cent triethanolamine presents definite advantages over all other closed methods of treatment of burns. (1) It makes the patient more comfortable, (2) it tends to inhibit infection, especially during the early period of treatment, and in this respect is unquestionably more efficacious than either tannic acid or aniline dyes, (3) it does not stain the linen or bed clothing, as do the aniline dyes, (4) the eschar is slightly flexible, thus affording the patient more freedom of movement than is possible with the thick tannic acid eschar, and (5) when infection develops, the eschar is easily removed with dressings saturated with saline solution or oil. The authors plan to continue the treatment using a modified formula of a 15 per cent sulfadiazine in 3 per cent triethanolamine with the addition of aerosol, methocel and sodium benzoate.



## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Radiology, London

15 129-154 (May) 1942

- Pharmacologic Actions of Some Contrast Mediums and Comparison of Their Merits M Weatherall—p 129  
Case of Osteochondritis Dissecans Occurring in a Young Soldier Accepted for Military Service R J C Campbell—p 138  
Faculty of Radiologists' Discussion on Constitutional Effects of Radiation with Special Reference to Volume Dose D W Smathers F Ellis and L G Grimmett—p 141  
Method of Dose Finding for Combinations of Rectangular Radiation Fields C W Wilson—p 145  
Transposition of the Aortic Arch. Report of Three Cases J V Sparks and D M Scrimgeour—p 150  
Case of Spina Bifida Occulta of the Twelfth Dorsal and First Lumbar Vertebra M P Morel—p 154

## Guy's Hospital Reports, London

91 1-68 (No 1) 1942

- \*Pathogenesis of Sprue Syndrome as Seen in Tropical Sprue Nontropical Sprue and Celiac Disease A Hurst—p 1  
Severe Case of Sprue Syndrome Lasting from Three to Nine with After History to Twenty Five A Hurst—p 22  
Sprue Syndrome from Obstruction of Lacteals by Chronic Tuberculosis of Mesenteric Lymph Nodes A Hurst G P Wright and J A Ryle—p 25  
\*Excision of Patella for Fracture with Remarks on Ossification in Quadriceps Tendon Following Operation S H Wass and E R Davies—p 35  
Fatal Tapeworm Enteritis A Hurst and A H T Robb Smith—p 58  
Traumatic Duodenal Ulcer Repeated Hematemesis from Postoperative Hemorrhagic Gastritis A Hurst W H Ogilvie and C K Simpson—p 61

**Pathogenesis of Sprue Syndrome**—Hurst states that tropical sprue, nontropical sprue and celiac disease are varieties of the same disorder—the sprue syndrome. The part of the world in which the disorder originates and the age of the patient are the only differentiating factors of the syndrome. The sprue syndrome has three characteristics and constant features: (1) The stools contain an excess of split fat but no excess of neutral fat, meat fibers or starch and no inflammatory material; (2) roentgenography reveals the disappearance of the normal feathery or herring bone aspect of the duodenum and jejunum produced by the valvulae conniventes; and (3) no pathologic changes are present in the intestine after death if post-mortem changes have been prevented. With adequate treatment the normal absorption of fat and the normal roentgenographic appearance of the small intestine are restored. It is suggested that the characteristic features of the sprue syndrome result from paralysis of the muscularis mucosae, which leads to loss of the pumping action of the villi and to flattening of the valvulae conniventes without changes in the mucous membrane. Paralysis of the muscularis mucosae may be secondary to loss of the normal stimulant of Meissner's (submucosal) plexus or to the effect of vitamin deficiency or some toxemia on the plexus. An exception must be made for cases associated with disease of the mesenteric lymph nodes in which fat absorption is hindered at the level of the mesenteric glands instead of in the villi.

**Excision of Patella**—From June 1937 to December 1940 34 patients with a simple fracture of the patella were admitted to Guy's Hospital. The fracture was transverse with separation in 17, transverse without separation in 4, stellate with separation in 5, stellate without separation in 4 and with a single longitudinal break in 4. Most of the patients were treated on orthodox lines, but 8 with simple transverse fractures with separation, Wass and Davies state, were submitted to excision of the patella. Seven of the 8 were examined and followed up; the eighth patient replied to a questionnaire. Ossification in the quadriceps tendon was noticed frequently. The results in the 7 cases are far from impressive after a follow up period of from more than three years to five months. Only 2 patients were able to return to work within ten weeks; the remainder having 'off work' periods much in excess of this and 2 have not returned to their work at all. In no single case was recovery of function in the knee joint even after relatively long follow up periods complete. Only 4 other

patients with transverse fractures and 2 with comminuted fractures treated during the same period could be examined; their average 'off work' period was five months less than in the excision group. The 5 men in the group were able to return to their original strenuous occupation. Still more important, 3 of the patients with transverse fracture showed complete recovery of function of the knee as evidenced by a full range of movement, a stable joint, no osteoarthritis and complete absence of symptoms when examined at periods up to three years after the operation. The symptoms of the patients in whom the patella has been excised are significant. Pain occurred in 4, stiffness was complained of by 5, and the stiffness was associated with a decided limp in 3, with inability to kneel in 5 and with inability to run in 6 of the 7. All had difficulty on stairs, having to walk stiff legged. A feeling of insecurity was a prominent symptom in 5, 3 of them have had falls when walking on level ground. Flexion of the knee joint was limited in all the power of the quadriceps, in spite of the absence of wasting was 2 to 4 pounds below that of the opposite leg in 5 of the 6 in whom it was measured, and some ossification in the quadriceps tendon occurred in the 6 patients whose knees were examined roentgenologically. The authors conclude that their cases are too few to allow any dogmatic conclusions, but the uniformity of the bad results strongly suggests that the operation does not possess the advantages claimed for it. Brooke's claims of a decreased period of disability and increased power in the knee joint are not substantiated nor are the disadvantages of pain and limited flexion ascribed to other operative procedures eliminated by total excision of the patella. The pathologic ossification after the operation is a definite disadvantage.

## Zeitschrift für Immunitätsforschung, Jena

99 409-466 (May 12) 1941 Partial Index

- Studies on Normal Agglutinins Against Proteus  $\lambda$  Strains Hildegard Buehwald—p 409  
Infection During Denaturation of Protein and Its Relation to Virus Proliferation H Moriyama and S Ohashi—p 419  
\*Constancy of Blood Groups A Lauer—p 433  
Occurrence of Positive Syphilitic Reactions in Serum of Horses F Jahnel—p 451  
Specific Lipid Antibodies of Heptospira in Human Serum and Their Practical Significance in Diagnosis of Leptospirosis E Carlinfant—p 460

**Constancy of Blood Groups**—A homotransplant from one sister to another gave Lauer the opportunity to observe a reversible change in the blood group of one of the sisters. A young girl had lost the right leg in a railroad accident. To save the injured left foot a skin graft was made from her sister. The two sisters, who were of the blood groups OM and A<sub>1</sub> MN respectively were connected with each other by a transplant which involved a communication between the two circulations. Whereas the recipient of the skin graft tolerated the foreign OM blood as such, the donor developed an extremely strong immune body against the A antigen of the recipient. Thus the donor gradually destroyed the A blood which flowed into her from the recipient, and she developed the clinical symptoms of a hemolytic icterus. The blood cells of the recipient decreased to such an extent that the group characteristics A<sub>1</sub> and N were no longer demonstrable. From this and from serologic experiments it was concluded that three-fourths of the blood circulating in the recipient consisted of the OM blood of the donor. However this OM blood could not replace the lost A cells because it always returned to the circulation of the donor. In spite of an overactive erythropoiesis in the recipient, her condition seemed so grave after eight days of being joined to her sister that the union had to be ended. The subsequent serologic transformation in the recipient from OM by way of A M toward A<sub>1</sub> MN was completed in two weeks. This restoration of the original blood structure provides an experimental proof of the constancy of blood groups. The described homotransplant indicates that artificial synchysis is possible in human subjects but that it should be attempted only in persons of the same blood group. The difference in the MN factors apparently is of no importance, but the possibility of the development of anti  $\lambda$  or anti B antibodies is discussed.



## Book Notices

**Intelligence Power and Personality** By George Crile. Edited by Grace Crile. Cloth. Price, \$3. Pp. 117, with 12 illustrations. New York & London: Whittlesby House, McGraw Hill Book Company, Inc., 1941.

This is an interesting volume but it does not completely live up to its title. Dr. Crile became much interested in the relationship of the size of the brain and the various organs to the activities of animals. For that reason he, his family and his staff made field trips to the tropics, to the subarctic regions and to Guatemala as well as to various parts of the United States to get specimens of animals for this study.

The book is divided into five parts and a short introduction. The first part deals with the discussion of animal behavior and energy. The second part takes up in detail the behavior of various animals in relation to their body weight, heart weight, adrenal weight and thyroid weight. The third part applies to civilized man, comprising studies in the effect of training and education and including in analysis of weather changes in relationship to various disorders, which Dr. Crile correlates with some of his findings. The fourth part is a summary and discussion which points out that the findings fall in with Dr. Crile's bipolar theory of life—that there is a constant relationship of the size of the brain to the energy output, that animals which move quickly have an excessive adrenal weight, that temperature, humidity and storm influence the energy controlling organs. One might emphasize the statement "Intelligence, power and personality are dependent on the absolute and relative size of the brain, the thyroid gland, the heart and blood volume, the celiac ganglia and plexuses, and the adrenal-sympathetic system." The last part of the book is an appendix, comprising twenty-six pages of tables giving data about the various specimens which were studied. The book is highly technical and well illustrated with diagrams. There are several graphs and a number of small and large tables. It must be considered as a contribution to zoological and physiologic theory, and one must admire Dr. Crile for his energy in collecting the material, compiling it and reaching his very interesting conclusions.

**Survey of Compounds Which Have Been Tested for Carcinogenic Activity** By Jonathan L. Hartwell. Research Fellow, National Cancer Institute, National Institute of Health, United States Public Health Service, Federal Security Agency, United States Public Health Service. Paper. Pp. 371. Bethesda, Maryland, 1941.

This is a pamphlet bound in paper and printed by the offset process, presumably for distribution by the United States Public Health Service. The title describes the contents. It is a bibliography of practically all the important compounds which have been tested as carcinogenic agents. It does not include an enormous number of products which have been used in treating animal tumors in a purely routine fashion in order to see whether any one of these substances, most of them belonging in the group of dyes, have any therapeutic property. While most of the substances studied for their carcinogenic quality have a phenanthrene nucleus, reference is made also to various organic acids and substances such as formaldehyde, for example, and a considerable number of inorganic compounds, of which, of course, radium, thorium dioxide and other radioactive substances are known to be carcinogenic. Also the strange results which have been obtained in producing testicular teratomas by the application of zinc salts are referred to. Most of the animals used in all this work were mice, of which the number of animals is given under each reference, and also the duration of the experiment, which is an important fact. Rabbits have proved very sensitive to mesothorium, and tumors have been produced in guinea pigs by the prolonged action of small quantities of radium, while roosters seem to be especially susceptible to zinc chloride.

The volume is completed by a large bibliography and a satisfactory index, which includes not only the substances referred to as possibly carcinogenic but also the route and site of application of the substances, a species index, a tumor site index and a vehicle index. The book represents an enormous amount of labor, and every one who is doing cancer research should

be grateful to the National Institute of Health for furnishing such an invaluable and labor saving survey. There is properly no reference to that malodorous paper which appeared in the *Zeitschrift für Krebsforschung* a few years ago concerning the alleged production of sarcomas in rats by the injection of tomato juice. It is now generally agreed that the tumor found in the animals was the Jensen rat sarcoma introduced by a technician ambitious to please his employer.

One generalization can be made from the contents of this work, that there is presumably no specific carcinogenic substance, because tumors have been produced in susceptible animals with the most extraordinary variety of chemical substances. It is obvious that any agent which causes continuous proliferation of cells without causing too much tissue destruction may prove to be a carcinogenic agent.

**Motivation and Visual Factors. Individual Studies of College Students** By Irving F. Bender et al. Cloth. Price \$1. Pp. 369. Hanover, N. H.: Dartmouth College Publications, 1942.

This publication represents a careful and exhaustive report on investigations of the visual and psychologic factors observed and studied by Bender, Imus, Rothney, Kemple and England on members of the 1940 class at Dartmouth College. The report covers a study of the academic accomplishments, health and scholastic aptitude as well as visual measurement data, psychologic tests and interviews over the four year period of attendance. The class comprised over five hundred members, and intensive studies were made of one hundred and twenty-four of the total. Twenty of these, including psycho-portraits of each, were chosen for presentation in this work. Extreme deviations in visual factors do not cause maladjustments but, instead, furnish possibilities for alibis, rationalization for feelings of inferiority or conversely incentive for compensations. How the visual factor was utilized depended entirely on the personality structure of the individual. In this connection the work appears to go a long way toward disproving the adlerian theory of organ inferiority as being of paramount importance in the determination of personality development. This book should be of interest to parents who have children with visual defects as well as for ophthalmologists, students of psychology and educators as a whole. It is to be hoped that other studies of a similar character will be made and reports published in allied fields. Personality structure is fairly well established long before admission to college, and therefore constructive application of the findings contained in this report should begin during the formative years of childhood. For this reason, if for no other, this work should be particularly studied and evaluated by those educators who play such a leading role in influencing the early development of human personality.

**A Study of the Blood in Cancer with Special Reference to the Needs of the Tumour Clinic** By O. Cameron Gruner, M.D. Cloth. Price, \$4. Pp. 100 with 40 illustrations. Montreal: Renouf Publishing Company, 1942.

This book discusses the results of studies of the blood, fresh and in stained films, with special reference to cancer. The microscopic method is described in detail. Any claim that there is a blood test or state which is specific for cancer is not advanced, but attention is focused on a pattern of feature which may have diagnostic significance in certain cases of cancer. The practical value of the method, if it has any, remains to be determined. The evidence presented in the book is not conclusive or impressive.

**Human Skeleton Showing Principal Arterial Circulation (First Aid Pressure Point Chart)** Cloth backed paper with wood rollers top and bottom. Price \$2.25. Size 16 x 54". New York: Clay Adams Company, Inc., 1942.

The publishers have prepared on heavy stock, reinforced with linen, an anatomic chart showing the skeleton of the human body in outline as well as the external surfaces and then in brilliant red have indicated the large arteries of the body, the points of pressure for application of pressure to prevent hemorrhage, the bones and other indications as to the points of application for tourniquets. A schematic design of this type is invaluable to all classes in first aid and also for the training of nurses and nurses' aides.

## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT HOWEVER REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS BUT THESE WILL BE OMITTED ON REQUEST.

### EFFECT OF FLUOROSCOPY ON EYES

To the Editor—1 Does fluoroscopic work of about one hour a day (chest work) have a harmful effect on the eyes? If so what protection should be used? 2 Is this the consensus of radiologic opinion? H. L. Garland in an article entitled Fluoroscopy in the Diagnosis of Pulmonary Tuberculosis (*Am Rev Tuberc* 45 2 [Jan] 1942) says: It is the scattered radiation which most of us should beware of, and this can best be diminished by using small beams and working fast. Conventional lead aprons and gloves are of little use in chest work. Would it then be as well to discard the cumbersome gloves and lead apron?

M. D., California

ANSWER—1 It is generally understood that the delicate and highly specialized tissues of the eye are not more sensitive to x-rays than the external facial structures. But few cases of retinitis have developed in x-ray workers. All fluoroscopic work, however, involves eyestrain in the common sense.

2 On account of the small amount of scattered radiation present in the chest fluoroscopy, protective gloves and aprons have not been generally discarded. A dental film carried in the vest pocket for a week tells whether a particular worker is unduly exposed.

### ORCHIECTOMY IN CARCINOMA OF THE PROSTATE

To the Editor—In *Queries and Minor Notes* in *The Journal* March 17 a reference to castration as treatment of carcinoma of the prostate was made. Would you advise that a man aged 84 with a carcinoma of the prostate with acute retention treated by transurethral resection and high voltage roentgen rays with complete relief of the symptoms now have a castration done to retard the return of symptoms? The diagnosis of carcinoma was confirmed by microscopic examination of tissue removed by resection.

M. D., North Carolina

ANSWER—The indications for orchiectomy in a case of carcinoma of the prostate have not yet been defined. According to some urologists orchiectomy should be performed in every case of prostatic carcinoma. Others believe that one or more of the following factors should be present before orchiectomy is carried out: evidence of local or distant extension of the neoplasm; pain; urinary obstructive symptoms; cachexia and edema of the lower extremities. Theoretically, orchiectomy should retard the return of symptoms but this has not yet been proved. Because of its slow growing characteristics in very aged men, carcinoma of the prostate is usually well tolerated by such patients. It would not seem advisable to perform orchiectomy on a patient aged 84 years who had received complete relief from symptoms by transurethral resection and roentgen therapy.

### TREATMENT OF TABES DORSALIS

To the Editor—A woman with tabes dorsalis was completely paralyzed one year ago from the waist down but at present she has developed control of her bowels and kidneys and can walk fairly well. Do you think diathermy short wave or a general fever therapy treatment would be indicated? If so is there some public institution in this district where she may obtain such treatments? She is virtually without funds. What other treatment would you advise? She has had all the usual types of treatment such as neosarsphenamine, bismuth compound and mapharsen.

W. B. Chapman, M.D., Joplin, Mo.

ANSWER—This question poses a very difficult problem, from both economic and medical points of view.

The first consideration is the accuracy of the diagnosis of tabes dorsalis. Complete paralysis of the legs does not occur in this disease unless other complicating features are present. Does the inquirer mean not that the legs were completely paralyzed but that they were so ataxic as to be unusable?

What if any, treatment should be given from this point on would depend on detailed information which is not supplied. It would be desirable to have the patient examined by a neurologist and to have available the results of recent blood and spinal fluid examinations. It is also desirable to know what if any complicating diseases are present.

If the patient has tabes which is still progressive in spite of treatment and if there are no contraindications in her general physical condition, fever therapy preferably with induced malaria is probably desirable. Since the patient is virtually

without funds and therefore presumably unable to pay the cost of hospitalization information as to the institution in which fever therapy can be administered may be obtained from the venereal disease control officer of the Missouri State Health Department, Jefferson City.

If the patient's disability is actually due to severe ataxia rather than to muscular weakness residual on paralysis of some nature it is however, probable that neither fever therapy nor any other form of antisyphilitic treatment will materially improve the situation and the best to be expected is arrest of the process at its present level. Under these circumstances a great deal can be accomplished by several years of painstaking physical therapy and reeducation by the Frenkel system at the hands of a physical therapist skilled in this method. Unfortunately this is also difficult to arrange for patients without funds.

### TREATMENT OF VITILIGO

To the Editor—Kindly send information on the therapy of vitiligo with special reference to a stain to cover the blemish and the latest in vitamin or other therapy.

M. D., Wisconsin

ANSWER—In the treatment of vitiligo, small areas may be colored with a solution consisting of sufficient bismark brown sufficient henna carmine 5 per cent, fluid extract of walnut (*Juglans nigra*) 20 per cent aromatic spirit of ammonia 25 per cent and sufficient alcohol to make 100 per cent which is applied coat on coat until the desired color is obtained. In some cases stimulation of pigment formation may take place after painting the lesions with 10 per cent oil of bergamot in alcohol and then exposing the area to the quartz light. Vitamin C in large doses and injections of gold sodium thiosulfate in addition to many other measures have been recommended. Systemic treatment consists in the correction of any endocrine or metabolic disorders and the administration of iron or arsenic tonics. Yang (*Acta dermat venereol* 21 657 [Nov] 1940) treated a group of cases with a gold preparation (Iopion) given intradermally.

### ISOPROPYL ALCOHOL FOR STERILIZATION OF METAL INSTRUMENTS

To the Editor—In view of the shortage of ethyl alcohol I should like to know if isopropyl alcohol is just as effective for purposes of sterilization of metal instruments. What percentage by weight or by volume would be required? The medicated ethyl alcohols on the market are either highly perfumed or contain ingredients which are sometimes irritating or have an unpleasant odor.

E. William Abramowitz, M.D., New York

ANSWER—Isopropyl alcohol is a somewhat stronger germicide against vegetative forms than is ethyl alcohol. In addition it has advantages of lower surface tension and greater fat solvent action. The maximum bactericidal concentration of isopropyl alcohol is full strength as compared with a maximum bactericidal concentration of 70 per cent by weight for ethyl alcohol. The best grades of commercial isopropyl alcohol are said to be 98 to 99 per cent. The small water content of these solutions renders them less corrosive for metal instruments than the 70 per cent ethyl alcohol solution.

Unfortunately however neither ethyl nor isopropyl alcohol can be depended on to kill spores. Brewer (*THE JOURNAL* May 20 1939 p 2009) has shown that scalpels are frequently contaminated with sporulating pathogenic micro-organisms. That is probably true also of needles, scissors and other instruments which come into contact with skin. Immersion in isopropyl alcohol for several hours or even several days is not a trustworthy method of sterilizing such instruments.

Isopropyl alcohol is sold at present in unadulterated form which is not irritating to the operator's hands or patient's skin.

### SENSITIVITY TO THYROID PRODUCTS

To the Editor—A woman aged 52 has been suffering for a number of years from severe attacks of bronchial asthma. She also has a basal metabolic rate of minus 30 and presents symptoms of hypothyroidism such as excessive gain in weight and tiredness. Whenever she takes thyroid she gets a spell of asthma which lasts four to five days. Cutaneous tests showed her to be sensitive to fish products. I have tried all kinds of thyroid preparations without any success. Please advise me what to do to desensitize her against thyroid medication which she needs very badly.

M. D., Colorado

ANSWER—The inquiry does not state whether the patient is sensitive to the animal source from which thyroid is obtained. In order to catalogue this patient properly the following procedures are advised. Tests should be made with a definite portion of beef and pork, and also with thyroid extracts of the same animal. If reactions are obtained with the thyroid and not with the beef or



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## CIVILIAN HEALTH IN WAR TIME

CHAIRMAN'S ADDRESS

HAVEN EMERSON, M.D.

NEW YORK

It is appropriate that while dedicating medicine to the maintenance and betterment of the health of our nation in this time of war, we celebrate the first century of public health, which had its origin and took definite purpose and form with the publication of that classic "A Sanitary Survey of the Labouring Population of Great Britain" by Edwin Chadwick and his medical collaborators, Drs Southwood Smith, James Phillips Kay and Neil Arnott.

At the very outset of this hundred years of progress in public health philosophers in this country reminded the people that health is the first wealth, and the pomp of emperors becomes ridiculous by comparison.

Increasingly intelligent and liberal application of the sciences and practical arts of preventive medicine through local, state and federal government has been interrupted only by periods of war, and even during these interludes of destruction the compelling need for manpower and the lessons learned in mass management of men under arms and in supporting trades and industries have stimulated the people and their agents in public service to increased efforts, with the result that each war has been accompanied and followed by greater concern and improvement in the nation's health.

We can say with honesty and accuracy today, as our predecessors have been able to declare annually since the last war, that all the indexes of improving health are favorable. I would not have you understand from this that there is no ignorance, poverty, neglect or incompetence among us resulting in great masses of residual and wholly preventable disease. It is, however, necessary to recognize the true and relative excellence of the health of our people now as compared with any previous year or with the health of any comparable population aggregate of races elsewhere under any form of government, so far as we have human records. Furthermore, there is no present or reasonably predictable threat to the continued improvement of the health of our civilian population from the contingencies of war if we do but hold firmly to the methods we have found effective and use thriftily the professional, material and nutritional resources available to us.

Famine and pestilence, the traditional enemies of man's security and survival, do not face us with any real hazard today. Even the fears of fanatics the fantasies of faddists, cannot create a danger of food

shortage and there are only two epidemic diseases against which we have neither the warning of a calculable approach nor means for prevention and control when once they become manifest. These are influenza and poliomyelitis. Neither of these diseases is necessarily or otherwise than accidentally related, and certainly not causally to wars and their disturbances of commerce and human intercommunication.

There are perhaps only two categories of disease on which the effect of war will probably be unfavorable: those affecting chiefly persons in the later two or three decades of life and those related to the dislocation of normal social relations and due to an attitude of recklessness in the face of life's uncertainties and frustrations. With emphasis necessarily and rightly placed on health and fitness of men and women of the ages of military and industrial usefulness, there may be less than the desirable and humane care and possible prevention of such major causes of death as prevail among persons of 65 and over—cancer, diabetes, heart diseases and arteriosclerosis. The biologic urge of sex expression and the fallacious sense of self satisfaction and release attained through the use of alcoholic beverages are closely linked to the increasing prevalence of venereal infections. We may expect in the civilian as in the military population an increase in the direct and indirect effects of alcoholism and syphilis in this war-time unless there is something like a revolution in the social attitudes toward both liquor drinking and venery. Every alcoholic and syphilitic person is an obstruction to military and civil preparedness for national offense.

What then are we the physicians of the country, and our patients, such of us as remain unregimented, and out of uniform, to do and to advise so that there will be the least possible loss in national health or better still that in winning the war we shall also be building a way of life better worth fighting for—a life with added depth and breadth and richer in quality as well as longer in years of enjoyment and contributing happiness to others?

What have been the factors of enduring worth responsible for the consistent and nationwide improvement in health in the interwar quarter century since 1917?

Let me indulge in but one statistical reference to the improved mortality experience of our industrial and wage earning men and women and their families among whom the general death rate from all causes has fallen 54 per cent and the specific death rates from seven important communicable diseases together have fallen 82 per cent in the past twenty-five years as shown in the accompanying table.

Then too those most sensitive indexes of good medical care, maternity and infant death rates have reached unprecedented low points in the past five years. Not significant evidences of a constructive rising regard



for human life. And yet we see clearly that we collectively and publicly apply much less than we know individually and professionally of the facts and uses of preventive medicine.

Not quite 70 per cent of our population live under forms of local government which include public service for health by medical officers employed full time at public expense. And of the full time local county and city health officers now on duty scarcely half have had the graduate professional education and practical field experience to qualify them for their duties.

Furthermore, in about half of the counties with full time health officers there is neither the supporting accessory personnel for sanitation, nursing, laboratory and statistical technique required for the area and population nor reasonable security through civil service against removal for political reasons, regardless of the quality of the services rendered.

We know that the public application of preventive medicine under the authority of the law and using tax resources is indispensable in our social, economic and political setting. Where it has been consistently used there has been excellent achievement locally and in whole states, as in Wisconsin, Minnesota and New York and in other areas less extensive.

*Fall in Death Rate, per Hundred Thousand, of Seven Communicable Diseases*

|                        |      |          |      |
|------------------------|------|----------|------|
| Syphilis               | from | 19 to    | 9.0  |
| Typhoid                | from | 12 to    | 0.4  |
| Measles                | from | 10 to    | 0.3  |
| Diphtheria             | from | 22 to    | 0.7  |
| Pneumonia              | from | 132 to   | 23.0 |
| Tuberculosis           | from | 2,020 to | 10.0 |
| Diarrhea and enteritis | from | 25 to    | 2.0  |
|                        | from | 422 to   | 75.9 |

FULL TIME HEALTH SERVICE

The first objective of the medical profession now should be to encourage and demand for the sake of their patients a total coverage of the national area and of the population by full time health service, on a county or district basis, responsible to local government and receiving expert specialist assistance and consultative advice from the respective state department of health.

To accomplish this I consider the first obligation of the county, district and state medical societies, with the central support and encouragement of the Trustees and headquarters staff of the American Medical Association. It took the American Medical Association and the American Public Health Association and many helpful voluntary and commercial agencies interested in health thirty-one years to cover the nation with model state vital statistics laws, which ultimately made possible the declaration of a national birth and death rate.

It should not take five years to set up and staff local departments of civil government under full time trained medical officers of health so that indispensable basic protective, preventive and constructive health services would be accessible to every person, family, household and place of employment in continental United States and its insular possessions.

There are not less than forty million people in continental United States now who fail to receive from local and state government what some ninety-two million of their fellow citizens are benefited by.

Among the important reasons for the sustained excellence of general health in Great Britain, even under the cruel handicaps of bombardment, food shortage and dislocation of living and working conditions these past two years and a half, has been the maintenance of total coverage health service under local or regional government control by civil service experts in public health. Regardless of troop movement or evacuation, emergencies of production or transportation, every inch of England and each least person and village has had the protection of a public health service of uniformly good quality, respected and assisted by the practitioners of medicine chiefly concerned with care of the sick. Meningococcic meningitis and tuberculosis among children have increased in some seasons in each year, apparently as the result of the long continued use of shelters against bombing and incendiary air raids. Except for these and the slightly increased occurrence of localized outbreaks of enteric infections due to food, the health of England has been as good as in the recent prewar years, and in respect to maternity, infancy and the common communicable diseases of childhood the record has been better since 1939 than it was before.

We must and can do as well or better in this country, but for this purpose we must have health services over all the nation at the earliest possible date.

NECESSITIES IN CARE OF THE SICK

Second, if at all, to the necessity of universal availability of public health services is that for the trio of indispensables in care of the sick, the family physician, the local or regional general hospital and a visiting or bedside nursing service.

Even deducting the 23,400 physicians needed for men under arms and the 22,000 who are not fit for active practice or are already diverted into other pursuits, there will remain a ratio of 1 physician for each 988 of the population—a number ample for all necessary medical purposes if distributed according to population rather than in response solely to the physicians' personal economic and social advantages and preferences.

England and Wales have approximated adequacy according to their standards with a ratio of 1 physician to 1,490 persons, and Sweden satisfies her people with a highly organized staff providing 1 physician for each 2,890 of the population.

Care of the sick in wartime as in peacetime is something other than health service and is the first claim of the public on medicine, but good care of the individual sick includes on the family basis the best opportunity to guide and protect personal health. Unless diagnosis and treatment of sickness is available to all, health protection on the personal or public basis cannot function. Back of the public health service is therefore a reasonably uniform and accessible care of the sick by the individual family physician. For the practical use of those skills of diagnosis and treatment which the sciences have put into our hands, the hospital is a shop which the physician must have for the 10 per cent or so of his patients who cannot be otherwise well cared for. To bring to the bed patient at home the kind of nursing care the hospital offers, and to reduce the number of calls on the sick required of the physician, the visiting bedside nurse is our profession's most valuable assistant.

The community which cannot command the services of a physician, access to a hospital within 30 or 40



niles, and a visiting nurse is in a worse dilemma than it was without a full time trained medical officer of health.

These necessities of health and care of the sick appear to me to present the medical profession with enough unfinished business to demand its immediate, united and sustained attention, until they are met in a manner consistent with the usefulness of medicine, and within the resources of each community, alone or assisted by those of the state and probably in some instances but certainly in a small minority by federal grants. Local responsibility and resources will generally go further and produce more tangible results per dollar spent than will those of either state or federal government. State aid can be shown to be commonly adequate to meet the health needs of its few county or district areas which cannot support their own local services.

There are some states whose economic dependence and tax limitations are such that only by obtaining federal grants can even the minima of medical services be obtained for some counties. Federal subsidies to all states regardless of proof of the financial need in each instance lead to extravagance, log rolling and a great variety of political abuse without commensurate or offsetting benefits to local government health functions.

#### WORK TO BE DONE

If we can assume that there will be within practical reach the full time health officer, the practicing physician, the hospital, the visiting nurse and I may properly include the dentist, what is the order of importance of work to be done for national health?

With greatest brevity may I list them by putting the following critical questions?

Is the water known by test and by sanitary inspection of source to be safe to use for drinking, personal cleanliness and food preparation?

Is all human and animal and household waste, from places of residence, work, play or travel, so disposed of as not to pollute water sources or foodstuffs, or to foul the soil where people may track dirt into homes?

Are all persons employed in trades and businesses, factories, shops and field so protected by physicians and their colleagues, the public health engineers and industrial sanitarians, that none suffer from avoidable environmental hazards of their chosen occupation? Not only for maximum production but for optimum quality and endurance of the workman, he and his employer are entitled to expert guidance in respect to the physical and psychic factors of each job or process.

Such protection, in addition to being a direct obligation of the employer whether individual, corporate or governmental, should be supplied where necessary by the local and state departments of health, through appropriate divisions or bureaus of occupational hygiene and sanitation.

Is all milk used fresh and fluid from healthy cows and pasteurized before delivery?

Does the diet of the average healthy child and adult include a quart or pint respectively of whole milk or its equivalent, about 40 per cent of the calories from whole wheat or enriched flour bread or the equivalent in whole grain cereals, an egg a day, a fruit and leafy vegetable, butter or its equivalent in other edible fat potato or its equivalent in rice or macaroni, and cheese meat or fish once a day?

Sugar and alcohol we can get along without and maintain the highest level of health. Sugar carries no hazard if used in moderation and as one of the

pleasant flavors of foods but not to an extent of replacing other carbohydrates of superior value. Sugar as a flavor tempts many to use it as a food. It is a very inferior food and not essential. Alcohol can be so used with food in moderation and in beverages of low percentage as to cause no obvious damage to health, but alcoholic beverages do not benefit health, and common experience shows how easily excess and habituation lead to accident, disease and deterioration of physical and mental fitness.

Few obligations of the physician are so obvious and permanent, and especially in war time, as that of counseling all both well and sick, in matters of nutrition and the judicious uses of foods and drink according to age, employment and conditions of climate.

The great and little things of human nutrition are well known medically and should convince us of the value of a general diet without excess and without deficits.

The dairy and the garden, the green grocer, fruiterer and milk man are the best sources of vitamins for normal people, and not the druggist or department store.

Increase in the occurrence of syphilis and of other venereally acquired communicable and preventable diseases is the most conspicuous recent experience of the men under arms and of young women of the civilian population who engage in commercial prostitution or clandestine extramarital sex indulgence. Unlimited and practically uncontrolled access to alcoholic beverages of all strengths by both military and civil patrons of the liquor trade is certainly a potent contributory factor in the increase of commercial prostitution and of the resultant rise in venereal infections.

There is no evidence that the considerable amount of physical and mental unfitness for military service found in the process of examining our millions of young men is due to neglect or inadequacy of medical services for the sick. Such a conclusion would be erroneous and misleading. The great majority of the men rejected for military service have been excluded for conditions in no way incompatible with the continuance of their normal civilian activities or affecting their standard of living. The causes of these rejections do not reflect on the adequacy of medical care of the sick in the United States but chiefly if not wholly on the lack of intelligence and initiative among the draftees who have failed to take advantage of the knowledge and medical and dental facilities well within their reach and means.

#### SUMMARY

I find that, with the single exception of the upward trend of venereal infection among a considerable and most precious fraction of our population, all evidence across the nation and from all levels of society is of an excellent present state of health.

To hold and better this requires a completion for every state and county of public health services now available to a majority of our people. Supplementing this must be an equally complete provision of professional and institutional services for the sick or of a kind widely but not everywhere provided.

Some basic requirements of general and industrial sanitation and of food usage are not everywhere or intelligently met.

We face no emergency of epidemic no threat of deterioration of our national health by any of the contributions we have been so far called on to make to a total offensive against the Axis powers.

National health in war or in peace is a personal matter. Public health is but the composite expression of a multitude of individual healths.

Health is our way of life guided as we may choose by the advice of that practical biologist, the general practitioner of medicine, supported in his efforts for the individual by the services of the community whose agent of preventive medicine is the trained medical officer of health.

Civilian health in our wartime is of a high order. We can lift it to new heights if we will for the duration and beyond.

600 West 168th Street

## POLIOMYELITIS FOLLOWING TONSILLECTOMY IN FIVE MEMBERS OF A FAMILY

AN EPIDEMIOLOGIC STUDY

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The K family of Akron, Ohio, consisted of father, mother and six children, E11, R9, J8, B7, M6 and L2½. In August 1941 they were well and active. On August 22 the five oldest children were subjected to tonsillectomy, the four oldest also had teeth extracted. On August 31 B7 took sick and became progressively worse. By September 5 the five children who had been operated on were acutely ill, all developed severe bulbar poliomyelitis, and by September 9 three of them had died. Two survived. The father, mother and one child who had not been operated on showed no signs of illness. These facts were reported by Krill and Toomey.<sup>1</sup>

The association of recent tonsillectomy and the bulbar form of poliomyelitis during prevalences of the disease has been recently summarized by Aycock.<sup>2</sup> In the present instance, however, the city of Akron (population about 270,000) was relatively free of poliomyelitis. Only 2 scattered cases had occurred prior to the onset in the K family, and no contact, direct or indirect, could be established. No subsequent epidemic occurred, although there were 6 additional cases in September. While the family associations were diffuse there was no recognized exposure to cases of known or suspected poliomyelitis. The present investigation was undertaken, therefore, in an effort to disclose the source of infection through epidemiologic studies combining both ecologic and laboratory approaches.

### FAMILY HISTORY

A review of the activities of the K family revealed numerous associations, which are detailed chronologically.

For a period of three weeks, beginning about July 1, 1941, the mother, father and four oldest children visited with an aunt (Ba) who lived on the shore of a small lake near Akron. The aunt was invalided with postencephalitic Parkinson's syndrome, and Mrs. K took care of her during the visit. The visitors were well during the holiday and returned home in good health.

The two youngest children, L2½ and M6, stayed during the same interval with an uncle and aunt (Be) in Youngstown, Ohio, 50 miles away. The Be family had two children, W5 and D3. During the last week of this period W5 was irritable, he was taken to a physician, who recommended tonsillectomy. At the same time the physician also examined the K girl, M6, and stated that her tonsils were badly infected, this observation was the starting point for subsequent procedures. The Be boy was operated on two days before the two K children returned home. Convalescence proceeded normally until the beginning of the third postoperative week, when the patient exhibited "general weakness," would not or could not eat well and had to be fed by his mother for about one week. Thereafter no abnormalities were noted. There was no further contact between the K and Be families except for a period of less than a half hour on August 20, when the Be family visited in Akron.

July 27 to 31 Mrs. K visited Fremont, W. Va. She traveled alone and encountered no children or any apparent sickness on the trip.

In the next few weeks nothing apart from the usual family activities is recorded.

August 16 to 18 Mr. and Mrs. K went fishing with friends in Danville, Ohio. All of the K children stayed for the two days at the home of a maternal aunt (McH), who lived about eight blocks away from the K family. There were four children, G9, C8, R7 and R6, in this family. An additional cousin, M12, of the same name but of a different household, visited with the group at this time but at no later date. No history of any illness was found in the McH family.

August 19 Mrs. K took the five oldest children to a physician for examination of their throats. It was recommended that all have their tonsils removed, and arrangements were made for August 22. That night the father had a headache and stayed home with the youngest child while all the others went to a ball game.

August 20 The Be family from Youngstown, Ohio, visited for a short time.

August 21 E11, J8 and B7 went picnicking and fishing with some friends at Eric Pond. The pond was located about eight blocks away, near railroad tracks. Approximately 100 by 50 yards, it was filled with rushes and stagnant water. Along the banks refuse was dumped, and garbage was floating in the water. Sewage did not drain into the pond, but the children reported having seen dead cats floating in the water. They ate their sandwiches on the bank, fished and waded in the water. On this day or a few days earlier B7 had actually tried to swim in the pond—the only person his associates had ever seen do so. One friend, RW (contact 22), fell in.

August 22 Tonsils and adenoids were removed by dissection from M6, B7, J8, R9 and E11, in that order. The latter four also had teeth extracted. The operations were performed with aseptic precautions under anesthesia with ether in a private hospital. An interval of approximately twenty minutes between operations was employed for sterilization of instruments, how the mask was treated was not clearly ascertained. The surgeon did not wear gloves but scrubbed thoroughly before each operation. One nurse assisted in operating, two others in the care of the patients.

Except for B7, whose tonsils were difficult to dissect free, the operative procedures went smoothly. After operation the patients were placed in a recovery ward. B7 vomited, none of the others did. After spending the afternoon in the hospital the children were taken home.

August 23 The children remained at home.

August 24 The entire K family called on the related LaP family, consisting of father, mother and two children, M14 and P10, who had been free of any signs of illness. While

Sponsored by the National Foundation for Infantile Paralysis, Inc. From the Department of Epidemiology and the Virus Laboratory, School of Public Health, University of Michigan, Ann Arbor, Mich.; Children's Hospital, Akron, Ohio, and the Department of Pediatrics, Western Reserve University School of Medicine, Cleveland.

<sup>1</sup> Krill, C. E., and Toomey, J. A. Multiple Cases of Tonsillectomy and Poliomyelitis. *J. A. M. A.* 117: 1013 (Sept. 20) 1941.

<sup>2</sup> Aycock, W. L. Tonsillectomy and Poliomyelitis. I. Epidemiologic Considerations. *Medicine* 21: 65 (Feb.) 1942.

there another related family, LaB, father, mother and two children, K7 and D5, came in. The last mentioned children and the mother had experienced some gastrointestinal disturbance about two weeks earlier. The K children were quiet, and the entire visit lasted about one half hour.

It is of interest to note that the cousin, M14, had her tonsils removed on August 26 by the same operating team and at the same place as the K children. Convalescence was uneventful.

August 25 The children remained at home.

August 26 The children were more active, going in and out of the house. E11, J8 and B7 went with two McH cousins to a nearby wood and played with a group of neighborhood boys. There was a private fish pond with a constant waterflow. They all drank from it.

During the week the K children played with numerous children. On August 26, 29 and 30, J8 and B7 waded in Erie Pond. E11 delivered magazines to various homes including one in which a 1½ year old child (contact 27) subsequently developed a febrile illness. They did not enjoy food however, and ate mostly ice cream and liquids.

August 28 The children were all taken to the physician who examined their throats, considered their condition satisfactory and discharged them.

August 29 and 30 The MaA family visited in Kentucky from August 2 to 16. The oldest girl, L12 (contact 1), visited in Cleveland from August 17 to 24 with relatives, the MaB family, including three cousins (contacts 5, 6 and 7). Across the street from that home a fatal case of poliomyelitis had occurred, but no contact had been made. The week of August 25 to 31, after the return of L12 from Cleveland, all the MaA children (contacts 1, 2, 3 and 4) had severe diarrhea sufficiently severe to require camphorated tincture of opium U. S. P. for the youngest F3. From August 28 to September 2 two of the MaB cousins (contacts 5 and 6) visited. From August 28 to 30 the K children, E11, R9 and M6 played with the girls of the Ma families in rehearsing and putting on a play. This included fairly intimate association.

Another girl from the MaB family (contact 11) of Cleveland visited in Akron at the same time with a cousin (contact 8) of another branch of the Ma family (MaC). The latter girl had her tonsils removed in Cleveland on August 25. No ill effects ensued.

In addition, L2½, of the K family, played constantly with F3 (contact 4) of the MaA family. F3 also had coryza and fever on September 5, as well as the attack of diarrhea.

August 31 One of the K children, B7 was listless and refused to eat. The others seemed well. The family went to call on the aunt with whom the older group had stayed in July.

September 1 B7 complained of abdominal pain and vomited. The others played in the neighborhood.

September 2 Mrs. K telephoned the physician, who asked that B7 be taken to his office. Because the patient felt better that evening, it was not done. The other children played normally.

September 3 B7 was worse with continued vomiting. Mrs. K took E11, R9, J8 and M6 to register for school. J8 felt sick and went to bed. M6 complained of abdominal pain and loss of appetite. Some of their playmates played in the K house.

September 4 B7 seemed about the same. J8 and M6 were nauseated and vomited. The physician was called and suggested the possibility of poliomyelitis. The three children were put to bed. E11 complained that his 'throat felt funny' and had some difficulty in swallowing. B7 and M6 had no fever. J8 and E11 had 'slight' fever.

September 5 R9 took sick with abdominal pain, vomiting and pain in the back and left shoulder. E11 had nausea and vomiting. J8, B7 and M6 vomited more.

September 6 B7 could not move his left arm and complained that it felt 'creepy'. M6 developed dysarthria and dysphagia in the evening. R9 developed dysarthria, dysphagia and high fever. E11 developed aphonia and right facial paralysis and had difficulty in breathing.

September 7 Another physician was called and the five children were admitted to the Akron Children's Hospital with

a diagnosis of poliomyelitis. E11 became worse with palatal, cervical and diaphragmatic paralysis. No paralysis of the extremities was detected. Examination of his spinal fluid showed pressure 14 mm of mercury, 263 cells, 82 per cent of which were polymorphonuclear leukocytes, and protein, 80 mg per hundred cubic centimeters. R9 showed palatal and right facial paralysis, stiff neck and pain in the left shoulder, there was no paralysis of the extremities. Examination of her spinal fluid showed pressure 14 mm of mercury, 85 cells, 56 per cent of which were polymorphonuclear leukocytes, and protein 66 mg per hundred cubic centimeters. M6 became unconscious with bulbar palsy. Her spinal fluid showed pressure 6 mm of mercury, 38 cells of which 30 per cent were polymorphonuclear leukocytes and globulin a trace. J8 developed dysarthria and dysphagia, palatal paralysis, left facial paralysis and questionable involvement of the right quadriceps. His spinal fluid showed pressure 8 mm of mercury, 102 cells, of which 36 per cent were polymorphonuclear leukocytes, and a positive globulin reaction. B7 showed dysarthria with paralysis of the left side of the pharynx, left diaphragmatic paralysis and extensive paresis of all four extremities. His spinal fluid showed pressure 6 mm of mercury, 43 cells, 7 per cent of which were polymorphonuclear leukocytes, and globulin a trace.

September 8 E11 died at 6:30 a.m. R9 died at 3:30 p.m. M6 remained unconscious. B7 was very sick. J8 developed weakness of the right shoulder girdle.

September 9 M6 died at 11:30 a.m. B7 survived after a protracted stormy course. J8 survived after a severe but less hazardous course.

During this entire period the youngest child, L2½, and the mother and father remained well.

There were numerous other children with whom one or more of the K children played both before and after operation, with house to house visiting and close association. None of these developed symptoms or signs of poliomyelitis. Except for those already mentioned only two had any illness: one a cold and the other a mild gastrointestinal disturbance of one day's duration which was attributed to green apples.

#### VIRUS STUDIES

In an attempt to gain information concerning the possible source of infection, the dissemination of poliomyelitis in the community and familial associates, a collection of stools from 54 persons was made between September 9 and 17. Specimens were obtained in cardboard containers and kept in the frozen state with solidified carbon dioxide until prepared for animal inoculation. Since the major purpose was to identify reservoirs rather than to detail individuals, emphasis was placed on the children's associates. Furthermore, available information indicates that virus may be more readily recovered from the stools of children than from those of older persons.<sup>3</sup>

Stools were prepared variously, by the method of Kramer, Hoskwith and Grossman,<sup>4</sup> by that of McClure using duponol<sup>®</sup> or by simple treatment with ether and centrifugation.<sup>5</sup> From 10 to 15 cc of the fluid material was injected into the peritoneal cavity of a *Macacus rhesus* monkey and 2 to 3 cc given intranasally. If the material was well tolerated the dose was repeated on the third or fourth day and again a few days later. Temperatures were taken twice daily and the animal was thoroughly exercised each day. The animals were

3. Sabin, A. B. and Ward, Robert. Distribution and Elimination of Virus in Human Poliomyelitis. *J. Infect. Dis.* 41:49 (Jan.) 1941. Traub, Paul and Vignee.

4. Kramer, S. D., Hoskwith, B. and Grossman, L. H. Detection of the Virus of Poliomyelitis in the Nose and Throat and Gastrointestinal Tract of Human Beings and Monkeys. *J. Exper. Med.* 69:1 (Jan.) 1939.

5. McClure, G. A. An Improved Method for Determining the Presence of the Virus of Anterior Poliomyelitis in Stool Specimens. *Science* 93:118 (Jan. 31) 1941.

6. Traub, J. D., Paul, J. R. and Vignee, A. J. Isolation of Virus in Human Stools. *J. Exper. Med.* 71:361 (June) 1942.

killed and pathologic sections prepared In a certain number of animals suggestive signs were noted, passage to other animals was made for confirmation Animals with fever but without evidence of involvement of the central nervous system were killed, and microscopic sections of the brain and cord were made Only those were considered positive in which frank paralysis and typical pathologic changes ensued

Stools were procured from nine related adults and twelve related children, including the mother, father and surviving brother (table 1) The virus was identified in specimens from the well brother, from the two Be cousins from Youngstown, Ohio, and from four of the five McH cousins None was found in stools of any of the adult relatives

Negative results were obtained with specimens from the surgeon and the anesthetist and with pooled specimens from the three nurses

Stool specimens were obtained from twenty-eight playmates under 13 years of age, representing sixteen families, who (with the exception of the three MaB children from Cleveland, contacts 5, 6 and 7) lived within a radius of one block of the K family (table 2) Most of them played frequently with one or more of the K children both before and after operation Except for contacts 7, 8, 24, 25 and 27, the contact would be considered intimate, visiting in homes was common, and in many instances it was prolonged and repeated Pools of four, three, three and two specimens, respectively, by families were made to include twelve contacts, the remaining sixteen were tested individually The only positive result was secured with a pool from the three youngest children of the MaA family The oldest girl, who had visited in Cleveland, failed to yield virus

Other materials were obtained as follows  
(a) Dust from the mattress on which three of the K children slept, dust from bedrooms of the children and

TABLE 1—Familial Contacts of the K Children

| Family | Name | Age   | Relation | Date of Stool | Result of Monkey Test |
|--------|------|-------|----------|---------------|-----------------------|
| K      | A    | Adult | Father   | 9/13/41       | Negative              |
|        |      |       |          | 9/16/41       | Negative              |
|        | M A  | Adult | Mother   | 9/13/41       | Negative              |
|        |      |       |          | 9/16/41       | Negative              |
|        | L    | 2½    | Brother  | 9/10/41       | Positive              |
| Be     | R    | Adult | Uncle    | 9/17/41       | Toxic                 |
|        | F    | Adult | Aunt     | 9/17/41       | Negative              |
|        | W    | 3     | Cousin   | 9/17/41       | Positive              |
|        | D    | 3     | Cousin   | 9/17/41       | Positive              |
| Ba     | J    | Adult | Aunt     | 9/16/41       | Negative              |
| McH    | M    | 12    | Cousin   | 9/13/41       | Positive              |
|        | G    | 9     | Cousin   | 9/13/41       | Positive              |
|        | C    | 8     | Cousin   | 9/13/41       | Positive              |
|        | R    | 7     | Cousin   | 9/13/41       | Toxic                 |
|        | R    | 6     | Cousin   | 9/13/41       | Positive              |
| LaP    | E    | Adult | Uncle    | 9/13/41       | } Pooled negative     |
|        | M T  | Adult | Aunt     | 9/13/41       |                       |
|        | P    | 10    | Cousin   | 9/13/41       |                       |
|        | M    | 14    | Cousin   | 9/13/41       |                       |
| LaB    | J    | Adult | Uncle    | 9/10/41       | } Pooled negative     |
|        | F    | Adult | Aunt     | 9/10/41       |                       |
|        | K    | 7     | Cousin   | 9/10/41       |                       |
|        | D    | 5     | Cousin   | 9/10/41       |                       |

from the carpet sweeper and dust from the parents' room was examined Each of the three specimens was shaken with a small volume of saline solution, and the fluid was removed and treated by ether and centrifugation for inoculation into monkeys No virus was demonstrated

(b) Flies (4 Gm) were collected about the porch and yard of the K home, flies (14.5 Gm) were also

collected about open privies one block away Each specimen was ground with saline solution to make a 10 per cent suspension, centrifuged and then treated with duponol and ether The first specimen was given to a monkey of the M rhesus variety, the second to a Macacus cynomolgus Neither developed signs of poliomyelitis

TABLE 2—Playmate Contacts of K Children

| No | Family | Name | Age | Degree of Contact | Date of Stool | Result of Monkey Test        |
|----|--------|------|-----|-------------------|---------------|------------------------------|
| 1  | MaA    | L    | 12  | Intimate          | 9/10/41       | (a) Negative<br>(b) Negative |
| 2  |        | P    | 10  | Intimate          | 9/10/41       | } Pool, positive             |
| 3  |        | M    | 8   | Intimate          | 9/10/41       |                              |
| 4  |        | F    | 3   | Intimate          | 9/10/41       |                              |
| 5  | MaB    | J    | 11  | Intimate          | 9/10/41       | } Pool negative              |
| 6  |        | B    | 9   | Intimate          | 9/10/41       |                              |
| 7  |        | C    | 7   | Indirect          | 9/10/41       |                              |
| 8  | MaO    | M    | 11  | Indirect          | 9/16/41       | } Negative                   |
| 9  | R      | G    | 12  | Intimate          | 9/13/41       |                              |
| 10 |        | L    | 11  | Intimate          | 9/13/41       |                              |
| 11 | A      | V    | 11  | Intimate          | 9/13/41       | Negative                     |
| 12 | C      | A    | 10  | Intimate          | 9/13/41       | Negative                     |
| 13 | Br     | T    | 10  | Intimate          | 9/13/41       | Negative                     |
| 14 |        | R    | 7   | Intimate          | 9/13/41       | Negative                     |
| 15 | Ba     | H    |     | Intimate          | 9/13/41       | Negative                     |
| 16 | Y      | F    | 11  | Intimate          | 9/13/41       | } Pool, negative             |
| 17 |        | B    | 7   | Intimate          | 9/13/41       |                              |
| 18 | S      | P    | 11  | Intimate          | 9/13/41       | } Pool, negative             |
| 19 |        | M    | 10  | Intimate          | 9/13/41       |                              |
| 20 |        | J    | 8   | Intimate          | 9/13/41       |                              |
| 21 | H      | D    | 12  | Intimate          | 9/13/41       | Negative                     |
| 22 | W      | R    | 6   | Intimate          | 9/13/41       | Negative                     |
| 23 | McG    | M    | 8   | Intimate          | 9/13/41       | Negative                     |
| 24 | K      | B    | 12  | Occasional        | 9/16/41       | Negative                     |
| 25 |        | D    | 7   | Occasional        | 9/16/41       | Negative                     |
| 26 | I      | C    | 10  | Occasional        | 9/25/41       | Negative                     |
| 27 |        | B    | 12  | Indirect          | 9/25/41       | Negative                     |
| 28 | G      | J    | 9   | Intimate          | 9/13/41       | Negative                     |

(c) A sample of 7 liters of water was obtained from Erie Pond A 2 foot length of sausage casing was suspended in an upright position with a funnel tied into the upper end while the lower end was tied off The sac was filled with water and exposed continuously to an electric fan The procedure permits evaporation while retaining a low temperature In seventy-two hours the total volume was reduced to 170 cc The residual fluid was removed and treated with ether and duponol Great difficulty was encountered in ridding the water of bacteria The inoculated monkey died on the tenth day of bacterial peritonitis without histologic evidence of poliomyelitis

COMMENT

Our purpose in the present study has been not to emphasize again the presence of poliomyelitis virus in the stools of apparently unaffected persons but to attempt to gain evidence as to the source of infection and the sequence of events which led to the disastrous result in the five children whose tonsils were removed While the proportion of selected persons (at most 10 of 54) found harboring the virus in their gastrointestinal tracts was relatively small, when placed in perspective by the history the distribution of the positive results assumes considerable significance

There had been no recognized association with patients with acute poliomyelitis Nevertheless, the story of the Be cousin of Youngstown, Ohio, with whom the two youngest K children stayed for three weeks in July, is very suggestive The difficulty experienced by this child two weeks after tonsillectomy readily suggests a mild attack of poliomyelitis The K and the Be families had no further contact after M6 and L2½ left Youngstown except for a few minutes

two days before operation. The presence of poliomyelitis virus in the stools of the two Be cousins implies a closer relation than mere coincidence between this fact and infection of the visiting K children.

The next family, McH, with whom the K children actually lived was again one in which positive results were obtained. Virus was recovered from the stools of four of five cousins, who exhibited no recognized signs of illness. One of them, M12, had no contact with the K children after their operations. It seems not unreasonable to suggest that the McH family acquired the virus from their K cousins.

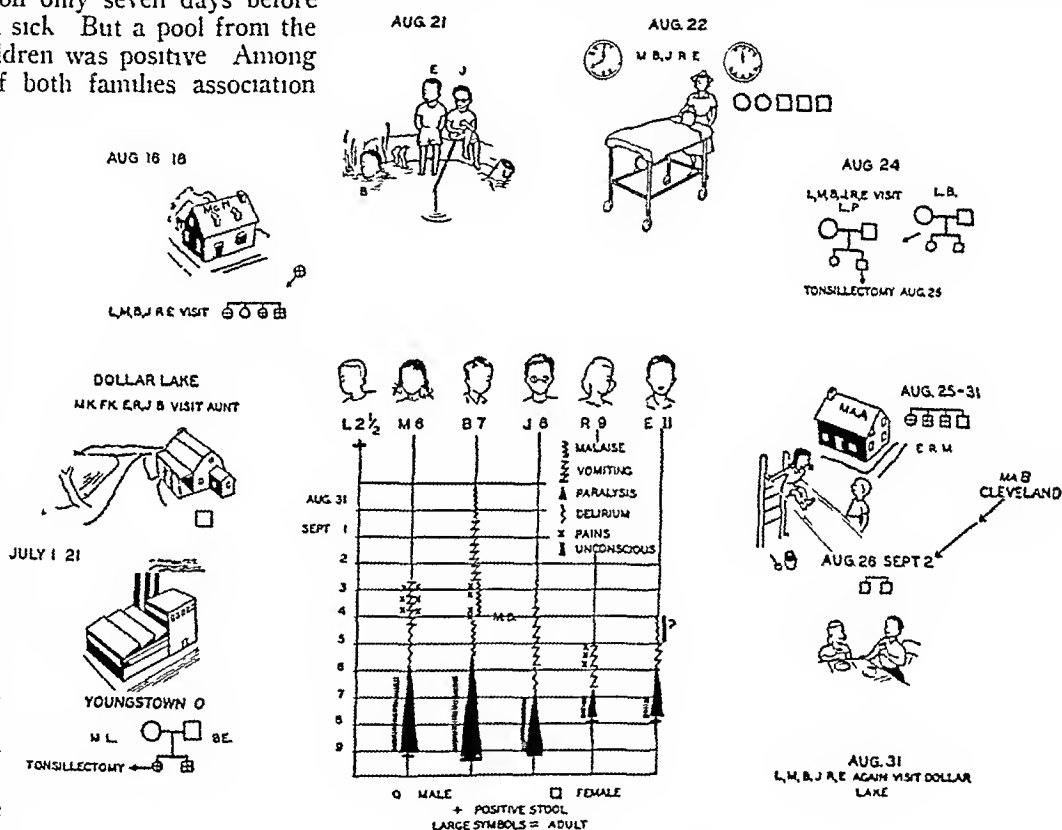
Among other associates the occurrence of positive stools was sharply limited to the MaA family, three doors away. It was thought that the oldest MaA child, L12, who had visited in Cleveland might have served as the source, her stool was negative. Furthermore, she returned to Akron only seven days before the first K child took sick. But a pool from the other three MaA children was positive. Among the older children of both families association was quite intimate—immediately preceding the operative procedures. Moreover, the youngest K child, L2½, who was found to harbor virus in his gastrointestinal tract, played constantly with the 3 year old MaA boy and may have served thus to transmit the virus.

The negative results among the remaining twenty-five playmates and other relatives is of interest in view of the fact that many of the former had intimate contact with the K children. It is clear that something more than contact must be invoked to explain the distribution of virus. While the factor of association between the K family and others yielding virus has been emphasized, it is intended to connote a closer intimacy than contact. In the present instance it meant living and eating together with all the related environmental features.

The relation of recent tonsillectomy to the development of bulbar poliomyelitis appears to be established.<sup>2</sup> In the present series the sharp limitation of paralytic disease in infected families to those on whom operations were performed clearly indicates that operation was the precipitating factor. This assumption would be translated to the case of the suspected cousin in Youngstown, Ohio. The sixth K child had virus in his stool, was not operated on and failed to show clinical evidence of infection. The remaining infected cousins also escaped. On the other hand, one cousin who was operated on at the same place four days after the K children remained well, virus was not recovered from her stool.

An indirect contact, 8, had her tonsils removed in Cleveland during this period. Virus was not isolated, nor did signs of illness occur. Tonsillectomy in an infected community does not seem sufficient. The more likely conclusion is, therefore, that tonsillectomy performed on an infected subject is the provocative factor. This is in agreement with Aycock's conclusion<sup>2</sup> based on a survey of cases and Sabin's conclusion derived from experimental results.<sup>7</sup>

It is of interest in view of experimental studies to consider the duration of the incubation period. It is assumed that incident to the trauma of operation the injured nerves are rendered more susceptible to infection and that the bulbar paralysis is related to direct extension of the virus along the cranial nerves. In fact Howe and Bodian<sup>8</sup> report certain experimental results indicating that in the first few days following



Activities of the K family and distribution of virus among their associates

nerve section the susceptibility of the motor cells to poliomyelitis is enhanced. Under such conditions the incubation period might be expected to be shorter than usual, especially since the distance the virus would traverse by axonal progression from pharynx to medulla is relatively short. The fact that the incubation period differs little in such cases from that encountered in the usual spinal type indicates that other factors are involved in determining the speed with which symptoms are induced.

The relative uniformity in the time of onset in the present cases suggests simultaneous infection. The onset of paralysis in the entire group occurred within forty-eight hours. Although the onset of symptoms in

7. Sabin A. B. Experimental Poliomyelitis by the Tonsillectomy Route with Special Reference to the Influence of Tonsillectomy on the Development of Bulbar Poliomyelitis. *J. A. M. A.* 111: 133 (Aug. 13) 1938.  
8. Howe H. A. and Bodian David. Neural Mechanisms in Poliomyelitis. New York: Commonwealth Fund 1942: p. 173.



B7 preceded the others by twenty-two, it may be recalled that his operative trauma was more severe, that he vomited postoperatively and that he complained of more constant pharyngeal discomfort than the others. It is true that B7 had frequented and swum in the filthy water of Erie Pond shortly before operation. On the other hand, contacts who accompanied him were not carriers of virus, and of doubtful significance is the fact that virus was not recovered from the water. There remains the possibility that the children were not all carriers of virus at the time of operation but that it was spread from child to child in the course of the manipulations. In this case M6, who was the first patient and had visited in Youngstown, would serve as the source. The frequency of virus instillation in the other families with positive stools would suggest, however, that a similar distribution had taken place in the K children before operation.

In an attempt to fit the available evidence into a single picture, the following sequence of events seems the most satisfactory. The Be cousin from Youngstown, Ohio, was carrying poliomyelitis virus at the time of his tonsillectomy in the latter part of July and developed a mild clinical attack of the disease. His sister was also infected, was not subjected to operation and escaped. The two youngest K children, M6 and L2½, acquired the virus at that time and served as the source of infection for the remaining children in the K family. The K children furnished the virus to the McH cousins, with whom they stayed for two days in August. The younger Ma A playmates were also infected from the K children in the latter part of August, while the older one, who was away until the week before operation, was unaffected. The operations incited invasion of the central nervous system in the five older children who were carrying the virus, while the physiologic equilibrium of the remaining child was undisturbed.

The study emphasizes the dangers of tonsillectomy during the months in which poliomyelitis is prevalent even though cases of the disease have not been recognized in the community. There was no indication that untoward effects might be anticipated in this particular group of children, who were in all probability undergoing an inapparent infection. The fact that other families were similarly infested without obvious harmful effects indicates that tonsillectomy served to transform a mild subclinical infection into a severe, fatal disease.

#### SUMMARY

Tonsillectomy was performed the same day on five apparently healthy children of the K family. All five developed bulbar poliomyelitis and three died. The sixth and youngest child was not operated on and remained well, although poliomyelitis virus was present in his stool.

Virus was recovered from the stools of two cousins, living in a city 50 miles away, with whom two of the K children had lived a month earlier. One of the cousins had difficulty, suggestive of poliomyelitis, following tonsillectomy. The evidence suggests that the virus was acquired by the K children during the visit.

Four additional cousins in another family group with whom the K children had subsequently lived were found to be carrying the virus without exhibiting any signs of poliomyelitis. They presumably became infected during the visit.

No virus was recovered from nine adult relatives or from cousins of two other family groups with whom contact had been casual.

Among twenty-eight playmates, many of whom had had intimate contact with the affected children, a group of three children in one family was found to be carrying virus.

The results indicate that a closer association than ordinary contact was involved in the transmission of the virus, but no virus was recovered from extrahuman sources.

It is clear that the operative procedure was the factor precipitating the severe bulbar form of poliomyelitis in children who otherwise would probably have escaped with inapparent infections. These observations emphasize again the dangers inherent in tonsillectomy during the season in which poliomyelitis occurs even though it is not notably prevalent in a community.

## PRODUCTION OF TETANUS IN GUINEA PIGS

BY SUBCUTANEOUS IMPLANTATION OF PELLETS CONTAMINATED WITH TETANUS SPORES

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The administration of crystalline hormones by the subcutaneous implantation of compressed tablets or pellets, introduced by Deanesly and Parkes,<sup>1</sup> appears now to be an established clinical procedure when a prolonged uninterrupted action is desired. From the work of Deanesly and Parkes<sup>2</sup> and Thorn and his co-workers<sup>3</sup> it is apparent that this method of treatment will be greatly extended.

The implantation into the subcutaneous tissue of a hard compressed pellet accidentally contaminated with *Clostridium tetani* followed by subsequent healing of the wound sets up practically an ideal focus for the development of tetanus. Fildes<sup>4</sup> and Russell<sup>5</sup> point out that the germination of tetanus spores is dependent chiefly on the oxidation-reduction potential of the tissues. Heated spores alone when injected into guinea pigs do not cause the development of tetanus while the injection of spores mixed with sterile earth or calcium chloride results in the typical symptoms of this disease. Fildes considers that the oxidation-reduction potential of the normal tissue is sufficiently high to prevent germination of spores and that in areas of necrosis the potential falls to a point sufficiently low to permit their development. When tetanus spores are accidentally introduced into a wound, their germination with subsequent production of toxin depends largely on the presence of certain accessory factors, such as hemorrhage, trauma, certain types of chemicals and

From the Food and Drug Administration

1 Deanesly, R, and Parkes, A S. Factors Influencing the Effectiveness of Administered Hormones, *Proc Roy Soc London*, s B 121 279 (Dec 7) 1937

2 Deanesly, R, and Parkes, A S. Further Experiments on the Administration of Hormones by the Subcutaneous Implantation of Tablets, *Lancet* 2 606 (Sept 10) 1938

3 Thorn, G W, Engel, L L and Eisenberg, Harry. Treatment of Adrenal Insufficiency by Means of Subcutaneous Implants of Pellets of Desoxy corticosterone Acetate, *Bull Johns Hopkins Hosp* 64 155 (March) 1939

4 Fildes, Paul. Tetanus VI. Conditions Under Which Tetanus Spores Germinate in Vivo, *Brit J Exper Path* 8 387 (Oct) 1927

5 Russell, D S. Tetanus V. The Local Fate of Tetanus Spores Inoculated into Guinea Pigs, *Brit J Exper Path* 8 377 (Oct) 1927

the toxins of other anaerobes, all of which are conducive to the development of a lowered oxidation-reduction potential

The possibility of the development of tetanus through the introduction of pellets contaminated with tetanus spores may seem remote. However, the conditions necessary for germination of such spores are present, since the pellet constitutes a foreign body, which potentially can act as an accessory factor. Thus the subsequent production of necrotic tissue and lowering of the oxidation-reduction potential will result in tetanus if the pellets implanted, through some unfortunate circumstance, should become contaminated with *C. tetani*.

In the present report pellet implants have been made in a series of over 200 guinea pigs. For purposes of economy, and because its composition was similar to that of certain hormones used in subcutaneous implants, U S P cholesterol was used in the preparation of all pellets. Various concentrations of tetanus spores were incorporated in the pellets, and several antiseptics were used in certain pellets to determine whether they could prevent the development of the disease under the test conditions. These studies were undertaken primarily to determine the safety of such pellets, since it was quite apparent that they would be presented eventually for appraisal under the provisions of the Food Drug and Cosmetic Act.

#### METHODS AND RESULTS

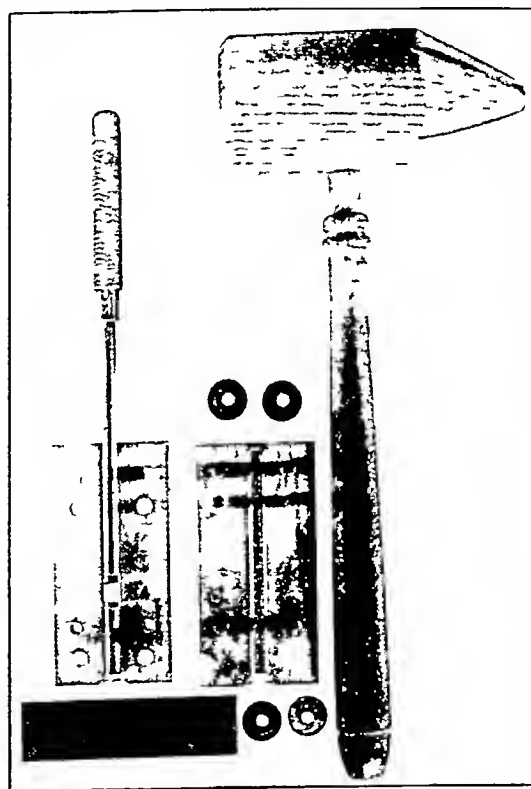
In the preparation of the pellets 15 Gm of cholesterol was dissolved in 100 cc of U S P ether (for anesthesia) and then filtered through a Seitz filter. Some cholesterol is lost by this procedure. Tests for sterility of this filtrate were made by evaporating it to dryness and adding the residue to chopped meat medium. Under aseptic conditions 1 cc of the ether solution of cholesterol was placed in a sterile 20 mm glass shell vial approximately 25 mm high and evaporated to dryness in a sterile desiccating jar under partial vacuum in a 36 C incubator. Evaporation was complete usually in ten minutes. After evaporation the residue was carefully scraped from the bottom and sides of the vial with a pliable spatula and placed in a mold<sup>6</sup> and the pellet prepared. Pellets prepared in this manner weighed from 90 to 100 mg. Tetanus spores suspended in distilled water or the antiseptics in appropriate solvents were added to the cholesterol solution just before evaporation.

The tetanus spores prepared in chopped meat culture under Vassar seal were washed free from toxin with distilled water and then heated at 82 C for twelve minutes to destroy vegetative forms. The spores in the desired concentrations were added to the cholesterol solution suspended in 0.1 cc of distilled water in all instances.

For implantation of pellets, the hair was removed with electric clippers from an area about 4 cm in diameter on the right flank of the guinea pig. Under a local anesthetic an incision about 2 cm long was made through the subcutaneous tissue parallel to the spine anterior to the hip joint. Using blunt hemostatic forceps a subcutaneous pocket was prepared in the natural plane of cleavage between the skin and deeper structures which extended about 3 cm in the flank of the animal. A pellet was deposited in each pocket with sterile forceps, and skin clips were used to close the opening. The clips were removed usually after forty-eight hours.

In a preliminary experiment fifteen 90 mg pellets were prepared under aseptic conditions and ten were implanted in guinea pigs. The remaining five pellets were crushed under aseptic conditions, tested and found to be sterile. The wounds in the ten animals treated healed promptly, and there was no evidence of infection during the time the animals were under observation (two months).

After this preliminary work, pellets containing spores were implanted in a series of 30 guinea pigs, and for comparative purposes implants of gelatin capsules containing equivalent amounts of cholesterol and spores were made in a further group of 30. In each of the groups of 30 animals, 15 received concurrently an inoculation of 0.1 cc of a twenty-four hour broth culture of *Staphylococcus aureus* at the site of implantation. The concentrations of spores used were 100,000, 1,000,000 and 100,000,000. The results are shown in



Unassembled mold for preparation of pellets

table 1. In those animals developing tetanus, paralysis appeared first in the right hind leg (nearest to implanted pellet or capsule) but extended rather rapidly to the spine and other hind leg. The spine invariably arched to the right, and soon after this occurred the animals when placed on their sides could not get back on their feet without help. Usually within one to three days after the first sign of paralysis the animals died.

It will be noted (table 1) that of the 14 guinea pigs treated with pellets containing tetanus spores 3 of the 4 receiving 100,000 spores developed tetanus and died, 2 of the 5 receiving 1,000,000 spores developed tetanus and died while in the 100,000,000 spore group all 5 developed the disease and died. In the group of 15 animals in which implants of pellets plus tetanus spores were accompanied by inoculation of 0.1 cc of *Staphylococcus aureus* at the time of implantation, 13 animals developed the disease and died, 4 in the 100,000 spore group, 4 in the 1,000,000 spore group and 5 in the 100,000,000

<sup>6</sup> Instructions for construction of this mold were given us by G. W. Thorn, Johns Hopkins University, Baltimore.

spore group The 2 animals that survived in this group lost their pellets, one on the twelfth and the other on the sixteenth day During these studies it was noted that some of the pellets broke through the skin of the animals, and this was particularly true in those animals which developed a pus pocket at the site of implantation The combination of sharp edges on the pellet and softening and breakdown of tissue because of pus formation were conducive to pellet loss Both the remaining animals in this series were bled from the heart on the twenty-eighth day, and the serums were tested for the presence of tetanus antitoxin None could be demonstrated

In table 1 are given also the results of implants made with gelatin capsules containing the same amounts of cholesterol and spores as used in the pellets It will be noted that all 15 guinea pigs receiving capsules containing cholesterol and 100,000, 1,000,000 or

toxin could be demonstrated in this animal's blood serum In the 1,000,000 spore group 3 animals developed tetanus and died in five days, while the remaining 2 animals developed the disease and died between the forty-first and forty-fifth days Neither of the latter had demonstrable amounts of tetanus antitoxin in its serum All animals in the 100,000,000 spore group developed tetanus and died within six days

As a control on the effect of Staph aureus, pellet implants were made in an additional 10 guinea pigs Five of these animals were given sterile pellets but inoculated with 0.1 cc of a broth culture of staphylococci at the site of implantation The other 5 were treated with pellets containing 100,000,000 spores and 1 per cent phenyl mercuric acetate and inoculated also with staphylococci at the site of implantation The phenyl mercuric acetate was added to inhibit the development of the staphylococci Pus developed at the site of

TABLE 1—Implants Made With Pellets Plus Spores and Capsules

| Number of<br>Spores | Guinea<br>Pig<br>Number | Days Following Implantation  |   |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
|---------------------|-------------------------|--|---|----|----|----|----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|------------|
|                     |                         | 1  | 2 | 3  | 4  | 5  | 6  | 7  | 8  | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 60         |
|                     |                         | Pellets Plus Spores Implanted  |   |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
| 100,000             | 1                       | 0  | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | No tetanus |
|                     | 2                       | 0  | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |            |
|                     | 3                       | 0  | 0 | 0  | 0  | MP | SP | †  |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
|                     | 4                       | 0  | 0 | 0  | 0  | MP | SP | †  |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
|                     | 5                       | Pellet broken  |   |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
| 1,000,000           | 6                       | 0  | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | No tetanus |
|                     | 7                       | 0  | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | No tetanus |
|                     | 8                       | 0  | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | No tetanus |
|                     | 9                       | 0  | 0 | 0  | SP | †  |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
|                     | 10                      | 0  | 0 | †  |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
| 100,000,000         | 11                      | 0  | 0 | 0  | 0  | 0  | SP | †  |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
|                     | 12                      | 0  | 0 | 0  | 0  | SP | †  |    |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
|                     | 13                      | 0  | 0 | MP | SP | †  |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
|                     | 14                      | 0  | 0 | †  |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
|                     | 15                      | 0  | 0 | †  |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
|                     |                         | Capsules Plus Spores Implanted   |   |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
| 100,000             | 21                      | 0  | 0 | 0  | 0  | 0  | MP | †  |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
|                     | 22                      | 0  | 0 | 0  | 0  | 0  | SP | †  |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
|                     | 23                      | 0  | 0 | 0  | 0  | 0  | SP | †  |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
|                     | 24                      | 0  | 0 | 0  | 0  | 0  | SP | †  |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
|                     | 25                      | 0  | 0 | 0  | 0  | †  |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
| 1,000,000           | 26                      | 0  | 0 | 0  | 0  | 0  | MP | SP | SP | † |    |    |    |    |    |    |    |    |    |    |    |            |
|                     | 27                      | 0  | 0 | 0  | 0  | SP | SP | †  |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
|                     | 28                      | 0  | 0 | 0  | 0  | SP | SP | †  |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
|                     | 29                      | 0  | 0 | 0  | 0  | SP | †  |    |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
|                     | 30                      | 0  | 0 | 0  | SP | †  |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
| 100,000,000         | 31                      | 0  | 0 | 0  | 0  | SP | SP | †  |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
|                     | 32                      | 0  | 0 | 0  | 0  | SP | †  |    |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
|                     | 33                      | 0  | 0 | MP | SP | †  |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
|                     | 34                      | 0  | 0 | MP | SP | †  |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
|                     | 35                      | 0  | 0 | MP | SP | †  |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |            |
|                     |                         | SP, severe paralysis      MP, mild paralysis      0 no symptom of tetanus      †, death from tetanus |   |    |    |    |    |    |    |   |    |    |    |    |    |    |    |    |    |    |    |            |

100,000,000 spores developed tetanus and died within five to ten days In these groups the capsule appeared to be dissolved completely within twenty-four hours after implants were made The wounds all healed cleanly within forty-eight hours Tetanus was first evident on the third day in the 100,000,000 spore group, on the fourth day in the 1,000,000 spore group and on the fifth day in the 100,000 spore group In the group of animals in which capsule implants were made and 0.1 cc of staphylococcus broth culture was injected at the time of closing the wound, an entirely different result was obtained Pus pockets were observed in all animals, and healing of wounds in those surviving was slow In all animals considerable of the cholesterol and apparently spores as well were exuded with the pus In the 100,000 spore group 2 animals died of tetanus within five days, 2 survived but showed no tetanus antitoxin in their blood serum and the fifth, although developing severe paralysis by the seventh day and remaining in this condition for one week, eventually recovered Small amounts of anti-

inoculation of all 5 of the first group, while those receiving pellets containing phenyl mercuric acetate showed no evidence of pus formation One of the animals receiving sterile pellets plus the staphylococcus inoculation lost its pellet on the eleventh day and died on the twenty-second day All others survived the wounds, eventually healing with elimination of pus However, although no pus formation was noted in the group of 5 animals in which pellets containing tetanus spores and phenyl mercuric acetate were implanted, all these animals developed tetanus, none surviving beyond the fourteenth day In order to determine whether antiseptics would have a delaying effect on the development of tetanus in guinea pigs, pellets containing 100,000,000 tetanus spores and 1, 0.5 and 0.1 per cent concentrations of phenyl mercuric acetate, hexylresorcinol, boric acid and azochloramid, respectively, were prepared and implants made in a group of 65 animals Five guinea pigs were used for each antiseptic at each concentration level, and 5 served as controls The last mentioned animals received

no antiseptic Each animal was inoculated at the site of implantation with 0.1 cc of a twenty-four hour broth culture of *Staph aureus* just before the incision was closed The results are given in table 2, where it will be noted that, although not offering protection against tetanus, phenyl mercuric acetate delayed the development of this disease in guinea pigs for several days beyond the time required for tetanus to develop in the animals treated with boric acid, azochloranid or hexylresorcinol or in the control group in which pellets free of antiseptic were utilized

In the group in which were implanted pellets containing 1 per cent phenyl mercuric acetate, 4 guinea pigs died of tetanus, one on the fourth day, one on the nineteenth day, one on the twenty-first day and one on the thirty-fifth day Two guinea pigs lost their pellets, one on the twelfth day and one on the fourteenth day The latter animal gave birth to a normal guinea

1, 0.5 and 0.1 per cent of phenyl mercuric acetate, respectively Three animals which received pellets without antiseptic served as controls, and as a check on the effect of the sulfonamide compounds implants were made in 15 guinea pigs of pellets containing 1,000,000 spores and 1.05 and 0.1 per cent sodium sulfathiazole All the animals in these groups were inoculated with 0.1 cc of a twenty-four hour broth culture of *Staph aureus* at the time the pellets were implanted Phenyl mercuric acetate again delayed development of tetanus, while sodium sulfathiazole appeared to have little if any delaying effect All animals in this series, including the controls surviving implantation of pellets contaminated with tetanus spores for two months lost their pellets while under study At each concentration level in the phenyl mercuric acetate group 1 animal developed tetanus and died while in the sodium sulfathiazole group 4 at the 0.1 per cent, 3 at the 0.5 per cent and

Plus Spores With and Without Inoculation of *Staphylococcus*

| Number of Spores | Guinea Pig Number | Days Following Implantation                             |    |    |    |    |    |    |    |    |    |    |    |                  |               |    |    |    |    |    |    |            |
|------------------|-------------------|---|----|----|----|----|----|----|----|----|----|----|----|------------------|---------------|----|----|----|----|----|----|------------|
|                  |                   | 1   | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13               | 14            | 15 | 16 | 17 | 18 | 19 | 20 | 60         |
|                  |                   | Pellets Plus Spores Implanted—Staphylococci Inoculated  |    |    |    |    |    |    |    |    |    |    |    |                  |               |    |    |    |    |    |    |            |
| 100 000          | 16                | 0   | MP | SP | SP | SP | SP | †  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  | No tetanus |
|                  | 17                | 0   | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  | No tetanus |
|                  | 18                | 0   | 0  | 0  | 0  | MP | MP | MP | MP | MP | SP | SP | †  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  | No tetanus |
|                  | 19                | 0   | 0  | 0  | 0  | SP | †  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  | No tetanus |
|                  | 20                | 0   | 0  | 0  | 0  | SP | †  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  | No tetanus |
| 1 000 000        | 21                | 0   | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  | No tetanus |
|                  | 22                | 0   | MP | MP | SP | †  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  | No tetanus |
|                  | 23                | 0   | SP | SP | †  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  | No tetanus |
|                  | 24                | 0   | SP | SP | †  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  | No tetanus |
|                  | 25                | 0   | SP | SP | †  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  | No tetanus |
| 100 000 000      | 26                | 0   | 0  | 0  | 0  | 0  | MP | †  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  | No tetanus |
|                  | 27                | 0   | 0  | MP | †  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  | No tetanus |
|                  | 28                | 0   | MP | SP | †  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  | No tetanus |
|                  | 29                | 0   | SP | †  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  | No tetanus |
|                  | 30                | 0   | SP | †  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  | No tetanus |
|                  |                   | Capsules Plus Spores Implanted—Staphylococci Inoculated |    |    |    |    |    |    |    |    |    |    |    |                  |               |    |    |    |    |    |    |            |
| 100 000          | 46                | 0   | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  | No tetanus |
|                  | 47                | 0   | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  | No tetanus |
|                  | 48                | 0   | 0  | 0  | MP | MP | SP | SP | SP | SP | SP | SP | SP | MP               | 0             | 0  | 0  | 0  | 0  | 0  | 0  | No tetanus |
|                  | 49                | 0   | 0  | MP | SP | †  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  | Recovered  |
|                  | 50                | 0   | 0  | MP | SP | †  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  | Recovered  |
| 100 000 000      | 51                | 0   | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | Tetanus 43d day  | died 45th day |    |    |    |    |    |    |            |
|                  | 52                | 0   | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | Tetanus 41st day | died 44th day |    |    |    |    |    |    |            |
|                  | 53                | 0   | MP | SP | SP | †  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  |            |
|                  | 54                | 0   | MP | SP | SP | †  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  |            |
|                  | 55                | 0   | MP | SP | SP | †  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  |            |
| 100 000 000      | 56                | 0   | MP | MP | SP | SP | †  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  |            |
|                  | 57                | 0   | MP | SP | SP | †  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  |            |
|                  | 58                | 0   | MP | SP | SP | †  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  |            |
|                  | 59                | 0   | MP | †  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  |            |
|                  | 60                | 0   | SP | †  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0                | 0             | 0  | 0  | 0  | 0  | 0  | 0  |            |

pig on the thirty-third day following implantation, showed paralysis on the thirty-fourth day and died on the thirty-fifth day The animal that lost its pellet on the twelfth day did not develop the disease Those animals receiving pellets containing 0.5 or 0.1 per cent phenyl mercuric acetate developed tetanus and died between the third and seventeenth days The animals receiving pellets containing 1 per cent boric acid developed tetanus and died by the eleventh day, while those receiving pellets with 0.5 or 0.1 per cent of this compound died of the disease in from three to five days, the same length of time required for the controls Those animals receiving pellets containing 1, 0.5 or 0.1 per cent concentrations of hexylresorcinol or azochloranid appeared to develop the disease and die even faster than the control animals which received pellets with no antiseptic incorporated but with the same concentration of spores

In view of the results obtained with phenyl mercuric acetate it seemed desirable to repeat tests with this compound Accordingly, implants were made in 15 guinea pigs with pellets containing 1,000,000 spores and

3 at the 1 per cent concentration levels developed the disease and died These results with sodium sulfathiazole are of interest in connection with the use of sulfonamide dusting powders and indicate the necessity for the sterility of such powders when they are used in deep wounds

The production of tetanus in guinea pigs through implants of sulfanilamide contaminated with tetanus spores is the subject of another paper

Following these results implants were made in a further group of 40 guinea pigs with pellets containing only 10,000 spores Twenty of the 40 pellets used in this series contained 1 per cent phenyl mercuric acetate Ten animals in each group of 20 were inoculated with 0.1 cc of a broth culture of *Staph aureus* at the time the pellets were implanted The results are summarized in table 3 It is apparent that phenyl mercuric acetate was again able to retard development of tetanus in these animals, as compared to the controls which

had been treated with pellets containing the same number of spores, particularly in those animals inoculated with staphylococci, although the retardation in these experiments does not appear to be as pronounced as in the earlier experiments, in which greater concentrations of spores were used

develop the disease Seven animals in the phenyl mercuric acetate group not treated with staphylococci developed tetanus and died by the thirty-sixth day, 1 showed no symptom of tetanus and survived, and 2 died during the experiment, apparently from causes other than tetanus

TABLE 2—Implants Made With Pellets Containing 1,000,000 Spores and Antiseptics—Staphylococci Inoculated

| Concen-<br>tration of<br>Antiseptic | Guinea<br>Pig<br>No | Days Following Implantation |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|-------------------------------------|---------------------|-----------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----------|----|----|----|------------|--|
|                                     |                     | 1                           | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 to 32 | 33 | 34 | 35 | 60         |  |
| Phenyl mercuric acetate             |                     |                             |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
| 1 0%                                | 76                  | 0                           | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0        | 0  | 0  | 0  | No tetanus |  |
|                                     | 77                  | 0                           | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0        | 0  | 0  | 0  |            |  |
|                                     | 78                  | 0                           | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0        | 0  | 0  | 0  |            |  |
|                                     | 79                  | 0                           | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0        | 0  | 0  | 0  |            |  |
|                                     | 80                  | 0                           | 0  | MP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    | SP | †  | SP | †        |    |    |    |            |  |
| 0.5%                                | 81                  | 0                           | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | SP | †  |    |    |    |          |    |    |    |            |  |
|                                     | 82                  | 0                           | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | SP | SP | †  |    | 0  | SP | †  |    |    |          |    |    |    |            |  |
|                                     | 83                  | 0                           | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | SP | SP | †  |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 84                  | 0                           | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0        | 0  | 0  | 0  |            |  |
|                                     | 85                  | 0                           | 0  | 0  | 0  | 0  | 0  | MP | MP | MP | †  | SP | SP | †  |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
| 0.1%                                | 86                  | 0                           | 0  | 0  | 0  | 0  | 0  | 0  | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 87                  | 0                           | 0  | 0  | 0  | 0  | 0  | 0  | 0  |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 88                  | 0                           | 0  | 0  | 0  | SP | †  |    | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 89                  | 0                           | 0  | 0  | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 90                  | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
| Boric acid                          |                     |                             |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
| 1 0%                                | 91                  | 0                           | 0  | 0  | 0  | 0  | 0  | 0  | 0  | MP | SP | †  |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 92                  | 0                           | 0  | 0  | 0  | 0  | MP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 93                  | 0                           | 0  | 0  | 0  | MP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 94                  | 0                           | 0  | MP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 95                  | 0                           | 0  | MP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
| 0.5%                                | 96                  | 0                           | 0  | 0  | MP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 97                  | 0                           | 0  | MP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 98                  | 0                           | 0  | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 99                  | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 100                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
| 0.1%                                | 101                 | 0                           | 0  | 0  | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 102                 | 0                           | 0  | 0  | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 103                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 104                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 105                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
| Hexylresorcinol                     |                     |                             |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
| 1 0%                                | 106                 | 0                           | 0  | MP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 107                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 108                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 109                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 110                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
| 0.5%                                | 111                 | 0                           | 0  | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 112                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 113                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 114                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 115                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
| 0.1%                                | 116                 | 0                           | 0  | SP | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 117                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 118                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 119                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 120                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
| Azoehloramid                        |                     |                             |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
| 1 0%                                | 121                 | 0                           | 0  | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 122                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 123                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 124                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 125                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
| 0.5%                                | 126                 | 0                           | 0  | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 127                 | 0                           | 0  | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 128                 | 0                           | 0  | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 129                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 130                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
| 0.1%                                | 131                 | 0                           | 0  | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 132                 | 0                           | 0  | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 133                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 134                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 135                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
| Controls                            |                     |                             |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 136                 | 0                           | 0  | 0  | MP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 137                 | 0                           | 0  | MP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 138                 | 0                           | 0  | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 139                 | 0                           | 0  | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |
|                                     | 140                 | 0                           | SP | †  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |    |    |    |            |  |

SP, severe paralysis

MP, mild paralysis

0, no symptom of tetanus

†, death from tetanus

Of the 10 guinea pigs in the phenyl mercuric acetate group that were inoculated with staphylococci, only 3 developed tetanus, 2 of these died and 1 recovered. The latter animal lost its pellet on the thirty-second day. One of the remaining guinea pigs in this group died with no evidence of tetanus, while the 6 remaining all lost their pellets by the thirty-sixth day and did not

In the control group of animals (those treated with pellets containing 10,000 spores but no antiseptic) approximately the same results were obtained whether or not staphylococci were inoculated at the time of implantation. Seven of the 10 animals that were not inoculated with staphylococci along with pellet implantation developed tetanus and died, 2 animals survived.



and 1 died without any symptom of the disease. Of those guinea pigs treated with staphylococci at the time of implantation, 8 developed tetanus and died, and the remaining 2 succumbed without symptoms of tetanus. Of interest was the fact that whether or not phenyl mercuric acetate was present those animals inoculated with staphylococci showed pus formation. It should be noted, however, that pus was present in the control group (no phenyl mercuric acetate) on the second day, while in the phenyl mercuric acetate group it was not evident until the seventh day. The staphylococci used in this experiment were somewhat more virulent than those used previously in this study.

## COMMENT

The implantation of compressed tablets or pellets in the subcutaneous tissue in the treatment of deficiency diseases presents a serious hazard if such substances are accidentally contaminated with tetanus spores. The introduction of a contaminated foreign body into the tissues and subsequent healing of the wound offers an ideal focus for the development of vegetative forms of *Cl tetani* and subsequent production of toxin. In this study the pellets used in most instances had rather sharp edges, which of themselves would be conducive to the development of necrosis, and this in turn may lower the oxidation-reduction potential and allow vegetation of spore forms.

In these studies it is apparent that pellets contaminated with tetanus spores implanted in guinea pigs will cause the development of the disease, whether as many as 100,000,000 or as few as 10,000 spores are present in the intact pellet. It should be noted that the spores responsible for development of tetanus in the guinea pigs used in this study were those that were washed from the surface of the pellets as they were bathed by the body fluids. The weight loss of these compressed pellets was extremely small over the two month intervals that the animals were under observation. Computation by most probable numbers of the numbers of spores on the surface of a group of ten pellets at one concentration level showed that the 10,000 spore pellet had from 200 to 300 spores on its surface. Of course, it is not possible to compute accurately the numbers of spores on the surface of a pellet of this type, on the other hand, it is obvious that considerably fewer spores were instrumental in the development of the disease than the total incorporated in the pellet when it was prepared.

When guinea pigs were inoculated with staphylococci at the site of implantation, in most instances more of the animals developed tetanus and in a shorter interval of time than when animals were treated with pellets contaminated only with spores. In some groups this was not the case, but in these it appeared that the formation of large amounts of pus plus the sharp edges of the pellet caused a breakdown of tissue which eventually resulted in the pellet working its way through the skin to the surface with subsequent loss of the pellet.

The use of antiseptics incorporated in the pellets during manufacture to prevent development of tetanus would appear to be a futile procedure. Although there are antiseptics which may inhibit spore vegetation, we know of none that can be depended on to destroy resistant spores. In addition, certain antiseptics have a definite toxic effect on human tissue which of itself would be conducive to the vegetation of spore forms.

In these studies, although only a few antiseptic substances were tried, it is obvious that certain of them incorporated in pellets with tetanus spores appeared to stimulate development of tetanus in guinea pigs sooner than in the control animals treated with pellets containing spores without any antiseptic. Phenyl mercuric acetate did delay development of the disease when incorporated in proper concentrations in pellets contaminated with tetanus spores, but this substance could not prevent development of the disease even though the number of spores in the pellet was reduced to 10,000, where the surface concentration of spores varied between 200 and 300.

It is apparent from these studies that pellets to be used for implantation in the body tissues should be sterilized during their preparation by an efficient filtration procedure or other effective process, handled aseptically throughout their manufacture and finally controlled by adequate check on their sterility. The process of implantation should be rigidly aseptic.

TABLE 3—Implants Made with Pellets Containing 10 000 Spores With and Without Phenyl Mercuric Acetate and Staphylococci

| Group 1<br>10 000 Spores<br>1% Phenyl<br>Mercuric<br>Acetate | Group 2<br>10 000 Spores<br>1% Phenyl Mercuric<br>Acetate Staphylo<br>cocci Inoculated | Group 3<br>10 000 Spores       | Group 4<br>10 000 Spores<br>Staphylococci<br>Inoculated |
|--|--|--------------------------------|---|
| 10 guinea pigs   | 10 guinea pigs   | 10 guinea pigs                 | 10 guinea pigs  |
| 7 died of<br>tetanus   | 3 developed<br>tetanus 1 re<br>covered and   | 7 died of<br>tetanus           | 8 died of<br>tetanus                                    |
| 1—10th day   | 2 died   | 1—6th day                      | 1—4th day   |
| 1—11th day   | 1—9th day  | 2—9th day                      | 1—5th day   |
| 1—16th day   | 1—11th day   | 1—11th day                     | 1—6th day   |
| 1—20th day   | 1—19th day   | 1—22d day                      | 2—7th day   |
| 1—27th day   | 6 lost pellets   | 1—25th day                     | 2—10th day  |
| 1—34th day   | and survived   | 1—41st day                     | 1—29th day  |
| 1—36th day   | 1 died of other<br>causes  | 2 lost pellets<br>and survived | 2 died of other<br>causes                               |
| 1 survived   |  | 1 died of other<br>causes      |   |
| 2 died of other<br>causes                                    |  |                                |   |

## SUMMARY AND CONCLUSIONS

Pellets contaminated with the spores of *Cl tetani* and implanted in the tissues of guinea pigs produce tetanus. The concurrent inoculation of staphylococci appears to hasten development of the disease.

The incorporation of antiseptics in such pellets is of no value since certain ones are conducive to the development of the disease, while others merely delay onset of symptoms.

The sterility of pellets to be used for implantation into body tissues should be assured during manufacture by proper filtration or other procedures and such sterility maintained by rigid aseptic technique.

**What Makes a Profession**—If there is such a thing as a profession as a concept distinct from a vocation it must consist in the ideals which its members maintain the dignity of character which they bring to the performance of their duties and the austerity of the self-imposed ethical standards. To constitute a true profession there must be ethical traditions so potent as to bring into conformity members whose personal standards of conduct are at a lower level and to have an elevating and ennobling effect on the members. A profession cannot be created by resolution or become such overnight. It requires many years for its development, and they must be years of self denial, years when success by base means is scorned, years when no results bring honor except those free from the taint of unworthy methods.—Shunaker W. A. Editor of *Notes*

A RURAL SHIGA DYSENTERY  
EPIDEMIC

F W CAUDILL, M D  
R E TEAGUE, M D  
AND  
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LOUISVILLE, KY

The county in which the epidemic discussed in this paper occurred is located in south central Kentucky. It covers an area of 400 square miles and is hilly, the soil being red clay to sandy with limestone rock formation. The total population, according to the 1940 U S Census, is 18,566, with 1,372 of this number living in the county seat, located about the center of the county. Approximately eight to nine families per square mile reside in the rural areas. Only about 6 per cent of the total population is Negro, about one third residing just outside the corporate limits of the county seat, while the other two thirds reside in scattered homes throughout the county.

The county seat has a filtered and chlorinated water supply drawn from nearby Russell Creek. Approximately 80 per cent of the homes in the town are connected to a sewage system which carries the sewage through a septic tank before it is discharged into Russell Creek below the intake of the water plant. The rural families get their water supplies from shallow wells, chiefly drilled, or from springs. Facilities for the disposal of excreta, when any are provided consisted only of privies, the overwhelming majority of which are open.

The annual mortality from diarrhea and enteritis per 10,000 of population in this county during the twenty year period from 1921 through 1940 showed wide fluctuations, as would be expected for a relatively small population. The rate reached 8 per 10,000 in 1923, fell to a low of 2 per 10,000 in 1924 and gradually again rose to 8 per 10,000 in 1929. From 1929 the general trend of the rate was downward to 2 per 10,000 in 1940. In 1941, through September, the rate showed a sudden rise to 8 per 10,000 population.

On the evening of June 11, 1941, a local physician reported to the health officer (J T D) that he had 3 very sick children in one family and thought that they had typhoid. The family was visited immediately by the health officer in company with the physician. On arrival at the home they found that 1 of the children had already died, that a second was in coma and that the third was extremely toxic. All had passed frequent bloody stools. The following morning it was found that another of the 3 sick children had died during the night and that 1 more child in the family had come down with the disease, bringing the total cases in this family to 4, with two deaths. Three other cases of what appeared to be similar illnesses were found in the families of two next door neighbors, bringing the total to 7 cases in this community.

On returning to his office the health officer received word that a child had died in another community about 1/2 mile from the first. Immediate investigation confirmed the report and revealed that 2 others in the same family were sick. All had passed frequent bloody

stools, their illnesses being similar in all respects to the cases in the first community.

Laboratory diagnostic facilities were promptly made available. The procedures used and observations made are discussed in detail in a report by Wheeler and his associates.<sup>1</sup>

Those patients with Shiga dysentery classified as having laboratory confirmation of this infection were (1) patients from whose stools the organism was isolated, (2) those from whose stools the organism was isolated and whose serums, in addition, agglutinated a known Shiga organism and (3) those whose serums agglutinated a known antigen and, in addition, had significant corroborative epidemiologic evidence of the infection.

A total of 38 cases gave such laboratory evidence of the Shiga organism being the etiologic agent. The remaining cases which were considered to be *Bacterium shigae* infections, are accounted for as indicated in table 1. From this table it will be observed that, in addition to the 38 patients with laboratory established cases, there were 43 who were direct contacts of patients with labo-

TABLE 1—Number and Percentage of Total with Specified Evidence for Diagnosis of Shiga Dysentery

|   | Patients | Percentage of Total |
|---|----------|---------------------|
| 1 Patients with laboratory evidence of Shiga dysentery infection  | 38       | 32.5                |
| 2 Patients who were direct contacts of those with laboratory evidence of Shiga dysentery infection  | 43       | 36.7                |
| 3 Patients who were indirect contacts of those with laboratory evidence of Shiga dysentery infection through intermediate persons sick at time of contact | 14       | 12.0                |
| 4 Patients who were next door neighbors or residing in the immediate vicinity of patients with laboratory evidence of Shiga dysentery infection           | 22       | 18.8                |
|   | 117      | 100.0               |

ratory proved cases, most of them family contacts and all with onsets within ten days after exposure to a proved case. Those not family contacts were persons who had visited in the homes of patients with proved cases and, accordingly, were considered to have been sufficiently exposed to have become infected. Most of the extrafamilial contacts in this group actually visited and ate in homes where there were proved cases. As indicated in this table, 14 more patients were contacts of persons suffering from dysentery who had, in turn, been in direct contact with proved cases of Shiga dysentery. In other words, these 14 patients were indirect contacts of patients with laboratory established cases. The remaining 22 patients were members of families living next door to or in the immediate vicinity of laboratory established cases, that is, in households located within a few feet to a few hundred yards of households in which there were proved cases, and because of habits of intermingling and sanitary conditions around their homes these patients could logically be assumed to have Shiga dysentery. That is, a total of 117 patients are considered to have Shiga dysentery because the condition

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1 Ralph E. Wheeler, surgeon (R), C. T. Butterfield, principal bacteriologist, and William E. Burns, assistant bacteriologist, U S Public Health Service Cincinnati.

was either laboratory established or epidemiologically related to laboratory established cases.

With regard to the incubation period of Shiga dysentery in this outbreak, it is noteworthy that in 59 cases presenting a definite intimate exposure with a case of the disease within ten days prior to onset, the average number of days between first exposures and onsets was 5.3 days.

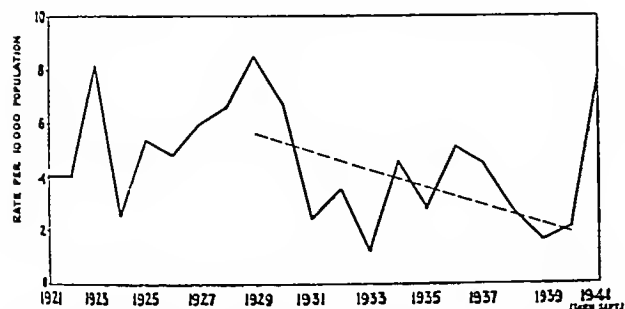


FIG. 1.—Mortality from diarrhea and enteritis per 10,000 of population in Adair County, Ky., from 1921 through September 1941 showing trend from 1929 through 1940.

As indicated in figure 2, it was found that the modal day of onset, when arranged according to the day of onset after first exposure, was the fourth day, with the fifth and sixth days after first exposure being the next most frequent days of onset. Onsets on the fourth day were numerous in cases in which there were family contacts.

The unusual severity of the dysentery immediately stimulated reporting throughout the county. Accordingly, a total of 224 cases of diarrheal disease were reported to the local health department during June, July, August and September. All these cases were investigated. Of the total, 117 cases were diagnosed as Shiga dysentery, the remainder were diagnosed as other types of dysentery—Flexner, Sonne and Hiss-Y making up those in which laboratory procedure demonstrated the presence of an organism of the Shigella group.

The 117 cases of Shiga dysentery were largely in families grouped in three distinct communities. Two of these communities were just beyond the northern corporate limits of the county seat, many of the men in both being employed at a lumber mill located in one of them. The third was 8 miles west of the county seat in and about a rural hamlet with a population of approximately 50. Only white families resided in these three epidemic areas. It was relatively easy to explain the spread in each of the three areas. As indicated in figures 3 and 4, in each of the three areas there were laboratory established cases of Shiga dysentery.

Apart from the two epidemic areas on the northern outskirts of the county seat, cases occurred in several families scattered in and around the town. Three of these families lived between the two epidemic areas and four others across town on the outskirts of the southwest corner of the city. Of the latter four scattered affected white families, three were in a small community in which resided four white and eight Negro families. In the Negro families, with one exception the members were all adults, mostly above 60 years of age. In the one family were 2 small children. This family, however, had a home that was well screened and tar above the average in cleanliness. On direct inquiry it was ascertained that there was practically no visiting between the Negro and white families. May it not

be that the lack of visiting between the white and Negro families and the absence of small children in the Negro families living nearby affected white families were the chief controlling factors in preventing spread of the disease to the Negro families?

The physical and sanitary characteristics of the two distinct epidemic communities on the outskirts of the county seat were quite similar. The houses were small frame or box structures of from two to four rooms, most of them in bad repair, badly kept and occupied by families who, with very few exceptions, were underprivileged and lacked facilities for even elementary cleanliness. The homes were located, for the most part next door to each other, on contiguous lots facing streets or roads. In the rural hamlet 8 miles west of town the homes, although similar in type to those in the affected communities near town, were mostly located on adjacent small farms rather than on adjacent lots. The attacked homes in all three communities either had no privies or had open back pitless privies or what had once been sanitary privies. Of the sanitary pit privies, all but one were in poor repair, with soiled floors and seats, and many of the pits were full to overflowing with excreta. With one exception, screens on the homes in all three communities were either absent, incomplete or ineffective. Flies were abundant in each of the communities, in fact, according to residents, unusually prevalent. Flies were plentiful inside all the homes except one, and, according to the mother in this home, this was accomplished by constant fanning them out and a continuous killing campaign inside the house.

All the attacked families but two obtained their water supplies from shallow drilled wells or springs. Only two attacked families lived inside the town and used city water. Because of the close proximity of

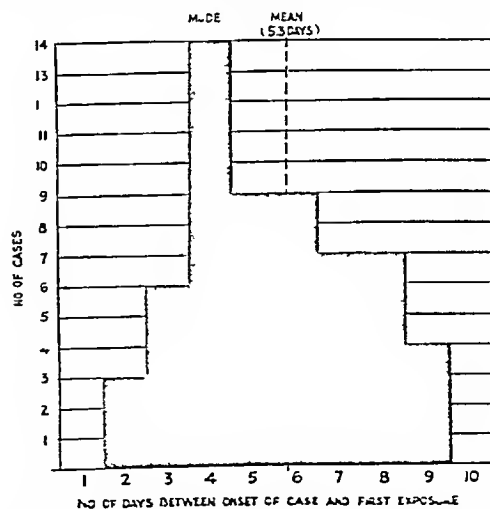


FIG. 2.—The modal and mean incubation period in 59 cases in which there had been definite previous exposure with a case of Shiga dysentery.

the homes in the two attacked communities near the county seat, the families had much in common. Many of the families were related to one another either by blood or through marriage, thus accounting for frequent interfamily visits. Nor was such visiting limited to blood relatives visiting and setting up with the sick being a common custom among neighbors.

With regard to cleanliness excreta were present on porches around outhouses, in open privy vaults and

on diapers. All this was accessible to flies, as were water and milk buckets, milk bottles, nipples, artificial and natural, and the bread and molasses on kitchen tables. Flies must have made the excreta of one household a common commodity in all households.

Contrasted with the two affected communities adjacent to the county seat was the epidemic area

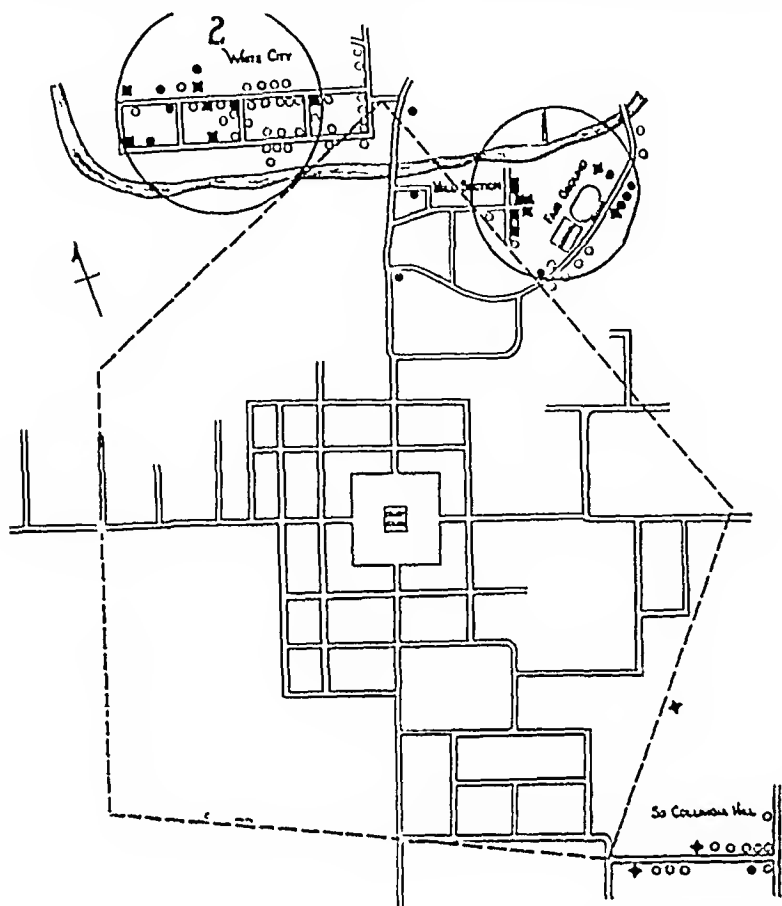


Fig. 3—Map of Columbia, Ky., Adair County, with a population of 1,372. Black circles indicate attacked homes; black squares, cases of laboratory proved Shiga dysentery; white circles, nonattacked homes.

in the rural hamlet 8 miles away. Here, although the situation with regard to the condition of the houses, excreta disposal, flies, screening and water supplies were essentially the same as in other communities, the distances between homes lessened visiting and intermingling as well as rapid interchange of flies. Still, most of the attacked families in this community were related by blood or marriage. Intermingling among these families was less because of distances between homes and because of the lack of family transportation facilities. However, according to custom visits were made between families in time of illness, particularly related families in spite of inconvenience or distance. Thus significant direct exposure could be more often established, making direct contact the chief factor in the spread of the disease in this community.

Contact through visiting and intermingling was considered one factor of importance in the spread of the disease, with the lack of sanitation in and around homes another. As a means of further emphasizing the importance of these factors, a sanitary study of an equal number of attacked and nonattacked homes was made. Two trained sanitary inspectors working together surveyed both the attacked and the nonattacked homes. The nonattacked homes selected for the purpose of this study were located as near as possible to corresponding attacked ones except that none were chosen which had the same water supply. These control households were in the same vicinity as the attacked households, that

is on the next farm, within the next block or often next door. In comparing these two groups it was found that the sex distribution in the two was not different from that of the general population, but the number of children in the families constituting the two groups was significantly different, there being fewer children under 15 years of age in the control group than in the attacked group. This difference in the number of children in the two groups was obvious to the most casual observer. As there were fewer children, particularly children under 10 years of age, in control families, it is safe to assume that this is an important reason why the control families were not attacked.

It will be observed further from figure 6 that there was little difference between the two groups of households so far as concerns the pollution of water supplies as determined by bacteriologic examination. However, in contrasting the two groups with regard to excreta disposal, screens, fly prevalence inside and out, housekeeping and personal cleanliness, it was found that the control homes were much superior to the attacked homes. Thus in the attacked homes more children were living in a dirtier environment, with water being an equal hazard to the two.

This of itself would tend to rule out water as a factor in the spread of the disease. However, as further evidence that water was not a significant factor, it is to be noted that in the total of fifty-nine attacked households, their respective water supplies came from forty-nine different and more or less widely separated sources. It is very unlikely that the *Bacterium shigae* would

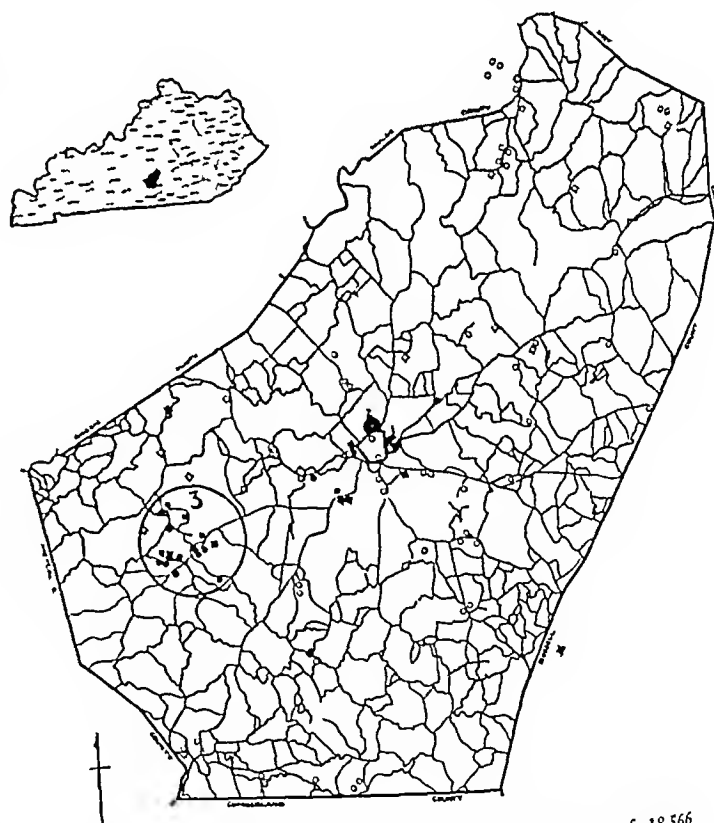


Fig. 4—Map of Adair County, Ky., with a population of 18,566. Attacked homes are shown by black squares indicating cases of laboratory proved Shiga dysentery, black circles, epidemiologically Shiga dysentery, white squares, laboratory proved other bacillary dysentery, white circles, epidemiologically other bacillary dysentery.

have found its way into all these different sources within the relatively short period during which cases occurred.

Of the fifty-nine attacked families, eleven used no milk at all, the remaining forty-eight families who used milk regularly or occasionally obtained their sup

phes from thirty-eight different sources, most of them from their own family cows and some from the family cows of neighbors. Very few of the infected families ever bought milk from a commercial dairy, the few who did occasionally or regularly buy dairy milk patronized no one dairy in particular.

Among the affected families fruits and vegetables taken raw came, for the most part, from family gardens. Commodities bought from stores were obtained from establishments so widely distributed around the county seat and in the affected neighborhoods as to make it entirely unlikely that the infection could have arisen from this source. Ice cream could not have been a factor, because it was a food rarely purchased and eaten by members of any of the families attacked.

The only thing in common between the first case that occurred in each of the two epidemic areas on the outskirts of the county seat was more or less continuous attendance at a carnival. The carnival, which had been attended by the first 2 patients prior to their onset of illness, had located within the area of the first epidemic community (fig 3) on May 25, five days before the onset of the first case.

On a lot immediately adjacent to the one on which the carnival had set up was encamped a band of gypsies. This band of gypsies was not a part of the carnival but pitched camp adjacent to it in order to take advantage of the crowd that would be drawn by the carnival. The clothes of a part of this band of gypsies were washed in the home, by the mother, of the first patient to have dysentery. Further, the first patient had, from the time the gypsies located, played around the gypsies' camp and had carried water for them. Approximately ten days before this gypsy band located at this place 2 children of a young gypsy mother in the band had been ill with what the informant thought was dysentery. One of the 2 children, an infant, had died, the older, a 3 year old child, recovered. Among the clothes washed by the mother of the boy who first became ill were those of this recovered child. The gypsies, while encamped near the county seat, used an insanitary pit privy that had been built on the adjacent county fairgrounds. There was ample evidence that they had also used for defecation a shed located near where they had set up. Flies were in abundance around the carnival and gypsy camp while they were located there, and little effort was made to protect food sold to the public at the carnival from these flies. The gypsies broke camp and headed east on May 30, the date of onset of the first case. With and as a part of the carnival were also some gypsies

who had on several occasions, talked with the mother and grandmother of the 2 gypsy children who had been sick, one of whom had died. It was from these informants that the history of the illnesses of the gypsy children was obtained. It was not until thirteen days after the gypsies had left the county that the disease was first recognized in the community. The gypsies had then had sufficient time to migrate a considerable distance away. It was not possible to get the names of the gypsies from the informants. A number of gypsy bands were interrogated throughout eastern Kentucky after the epidemic was discovered, but none admitted having stopped in the county.

From the onset of the first case on May 30 a total of 117 cases of Shiga dysentery occurred through June, July and the first three weeks of August, with the last onset recorded on August 21. Study of cases by day of onset showed no preponderance of onset on any one day of the week. When the total period over which the epidemic occurred is divided into seven day periods, Thursday through Wednesday, it is found that the incidence of the disease went up rather rapidly in the first two seven day periods, reaching a maximum during the third seven day period and maintaining a plateau over the third, fourth, fifth and sixth seven day periods. During the seventh week, onsets showed a sudden drop, which continued through the eighth week. During the successive five weeks only an occasional onset was recorded. The sequence of onsets is represented in figure 5.

From figure 5 it will be seen that the onsets of other types of dysentery in the county, when arranged by similar seven day periods, showed a gradual rise from the seven day period beginning May 29 through six successive seven day periods, reaching a sharp peak during the seventh week, then falling off rapidly through the succeeding six weeks. The peak week of onsets in the other types of dysentery was two weeks later than the second of the two peak weeks of onsets among the Shiga cases. This would suggest that the disease was introduced into the community and that the epidemic was superimposed on what probably was an ordinary prevalence of other types of dysentery.

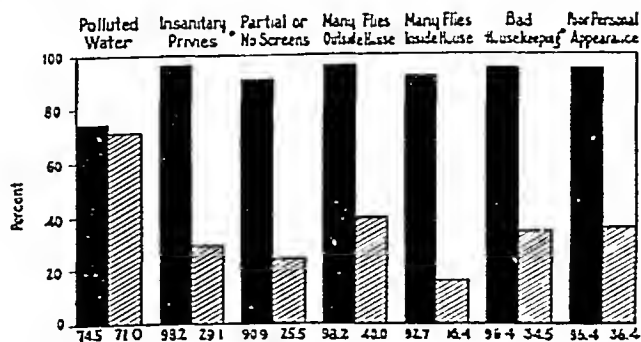


Fig. 6—Comparison of insanitary factors found in 117 attacked homes (black columns) with 115 nonattacked homes (shaded columns) in epidemic area.

As indicated in table 2, in the family circles exposed to primary cases 20.7 per cent were attacked. The number of cases was too small when distributed according to age and sex, to show statistically significant differences between the various categories, but it will be observed that the higher rates were among males in the lower age groups. This is in general agreement with



other observations that have been made in the study of epidemics of bacillary dysentery

Furthermore, among the total of 117 patients, 72 were males and 45 were females. Assuming that the exposed population was composed of equal numbers of the two sexes, this difference is far beyond what would be expected on the basis of chance variation, the probability being about 100 to 1 against such an occurrence.

Twelve of the 117 cases resulted in death, giving a gross fatality rate of 10.3 per cent. Among the 72 male cases were nine deaths, giving a fatality rate of 12.5 per cent, among the 45 female cases were three deaths, giving a fatality rate of 6.6 per cent. By age, ten of the deaths occurred in the group under 10 years. Eight were boys out of the 33 boys in that age group, giving a fatality rate of 24.2 per cent. The 2 girls under 10 years of age who died were among 19 girls in that age group, giving a fatality rate of 10.5 per cent. Of the 2 persons over 55 years of age who died, 1 was a man (there were 4 men in this age group) and the other was a woman—the only woman over 55 who contracted the disease. All of the deaths occurred at the two extremes of life.

TABLE 2—Secondary Attack Rate Based on Total Population in Affected Families Less Primary Cases, by Sex and by Age Groups

| Age Groups | Total                                       |                         |                                | Male  |                         |                                | Female                                      |                         |                                |
|------------|---|-------------------------|--------------------------------|---|-------------------------|--------------------------------|---|-------------------------|--------------------------------|
|            | Popu-<br>lation<br>Less<br>Primary<br>Cases | Sec-<br>ondary<br>Cases | Sec-<br>ondary<br>Case<br>Rate | Popu-<br>lation<br>Less<br>Primary<br>Cases | Sec-<br>ondary<br>Cases | Sec-<br>ondary<br>Case<br>Rate | Popu-<br>lation<br>Less<br>Primary<br>Cases | Sec-<br>ondary<br>Cases | Sec-<br>ondary<br>Case<br>Rate |
| 0-9        | 82  | 23                      | 28.0                           | 40  | 11                      | 27.5                           | 42  | 9                       | 21.4                           |
| 10-19      | 75  | 15                      | 20.0                           | 40  | 11                      | 27.5                           | 35  | 4                       | 11.4                           |
| 20+        | 114   | 18                      | 15.8                           | 52  | 9                       | 17.3                           | 62  | 9                       | 14.5                           |
| Totals     | 271   | 56                      | 20.7                           | 132   | 31                      | 23.5                           | 139   | 25                      | 17.9                           |

Hence, the attack rate was higher among males. The fatality rate was greater among males. These differences, both attack and fatality, while not assuming wholly reliable statistical significance because of small numbers, collectively must have some significance. At least the difference suggests that males are more frequently infected or are more susceptible, one or both. Any definite answers to these questions, however, must await further study, both epidemiologically and immunologically.

CONCLUSIONS

1. Bacillary dysentery caused by *Bacterium shigae* was epidemic in a county in southern Kentucky during June, July and August 1941.
2. The infection was probably introduced by a band of gypsies.
3. The disease was superimposed on dysentery caused by other types of *Bacterium dysenteriae*.
4. After introduction, the disease was spread by (a) direct contact and (b) lack of environmental cleanliness.
5. The disease attacked males more frequently than females.
6. By age, the highest attack rate was in children under 10 and in males under 10.
7. The gross fatality rate was 10.3 per cent.
8. The disease was most fatal in children under 10, males under 10 and persons over 55.

INDUSTRIAL ILLNESS DUE TO  
TETRYL

REPORT OF 1,258 CASES  
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AND  
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Tetryl, or trinitrophenylmethylnitramine, was first described by Romburgh in 1883. Tetryl is similar to trinitrotoluene (TNT) in explosive power and is used as a military propellant. The production of tetryl in quantity dates with the first world war, when it was discovered to be the most efficient initiator of explosives. Tetryl possesses the advantage that the raw materials needed for its manufacture do not deplete the materials required for the manufacture of other explosives.<sup>1</sup>

Tetryl is blended with either graphite or stearic acid as the binding element so that it can be pressed into pellets, the form in which it is most frequently used in munitions. Our experience has been with crystalline tetryl blended with stearic acid.

In the first world war the occupational hazards of tetryl were not fully appreciated in this country because medical investigation could not keep pace with the stress of emergency production. With the termination of the war, tetryl production in quantity ceased and much of the medical investigation that had been initiated was abandoned. At the start of the second world war, improved technical procedures allowed the production of a constant quality tetryl. The use of great quantities of tetryl has introduced a new occupational hazard and has created a challenge to industrial medicine.

A knowledge of the varied symptoms of tetryl illness is becoming increasingly important to the medical profession. This is of concern to private physicians in defense areas as well as the industrial surgeons stationed at shell loading plants. Despite constant observation, a number of employees, in the absence of the typical dermatitis, will visit their family physician complaining of vague systemic symptoms. A short history will direct the examining physician's attention to the etiologic factor.

Past literature indicates the common belief that tetryl toxicity consists essentially of local manifestations.<sup>2</sup> We are not in full agreement with this thought. Since the local symptoms are by far the most commonly encountered, they shall be described first. Employees handling tetryl powder often develop a yellow staining of the hands, which is then frequently carried to the face and hair. In industry the terms "canary" and "tetryl blond" are frequently used to describe this yellow staining of hair, scalp and face. This staining or discoloration is not indicative of tetryl illness or dermatitis. The true pathologic tetryl dermatitis is the most common symptom of tetryl illness. In a study of 1,258 workers affected by tetryl the presenting symptom in 944 of them was a dermatitis. Tetryl dermatitis most commonly occurs on the face, particularly in the circumocular region, on the lateral surfaces of the neck and less frequently in the antecubital fossae and on the dorsal portions of the forearms. The dermatitis generally occurs between the second and third week of exposure,

<sup>1</sup> Bam, C. J. Army Ordinance VI, No. 36, 1926.  
<sup>2</sup> Smith, E. Brit. M. J. 1: 618, 1916. Cripps, L. Brit. J. Dermat. 29: 3, 1917. Ruxton.<sup>3</sup>

and the first subjective complaint is that of itching and burning of the affected parts. The dermatitis appears as an erythematous area associated with varying amounts of edema. This condition is most pronounced in the circumocular region and is characteristic. Closer examination discloses a glistening, shiny appearance of the epidermis. In its milder form the dermatitis is not unlike a second degree sunburn and with progression in the more severe forms there are drying and desquamation of the epidermis which may lead to areas of serous exudation (fig 1).

Epistaxis is a common and early complaint, occurring most frequently in the early waking hours. On examination, the bleeding points could be traced to small ulcerations of the nasal mucous membrane in many cases in that area anterior to the inferior turbinate.

Frequent complaints are sneezing, coughing without production and pain in the chest. These symptoms generally occur during the first two weeks of exposure and are the frequent forerunner of tetryl dermatitis. Anorexia, mild nausea, flatulence and abdominal cramping are also common complaints and occur in 10 per cent of all exposed workers. Most frequently epistaxis and dermatitis occur together.

anemia of a rather pronounced degree is becoming increasingly apparent. Other symptoms suggestive of systemic illness such as headache, irritability, malaise, lassitude and sleeplessness, are frequent complaints. Irregularity of menstruation is frequently observed in cases of tetryl illness. This we cannot attribute to a purely local action.

Of the 1258 cases surveyed in this study, 3 have been sufficiently severe to require hospitalization. This small percentage emphasizes the importance of prompt medical care with the presenting symptoms. In all 3 instances the history revealed a previous attack of severe tetryl dermatitis which cleared slowly when the employees were removed from contact. After the subsidence of symptoms 2 of these people were accidentally reexposed to tetryl and a severe reaction promptly recurred. This has created a standing rule at this plant that persons with unusually severe tetryl dermatitis are removed permanently from tetryl exposure.

#### REPORT OF A TYPICAL CASE

Miss A. H. aged 24 who had worked as a tetryl operator for three weeks first reported to the Central Medical Unit on April 7, 1942, complaining of recurrent nosebleeds and a rather severe dermatitis involving the circumocular region,

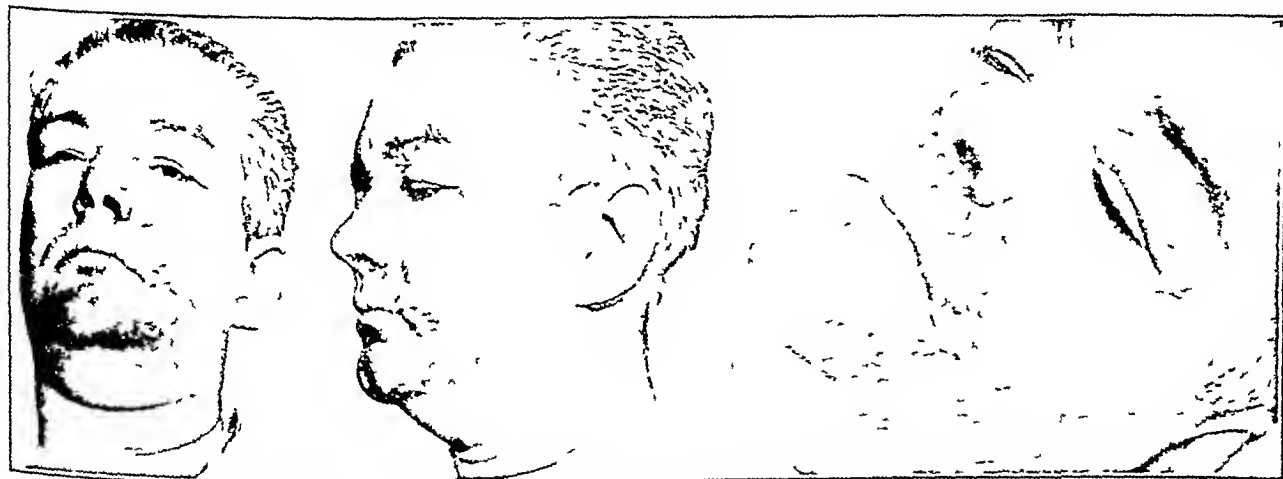


Fig 1—Severe form of tetryl reaction showing drying and desquamation of the epidermis leading to areas of serous exudation.

All these manifestations are believed to be due to direct local contact of tetryl powder on skin or mucous membranes. Tetryl, like trinitrotoluene, is fat soluble and consequently is thought to have a predilection for those areas of skin most heavily invested with sebaceous glands.

The exact reasons why tetryl causes these symptoms are not definitely known. There are two theories most often mentioned: direct mechanical and chemical. Examined under the microscope, tetryl seems to be composed of finely divided crystals liable to fracture, the broken ends being sharp. These physical characteristics of tetryl powder were believed to be the mechanical cause of the manifestations described. The chemical theory is based on a possible oxidizing reaction of tetryl on the skin. The greater probability that tetryl illness is caused by general or local sensitization to tetryl deserves more serious thought.

At the present time, as mentioned previously, tetryl is believed by many to cause only local manifestations. We have found increasing evidence to point toward the probability that the problem is not as simple as it appears. Systemic changes are believed to be quite possible. In our preliminary laboratory data secondary

the volar surfaces of the forearms and the antecubital fossae. Because of the severity of her reaction it was decided to remove her permanently from tetryl contact. She was given the usual treatment of calamine lotion and mild saline purgatives. She continued to progress favorably, and the dermatitis subsided spontaneously. On April 13 she was accidentally reexposed to tetryl dust when she entered a change house station which was filled with tetryl operators in powder suits. She again reported to the Central Medical Unit, this time exhibiting severe edema in the circumocular region and a dermatitis of the volar surfaces of the forearms. Because of the severe itching and intense burning she was hospitalized for study and symptomatic treatment.

On entrance examination of the urine was negative for sugar and albumin; the specific gravity was 1.010 and the results of microscopic examination were unremarkable. The red blood cell count was 400,000 and the white blood cell count 13,100 with a differential count of 75 per cent neutrophils, 17 per cent lymphocytes, 2 per cent monocytes, 4 per cent juvenile forms, 1 per cent basophils and 1 per cent eosinophils. The hemoglobin content of the blood was 81 per cent. Chemical examination of the blood revealed nonprotein nitrogen 26 mg, sugar 79 mg, chlorides 484 mg and calcium 19.87 mg per hundred cubic centimeters. The icteric index was 4.2.

She remained in the hospital for nine days, at the end of which time the temperature, pulse and respiration were normal. Subsequent laboratory work revealed no changes in blood

constituents of the blood, but there was a slowly developing anemia, as shown by 3,100,000 red blood cells, 5,200 white blood cells and 68 per cent hemoglobin. This anemia responded promptly to ferrous sulfate medication.

This case is of interest because it again emphasizes the fact that when an operator exhibits signs of a severe tetryl reaction he is best removed from tetryl contact permanently. Employees with the milder forms may be allowed to return to their original positions if they are under constant medical inspection. It also emphasizes the possibilities of an increasing sensitization to tetryl in cases of originally severe reactions and raises the question as to the cause of the secondary anemia.

This apparent increase in sensitization has discouraged the routine procedure of skin testing potential operators.

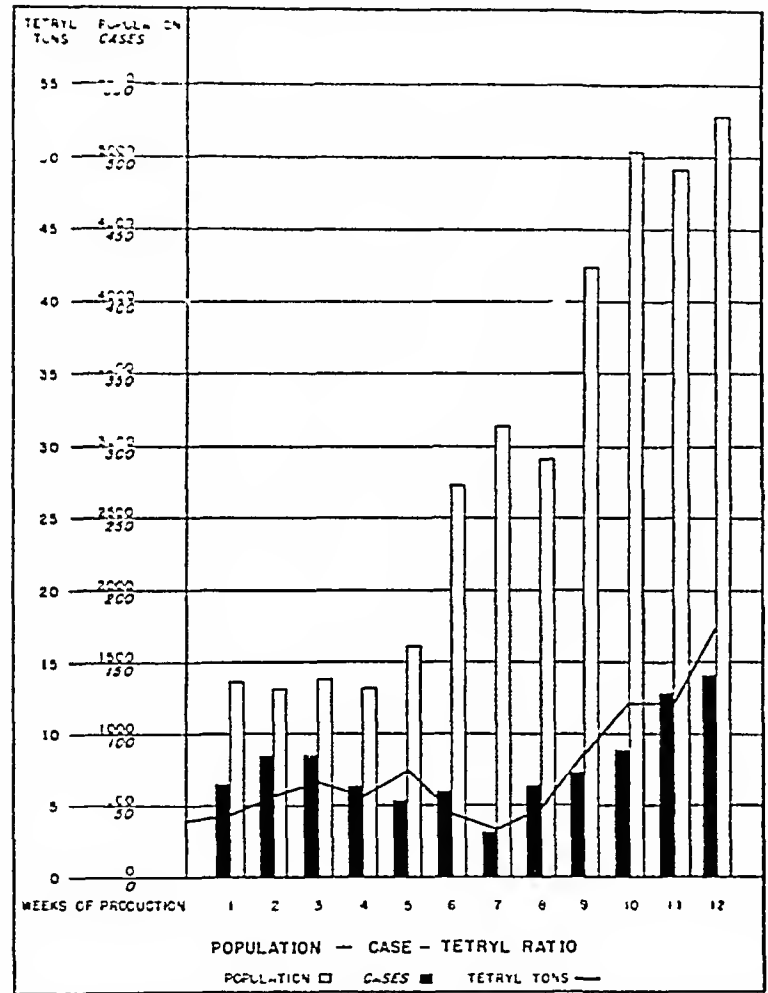


Fig 2—There are two factors having an apparent correlation with the weekly incidence of new cases of tetryl reactions: the amount of tetryl used and the increase in exposed population.

It is now generally believed that patch testing possibly serves as a means of sensitizing and consequently might prove to be more dangerous than beneficial.<sup>4</sup>

STATISTICAL STUDIES

Out of a total population of more than 5,000 people working in buildings where tetryl is processed, we have found that 1,258 (23 per cent) have suffered from symptoms of tetryl illness. Of these 1,258 75 per cent developed a definite tetryl dermatitis. We found in detailed statistical studies of more than a thousand cases that neither age nor sex could be considered definite predisposing factors to tetryl illness.

Forty per cent of operators in direct manual contact with tetryl develop some evidence of tetryl illness. Ruxton,<sup>5</sup> in studying contact operators, found that 32 per

cent of workers could be affected. Twenty per cent of operators working in the same building but not in direct manual contact with tetryl develop tetryl illness. This fact definitely proves that we are not concerned alone with direct contact.

The great demands of the country's war efforts interest the industrial surgeons because it is graphically shown that the number of new cases of tetryl illness is usually proportionate to the amount of tetryl used in production within a particular tetryl unit.

Employees usually experience the first symptoms of tetryl illness during their second or third week of exposure.<sup>6</sup> This figure approximates 1 per cent of the entire line population. During the following weeks there is a gradual increase in the percentage of new tetryl cases until the maximum is attained, at the fifth or sixth week, which approximates 5 per cent. From the sixth week on the percentage of new cases gradually recedes to a maintained average of 3 per cent. These percentages suggest the development of an apparent tolerance. It is this working group, which has been exposed to tetryl dust exceeding six weeks, which we expect to be the working population of tetryl lines.

PROPHYLACTIC MEASURES

All measures directed toward the prevention of tetryl illness should be primarily concerned with the control of tetryl dust.<sup>6</sup> At this plant we have processed crystalline tetryl blended with stearic acid. We have reason to believe that granular tetryl with graphite blend may be a big factor in reducing the amount of tetryl dust. Our figures show that operators need not be in direct manual contact with tetryl to suffer from its ill effects. Among our many cases of tetryl illness we have had repeated instances that emphasize the importance of reducing tetryl dust in the production buildings to a minimum. We have had the importance of tetryl dust accentuated by the development of a typical moderately severe tetryl dermatitis in a nurse who worked in a first aid station isolated from any tetryl building. The only etiologic factor could have been a dust contact from employees who worked with tetryl. The mother of one of our employees visiting in his home for a few days developed a typical tetryl dermatitis.

1 *Rotation of Employees*—Since we have seen that tetryl illness most frequently occurs between the second and third week of exposure, we suggest the weekly rotation of workers in direct manual contact.<sup>5</sup>

2 *Assignment of Open Operations to Rooms of Small Capacity*—It is advantageous that certain tetryl operations should be carried on in small accessory rooms rather than in large rooms housing many employees. This will reduce the amount of tetryl dust in the entire unit. These operational procedures, for example, would be the placing of tetryl pellets into booster cups, hand drilling, reconsolidation, and so on.

3 *General Cleanliness of Employees*—The use of powder uniforms which adequately clothe the extremities and includes a cap will do much to avoid unnecessary contact. These uniforms should be particularly chosen to avoid restrictive cuffs about the ankles or wrists which could lead to undue friction. The daily laundering of these uniforms should be mandatory. Provision of adequate shower facilities for employees, particularly those in direct contact, is worth while. The value of the shower following the working period should not be left to the employees' discretion.

<sup>4</sup> Schwartz, Louis. Personal communication to the authors 1941.  
<sup>5</sup> Ruxton, W. L. Brit J Dermat 29: 18, 1917.

<sup>6</sup> Silver, A. L. L. J Roy Army Med Corps 71: 87 (Aug) 1933.

4 *Ventilation and Temperature Control*—Forced direct circulating air currents should be eliminated to prevent the dispersion of tetryl dust. Many cases can be traced directly to negligence of this problem. The temperature should be maintained at a 72 F maximum.

5 *Dietary Measures*—Little has been said in past reports on dietary measures for the prophylaxis of tetryl illness. Other writers have suggested that the use of milk in quantities of 2 pint portions during the eight hour working period may be used as a prophylactic measure against tetryl illness. We have been unable to find as yet any specific or definite reason why milk would protect one against tetryl illness in any of its manifestations. It might serve some mechanical purpose in reducing gastrointestinal complaints but we have failed to substantiate this. Workers suffering from symptoms of gastritis have been instructed to eat an adequate meal prior to their working period. This has given good results.

At the present time there are many suggestions as to the value of concentrated vitamin C to employees on production lines of both tetryl and trinitrotoluene. We do not believe there is sufficient evidence to warrant dispensing this drug to such workers.

6 *Protective Skin Cream*—A protective skin cream was used in an experimental group to study the effi-

Results of Controlled Experiment with Protective Skin Cream

| Treatment           | Group A<br>(Eight Weeks) |                     | Group B<br>(Seven Weeks) |                     |
|---------------------|--------------------------|---------------------|--------------------------|---------------------|
|                     | No. of<br>Workers        | Incidence<br>Weekly | No. of<br>Workers        | Incidence<br>Weekly |
| Hand cream          | 20                       | 1.2%                | 40                       | 0.9%                |
| Hand and face cream | 20                       | 1.7%                | 20                       | 1.1%                |
| Untreated controls  | 40                       | 0.6%                | 40                       | 4.0%                |

ciency of such preventive measures.<sup>1</sup> This cream is composed of 10 per cent zinc oxide and 1 to 2 per cent ferric oxide in a water miscible casein base. The face and neck cream is colored with brown ferric oxide to give a light tan color, and the hand cream contains red ferric oxide. This makes possible rapid inspection on the lines to verify its use. The protective cream is applied to the hands, face and neck before the start of the work period and after the lunch recess. The operators are cautioned to remove the protective cream before lunch and after work by thorough rinsing under cool water.

For the purpose of controlled experiments the cream was used in two groups of operators working in separate buildings. Each group was divided into three sections. Section 1 was given hand cream only. Section 2 was given hand and face cream. Section 3 was untreated for control purposes. The results are given in the accompanying table.

There was a decrease of approximately 50 per cent in the weekly incidence of tetryl dermatitis when the protective cream was used.<sup>2</sup>

#### ACTIVE TREATMENT

The certain treatment of tetryl illness is, of course, removal from contact. This is often neither practical nor entirely advisable. In most cases of mild gastrointestinal complaints or mild dermatitis an attempt is made to keep the employees working under conditions

of moderate exposure.<sup>3</sup> As many as 60 per cent of these employees develop an apparent tolerance, and a working population is thereby established. We strongly advise that those who in their primary illness develop a severe reaction are permanently transferred from any contact with tetryl. The treatment of the dermatitis consists in the application of calamine lotion without phenol<sup>4</sup> and in cases in which there is some desquamation the use of moist aluminum acetate dressings is still the honored remedy. Burning of the nasal mucosa is most relieved by the intranasal application of zinc oxide ointment and our workers are frequently given small amounts for intranasal insertion prior to their working day. We wish to reemphasize the possibility of a secondary anemia in employees who have persistent complaints. This anemia is quickly remedied by the removal from contact with tetryl and the administration of ferrous sulfate. Those complaining of gastrointestinal symptoms should be questioned closely as to their eating habits prior to their coming to work, and it will be frequently seen that those who have complaints are the coffee and doughnut breakfast eaters.<sup>5</sup>

#### COMMENT

From the results of these investigations it is apparent that the increased use of tetryl will result in a great number of cases of industrial illness with which many physicians have heretofore been completely unfamiliar. The incidence of tetryl illness in our series may seem unusually high but we believe that a similar incidence will be found in the early days of production at all shell loading plants under similar conditions.

If the precautions which we have cited are rigidly followed a good deal of illness and lost time can be prevented. The importance of close, conscientious medical supervision of employees dealing with tetryl cannot be overemphasized. It is this surveillance which allows a majority of employees with tetryl illness to continue at their work until 60 per cent of them develop an apparent tolerance which makes possible uninterrupted production. Our investigations definitely emphasize that any one in a tetryl building is subject to illness. Earlier literature has usually considered only operators in direct contact with the substance.

We wish to stress our feeling that tetryl illness is not confined to purely local symptoms. Our cases of rather rapidly developing secondary anemia,<sup>6</sup> increased irritability and pronounced anorexia cannot be ignored. We strongly suspect that tetryl in cases of prolonged exposure could cause renal or hepatic damage, but we have as yet been unable to substantiate this view.

As has been mentioned employees with mild tetryl dermatitis or illness are allowed to continue their work. We have found that it is to our advantage to remove those with severe primary dermatitis from tetryl contact permanently. The 3 employees who required hospitalization had severe primary reactions and 2 of them were accidentally reexposed.

The problem of tolerance and increased sensitization<sup>7</sup> is a delicate one and it is best interpreted by the examining physician who comes in contact with a multitude of cases. Certainly the reactions which we have seen cannot adequately be explained by either the local chemical or the local mechanical theories. It should be recognized that tetryl dermatitis or any symptom of tetryl illness is based on a sensitization of the body to the provoking agent.

3 Schwartz, Louis. *Indus. Med.* 10: 373 (Ser. 1) 1941.

4 Phenol sensitivity has frequently been seen here.

7 A communication dealing with more general use of the protective cream with secondary anemia and with sensitization will follow.

IMPORTANCE OF RECTAL EXAMINATION IN THE PROGNOSIS OF RECTAL CARCINOMA

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The rectum is a relatively common site for the appearance of carcinoma. Carcinoma of the rectum ranks fifth in the incidence of carcinoma of the human body and second only to that of the stomach in carcinoma of the gastrointestinal tract. It accounts for approximately 60 per cent of all intestinal carcinoma and approximately 5 per cent of all of the carcinoma in the body.<sup>1</sup> Carcinoma of the intestine, rectum and anus ranks third in the causes of death from cancer in Virginia.<sup>2</sup>

Carcinoma of the rectum is curable in a high proportion of cases when treated early. Five year cures have been reported in as high as 43.8 per cent<sup>3</sup> and 46 per cent<sup>4</sup> of cases. The operability of rectal carcinoma varies with individual clinics, having been reported in between 50 and 75 per cent with a tendency to increase in later years.<sup>5</sup>

The purpose of this paper is to point out some of the obstacles to cure of carcinoma of the rectum and to emphasize the manner in which these obstacles may be overcome.

One hundred consecutive cases of carcinoma of the rectum treated at the University of Virginia Hospital during the past ten years have been reviewed and tabulated according to the number which were adequately examined by local physicians prior to diagnosis in this clinic. Since practically all of the tumors in this series of cases were palpable from below, for the purpose of this study an examination has been considered adequate if the local physician had performed a digital examination of the rectum. It is, of course, understood that in all cases digital examination should be supplemented by anoscopic and proctoscopic examination with sigmoidoscopic examination, barium enema and biopsy when indicated. Almost none of the patients here reported on had had these additional studies before being seen in this clinic.

In addition, these patients have been studied as to operability and the method of treatment of both the operable and inoperable patients. The criteria for inoperability have been those related to the lesion itself rather than to general conditions, that is, the size and extension of the local growth and the presence of regional, hepatic, pulmonary or even more remote metastases. The patients have not been classified as inoperable because of age, cardiovascular disease or renal disease.

Table 1 demonstrates the relatively low proportion of cases in which an adequate examination was per-

formed by the local physician and also the extremely high proportion of cases in which the examination by the local physician was inadequate and the lesion was not diagnosed until the patients were examined at this clinic. It will be noted that in only 36 per cent was the examination by the local physician adequate and in 33 per cent an entirely inadequate examination had been performed by the local physician. A great majority of these 33 patients were treated symptomatically with ointments or suppositories for their rectal complaint, or in a number of instances when hemorrhoids were the presenting finding hemorrhoidectomy without further examination had been performed. In 26 of the case histories it was impossible to tell with any degree of certainty whether an adequate examination had been performed by the local physician. These patients were listed as questionable. Five patients did not consult local physicians and came directly to this hospital for diagnosis and treatment.

TABLE 1—Rectal Examination Prior to Diagnosis at the Clinic

|                          |     |
|--------------------------|-----|
| Examination adequate     | 36  |
| Examination inadequate   | 33  |
| Examination questionable | 26  |
| No local physician       | 5   |
| Total                    | 100 |

TABLE 2—Method of Treatment of Rectal Carcinoma

| Operability and Method                                       | Patients | Deaths   |
|--|----------|----------|
| Operable   |          |          |
| Rectal   |          |          |
| One stage  | 18       |          |
| Two stage  | 6        |          |
| After radiation  | 3        |          |
|  | 27       | 2 (7.4%) |
| Other treatment  |          |          |
| Irradiation and excision or radiation plus perineal excision | 6        |          |
| Refused operation  | 5        |          |
|  | 33       |          |
| Inoperable   |          |          |
| Colostomy  | 32       |          |
| Colostomy plus radiation                                     | 8        |          |
| Radiation  | 6        |          |
| No treatment given   | 4        |          |
|  | 50       |          |
| Operability questionable and exploration refused             | 12       |          |
|  | 100      |          |

In chart 1 the data have been grouped according to the adequacy of examination of the patient by the local physician and the percentage of operable, inoperable and doubtfully operable patients in each group. It will be noted that the highest percentage of operable patients, except for the small group that came directly to this hospital for treatment, occurs in the group who were adequately examined by the local physicians. In this group 47 per cent were operable and 47 per cent were inoperable. In 6 per cent the operability was questionable but exploration was refused. In the group of patients who were inadequately examined by their local physicians only 36 per cent were operable, while 46 per cent were inoperable and in 18 per cent operability was questionable and exploration was refused. The lowest percentage of operability occurred in the group whose examinations by local physicians were questionable. In this group only 23 per cent were definitely operable, 62 per cent were definitely inoperable and in 15 per cent operability was doubtful and exploration was refused. It is probably significant that the highest percentage of operable patients occurred among those who were adequately examined by local

From the Department of Surgery and Gynecology, University of Virginia Hospital, Charlottesville, Va.  
1 Kaufmann, Eduard. Lehrbuch der speziellen pathologischen Anatomie, ed 9 and 10. Berlin, Walter de Gruyter & Co., 1939. p 760.  
2 Commonwealth of Virginia, Department of Health, Bureau of Vital Statistics, 1941.  
3 Cattell, R. B. End Results in Cancer of the Large Bowel, North West Med 39: 438-441 (Dec) 1940.  
4 Jones, T. E. Operability and Factors That Increase Curability of Carcinoma of the Rectum, Surg, Gynec & Obst 70: 291-294 (Feb, No 2A) 1940.  
5 David, V. C., and Gilchrist, R. K. Extension of the Borderline of Operability in Cancer of the Rectum, Ann Surg 115: 566-573 (April) 1942.  
Goligher, J. C. The Operability of Carcinoma of the Rectum, Brit M J 2: 393-397 (Sept 20) 1941.  
Rankin, F. W. Cancer of the Rectum and Rectosigmoid: Its Surgical Treatment, Surg, Gynec & Obst 72: 213-221 (Feb) 1941.  
Stone, H. B. and McLanahan, Samuel. Surgical Aspects of Carcinoma of the Large Bowel, J A M A 113: 2282-2288 (Dec 23) 1939.  
Cattell<sup>3</sup> Jones<sup>4</sup>



physicians and that the rate of operability was considerably less in patients who were not examined by local physicians. It may also be of significance that the lowest percentage of operability occurred in that group in which examination by the local physician was doubtful and that the highest percentage of inoperability occurred in this group. One might infer from these observations that the majority of this group had not been adequately examined by local physicians. The last group of 5 cases is so small that the high rate of operability 60 per cent is probably of no significance.

In chart 2 the patients have been grouped according to operability. They have been divided into the operable group, the inoperable group and a third group in which the operability was doubtful and exploration was refused. Each group has been further subdivided according to adequacy of examination by the local physician. The rate of operability for this entire series, 38 per cent, is relatively low and is considerably less than in most individual series represented. However, this may in part be explained by the fact that this hospital cares for a large number of indigent patients and that a relatively large proportion of these patients probably endure their symptoms for many months before consulting a physician.

It will be noted among the group of operable patients that 45 per cent had had adequate examinations by local physicians. Thirty-two per cent of these were not examined adequately by local physicians. In 16 per cent the examination was doubtful, and in 7 per cent no local physician was involved. Among the group of inoperable patients only 35 per cent had had adequate examinations by local physicians, 30 per cent were inadequately examined, in 32 per cent the examination was questionable and 4 per cent had had no local physician. In the group of patients for whom operability was doubtful but exploration was refused, 18 per cent had been adequately examined, 50 per cent had had

probably of no significance. Of the operable patients there was some question as to examination by local physicians in only 16 per cent, there was some doubt as to examination in 32 per cent of the inoperable group and in 32 per cent of the group in which operability was doubtful. The higher percentage of operability in that small group who came directly to the hospital is probably of no significance.

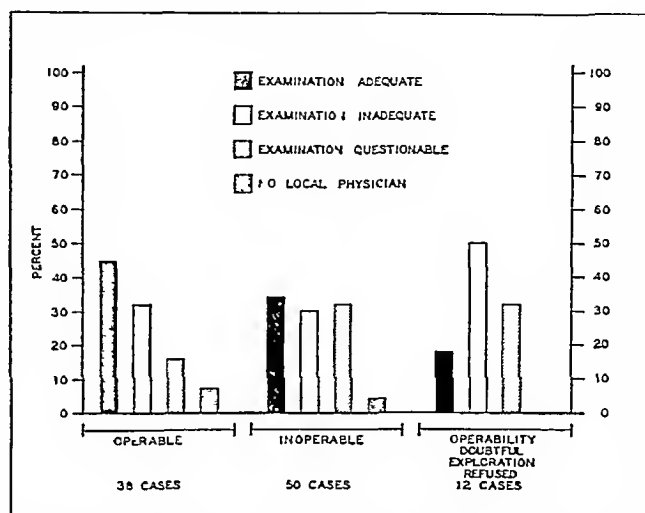


Chart 2—Data on patients grouped according to operability and charted in percentage of adequate examinations

Table 2 presents data arranged according to operability of the patients and to the type of treatment employed. It will be noted that a total of 27 underwent resection, with 2 deaths, or a mortality of 7.4 per cent. Six were treated in some other manner, such as fulguration and excision or radiation plus perineal excision. There were no deaths in this group. Five of the patients who were thought to be definitely operable by clinical examination refused operation. Of the inoperable patients, 32 were treated by colostomy alone, 8 were treated by colostomy plus radiation and 6 by radiation alone, for 4 it was thought not advisable to carry out any treatment. For 12 patients there was some controversy as to the operability, and all of these refused exploration. Including the 5 patients who were thought to be definitely operable, a total of 17 patients or 17 per cent of the series, refused treatment. This is a slightly higher incidence for refusal of treatment than most authors report.<sup>4</sup>

#### COMMENT

The foregoing data emphasize the importance of an ordinary digital examination of the rectum at the earliest opportunity once the patient consults a physician with the history of change of bowel habits and/or blood and mucus in the stools. It seems reasonable to assume that of the 15 patients who were inadequately examined by their local physicians and who were found to be inoperable at the time of examination at this hospital a majority might have obtained the benefit of curative surgery had the diagnosis been established at an early date. Other authors<sup>6</sup> have indicated an even higher percentage of unfavorable cases as being directly the result of incomplete examination. Jones<sup>7</sup> estimated that the local physician was at fault in 85

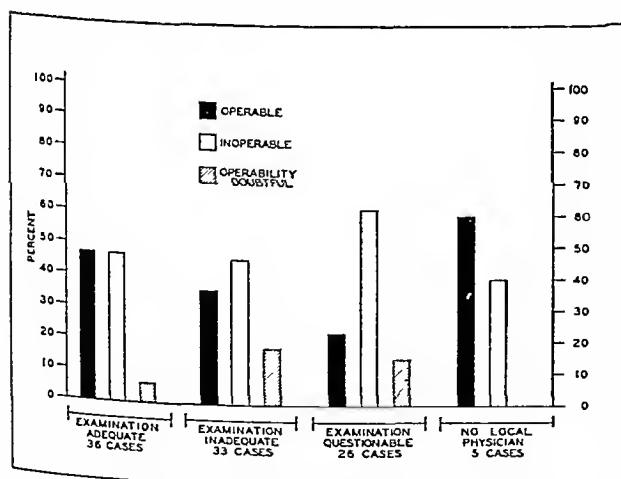


Chart 1—Data on patients grouped according to adequacy of examination and charted in percentage of operability

inadequate examinations by local physicians and 32 per cent presented no clearcut history indicating whether adequate examination had been performed or not. It is probably significant that the adequacy of early examination was greatest in the group of operable patients. However, the percentage of patients who had inadequate examinations is approximately the same in the operable and inoperable groups. The highest percentage of inadequate examinations occurred among those patients in whom operability was doubtful. This is

<sup>6</sup> Rankin F W. Common Errors in the Diagnosis and Treatment of Cancer of the Colon and Rectum. *South M J* 20:363-392 (April) 1937. Wijnen E. The Physician and Preventable Cancer Deaths. *Diplomate* 10:255-261 (Nov.) 1938. Jones<sup>7</sup>.  
<sup>7</sup> Jones T E. Early Diagnosis and Treatment of Cancer of the Rectum. *South M J* 34:35-38 (Jan.) 1941.

to 90 per cent of unfavorable cases. Other authors<sup>8</sup> have stressed the importance of an educational program for general practitioners as well as for the lay public concerning the importance of early diagnosis in carcinoma of the rectum.

Examples among this group of cases of inadequate examination by the local physician may be cited. A 51 year old white woman had had rectal discomfort with bleeding and alternating periods of constipation and diarrhea for nearly three years. She was treated by hemorrhoidectomy by the local physician without being given an adequate examination. In addition, she was treated for one month postoperatively by a second physician for rectal stricture without the diagnosis of carcinoma of the rectum being made. Examination in the University of Virginia Hospital revealed a large tumor easily palpable by digital examination.

A second instance of inadequate examination by the local physician was that of a 16 year old white boy who complained of anal tenesmus, blood and mucus in the stools and pain on defecation for twelve months. He had been under the care of his local physician for the seven months prior to the time of examination in this hospital, and a digital examination had never been performed. Examination revealed a large tumor mass just inside the anal orifice, which on biopsy proved to be grade 3 adenocarcinoma.

A third patient, a 43 year old white woman, complained of rectal bleeding with constipation, rectal urgency and hemorrhoids for ten months. Her physician treated her hemorrhoids with suppositories and referred her to a surgeon six months prior to examination in this hospital. The surgeon performed a hysterectomy and failed to diagnose the carcinoma of the rectum. The growth in this instance also was easily palpable by rectum.

There are other factors directly attributable to the patient which limit the number of cures of carcinoma of the rectum. Of the 17 inoperable patients in this series each of whom had been adequately examined by the local physician at the first visit, it is probable that had the patient consulted his physician at an earlier date a more favorable prognosis might have resulted. The negligence on the part of the patient in consulting a physician when symptoms first appear is perhaps due to two factors. First, some patients are too embarrassed to seek advice and examination and, secondly, the symptoms often cause little discomfort and do not incapacitate the patient enough to impress him with the seriousness of his condition. Bergen and Leddy<sup>9</sup> studied 200 consecutive patients with rectal carcinoma seen at the Mayo Clinic and found that only 46 per cent had consulted physicians within one month after the first appearance of symptoms. The remaining 54 per cent did not consult physicians until two to twenty-four months after the onset of symptoms.

The third cause of an unfavorable prognosis in rectal carcinoma which is also attributable to the patient is refusal of treatment once the diagnosis has been established. In this series 5 patients who were thought clinically to be operable and 12 others in whom operability was equivocal refused surgical exploration, a total of 17 per cent. Jones<sup>4</sup> estimated that 10 per cent of his patients refused treatment.

One other point of importance that should be stressed is the high incidence of rectal carcinoma in younger people. Four patients in this series were under 30 years of age and 1 was only 16. Other writers<sup>10</sup> have stressed the importance of thorough rectal investigation in young persons with rectal complaints.

## SUMMARY

- 1 The greatest responsibility for early diagnosis and treatment of rectal carcinoma falls on the general practitioner.
- 2 Any patient of any age who presents himself with a history of change in bowel habits and/or blood or mucus in the stools should have a thorough rectal examination, including proctoscopic investigation, at the earliest opportunity.
- 3 The treatment of recurrent or prolonged diarrhea without rectal examination is to be condemned.
- 4 The treatment of hemorrhoids by surgical or conservative measures without first an investigation of the upper part of the rectum is also condemned.

## THE THERAPEUTIC EFFICIENCY OF DIETHYLSTILBESTROL ESTERS

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AND

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The comparison of the activity of various estrogens for therapeutic standardization has until recent years depended for the most part on results obtained with laboratory animals. It has been frequently pointed out, however, that assays of estrogens vary extremely in the hands of investigators using different species of animals as well as various strains of the same animal. It is obvious that such a basis for the comparison of estrogens leads to confusion, and a number of investigators have recently suggested that estrogens be assayed directly in studies on man. In this regard changes in the endometrium or vaginal smear of menopausal women have been used for determining the potency of several estrogens.<sup>1</sup> We have pointed out that the use of the endometrial biopsies for assaying purposes is awkward and not sufficiently accurate, since a significant percentage of women in the menopause have varying degrees of endometrial development even without having received estrogen therapy and that specimens of the same endometrium differ when taken from different sites in the uterus.<sup>2</sup> The vaginal smear technic in the human being appears to be reliable<sup>3</sup> but here again

10 Bacon H E, and Sealy, W B. Malignancy of the Anus. Rectum and Sigmoid Colon in the Young, *Am J Surg* 45:339-347 (Aug.) 1939. Mayo C W and Madding G F. Carcinoma of the Rectum and of the Rectosigmoid in the Young, *Arch Surg* 40:83-89 (Jan.) 1940. Rosser, Curtice and Kerr J G. Cancer of the Rectum in Young Persons. *J A M A* 113:1192-1194 (Sept. 23) 1939.

Miss Bertha Kutscheid, R N. aided in this work.  
From the Endocrine Gynecology Clinic, Mercy Hospital, and Loyola University School of Medicine.

1 Werner, A A. Survey of Estrogenic Dosage. Collective Review, *Internat Abstr Surg* 73:49-54 in *Surg Gynec & Obst* July 1941.  
Papanicolaou, G N, and Shorr, E F. The Action of Ovarian Follicle Hormone in Ovarian Insufficiency in Women as Indicated by Vaginal Smears, *Proc Soc Exper Biol & Med* 33:585 (Jan.) 1935.

2 Freed, S C. Human Assay of Estrogens. Herbert M Evans Anniversary Volume, to be published.

3 Shorr, E F. Robinson F H, and Papanicolaou, G N. A Clinical Study of the Synthetic Estrogen Stilbestrol. *J A M A* 113:2312 (Dec. 23) 1939. Stoddard F Jackson, and Metzger Ida. Clinical Comparison of Three Commercial Estrogenic Preparations, *J Clin Endocrinol* 2:209 (April) 1942.

8 MacCarty, W C. The Size of Operable Cancers. *Am J Cancer* 17:25-33 (Jan.) 1933. Markowitz, Benjamin. Carcinoma and the General Practitioner, *Illinois M J* 86:66-68 (July) 1935.

9 Bergen, J A, and Leddy, E T. Carcinoma of the Rectum. Some Causes for the Poor Prognosis, *J A M A* 104:1201-1203 (April 6) 1935.

untreated menopausal women have varying degrees of cornification and care must be exercised in selecting only those with sufficiently atrophic vaginal mucosae. There is also a need for data on the quantitative response of the vaginal mucosa to known amounts of estrogens for use as a basis in assaying estrogens. We<sup>4</sup> have proposed a method for determining the potency of estrogens by using the subjective response of menopausal women. In this method nonspecific factors have been to a considerable extent reduced through proper selection of patients, elimination of certain psychic factors and the use of multiple dosage levels. Only patients with moderate or severe symptoms including at least two to four hot flashes daily are used for testing. In treating these patients no suggestion or promise of relief is made, and the patients are not informed of the nature of the medication they are receiving. The relief of all patients is evaluated by one of us in order to make for uniform results. We change the dosage levels without informing the patient. With this technique we have determined the minimal effective dosages of diethylstilbestrol, hexoestrol, octotollin and estrone sulfate,<sup>5</sup> all of them being administered orally. For estrogens that are administered by injection we have adopted a technique whereby the length of the period of relief following the last of a series of injections is an index of the therapeutic efficiency of the estrogens.<sup>6</sup> This method has been used in the present study in testing the efficiency in the human beings of diethylstilbestrol esters.

It is well known that esterification of estrogens improves their efficiency owing to the fact that such a modification delays the absorption of the estrogen from the site of injection, thereby preventing excessive destruction by the body as well as allowing for an even and prolonged effect. The fatty acids chosen for esterification of estrogens as well as other hormones such as testosterone, estradiol and desoxycorticosterone have, however, depended on data obtained in the laboratory animal. In such animals it has been shown that the various esters, though having prolonged effects, are less active in regard to minimal effective doses than the free compound. A compromise was therefore made in selecting those esters which have a relatively slight decrease in activity together with a relatively long period of effect. In regard to diethylstilbestrol, the dipropionate was chosen because it possesses these properties. The higher fatty acid esters were ignored because of their apparent great loss in activity. Thus, while the minimal effective dose of the dipropionate is three to five times greater than that of diethylstilbestrol, the dipalmitate is fifty times greater. Theoretically, therefore, this compound would be far inferior to the dipropionate. In order to determine whether this relationship holds for the human being, the three substances diethylstilbestrol, diethylstilbestrol dipropionate and diethylstilbestrol dipalmitate<sup>8</sup> were compared, the prolongation of relief from menopausal symptoms being used as the criterion of efficiency.

## METHODS AND RESULTS

These three compounds were injected into menopausal patients with moderate or severe symptoms once a week for three weeks. Five mg of diethylstilbestrol was administered at each injection. The amount of the esters injected was calculated to contain an equivalent of 5 mg of the active component diethylstilbestrol. After the third injection the patients were observed at intervals of two to three weeks and placebo injections were administered in order to eliminate as much as possible the psychic factor of injection. At each visit the patient's relief was evaluated according to the disappearance of hot flashes and other peripheral vascular effects and other well known symptoms of the menopause such as nervousness and irritability.

Table 1 shows the number of weeks following the last injection for which each of the patients was free from symptoms.

All patients except those represented by 0s obtained satisfactory or excellent relief of symptoms. From this

TABLE 1—Period of Relief in Weeks Following Cessation of Therapy\*

|                                 |                   |                   |             |          |             |
|---------------------------------|-------------------|-------------------|-------------|----------|-------------|
| Diethylstilbestrol              | 0 0 0             | 1 1               | 1 1 1 1     | 2 2 2    | 3 3 3 3 3 3 |
|                                 | 4 4 4             | 5                 | 6 6 6 6     | 7 8 8    | 11 14, 14   |
| Diethylstilbestrol dipropionate | 0 0               | 1                 | 2 2 2 2 2   | 3 3 3    | 4 4 4 4 4 4 |
|                                 | 4 5 5 5           | 6 6 6 6 6         | 7 7 7 7 7 8 |          |             |
|                                 | 9 9               | 11 11 11 11 11    | 14          |          |             |
| Diethylstilbestrol dipalmitate  | 0                 | 1                 | 2 3 4       | 5 5 5 5  | 6 7 8 8     |
|                                 | 8 8 8             | 9 9 9             | 10 10 10 10 | 11 11 11 |             |
|                                 | 12 12 12 12 12 12 | 14 14 14 14 14 14 |             |          |             |
|                                 | 16 18 20 20       |                   |             |          |             |

\* Each number represents the result in one patient.

TABLE 2—Incidence of Nausea (With and Without Other Symptoms Such as Vomiting, Headache and Dizziness)

|                                 | Total Number of Patients | Patients With Nausea |
|---------------------------------|--------------------------|----------------------|
| Diethylstilbestrol              | 32                       | 15                   |
| Diethylstilbestrol dipropionate | 41                       | 6                    |
| Diethylstilbestrol dipalmitate  | 43                       | 1                    |

table it is apparent that diethylstilbestrol is inferior to the dipropionate in efficiency, since the period of effective relief is significantly less than that of the ester. Thus, for example, 9 out of 32 patients receiving diethylstilbestrol obtained either no relief or relief for only one week, while only 3 patients out of 41 who received the dipropionate were similarly affected. The dipropionate was effective on an average of five weeks, or about one week longer than was the diethylstilbestrol. Diethylstilbestrol dipalmitate, on the other hand, was far more effective than the dipropionate. Patients obtained relief for an average of nine to ten weeks following the last injection and only 5 of 43 patients had less than five weeks' relief, compared to 18 of 41 with dipropionate and 21 of 32 with diethylstilbestrol.

The incidence of toxicity following administration of diethylstilbestrol compounds is of considerable interest since this offers one of the greatest disadvantages to their use. Table 2 shows the incidence of toxicity following the administration of these three compounds, the development of nausea being used to indicate toxicity.

It can be seen from this table that the dipropionate is considerably less toxic than the free compound con-

<sup>4</sup> Freed S C, Eisin W M and Greenhill J P. Assay in the Human of Synthetic Estrogen 118 B (Octofollin). J Clin Endocrinol 2: 213 (April) 1942. Freed<sup>2</sup>

<sup>5</sup> Freed S C, Eisin W M and Greenhill J P. Assay in the Human of Estrone Sulfate to be published.

<sup>6</sup> Freed S C and Greenhill J P. Therapeutic Use of Estrone. Suspensions. J Clin Endocrinol 1: 933 (Dec) 1941.

<sup>7</sup> Dodds E C, Golberg L, Lawson W and Robinson Sir Robert. Synthetic Estrogenic Compounds Related to Stilbene and Diphenylethane. Part I. Proc Roy Soc London B 127: 140 (May 1939).

<sup>8</sup> These three substances were supplied by Abbott Laboratories. The diethylstilbestrol dipalmitate has a melting point of 77.78 F.

firming the results of others in this respect.<sup>9</sup> Dipalmitate is practically free from toxicity, since only 1 patient out of 43 complained of nausea.

## COMMENT

Our results demonstrate once again the limitations of using laboratory assays as a basis for therapeutic standardization. We have shown that the compound diethylstilbestrol dipalmitate, which in the rat requires an amount fifty times greater than diethylstilbestrol to produce an effective response, is far more potent in the human being. Similarly it is significantly more efficient than the dipropionate, which was selected for therapeutic use as the most efficient fatty acid ester on the basis of laboratory data. It is most likely that the relationship of efficiency of these three compounds is reversed in the human being from that of the rat as a result of different rates of absorption and utilization of the compounds. It is indeed interesting that diethylstilbestrol dibenzoate,<sup>10</sup> which is comparable to the dipalmitate in the rat in regard to the minimal effective dose and the prolongation of effect, approximates in the human being the action of the dipropionate. Selection of the appropriate esters or other modifications of estrogens should, therefore, be determined only by direct assays in the human subject and not by clinical application of data derived from experimental animals. It is quite possible that fatty acids of higher types other than palmitic acid would be even more efficient. The latter was selected only because the wide divergence of minimal effective dosages offered an opportunity to demonstrate striking results.

The low incidence of toxicity of the diethylstilbestrol esters and especially the dipalmitate is highly gratifying, since the chief disadvantage to the use of diethylstilbestrol has been the relatively frequent side reactions. The reduction in incidence in toxicity appears to be in direct proportion to the decrease in rate of absorption of the fatty acid compounds. This substantiates our previous postulation<sup>11</sup> that the disagreeable symptoms following administration of diethylstilbestrol resulted from its rapid introduction into the blood stream, a condition found also in early pregnancy, in which condition similar symptoms are present.

In our hands diethylstilbestrol dipalmitate appears to be an ideal estrogen. It is highly effective, its action is prolonged over a long period and it gives rise to little or no unpleasant reaction. It is entirely possible that similar high fatty acid esters of other compounds such as testosterone, desoxycorticosterone and estradiol may show a similar increase in efficiency when tested in the human being.

## SUMMARY

Diethylstilbestrol, diethylstilbestrol dipropionate and diethylstilbestrol dipalmitate have been assayed for their therapeutic efficiency in the human being, the subjective response of menopausal patients being used as the criterion of efficiency. Diethylstilbestrol dipalmitate is superior to the others in having a considerably prolonged period of effect together with little or no toxicity. Our results demonstrate once again the limitations of using laboratory animals for therapeutic standardization and the necessity of testing such compounds directly in the human being.

## Clinical Notes, Suggestions and New Instruments

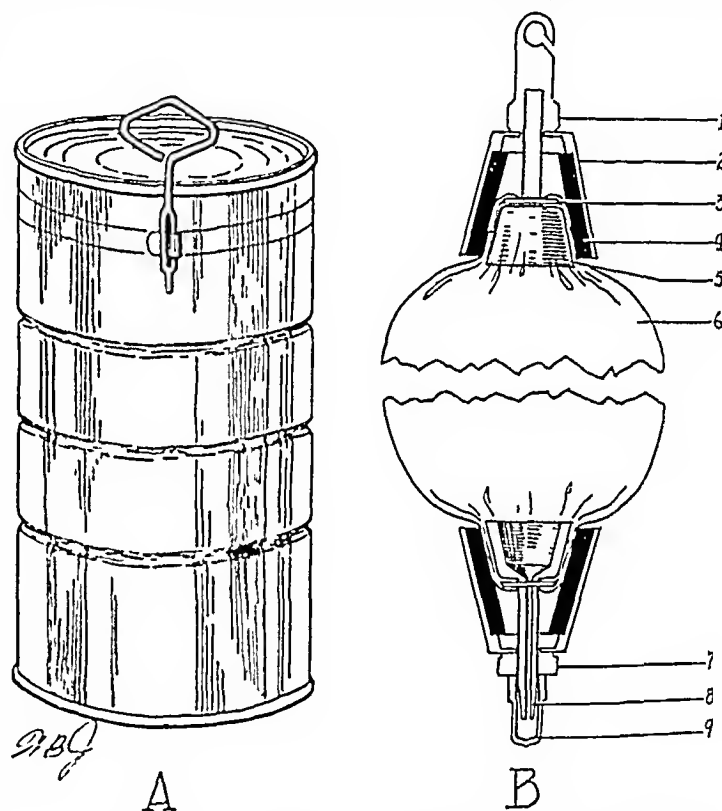
### A VENOCLYSIS UNIT RESISTANT TO FREEZING

A. C. IVY, PH.D., M.D., AND S. C. HARRIS, M.S., CHICAGO

Fluids for venoclysis are now dispensed in glassware, which will fracture when handled roughly or when the contents are frozen. It was deemed advisable, for reasons unnecessary to record here, to have a venoclysis unit devoid of these objections.

Distilled water and various solutions for intravenous use may be packed in properly fabricated enamel lined tin cans. However, the solutions are not readily evacuated from the cans without risk of contamination, and the duration of the reliability of solutions so packed is relatively short because corrosion cannot be prevented to an extent that renders the method free from danger.

To obviate these difficulties, it was necessary to find a unit which was resistant to corrosion and which could be placed in a can. Various types of rubber bags and plastics were first



1 the can in which the venoclysis unit (B) is packed shows the heads for rigidity against freezing and the keg opening device. 1, the hook for hanging the unit. 2, aluminum alloy cap, fitting snugly against the rubber washer (4), which seals the Visking bag, which is turned back over the aluminum ring (3), which in turn clamps the Visking bag against the solid aluminum alloy base (5). The dispensing end of the unit is closed like the end for hanging. The nut (7) holds the aluminum alloy cap against the rubber washer (4) at the end for hanging. The cap adapter (8) is machined to take a hypodermic needle, and (9) is the cap sealing the opening and protecting the adapter. In the top of the cap (9) a specially prepared cork washer is placed to secure the seal.

employed, but when the package, packed under vacuum, was sterilized the solutions became contaminated, as evidenced by the odor and taste and by the presence of pyrogenic substances. After much experimentation it was found that a Visking sausage casing (Visking Corporation, Chicago) was a suitable container for fluids intended for venoclysis. For closing the ends of the casing, various plastics were found to be unsuitable because they became deformed on heating or freezing and imparted objectionable qualities to the solution. Further experimentation showed that an aluminum alloy (Aluminum Company of America) electroplated with aluminum oxide was sufficiently inert chemically to be used for closing the ends of the casing.

After the various parts of the unit shown in the illustration are cleaned and properly prepared, 600 cc of triple distilled

<sup>9</sup> Greene, R. R., and Dorr, E. M. Relation of Dose and Type of Estrogen to Nausea and Vomiting, *J. Clin. Endocrinol.* 1: 821 (Oct) 1941.

<sup>10</sup> Freed, S. C., Eism, W. M., and Greenhill, J. P. Unpublished work.

<sup>11</sup> Freed, S. C. Recent Progress in Estrogen Therapy, *Illinois M. J.* 80: 139 (Aug) 1941.

water or solution is placed in the unit the outside of the unit is rinsed and the unit is placed in the can, which is closed under vacuum and autoclaved. The packed can (American Can Company) may then be subjected to freezing (—55 F overnight), to an altitude of 45,000 feet and to one to two atmospheres of pressure without rupture of the contents or injury of the contained unit. The only disadvantageous feature of the pack is that because of the permeability of the Viking bag, from 20 to 40 cc of the solution passes out into the can when exposed to the vacuum packing procedure. The unit should be wiped with a towel when lifted from the opened can.

One end of the unit is provided with an adapter (covered by the cap in the illustration) to take a 1/16 inch hypodermic needle or a rubber tube. The other end is provided with a hook for suspension. The unit does not require a breather, since it collapses with gravity or can be squeezed with the hand to speed the flow of solution. In fact a small can containing a rubber or Viking tube of small bore, a hypodermic needle with adhesive tape and anti-rupture gauze could be placed in a small tin container. This in turn could be soldered to the larger can thus providing a complete emergency kit for the intravenous administration of fluid or supplying distilled water for the solution of a package of dried plasma or serum.

Such units have been packed with distilled water 0.9 per cent sodium chloride solution, Locke's solution 5 per cent dextrose solution and 0 per cent serum in 0.9 per cent sodium chloride solution. At various times up to six months after packing, 100 cc quantities of such solutions have been given intravenously during twenty to thirty minutes to dogs trained to lie quietly without any elevation of rectal temperature over a period of five hours. The solutions by bacteriologic test have been sterile. Traces of iron and aluminum have been found in the solutions only after six months. In several instances the can had corroded in small areas and stained the bag. This may be avoided by giving the cans an extra coat of enamel after the beads in the wall of the cans have been formed. (The beads are necessary to give the can strength to withstand freezing.)

Through the courtesy of Dr. C. M. Davison and F. J. Leeman Jr. of Cook County Hospital, 14 nontyphoid patients have received 500 cc of 0.9 per cent sodium chloride solution intravenously from units packed and kept in an incubator (38 C.) for one month. No subjective symptoms were reported by the patients, and the rectal temperature recorded hourly for five hours showed no change greater than that normally observed.

#### SUMMARY

A venoclysis unit resistant to freezing and rough handling has been constructed. Various solutions used clinically have been packed in the unit and found to be suitable for intravenous use as evaluated on human subjects and on dogs. Solutions so prepared and stored appear to be stable and unaltered for at least six months; however observations on man have not been extended beyond one month.

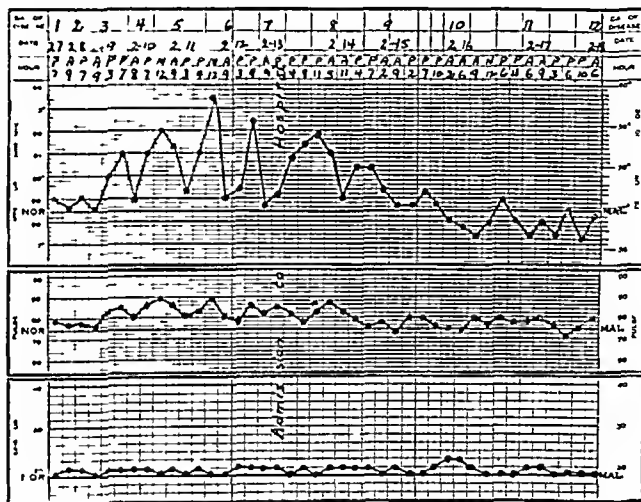
#### TYPHUS FEVER IN A PREVIOUSLY VACCINATED LABORATORY WORKER

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GLENOLDEN, PA.

**History of Present Illness.**—Dr. B. H., a white woman aged 43, was well until Feb. 7, 1942, when malaise, slight headache and fever developed. At 7 p. m. her temperature was 99 F. The next day the symptoms were unchanged and she reported to work on the 9th, she felt well during the morning but in the afternoon she was unduly fatigued and feverish. There was loss of appetite and considerable sweating. On the 11th severe aching pain developed across the back of the head and lasted throughout the duration of fever. There was no vomiting and the bowel movements were regular. Fever and headache were the outstanding complaints when one of us (H. G.) saw the patient on the 12th at 9 p. m. Her temperature then

was 102.4 F. with a corresponding rise in the pulse and respiration. The skin was dry and hot. The tongue was slightly coated. Careful physical examination failed to disclose any pathologic abnormalities. Catheterized urine was normal and the white blood cell count was 4,200 cells per cubic millimeter. The past medical and family histories were irrelevant.

Because of the occupational history and absent physical manifestations we suspected that this bizarre fever was atypical typhus and advised hospitalization. She was admitted to the Chester Hospital on the 13th. The urine was again found to be normal and the complete blood count was reported as red cells 3,930,000, hemoglobin content 13 Gm., white cells 4,100, polymorphonuclear leukocytes 58 per cent (segmented 18 per cent band 37 per cent), metamyelocytes 2 per cent, myelocytes 1 per cent, lymphocytes 42 per cent. Severe headache persisted until the 15th when it decreased in intensity and then disappeared in thirty-six hours. The headache came in paroxysms accompanying the bouts of fever. During febrile remissions the patient had no complaints except that she felt weak and tired. Profuse sweating occurred at night. On the 14th two to three small pale pink macules were noted on the upper part of the abdomen. They disappeared under pressure and lasted only a few hours. The spleen and liver



Temperature, pulse and respiratory rate

were not palpable. The temperature became normal on the 17th and the patient began to have a good appetite. On the 16th the blood count was reported as red cells 3,450,000, hemoglobin content 12 Gm., white cells 7,900, polymorphonuclear leukocytes 65 per cent, eosinophils 1 per cent, monocytes 4 per cent, lymphocytes 29 per cent, basophils 1 per cent. She was discharged from the hospital on the 19th and returned to work six days later. There were no sequelae. Her temperature record is shown.

**Occupational History.**—Eggs previously inoculated with typhus virus (Bremi strain) had been harvested by the patient with the assistance of a technician. Sterile gowns, goggles, face masks and rubber gloves were worn throughout the procedure. The patient cracked the eggs over a sterile pan and removed the yolk sacs with sterile forceps. After collection of the yolk sacs, grinding was done in a Waring Blendor. The container of the mixer was covered with phenolized gauze and a metal top. Because of the possible occurrence of air borne infection from a fine spray, the material was allowed to settle after being ground before the metal top was removed. The material was then poured into a bottle under phenol gauze and diluted and solution of formaldehyde was added.

The patient came in contact with the virus for the first time on Jan. 20, 1942 when she harvested forty-one eggs (length of exposure thirty minutes). On January 26 she harvested fifty-six eggs (forty minutes). On February 3 she handled



one hundred and twenty-one eggs (two hours) and on February 9 she harvested one hundred and thirty-two eggs (two hours). There was no history of injury or accidental exposure to the virus.

**Immunologic History**—In anticipation of her assignment to the typhus vaccine division the patient was actively immunized against typhus by means of three weekly injections (1 cc each) of Cox yolk sac vaccine supplied by the National Institute of Health. After a control bleeding had been obtained the first dose was given on Nov. 7, 1941. A follow-up sample of blood was obtained on December 1, ten days after the third dose of vaccine had been injected (shown in the accompanying table). On the day the patient began to harvest inoculated eggs (Jan. 20, 1942) she received her fourth dose (1 cc) of the National Institute of Health vaccine. Her present illness began eighteen days after this repeat injection. Blood obtained on February 11 and 12, on the fifth and sixth days of illness, was injected intraperitoneally into guinea pigs. Of 5 animals thus inoculated only 1 (inoculated with the specimen of February 11) had an elevation of temperature beginning the sixteenth day. From this guinea pig a strain of European typhus was isolated and maintained in serial passage.

The results of agglutination<sup>1</sup> and complement fixation tests performed before, during and after the illness are shown in the table.

technician's blood serum showed rickettsial agglutinin titer of + in a 1:80 dilution.

This factor of poor response to vaccination and the possible occurrence of atypical (modified) typhus infection in such vaccinated persons raise important public health problems, especially under war conditions. From the clinical course in our case, which in the first few days could have been incorrectly diagnosed as grip or influenza, it is clear that the occurrence of unexplained fever among troops vaccinated against typhus and who are operating in known endemic areas must be suspected as possibly due to typhus until proved otherwise. As demonstrated in our patient, the virus can be recovered from the blood of vaccinated persons early in the disease. This would call for the prompt isolation of all persons with suspected typhus fever to prevent them from becoming the center of epidemics of the classic form of the disease among the nonvaccinated population.

ADDENDUM

Since the foregoing report was submitted for publication, we have successfully treated a second case of laboratory typhus infection in a vaccinated technician. The patient, a woman aged 25, had been working for three months in the typhus vaccine division of Sharp and Dohme when on May 9, 1942 she accidentally splashed the contents of a syringe (about 5 cc

Agglutination Tests

| Date    | Proteus Vulgaris O X 19 Dilutions |      |      |       |       |       |         | European Rickettsiae, Dilutions |      |      |       |       | Complement Fixation | Comment                                 |
|---------|-----------------------------------|------|------|-------|-------|-------|---------|---------------------------------|------|------|-------|-------|---------------------|---|
|         | 1:20                              | 1:40 | 1:80 | 1:160 | 1:320 | 1:640 | 1:1,280 | 1:20                            | 1:40 | 1:80 | 1:160 | 1:320 |                     |   |
| 11/7/41 | +++                               | ++   | +    | ±     | 0     | —     | —       | 0                               | 0    | 0    | 0     | —     | 0                   | Before vaccination                      |
| 12/1/41 | +++                               | ++   | +    | ±     | 0     | —     | —       | +                               | ±    | 0    | 0     | —     | 0                   | 10 days after the third dose of vaccine |
| 2/11/42 | +++                               | +++  | ++   | +     | 0     | 0     | —       | ++                              | ++   | +    | 0     | —     | 1:64                | 5th day of fever                        |
| 2/12/42 | +++                               | +++  | ++   | +     | 0     | 0     | —       | +++                             | ++   | +    | 0     | —     | —                   | 6th day of fever                        |
| 2/19/42 | ++++                              | ++++ | ++++ | +++   | +++   | +     | ±       | +++                             | +++  | +++  | +     | ±     | 1:1,024             | 15th day of illness, convalescence      |
| 3/9/42  | ++++                              | ++++ | +++  | ++    | ±     | 0     | 0       | ++++                            | +++  | +++  | ++    | ±     | 1:1,024             | 31st day after onset of illness         |
| 4/1/42  | ++++                              | ++++ | ++   | ++    | ±     | 0     | 0       | ++++                            | +++  | +++  | +     | 0     | 1:512               | 54th day after onset of illness         |

COMMENT

The isolation of the European strain of typhus virus from the patient's blood on the fifth day of illness proves beyond doubt that we were dealing with a case of atypical (modified) typhus fever. Further corroborative evidence is to be found in the rise of the agglutinin titer to both *Proteus vulgaris* O X 19 and typhus rickettsiae displayed by the patient during convalescence.

Infection apparently occurred by way of the respiratory tract, following what appears to have been a light exposure to the virus, in spite of the use of extraordinary protective measures and previous immunization with the National Institute of Health vaccine. Four cc of this vaccine given within seven weeks failed to give the patient complete protection against typhus. On the other hand, partial protection apparently resulted therefrom, as evidenced by the mild type of typhus fever (without rash) that ensued. It may be argued that the mildness of the infection was rather the result of a light exposure. Against this hypothesis we may recite the fact that the technician who assisted our patient and who underwent a similar degree of exposure to the virus did not contract the disease. This may be accounted for by the difference in their immunologic response to vaccination against typhus fever. Our patient's response was poor, while in the case of the technician, who had been similarly vaccinated before exposure, it was good. Ten days after the third dose of vaccine, the

of a suspension of European typhus virus) on her face and right eye. Four days later she came down with fever, and the clinical picture that developed thereafter was similar to that of our first case. Photophobia, muscular aching, hyperesthesia to deep pressure and mental depression were prominent features. On the fourth day of fever, four pale pink macules were noted on the epigastrium. They disappeared in twenty-four hours. The febrile period lasted four days (100-102 F) and the patient made a complete recovery in a week. We failed to recover the virus, perhaps because the specimens of blood studied were obtained too early (on the first and second days of fever) but the diagnosis was confirmed by the steep rise in the agglutinin titers to *Proteus vulgaris* O X 19 and European rickettsiae that occurred after the eighth day of illness (rickettsial agglutinin + in 1:280 dilution).

Previous to the onset of typhus fever, the patient had received three weekly 1 cc injections of the N I H vaccine (last dose, Feb. 4, 1942) followed by two injections of 0.5 cc and 1.0 cc respectively (Feb. 12 and 24) of an egg yolk typhus vaccine prepared by the Sharp and Dohme laboratories, which was richer in rickettsiae than the N I H antigen. Following vaccination there was no change in the Weil-Felix reaction, but the rickettsial agglutinin titer rose from 0 to + in 1:40 dilution on the ninth day after the third dose of vaccine and to + in 1:80 dilution five weeks after the fifth dose of vaccine. Similarly the complement fixation became positive in 1:4 and 1:8 dilutions on these two dates. Yet this patient developed modified typhus fever following the accidental exposure that occurred about eleven weeks after the fifth dose of vaccine had been injected. This corroborates the conclusions deduced from the first case.

1 Fitzpatrick, Florence, and Hampill, Bettylee. Am J Pub Health 31: 1301-1305 (Dec.) 1941.  
2 Performed by Dr. Ida Bengtson, National Institute of Health, Bethesda, Md.

## PLACENTA ACCRETA

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Placenta accreta is a serious but fortunately a rare complication of labor. Meyer and Ashworth<sup>1</sup> found 118 authentic cases after careful search of the literature up to 1910. The reported incidence of this condition differs greatly, varying from 1 in 5,000 to 1 in 50,000 deliveries. As a rough estimate, it probably occurs about once in every 10,000 deliveries.

The chief pathologic change in placenta accreta is a complete or partial absence of the decidua basalis which allows the villi to burrow directly into the uterine musculature and prevents separation of the placenta after delivery.

Any condition producing primary atrophy of the endometrium may be a predisposing factor. Conditions which have been implicated include previous manual removal of the placenta, too thorough curettage, submucous fibromyomas, endometritis and possibly dys-hormonism since hormones play an important role in the formation of the decidua.

The chief symptom of this condition is brisk bleeding when an attempt is made to deliver the placenta. This usually continues until manual removal of the placenta is attempted and the operator finds it firmly adherent to the uterus, there being no line of cleavage. Persistent attempts at manual removal result in increasing the bleeding or in perforation of the uterus.

All authorities agree that immediate hysterectomy is the treatment of choice. Mortality from conservative attempts at removal is five or six times that of cases treated radically.

The case to be described was considered worth recording because the situation was such at the time when the diagnosis was made that laparotomy was absolutely contraindicated not only by the severe shock but by the evidence of sepsis, and conservative management was the only alternative. Anderson<sup>2</sup> has reported a case which was treated very similarly.

## REPORT OF CASE

Mrs. F. M., aged 26, was a white primigravida with negative past medical record with the exception of an appendectomy in 1927. Physical examination was negative. Pelvic measurements were within normal limits, and the blood Wassermann reaction was negative. The antepartum course was entirely uneventful.

On Jan. 11, 1941 she was admitted to St. Francis Hospital in active labor. Five hours later a normal female child was delivered by low forceps. There was no bleeding for forty-five minutes following delivery, the uterus being very firm. After repair of the episiotomy an unsuccessful attempt was made to express the placenta by the Crede method. The patient was anesthetized again with nitrous oxide and oxygen and an attempt made to remove the placenta manually. This maneuver was difficult because of the firm contraction of the uterus. The placenta could be outlined, but separation could not be accomplished without danger of rupturing the uterus. There was no line of cleavage, and the organ seemed to be an integral part of the uterine wall.

The patient was returned to her room in mild shock. 1,000 cc. of isotonic solution of sodium chloride was administered intravenously. Twelve hours after delivery, persistent but not profuse vaginal bleeding developed and the patient complained of severe abdominal cramp-like pain, which was only partially relieved by morphine.

Because of persistent vaginal bleeding and slow but steady elevation of the pulse rate, manual removal of the placenta was attempted again twenty-four hours after the first attempt but was again unsuccessful. A presumptive diagnosis of placenta accreta was then made, but because of the poor condition of the patient, hysterectomy was considered unwise. A transfusion of 600 cc. of citrated blood was given at this time.

The patient's condition became progressively worse, and on the third postpartum day she developed severe abdominal distention with evidence of sepsis: temperature 105 F., pulse rate 150, erythrocytes 2,400,000 and leukocytes 16,000, the differ-

ential count showing 5 per cent juvenile, 52 per cent stab and 29 per cent segmented neutrophils. Wangenstein duodenal suction was used to relieve the distention. The vaginal discharge became very profuse and foul smelling. A transfusion of 500 cc. of citrated blood was given every other day from the third to the eleventh postpartum day. On the alternate days 4 Gm. of sodium salicylpyridine was administered intravenously in 1,000 cc. of isotonic solution of sodium chloride every eight hours. Owing to lack of laboratory equipment, blood salicylpyridine levels were not determined. Five cc. of azosulamide solution was injected every four hours for two days, and then 2 cc. every four hours intramuscularly.

The temperature began to subside on the ninth postpartum day and remained normal after the fourteenth day. The patient was discharged from the hospital on the nineteenth postpartum day and remained in bed at home until the thirty-second postpartum day when he had regained enough strength to begin walking. Improvement from that time was rapid. There was no vaginal discharge and the uterus had decreased definitely in size. Three months following delivery she had a normal menstruation and has had no menstrual difficulty since. Pelvic examination has shown the uterus to be normal in size and shape, anterior and freely movable. Apparently recovery has been complete.

## COMMENT

The case reported by Anderson<sup>2</sup> differs from this in that hysterectomy was done later and the diagnosis of placenta accreta was verified microscopically. In our patient, improvement continued under conservative management to the point where there was no indication for surgical attack when her general condition would have justified such intervention. Evidently the placenta sloughed out in the profuse, foul discharge, although no portion of it was ever identified. The resumption of normal menstruation after three months supports this assumption.

The present report constitutes no good argument for the conservative treatment of placenta accreta, which should normally be treated by hysterectomy, but does indicate that the condition of a patient with this abnormality is not necessarily hopeless, even when laparotomy is contraindicated.

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## A NOTE ON PALMAR ERYTHEMA (SO CALLED LIVER PALMS)

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A palmar erythema has been occasionally noted by clinicians or mentioned because of its association with Laënnec's cirrhosis<sup>1</sup> but has never been adequately described. This not uncommon lesion consists of a symmetrical, erythematous, capillary and arteriolar dilatation involving the eminences of the palms and the digits of the hands, rarely the soles, at times extending over the fingertips to the nailbeds and lateral distal phalanges. It may exist in all gradations from a diffuse or blotchy redness to multiple small telangiectatic areas but is characteristically well demarcated and limited to the sites mentioned. In its milder stages the palmar eminences may be involved without digital erythema.

A review of 30 patients who presented this disorder revealed that it was encountered most frequently in cirrhosis (5 of 20 consecutive patients admitted with this diagnosis had palmar erythema) but also in chronic diseases of the alimentary tract such as ulcer, colitis or neoplasm, rheumatoid arthritis and in chronic febrile illnesses, i.e. leukemia, chronic suppuration and subacute bacterial endocarditis. In addition it was occasionally noted in thyrotoxicosis and rheumatic heart disease and in senile and debilitated patients and was found rarely in apparently normal individuals.

In an attempt to correlate this lesion with the history, physical examination and laboratory findings, it was observed that by far the majority of the patients had been ill for many months, and 21 gave a definite history of prolonged dietary insufficiency. Eleven of the group showed associated signs of a deficiency

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1. Patek A. J. Medicine to be published.

<sup>1</sup> Meyer J. H. and Ashworth J. W. Placenta Accreta. Virginia Monthly, 67: 36 (Jan.) 1940.  
<sup>2</sup> Anderson H. E. Placenta Accreta. Am. J. Obst. & Gynec. 42: 55 (Sept.) 1941.

state such as a smooth, red tongue, peripheral neuritis or cheilosis. Although anemia was common, it was not a necessary concomitant. In 14 cases in which data were available, no consistent relationship to reduced or altered serum proteins or deranged liver function was suggested. Three weeks of intensive therapy with thiamine hydrochloride, nicotinic acid, riboflavin or brewers' yeast caused no observable change, yet 2 patients with Liemann's cirrhosis, who responded favorably to a high carbohydrate and high vitamin regimen, showed disappearance of palmar erythema after about a four months period had elapsed.

Examination of the lesions demonstrated blanching on pressure, with more rapid return of color than is true in the normal hand. Fading of the erythema did not take place with elevation of the hand, and definite flushing synchronous with the arterial pulse was seen when the color was partially obliterated by pressure with a glass slide. With the inconstant exception of patients with rheumatoid arthritis, whose moist palms felt cooler as the result perhaps of increased vaporization, hands with palmar erythema were often unusually warm to the touch.

In 5 cases no change in appearance could be noted when a blood pressure cuff was placed on the arm between systolic and diastolic levels, and only slight fading took place when pressures above systolic readings were introduced with the arms elevated vertically. If the erythema was reduced by massaging the involved areas while the cuff was inflated, full color reappeared as the pressure was lowered to 40-50 mm. of mercury. In addition to this suggestive evidence of increased arteriolar flow, capillaries were found to be more numerous and dilated on direct microscopic examination. Immersion of the hands for three minutes in water at 3 or at 37 C had no effect.

Epinephrine (0.5 cc. of 1:1000 solution), given hypodermically to 3 patients, produced slight fading in color, and 0.3 cc. injected into the brachial artery caused prompt and profound blanching of the hand on the side of the injection and minimal alteration on the opposite side. Atropine subcutaneously or by vein resulted in no change, nor was the erythema affected by ulnar nerve procaine block or electrical stimulation of the same nerve in these 3 cases.

Pathologic examination of the lesions of 2 patients who died of cirrhosis showed no microscopic vascular or other abnormalities in skin or subcutaneous tissues.

#### SUMMARY

A palmar erythema, a peripheral vascular dilatation involving chiefly the eminences of the palms and digits, has been observed. Although its cause remains obscure, it is usually associated with chronic disease and prolonged dietary insufficiency or deficiency states.

#### THE TREATMENT OF DELIRIUM TREMENS

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The problem of the treatment and care of patients with delirium tremens is well known. Usually large quantities of sedatives, drastic purgatives and frequent spinal taps are used. The patient remains strapped in bed, straining against his bonds and raising considerable disturbance. The difficulty of treating associated conditions such as lobar pneumonia, perforations of the bowel or fractures of all kinds are greatly prevented by the actions of the patient in delirium.

Many such problems occurred at St. Mary's Hospital. We would like to present our comparatively simple treatment used on a number of patients in recent months. We employ an intravenous injection of 50 cc. of 50 per cent dextrose, 8 cc. of vitamin B<sub>1</sub> (approximately 25,000 units) and 25 units of insulin, all in one injection, as soon as the diagnosis is made. Sedation of any kind is not given. The straps are kept in readiness but have not been used. In the course of two hours, the patients become quiet and calm and for the first

time say they feel well. Usually one injection is sufficient, but in the case of chronic alcoholism an injection of the same dose or half the dose, depending on the condition, is sometimes necessary the next day. The patients are started on a light diet of Sippy character and vitamin B complex 2 tablets three times a day. Soon they eat well and are subjectively and objectively improved.

Because St. Mary's Hospital is essentially a busy city hospital, blood chemistry studies were not carried out routinely. Treatment was instituted as soon as a diagnosis was made. Delirium tremens is considered by many to be the result of a cerebral edema with involvement of the cerebral, spinal and peripheral nerves. Many of the patients with delirium tremens have not eaten regularly for days, weeks and even months and consequently have a disturbed metabolism of fat, carbohydrates and proteins. The dextrose decreases the cerebral edema temporarily; the insulin stimulates the appetite and allows the sugar to burn in the presence of vitamin B<sub>1</sub>, preventing a return of the edema; the oxidation of fat is reinitiated. Vitamin B<sub>1</sub> is a generally accepted treatment for conditions of this type involving the central nervous system and incidentally increases the desire for food.

This treatment has been used on 15 patients with complicated and uncomplicated delirium tremens with success. In 1 case a hypoglycemic reaction was promptly controlled with 6 ounces (180 cc.) of orange juice and 1 teaspoon of sugar. The treatment was used in cases complicated with pneumonia with equally good results; it was also used with benefit and uneventful recovery in 1 case of alcoholism complicated with perforated peptic ulcer in which delirium tremens developed postoperatively.

Further investigation in the field of chemical determinations of the blood may help to decide the exact roles played by the vitamin B<sub>1</sub>, insulin and dextrose.

### Special Article

#### HANDBOOK OF NUTRITION V

#### WATER AND SALT REQUIREMENTS IN HEALTH AND DISEASE

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*These special articles on foods and nutrition have been prepared under the auspices of the Council on Foods and Nutrition. The opinions expressed are those of the authors and do not necessarily reflect the opinion of the Council. These articles will be published later as a Handbook of Nutrition.—Ed.*

Salts and water of the body are inextricably bound in their interchange between organism and environment. This generalization applies particularly to sodium, potassium, chloride, bicarbonate, phosphate and protein, electrolytes which are the principal contributors to the pattern of intracellular and extracellular fluid. The exchange of these electrolytes and the exchange of water comprise the theme of this chapter. Several other electrolytes present in the human organism such as magnesium, calcium, lactate, iron, iodide and urate are osmotically unimportant for fluid balance and will not be discussed. The anatomy of body fluids, i.e. the structural compartments and the concentration of electrolytes, will be outlined first. It will be followed by an inquiry into the mechanism of the ingress of the several components into the body. The remainder of the review, which is proportionately longest, will be concerned with their egress from the body.

It is deemed most appropriate in the introduction to give credit to the masters in the field, Dill, Gamble,

From the St. Mary's Hospital, Dr. Joseph F. Londrign, Medical Director.

Dr. Cannon is the attending physician, Drs. Modarelli and DeVincenzo are assistant attending physicians and Dr. Swiney is the medical intern.

From the Medical Clinic, Massachusetts General Hospital and the Fatigue Laboratory, Harvard University.

Hampers Henderson Peters Smith and Van Slyke and others who by their researches physiologic and clinical, have contributed in large measure to our present knowledge of body fluids. Several of their contributions have been freely drawn on in the preparation of this article.<sup>1</sup>

### THE ANATOMY OF BODY FLUIDS

The fluid structures of the body as we know them are divided into three parts: blood, interstitial fluid (including lymph) and intracellular fluid. The volume of interstitial fluid is the most labile of the three and expands or contracts with the changing physiologic needs of the body such as occur during digestion, sleep or profuse sweating. In morbid disturbances of fluid balance this compartment likewise is the buffer between the other two and may undergo profound alteration that is not reflected in the volume of blood or volume of intracellular fluid. The resistance of these two compartments to change at the expense of interstitial fluid is an example of the rigorous and effective equilibrium exercised by the body in its homeostasis. The concentration of electrolytes occupies an intermediary position with regard to capacity to change under varying stresses. The concentration of electrolytes is maintained within a narrow range in health in each of the three major compartments of body fluids. In sickness the concentrations of plasma and interstitial fluid electrolytes yield before the integrity of intracellular fluid is threatened.

The amount of fluid in the body is approximately 70 per cent of the total mass. This is distributed as follows: The volume of circulating blood plasma is approximately 5 per cent of the total body weight or 3.5 liters in a person of 70 Kg (154 pounds). Interstitial fluid comprises 15 per cent of body weight or 10.5 liters. Intracellular fluid comprises 50 per cent of body weight, or 35 liters in a person of 70 Kg.

The values quoted have been derived from experimental procedures, direct and indirect. Plasma volume may be determined in the intact animal or in man by noting the dilution of an intravenously injected nontoxic dye by a method similar to that described by Gregerson, Gibson and Stead.<sup>2</sup> Only small amounts of plasma are needed for the determination if the readings are made in a photocolormeter.<sup>3</sup> Whole blood volume is calculated directly from plasma volume by taking into account the hematocrit reading. Interstitial fluid volume may be determined simultaneously if a few decigrams of sodium thiocyanate<sup>4</sup> is injected with the dye. No satisfactory method has been devised for determining volume of intracellular fluid or of total body water in human beings. This is a serious void in the armamentarium of

the clinical investigator. The values given for these components have been deduced from sacrifice experiments on animals.

The concentration of electrolytes in the fluid compartments of the body except blood is less amenable to experimental determination than are the volumes. Whole blood and plasma are the only phases that may be approached directly. The concentrations in interstitial fluid however are similar to their concentrations in a protein free filtrate of plasma. This is fortuitous and its information is available concerning plasma, deductions concerning interstitial fluid are probably valid. The concentration of electrolytes in arterial plasma of a normal person is given in the accompanying table.

The concentrations in venous plasma, except for bicarbonate are essentially the same as for arterial plasma. Inspection of the data shows that the sum of the acids equals the sum of the bases. The solution is slightly alkaline the  $p_{H_{15}}$ ,<sup>5</sup> which is an index of the hydrogen ion concentration being 7.40. Within the limits  $p_{H_{15}}$  4 to  $p_{H_{15}}$  10 the contribution of H and OH ions to the foregoing summation would be negligible. The sum of the four bases may be expressed as total

Concentration of Electrolytes in Arterial Plasma

| Bases     |               | Acids        |               |
|-----------|---------------|--------------|---------------|
|           | mEq per Liter |              | mEq per Liter |
| Sodium    | 140           | Chloride     | 104           |
| Potassium | 4             | Bicarbonate  | 26            |
| Calcium   | 5             | Protemate    | 17            |
| Magnesium | 2             | Phosphate    | 2             |
|           |               | Lactate      | 1             |
|           |               | Undetermined | 2             |
| Total     | 151           | Total        | 151           |

fixed base or total inorganic base. There is only a negligible quantity of organic base in the plasma of normal persons. Total fixed base may be determined with a high degree of accuracy by electroanalysis using not more than 0.2 cc of material.<sup>6</sup> If the bases are determined individually, 1 or 2 cc of material is needed for the respective constituents (sodium,<sup>7</sup> potassium,<sup>8</sup> calcium,<sup>9</sup> magnesium<sup>10</sup>). The value for the sum of the individual bases is useful as a check against total fixed base, while both are useful as a check against the sum of the determined acids. No single procedure has been devised for the determination of total acids as has been devised for total base. Organic and inorganic acids are present in health and in disease. The acids may be determined individually on 1 cc or less of plasma.

1 Dill D B. Life Heat and Altitude. Physiological Effects of Hot Climates and Great Heights. Cambridge: Harvard University Press 1938.  
Gamble J L. Extracellular Fluid and Its Vicissitudes. Bull Johns Hopkins Hosp 61: 151 1937.  
Control of Acid Base Excretion and the Ratio of Water Expenditure. Ibid 61: 174 1937.  
Peters J P. Body Water. The Exchange of Fluids in Man. Baltimore: Charles C Thomas 1935.  
Henderson L J. Blood: a Study in General Physiology. New Haven: Yale University Press 1928.  
Smith.  
2 Gregerson M I, Gibson J J and Stead E A. Plasma Volume Determination with Dyes. Errors in Colorimetry: the Use of the Blue Dye T 1824. Am J Physiol 113: 54 1935.  
3 Gibson J G. 2d and Evelyn K A. Clinical Studies of the Blood Volume. IV. Adaptation of the Method to the Photoelectric Microcolorimeter. J Clin Investigation 17: 153 1938.  
4 Crandall L A Jr and Anderson M N. Estimation of the State of Hydration of the Body by the Amount of Water Available for Solution of Sodium Thiocyanate. Am J Digest Dis & Nutrition 1: 176 1934.

5 The subscript s stands for serum. Practically there is no difference between hydrogen ion concentration of serum and plasma. Since most of the experimental work is done on plasma rather than serum a more appropriate designation would be  $p_{H_{15}}$  in place of  $p_{H_{15}}$ .

6 Consolazio W V and Talhott J H. The Determination of Total Base in Biological Material by Electroanalysis. J Biol Chem 132: 733 1940.

7 Butler A M and Tuthill E. An Application of the Uranyl Zinc Acetate Method for Determination of Sodium in Biological Material. J Biol Chem 93: 171 1931.

8 Consolazio W V and Talhott J H. Modification of the Method of Shohl and Bennett for the Determination of Potassium in Serum and Urine. J Biol Chem 126: 55 1938.

9 Clark E P and Collip J B. Study of the Tisdall Method for the Determination of Blood Serum Calcium with a Suggested Modification. J Biol Chem 63: 461 1925.

10 Cruess Callaghan G. A Method for the Microdetermination of Magnesium. Biochem J 29: 1081 1935.

(chloride,<sup>11</sup> bicarbonate,<sup>12</sup> proteinate,<sup>13</sup> phosphate,<sup>14</sup> lactate<sup>15</sup>) If microprocedures are employed it is possible to collect thoroughly reliable data of the complete acid-base pattern of plasma with not more than a total of 10 cc of material, which may be obtained from 20 cc of whole blood

The nomenclature milliequivalents per liter (mEq/L) used to express concentration of constituents seems formidable to many physicians. It is no more mysterious, however, than milligrams or centimeters to the uninitiated. Its concentrations are expressed in milliequivalents per liter, values for different constituents readily may be compared, as in the statement previously made that the sum of the bases should equal the sum of the acids. Comparison would be impossible if a heterogeneous nomenclature were used and sodium were expressed as milligrams per hundred cubic centimeters, protein as grams per hundred cubic centimeters and bicarbonate as volumes per hundred cubic centimeters.<sup>16</sup>

Sodium and chloride comprise the bulk of the electrolytes in plasma and interstitial fluid. The presence of potassium in plasma is little more than evidence of its migration to and from intracellular spaces. Protein is essential for maintenance of osmotic pressure in the blood. It is expressed as the acid proteinate in the table. Bicarbonate and phosphate participate in two functions. Both are waste products of metabolism but in the process of elimination contribute to the regulation of the acid-base equilibrium of the body.

#### THE INGRESS OF WATER AND SALT INTO THE BODY

Water gains entrance into the body in health by way of the upper gastrointestinal tract. It may be ingested as a liquid or as the fluid content of foodstuffs. A small quantity of water in addition is formed within the body daily during the metabolism of foodstuffs. The fluid requirements of persons who live a sedentary life are satisfied ordinarily by the habitual intake of fluid with and between meals. Most persons do not wait until they are thirsty to take liquids but have learned by habit that periodic ingestion keeps them from becoming thirsty. Following inadequate intake of fluid or increased loss from the body, such as is produced by sweating during strenuous exercise, the sensation of thirst appears.

The pathogenesis of thirst has not been decided with finality, but Dill<sup>1</sup> has presented several convincing arguments from the available experimental data. He has concluded that

Thirst does not necessarily depend on a dry mouth. Thirst without a dry mouth is experienced by man at the evening meal after hard work on a hot day. It is experienced by marine

telcosts despite a constantly flowing stream of water through the mouth. Normal dogs without salivary glands do not exhibit unusual thirst.

Thirst does not have a single dependence on osmotic pressure of body fluids. A small increase in osmotic pressure produced by ingestion of sodium chloride produces intense thirst, while if the same increase in osmotic pressure is induced by urea the thirst is only moderate.

Thirst does not depend on volume of blood plasma nor of extracellular phase of other tissues. Intraperitoneal injection of glucose solution reduces the volume of the extracellular phase without causing thirst.

Thirst depends on diminished water content and possibly increased osmotic pressure of body cells. While thirst may be somewhat alleviated by rinsing the mouth, it can be satisfied only when water has been delivered by the blood stream to the tissue cells that are demanding it.

The mechanism by which the demand for water makes itself known remains to be elucidated. Contractions of the smooth muscle of the esophagus may be involved.

Thirst is a sensation that man has associated with lack of fluid in the body and usually is satiated by ingestion of water. Thirst associated with dehydration, however, whether in sickness or in health, is probably an index of salt lack as well as fluid lack. Indeed, if dehydration is profound, ingestion of water without sodium chloride does not satiate. The ability to distinguish between desire for water and desire for salt is believed by students of natural history to be highly developed in animals. Man presumably has lost this fine sense of discrimination. It is possible that during the evolutionary era a trick was played on man, since his need for salt is quite as vital as that of animals.

A detailed presentation of the intake of the salts will not be attempted. Except for certain unusual circumstances the requirements of the body should be satisfied by the salts in the diet. This will be considered at length by Icie G. Macy in another article in this series.<sup>18</sup>

#### EGRESS OF WATER AND SALT FROM THE BODY

Fluid is lost from the body in expired air, sweat, gastrointestinal discharges and urine. The losses through the first three channels total approximately 2 liters daily and are essentially beyond voluntary control. The quantity of water which remains for disposal after these requirements have been satisfied is voided by the kidneys. The kidneys act in this capacity as the buffer organ for excretion of fluid just as interstitial fluid is the buffer compartment for storage of fluid. If an excess of water has been taken into the body, the kidneys are called on to excrete it. If the quantity of body water is less than normal, little or no urine may be voided. The other excretory channels, meanwhile, continue to have their requirements satisfied.

Respiration is a complex mechanism that involves loss of water vapor, gas exchange and regulation of the acid-base equilibrium of the body. The delivery of oxygen to the alveolar spaces and to the circulating hemoglobin in the pulmonary vessels is a vital process. The removal of carbon dioxide occurs simultaneously and permits large quantities of acid to be eliminated.

The concentration of bicarbonate in the acid-base table is given as 25 mEq per liter of arterial plasma. This is the concentration of carbon dioxide bound to base. An

11 Keys, A. Microdetermination of Chlorides in Biological Materials. Presentation of Method and Analysis of Its Use, *J. Biol. Chem.* **119**, 389, 1937.

12 Van Slyke, D. D., and Neill, J. M. The Determination of Gases in Blood and Other Solutions by Vacuum Extraction and Manometric Measurement, *J. Biol. Chem.* **61**, 523, 1924.

13 Peters, J. P., and Van Slyke, D. D. Quantitative Clinical Chemistry, Baltimore, Williams & Wilkins Company **2**, 516, 1932.

14 Tschopp, E., and Tschopp, E. Ueber die Reduktion der Phosphomolybdänsäure zu Molybdänblau und über die quantitative Bestimmung von Phosphat neben Silikat und Arsenaten in der Biologie, *Helvet. chim. acta* **15**, 793, 1932.

15 Edwards, H. T. Simplified Estimation of Lactate in Normal Human Blood, *J. Biol. Chem.* **125**, 571, 1938.

16 Talbott, J. H. Interpretations of Clinical Chemical Procedures, *Ohio State M. J.* **35**, 137, 1939.

17 Footnote deleted on proof.

18 Macy, Icie G. The Principal Mineral Elements in Nutrition. *J. A. M. A.*, to be published.



Additional mill amount, approximately  $\frac{1}{20}$  of 25 ml q per liter is in solution in the water of the plasma. This is free carbon dioxide the concentration of which is conditioned by the partial pressure of carbon dioxide in the alveolar air which is dependent successively on pulmonary ventilation. The sum of free and bound carbon dioxide is known as total carbon dioxide content the amount obtained from the Van Slyke gasometric determination. The total carbon dioxide content of plasma in healthy persons is of the same order of magnitude as the carbon dioxide combining power. There may be a considerable discrepancy, however, between these values in certain disturbances of acid base balance. Determination of total carbon dioxide content is to be preferred to determining combining capacity as it is a more reliable procedure and productive of more information.

The  $pH$  of plasma is dependent on the ratio of free to bound carbon dioxide as well as the total content of carbon dioxide. When this ratio is disturbed acidosis or alkalois results. Acidosis such as is observed in nephritis and in diabetic coma is associated with a decrease in concentration of total carbon dioxide. This depression is reflected in both free and bound carbon dioxide with a relatively greater effect on the bound fraction. On the other hand the similar type of alkalois which follows the ingestion of alkali powders is accompanied by an increased total carbon dioxide content with a relatively greater increase in bound carbon dioxide.

Since the  $pH$  of plasma is determined by the ratio of free to bound carbon dioxide there are two other possible combinations of acid-base disturbance. Both are relatively uncommon and follow an unorthodox pattern. Hysterical hyperventilation is an example of alkalois with the total carbon dioxide content of the plasma below normal.<sup>19</sup> Superficially one might expect acidosis with a low carbon dioxide content. The body fluids show increased alkalinity, however, since free carbon dioxide is reduced proportionately more than bound carbon dioxide. On the contrary with obstruction of the respiratory passages or emphysema an acidosis results. The total carbon dioxide content of the blood, meanwhile, is above normal. The elimination of carbon dioxide from the alveolar spaces is impeded free carbon dioxide accumulates in the plasma and the ratio is shifted to the acid range.

Sweating, like respiration, is a highly integrated process. The excretion of water in the sweat is necessary for dissipation of heat and maintenance of body temperature. It is expensive for the body, however, because of the seemingly unnecessary loss of salts. The content of sodium and potassium salts in sweat is appreciable, but they serve no known purpose. The sweat glands are developed sufficiently to elaborate a protein free filtrate of plasma, but they cannot produce a salt free filtrate. The concentration of sodium chloride is one fifth to one-half as great as in plasma. The quantity, however, which may be dissipated daily by profuse sweating is not widely appreciated. Many persons sense that strenuous exercise in a high environmental temperature is accompanied by excessive sweating and salt loss. On the other hand, few persons are aware that a sedentary existence in a hot environment or

strenuous exercise in a cold environment may be associated with a dissipation of significant quantities of sodium chloride. If strenuous exercise in a cold environment is undertaken by persons suitably clothed in woollens for protection sweating is profuse and loss of salt may be significant. The matter of sodium chloride deficiency is of concern therefore to persons living in cold as well as in warm climates and to members of our armed forces undergoing heavy maneuvers in cold regions as well as in tropical regions.

The volume of sweat lost during eight hours of strenuous work in a hot environment may be as great as 10 or 15 liters each liter containing as many as 3 or 4 gm of sodium chloride. Somewhat smaller amounts may be lost daily by patients with fevers. No ill effects may be attributed to the excessive exchange if amounts lost are replaced periodically. If this is not achieved symptoms of sodium chloride deficiency may appear. Fluid depletion usually accompanies salt lack, such as in dehydration but sodium chloride deficiency per se is associated with certain symptoms.

The gradual development of uncomplicated salt deficiency in a sedentary person leads to weakness, excessive fatigue, moroseness and nausea.<sup>20</sup> Physical performance is impaired and mental acuity diminished. A thirstlike sensation may appear which is not alleviated by ingestion of fluid. This sensation may be all that remains of the reaction of animals to lack of salt. There is no change in rate of resting pulse, blood pressure or body temperature. The development of many of these symptoms in hot climates has been attributed to some mysterious action of the tropics and has been called tropical languor. Be this as it may, sodium chloride deficiency is a real phenomenon and militates against optimal physical and mental performance.

If salt loss is accompanied by fluid loss, the usual consequence of strenuous activity, muscle cramps and prostration may develop. In previous writings these syndromes have been called heat cramps and heat prostration<sup>21</sup> because they have appeared usually in persons exposed to high environmental temperatures. With the recent interest in winter sports and the military campaigns of World War II, muscle cramps at least may be observed following strenuous exercise in cold regions as well as in hot regions. A more appropriate title, therefore, might be muscle cramps from salt loss rather than heat cramps. A syndrome similar to heat prostration probably is rare in cold environments. It is temporarily incapacitating in hot climates but is not a serious malady. During the 1941 army maneuvers in Louisiana and in the Carolinas several hundreds of soldiers were stricken with this malady. Attention to adequate sodium chloride intake will undoubtedly prevent similar disabilities in actual combat.

Muscle cramps from salt loss are painful spasms of the voluntary muscles and develop in persons engaged in strenuous physical activity. The pathogenesis of symptoms has been shown to be a function of decreased sodium chloride content of the body and not to water intoxication. Susceptibility to cramps varies among persons as well as with the duration of exposure to conditions which induce cramps. Susceptibility may

19 Talbot J H Cobb Stanley Coombs F S Cohen M E and Colanazio W V. Acid Base Balance of the Blood in a Patient with Hysterical Hyperventilation. *Arch. Neurol. & Psychiat.* 39: 973 (May) 1938.

20 McCahee R A. Medical Problems in Mineral Metabolism. III. Experimental Human Salt Deficiency. *Lancet* 1: 823 1936.

21 Talbot J H. Heat Cramps. *Medicine* 14: 323 1935. III Effects of Heat. *Modern Medical Therapy in General Practice* Baltimore: Williams & Wilkins Company 1940 p 1114.

reach a maximum during the first days of excessive sweating before adjustment and acclimation begin to operate. Acclimation is associated with a decreasing concentration of sodium chloride in the sweat, although the volume of sweat excreted may be unchanged. Particular attention should be given to salt intake during the first days of excessive sweating if cramps are to be avoided.

The prevention and treatment of sodium chloride deficiency is theoretically and practically a relatively simple matter. The salt intake should be increased if exposure to high temperatures is anticipated or if physical activity in the cold is contemplated. A daily intake of 15 Gm of sodium chloride will protect against most symptoms of salt deficiency. Some persons will consume this amount in a high salt diet. Others need extradietary salt as salt tablets or a saline drink. If a central supply of drinking water is available such as in mills, in shops or in army barracks, table salt may be added at some convenient point to make a final concentration of 0.1 per cent. A solution of this low concentration has only a slightly saline taste if it is consumed cool and allays rather than promotes the sensation of thirst. It is thought to be the physiologic way to replace salt lost in the sweat. Since the body has a mechanism for detecting loss of water, i. e. thirst, only sufficient water will be ingested to satisfy this desire. With replacement of water, salt is replaced but only as is needed to restore amounts lost by sweating. In installations where the general salting of drinking water is not feasible, such as in combat bivouacs, reliance must be placed on salt added to food or contained in salt tablets. A 1 Gm salt tablet (15 grains) may be taken with each half liter of water or a 0.5 Gm tablet (7½ grains) taken with each cup of water. Although these recommendations are applicable to persons excreting excessive quantities of sweat daily, other persons, including those at sedentary jobs, will benefit from an increased salt intake during hot weather. The hazards to be considered from the recommendation on such a broad scale for use of liberal amounts of salt are not believed to be significant. The kidneys are capable of excreting any excess salt ingested except in renal failure and in the presence of edema. Of course if added salt is taken in the drinking water and thirst is allowed to dictate fluid requirements, the salt level in the body is merely maintained and the normal range is never exceeded.

A liberal intake of fluid is imperative for persons subjected to excessive sweating in hot weather. It is needed to provide available quantities for dissipation of heat as well as to maintain the internal environment of the body. The temperature at which water should be consumed may be governed by individual tastes. There is little evidence that cool water by itself is harmful. It has the advantage of a refreshing action in comparison with tepid water. The moderate use of nonalcoholic bottled beverages by adults subjected to considerable physical exercise in the summer is generally considered to be unobjectionable. The belief that an excessively low protein diet is necessary in hot weather is without experimental confirmation. An adequate protein intake (from 60 to 100 Gm daily), in addition to supplying protein necessary for maintenance of muscle mass, provides more sodium chloride than a low protein intake.

The gastrointestinal tract requires a very small amount of fluid to keep the fecal mass from complete

desiccation. Large amounts of fluid may be lost in sickness associated with emesis or diarrhea. Gastric juice contains a great deal of chloride but a relatively low concentration of base. Diarrhea discharges, on the other hand, tend to be alkaline with a preponderance of base, especially potassium.

Lastly, the kidneys excrete the remainder of available fluid after the demands of the lungs, skin and gastrointestinal tract have been satisfied. It is not intended to imply by this statement that this is a haphazard process, for in fact it is a very precise one. The kidneys are the buffer organ for fluid excretion, they also serve as a vital excretory organ for waste products and share with the lungs in the regulation of the acid-base equilibrium. The functions of excretion and acid-base regulation are performed by the nephrons, the functioning units of the kidneys, of which there are more than two million in a normal person. The nephrons are composed of the glomerulus, convoluted and collecting tubule and a blood supply. The afferent arteriole enters the glomerulus, carries blood to the glomerular capillaries for the elaboration of glomerular filtrate, becomes efferent after leaving the glomerulus, continues in intimate contact with the convoluted tubules through a second capillary network, and, after the functions of excretion and reabsorption are performed, becomes a venule. This schematic functioning unit of the kidney as presented by Smith<sup>22</sup> is a useful concept, as will be evident in the discussion of the specific duties of water and salt exchange. There is little support for the thesis that individual glomeruli and nephrons are active and inactive periodically or rhythmically. They are probably all working at the same optimum level in health, and what is happening to one is probably an index of what is happening to all. Anatomic and functional changes alter this situation in disease.

Approximately 12 liters of whole blood passes through the nephrons each minute. This is called effective renal blood flow<sup>23</sup> and is approximately one third of the total cardiac output. No other tissue of the body save for the lungs claims proportionately as great a volume of blood. The measurement of flow of blood to the kidney whereby this value is derived is an ingenious procedure. If a few cubic centimeters of diodrast, the same preparation used for pyelography, is introduced intravenously, a plasma level of approximately 2 mg per hundred cubic centimeters may be achieved. All the diodrast at this plasma level which enters the afferent arterioles of the kidney is removed from the blood in the glomerular and tubular capillary networks. A portion is removed in the glomerular filtrate, the remainder by the excretory activity of the tubules. It is not important in the calculation of renal blood flow to consider the paths of removal from the blood. It must be assumed, however, that diodrast is not altered during its passage through the kidneys and that all the diodrast in renal arterial blood is removed by the nephron before the venule is reached and is excreted immediately into the collecting tubules. If the concentration of diodrast in the blood is determined accurately from a sample of plasma and the amount of

22 Smith, H. W. *The Physiology of the Kidney*, New York, Oxford University Press, 1937.

23 Smith, H. W., Goldring, W. and Chasis, H. *The Measurement of the Tubular Excretory Mass, Effective Blood Flow and Filtration Rate in the Normal Human Kidney*, J. Clin. Investigation 17: 263, 1938.

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dioctate excreted per minute by the kidney is determined by urine analysis, it is possible to calculate renal blood flow. As an example, if the concentration of dioctate in the plasma is 2 mg. per hundred cubic centimeters and 14 mg. of dioctate is excreted per minute into the bladder, then 700 cc. of plasma must have entered functioning nephrons to provide for this quantity of dioctate. The calculation of whole blood flow from plasma flow is possible if the cell volume-plasma volume ratio is determined by the hematocrit reading. If whole blood contains 40 per cent of cells and 60 per cent of plasma the plasma flow of 700 cc. is only 60 per cent of the total whole blood flow. Therefore  $\frac{700}{60} \times 100 =$  approximately 1,200 cc.  $\rightarrow$  renal whole blood flow.

The next step to be considered in the analytic dissection of the elaboration of urine is the formation of glomerular filtrate from a portion of the effective plasma flow. Rate of formation of glomerular filtrate is measured by clearance of inulin or mannitol,-- starchlike polymers. They are not metabolized by the body if injected intravenously and appear unchanged in bladder urine. The path of excretion is exclusively through the glomerular membrane, the tubules neither reabsorb nor excrete either substance. If the concentration of inulin in the plasma is elevated to 100 mg. per hundred cubic centimeters and 125 mg. of inulin is excreted by the kidney into the bladder per minute, 125 cc. of plasma must have participated in the formation of glomerular filtrate to allow this quantity of inulin to be excreted. The rate of formation of glomerular filtrate is therefore 125 cc. per minute. This is characteristic of a healthy man, about one fifth of the effective renal plasma flow is concerned with glomerular filtration.

The formation of glomerular filtrate is the result of the excess hydrostatic pressure in the glomerular capillaries over and above the combined osmotic pressure of the plasma proteins and intraglomerular pressure. Formation of filtrate continues until the osmotic pressure of the plasma, due to concentration of proteins, increases and equalizes the pressure inside and outside the glomerular capillaries. Plasma proteins do not pass through the capillary walls, and a protein free filtrate of plasma is elaborated in the glomerulus. The concentration of electrolytes in glomerular filtrate except for protein is similar to arterial plasma. The qualitative and quantitative integrity of body water is thus maintained. After the formation of glomerular filtrate, the plasma with proteins which have been concentrated nearly 20 per cent flows into the efferent arteriole and subsequently into the contiguous capillary network about the tubule, where the remaining functions of renal activity are performed. Such functions include reabsorption of a large portion of glomerular filtrate, formation of ammonia and elimination of waste products by failure to reabsorb them. Most of the glomerular filtrate is attracted back into the capillary network through the tubular epithelium by virtue of the increase in osmotic pressure of the plasma, which has exceeded the decreased hydrostatic pressure. Approximately 90 per cent of the water and salts of the glomerular filtrate are reabsorbed by this mechanism. Urea, carbon dioxide and phosphate are the principal waste products that are not reabsorbed in proportion to fluid. All except 1 or 2 per cent of the remaining 10 per cent of the fluid of glomerular filtrate is reabsorbed by the tubular epithelium because of the presence of the antidiuretic hor-

none from the posterior pituitary gland. Only 1 or 2 per cent of the glomerular fluid in healthy persons finally finds its way into the bladder. This seemingly small percentage, however, is sufficient to account for the formation of 2 liters of bladder urine daily. One per cent of 125 cc. equals 1.2 cc. a minute, 70 cc. an hour and 1,800 cc. in twenty-four hours.

The amount of glomerular filtrate formed is a remarkably constant function under controlled conditions and is not dependent on amount of fluid available for excretion into the bladder. A normal person with a surface area of 1.72 square meters should form approximately 125 cc. of filtrate a minute in the basal state. The mechanism of the action of the antidiuretic hormone which is responsible for variation in urine output depending on amount of available fluid has been summarized by Verney<sup>24</sup> as follows: "The administration of water causes, presumably through the mechanism of the central nervous system, an inhibition of the secretory activity of the pituitary gland. The preformed antidiuretic hormone gradually disappears from the circulating blood but for a time, about thirty minutes, is present in sufficient concentration to restrain the activity of the kidney. As the concentration of pituitary hormone in the circulating blood diminishes, the rate of urine formation increases to a maximum. When as a result of diuresis much of the water excess is removed, the secretory action of the pituitary gland is resumed and the rate of urine formation diminishes."

The exchange of electrolytes by the kidney follows a channel similar to water. There is no conclusive evidence that any of the electrolytes are excreted by tubular activity. Most of the inorganic bases and acids in glomerular filtrate are reabsorbed to maintain the concentrations in the body. Since sodium and chloride are the predominant electrolytes in plasma, they are the predominant electrolytes in glomerular filtrate. Potassium is present in relatively low concentration in the plasma and may be reabsorbed by different tubular cells than those which reabsorb sodium, at least there is no reciprocal excretion of sodium and potassium by the kidney. On a high potassium intake, several times the quantity of potassium may be excreted in the urine as during a low potassium regimen, the sodium excretion meanwhile undergoes little change.<sup>25</sup>

Approximately 90 per cent of the sodium (and chloride) in glomerular filtrate is reabsorbed through the tubular epithelium because of the increased osmotic pressure. All of the remainder that is reabsorbed is subject to hormonal control just as is fluid. Desoxycorticosterone or a similar substance elaborated by the adrenal cortex exercises the control. Other steroids, such as esterone, progesterone and testosterone,<sup>26</sup> may participate, but their sodium retaining property is much weaker than that of desoxycorticosterone. In adrenal insufficiency, with inadequate elaboration of cortical hormones, normal quantities of sodium are not reabsorbed by tubular epithelium and a dissipation of this electrolyte in the urine is evident. The action of desoxycorticosterone may be demonstrated in normal persons

24 Verney E. B. Die Wasserausscheidung der Säugetiere und ihre physiologische Regulation. Arch. f. exper. Path. u. Pharmacol. 18:1 24 1926.

25 Talbot J. H. Pecora L. J. Melville R. S. and Consolazio W. V. Renal Function in Patients with Addison's Disease and in Patients with Adrenal Insufficiency Secondary to Pituitary Panhypofunction. J. Clin. Investigation 21:107 1942.

26 Thorn G. W. and Engel L. L. The Effect of Sex Hormones on the Renal Excretion of Electrolytes. J. Exper. Med. 68:299 1938.

following an injection of this substance as well as in patients suffering from a deficiency of it

An important contribution to our knowledge of sodium exchange has been made recently. While retention of pathologic amounts of sodium during the treatment of Addison's disease may follow excessive assimilation of the synthetic hormone desoxycorticosterone, abnormal retention of sodium has never been demonstrated following administration of excessive quantities of cortical extract prepared from animal adrenals. The explanation of this paradox has been presented by Thorn and his associates.<sup>27</sup> They have shown that 17-hydroxycorticosterone, one of the active principles in commercial preparations of adrenal cortex extract, has a demonstrable sodium excreting property which may be as potent as the sodium retaining property of desoxycorticosterone. During the use of adrenal cortex extract, the sodium retaining and sodium excreting factors are approximately balanced and edema does not develop. A similar mechanism presumably operates in health to maintain the constancy of sodium in the body.

Phosphate and bicarbonate participate in the regulation of acid-base equilibrium, particularly in the acidification of urine, during their elimination from the body. The reaction of glomerular filtrate is neutral, the reaction of bladder urine is acid. Two functions are achieved in the transformation of neutral glomerular filtrate into an acid urine. Base is retained and acids are lost. It is imperative that available base be retained, since the body has only a limited supply. All of the inorganic base found in the body is ingested in food and none is manufactured. Acids, on the other hand, are products of metabolism, they are manufactured in large quantities and must be excreted if life is to be maintained. Phosphate contributes to this regulation because it is a trivalent acid. Most of the phosphate (80 per cent) is dibasic at  $pH$  7.4, the reaction of glomerular filtrate. As the urine becomes acid, it loses its dibasic property and at 4.8 it is present as a monobasic salt. Base is thus conserved, while the quantity of acid which may be excreted is not diminished. Bicarbonate achieves a similar result by allowing base to be reabsorbed by tubular epithelium, leaving high concentrations of carbonic acid available for excretion in bladder urine.<sup>28</sup> Yet a third process participates in excretion of acid. This is the formation of ammonia from amino acids in the tubular epithelium. Quantities of ammonia are formed for neutralization of acid substances in health as well as in acidosis, meanwhile allowing inorganic base to be returned to the body.

There are two conditions which illustrate physiologic fluctuations and quasipathologic states of water and salt exchange. These are diuresis and dehydration, respectively. Diuresis is an interesting aberration of renal function which may be induced by an increased intake of fluid or by one of several drugs or chemical substances. Diuretics do not increase appreciably the rate of formation of glomerular filtrate. Some diuretics increase slightly the flow of blood through the kidney, but urine output is not affected by this increase alone. The principal effect is impaired reabsorption of water

and salt by the tubules. The osmotic diuretics dextrose, sucrose and urea are present in high concentrations in glomerular and tubular urine and, because of their intrinsic osmotic pressure, they prevent normal reabsorption of water and salt. The xanthine diuretics are quite different chemical substances, although their action on renal exchange is similar to the osmotic diuretics. A small increase in rate of glomerular filtration is overshadowed by a significant depression in reabsorption of tubular urine. The action of the mercurial diuretics is solely on the reabsorptive mechanism, no extrarenal action has ever been demonstrated, nor is there any increase in rate of formation of glomerular filtrate.<sup>29</sup>

Dehydration may be caused by a number of disturbances and varies in degree from a mild state without detectable clinical signs to alarming severity associated with profound prostration and collapse. Either inadequate intake or excessive loss of water and salt from the gastrointestinal tract or kidneys may be responsible. During the early stages of uncomplicated dehydration there is a diminution in volume of interstitial fluid and plasma, while the composition of plasma with respect to water and salt concentration is maintained. If the disturbance is allowed to progress, interstitial fluid volume and plasma volume continue to decrease, and eventually serious alterations in electrolyte concentrations in the blood may be demonstrated. Serum protein, hematocrit and red blood cell counts are increased, while concentrations of serum sodium and chloride are decreased. If dehydration is complicated by acidosis, such as in untreated diabetes mellitus, the serum bicarbonate is decreased. On the other hand, in dehydration from loss of gastric juice, as in pyloric obstruction, the reaction of the blood is alkaline and the concentration of blood bicarbonate is increased. An increase in concentration of nonprotein nitrogen is a late effect produced by renal failure and by increased breakdown of body protein if supplies of carbohydrate are depleted.

Renal blood flow and formation of glomerular filtrate are unimpaired in the early stages of dehydration. Because of the ability of the human kidney to make a hypertonic urine, nitrogen products continue to be excreted with a very small urine flow while essentially all the sodium chloride is reabsorbed. Compensation cannot be maintained indefinitely as dehydration progresses and with a decreasing plasma volume renal blood flow diminishes. The viscosity of the blood is increased as the proteins are concentrated, hydrostatic pressure becomes inadequate to form glomerular filtrate and formation of urine ceases. One or more days usually elapses before the appearance of anuria in untreated adults.

The treatment of dehydration is not as complicated as the recognition of the several chemical changes. Interstitial fluid has probably suffered the greatest volume change. This can best be restored by physiologic solution of sodium chloride. Such a solution contains relatively more chloride than does plasma or interstitial fluid, but, if the kidneys have not ceased functioning, any excess of chloride is excreted, leaving sodium to combine with carbon dioxide. Acidosis is thereby alleviated. Dextrose may be added to salt solution and is especially indicated if ketosis is present, but it should not be given initially in place of saline solution.

27. Thorn, G. W., Engel, L. L., and Lewis, R. S. The Effect of 17-hydroxycorticosterone and Related Adrenal Cortical Steroids on Sodium and Chloride Excretion, *Science* **94**: 2441, 1941.

28. Gamble, J. L. Clinical Anatomy, Physiology and Pathology of Extracellular Fluid, Syllabus, Department of Pediatrics, Harvard Medical School, 1941.

29. Coombs, F. S., Pecora, L. J., Thorogood, E., Consolazio, W. V., and Talbott, J. H. Renal Function in Patients with Gout, *J. Clin. Investigation* **19**: 525, 1940.

Wide blood or plasma is indicated to restore colloid osmotic pressure if blood loss or starvation complicates the clinical state. Profound acidosis should be treated with alkaline solutions in spite of many prejudices which have appeared in the literature condemning them. No harm should result from their judicious use and less of a burden is put on the kidneys for regulation of acid base balance of the body. Sodium bicarbonate lactate is very popular in American clinics and has largely replaced bicarbonate solution. One sixth molar sodium lactate is isotonic and is made by adding one part of molar sodium lactate solution to five parts of sterile distilled water.<sup>3</sup> The approximate lactate requirements may be calculated if the level of bicarbonate in the blood is known. As an approximation 10 cc. of solution per kilogram of body weight is required to raise the carbon dioxide content of the blood 10 volumes per cent. If dehydration is accompanied by alkalosis saline solution usually suffices. The value of Ringers and other complex solutions over physiologic solution of sodium chloride in adults is doubtful, although in infants and children replacement of calcium and potassium as well as sodium may be necessary. The intravenous route for parenteral therapy is to be preferred. Subcutaneous injections are painful and usually unnecessary. Theoretically, parenteral therapy should continue until restoration of water and salt concentrations and restoration of body weight. Practically it is feasible to relax vigilance with partial restoration, and, once the vicious chain of events has been halted, the homeostatic processes of the body are able to act effectively.

## Council on Foods and Nutrition

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT  
FRANKLIN C. BIGG, Secretary

### THE COMPARATIVE NUTRITIONAL VALUE OF BUTTER AND OLEOMARGARINE

For many years the average annual per capita consumption of table fats in this country has been 20 pounds. During the past thirty years the per capita consumption of butter has varied from 13.9 to 18.7 pounds and oleomargarine from 1.1 to 3.4 pounds. These are average figures, and many people never consume oleomargarine while others may use mostly oleomargarine with little or no butter.

Regardless of the nutritional significance of these food products, we must admit that their consumption is based to a very large extent on custom, habit and income. No one food is indispensable in the diet, and we can cite many areas in the world where neither butter nor oleomargarine is consumed. In the United States, however, butter has been a favorite food through many generations. A large percentage of the early farm homes were equipped with churns in order to convert cream into butter, which was less perishable. The factory production of butter and oleomargarine is a more modern development.

The nutritionists are interested in adequate nutrition for all individuals. They are not concerned about what specific foods supply the essential nutrients, but they are interested in the possible ill effects of sudden shifts from one type of food to another. Butter has already been involved in one of these problems. The rapid increase in ophthalmia in Denmark in 1917 due to a sudden decrease in butter fat consumption, which

has been so clearly described by Bloch<sup>1</sup> is familiar to most of us. Owing to our increased knowledge of nutrition and the availability of concentrated food products, such sudden changes can be averted more easily today than ever before, but we must still be alert for new changes.

In light of these past experiences we are continually being asked whether increased consumption of oleomargarine will have a detrimental effect on the health of our nation. A United States patent for making oleomargarine was issued in 1873. In 1886 an act of Congress legalized the manufacture of oleomargarine and placed a stamp tax of 2 cents a pound on all oleomargarine. The federal law has been changed six times by amendment. In 1902 the tax of 2 cents a pound was reduced to 0.25 cent on oleomargarine free from artificial coloration that causes it to look like butter of any shade of yellow. If artificial color was used to give the product a yellow color, the tax was 10 cents a pound. In 1931 this tax was changed to make all oleomargarine that was yellow subject to the 10 cent tax. At present every state except Arizona has some kind of oleomargarine legislation but there is great variation among the states. Regardless of the motive behind many of these laws it is very significant from a nutritional point of view that the federal government made it possible for the consumer to distinguish between butter and oleomargarine. In 1902 the importance of the distinction was not clear, but by 1913 it was evident that vegetable oils and many of the animal fats used in making oleomargarine were devoid of vitamin A, while butter was a rich source of this vitamin. Thus any substitution of oleomargarine for butter would directly decrease the vitamin A intake. However, today, as a result of the availability of vitamin A concentrates, it is possible to fortify the oleomargarine so that its vitamin A content may equal that of a high grade butter. At present about 85 per cent of the oleomargarine is fortified.

The kind of fat used in making oleomargarine has also changed during the past few years and will probably continue to change depending on the availability of different oils. In 1933 coconut oil made up 75 per cent of the fat used, while last year it contributed 85 per cent of the materials used. About ten times as much cottonseed oil is used today as ten years ago, and soy bean oil now contributes about one third of the total oil used.

We should therefore give more detailed consideration to the possible differences in the nutritional value of butter and oleomargarine as they are produced today. Butter is "understood to mean the food product usually known as butter, and which is made exclusively from milk or cream or both, with or without common salt, and with or without additional coloring, and containing not less than 80 per cent by weight of milk fat, all tolerances having been allowed for." Oleomargarine is defined as a food made from either animal or vegetable fats or a combination of animal and vegetable fats. These fats are mixed with either cream, milk, skim milk or dried skim milk and water, or with some combinations of these. The finished product must contain not less than 80 per cent fat. In addition to these required ingredients the new standards adopted by the Food and Drug Administration Sept. 6, 1941, permit the use of seven optional materials: (1) artificial color, (2) sodium benzoate or benzoic acid, (3) vitamin A with or without vitamin D, (4) diacetyl, (5) lecithin, (6) butter (no butter has been used in oleomargarine manufacture since 1935), (7) salt. The composition of a number of oleomargarines given in Accepted Foods, pages 42-43, shows that most of them contain from 80 to 82 per cent of fat.

In the light of modern nutritional knowledge, foods such as butter and oleomargarine may be of significance in the diet for the following reasons:

- 1 Concentrated form of energy
- 2 Source of essential fatty acids
- 3 Carrier of fat soluble vitamins
- 4 Effect on requirement of other nutrients
- 5 Source of possible unidentified factors

30. Hartmann A. F. Theory and Practice of Parenteral Fluid Administration J. A. M. A. 103: 1349 (Nov. 3) 1934.

1. Bloch C. E. Blindness and Other Diseases in Children Arising from Deficient Nutrition (Lack of Fat Soluble A Factor) Am. J. Dis. Child 27: 139 (Feb.) 1924.



1 In order for these food products to exert any or all of these effects, the fat must be properly digested. There is no significant difference in the digestibility of butter and oleomargarine. Langworthy<sup>2</sup> has shown that most of the common fats are utilized to an extent of at least 93 to 98 per cent by the human body and can be tolerated in sufficient quantity to furnish 1,000 calories, or more than one third of the average daily energy consumption. Steenbock, Irwin and Weber, and Deuel and his co-workers have studied the rate of fat absorption in rats. Steenbock, Irwin and Weber<sup>3</sup> found butter oil, halibut liver oil and cod liver oil to be absorbed at a more rapid rate than lard, corn oil or partially hydrogenated fats, with butter falling between the two groups. They did not determine whether the rapidity of absorption was physiologically advantageous. Deuel and his co-workers<sup>4</sup> found no consistent difference in the rate of absorption of hydrogenated cottonseed oil, butter fat or coconut oil.

A gram of these fats yields 91 to 93 calories of heat or energy. While carbohydrates and part of the ingested proteins can also serve as a source of energy, the replacement of fat in the diet is limited. Stirling<sup>5</sup> stated that "The question of bulk is probably one of the most important factors in determining the need for fat. The human alimentary canal has been developed so as to cope with a diet in which 20 to 25 per cent of the energy is presented in the form of fat." Further discussion of this question is made by Anderson and Williams.<sup>6</sup> Drummond recently reported to the Food and Nutrition Board of the National Research Council that the decreased fat intake in England was a serious question previous to the lend lease act. Thus the presence of appreciable amounts of fat (one fourth to one third of the total calories) in the American diet is an important factor.

Carlson<sup>7</sup> points out that the factor of palatability is of no small importance in insuring an intake of necessary types and amounts of food. Depending on previous habits, the use of butter or oleomargarine may have an important effect on the consumption of other foods.

2 It is well known that natural fats differ in the amount of unsaturated fatty acids present and that certain of the fatty acids appear to be essential in the nutrition of animals (Burr<sup>8</sup>). Careful exclusion of fat from the diet of rats leads to development of scaly skin, pronounced retardation of growth, kidney lesions, hematuria and early death. There are three unsaturated fatty acids, namely linoleic, linolenic and arachidonic acids, which are effective in preventing these symptoms, although the individual acids differ somewhat in their specific effects. Natural fats which are most effective in curing this disease are corn oil, linseed oil, olive oil and lard. Butter and coconut oil even at fairly high levels were not nearly as active in curing the condition. According to Eckstein,<sup>9</sup> butter may vary from 0.2 to 0.5 per cent of linoleic acid. Hilditch and Sleightholme<sup>10</sup> report the linoleic acid content of butter to be from 1.9 to 3.7 per cent. The linoleic acid content of oleomargarine will vary, of course, depending on the fats used in its manufacture, but it may be quite high if cottonseed oil is used in considerable amounts. The untreated cottonseed oil may contain 35 to 50 per cent of linoleic acid, however, the oil is usually hydrogenated, but even a hydrogenated cottonseed oil may contain 13 per cent of linoleic acid according to chemical assays.

(Hoagland and Snider<sup>11</sup>) On the basis of rat assays, Burr<sup>12</sup> has found approximately 2 to 5 per cent of linoleic acid in oleomargarine and 1 to 4 per cent in butter.

Even though butter fat is lower than the oleomargarines in the essential unsaturated acids, there is apparently sufficient present to meet the demands when whole mineralized milk is used as the sole article of diet. Rats have been maintained for long periods of time in excellent health on such a diet, and Anderson, Elvehjem and Gonce<sup>13</sup> have maintained dogs on such a diet for three years with the comment that the animals had very excellent fur coats. Infants, of course, have been maintained on milk diets for long periods of time. There may be a small amount of linoleic acid in the phospholipids of the skim milk, and the high lactose intake may have some sparing effect when whole milk diets are used. Some difficulty in rats has been reported when 9 per cent of butter fat has been used in synthetic diets as the sole source of fat, but this difficulty may be due in part to the development of rancidity in these purified rations, which would cause rapid destruction of the unsaturated fatty acids.

Some question has been raised about the importance of unsaturated fatty acids in human nutrition and it must be admitted that very little work has been done on human beings. Brown and his co-workers<sup>14</sup> kept two infants on a diet extremely low in fat and observed no symptoms except repeated mild attacks of impetigo. They did find a moderate decrease in the degree of unsaturation of the serum fatty acids. Hansen<sup>15</sup> has reported a similar decrease in infants suffering from severe eczema. Brown and his co-workers maintained an adult for a period of six months on a low fat diet which produced the typical fat deficiency syndrome in rats without demonstrable harm in the man. Linoleic and arachidonic acid contents of the blood serum did show a decrease. The highly unsaturated fatty acids should be provided in the diet of human beings, but it appears that for individuals on average diets no difficulty in this respect will be observed by shifting from butter to oleomargarine or vice versa.

3 Many fats are important carriers of the fat soluble vitamins, in fact, the original discovery of vitamin A was dependent on the use of fat poor experimental diets. Butter fat was used in many of these early studies and it was soon recognized that vegetable fats and many animal tissue fats were devoid of vitamin A. While butter fat has served as an important source of vitamin A in temperate zones, fish oils have played a similar role in arctic regions.

Most workers agree that many unfortified oleomargarines contain insignificant amounts of vitamin A. Some of the oleomargarines made from beef oleo oil may carry fair amounts of vitamin A. A significant portion of the oleomargarine is now fortified to an extent of 9,000 international units per pound. All the oleomargarine sold as a table fat should be fortified. The vitamin A content of butter is known to vary depending on the feed of the cow, but most of the butter produced in the dairy belt of the United States will contain 5,000 to 20,000 international units per pound. According to the values given by Dornbush, Peterson and Olson<sup>16</sup> the minimum value for winter produced butter fat is 3 micrograms of carotene and 7 micrograms of vitamin A per gram. The maximum value for summer produced butter fat is 10 micrograms of carotene and 13 micrograms of vitamin A per gram. Assuming that 1 pound of butter contains 378 Gm of butter fat and that 1 international unit = 0.6 microgram of carotene and 0.3 microgram of vitamin A, the foregoing values give 10,584 to 22,200 international units per pound. In isolated areas where the feeding practices

2 Langworthy, C. A. The Digestibility of Fats, *J Indust & Engin Chem* **15** 276, 1923.

3 Steenbock, Harry, Irwin, M. H., and Weber, J. The Comparative Rate of Absorption of Different Fats, *J Nutrition* **12** 103 (July) 1936.

4 Deuel, H. J., Jr., Hallman, Lois and Leonard, A. The Comparative Rate of Absorption of Some Natural Fats, *J Nutrition* **20** 215 (Sept) 1940.

5 Stirling, E. H. The Significance of Fats in the Diet, *Brit M J* **2** 105 (Aug 3) 1918.

6 Anderson, W. E., and Williams, H. H. The Role of Fat in the Diet, *Physiol Rev* **17** 335 (July) 1937.

7 Carlson, A. J. Facts and Fancies About Food Fats, *Am J Pub Health* **31** 1181 (Nov) 1941.

8 Burr, G. O. On the Necessity of Fats in the Diet, *Chemistry and Medicine*, edited by M. B. Visscher, Minneapolis, University of Minnesota Press, 1940, p. 101.

9 Eckstein, H. C. The Linoleic and Linolenic Acid Contents of Butter Fat, *J Biol Chem* **103** 135 (Nov) 1933.

10 Hilditch, T. P., and Sleightholme, J. J. Variations in the Component Fatty Acids of Butter Due to Changes in Seasonal and Feeding Conditions. *Biochem J* **24** 1098, 1930.

11 Hoagland, R., and Snider, G. G. Nutritive Properties of Steam Rendered Lard and Hydrogenated Cottonseed Oil, *J Nutrition* **22** 65 (July) 1941.

12 Burr. Personal communication.

13 Anderson, H. D., Elvehjem, C. A., and Gonce, J. E., Jr. A Comparison of the Nutritive Values of Raw, Pasteurized and Evaporated Milks for the Dog, *J Nutrition* **20** 433 (Nov) 1940.

14 Brown, W. R., Hansen, A. E., Burr, G. O., and McQuarrie, I. Effect of Prolonged Use of Extremely Low Fat Diet on an Adult Human Subject, *J Nutrition* **16** 511 (Dec) 1938.

15 Hansen, A. E. Serum Lipids in Eczema and in Other Pathologic Conditions, *Am J Dis Child* **53** 933 (April) 1937.

16 Dornbush, A. C., Peterson, W. H., and Olson, F. R. The Carotene and Vitamin A Content of Market Milks, *J A M A* **111** 1748 (May 4) 1940.

even poorer, values below 10,000 international units per pound may be obtained. There may be some loss of vitamin A in hardening, storage, but fortified oleomargarine is also subject to this.

If we use the average per capita consumption of butter (17 pounds) and the average vitamin A potency as 12,000 international units per pound, butter can supply between 200 and 200,000 international units daily to each person in the United States. Many persons eat twice the average amount of butter and would therefore obtain one-fourth of their total daily requirement from butter. It is obvious that only fortified oleomargarines and butter can be compared when the vitamin A is considered.

Butter contains from 50 to 500 international units of vitamin D per pound (Willner<sup>17</sup>). This is not a rich source, but a generous intake of butter may supply one-sixth of the total requirement. Oleomargarine is practically devoid of vitamin D although it may carry significant amounts in fish liver oils added for the addition of vitamin A. In England both vitamins A and D are added to margarine. The Council supports special claims for the vitamin D added to oleomargarines in this country.

Butter is low in vitamin E although there is sufficient in whole milk to allow reproduction in rats and dogs. Since the oleomargarines are rich sources of vitamin E, oleomargarine and all carry appreciable amounts of this vitamin in the oleomargarines are properly prepared. No nutritional claims are recognized for vitamin E at the present time.

Although the vitamin K content of butter has not been determined accurately, it is obvious that butter contains relatively little of this vitamin. Oleomargarine also carries relatively little vitamin K since the seeds of plants contain less vitamin K than do the leafy parts of the plant. Since the requirement for vitamin K may be satisfied by intestinal synthesis at least in adults, any difference in the amount of this vitamin in butter and oleomargarine is not of any great significance. In summary, then, butter supplies more vitamin A and vitamin D than oleomargarine unless it is fortified, and oleomargarine supplies more vitamin E than butter.

4 Evidence has been accumulating to show that the amount of fat in the diet may affect the body's requirement for other nutrients. In experimental animals the isocaloric replacement of sucrose with fat produces a significant decrease in the vitamin B<sub>1</sub> requirement. Natural fats such as butter, lard or corn oil all produce the same effect.<sup>18</sup> In the rat high levels of fat appear to increase the riboflavin requirement, but again all fats function equally.<sup>19</sup> When animals are placed on a diet of skim milk fortified with minerals, a large percentage of the ingested galactose or the milk sugar is excreted in the urine.<sup>20</sup> When butter fat, lard, corn oil and coconut oil were added to the diet to the extent of 3 to 4 per cent, the loss of galactose in the urine was prevented.

The significance of choline in animal nutrition is now definitely established,<sup>21</sup> although its importance in human nutrition is not clear. At first thought one would expect the fats in the diet to supply much of the needed choline, however, purified fats have probably lost much of their phospholipid choline. Cereal products and skim milk, which carry little or no fat, supply much of the choline as well as other substances exerting a choline like effect, needed in the diet.

In the rat, unsaturated fatty acids may have some sparing action on vitamin B<sub>12</sub>, however, the significance of unsaturated fatty acids in human nutrition has already been discussed. According to present knowledge, then, the ingestion of butter or oleomargarine will not alter the requirement of other nutrients to any significant degree.

5 In studies designed to measure any possible difference in the nutritive value of butter and vegetable oils, Schantz, Elvehjem and Hart<sup>22</sup> showed that butter fat homogenized into raw skimmed milk with ample fat soluble vitamins and minerals added gave better growth when fed to weanling rats than did corn oil, coconut oil, cottonseed oil and soy bean oil fed in a like manner. The differences are most readily obtained in young growing rats and when the diet contains lactose. The factor responsible for the superior growth follows the saturated fraction of the butter fat.<sup>23</sup> The unsaturated fraction of butter fat is relatively rich in a compound which by hydrogenation may be converted to an active compound. Corn oil, coconut oil, cottonseed oil and soy bean oil apparently do not contain this compound since hydrogenation of these vegetable oils does not improve their nutritive value when incorporated into skim milk.<sup>24</sup> That butter fat should have a different nutritional effect is not surprising, since several additional fatty acids have been isolated from butter fat (Hilditch<sup>25</sup>). Similar differences have been obtained by Gullickson and his co-workers<sup>26</sup> using calves as the experimental animal. They also found that the animal rats such as lard and tallow gave results similar to those obtained with butter fat. It is most interesting that some of the calves on a low fat diet made excellent gains and were healthy and thrifty. Thus the level of fat in the diet is very important in estimating the superior values of animal fats over vegetable fats. It is well known that rats grow very well on synthetic diets containing 2 per cent of corn oil. Euler and her co-workers<sup>27</sup> obtained better growth in rats on a purified diet containing oleomargarine than on a similar diet containing butter fat. The percentage of fats in their diet was also lower than that in whole milk and the rate of growth in all their animals was rather low. It is possible that both rats and calves are able to synthesize additional fatty acids when they are on low fat diets.

Whether these results enter into the question of the relative value of butter and oleomargarine in human nutrition remains to be determined. Holt and his co-workers<sup>28</sup> have reported that soy bean oil is superior to butter fat in infant nutrition because the oil is more easily absorbed than butter fat. At present it is unknown whether the factors indicated to be essential in the animal experiments are needed by human beings. If they are needed they are probably more important in growing children than in adults. It they must be supplied in the diet the other ingredients or the diversified diet consumed by most adults will probably supply sufficient amounts of the factor. Many of the oleomargarines now manufactured contain some animal fats in addition to the vegetable oils. These animal fats should supply the same factors that are present in butter fat.

It is therefore possible to conclude that at present there is no scientific evidence to show that the use of fortified oleomargarine in an average adult diet would lead to nutritional difficulties. A similar statement is probably justified in the case of growing children, but preliminary results from animal experiments indicate that more work is necessary before any specific conclusions can be made. Since the nutritional factors have not all been identified and since butter contains numerous additional fatty acids of unknown nutritional significance, the consuming public has a right to demand that the practice of identifying oleomargarine and butter so that any one can differentiate between them should be continued.

22 Schantz E J, Elvehjem C A and Hart, E B. The Comparative Nutritive Value of the Fatty Acid Fractions of Butter Fat. *J Dairy Sci* 23: 1205 (Dec) 1940.

23 Schantz E J, Boutwell R K, Elvehjem C A and Hart E B. The Nutritive Value of the Fatty Acid Fractions of Butter Fat. *J Dairy Sci* 23: 1205 (Dec) 1940.

24 Boutwell R K, Geyer R P, Elvehjem C A and Hart E B. The Effect of Hydrogenation on the Nutritive Value of the Fatty Acid Fractions of Butter Fat and of Certain Vegetable Oils. *J Dairy Sci* 24: 1027 (Dec.) 1941.

25 Hilditch T P. The Chemical Constitution of Natural Fats. New York: John Wiley & Sons Inc. 1940. p 385.

26 Gullickson T W, Fontaine F C and Fitch J B. Various Oils and Fats as Substitutes for Butter Fat in the Ration of Young Calves. *J Dairy Sci* 25: 117 (Feb) 1942.

27 Euler Beth V, Euler Hans V and Sobert Inez. Effects of Fats and Fat Soluble Substances on Rat Growth. II. *Arkiv Kemi, Mineral Geol* 15B No 8 1941.

28 Holt L E, Jr, Irdwell H C, Kirk C M, Cross D M and Neal S. Studies on Fat Metabolism. *J Pediatr* 6: 427 1935.

17 Wilkinson H. The Vitamin A and Vitamin D Contents of Butter. II. Seasonal Variation. *Analyst* 64: 17 1939.

18 Arnold A. and Elvehjem C A. *Am J Physiol* 126: 289 (June) 1939.

19 Mannerling G L, Lipton M A and Elvehjem C A. Relation of Dietary Fat to Riboflavin Requirement of Growing Rats. *Proc Soc Exper Biol & Med* 46: 100 (May) 1941.

20 Schantz E J, Elvehjem C A and Hart E B. The Relation of Fat to the Utilization of Lactose in Milk. *J Biol Chem* 122: 381 (Jan) 1938.

21 Griffith W H. The Nutritional Importance of Choline. *J Nutri* 22: 239 (Sept) 1941.

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SATURDAY AUGUST 22 1942

## EPIDEMIOLOGY OF LYMPHOCYTIC CHORIOMENINGITIS

Although occasional references appear in older medical writings to an acute aseptic meningitis, Wallgren in 1925 first described a small epidemic in Sweden of what is now called lymphocytic choriomeningitis in which the probable nonbacterial infectious nature was recognized. The causative virus was isolated by Armstrong and Lillie<sup>1</sup> from a patient with atypical fatal meningitis during the St. Louis epidemic. This virus differed from the ordinary encephalitis virus principally involved in that epidemic. Injected into mice or monkeys, the new virus gave rise to a fatal lymphocytic infiltration of the choriomeningeal tissues with minor involvement of the lungs. Later an apparently identical virus was isolated by Rivers and Scott<sup>2</sup> from 2 other patients with fatal nonbacterial meningitis and by Findlay, Alcock and Stern<sup>3</sup> from the cerebrospinal fluid of 2 patients who survived. Traub<sup>4</sup> at about the same time demonstrated the existence of an endemic in a colony of apparently normal mice apparently due to the same virus. Evidence that infected house mice are the probable source of the human infection was presented by Armstrong, Wallace and Ross,<sup>5</sup> who recovered the virus from mice trapped in the homes of 5 persons who had the disease. There were no human cases in neighboring mouse free homes or in homes which harbored noninfected mice. Dogs and rhesus monkeys may also serve as natural reservoirs for this disease.

Traub estimates on the results of serologic studies that 50 per cent of all members of a mouse colony may be infected, with a mortality of about 2 per cent. The majority of the naturally infected mice show no

definite symptoms, the presence of the virus being determined by inoculating their blood or brain emulsions into normal guinea pigs. Disease free mice may be infected by placing them in contact with mice which have this subclinical or latent disease. Nearly 100 per cent of all mice from noninfected stock develop recognizable symptoms in from five to twelve days after intracerebral inoculation. As the disease progresses, tremors and spastic convulsions of the hind legs are noted, practically all mice dying in convulsions from one to two days after the onset of recognizable symptoms. At necropsy the brain appears hyperemic. Microscopically the meningeal infiltration is mainly with lymphocytes, with an occasional plasma cell or polymorphonuclear leukocyte. Areas of discoloration and consolidation are seen in the lungs. According to Rivers, this interstitial bronchopneumonia is similar to that caused by other viruses.

The virus is readily identified by specific neutralizing tests with convalescent human serum. By such neutralization tests it has been shown that the virus is excreted in the urine and nasal secretions. The disease is readily transmitted by nasal instillation, by instillation into the urethra or vagina of monkeys,<sup>6</sup> by application of infectious material to slightly scarified skin surfaces, and even to the unscarified skin of guinea pigs.<sup>7</sup> The virus is apparently transmitted through the normal placenta, the majority of the mice of certain colonies being infected in utero. After subcutaneous inoculation the virus may be detected within twenty-four hours in the blood stream, increasing to a maximum by the fifth day. The virus persists in the circulation till the death of the animal or for several weeks or months after convalescence in nonfatal cases. The prompt appearance and persistence of this virus in the blood stream offers almost ideal conditions for its transmission by blood sucking insects.

Major efforts to determine the vector have revolved around the common blood sucking insects. Thus, three years ago Coggeshall<sup>8</sup> announced the successful transmission of the virus from guinea pig to guinea pig through the bite of one species of mosquitoes (*Aedes aegypti*). In his experiments these mosquitoes were capable of transmitting the infection as early as the fourth day after feeding on an infected animal and as late as the fifteenth day. Milzer,<sup>9</sup> however, obtained negative results with two other species of mosquitoes (*Culex pipiens* and *Aedes albopictus*), and with *Aedes aegypti* kept at room temperature. Transmission was readily effected by *Aedes aegypti*, however, between the seventh and the twenty-first day after feeding on an infected guinea pig, provided this species was kept at temperatures varying from 28 to 32 C (82.4 to 89.6 F). In 1 case

1 Armstrong, Charles, and Lillie, R. D. *Pub Health Rep* 49 1019 (Aug 31) 1934.  
2 Rivers, T. M., and Scott, T. F. M. *J Exper Med* 63 397, 415 (March) 1936.  
3 Findlay, G. M., Alcock, N. S., and Stern, R. D. *Lancet* 1 650 (March 21) 1936.  
4 Traub, E. *J Exper Med* 63 533 (April) 1936.  
5 Armstrong, Charles, Wallace, J. J., and Ross, L. *Pub Health Rep* 55 1222 (July 5) 1940.

6 Wooley, J. G., Armstrong, Charles, and Onstott, R. H. *Pub Health Rep* 52 1105 (Aug 13) 1937.  
7 Shaughnessy, H. J., and Zichus, Joseph J. *J Exper Med* 72 331 (Oct) 1940.  
8 Coggeshall, L. T. *Science* 89 515 (June 2) 1939.  
9 Milzer, Albert J. *Infect Dis* 70 152 (March April) 1942.

a mosquito incubated at the optimum temperature of 30 C (86 F) was able to infect guinea pigs as late as thirty-eight days after feeding on an infected host. These results correspond with those reported by previous investigators on the effects of extrinsic temperature on aegypti transmission of yellow fever and on the development of the sexual cycle of human malarial parasites in *Anopheles*. Milzer concludes from this evidence that, "because of the relatively high temperatures necessary for infection, *Aedes aegypti* would probably not be a vector of any importance" in the natural spread of lymphocytic choriomeningitis.

Milzer also tested the vector potentiality of the rhesus louse (*Eupedicinus longiceps*) and of certain blood sucking mites (*Atricholaelaps glasgowi*). The virus can be demonstrated in lice twenty-four hours after feeding on an infected monkey. Three hundred presumably infected lice, transferred to the back of a normal monkey, however, did not produce a virus infection. The virus survives for at least twenty-five days in blood sucking mites kept at room temperature, but attempts to transmit the disease by the uncontrolled feeding of infected mites also gave negative results. Two mice and 2 guinea pigs were each forced to swallow a gelatin capsule containing 20 living infected mites. All four animals developed typical choriomeningitis on the seventh day after this infected meal.

Somewhat more striking results were obtained with bedbugs (*Cimex lectularius*). Two methods of infection are conceivable with these insects, a direct infection by the mouth parts and an indirect infection through deposit of feces on the skin, bedbugs habitually defecating at the time of biting. Successful transmission to a normal guinea pig was effected in eleven out of eighteen attempts in which fecal contamination was not prevented. Male and female bedbugs as well as first stage larvae gave positive results. Under conditions that exclude fecal contamination, however, the virus may be transmitted by the mouth parts ten minutes after feeding on an infected guinea pig, negative results are obtained twenty-four hours or more after such feeding.

Control experiments showed that the virus is usually present in infectious concentration in dried feces collected from infected bedbugs as late as eighty-five days after an infectious feeding. The feces are obtained by saline washings of test tubes in which the bugs are stored or from strips of sterile filter paper on which the bedbugs have defecated. Such feces are able to infect guinea pigs if applied to the lightly scarified skin. The virus persists in the intestinal tract of bedbugs through molting from the first to the second larval stage but has not yet been detected after the second molting. Hereditary transmission of the virus has not been demonstrated. Eggs hatched under conditions that prevent fecal contamination resulted in virus free larvae. Attempts to transmit the virus by swal-

lowing gelatin capsules containing 5 to 6 infected bedbugs also gave negative results in both mice and guinea pigs. Cage to cage transmission was effected by using bedbug infected cages but gave negative results in bedbug free cages.

This work suggests that the bedbug is the major vector in the natural epidemiology of lymphocytic choriomeningitis, a conclusion which is all the more striking in view of the common belief that "bedbugs have not been definitely incriminated as important natural vectors of any disease"<sup>10</sup>. Furthermore, Milzer's demonstration that mosquito transmission of this disease is possible only under a narrow temperature range suggests the desirability of repeating transmission experiments with poliomyelitis and other viruses under carefully controlled temperature conditions.

#### STUDIES WITH RADIOACTIVE IRON

The suggestion has been made that the production of radioactive isotopes by physicists and the concentration of naturally occurring isotopes by chemists have provided what may in the final analysis prove to be the "Rosetta stone" for the elucidation of metabolic processes of the organism. The isotopes are readily recognizable, tagged elements that apparently behave exactly like their common prototypes in the body. The radioactive isotope of iron, which has the comparatively long half life of forty-seven days, has proved to be a particularly valuable tool in biologic researches, and its use has amplified our understanding of the metabolism of iron. The informative experiments of Hahn and his co-workers on the absorption, transportation and utilization of radioactive iron have been discussed in THE JOURNAL.<sup>1</sup> Studies with tagged iron permitted the surprising observation that the need of the organism for iron in dogs in some manner determines the absorption of this element, absorption being appreciable in anemic dogs but only slight in normal dogs.<sup>2</sup> Hahn and his associates have continued their work with radioactive iron and have made additional contributions to our knowledge of iron metabolism.

Recently, suggestive experiments on the fate of the iron from destroyed red cells were carried out by these investigators.<sup>3</sup> Blood destruction in dogs was produced with acetylphenylhydrazine, and it was found that the iron liberated from the erythrocytes was utilized nearly quantitatively in the regeneration of new red cells during the period of spontaneous recovery.

10 Hegner Robert, Root R. M., Augustine D. L. and Huff C. (Parasitology, ed. 2 New York: D. Appleton-Century Company, 1938, p. 624).

1 Metabolism of Iron, editorial J. A. M. A. 115: 305 (July 27) 1940.

2 Hahn P. F., Bale W. F., Lawrence E. O. and Whipple G. H. Radioactive Iron and Its Metabolism in Anemia J. Exper. Med. 69: 759 (May) 1939.

3 Cruz W. O., Hahn P. F. and Bale W. F. Hemoglobin Radio-Active Iron Liberated by Erythrocyte Destruction (Acetylphenylhydrazine) Promptly Reutilized to Form New Hemoglobin Am. J. Physiol. 135: 595 (Feb) 1942.

from the anemia. Thus the animal organism appears to be highly efficient in conserving the iron of the blood. In studies on normal dogs with an ample reserve supply of iron it was observed, moreover, that the hemoglobin iron of new red blood corpuscles derived largely from the iron of old red cells which are broken down in the normal wear and tear, rather than from reserve stores. When hemoglobin is regenerated in an iron deficient, anemic dog following a single oral administration of the radioactive isotope, the age of the red cells into which the pigment is built can be considered as known to within a few days.<sup>4</sup> On the contrary, when disintegration of erythrocytes occurs either by aging or by trauma, reutilization by new cells of the labeled iron from the liberated hemoglobin is such that the total circulating radioactivity is maintained constant. It is therefore not feasible to use the iron isotope in the determination of the life cycle of the red cell.<sup>5</sup> Further studies with radioactive iron will undoubtedly help to elucidate more fully the metabolic processes in which iron is involved. The employment of radioactive isotopes, including radio iron, in biologic investigations provides another example of the recent contributions of physics to medicine, for it is the cyclotron or the physicist which makes possible the tagging of elements.

### Current Comment

#### MOSQUITOES AND ENCEPHALITIS IN THE YAKIMA VALLEY

In a series of recent studies by Hammon, Reeves and their colleagues<sup>1</sup> much new information has been made available on the transmission of encephalitis in the Yakima Valley. In a four month period during the summer of 1941 over 15,000 living arthropods were collected, frozen and inoculated into laboratory animals for the purpose of isolating the encephalitis virus. Over 12,000 of these were mosquitoes. From *Culex tarsalis* Coquillett three strains of St. Louis encephalitis virus and five strains of western equine encephalomyelitis virus were isolated. Virus was not isolated from other species of mosquitoes. For the isolation of either the western equine or the St. Louis virus intracerebral

inoculation of 5 Swiss mice of a suitable strain was proved by comparative tests to be more satisfactory than intracerebral inoculation of one 200 Gm guinea pig or two 8 to 12 day chick embryos. By means of precipitin tests it was demonstrated that *C. tarsalis* feeds in nature on cows, horses, man, pigs, dogs, chickens (other birds?) and sheep. Since *C. tarsalis* has been shown to be an efficient vector of western equine and St. Louis viruses, this widespread feeding makes it possible for the species to spread the infection among many animals and birds. In the course of these investigations an efficient trap for collecting live mosquitoes was developed. Finally the investigators summarize the evidence against *Culex tarsalis* and conclude that it is the most important vector of western equine and St. Louis encephalitis viruses in the Yakima Valley. Its possible role elsewhere is wisely left to be judged on the basis of local observations.

#### JAUNDICE IN WEST AFRICA NOT DUE TO YELLOW FEVER

The clinical diagnosis of yellow fever is often difficult. For the purposes of histologic diagnosis a routine procedure of frozen and paraffin sections of the liver is followed in the Medical Research Institute at Lagos, Nigeria. Smith<sup>1</sup> now presents notes and reports of microscopic examination of the liver in 14 cases in which an obscure clinical picture and a variety of hepatic changes occurred. In all there was unexplained jaundice. In none of the cases described was it possible to elicit a possible causative factor. The microscopic changes in the liver resembled those of subacute yellow atrophy or necrosis in 6 of the cases. Extensive Councilman necrosis was present in 2 and calcified casts in 2. Smith concludes that there are various conditions which, from the changes brought about in the liver, may cause confusion in the clinical diagnosis of yellow fever. The evidence clearly suggests that there are one or more conditions occurring in these African natives which resemble yellow fever but are not due to the same causative virus.

#### BIBLIOGRAPHY OF AVIATION MEDICINE

The performance of modern combat airplanes has so seriously taxed the physiology of the flight personnel that a new field of study has arisen which, for want of a better term, has been designated "aviation medicine." The literature already has become vast and it cuts across not only medicine itself but many phases of biologic, physical and chemical sciences. Now an extensive bibliography in this field has been collected and classified by Hoff and Fulton.<sup>1</sup> The classification has been carefully devised and the references can be approached satisfactorily either through the table of contents or through the index of subjects. There is also an index of authors. This compilation is invaluable for any one engaged in research in the field of aviation medicine.

<sup>4</sup> Cruz, W. O., Hahn, P. F., Bale, W. F., and Balfour, W. M. The Effect of Aging on the Susceptibility of the Erythrocyte to Hypotonic Salt Solutions. Radioactive Iron as a Means of Tagging the Red Blood Cell.

<sup>5</sup> Hahn, P. F., Bale, W. F., and Balfour, W. M. Radioactive Iron Used to Study Red Blood Cells Over Long Periods, *Am J Physiol* 135: 600 (Feb.) 1942.

<sup>1</sup> Hammon, W. McD., Reeves, W. C., Brookman, B., and Izumi, E. M. Mosquitoes and Encephalitis in the Yakima Valley, Washington. Arthropods Tested and Recovery of Western Equine and St. Louis Viruses from *Culex tarsalis* Coquillett. Hammon, W. McD., Reeves, W. C., and Izumi, E. M. Methods for Collecting Arthropods and for Isolating Western Equine and St. Louis Viruses. Bang, Frederik, and Reeves, W. C. Feeding Habits of *Culex tarsalis* Coq. A Mosquito Host of the Viruses of Western Equine and St. Louis Encephalitis. Reeves, W. C., and Hammon, W. McD. A Trap for Collecting Live Mosquitoes. Hammon, W. McD., Reeves, W. C., Brookman, B., and Gjullin, C. M. Summary of Case Against *Culex tarsalis* Coquillett as a Vector of the St. Louis and Western Equine Viruses, *J Infect Dis* 70: 263 (May/June) 1942.

<sup>1</sup> Smith, E. C. Hepatic Findings Excluding Yellow Fever in Fourteen Cases of Jaundice in West Africa, *Ann Trop Med* 36: 38 (June 30) 1942.

<sup>1</sup> Hoff, Ebbe Curtis, and Fulton, John Farquhar. A Bibliography of Aviation Medicine, Springfield, Ill., Charles C. Thomas.



### "AEQUANIMITAS" IN SPANISH

Among the classics in American medical writing is "Aequanimitas" by Sir William Osler. As a friendly gesture toward our South American colleagues, Eli Lilly & Company has had a translation of this work made by Dr. Aristides A. Moll, secretary of the Pan American Sanitary Union. A copy of the Spanish edition is being sent on graduation to the graduates of all South American medical schools. A letter which accompanies the presentation expresses the hope that the newly graduated physicians will appreciate and share Sir William Osler's inspiration, his breadth of vision and, above all, his persistent research for truth. The presentation is particularly apropos because this volume contains the magnificent essay entitled "Chauvinism in Medicine," which is a condemnation of all that chauvinism means in inhibiting medical progress.

### FATAL COLLAPSE ASSOCIATED WITH PHYSICAL EXERTION

Acute fatal nontraumatic collapse during indulgence in athletic sport or other strenuous exertion may occur with or without previous signs. An analysis by Jokl and Suzman<sup>1</sup> of Johannesburg of 66 cases of sudden death in which clinical data and complete necropsy reports were available indicates the not unexpected conclusion that collapse associated with exertion is almost invariably due to circulatory disease of long duration. The following conditions arranged in order of frequency were found at necropsy: coronary artery disease, acute coronary occlusion, degenerative disease of the heart muscle, ruptured aneurysm of the aorta, chronic inflammatory disease of the heart muscle, ruptured aneurysm of the cerebral arteries, rupture of the heart, rupture of a congenitally diseased aorta, developmental abnormalities of the heart and developmental hypoplasia of the entire arterial system. They point out that arterial blood pressure rises physiologically during exercise and drops below the initial level during the rest period following exertion. In the cases studied, whenever the necropsy revealed that death had been due to rupture of diseased blood vessels the first symptoms of the collapse preceding death had set in during muscular effort. During the negative phase after exertion, when the arterial pressure drops lower than the initial level, there is distinct danger to those who suffer from coronary and myocardial disease. In this group was a football player who lost consciousness after a game and died thirty minutes later. The authors believe that expiratory effort with a closed glottis represents the greatest physical stress with which the heart has to cope. The diffusion of oxygen through the lung is virtually suspended, and oxygen saturation of the capillary blood consequently decreases rapidly. The ultimate result is a pressure gradient apparently measured, as far as the coronary system is concerned, by the difference in pressure between the aorta and the coronary sinus and right ventricle. In subjects with coronary artery disease and deficient capillary supply of a hypertrophic myocardium, the physiologic phase often represents a catastrophic event from which the

heart may never recover. The authors discuss a gastrocoronary reflex often present in strenuous exertion involving rise of intragastric pressure probably in the proximal portion of the stomach which, it is claimed, elicits a reflex constriction of the coronary artery circulation. They conclude from this and other work that any functional strain conceivable cannot cause fatal collapse but that certain diseases such as those enumerated render the heart and blood vessels so vulnerable that the physiologic effort associated with physical exertion may overtax their adaptive plasticity.

### CHEST INJURY AND CORONARY OCCLUSION

The question as to whether or not direct nonpenetrating injury of the chest can damage the heart or produce acute coronary thrombosis has received comparatively little study.<sup>1</sup> In a recent examination of this subject Lennoff<sup>2</sup> presents 17 cases involving trauma to the chest followed by symptoms of acute cardiac damage. The injury was considered an important etiologic factor in the first 15 cases and only incidental in the last 2. The clinical picture in these cases is that of an acute pathologic condition of the heart closely resembling coronary occlusion, from which, however, it may be differentiated by the history of trauma. The history is the most important single factor in determining the causal relation and the subsequent degree of disability. Electrocardiographic changes, however, are definite and important and usually show changes associated with acute cardiac lesions. Lennoff concludes that direct nonpenetrating injury of the chest can produce nonfatal disabling heart damage and that the resulting characteristic clinical syndrome should be considered in the presence of any injury of the chest.

### MENTAL CONFUSION FROM THE SULFONAMIDES

THE JOURNAL previously has called attention editorially to the danger of impaired judgment which sometimes results from sulfanilamide administration.<sup>1</sup> Now the Committee on Disability and Rehabilitation of the Medical and Surgical Section of the Association of American Railroads<sup>2</sup> reemphasizes this hazard. Investigation reveals, this report states, that there is frequently a period of confusion following administration of any of the sulfonamide group of drugs. Hence it is recommended that a patient, after receiving treatment of this type, should be free from work for seven to fourteen days following such administration before being permitted to resume duties in either engine or train service. The possibility of serious mental confusion must be borne in mind especially for those whose activities under circumstances of impaired judgment would be particularly hazardous to others. This would include many occupations in civil life and practically all those in military fields.

<sup>1</sup> Sigler L. H. Trauma of the Heart Due to Nonpenetrating Chest Injuries. *J. A. M. A.* 119: 855 (July 11) 1942.

<sup>2</sup> Lennoff H. D. Acute Coronary Thrombosis in Industry. *Arch. Int. Med.* 70: 33 (July) 1942.

<sup>1</sup> Impaired Judgment from Sulfanilamide. *Current Comment. J. A. M. A.* 116: 2279 (May 17) 1941.

<sup>2</sup> Report of Committee on Disability and Rehabilitation. Medical and Surgical Section. Association of American Railroads. *J. R. Garner, M.D., Chairman. Circular M & S 239. May 1, 1942.*

<sup>1</sup> Jokl E. and Suzman M. M. Mechanisms Involved in Acute Fatal Nontraumatic Collapse Associated with Physical Exertion. *Am. Heart J.* 23: 761 (June) 1942.

# MEDICINE AND THE WAR

*In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession*

## PROCUREMENT AND ASSIGNMENT SERVICE FOR PHYSICIANS, DENTISTS AND VETERINARIANS

### PRESENT STATUS OF PROVISION AND SUPPLY OF PHYSICIANS

Frank H. Lahey, Chairman  
For the Directing Board

Many thousands of medical officers have taken their oaths of office or are now in the process of being commissioned in the Army and Navy. Additional thousands of physicians under 37 years of age have been cleared by the professional and state committees for service in the Army and Navy. In some states, quotas developed by the Procurement and Assignment Service have been filled. However, with the rapid expansion of the armed forces planned during the next six months and with the growth of the military medical services, many additional thousands of medical officers will be required.

Some reduction in the number of medical officers per thousand troops is anticipated because the Army has changed its tables of organization, so that officers in the Medical Administrative Corps will be assigned to administrative positions formerly held by medically trained men.

#### ENROLLMENT

By June 1 a hundred and thirty thousand enrollment forms and questionnaires had been returned by physicians. Although many thousands indicated that a commission in the armed forces was their first choice, relatively few applications for commissions in the medical corps of the several services had been received. This seems to have been due to a misunderstanding, namely, that enrollment with the Procurement and Assignment Service was equivalent to applying for a commission. Furthermore, lack of personnel and equipment delayed entering the data of the questionnaires on punch cards. All the information has now been coded on the punch cards. Obviously, every physician should enroll with the Procurement and Assignment Service. If the physician is enrolled, he will be benefited by receiving proper consideration from his Selective Service board, and the state chairman of the Procurement and Assignment Service will be aided in arriving at a decision as to occupational deferment and in rating a physician or dentist as available or essential.

All physicians who failed to enroll and file questionnaires are now being listed. This will be done with the aid of the National Roster and of the American Medical Association. If you have not yet filled out an enrollment form and questionnaire, you should, for your own benefit if not for proper service to your nation, fill out the enrollment form and questionnaire at once. If you do not have a blank form, request one immediately from the National Roster of Scientific and Specialized Personnel, 1006 U Street NW, Washington, D. C.

#### THE RECRUITMENT OF PHYSICIANS

On April 18 the President issued an executive order transferring the functions of the Procurement and Assignment Service to the War Manpower Commission in the Office for Emergency Management. Previous to this the Navy established offices of Naval Officer Procurement in all naval districts throughout the United States for the most rapid processing of applications and the procurement of officers.

During the latter half of May, terms of army officers constituting medical officer recruiting boards were sent by the War Department to various states to stimulate and facilitate the

recruiting of medical and dental officers for the Army. These boards are authorized to issue commissions to qualified applicants immediately. The weekly number of appointments rose sharply. Since the members of the recruiting boards are getting in contact only with those physicians and dentists who have been "cleared" by the Procurement and Assignment Service, there has been a greatly increased volume of work in this agency. To handle this additional work, the office personnel of the Procurement and Assignment Service was increased, and on July 2 its offices were moved to 1006 U Street, NW, along with those of other divisions of the War Manpower Commission, including the National Roster of Scientific and Specialized Personnel.

With these increased facilities, proper functioning became possible. By the middle of July letters had been forwarded to fifteen hundred physicians under 37 years of age who had signified their preference to serve with the Army. Each letter contained a postcard addressed to the Surgeon General of the Army and one addressed to the War Manpower Commission, and the physician was asked to sign and forward them, thus indicating his desire to be commissioned. The sending of these letters will be continued. To expedite matters, the recruiting unit in each state is informed by the Office of the Surgeon General of the applicant's willingness to apply for a commission.

The Navy Department is furnished names by the Procurement and Assignment Service of those physicians who signify a preference for the Navy. The Bureau of Medicine and Surgery sends such physicians invitations to enroll in the Medical Corps of the United States Naval Reserve and indicates to them how they may apply according to Navy regulations. Physicians should realize that they still have freedom of choice as to the armed service to which they prefer to apply for commission. It is to be borne in mind that the Selective Service boards alone have the legal authority to draft physicians. These boards have been instructed to give every consideration to the physicians whose numbers have been called.

Thus the Procurement and Assignment Service is now functioning according to the plans originally established by the directing board and by the various committees. Its purpose, however, includes not only the listing and procurement of medical, dental and veterinary personnel for the armed forces but also the procurement and equitable allocation of medical and allied personnel for civilian service in medical schools, hospitals, industry, nonmilitary governmental agencies and civilian communities.

#### NEEDS OF THE CIVILIAN POPULATION

One of the first steps taken by the directing board of the Procurement and Assignment Service was the establishment of a study of the distribution of physicians in each of the states according to age, sex and type of practice, in relation to population. These data were utilized in meeting the needs of the armed forces, due allowance being made for the differences between states. Furthermore, the medical needs of districts in each state were roughly estimated, on the basis of one physician for each 1,500 of population. These figures are

employed in determining the number of physicians to be judged "essential" in any given area. The status of individual physicians, not only in private practice, but also in hospitals, medical schools, industry and various governmental institutions, was determined only after the local authorities had been consulted, and the final decision was always left to the state committees or, in the case of dispute, to the corps area committees.

Unfortunate incidents have arisen through the commissioning of men previously declared "available" who have suddenly become "essential" because of the death, disability or enlistment of some other physician. In such cases nothing can be done by the Procurement and Assignment Service if the oath of office has been administered. However, the Navy has revoked the commissions in instances in which the withdrawal of a physician from his community was not obviously to the best interests of the general defense program. Many difficult situations have been created by the volunteering of men listed as "essential." Such a physician is just as important to the war effort as a medical officer, he should not apply for a commission unless he is certain that some one is available to take his place. In fact, in this country, as in England, the armed forces have agreed to refuse a commission to a physician or dentist so designated. The Navy likewise is doing this.

#### RESERVE OFFICERS

All reserve officers of the Army are now subject to call to active duty even though they have been declared "essential", such men were granted permission to resign prior to July 1,

1942. All reserve officers of the Navy, except interns, are placed on active duty within a month after obtaining their commissions.

#### MEDICAL SERVICES FOR INDUSTRIAL COMMUNITIES

Medical services must be provided for new or rapidly expanding industrial communities. This is essentially a local problem, but, if physicians are not available, men who are physically unfit or too old for military service, and who are willing to be dislocated, must be assigned to such positions. This is a problem to which the directing board of the Procurement and Assignment Service is now giving special consideration so that suitable recommendations may be sent to the War Manpower Commission.

#### ADDITIONAL PROBLEMS

1. A suitable pool of physicians, including specialists, must be established from which the armed forces can draw for men with general and special training and for future needs.

2. The headquarters of Procurement and Assignment Service, now well organized and located with the National Roster of Scientific and Specialized Personnel at 1006 U Street N.W., Washington, D.C. proposes to maintain up to date information concerning each physician, dentist and veterinarian in the United States, his assignment and his availability.

3. Consideration is being given to the utilization of the physicians who have graduated from unapproved medical schools and of citizens of co-belligerent countries, of enemy countries and of enemy occupied countries.

#### NUTGALLS AND TANNIC ACID U S P

Because the fulfillment of requirements for the defense of the United States has created a shortage in the supply of nutgalls and tannic acid U S P, order M-204 has been issued by the War Production Board to establish control of these agents. Nutgalls are defined as the excrescences or galls obtained from the young twigs of *Quercus infectoria* Olivier and other allied species of *Quercus* (Fam. Fagaceae) or from the leaves of *Rhus semialata* Murray or *R. javanica* L., tannic acid U S P as gallotannic acid or so-called tannin meeting U S P requirements.

Essentially the general restrictions provide that no person shall process, combine with other materials or use any nutgalls except for the maximum production of tannic acid U S P or use any tannic acid U S P except for the treatment of burns or for the manufacture of a product to be used exclusively for the treatment of burns or as an analytic agent for use in analytic control in research laboratories or as an antidote for internal administration in the treatment of poisoning or in the extemporaneous compounding by licensed pharmacists of individual prescriptions of licensed physicians, dentists or veterinarians or in the extemporaneous compounding of medicines by licensed physicians, dentists or veterinarians for their own patients. No person shall sell, transfer or deliver or purchase or accept transfer or delivery of any nutgalls or tannic acid U S P which he knows, or has reason to believe, is to be processed, combined with other materials or used for purposes other than those permitted by the preceding exemptions. Further purchasers must sign a certification that nutgalls or the acid will be used only for permitted purposes. The restrictions will not apply to any stock of nutgalls amounting to less than 5 pounds, nor will it apply to nutgalls or tannic acid U S P which has been combined with any other material before issuance of the order. It will not apply to the householder who uses the U S P acid for his own medicinal purposes, but the person who sells to the householder must observe the prescribed restrictions.

All persons possessing or having control of stocks of nutgalls amounting to 5 pounds or more at any one place or of tannic acid U S P amounting to 2 pounds or more must file a report with the War Production Board on form PD-623 before Aug. 31, 1942. Any person affected by this order who considers that compliance therewith would work an exceptional or unreasonable hardship on him may appeal to the War Production Board. All reports and communications concerning

this order should be addressed to War Production Board, Health Supplies Branch, Washington, D.C., reference M-204. Wilful violation of the order may result in punishment by fine or imprisonment, in addition to that individual being prohibited from making or obtaining further deliveries.

A recent release from the Office of War Information, War Production Board, asserts that Health Supplies Branch officials believe that there are adequate substitutes including tannic acid technical grade, available for the industrial and medicinal purposes for which tannic acid U S P is now prohibited. Nutgalls, which develop on certain species of shrubs, are normally obtained from China, Turkey, Syria, Iran and Iraq. Obviously, only comparatively small amounts now can be expected from these sources. Although there are other possible raw material sources of tannic acid such as tara, sumac, divi-divi and other shrubs found in the Western Hemisphere, it is not believed that any substantial amounts of tannic acid meeting U S P requirements can be obtained from such sources at this time. Order M-204 is expected to conserve approximately half the former civilian consumption of the U S P acid.

#### SURVEY OF NEW JERSEY HOSPITAL FACILITIES FOR EMERGENCIES

The Office of Civilian Defense director of the state of New Jersey has surveyed the public hospitals in the state which are available for emergency services. Of these there are eighty-nine general hospitals with a total emergency bed capacity of about 20,000; nine state and county mental disease hospitals with 16,000 beds; fourteen state and county tuberculosis sanatoriums with 4,300 beds; eight county and local isolation hospitals with 1,500 beds; and a veterans hospital for mental patients with 1,750 beds. Additional hospitals which might be considered available for emergency services are the proprietary hospitals and the nursing and convalescent homes.

The state hospital officer has classified the public hospitals with regard to vulnerability into four classes. 1. Maximum vulnerability. Use as casualty hospital only. These hospitals are in metropolitan centers or serve key defense areas likely to become objectives of attack. 2. High vulnerability. Use as casualty hospital only. These are hospitals in suburban and some urban communities offering slightly less significance as military objectives than those served by class 1 hospitals. 3. Low vulnerability. Use as emergency base hospital. These

are hospitals in rural or semirural areas where the probability of attack is relatively unlikely. 4. Minimum vulnerability. Use is emergency base hospital. These are hospitals in rural and protected areas believed to offer the greatest relative safety as emergency base hospitals possible within the state.

The Office of Civilian Defense director of New Jersey states that of the general hospitals thirty-three are in areas of maximum vulnerability, thirty-eight in areas of high vulnerability and nine each in areas of low and minimum vulnerability, respectively. According to the present plans of federal authorities there would be two types of hospitals, functioning in the emergency: (1) casualty receiving hospitals, which would care for casualties occurring near the area in which the hospital is located, and (2) emergency base hospitals located in rural and safe areas to which patients needing prolonged hospital care would be evacuated. The emergency base hospitals will include existing new or improvised facilities. All hospitals in the nation, voluntary or governmental, may serve as casualty hospitals of the Emergency Medical Services established by the Office of Civilian Defense for the care of civilian casualties caused by enemy action. This plan will not affect the management or control of such hospitals. Cash payments will be given to them for caring for casualties pursuant to the President's order at a rate of \$175 a day.

The State Hospital Officer and the Emergency Medical Service are responsible for determining in collaboration with the local military and state evacuation hospitals, the plans of evacuation and means of transport of civilian casualties from local casualty receiving hospitals to emergency base hospitals. Evacuation plans must be coordinated with plans made for the evacuation of the general population and with the restrictions placed on the use of highways, making necessary the routing of casualties over secondary highways.

Central administrative units (control centers) are being organized to cover the various districts in New Jersey in order to integrate the activities of the various protective services, including hospital services. The district control center will direct rescue squads and emergency medical field units to the scene of the incident. Following emergency care at the scene, casualties will be dispatched to hospitals designated by the control center. When all the hospitals within a district are full of patients, the district control center will notify the main control center, which will direct that additional casualties be routed to public hospitals in some other district.

Emergency base hospitals may require a large staff of physicians and dentists, and since a well balanced technical staff cannot be assembled hurriedly, according to the Office of Civilian Defense director, it is proposed to expand the commissioned reserve of the United States Public Health Service for this purpose. Recruiting will be carried on in collaboration with the Procurement and Assignment Service largely from the older age groups, from physicians with minor physical disabilities which make them ineligible for military service, and from women physicians. The U. S. Public Health Service and the Medical Division of the Office of Civilian Defense will cooperate with the American Red Cross, responsible state and local officials and other organizations in arranging for nursing, technical and other services in emergency base hospitals.

### GRADUATION AT CARLISLE BARRACKS

Another field training course at the Medical Field Service School, Carlisle Barracks, Pa., was completed on July 1 with the graduation of one hundred and seventy-nine officers of the medical department, representing thirty-four states. The subjects taught included field medicine, military sanitation, military art, logistics, administration and training. The graduation ceremony was held in the War Department theater and the diplomas were presented by Brig. Gen. Addison D. Davis, commandant of the school. These classes are designed to give graduates in medicine, dentistry and veterinary medicine training for military duties in the field. After the ceremony the graduates left immediately to join their units. The class comprised one hundred and ten medical corps officers, sixty-one of the dental corps, four of the veterinary corps, two of the sanitary corps and two of the medical administrative corps.

### FEDERAL AID FOR SCHOOLS OF NURSING

Schools of nursing have been asked to admit 55,000 students during the current school year, which is an increase of 10,000 over last year's admissions.

An appropriation of \$3,500,000 has been made by the Congress for the training for nurses (national defense). The schools of nursing throughout the country have been notified regarding the availability of these funds, and the schools are urged to participate in this program.

Funds are allotted by the Public Health Service directly to eligible schools. Schools unable to increase their admissions over the school year 1940-1941 may request scholarship tuitions for qualified students. The goal is that no qualified student be barred from entering a school of nursing because of lack of funds. Funds are available for students unable to meet costs from other sources.

Schools that are able to increase their admissions over the school year 1940-1941 may request funds for scholarship tuitions and in addition for the following purposes:

1. Additional instructors and instructional facilities commensurate with increased student admissions.

2. Subsistence during that portion of the program when the student is not rendering any appreciable service to the institution.

3. Expansion of clinical experience through affiliation with other institutions.

A previous announcement outlined the objectives of the program and the purposes for which these funds might be used.

For further information, schools may write to the U. S. Public Health Service, Washington, D. C., Bethesda Station.

### NUTRITION ADVISORY SERVICE ORGANIZED

An industrial nutrition advisory service has been organized under the direction of Dr. W. H. Sebrell Jr., director, division of chemotherapy, U. S. Public Health Service, and M. L. Wilson, assistant administrator, Office of Defense Health and Welfare Services. The new service will provide practical recommendations to both government owned plants and private industries to meet specific industrial nutrition problems which may affect production increasing absences and accidents. Dr. Robert S. Goodhart, New York, recently appointed a member of the U. S. Public Health Service, will direct the nutrition advisory service to industry. Assisting Dr. Sebrell and Dr. Goodhart will be Dr. Mark Graubard, biochemist, formerly on the staff of Columbia University, and Ernestine Perry, formerly of Springfield, Mass. The entire project is directed toward reducing the twenty-four million man hours lost monthly on the production fronts, and the entire program will move forward on three fronts: industry, homes and communities.

### MEDICAL SUPPLIES ARRIVE SAFELY IN CHINA

Dr. Robert B. McClure, who left New York City last November, has arrived safe in Kweiyang, China, with a consignment of cases containing medical supplies furnished by the Medical and Surgical Relief Committee of America, 420 Lexington Avenue, New York. Another physician, Dr. Dietrich V. Wiebe, of Reedley, Calif., has left more recently with additional medical and dental supplies for service in China, with an ambulance unit sent there by the American Friends Service.

### ARMY PERSONALS

Dr. Pashnpati J. Sarma, formerly associate professor of surgery at the University of Illinois College of Medicine, Chicago, is reported to have been promoted to the rank of colonel in the Army while serving at Camp Barkley, Texas.

Col. Raymond F. Metcalfe, M. C., U. S. Army, retired, until recently on duty at the San Francisco Port of Embarkation, has been ordered to duty in Washington, D. C., and will be succeeded at the Port of Embarkation by Col. Wallace DeWitt, U. S. Army, retired.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH)

### CALIFORNIA

**Institutes on Wartime Industrial Health**—The California State Department of Public Health is conducting a series of institutes on wartime industrial health in cooperation with the California Medical Association and the Western Association of Industrial Physicians and Surgeons. The institutes opened on August 18 in San Francisco and were held in Crockett August 19 and Oakland August 21. They will be held in San Diego on August 25, Inglewood August 26, Glendale August 27 and Huntington Park August 28. Out of state speakers include Dr. Carey P. McCord, Detroit, "The Conservation of Industry's Manpower" and J. J. Bloomfield, Bethesda, Md., "Industrial Hygiene in War Production".

**Dr. Wilbur to Continue as Head of Stanford University**—Dr. Ray Lyman Wilbur, president of Stanford University since 1916, will continue to head the university through the academic year ending August 1943, because of the war emergency. According to an announcement from the school, this is the third time since he reached the retirement age in 1940 that he has consented to continue to direct the university. Recently, to honor him for his long service to the university, the title of chancellor was conferred on him. During a dinner to commemorate this event given by the alumni of Stanford University School of Medicine, San Francisco, a life size portrait of Dr. Wilbur was unveiled, the work of Josef Sigall.

### DISTRICT OF COLUMBIA

**Experimental Rate Plan Adopted at Gallinger Hospital**—The district commissioners have approved a formula for charges to be levied against patients admitted to Gallinger Municipal Hospital. The formulas are to be graded according to the patient's income and dependents. The plan will be carried out for a sixty day experimental period beginning at once, the *Washington Star* reported, July 31. The plan provides that no person shall be eligible to receive medical care at the expense of the district if he has an interest in real property with an assessed valuation of \$2,500 or more or if he has real or personal property of \$250 or more. Patients will be required to sign promissory notes to cover the cost of hospitalization. It was stated. The adopted formula sets up three categories: one is for Gallinger patients who are indigent to a degree not warranting hospitalization charges, the second is for the partially indigent, prescribing charges ranging from 50 cents to \$3.50 a day, and the third is for persons deemed in a position to warrant a full charge, which is \$4 a day.

### ILLINOIS

**Health Advisory Committee Appointed**—On July 21 Governor Green appointed a special state health advisory committee, consisting of thirty-one members to serve in an advisory capacity to the state division of maternal and child hygiene according to the *Chicago Sun*. Dr. Frederick H. Falls, Chicago professor and head of the department of obstetrics and gynecology, University of Illinois College of Medicine, is chairman of the new committee, and Drs. Roland R. Cross, Springfield state health director and Fred L. Adair, chief of the state division of maternal and child hygiene are ex officio members. The committee will give advice on wartime problems in protection of the health of mothers, expectant mothers, infants and children.

#### Chicago

**License Revoked for Association with Abortionist**—The Illinois State Department of Registration and Education on June 6 revoked the license to practice medicine of Dr. Josephine Gabler. The action was taken after an expose of an abortion racket in the city in which her name had been mentioned. Newspapers reported that the physician was charged with being associated with and lending the use of her name to Mrs. Ada Martin, who stood trial for conspiracy to commit abortions. Newspapers also reported that Dr. Gabler admitted that she sold her loop medical practice to Mrs. Martin and further that both Mrs. Martin and her daughter were her employees prior to the sale of the practice, but she maintained

she knew nothing about Mrs. Martin heading an abortion ring. It was also stated that the investigation of the abortion ring resulted in two suicides, a murder and a "shakeup" in the state's attorney's office. Dr. Gabler graduated at Dearborn Medical College in 1905 and was licensed to practice in Illinois in the same year.

### INDIANA

**Changes in Health Officers**—Dr. Roy H. Elliott, Connersville, has been appointed health officer of Fayette County to succeed the late Dr. John S. Leffel, Connersville.—Dr. Floyd L. Burris is the new health officer of Michigan City, succeeding Dr. Norman R. Carlson, who is with the U. S. Army Air Corps at Hill Field, Ogden, Utah.—Dr. Frank A. Beardsley, Frankfort, has been appointed health officer of Clinton County to succeed Dr. Bruce A. Work, Frankfort, who is in the Army.

### IOWA

**Psychologist Named to Direct Child Welfare Station**—Robert R. Sears, Ph.D., formerly research assistant at the Institute of Human Relations, Yale University, New Haven, has been appointed head of the Iowa Child Welfare Research Station, Iowa City. Dr. Sears received his degree in doctor of philosophy at Yale in 1932 and has served on the staffs of the University of Illinois Institute of Juvenile Research, Chicago, and Wesleyan University, Middletown, Conn. Dr. Sears succeeds George D. Stoddard, Ph.D., who became New York State commissioner of education on July 1 and who is a member of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association. The child welfare research station is part of the State University of Iowa College of Medicine.

### KANSAS

**Personal**—Drs. Floyd C. Taggart, Paul E. Belknap, Milton B. Miller and William C. Menninger were elected members of the Topeka Board of Health recently.—Dr. Herman P. Daniels, Wichita, observed the completion of fifty years in the practice of medicine recently.

**Society News**—Dr. Joseph W. Kelso, Oklahoma City, among others, addressed the Southeast Kansas Medical Society in Neodesha, June 25, on "Cancer of the Cervix".—The Golden-Belt Medical Society was addressed in Manhattan, July 9, among others by Dr. Frank A. Krusen, Rochester, Minn., on physical therapy.

**State Society Appoints New Committees**—The Kansas Medical Society has announced the creation of three new committees: the committee on the control of appendicitis with Dr. Harry Lutz, Augusta, chairman; the committee on conservation of hearing with Dr. Lyle S. Powell, Lawrence, chairman; and the committee on plasma, of which Dr. Warren F. Bernstorf, Winfield, is chairman.

### LOUISIANA

**Tulane Professors Visit Venezuela**—Three members of the faculty of Tulane University of Louisiana School of Medicine, New Orleans, left on July 4 for a tour of hospitals and medical schools in Venezuela. The three physicians are Drs. Hiram W. Kostmayer, acting dean of the medical school, E. W. Alton Ochsner, William Henderson, professor of surgery, and William A. Sodeman, assistant professor of medicine. They will make a study under the direction of Dr. Alfred Gage, associate director of the medical department of the Standard Oil Company. One object of the trip will be to complete plans for the oil company to send two Venezuelan students to Tulane each year for medical and premedical work, according to the *New Orleans Times Picayune*.

### MINNESOTA

**Kenny Unit to Be Set Up in Public Health Center**—Plans are under way to establish clinics and hospitalization for the treatment of anterior poliomyelitis and its resultant paralysis at the Public Health Center, Minneapolis, formerly known as the Lymanhurst Health Center. The clinics would be under the direction of Sister Elizabeth Kenny, who has been in Minneapolis for some time directing work of this kind. If the program goes through, the hospital element of the center will be transferred to the Minneapolis General Hospital. The Public Health Center houses a 40 bed hospital for the study and treatment of incipient and rheumatic heart disease in children; outpatient clinics for tuberculosis control in adults and children; a cardiac school clinic and a venereal disease control clinic, all of which services are conducted by the division of public health.



## NEW HAMPSHIRE

**Dr Frechette Appointed Secretary of Health Board**—Dr Alfred I. Frechette, formerly director of the division of venereal disease control of the New Hampshire State Board of Health, Concord, has been appointed secretary and executive officer of the board. He succeeds Dr Travis P. Burroughs who resigned to accept a commission as surgeon in the U S Public Health Service Reserve. Dr Frechette graduated at the University of Vermont College of Medicine, Burlington in 1934 and at the Harvard School of Public Health in 1939.

## NEW JERSEY

**Ill Award Goes to Dr E Zeh Hawkes**—The third Edward I. Ill Award was recently presented to Dr E. Zeh Hawkes, Newark, formerly president of the Medical Society of New Jersey. The award was established by the Academy of Medicine of Northern New Jersey in honor of the late Dr Edward I. Ill who was the academy's first president. Dr Hawkes was born in Schenectady, N. Y., in 1865. He graduated at Columbia University College of Physicians and Surgeons in 1890. Later serving on the staffs of the Newark Hospital, St. James Hospital of Newark and Presbyterian Hospital where he is now medical director. Dr Hawkes, who received the award for his leadership in the development of medical activities in Newark, once served as president of the Medical Society of Essex County and the Academy of Medicine of Northern New Jersey.

## NEW YORK

**Personal**—Dr Charles I. Martin has resigned as medical director of the Albany Hospital to accept a similar position with the Bell Telephone Laboratories in New York City, succeeding Dr Melville H. Manson who has been appointed medical director of the New York Telephone Company's metropolitan area.

**Postgraduate Lectures**—Two lectures will be given at the New York Hospital, White Plains, September 9 and November 11 under the auspices of the subcommittee on maternal welfare of the Medical Society of the State of New York for the Westchester County Medical Society. The speakers will be Drs Mervin V. Armstrong, Brooklyn, on 'Hemorrhage in the Last Trimester of Pregnancy' and Harvey B. Matthews, Brooklyn, 'Heart Disease Complicated by Pregnancy'.

## New York City

**Dr Rice Appointed Deputy to Health Department**—Dr John L. Rice, who resigned recently as city health commissioner, has been appointed a deputy health commissioner. Dr Rice retired as city health commissioner on account of ill health.

**Changes at Cornell**—Included among the recent changes at Cornell University Medical College are the following: Drs Nelson W. Cornell, Guilford S. Dudley and Arthur Palmer to associate professors of clinical surgery; Dr Ade T. Milhorat to associate professor of medicine; Drs Philip M. Stimson and May G. Wilson, associate professors of clinical pediatrics. Assistant professors are Drs Edwin T. Hauser and Henry S. Dunning, clinical medicine; John H. Eekel, clinical surgery; George Burroughs Mider, pathology; and Charles O. Warren, anatomy. Dr John M. McLean has been named associate professor of clinical surgery (ophthalmology).

## PENNSYLVANIA

**Personal**—Dr Meyer K. Amdur has resigned as chief of the reconstruction service, Veterans Administration Facility, Coatesville, to become assistant superintendent at the Longview State Hospital, Cinnemat. Dr Edgar S. Buyers, Norristown, was recently guest of honor at a dinner given by the Bucks County Medical Society in Doylestown in recognition of his thirteen years' service as councilor for the second district of the state medical society.

## Philadelphia

**Dr Macfarlane Appointed Research Professor**—Dr Catharine Macfarlane, professor of gynecology, has been made research professor of gynecology at Woman's Medical College of Pennsylvania in recognition of her work in cancer research at the college. According to the *News Letter* of the Woman's Medical College, Dr Margaret C. Sturgis has been appointed professor of gynecology. Both physicians are graduates of the medical school.

**Memorial Fund to Dr Martha Tracy**—The establishment of a fund to be known as the Martha Tracy Preventive Medicine Memorial Fund was announced in the *Medical Woman's Journal* for July. To be used for the care of women medical students, the fund will honor the late Dr Tracy, who at the time of her death was assistant director of public health. Formerly she had served for many years as dean of the Woman's Medical College of Pennsylvania. The *Medical Woman's Journal* is the official publication of the American Medical Women's Association, of whose scholarship awards committee Dr Tracy served as chairman.

## SOUTH CAROLINA

**Assistant Secretary Appointed**—Dr Julius Howard Stokes, Florence, has been appointed assistant secretary of the South Carolina Medical Association.

**University Physicians Appointed**—Drs Foster M. Routh, Columbia, and Kathleen A. Riley, Florence, have been elected to serve as physicians for the University of South Carolina, Columbia, during the absence of Dr Edward H. Law, Columbia, who is on leave of absence with the Army. Dr Routh will serve as physician to men and Dr Riley as physician to women. In addition they will teach classes in the department of hygiene.

**Changes in Health Officers**—Dr James C. Brabham, Laurens, has been appointed in charge of the district health unit covering Laurens, Spartanburg, Cherokee, Union, Chester, Lancaster, Chesterfield, York, Kershaw, Fairfield and Newberry counties. Dr George E. Parkhurst, Charleston, assistant surgeon, U S Public Health Service, has been assigned as director of the venereal disease program of the Charleston County health department. G. G. Caughman, Ph G, has been chosen health officer of Columbia.

## TEXAS

**Physician's Will Establishes Memorial Fund at Baylor**—The Clarence M. Grigsby Memorial Fund will be established at Baylor University College of Medicine, Dallas, under a bequest mentioned in the will of the late Dr Grigsby. The fund will be derived from the sale of his home and furniture; the proceeds to go to the Southwestern Medical Foundation to establish a fund which will be used for the purchase of medical literature at the medical school.

**Memorial Shaft Honors Country Physician**—On June 10 hundreds of former patients and friends of the late Dr William J. Sparks, Poolville, gathered to dedicate a granite memorial shaft to him. The shaft is placed in the square of the town of Poolville under the sponsorship of the school trustees and was given by Orville Bullington, an attorney of Wichita Falls, as an expression of the appreciation for aid and counsel given him and other youths reared in the Poolville community; newspapers reported Dr Roy H. Gough, Fort Worth, representing the state medical association, gave the dedicatory address.

## VIRGINIA

**Changes in Health Personnel**—Dr Edward M. Holmes, Jr., for several years director of the division of venereal disease control of the state department of health, has been assigned as venereal disease control officer at Randolph Field, Texas. Dr Wallace E. Baker, Petersburg, assistant to Dr Holmes, has been named acting director of the division of venereal disease control for the duration. Dr Hubert D. Crow has been appointed director of a combined district health unit comprising the counties of Southampton, Isle of Wight, Nansemond and the city of Suffolk, with headquarters in Suffolk.

**State Commissioner of Mental Hygiene Appointed**—Dr Hugh C. Henry, Richmond, director of state hospitals, has been appointed commissioner of mental hygiene and hospitals, a newly created position provided in the state government reorganization act, effective July 1. According to the *Norfolk Pilot* the reorganization act establishes a department of mental hygiene and hospitals with the commissioner as principal executive officer, making him subject to reappointment by the governor instead of by the board as is now the case. Dr Henry graduated at the Medical College of Virginia, Richmond, in 1896. He was assistant physician at the Central State Hospital until 1924, when he became superintendent. The hospital is one of six state mental hospitals which Dr Henry supervises. He has been director of state hospitals since July 1, 1938, when the post was created.

## GENERAL

**Meeting Canceled**—The annual meeting of the American Association of Railway Surgeons, which was scheduled to be held in Chicago, September 10-12, has been canceled and all such future meetings postponed for the duration of the war.

**Motion Picture on Back Siphonage**—The Plumbing and Heating Industries Bureau has prepared a motion picture illustrating the dangers to health of faulty plumbing using a story based on a lawsuit. The picture shows clearly that disease may result from the drinking of polluted water caused by back siphonage of plumbing fixtures. The motion picture is available for showing before medical students, medical societies and county health officers. Those desiring to borrow this film may communicate with Mr. Norman J. Ridder, Plumbing and Heating Industries Bureau, 35 East Wacker Drive, Chicago.

**Blood Procurement Project Expanded**—The American Red Cross has announced that the expansion of its blood procurement project has been requested by the surgeon generals of the Army and Navy from the original 900,000 donors during the current fiscal year to a minimum of 2,500,000. This increase will require approximately 50,000 volunteer donations a week. In addition to dried plasma, blood collected is to be processed into human serum albumin, also used for transfusions. Serum albumin as a blood substitute is a recent development and as is the case with powdered plasma, blood used in preparing serum albumin must be shipped in refrigerated containers and must be in the laboratory within twenty-four hours after being drawn. Serum albumin when prepared for shipment is in solution. Nothing need be added before the transfusion is given. A unit of the serum consists of 25 Gm. of albumin dissolved in 100 cc. of isotonic solution of sodium chloride. According to present indications, serum albumin will last for years without deterioration. It does not require refrigeration and can be kept at temperatures ranging from slightly above freezing to approximately as high as 120° F.

**"Pathologist" Passes Bad Checks**—Physicians are being warned of one Morris L. Weiss, who has been seeking employment as a pathologist and laboratory technician but who has been using his credentials to pass worthless checks and otherwise obtain money from innocent persons. The most recent venture of Weiss comes in a report from Dr. Edward J. McCormick, Toledo, Ohio, who is chief of staff of St. Vincent's Hospital, where Weiss was employed for probably three or four weeks, during which time he borrowed money from several doctors, sold books to interns and a blood pressure apparatus to one young physician, and left a large bill at the Willard Hotel and an unfinished financial transaction at the finance company concerning an automobile. He claims to have majored in bacteriology and to have received a Ph.D. degree from the University of Vienna in 1928. He also claims to do all routine laboratory tests, tissue work and research. The chief of police in the city of Brockton, Mass., on July 8, reporting a bad check passed by Weiss, described him as follows: 51 years of age, 5 feet 6 inches in height, black hair with a tendency toward baldness, and weight about 200 pounds. Other letters indicated that Weiss had been active in Nashua, N. H. and Gloucester, Mass.

**Nutrition Values of Canned Foods Study**—A research program for the study of nutrition values of canned foods has been inaugurated with grants by the National Canners Association and the Can Manufacturers Institute with supplementary grants from the University of Wisconsin, Madison. The first phase of the program will cover the assay of about twenty-five products including fruits, vegetables and seafoods for six vitamin factors which are regarded as being of established importance in nutrition, namely: A, C, thiamine, riboflavin, niacin and pantothenic acid. Assays for the vitamins will be made at three universities prominently identified with advances of knowledge in nutrition. Mineral analyses will be made in laboratories connected with the canning industry. In addition to the vitamin and mineral analyses, support will be given to other studies to be conducted in two other universities. According to an announcement, it is desired to determine the effect of storage on vitamin content of representative products and to make a series of correlation tests which will compare the results from methods used for assays and those from standard feeding tests. Other investigations will pertain to the distribution of vitamins as between solids and liquid content and the changes that may result from the preparation of foods for the table. The program is directly aligned with the principles for research which arose from the President's conference on

nutrition in 1941. It was developed by an executive committee consisting of representatives of nationally related firms and was projected with the assistance of authorities in both the canning industry and the nutrition field. An advisory committee representing the canning industry has been named, and it is expected that within the near future a scientific advisory group will be appointed.

**American College of Surgeons**—The 1942 Clinical Congress of the American College of Surgeons, originally scheduled for October at the Stevens Hotel, Chicago, which was taken over on August 1 by the United States Army Air Corps, will be held in Cleveland with headquarters at the Cleveland Municipal Auditorium, November 17-20. The twenty-fifth annual hospital standardization conference sponsored by the college will be held simultaneously. The program will include panel discussions, clinical conferences, scientific sessions, hospital meetings, medical motion picture exhibitions at headquarters and operative clinics and demonstrations in the local hospitals and Western Reserve University School of Medicine. The program of both meetings will begin with a joint general assembly on Tuesday morning, November 17, with addresses by Surg. Gen. James C. Magee, U. S. Army; Surg. Gen. Ross T. McIntire, U. S. Navy; Surg. Gen. Thomas Farrar, U. S. Public Health Service; Lieut. Col. George Baehr, chief medical officer of the U. S. Office of Civilian Defense; Dr. Frank H. Lahey, Boston chairman, directing board, Procurement and Assignment Service; Dr. Irvin Abell, Louisville, Ky., chairman of the board of regents of the college and chairman of the Health and Medical Committee of the Federal Security Agency; and Dr. William Edward Gallie, Toronto, president of the college. The surgeon generals and Colonel Baehr will also speak at the presidential meeting and convocation the same evening. The Forum on Fundamental Surgical Problems inaugurated at the 1941 Clinical Congress, will be repeated to give the younger men, representing various university departments of surgery, an opportunity to present the important results of their clinical and experimental research work before a large surgical meeting. The forum will be held on three successive mornings.

**Society News**—Dr. George W. Kosmak, New York, is president of the American Gynecological Society for the ensuing year and Dr. Howard C. Taylor, Jr., New York, secretary. —Carl R. Moore, Ph.D., Chicago, was named president-elect for the Association for the Study of Internal Secretions at the recent annual meeting and Dr. Eberle Kost Shelton, Los Angeles, was inducted into the presidency. Dr. Henry H. Turner, Oklahoma City, was reelected secretary. The next annual session will be in Cleveland, April 5-6, 1943. —Dr. Robert L. Moorhead, Brooklyn, was elected president of the American Broncho-Esophagological Association at its annual meeting in June. Dr. Fletcher D. Woodward, Charlottesville, Va., is vice president and Dr. Paul H. Holinger, Chicago, secretary. —Dr. Zoe A. Johnston, Pittsburgh, was chosen president-elect of the American Medical Women's Association during its recent meeting in Atlantic City and Dr. Helena T. Ratterman, Cincinnati, was installed as president. Dr. Mabel E. Gardner, Middletown, Ohio, is secretary. The association will meet in San Francisco in 1943, two days previous to the opening of the annual session of the American Medical Association. —Dr. Grover C. Penberthy, Detroit, was chosen president-elect of the American Association for the Surgery of Trauma at its annual meeting in Boston, June 6, and Dr. Charles S. Venable, San Antonio, Texas, was installed as president. Other officers include Drs. Ralph G. Carothers, Cincinnati, vice president; Gordon M. Morrison, Boston, secretary; and Arthur R. Metz, Chicago, treasurer. —Dr. Thomas H. Dickson, medical director of the Minnesota Mutual Life Insurance Company, St. Paul, was elected chairman of the medical section of the American Life Convention at its annual meeting in Denver recently. He succeeds the late Dr. Wilton F. Blackford, Louisville, Ky. Dr. Benjamin F. Byrd, medical director of the National Life and Accident Insurance Company, Nashville, Tenn., is the secretary. —Roy C. Newton, Ph.D., vice president in charge of research for Swift & Company, Chicago, was named president of the Institute of Food Technologists at its annual conference in Minneapolis. Edwin J. Cameron, Ph.D., National Canners Association, Washington, D. C., was named vice president and George J. Hucker, Ph.D., New York Agricultural Experiment Station, Geneva, secretary-treasurer. —The American Association for the Advancement of Oral Diagnosis will hold its ninth annual congress at the Forsyth Dental Infirmary in Boston, November 12-13, on the

theme "The Military Aspects of Oral Diagnosis." H. Justin Ross, DDS, 515 Madison Avenue, New York, is the secretary.—The annual meeting of the International Association of Milk Scientists will be held in St. Louis, October 30-31, with headquarters at the Hotel Jefferson. Frederick W. Fabian, PhD, Lansing, Mich., is president and Mr. C. S. Lee, Albany, N. Y., is secretary-treasurer.—The annual meeting of the Southern Psychiatric Association will be held in Richmond, Va., November 6-7 immediately preceding the annual convention of the Southern Medical Association.

#### Deaths in Other Countries

Premier Dr. Refik Saydam, formerly a medical attendant to the late Mustafa Kemal "Atatürk" and health minister in the first Republican Cabinet, died in Istanbul, Turkey, according to a dispatch of July 8. Dr. Saydam served as interior minister in 1938 and became prime minister in 1939. He had been secretary general of the Republican People's Party since 1938. According to the *New York Times*, Dr. Süleüddin Refik Pev, as he was known until Kemal Atatürk reformed Turkish names, was head of the public health administration in Simsim when he met Kemal Atatürk. He became the doctor's physician and entered politics.—Dr. Federico Grande Rossi, Havana, Cuba, died on July 11, aged 76. He graduated at the University of Havana in 1888.—Prof. Richard Willstaetter, 1915 Nobel Prize winner in chemistry for his research in chlorophyll and other vegetable colorings, died in Locarno, Switzerland, aged 70, of heart disease. In 1933 Dr. Willstaetter received the Willard Gibbs Medal of the Chicago section of the American Chemical Society. His research with cocaine alkaloids culminated in the synthesis of cocaine and made possible the commercial synthesis of local anesthetics. He attacked the quinine and quinaoid substances and discovered orthoquine and proof of the structure of aniline black. Dr. Willstaetter's experiments with the crotonoids have made possible the separation of the individual components of this group.

#### CORRECTIONS

**Decree of Nullity of Marriage Obtained by Blood Test**—In the London Letter appearing in the July 25 issue (page 1038 last paragraph) the child's group should have been listed as ABMN instead of as ABN.

**Pregnandiol Excretion**—In the article by Genit and Bronstein entitled "Pregnandiol Excretion in Female Pseudohermaphroditism" in *THE JOURNAL*, June 27, page 705, in the second column, ninth line, the word "menstruation" should have been "menses."

### Government Services

#### Annual Report of Public Health Service

The seventieth annual report of the U. S. Public Health Service for the fiscal year 1941 states that the provisional death rate from all causes for the calendar year 1940 was 10.5 per thousand of population, about 1 per cent higher than in 1939, when the lowest death rate in the history of registration occurred. The maternal mortality rate declined for the eleventh consecutive year. Only fifteen of forty-one states reporting had an increase over 1939. For the entire group the rate for 1940 was 3.6 per thousand births. The 1940 infant mortality rate of 47 per thousand live births was the lowest on record, representing a decline of 16 per cent from the rate of 56 per thousand for 1936. There was a slight increase in the birth rate for 1940, available data for the first quarter of 1941 indicate that the upward trend will continue. The 1940 death rate from automobile accidents was 24.3 per hundred thousand of population, the highest since 1937. Data for the first quarter of 1941 indicated an alarming increase in automobile fatalities, the rate increased 22 per cent over that for the first quarter of 1940.

Despite continued warnings, plague in rodents continues to spread eastward. One fatal human case was reported in 1940.

The report discusses the cooperation of the public health service with other agencies and mentions particularly the twenty-two fellowships in public health and medicine granted in 1940-1941 to medical graduates from Latin American countries. Other activities included the appointment of a special committee to study civilian defense in Great Britain and the development of a program for emergency medical service in the Office of Civilian Defense, Washington.

The most important health legislation enacted during the year was designed to assist the service in meeting the special problems created by the national defense program. Congress in March 1941 appropriated more than \$500,000 to provide public health service personnel and facilities to state health departments in critical areas. The regular appropriation to the service for the fiscal year 1942 included a sum of \$1,235,000 for emergency health and sanitation activities. In a subsequent act an additional \$1,940,000 was allocated to expand these services. A further appropriation of \$1,250,000 was made to assist schools of nursing in training additional student nurses and in providing refresher courses and postgraduate training.

Emphasis was placed on the federal-state cooperative programs for general public health services, venereal disease control and industrial hygiene. In 1940 officials of the army, the navy and the public health service and state health departments signed a working agreement for the control of venereal diseases in extracantonment areas. The state health departments, with the cooperation of the public health service, agreed to prosecute the control of venereal disease in civilian populations contiguous to military camps, and the army and navy agreed to supply information on contacts of infected military personnel to local health authorities. Prostitution complicates the control of venereal disease in practically all defense areas. The Selective Service System adopted the routine blood testing of all registrants called for physical examination. The tests were made in the state laboratories, and the public health service undertook to tabulate the results of the serologic tests and of physical examinations for syphilis and gonorrhea. Preliminary reports indicate that clinical syphilis rates are much lower among the first million men examined in 1940 than in the first million examined in 1917. The data reveal a wide variation in the prevalence of venereal disease from state to state. Just prior to the close of the fiscal year a venereal disease control program in representative defense areas was planned in cooperation with the Works Projects Administration to evaluate methods of venereal disease control in selected areas, including urban communities of varying population sizes and rural communities. Special emphasis will be placed on the follow-up and treatment of contacts of military and industrial personnel. In 1935 only six states had functioning industrial hygiene services. In 1941 thirty-two states and four large cities had industrial hygiene units, reflecting the impetus given to these programs under title VI of the Social Security Act. In February 1941 the subcommittee on industrial hygiene and medicine of the Health and Medical Committee designated the Division of Industrial Hygiene of the public health service as the agency to coordinate all activities for the health of defense workers and, under the program adopted, special assistance has been effected and concentrated projects have been launched.

Two new buildings at the National Institute of Health, Bethesda, Md., were occupied during the year, completing the physical plant of the institute. A division of chemotherapy in the institute was created by merging the functions and personnel of the division of pharmacology, the nutrition unit of the division of chemistry and the chemotherapy unit of the division of infectious diseases. A unit for coordination of research in the field of gerontology was set up and a national advisory committee created.

Substantial protection against whooping cough by use of a two dose alum precipitated pertussis vaccine developed at the National Institute of Health constitutes one of the most immediately practical accomplishments during the year. A hyperimmune rabbit serum for the treatment of Rocky Mountain spotted fever also was developed. Present indications are that in the serum a useful therapeutic agent is found for the first time. Other research showed that, contrary to popular conception, there is little difference in the severity of Rocky Mountain spotted fever in Eastern states as compared to the Northwestern states, where it has long been thought excessively virulent. New foci of the infection were found in sixty-two counties in eighteen states.

Of fifteen recommended grants-in-aid for cancer research, recommended by the National Advisory Cancer Council, twelve, totaling \$77,780, had been paid. Cancer control programs were established in Arizona, New Mexico, Wyoming, Montana and Idaho, bringing the total of state and territorial cancer programs to thirty-nine. Consultation services were provided to these organizations, and radium loans to forty-one hospitals were renewed and loans were made to three other institutions. About 2,000 patients were treated in these hospitals with government owned radium, thirty-one trainees in the diagnosis and treatment of cancer were on the payroll.

## SPECIAL NEWS

(THIS NEWS WAS ASSEMBLED ESPECIALLY FOR USE IN THE JOURNAL)

**Public Health Under Hitler's Rule**—The German government has passed a new law for the protection of mothers, which applies particularly to working women who replace men who have been called into the armed forces. The law, prepared in the Reich Ministry of Labor, according to DNB of May 15, insures the protection of all female workers. It prohibits the employment of pregnant and nursing mothers on a number of jobs which might harm them. Every woman must be completely exempt from every kind of work for six weeks before and six weeks after the birth of a child. This period is increased to eight weeks in the case of nursing mothers. The nursing of children is encouraged by the granting of a paid nursing period. The law prohibits employing pregnant and nursing mothers on overtime, nightwork and holiday work. The law has extended protection against dismissal far beyond its previous scope. Any one now who dismisses a pregnant woman because of her pregnancy commits a punishable offense. Women must not be given notice of dismissal for other reasons from the beginning of pregnancy until four months after childbirth. Mothers will receive during the protection periods a weekly sum corresponding to the full amount of their wages. Employers must continue to pay regular wages to women not insured under the health insurance scheme provided by law. The new law, according to DNB, is an eloquent expression of the gratitude which Germany shows to its working mothers.

According to the *Deutsche Tuberkulose-Blatt* of April, Dr. Elisabeth Delhoff, a specialist for pulmonary diseases in Dresden, writes: "We have abundant work for our people, and every employer is only too glad to find a worker without asking much about the state of his health. About 60 per cent of all persons with open pulmonary tuberculosis and 80-90 per cent of those with stationary tuberculosis are now employed, partly in very unsuitable occupations. The ideal would be to find for all patients, whether with open or stationary tuberculosis, suitable jobs which do not make them ill again and in which they can earn their living without infecting other people. This would be the only sensible way of absorbing the 400,000 persons with open pulmonary tuberculosis into the economic life of Germany. These people constitute a valuable source of labor which we can ill afford to waste."

The *Petit Journal* of April 23 quotes from an article by Dr. Henri Bouquet in *Le Temps*. Already children are being born whose weight is far below normal. This state of affairs is not likely to improve, and it has been established that undernourishment seriously impairs the reproductive organs of young women. If this danger is not remedied, we are heading straight for disaster. This same thing applies to boys and young men. An adolescent, in order to develop normally, both morally and physically, needs plenty of well balanced food. Does he get it in these days? Figures compiled by experts prove incontrovertibly that he does not. And so to underdeveloped mothers must be added the evil of fathers who are biologically immature.

Rickets was formerly an exception. Now there are an enormous number of cases, entailing deformation of the spine, which do not react to treatment. The increase both in quantity and in quality of this disease of the bones means a growing generation of people who are deformed or weak, women who not only have difficulty in delivery because their pelvic girdle is the wrong shape but who run a grave risk of having children deformed from their birth. Tuberculosis is also increasing in the number and gravity of its cases. We were warned of this by specialists of children's diseases when the new ration card was introduced. They told us that because of the meagerness of the rations allowed to children tuberculosis would find in them an easy prey. This prophecy has been fulfilled and is only too well demonstrated by figures. An enormous number of the children are victims, because their diet, especially from the age of 6 onward is deficient, and the number of deaths is increasing as the forms taken by the disease become graver. They are no longer exceptions. They are the rule. And what will be the fate tomorrow of those who escape?

Not only children are threatened but also young people who, having reached the age when their studies are intensified for taking examinations, run the risk of dangerous mental strain. Mental strain is possible for a short time only if it is balanced by increased rations. But now, the contrary is the case, and the danger becomes the greater in proportion."

*La Province de Namur* of April 28 reports that numerous cases of diphtheria have occurred in the neighborhood of Namur.

According to *Reggeli Magyarorszag* of April 16 the chief medical officer stated before a meeting of the Kolozsvár municipal council that the birth rate was constantly rising and that from 18 to 20 per cent of the births were illegitimate.

*Krakowski Visti* of April 28 reports that the Kiev Medical Institute has reopened and has many hundreds of students, of whom 80 per cent are Ukrainians and about 15 per cent Russians, but no Jews have been registered.

The first German clinic in the Banat which will provide medical advice for German families has been opened. According to *Donaueitung*, Belgrade, of April 28 there is a medical library, a kitchen, a consulting room and a lecture hall for nurses.

The Helsinki correspondent of the *Stockholm Tidningen* of April 28 writes that he visited the military hospital in the Olonets area, which he found overcrowded with the entire floor covered with beds one against the other. Beds, he said, keep receiving new occupants and, "if the sheets were not changed, they would never have time to cool."

The *Sydzsensla Dagbladet* of April 25 states that according to German reports only 591 cases of typhus (bauchtyphus) occurred in the army up to last autumn, whereas in the first world war 19,000 soldiers died of this disease the first year, only 18 cases of spotted typhus and 6 cases of tetanus were reported, as against 471 and 360 respectively in the last war, there were no cases of cholera as against 1,800 cases in the last war.

*Deutsche Rundschau*, Bydgoszcz, states that daily in chemists' shops in Bydgoszcz people are asking for things just because some one else in the shop has succeeded in buying them. "Ah! aspirin—let me have a box too," and people buy enough mixtures when they have no cough and ask for plasters which they stop themselves from buying only when they hear they are for rheumatism, which they have never suffered from. "There is a quite extraordinary demand for drops of all kinds, cholera (colic) drops, stomach drops, valerian, even concentrated (atherische) valerian are asked for again and again. There is no explanation but perhaps it is because these drops contain alcohol. This silly buying craze could have serious consequences, for it might mean that in some houses there were unused medicines lying about while those who really need them could not get any."

*Magyarorszag* states that Kecskemet is in quarantine because of an unspecified epidemic.

*De Telegraaf* carries an article by Professor van Sleswijk, who writes that the number of cases of diphtheria is rapidly increasing. In 1937 there were 1,068 cases, in 1940 1,733 cases, in 1941 5,434 cases, and in the first three and a half months of this year 3,369 cases.

*Nationalblat*, Luxembourg, reports that a census among holders of food cards last year gives an insight into the composition of the French population since the outbreak of the war. According to this census there are 39 million people in France today, almost two thirds of whom, 25 million, live in the occupied zone (Alsace-Lorraine with 19 million inhabitants is not included in these figures). In the occupied zone, including Paris and the thickly populated industrial districts of the north, there are 90 inhabitants per square kilometer, but in the unoccupied zone with the relatively sparsely populated Alpine districts there are only 56 per square kilometer.

Almost one fifth of the population lives in the nineteen large cities. The number of young people comprised in the population is constantly dropping and the number of elderly persons constantly rising. In unoccupied France there are more old people over 70 than children under 3 years of age. The predominance of these aged elements and the heavy war losses sustained have resulted in a large surplus of women: there are 1,072 women to every thousand men.

The *Neues Wiener Tageblatt* reports that the German-Slovak trade negotiations have been concluded. The objects of the negotiations were the supply of certain goods to the Slovak railways, the establishment of a company to produce clover, lucern and fodder grass seed for domestic and export purposes, and tourist traffic. It has been agreed that sick persons from Germany and the protectorate may visit Slovak watering places even without a medical certificate. Such persons will be selected by the Ministry of Interior or, if they have been insured by the respective invalid funds. Most of the patients in question suffer from tuberculosis or rheumatism. In order to cover the expenses of medical treatment a maximum of 400 reichsmarks per person monthly may be transferred. From this sum a maximum of 20 crowns daily may be paid out to the



visitor for personal expenses. The same regulations have been agreed on as to tourist traffic from Slovakia to Germany.

The *Bremer Nachrichten* says that country people are asked, in case of illness, to go first to the district nurse, who will if necessary call in a doctor. Only if this rule is observed will it be possible to assure medical help to people who are really ill and in need of treatment. To take some work off the shoulders of the heavily taxed doctors, midwives are now authorized to issue certificates confirming the existence of pregnancy in women.

*Der Deutsche Militärarzt*, Berlin, relates that a battalion of soldiers had been issued rations of sausage containing pork which was infected with trichiniae. The whole battalion, 617 men, subsequently suffered from trichinosis; 1 man died.

The *Kropotkin* announces that the people in the Piræus are being given typhus inoculations, and it is recalled that the Piræus was quarantined at the end of April because of an outbreak of typhus.

*Zora Solta* reports that there are 47 new cases of spotted typhus at Skopje.

Speaking in Hamburg by invitation of Guilelmo Krauffmann, the Reich health leader, Dr. Conti said that all the enemy's hopes of weakening the German home front as regards health and productive capacity had been a miserable failure. In fact even today, in the third year of the war, the productive capacity of the Reich remains everywhere undisturbed. Every possible care must be taken to keep the working people healthy. Admittedly times are not easy, and every individual must deal rigorously with himself. On the question of medical supplies, Conti said. If some headache cure has perhaps of late not always been obtainable from the chemist, this is not of the slightest importance for the health of the people as a whole. On the contrary, one may say that no harm would be done by the restriction of the consumption, among some people, of such medicaments, which has become habitual during the last few years. In the long run this would only benefit the health of the people concerned. On the other hand care has been taken to prevent a shortage of medical supplies which are essential to maintain the health and productive capacity of the German people and to combat epidemics. In wartime the production of medical supplies must be considered from the national health and not the economic point of view. Assistance for the mother with many children and for the expectant mother continues to occupy the first place. Now is the proper time, even in the midst of the fight against Germany's enemies, to lay the foundation stone for the building up of our people on the principles of eugenics. Every woman who now presents the nation with a child makes the highest contribution which, as a German, she can offer to her people.

The German Red Cross has agreed with the *rechtsjugendführung* to recognize the training given by the Hitler youth and the BdM for "feldscher" and health service girls respectively as equivalent to the basic Red Cross training. Future training will be based on a regulation concerning basic first aid training to be issued by the Reich health leader. The Red Cross will put training personnel and facilities at the disposal of the Hitler youth free of charge. The "feldscher" and health service girls are advised on leaving the HJ and BdM to enter a first aid unit of the Red Cross. All health service girls who are members of the "faith and beauty" scheme will be seconded between their seventeenth and twenty-first years for three months' training as auxiliary nurses with the Red Cross. In view of the heavy burden of work at present resting on doctors, the minister of labor has instructed all authorities, when issuing administrative regulations, to consider carefully whether the granting of benefits is to be made dependent on the submission of medical certificates. Where it is already the rule that such certificates must be produced, the authorities must see whether they can be replaced by some other form of evidence.

According to *Aftontidningen*, Stockholm, Norwegian doctors confirm that the difficult food situation in Norway is now beginning seriously to affect the health of the nation. The present rations do not provide the necessary calories, and an unbalanced diet and the insufficiency of vitamins is having a serious effect on the health of the people. The shortage of fat and vitamins is particularly fateful. Scurvy proper has not yet been diagnosed, but many cases of the latest type of scurvy

have occurred, caused by shortage of vitamins. The symptoms are tiredness and the inability to work as usual. Jaundice, diphtheria, measles and other sicknesses, which have been very prevalent in Norway recently, are also partly to be attributed to the shortage of vitamin C. Jaundice has been very prevalent lately. In some places up to 25 per cent of the population is suffering from it and the authorities have been compelled to take steps to endeavor to stop it from spreading. Since the introduction of compulsory vaccination there has been much less diphtheria. Measles was very prevalent during the winter, and infantile mortality was much higher than usual. Extraordinary measures have had to be taken to combat the scab, which is widespread. The shortage of pure soap and the deplorable housing conditions are making themselves seriously felt. Impetigo, often accompanied by face sores, is now so common that the sufferers must report to doctors. Ulceration of the stomach is more prevalent than before. Venereal disease is increasing, particularly in the cities. The food situation is worst for men working in the forests and it is becoming increasingly difficult to get men for this work. Lately, lumbermen's food has consisted of potatoes only for breakfast and supper. The bread ration had to be reserved for dinner, as it is impossible to obtain either meat or pork and the lumbermen cannot take fish to the forests.

*Lyllisavisen*, Skien, contained an item to the effect that "the Telemark county hospital has been requisitioned by the German Wehrmacht. At present patients are being discharged on as large a scale as possible. The hospital had to be fully evacuated by July 1. Evacuations are being made to find room in other parts of Telemark." This was signed by the county sheriff of Telemark.

The *Frankfurter Zeitung* begins an article on the wartime restrictions of the manufacture of medical preparations by assuring all persons who may feel worried that they will not be exposed to the ravages of their disease without the protection of the medicaments which they need. "But even so certain tensions are inevitable, and it cannot be denied that we shall have to adapt ourselves in certain ways, in some cases accept substitutes, and make the sale of more preparations subject to a doctor's prescription." Aperients are one of the categories which are in short supply. The usual aperients are imported from abroad and are therefore no longer available in the customary quantities. On the other hand, constipation may have increased to a certain extent, perhaps because the changed diet does not always entirely agree with people. Nobody takes aperients for pleasure, and the increased purchasing power of the population does not therefore enter into it. The demand for invigorating and vitamin preparations has become particularly pronounced. Obviously everybody would like to maintain his nerves and his working capacity in order to remain equal to the higher demands made on him. The use of sedatives and anodynes derived from barbituric acid and its homologues has become so common in a manner bordering on addiction that the restriction of the sale of these preparations against a doctor's prescription can only be welcomed as a measure which will benefit the health of the people. The position is similar as regards preparations containing quinine. The disappearance of a number of preparations means that many people will have to go without some remedy or other to which they had got used and which has proved its worth. But as far as the problem of medical preparations as a whole is concerned, this can only mean an improvement. For the market was flooded with such a wealth of similar preparations with similar effects, which differed only in the manner of their publicity, that a severe measure of concentration can do no harm.

*Havas* reports from Istanbul that it has been learned from Athens that cases of typhus have appeared in certain hospitals and the prison at Piræus. The government has ordered that all cafes, cinemas and theaters are to be closed immediately. The occupying authorities are collaborating with the local authorities in the fight against the epidemic. Public services are rounding up beggars and compelling them to take baths while their clothes are being disinfected.

The *Stockholm Tidningen* publishes a report received from Berlin on June 20 that in Belgium the number of deaths exceeds the births. During April there were 8,745 births and 10,237 deaths, of which 5,601 were men and 4,636 women. In comparison with April 1941 the birth rate has decreased by 12 per cent and the death rate by 521 per cent.



## Foreign Letters

### LONDON

(From Our Regular Correspondent)

July 11, 1942

#### The National Health After Nearly Three Years of War

Good reports on the national health during the war have previously been given (*THE JOURNAL*, Dec 13, 1941 p 2089, May 30, 1942, p 431). The survey can now be extended to the third winter of the war and most of the third year, with similar results. In the House of Commons the minister of health, Mr Ernest Brown, stated that after one thousand days of war the health of the nation was in many respects better than in days of peace. The birth rate of 1941 was 14.2 per thousand as compared with 15.1 in 1938 and 20.9 in 1916. (This only exemplifies the falling birth rate, which was causing concern before the war.) But for the first quarter of 1942 the rate was 15.5, the highest in any March quarter since 1931. The rise can be accounted for by the increase of marriages promoted by the allowances paid for wives and children of the young men joining the fighting services. The infant mortality rate for 1941 was 59 as compared with 53 in 1938 and 91 in 1916. The rate for the first quarter of 1942 was 61, the lowest rate for any first quarter on record. The maternal mortality rate in 1941 was 277 per thousand births as compared with 297 in 1936 and 412 in 1916. Thus while over a long period the birth rate had been falling over the same period the survival rate had increased. The "crude general death rate" was 12.9 in 1941 as compared with 11.6 (the lowest on record) in 1938 and 14.4 in 1936. The risk of epidemic disease calls for special care in wartime but during the past two and one half years of war the infectious disease rate has been normal and on the whole, below the average.

Apart from tuberculosis, the only infectious disease which has shown a rise during the war is cerebrospinal fever. This was expected since cerebrospinal fever has always been a wartime disease. In 1916 there were about 2,000 cases and in 1938 and 1939 1,500 and 1,300 respectively. But in 1940 there were nearly 13,000 and in 1941 over 11,000 and, for the first half of 1942 4,000. The fatality of the disease has been reduced from a percentage of 69 in 1935 to 34 and more recently to 20.

The problem of tuberculosis is causing some concern. There were 28,669 deaths due to it in 1941 compared with 28,144 in 1940, 26,176 in 1938 and 53,858 in 1916. The steady fall in tuberculosis which has been a feature of the twenty-five years of peace has been interrupted in the last two years. Wartime conditions, such as the blackout, overcrowding and the cessation of house building predispose to tuberculosis. In the past we tended to concentrate on treatment rather than on early diagnosis. The recent developments in miniature radiography are providing a new weapon to detect cases for more detailed examination. From earlier diagnosis better results in treatment are expected. Also rehabilitation and securing gradual return to suitable employment is to be tackled on more comprehensive lines.

The incidence of diphtheria, the chief killing disease of children between 4 and 10, has not fluctuated very widely in the last twenty-five years but the number of deaths has fallen from 5,300 in 1916 to 2,600 in 1941. During the past year the Ministry of Health has been engaged in a campaign for immunization of children against diphtheria and this has given striking results in reducing both incidence and fatality of the disease. Scarlet fever has become a scourge of the past and there were only 133 deaths from it in 1941. In that year there were only 148 deaths from typhoid and fewer than 5,000 as compared with 6,000 cases and 1,100 deaths in 1916. During the heavy bombing of our cities not a single death from typhoid was due to

pollution by water borne infection, in spite of the continuous bombing of our crowded areas. American visitors marveled at this. The number of deaths from pneumonia was much greater in 1941 than from all the other infectious diseases combined other than tuberculosis. There were 50,000 cases and 26,000 deaths compared with 29,000 deaths in 1940 and 23,000 in 1939.

An increase in venereal diseases was not unexpected in view of war conditions but was not so great as in the last war. At the outset steps were taken to expand the existing services. We have always relied on propaganda and education for controlling these diseases. But the work of limiting the spread of infection was hampered by lack of powers to deal with persons unwilling to submit to treatment and known to infect others. This difficult problem is engaging attention.

#### THE SUPPLY OF NURSES

At the end of April 1939 the number of state registered nurses was 94,200. In April 1942 the number had risen to 103,700. But there is still a shortage, and 12,000 more are required. The tuberculosis service in particular has exceptional difficulties in securing adequate numbers. Fear of contracting the disease in sanatoriums appears to be a factor, though the authorities hold that there is no greater risk than in other hospitals.

#### SHORTAGE OF DOCTORS

The demand for doctors in the fighting forces has entailed a shortage for civilian purposes. The government has asked the public to recognize the difficulty and do what it can to limit calls to what is essential.

#### Hospitality to Americans

The eagerness of individuals and private societies to show good will toward Americans both soldiers and civilians, now in this country has produced numerous offers of hospitality. The government has made arrangements to complete and coordinate such offers. At the request of the secretary of state for foreign affairs, Sir Edward Grigg M. P. (lately undersecretary for war), became chairman of a small committee to advise on the measures required. The committee has been instrumental in providing facilities, including residential clubs for the exclusive use of American civilians and officers. At the request of the American Red Cross the committee has been supplementing its work, which includes the responsibility, conferred on it by the United States government for the welfare of the American Expeditionary Force. The committee also concentrates on the needs of the many American civilians assisting our war effort.

#### Operation on the Heart on the Battlefield

During a battle in Libya a bomb splinter nearly an inch wide lodged in the wall of an anti-aircraft gunner's heart. He was taken to a field hospital under field conditions with the battle raging outside, and an operation was performed on his heart. For two and one half hours the surgeons worked. A few days later the gunner was well enough to be sent to a base hospital. The doctors in charge of the field unit paid tribute to the orderlies, whose expert nursing helped the recovery.

## Marriages

WILLIAM SMITH BROCKINGTON, Charleston S. C., to Miss Florence Virginia Blake of Kingstree May 28.

PHILIP HENRY LIVINGSTON, Chattanooga, Tenn., to Miss Jean Doris Wicksman of Nashville May 24.

JOSEPH LEE MANN to Miss Nan West Phillips both of Hampton, Va. at Sebring, Fla., June 19.

HERBERT CARL LEE, Milwaukie, to Miss Dovie Johnson Kinlaw of Lumberton, N. C., recently.

FREDERICK FIRESTONE, Jamaica, N. Y., to Miss Sophie Barbara Witzling of New York May 24.

## Deaths

**Wade Hampton Brown**, Princeton, N J, Johns Hopkins University School of Medicine, Baltimore, 1907, instructor of pathology at the University of Virginia, 1907-1908, instructor of pathology from 1908 to 1910 and assistant professor 1910-1911 at the University of Wisconsin, Madison, professor of pathology at the University of North Carolina, Chapel Hill, from 1911 to 1913, joined the Rockefeller Institute for Medical Research in 1913 serving there as an associate member from 1914 to 1922, when he became a member of the scientific staff for medical research, member of the Association of American Physicians, the American Association of Pathologists and Bacteriologists, the American Society for Experimental Pathology and the American Society for Pharmacology and Experimental Therapeutics, aged 65, died, August 1, at Rice Lake, Wis.

**Hector Wright Benoit**, Brooklyn, McGill University Faculty of Medicine, Montreal, Que, Canada, 1909, member of the Medical Society of the State of New York, fellow of the American College of Surgeons, past president of the Brooklyn Surgical Society, formerly assistant clinical professor of surgery at the Long Island College of Medicine, specialist certified by the American Board of Surgery, on the staffs of St. Luke's Hospital (Newburgh), Bushwick Hospital, Prospect Heights Hospital, Midwood Hospital, Peck Memorial Hospital and the Methodist Hospital, attending surgeon and past president of the medical board of the Kings County Hospital, aged 58, died, June 27, of myocarditis.

**Louis Henry Dyke** ♂ Oakland, Calif, Oakland College of Medicine and Surgery, 1916, fellow of the American College of Surgeons, on the staffs of the Alameda County, Peralta and Providence hospitals, Oakland, and the Alta Bates and Berkeley hospitals, Berkeley, aged 64, died, June 2.

**Hannibal Blair**, Ocoosa, Wash, Willamette University Medical Department, Salem, Ore, 1883, at one time member of the state legislature, formerly mayor and member of the school board of Elma, aged 86, died, June 10, in the Elma (Wash) General Hospital of coronary disease.

**Clement Carl Fihe** ♂ Cincinnati, Medical College of Ohio, Cincinnati, 1900, fellow of the American College of Physicians, aged 66, on the staffs of the Good Samaritan Hospital, Cincinnati General Hospital and the Christ Hospital, where he died, June 15, of coronary thrombosis.

**Stanley Cullen Cox** ♂ Holyoke, Mass, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1910, member of the New England Surgical Society, fellow of the American College of Surgeons, served during World War I, aged 58, died, June 7.

**Francis Joseph Butler** ♂ Worcester, Mass, Georgetown University School of Medicine, Washington, D C, 1908, aged 58, on the staffs of the Hahnemann Hospital and St Vincent's Hospital, where he died, June 7, of uremia, hypertension and chronic nephritis.

**Robert Starke Carey**, Washington, D C, University of Maryland School of Medicine, Baltimore, 1908, medical officer with the Veterans' Administration and with the Board of Veterans' Appeals, aged 65, died, June 1, in the Georgetown Hospital.

**Elijah Tennyson Dando**, Wellston, Ohio, Kentucky School of Medicine, Louisville, 1898, Jefferson Medical College of Philadelphia, 1900, for many years postmaster, aged 65, died, June 27, in the Holzer Hospital, Gallipolis, of cerebral hemorrhage.

**James Dennis Barrett**, South Pasadena, Calif, Northwestern University Medical School, Chicago, 1906, member of the California Medical Association, aged 61, died, June 10, in the Columbus Hospital, Seattle, of lobar pneumonia.

**Hugh John Roy Lindsay**, Woodstock, Ont, Canada, University of Toronto Faculty of Medicine, Toronto, Ont, 1906, aged 56, died, May 16, in the Woodstock General Hospital of hemolytic staphylococcus septicemia.

**Nelson Henry Clark** ♂ Pittsburgh, Harvard Medical School, Boston, 1904, on the staff of the Western Pennsylvania Hospital, aged 68, died, June 16, of cholecystitis and postoperative pneumonia.

**John Lane Evans** ♂ Brookfield, Mo, University of Pennsylvania School of Medicine, Philadelphia, 1920, past president of the school board of Brookfield, aged 46, died, June 24, of myocarditis.

**Giles S Hall** ♂ Los Angeles, Rush Medical College, Chicago, 1897, aged 73, died, June 4, in the Southern Pacific General Hospital, San Francisco, of uremia and nephrosclerosis.

**William T Gilman**, Chicago, Hahnemann Medical College and Hospital, Chicago, 1896, member of the Illinois State Medical Society, aged 81, died, June 10, of chronic myocarditis.

**Joseph Chandler**, Pardeeville, Wis, Chicago Medical College, 1889, member of the State Medical Society of Wisconsin, aged 76, died, June 16, in Milwaukee of chronic myocarditis.

**Albert E Copp**, Flint, Mich, Detroit College of Medicine, 1896, formerly mayor of Vassar, at one time coroner of Tuscola County, aged 78, died, June 17, of organic heart disease.

**Jennie Anna Duncan**, Ottawa, Ill, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910, aged 81, died, June 28, of cerebral hemorrhage.

**James Carroll Nash**, Harlan, Ky, Lincoln Memorial University Medical Department, Knoxville, Tenn, 1911, aged 60, died, June 12, of hypertensive cardiovascular disease.

**Angus L Cowan**, Detroit, Detroit College of Medicine, 1891, member of the Michigan State Medical Society, aged 76, died, June 21, of myocarditis and coronary sclerosis.

**Jane Steele Divine**, Atlantic City, N J, Woman's Medical College of Pennsylvania, Philadelphia, 1887, aged 82, died, June 16, of acute infection of the urinary tract.

**Hans August Reinhard**, Milwaukee, Rush Medical College, Chicago, 1903, aged 63, on the staff of St Mary's Hospital, where he died, June 8, of cerebral hemorrhage.

**William G Brayton**, Carey, Ohio, Medical College of Ohio, Cincinnati, 1873, aged 93, died, June 7, in the Sawyer Sanatorium, Marion, of hypostatic pneumonia.

**Henry P Clarke**, Indianapolis, Medical College of Indiana, Indianapolis, 1892, aged 75, died, June 25, in St Vincent's Hospital, of coronary occlusion.

**Charles F Grunewald**, Los Angeles, Hahnemann Medical College and Hospital, Chicago, 1892, aged 81, died in June, of auricular fibrillation.

**Robert R Cornell**, Birmingham, Ala, Chattanooga (Tenn) Medical College, 1902, aged 73, died, June 4, of chronic nephritis and uremia.

**Olin Burr Hall** ♂ Dayton, Ohio, University of Cincinnati College of Medicine, 1922, aged 49, died, June 8, of Addison's disease.

**Samuel W Chavis**, Chicago, Leonard Medical School, Raleigh, N C, 1911, aged 57, died, June 2, of poison, self administered.

**Albert Pain**, Hamilton, Ont, Canada, University of Toronto Faculty of Medicine, 1906, aged 58, died, June 28.

**Estill Nelson Burke**, Catlettsburg, Ky, University of Louisville School of Medicine, 1926, aged 43, died, June 2.

**Frederick D Brown**, Richmond, Va, Leonard Medical School, Raleigh, N C, 1912, aged 54, died, June 14.

## DIED IN MILITARY SERVICE

**John Maurice Hayes** ♂ Decatur, Ill, St Louis University School of Medicine, 1914, called to active duty as a lieutenant colonel in the medical reserve corps of the U S Army Oct 10, 1941, was awarded the British Military Cross for bravery while in service with the British Army during World War I and was a member of the Order of the Purple Heart, aged 57, stationed at Camp Forrest, Tenn, where he died, June 29, of coronary thrombosis.

**Olon H Coleman** ♂ Chattanooga, Tenn, University of Tennessee College of Medicine, Memphis, 1932, major in the medical reserve corps of the U S Army, called to active duty Jan 15, 1941, served as registrar at Station Hospital, Camp Blanding, Fla, until May 1, 1942, formerly connected with the Tennessee Department of Public Health, aged 34, died, July 20, in the African middle eastern theater of war.

**Joseph Franklin Showers**, Milton, Pa, Hahnemann Medical College of Pennsylvania, Philadelphia, 1940, appointed a first lieutenant in the medical reserve corps of the U S Army, Nov 1, 1941, attached to the Second Armored Signal Battalion at Camp Polk, La, where he died, July 26, aged 28, of acute epidemic hepatitis.

## Bureau of Investigation

### STIPULATIONS

#### Agreements Between Federal Trade Commission and Promoters of Various Products

The following items are abstracts of stipulations in which promoters of "patent medicines," cosmetics or medical devices have cooperated with the Federal Trade Commission to the extent of agreeing to discontinue certain misrepresentations in their advertising. These stipulations differ from the "Cease and Desist Orders" of the Commission in that such orders definitely direct the discontinuance of misrepresentations. The abstracts that follow are presented primarily to illustrate the effects of the provisions of the Wheeler-Lea Amendment to the Federal Trade Commission Act on the promotion of such products.

**Chippewa Natural Spring Water**—This was represented in the advertising to rid the system of poison, toxins or waste to be the only natural spring water which can be given to infants without boiling or with safety and to possess therapeutic properties in the treatment of kidney disorder, rheumatism or arthritis. In June 1942 the Chippewa Springs Corporation and the Hutchinson Advertising Company both of Minneapolis and Vince B. Nyhan trading as Chippewa Spring Water Company Chicago stipulated with the Federal Trade Commission that they would remove the foregoing misrepresentations from their advertising. Further all these stipulators agreed to cease representing that the minerals contained in competitive commercial waters are of no benefit to the user. The Chippewa Springs Corporation separately stipulated that it would cease representing that Chippewa Natural Spring Water when eliminated, carries with it more waste matter than do competitive commercial waters.

**Dr. George R. Davis Shoes**—In August 1941 Knapp Brothers Inc. Brockton Mass. stipulated with the Federal Trade Commission that it would discontinue the following misrepresentations in the sale of these shoes that it has been shown that 90,000,000 or any other definite number or percentage of persons in the United States have some form of foot trouble that physicians agree that 50 or any other number or diseases are the direct result of ailing feet or that any disease directly results from this condition that this concern's shoes stimulate normal circulation or possess an antiseptic toe lining that they give proper support to the arches (unless it is explained that in unusual cases they are not equipped to do so) that they assure perfect ankle alignment, correct eliminate prevent or banish flat feet or kindred disorders or defective posture that they afford instant relief and will banish correct, eliminate or prevent corns (this claim applies only to proper fitting) or that the wearing of Dr. George R. Davis Anti Friction Shoes assures normal feet.

**Mint Rub**—In July 1941 the Bristol Myers Company New York signed a stipulation with the Federal Trade Commission agreeing to cease representing that this product is a special analgesic that it has any effect on colds beyond relieving chest colds or that it penetrates to any muscles other than superficial ones or affords certain other benefits. This stipulation was an amendment to one that the same concern signed with the Commission in September 1937.

**Minton's Asthma Remedy**—This is put out by E. L. Bachman and V. E. Chambers trading as the Sarcos Remedy Company, Sidney Ohio. In June 1942 these persons stipulated with the Federal Trade Commission that they would discontinue the following misrepresentations in their advertising: that their product will prevent remedy or correct asthma or any underlying cause of this condition or offer any value in its treatment beyond furnishing limited temporary relief from paroxysms due to or associated with asthma that the preparation is a preventive remedy or cure for hay fever or a treatment for bronchial trouble in excess of its action as an expectorant in minor bronchial irritations or that it has substantial therapeutic value in treating such disorders or will restore health. Further the respondents agreed that they would disseminate no further advertisements which failed to reveal that their product should not be taken by persons suffering with active or arrested tuberculosis or toxic goiter without first consulting a qualified physician and that should nausea or skin eruptions follow its use the dose should be reduced. It was permitted however to limit the warning to the statement "Caution: Use only as directed" if the same warning appeared in the directions on the label. The respondents further stipulated that in their trade or brand names they would desist from using the word "remedy" or any abbreviation thereof or any other word term or abbreviation whose phonetics, spelling or appearance might suggest that the preparation is a preventive, corrective or remedy for asthma hay fever or bronchial troubles.

**Natural Ray Mineral Water**—This was sold under the misrepresentations that it is a remedy or cure for stomach, bladder and kidney disorders, chronic constipation, paralysis, high blood pressure, anemia, glandular difficulties and various forms of rheumatism among other things that it is a safeguard a body builder a way to gain, retain or maintain health a preventive of infantile paralysis or other illness or a aid to muscle or bone development that it affects the appetite, the weight or the ability to sleep, builds up resistance to colds or headaches or wards off colds. Such misrepresentations were to be discontinued according to a stipulation signed with the Federal Trade Commission

in August 1941 by the Michigan Magnetic Mineral Water Company and the Natural Ray Mineral Water Company, the latter trading as such and as the Michigan Mineral Water Company, of St. Louis. In September 1941 Charles F. Dowd Inc., Toledo Ohio which handles the advertising of the product in question also stipulated with the Federal Trade Commission that the foregoing misrepresentations would be discontinued.

**Nature Nerveine**—In July 1942 one Valentine Greenwald trading as Protes or V. Greenwald Covington Ky. signed a stipulation with the Federal Trade Commission which provided that he would cease using the term "Nature Nerveine" or any other name representing or implying that the product so designated is a remedy of nature or beneficially affects nerves or nerve disorders that it has any value in treating epilepsy, exhaustion, insomnia, stomach disorders and other ailments that it tones blood, strengthens the nerves, builds the brain or promotes health and that it has any physiological action except as a stomachic and mild carminative.

**Nutrase and Kleen**—Edward Howell trading as Medford Laboratory Chicago stipulated with the Federal Trade Commission in August 1941 that he would no longer represent that either of these products is a cure or remedy for food discomfort, indigestion, gas, heartburn, gastro-intestinal symptoms, cancer, diabetes, liver trouble or other ailments that Nutrase is free from drugs or will impart new life or energy or that Kleen affords perfect intestinal elimination.

**Old Mohawk**—In June 1942 Edgar S. Gehhart trading as Miami Advertising Agency J. W. Daugherty trading as Mohawk Medicine Company and The Quaker Herb Company signed a stipulation with the Federal Trade Commission in which they agreed to cease representing that Old Mohawk is safe to use and is a cure for dizzy spells, biliousness, bloating, unsound sleep and other ailments or has therapeutic value except as a temporary laxative for the relief of constipation. Further they agreed to discontinue designating symptoms of diseases or conditions not generally caused by or directly associated with constipation in any manner representing that these symptoms are typical manifestations of constipation or that their presence indicates that the sufferer has constipation. Also to be discontinued were advertisements which failed to reveal the potential danger in using Old Mohawk when nausea, vomiting, abdominal pain or other symptoms of appendicitis are present provided however that if the labeling contains adequate warning of such danger the advertising need bear only the statement "Caution: Use only as directed."

**Perspiration**—This Turkish bath cabinet was represented in the advertising as a cure or remedy for excess fat which would keep the pores open, cure colds and help to replace sallow, sluggish skin with a healthy, youthful glow and to remove blackheads and the cause of skin blemishes. In a stipulation signed with the Federal Trade Commission in June 1942 Louis Gordon trading as Gordon Brothers, Brooklyn agreed to discontinue these misrepresentations and any advertisements which failed to reveal that a normal person might faint and suffer burns when using the device unattended. It was permitted however to limit this warning to the statement "Caution: Use only as directed" if the accompanying directions contained the adequate necessary warning.

**Rex Lex**—The Rex Remedy Company, Shelby N. C. signed a stipulation with the Federal Trade Commission in June 1942 to discontinue the following representations for their product that it is superior to and outsells all competing brands of headache remedies, produces a rested feeling and always relieves nervousness, dizziness or all kinds of pain. The concern further agreed to discontinue any advertisements which failed clearly to reveal that Rex Lex should not be used in excess or the recommended dose lest it cause dependence on a drug and should not be taken by children. It was provided however that this detail could be substituted in the advertising by the simple statement "Caution: Use only as directed" when the labeling carried a warning to the same effect. The Commission reported that Rex Lex contained acetanilid and potassium bromide.

**Triner's Bitter Wine and Triner's Wine Tonic**—In a stipulation signed with the Federal Trade Commission in June 1942 the Joseph Triner Corporation Chicago agreed to cease representing that the wine will cleanse the stomach, prevent colds and relieve insomnia, headaches, irritability or nerve disease and that the tonic will clear the system of accumulated poisons, restore appetite and digestion, assure sleep and maintain good health. The concern further agreed to cease representing by use of the word "tonic" in the title or the first named product that it is a general tonic and to discontinue advertisements of these products which failed to reveal that there is potential danger in their use when abdominal pain, nausea, vomiting or other symptoms of appendicitis are present unless such caution appears on the labeling in which case the advertisement needs only to warn "Caution: Use only as directed."

**Yoghurt Ferment Capsules**—This preparation is designated to be combined with milk to form Bulgarian milk and is put out by Yoghurt Products Inc., Seattle. A stipulation which that concern signed with the Federal Trade Commission in July 1942 contained the following provisions: that the advertising would no longer represent that the product in question is of itself Bulgarian milk or that the fluid which results from its mixing with milk is healing, purifying or life-renewing or that it purifies the blood or energizes organic activities that it builds the body or enables the user to get well, keep well or stay young that it destroys disease breeding bacteria, arrests abnormal fermentation or decomposition or restores or produces digestion or a rational appetite and eliminates toxic poisons.

## Correspondence

SUDDEN DEATHS AFTER USE OF  
MERCURIAL DIURETICS

*To the Editor*—In the July 25 issue of *The Journal* appear a series of circular reports and an enlightening editorial relative to the sudden deaths following the intravenous administration of mercurial diuretics.

Since my work on "speed shock" and the slow intravenous drip, in 1931, I have been intensely interested in the problem of reactions and I ask your leave to comment on the present situation.

I do not think it is sufficiently stressed that these fatalities resulted from a technical cause rather than from the drug itself. This conclusion is borne out by several considerations: 1. Death occurred mostly, if not exclusively, from intravenous injection. 2. Death or the fatal reaction occurred usually within a few minutes after the injection, so that the accident could not have been due to a specific pharmacodynamic action of the molecule itself. 3. So many of the patients had had previous injections that idiosyncrasy to the drug could be eliminated as a provocative factor.

The animal experimentation, despite its splendid execution, is truly not pertinent to the clinical problem. There is a vast difference between intravenous reactions in the decompensated cardiac invalid and those in a healthy laboratory animal. The authors of the articles and the editorial commentator both stressed the moribund condition of many of the patients, and this must be taken into account in discussing the present situation.

I am reasonably certain that the fatal reactions observed are identical with those described as "speed shock." It is true that the clinicians attest slow injections and in certain instances used diluted solution in a gravity drip. The experimenters controlled the speed of injection clearly in their protocols on healthy cats.

However, the syndrome of "speed shock" exists under certain conditions for what would appear to be relatively slow injection. What is a slow injection in a given situation may be an overwhelming administration of a mercury molecule in a decompensated cardiac invalid.

Conscious of this, in our original work Hirshfeld, Wanger and I noted that "We do not believe that any single rate [of injection] can cover all drugs. For obviously hypertonic solution should be given slower than isotonic and larger molecules slower than small molecules. Toxic substances such as copper sulfate must be given intermittently as well as slowly if they are to be given at all" (*Arch. Int. Med.* 47:286 [Feb.] 1931).

My view of the identity of the reaction causing these mercurial deaths and the syndrome of "speed shock" is susceptible, I believe, of proof. If I am correct, the freshly drawn blood after death should be rendered incoagulable and I urge clinicians to make this simple observation should any one experience again this unfortunate accident.

More important, however, are the broader conclusions relative to the present circumstances and their interpretation. These may be summarized briefly:

1. The reactions immediately following the intravenous injections of a mercurial in a decompensated cardiac invalid are technical and not pharmacodynamic.

2. The reaction resembles, if it is not identical with, the syndrome of "speed shock," in which the blood is rendered non-coagulable.

3. Under the prevailing conditions the reaction may not be averted by a slow intravenous injection of a diluted dose, as in the instance of copper sulfate experimentally.

4. The reaction is averted by intramuscular injection. The great boon of mercurial diuresis must not be withheld through these unfortunate technical reactions which are independent of the pharmacodynamics of the drug.

HAROLD THOMAS HYMAN, M.D., New York

## "CONSERVATION OF MEDICAL SUPPLIES"

*To the Editor*—I have just read with a great deal of interest the article in the August 1 issue entitled "Conservation of Medical Supplies." I want to tell you how timely I think this article is and to express the hope that you will publish more of them.

I am here on leave of absence from my job as administrator of the Albany Hospital to act as head hospital consultant to the War Production Board.

I am quite sure that most of our hospitals are not yet aware of the seriousness of the war situation and the necessity of doing more than we have ever thought possible to conserve critical materials for our armed forces.

Hospitals and their staff physicians must exercise all the native ingenuity which they possess to learn how to do things without many of the semiluxuries which they have thought to be necessary in the past.

When hospitals do apply to the War Production Board on form PD-1A or PD-200 for things which after careful thought they feel they cannot get along without, please warn them to read the instructions carefully and fill these forms out completely.

It will always be wise to accompany their application with a rather detailed letter of explanation so that the case will be as clear to us as it is to them.

Yours for Victory!

MAURY MAVERICK,  
Chief, Bureau of Governmental Requirements  
By E. W. JONES,  
Head Hospital Consultant  
Washington, D. C.

RUBBER FROM RUBBER GLOVES NOT A  
PROTECTIVE AGAINST MUSTARD GAS

*To the Editor*—It has come to my attention that many physicians are instructing gas defense workers to the effect that surgical rubber gloves are to be used as protection against mustard gas. This should be corrected, as it may lead to unpleasant consequences.

This particular grade of rubber is not only an inadequate protection but even accentuates mustard gas burns as well as permanently contaminating the rubber itself. Mustard gas is soluble in the rubber, and a droplet that would produce only a small blister on bare skin may spread through an entire glove, in time, and burn the whole surface.

Of course, if no other protection is available, a rubber glove can afford protection for a short time, but the limitations should be recognized.

Mustard gas will not burn the skin rapidly, and even wiping with a cloth is often ample protection, or rubbing the skin with damp earth is an efficient method if no other is available.

I was an officer in the Chemical Warfare Service Experimental Station at American University in 1918, where I had an opportunity to see numerous demonstrations of the sad results of this particular error.

The fact that rubberized fabric is used in gas masks has probably helped to keep alive this fallacy. But the gas mask is of an entirely different grade of rubber, is much thicker and is not in direct contact with the skin.

C. I. REED, PH.D., Chicago

Professor of Physiology, University  
of Illinois College of Medicine

## SACCHARIN

To the Editor—In THE JOURNAL of July 25, page 1028, there is a mild comment on the harmlessness of saccharin. Many physicians are not fully aware of its nontoxic nature and are fearful about permitting its indiscriminate use.

In 1916, as a member of the Advisory Council of the New York City Board of Health, I was chairman of a saccharin committee composed of noted chemists such as H C Sherman and W J Gies. We made an extensive study of the domestic and foreign literature then available, which was considerable, and came to the conclusion that saccharin is nontoxic, either acute or chronic, for human beings, in any amounts that could ordinarily be consumed. We found an extensive use of saccharin in canned goods, chewing gum, soda water flavors, ginger ale, and so on.

For Health Department purposes we concluded that "Saccharin is nonpoisonous. When used in place of sugar, saccharin is an adulterant in that its use substitutes a substance of no food value for one of definite food value."

WALTER A BASTEDO, M D, New York

## Medical Examinations and Licensure

## COMING EXAMINATIONS AND MEETINGS

## ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

CHICAGO Feb 15 16 1943 Sec. Council on Medical Education and Hospitals Dr H G Weiskotten, 535 North Dearborn Street, Chicago

NATIONAL BOARD OF MEDICAL EXAMINERS  
EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in THE JOURNAL, Aug 8, page 1218

## BOARDS OF MEDICAL EXAMINERS

ALABAMA Montgomery June 15 16 Sec Dr B F Austin 519 Dexter Ave., Montgomery  
ARIZONA \* Phoenix Oct. 6 7 Sec Dr J H Patterson 826 Security Bldg Phoenix.

ARKANSAS \* Medical Little Rock Nov 5 6 Sec Dr D L Owens, Harrison Eclectic Little Rock Nov 5 Sec Dr Clarence H Young 1415 Main St Little Rock.

CALIFORNIA Written Sacramento Oct 19 22 Oral examination (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California) Los Angeles Sept 16 Sec. Dr Charles B Pinkham 1020 N St. Sacramento

COLORADO \* Endorsement Denver Oct 6 Written Denver Oct 7 9 Application must be on file not later than Sept 20 Sec. Dr John B Davis 831 Republic Bldg Denver

CONNECTICUT \* Medical Written Hartford Nov 10 11 Endorsement Hartford Nov 24 Sec. to the Board Dr Creighton Barker 258 Church St New Haven Homeopathic Derby Nov 10 11 Sec., Dr Joseph H. Evans 1488 Chapel St. New Haven

DISTRICT OF COLUMBIA \* Washington Nov 9 10 Sec., Commission on Licensure, Dr George C Ruhland 6150 East Municipal Bldg Washington

FLORIDA \* Jacksonville Nov 23 24 Sec. Dr William M Rowlett Box 786 Tampa

GEORGIA Atlanta, Oct 13 14 Sec., Mr R. C. Coleman 111 State Capitol, Atlanta.

IDAHO Boise Jan 12 Dir Bureau of Occupational Licenses Mr Walter Curtis 355 State Capitol Bldg, Boise.

ILLINOIS Chicago Oct. 13 15 Superintendent of Registration Mr Philip M Harman, Department of Registration and Education Springfield

INDIANA Indianapolis Jan 13 15 Sec. Board of Medical Registration and Examination Dr W C Moore 301 State House Indianapolis

KANSAS Kansas City Sept 15 16 Sec Board of Medical Registration and Examination Dr J F Hassig 905 N Seventh St. Kansas City

MAINE Portland Nov 3 4 Sec Board of Registration of Medicine Dr Adam P Leighton 192 State St. Portland

MARYLAND Medical Baltimore Dec 8 11 Sec. Dr John T O Mara 1215 Cathedral St. Baltimore. Homeopathic Baltimore Dec. 8 9 Sec., Dr John A Evans 612 W 40th St. Baltimore.

MASSACHUSETTS Boston Nov 17 20 Sec Board of Registration in Medicine Dr H Q Gallup 413 F State House Boston

MICHIGAN \* Lansing Oct 14 16 Sec. Board of Registration in Medicine Dr J Earl McIntyre 203 Hollister Bldg Lansing

MINNESOTA \* Minneapolis Oct 20 22 Sec. Dr Julian F Du Bois 230 Lowry Medical Arts Bldg, St. Paul

MISSISSIPPI Jackson December Asst. Sec State Board of Health Dr R N Whitfield Jackson.

MISSOURI Kansas City Oct. 3. Sec., State Board of Health Dr James Stewart State Capitol Bldg Jefferson City

MONTANA Helena Oct. 6 Sec. Dr Otto G Klein First National Bank Bldg Helena.

NEW HAMPSHIRE Concord, Sept 10 11 See, Board of Registration in Medicine, Dr T P Burroughs State House Concord

NEW JERSEY Trenton Oct. 20 21 Sec., Dr Earl S Hallinger, 28 W State St, Trenton

NEW MEXICO \* Santa Fe Oct 13 14 Sec., Dr LeGrand Ward, 135 Sena Plaza Santa Fe

NEW YORK Albany Buffalo New York and Syracuse, Sept 14 17 Chief Bureau of Professional Examinations Mr H L. Field, State Education Department 315 Education Bldg Albany

NORTH CAROLINA December Sec Dr W D James, Hamlet

OHIO Endorsement Oct 6 Sec Dr H M Platter, 21 W Broad St Columbus

OKLAHOMA \* Oklahoma City Dec. 9 Sec Dr J D Osborn, Jr., Frederick.

PENNSYLVANIA Philadelphia January Act Sec Bureau of Professional Licensing Mrs Marguerite G Steiner Department of Public Instruction 358 Education Bldg Harrisburg

RHODE ISLAND \* Providence Oct 1 2 Chief Division of Examiners, Mr Thomas B Casey 366 State Office Bldg Providence

TEXAS Austin Dec. 28 30 Sec Dr T J Crowe 918 20 Texas Bank Bldg Dallas

UTAH Salt Lake City June. Dir Department of Registration Mr G V Billings 324 State Capitol Bldg Salt Lake City

VIRGINIA Richmond Dec 8 11 Sec., Dr J W Preston, 30 1/2 Franklin Rd. Roanoke

WEST VIRGINIA Charleston, Oct. 26 28 Commissioner Public Health Council Dr C F McIntire State Capitol Charleston

WISCONSIN \* Reciprocity Madison, September Sec., Dr H W Shutter 425 E Wisconsin Ave. Milwaukee.

WYOMING Cheyenne, Oct. 5 6 Sec., Dr M C. Keith Capitol Bldg, Cheyenne.

## \* Basic Science Certificate required

## BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARIZONA Tucson Sept. 15 Act Sec Dr Robert L. Nugent, Science Hall University of Arizona Tucson.

CONNECTICUT Oct 10 Address State Board of Healing Arts, 1945 Yale Station New Haven

DISTRICT OF COLUMBIA Washington Oct 19 20 Sec. Commission on Licensure, Dr George C Ruhland 6150 East Municipal Bldg, Washington

FLORIDA Gainesville Oct 31 Application must be on file not later than Oct 16 Sec. Dr J F Conn John B Stetson University DeLand.

IOWA Des Moines Oct. 14 Dir Division of Licensure & Registration Mr H W Grefe, Capitol Bldg Des Moines.

MINNESOTA Minneapolis Oct 6 7 Sec Dr J C. McKinley, 126 Millard Hall, University of Minnesota Minneapolis

NEBRASKA Lincoln Oct 6 7 Dir Bureau of Examining Boards Mrs Jeannette Crawford 1009 State Capitol Bldg Lincoln

NEW MEXICO Albuquerque Feb 1 Sec Miss Pia Joerger, State Capitol Santa Fe.

OKLAHOMA Oklahoma City May Sec Dr Oscar C Newman, Shattuck.

OREGO Portland Oct. 31 Sec State Board of Higher Education Mr Charles D Byrne University of Oregon Eugene

SOUTH DAKOTA Sioux Falls Dec. 4 5 Sec., Dr G M. Evans Yankton

WISCONSIN Madison Sept 19 Sec. Prof Robert N Bauer 3414 W Wisconsin Ave Milwaukee.

## Missouri Reciprocity Report

The State Board of Health of Missouri reports 8 physicians licensed to practice medicine by reciprocity and 1 physician so licensed on endorsement of credentials of the National Board of Medical Examiners on January 22 and May 15. The following schools were represented

| School                                     | LICENSED BY RECIPROCITY | Year Grad | Reciprocity with |
|--|-------------------------|-----------|------------------|
| Rush Medical College                       |                         | (1936)    | Illinois         |
| University of Kansas School of Medicine    |                         | (1939)    | Kansas           |
| University of Minnesota Medical School     |                         | (1931)    | Minnesota        |
| Washington University School of Medicine   |                         | (1938)    | Illinois         |
| Albany Medical College                     |                         | (1904)    | New York         |
| Long Island College of Medicine            |                         | (1925)    | Illinois         |
| McGill University Faculty of Medicine      |                         | (1934)    | Connecticut      |
| Medizinische Fakultät der Universität Wien |                         | (1935)    | Texas            |

| School                                     | LICENSED BY ENDORSEMENT | Year Grad |
|--|-------------------------|-----------|
| University of Illinois College of Medicine |                         | (1941)    |

## Wyoming Endorsement Report

The Wyoming State Board of Medical Examiners reports 5 physicians licensed to practice medicine by endorsement on February 2. The following schools were represented

| School  | LICENSED BY ENDORSEMENT | Year Grad | Endorsement or |
|---|-------------------------|-----------|----------------|
| University of Colorado School of Medicine     |                         | (1934)    | Colorado       |
| Creighton University School of Medicine       |                         | (1930)    | Nebraska       |
| Long Island College of Medicine               |                         | (1929)    | New York       |
| University of Oklahoma School of Medicine     |                         | (1927)    | Oklahoma       |
| University of Pennsylvania School of Medicine |                         | (1927)    | S. Dakota      |



## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Osteopathy Registration of Osteopaths Under Harrison Narcotic Act, Lawful Scope of Osteopathic Practice**—In a Kansas case, osteopaths were refused registration under the Harrison Narcotic Act, and the Kansas State Osteopathic Association, Inc., and certain licensed osteopaths commenced an action against the United States collector of internal revenue to compel registration. The trial court gave judgment for the osteopaths and the collector appealed to the United States circuit court of appeals, tenth circuit.

The issue in this case, said the court, was whether or not osteopaths under the laws of Kansas have the right to administer narcotic drugs, and that issue must be determined by the state law as construed by the Kansas courts. On three separate occasions, the court pointed out, the Supreme Court of Kansas has had the opportunity to define the limits within which osteopaths may practice and in each instance reached the conclusion that osteopathy was a drugless, manipulative system of healing. The plaintiffs in this action contended, however, that, since osteopaths in Kansas are authorized to practice osteopathy as taught and practiced in the legally incorporated colleges of osteopathy of good repute, they are entitled to use narcotics if instruction in their use is given in such schools. But, the court said, merely studying the use of narcotics in school does not authorize an osteopath to use them in his practice for "the fact that in an osteopathic college the broad principles of medicine and surgery were investigated and considered, merely for the purpose of giving the student body a knowledge of what those who practice medicine and surgery believe, would not be sufficient to conclude that those licensed to practice osteopathy would have the right to practice medicine or surgery."

The plaintiffs further contended that under the court decisions in Kansas osteopaths were precluded from using drugs as "remedial aids" but not from using them for palliative purposes. The circuit court of appeals, while admitting that the term "remedial aids" as used by the Supreme Court of Kansas was ambiguous, pointed out that judges are not skilled in the science of medicine nor in the intricate and delicate shades of meaning of medical terms. When the osteopaths were licensed to practice in Kansas, the court continued, their therapy was designed to relieve pain and other illness by means of manipulation and without the use of drugs, as indicated by statements from their leaders. It was on the strength of that claim that the legislature granted them the privilege of practicing. It they have now found that their osteopathic therapy will not relieve pain and that they must use narcotics or other drugs to effect that relief, that need should be addressed to the legislature rather than the courts. The circuit court of appeals concluded, therefore, that since the laws of Kansas prohibited the use, sale or distribution of narcotic drugs for any purpose by an osteopath, such practitioners were not entitled to registration under the Harrison Narcotic Act. The judgment of the lower court was reversed and the cause remanded, with instructions to dismiss the bill.

In a Nebraska case, the attorney general filed a suit to enjoin the defendant osteopath from practicing medicine and operative surgery and from publicly professing to be a physician, surgeon or obstetrician. Judgment was entered for the defendant in the trial court and the attorney general appealed to the Supreme Court of Nebraska.

The character and general duties of occupations classed as professions are to be determined as questions of fact of which judicial notice will be taken, said the Supreme Court. Whether a specific act constitutes the practice of osteopathy is not therefore subject to proof by expert witnesses. Furthermore, the general rule of pleading which admits as true all facts well pleaded on the filing of a general demurrer or a motion for a

judgment on the pleadings has no application to the facts of which a court may take judicial notice, and such demurrer or motion does not therefore admit a conclusion of law deduced from such facts. An osteopath is defined by the laws of Nebraska as a person who treats human ailments "by that system of the healing art which places the chief emphasis on the structural integrity of the body mechanism as being the most important factor for maintaining [maintaining] the organism in health." He is authorized "to practice osteopathy in all its branches, as taught in the osteopathic colleges recognized by the American Osteopathic Association." To determine the meaning of the term osteopathy the court resorted to the definitions and descriptions of it given by the founder of the practice, by those who teach and practice it, by the lexicographers and by the courts and concluded that the system of osteopathy as thus defined and described does not embrace the use of drugs or the use of a knife. The defendant argued, however, that since general surgery, orthopedic surgery, anatomy, pathology and other subjects are included in the required course of study in an accredited school of osteopathy, their practice is included in the statutory authorization. The court said that the words of the statute are not subject to the construction that they authorize an osteopath to practice everything that is taught in an osteopathic school. The statute contains expressions which have a limiting as well as an authorizing effect. The practice authorized must be osteopathic and it must also be taught in accredited osteopathic colleges. The fact that branches of medicine and surgery may be taught to increase the knowledge of the student in the anatomy and functions of the various parts of the human body for the purpose of better fitting him to practice osteopathy will not warrant him in invading those fields on the theory that they constitute the practice of osteopathy. The scope of osteopathy, the court pointed out, is well known and schools or colleges of osteopathy must stay within its boundaries, they cannot enlarge them. An osteopath's knowledge must be broader than his practice, he must know what he practices but may not practice all he knows.

The fact that the defendant's license used the description "osteopathic physician and surgeon" did not authorize him to engage in operative surgery, in the opinion of the court. The word surgery when used in connection with osteopathy means surgery by manual manipulation and was never meant to include operative surgery. The practice of osteopathy and operative surgery have long been recognized as two separate and distinct things. The further fact that the law under which the defendant received his license provided that "osteopathic physicians shall perform only such operations in surgery as was fully taught in the school or college of which the applicant is a graduate at the time of his attendance" did not constitute a legislative recognition that operative surgery is a branch of osteopathy. Here again the court said that the word surgery must be construed as referring to operations in surgery consistent with the practice of osteopathy as originally defined, which excludes the practice of operative surgery in its commonly accepted meaning. The defendant urged, however, that the principles of osteopathy have changed and that experience and learning have produced certain advances that must be recognized. If osteopathy has changed merely by a self-serving attempt to broaden its scope by invading fields requiring a different license, the court remarked, the legislature of Nebraska has never recognized any such additions to the profession. If the changes have been the result of advances in the profession, they still constitute the practice of osteopathy. But the practice of operative surgery by an osteopath constitutes an invasion of the field of the physician and surgeon as it is generally known and is not an evolutionary advancement of the profession of osteopathy.

As to the practice of obstetrics by osteopaths, the court pointed out that the right to engage in such practice was not specifically granted by the statute authorizing the licensing of osteopaths. It was not disputed that the defendant graduated from an accredited school of osteopathy in which obstetrics was taught. The defendant was also required to pass an examina-

tion in that subject. In this respect in the opinion of the court, the defendant was in no better position than he was as to the right to practice operative surgery. The court felt required, however, to examine the laws of Nebraska to determine to what extent it may, they have modified this position. Under the provisions of an act passed in 1901, an osteopath was required to report births to the proper authorities. A similar provision was continued in the 1905, 1909 and 1919 revisions of the osteopathic act. In 1927 the specific requirement that an osteopath must file a birth certificate was deleted, but another law provided that a birth certificate must be filed by the "physician" in attendance. While in the opinion of the court the fact that the defendant was required to have pursued a course in obstetrics and to have passed an examination in the subject would not alone authorize him to engage in the practice of obstetrics, yet, when considered in connection with the law requiring the reporting of births, there was evident a legislative recognition that obstetrics constitutes a branch of osteopathy, that the use of the word "physician" in the 1927 law relating to the reporting of births was intended to include regularly licensed osteopathic physicians and that osteopaths could therefore engage in the practice of obstetrics.

With respect to the use of anesthetics by an osteopath the act of 1919 under which the defendant was licensed specifically authorized a licensee to use anesthetics, antiseptics, antidotes for poisons and narcotics for temporary relief of suffering. A revision of this act in 1927 eliminated this specific authorization and conferred on osteopaths in general terms the right to practice osteopathy in all its branches as taught in the osteopathic colleges recognized by the American Osteopathic Association. The court did not think that the 1927 revision manifested any legislative intent to deprive the defendant of his previously acquired privilege to use the drugs named. The court was inclined to feel that when a legislative act grants a privilege, a subsequent enactment will not be construed to deprive the beneficiary of that privilege unless a legislative intent to do so is clearly apparent from the legislation itself. The court held, therefore, that the defendant was entitled to use anesthetics by virtue of his license to practice osteopathy.

The court concluded that the trial court erred in not granting an injunction restraining the defendant from engaging in the practice of operative surgery and from publicly holding himself out as licensed and otherwise qualified to perform operative surgery with surgical instruments. In all other respects the judgment of the trial court was held to be correct.—*Burke, Collector of Internal Revenue v Kansas State Osteopathic Association Inc*, 111 F (2d) 250 (1940), *State ex rel Johnson Atty Gen v Wagner* 297 N W 906 (Neb 1941).

**Malpractice Keratitis Attributed to Failure to Remove Foreign Particles from Eye**—On July 31, 1937, the plaintiff sustained an injury to his eye caused by a piece of cement which fell from the ceiling directly above where he was working. Some of the small particles of cement apparently remained in the eye. A few days later he went to the office of the defendant physician for treatment. He continued working until August 20 when without again consulting the defendant he left on a pleasure trip. The eye continued to cause him pain and on October 28 while visiting in another state, he consulted an optometrist complaining of frontal headaches. The optometrist did not make an ophthalmoscopic examination but found the eye and vision to be normal and instructed the plaintiff to return in ten days. The plaintiff did not comply with this instruction and returned to his home state about November 1. He testified that his eye was still giving him trouble at that time but that he did not again report to the defendant physician until November 22. At this time some controversy arose between the plaintiff and the defendant because the latter had considered the case closed as the plaintiff had not returned for further treatment and the defendant had already submitted a statement for his services, which had been paid, this being a workmen's compensation case. Attributing the condition of his eye to a failure on the part of the defendant

to remove all of the particles of cement from it, the plaintiff sued the defendant for malpractice. The trial court directed a verdict in favor of the physician and the plaintiff appealed to the Supreme Court of Colorado.

All of the physicians who treated the plaintiff during the six months following his last visit to the defendant agreed, said the Supreme Court, that the eye trouble was due to keratitis, but none of them discovered any foreign particles in the eye until June 5, 1938, ten months after the accident, and the then examining physician could not identify the foreign bodies. There was testimony to the effect that between Aug 5, 1937 and June 5, 1938 the plaintiff did have other foreign particles in his eye, on at least two occasions. There was no testimony in the record to indicate that any foreign particles which may have gotten into the plaintiff's eye at the time of the accident remained there after his visit to the defendant on August 5, and even if they had so remained, the court observed, the expert testimony was to the effect that keratitis was not caused by trauma but rather was a systemic infection. The undisputed testimony was that the plaintiff's eye condition showed striking improvement while he was being treated on the theory that the disease was due to a systemic infection and during the time concerning which his principal witness testified that there were foreign particles in the eye. This same witness also stated that, if keratitis did not develop within three months after the occurrence of the trauma, trauma would have to be ruled out as a cause.

Without any evidence of the presence of cement particles in the eye after the plaintiff's visit to the defendant, the jury, in the opinion of the court, would have been left entirely to conjecture as to the cause of the condition of the eye, and while the one principal witness for the plaintiff indicated a possibility of a causal relationship he stated emphatically that he had never stated that the defendant caused the keratitis. Even assuming that there was such a causal relationship as the plaintiff contended, the court said that it would be impelled to hold that he the plaintiff was guilty of contributory negligence as a matter of law if his statement was accepted as a fact that although dissatisfied with his treatment on August 5 he did not consult another physician for nearly three months thereafter. The court therefore affirmed the judgment for the defendant.—*Hanley v Spencer*, 115 P (2d) 399 (Colo, 1941).

**Medical Practice Acts Revocation of License for Fraud and Deceit**—The Florida State Board of Medical Examiners revoked the petitioner's license to practice medicine on the ground that he had been guilty of fraud and deceit in his application for a license. The revocation order was reversed in the circuit court and the board appealed to the Supreme Court of Florida.

The charge presented to the board alleged that the petitioner, in his application for a license, stated 'That I have never, or will never, procure or aid or abet in procuring a criminal abortion and in the event I am ever called to attend a case or abortion or miscarriage I will call a reputable consultant to advise with me' when at the time he knew that in 1927 the California Board of Medical Examiners had adjudged him guilty of performing criminal abortions. The charge, said the Supreme Court, was insufficient in that it did not allege that the petitioner had been guilty of. The procuring or aiding or abetting in procuring a criminal abortion—one of the grounds for revocation set forth in the medical practice act, but instead alleged that the petitioner 'had been adjudged guilty of performing criminal abortions by the California Board of Medical Examiners of California about June 29th 1927'. We cannot hold continued the court, that such allegation constitutes a ground for the revocation of a physician's license under the medical practice act. The court then pointed out however, that it was not contended that proof had been made in this case that the petitioner had been guilty of the act denounced by the statute. The contention was that the petitioner committed a fraud on the state board of medical examiners when he procured his license in the state without advising the board of the

action theretofore taken by the California board. The court said that there was nothing in the statutes or in the application adopted by the board which required the petitioner to make such matter known, unless he had been guilty of the act denounced by the statute. Fraud cannot be inferred or deduced from the nonperformance of acts which by law the petitioner is not required to do whatever may be his motive, design or purpose either in doing or not doing the acts complained of.

In the Florida State Board of Medical Examiners had had before it the record of the evidence taken and acted on by the California board, the court said, and, on consideration of that evidence, had found the petitioner guilty, such finding could possibly have been upheld. But here the Florida board assumed to act on the conclusions reached by the California board. If there had been a judgment of a California court of competent jurisdiction, the court continued, adjudging the petitioner guilty of the offense, copy of such judgment properly authenticated would have been entitled to full faith and credit and would have set at rest the question of guilt.

From an inspection of the whole record, the court failed to find that in the original application for a license the petitioner had made any false statements and therefore held that no reversible error was disclosed. Accordingly, the judgment of the circuit court was affirmed—*State Board of Medical Examiners v. Morlan*, 3 So. (2d) 402 (Fla., 1941).

**Charitable Hospitals Liability for Taxes**—A Maine law exempts from taxation the property of benevolent and charitable institutions incorporated by the state, with a proviso that "so much of the real estate of such corporations as is not occupied by them for their own purposes shall be taxed in the municipality in which it is situated." In the *Calais Hospital* case, the hospital was incorporated in 1938 as a charitable and benevolent institution. In 1939 a real estate tax was assessed on the property of the hospital, and after the assessor had refused to abate the tax the matter came before the Supreme Judicial Court of Maine.

The defendant conceded that the hospital was in its legal conception charitable. It was contended, however, that not all of the hospital building was occupied by the hospital for its own purposes and that the portion not so used was taxable. The basis of this contention was that a room in the hospital building was used by a physician as his office in connection with his private professional practice for his personal gain and that this constituted the dominant use of that portion of the property and thus subjected that portion to taxation. The evidence showed that the physician was the treasurer and manager of the hospital and that the room constituted his headquarters in connection with his services to the institution, that there was no setting aside of the room for his exclusive personal use and that it was a matter of mutual convenience, enabling the physician to continue the practice of his profession without detriment to hospital service and of advantage to the hospital because of the greater facility afforded the physician with reference to the performance of his managerial duties. The physician received no compensation from the hospital and the hospital received no rental income.

An arrangement as to the use of one room in the building which benefited the institution in carrying forward its work without additional expense and segregated no portion to the exclusive use of another but left the hospital in dominant control did not, in the opinion of the court, constitute a use which was independent of and alien to the normal functions of the hospital even though it was also of advantage to the physician. In the opinion of the court, there was sufficient evidence that the hospital was incorporated and conducted as a charitable and benevolent institution and that there was an actual appropriation of all its property for its own purposes. The court therefore held that the real estate tax should not have been assessed and entered judgment in favor of the hospital.

In a second Maine case, the Supreme Judicial Court held that a vacant lot owned by a hospital on which it was intended to construct a nurses' home and solarium but which at the

present time was not in actual use except as patients and nurses walked thereon and occupied chairs under the trees was "occupied for its purposes" by the hospital within the meaning of the Maine statute and was therefore exempt from taxation—*Calais Hospital v. City of Calais*, 21 A. (2d) 489 (Maine, 1942), *Osteopathic Hospital of Maine, Inc. v. Inhabitants of City of Portland*, 26 A. (2d) 611 (Maine, 1942).

**Malpractice Chiropractic Treatment of Epilepsy, Discontinuance of Drug Therapy**—In this case the plaintiff sued the defendant chiropractor for malpractice. The trial court instructed the jury to return a verdict for the defendant at the close of the plaintiff's evidence and entered judgment on that verdict after overruling a motion for a new trial. The plaintiff thereupon appealed to the Court of Appeals of Ohio, Hamilton County.

The plaintiff had been afflicted with epilepsy for twenty years or more. It was a type the cause of which was unknown, and there was no known cure. The use of phenobarbital, however, which had been used by the plaintiff for many years, reduced the frequency and the intensity of the convulsions. The plaintiff became dissatisfied with the palliative treatment and sought a cure from the defendant chiropractor. In going to the chiropractor, the court pointed out, the plaintiff manifestly did so for chiropractic treatment. He received that treatment from the defendant, who manipulated his spinal column. There was no claim that the manipulation resulted in any harmful effects. It was asserted, however, that the discontinuance of the use of phenobarbital resulted in the convulsions being more frequent and more intense and that the discontinuance of the drug was by direction of the chiropractor. But, the court pointed out, the plaintiff knew when he went to the defendant that chiropractors did not believe in the curative quality of drugs and relied solely on manipulation to accomplish beneficial results. It seemed to the court, therefore, that the plaintiff submitted voluntarily to the discontinuance of the use of phenobarbital with full knowledge of the consequences in the hope that the chiropractic treatment would effect a cure and that the familiar principle of the common law *volenti non fit injuria*, or to the consenting no injury is done, prevented a recovery of damages for the added suffering resulting from the discontinuance of the drug. The judgment for the defendant was therefore affirmed—*Kirschner v. Keller*, 42 N. E. (2d) 463 (Ohio, 1942).

## Society Proceedings

### COMING MEETINGS

- American Association of Obstetricians, Gynecologists and Abdominal Surgeons, White Sulphur Springs W. Va., Sept. 10-12. Dr. James R. Bloss, 418 Eleventh St. Huntington, W. Va., Secretary.
- American Congress of Physical Therapy, Pittsburgh, Sept. 9-12. Dr. Richard Kovacs, 2 East 88th St. New York, Secretary.
- American Roentgen Rny Society, Chicago, Sept. 15-18. Dr. H. Dabney Kerr, University Hospitals Iowa City, Secretary.
- Colorado State Medical Society (House of Delegates only) Denver, Sept. 23-24. Mr. Harvey T. Sethman, 1612 Tremont Place Denver, Executive Secretary.
- District of Columbia Medical Society of the, Washington, Sept. 29 Oct. 1. Mr. Theodore Wiprud, 1718 M St. N.W., Washington, Secretary.
- Idaho State Medical Association, Sun Valley, Sept. 16-19. Dr. F. B. Jeppesen, 105 North 8th St., Boise, Secretary.
- Indiana State Medical Association, Trench Lick, Sept. 29 Oct. 1. Mr. T. A. Hendricks, 23 East Ohio St., Indianapolis, Executive Secretary.
- Kentucky State Medical Association, Louisville, Sept. 27 Oct. 1. Dr. Arthur T. McCormack, 620 South Third St., Louisville, Secretary.
- Michigan State Medical Society, Grand Rapids, Sept. 22-25. Dr. L. Fernald Foster, 2020 Olds Tower, Lansing, Secretary.
- Nevada State Medical Association, Reno, Sept. 24-26. Dr. Horace J. Brown, 120 North Virginia St., Reno, Secretary.
- Oregon State Medical Society, Portland, Sept. 9-11. Dr. John R. Montague, 1020 S.W. Taylor St., Portland, Secretary.
- Pennsylvania, Medical Society of the State of, Pittsburgh, Oct. 5-8. Dr. Walter F. Donaldson, 500 Penn Ave., Pittsburgh, Secretary.
- Utah State Medical Association, Provo, Aug. 27-29. Dr. D. G. Edmunds, 610 McIntyre Bldg., Salt Lake City, Secretary.
- Vermont State Medical Society, Montpelier, Oct. 1. Dr. Benjamin F. Cook, 154 Bellevue Ave., Rutland, Secretary.
- Virginia Medical Society of Roanoke, Oct. 5-7. Miss Agnes V. Edwards, 1200 East Clay St., Richmond, Secretary.
- Washington State Medical Association (House of Delegates only), Seattle, Sept. 12-13. Dr. V. W. Spickard, 1305 Fourth Ave. Seattle, Secretary.
- Wisconsin, State Medical Society of Milwaukee, Sept. 16-18. Mr. Charles H. Crownhart, 110 East Main St., Madison, Secretary.

## Current Medical Literature

### AMERICAN

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#### Alabama State Medical Assn Journal, Montgomery

11 421-488 (June) 1942

Biliary Diseases as Seen by a Surgeon H B Stone Baltimore—p 421

Treatment of Heart Disease Without Special Technical Equipment J B McLeister Birmingham—p 425

Newer Treatment for Perennial Hay Fever R M Clements Tuscaloosa—p 428

#### American Heart Journal, St Louis

23 591-738 (May) 1942

Graphic Registration of Normal Heart Sounds M B Rappaport and H B Sprague Boston—p 591

\*Observations on Effect of Tourniquets on Acute Cardiac Crises Normal Subjects and Chronic Heart Failure W B Kountz J K Smith and S T Wright St Louis—p 624

Influence of Vagotonic Drugs and Atropine on Mortality Rate After Experimental Occlusion of Coronary Artery G V LeRoy G K Fenn and N C Gilbert Chicago—p 637

Critique of Plethysmographic Method of Measuring Blood Flow in Extremities of Man M Landowne and L N Katz Chicago—p 644

Internal Pneumocardiogram A Luisada Boston—p 676

Electrocardiographic Changes in Bronchial Asthma and Their Significance J Harkavy and A Romanoff New York—p 692

Recent Myocardial Infarction Followed by Involvement of Joints of Hand and Wrist Report of Three Cases J C Meyer and H F Binswanger Chicago—p 715

Coronary Disease in Ape G W Manning Toronto Canada—p 719

**Effect of Tourniquets on Acute Cardiac Crises—**According to Kountz and his associates, rapid lowering of venous pressure by phlebotomy may bring about pronounced relief and rapid recovery of myocardial function in acute cardiac dyspnea. Phlebotomy has been hailed as a life saving procedure in left ventricle failure, especially in the presence of venous engorgement. Danzer thought that a similar effect might be obtained by the application of pneumatic tourniquets to the extremities, utilizing the peripheral venous system as a reservoir to decrease the circulating blood volume. He reported a dramatic relief of symptoms from this procedure in some cases of acute cardiac failure. Advantages of the method over venesection are self evident. More blood can be removed from circulation by utilizing the peripheral venous tree as a reservoir than would be desirable by bleeding alone. Another advantage is that a large quantity of blood may be retained 'in storage' for a long time. There is the disadvantage that it tends to cause venous dilatation and thus might favor venous thrombosis and possibly emboli. The authors studied the effect of peripheral venous congestion in normal persons and in a group with heart disease by means of an instrument which inflated and deflated cuffs placed on the arms and thighs in rotation. In both groups rhythmic inflation of the cuffs caused a fall in venous pressure, diminution of cardiac contraction and a fall in cardiac output; the arterial pressures remained essentially unchanged. In normal persons some enlargement of the heart occurred during rhythmic constriction of the extremities; in patients with hypertensive heart disease the size of the heart usually remained unchanged, but in 2 instances the heart diminished slightly in size. The procedure may be useful in the treatment of acute myocardial infarction as well as in paroxysmal cardiac dyspnea. It appears to be of no benefit in right ventricular failure.

#### American Journal of Clinical Pathology, Baltimore

12 241-282 (May) 1942

\*Hemolytic Transfusion Reactions II Prevention with Special Reference to a New Biologic Test A S Wiener Brooklyn I J Silverman and W Aronson New York with the technical assistance of Eve Sonn and Marjorie Weingarten—p 241

Chloride Metabolism in Pneumonia Blood and Urinary Chloride Studies in Sulfathiazole Treated Pneumonias and Early Rapid Excretion of Chloride in Pneumonia J A Osblag and M Eid New York—p 249

Lymphatic Leukemia and Tuberculosis J E Farber and H Bylebyl, Buffalo—p 253

Blood Galactose Tolerance Test D R Meranze W B Likoff and A G Schneeburg Philadelphia—p 261

Participation of Reticulum in Case of Monocytic Leukemia Associated with Urogenital Malformation E J Eichwald Dayton, Ohio—p 272

Sudden Death Neurocirculatory Disturbance B Markowitz Bloomington Ill—p 276

**Hemolytic Transfusion Reactions—**Wiener and his co-workers describe a test to be employed in cases in which the possibility of intragroup incompatibility is suspected. One hundred cc of the prospective donor's blood is mixed with 10 cc of 3.8 per cent solution of dihydric sodium citrate, 10 cc of blood is drawn from the patient and divided between two tubes, one empty and the other containing 1 cc of the citrate solution. Through the same needle 50 cc of the donor's blood is injected by syringe into the patient. After one hour 10 cc of blood is again drawn from the patient and treated in the same way as the pretransfusion sample. The citrated blood samples are centrifuged at once and the color of the plasma in the two tubes is compared. The serums from the clotted blood samples are later separated, this serves as a check on the results of the citrated samples of blood. If there is no change in the appearance of the patient's plasma and the need for blood is urgent, a large transfusion can be given. If time permits it is preferable to inject another test dose of 50 cc of the donor's blood and to draw a third sample of blood from the patient after an additional hour. In this way more reliable results can be obtained. The reaction in positive cases is more striking, in one hour after the test injection of 50 cc of blood the patient may have a severe chill and a rise in temperature, but more reliance is to be placed on the appearance of the patient's plasma, which will show a distinct rise in the icteric index as compared to the pretransfusion sample. If only bank blood is available, no sample more than three days old should be used.

#### American J Digestive Diseases, Fort Wayne, Ind

9 181-210 (June) 1942

Indeterminate Fever Caused by Perirectal Abscess W Weisel E G Wakefield and N D Smith Rochester Minn—p 181

Intravenous Modification of Hippuric Acid Test of Liver Function R H Moser B D Rosenak Indianapolis and R J Hasterlik Evanston Ill—p 183

\*Etiology of Acute Pancreatitis H L Popper Chicago—p 186

Fear and Gastric Acidity F Hoelzel Chicago—p 188

\*Vitamin Survey of Normal Industrial Workmen J G Schneider C J Weber and L Clendening Kansas City Kan—p 188

Superficial Ulcerative Gastritis Following Trypsinamide Therapy for Syphilis I H Einsel Cleveland—p 191

Gastrojejunalic Fistula J J Stein Hines Ill—p 192

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Trichohezoar Report of Case J S Levy and R T Smith Little Rock Ark—p 198

Cellulose Splitting Micro-Organisms in Human Feces Nell Hirschberg Chicago—p 200

Influence of Certain Commonly Used Drugs on Rate of Gastric Emptying in Normal Human Subject as Determined by an Intubation Technique (Atropine Morphine Benzadrine Prostigmine Nitroglycerin Syntropan Mecholyl Ergotamine Tartrate and Sodium Bicarbonate) J H Folley and W O Abbott Philadelphia—p 202

Some Factors Concerned in Production of Experimental Ulceration of Gastrointestinal Tract in Cats M J Schiffrin and Althea A Warren Montreal Canada—p 205

**Etiology of Acute Pancreatitis—**Popper made enzyme determinations on aspirated gallbladder bile from 164 patients operated on for gallbladder disease and from 36 operated on for other abdominal disease. In the latter group a normal bile system was found at operation. Pancreatic enzymes were present in the bile in 10 per cent of all cases suggesting that



in these a common channel was present through which pancreatic reflux into the biliary system was made possible. He has tried another approach to this question by analyzing bile from 18 patients with acute pancreatitis for the presence of pancreatic enzymes. In 16 pancreatic enzymes were found in the bile. Evidence for the existence of common channel formation between bile and pancreatic ducts was thus present in 89 per cent of the patients with acute pancreatitis. A reflux of pancreatic juice into the bile passages was found in 3 with normal bile passages. Evidence of a common channel was present in mild pancreatitis as well as in pancreatic necrosis, indicating that the different types of acute pancreatitis may be caused by the same pathogenic mechanism.

**Vitamin Survey of Normal Industrial Workmen**—Schmedert and his co-workers report the results of a vitamin survey of 1265 healthy men 20 to 65 years of age engaged in industrial labor. Only 1 man was found to have had rickets during childhood. A detailed dietary and symptomatic history revealed that 24 of 300 had a diet inadequate in vitamin A. However, no instance of subclinical vitamin A deficiency was observed. There were no instances of xerophthalmia, night blindness or hyperkeratotic cutaneous papules. No crises of muscular pains, paresthesia and polyneuritis suggesting vitamin B<sub>1</sub> deficiency were seen. Gastrointestinal symptoms (gas, heartburn and dyspepsia) were reported by 52 of the 300 questioned, but none were severe enough to cause a defective vitamin B absorption, nor could they be conclusively attributed to vitamin B<sub>1</sub> deficiency. Pigmented dermatitis, soreness of the mouth, redness of the tongue, indigestion, diarrhea and disturbances of the central nervous system suggesting subclinical pellagra were not observed. Cheilosis and conjunctivitis characteristic of riboflavin deficiency were not noted. Blood plasma ascorbic acid determinations on 78 of the normal workmen revealed only 13 with a level of more than 0.75 mg per hundred cubic centimeters, while 64 per cent had a plasma level of less than 0.5 mg. The blood plasma ascorbic acid level correlated with the dietary intake of vitamin C. None showed any signs or symptoms of vitamin C deficiency and all were in good health and able to do industrial work. These observations indicate that plasma ascorbic acid saturation is not necessary for good health and that signs of scurvy will not develop even with plasma levels ranging from 0.1 to 0.5 mg. There is no well controlled experimental evidence on human subjects which proves that tissue and plasma ascorbic acid saturation is necessary for normal good health. Amounts smaller than the 60 to 80 mg of vitamin C advocated appear to be compatible with good health. The increasing reports on the widespread prevalence of vitamin deficiency disease and its deleterious effect on health should not be viewed with too great alarm.

### American Journal of Physiology, Baltimore

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- Urine Dilution and Concentration Tests in Adrenalectomized Dogs F J Kottek, C F Code and L H Wood, Minneapolis—p 229
- Observations on Accuracy of Thermistoruhr D E Gregg, W H Pritchard, R W Eckstein, R E Shipley, A Rotta, J Dingle, T W Steege and J T Wearn, Cleveland—p 250
- Operative Mechanism of Some Errors in Application of Thermistoruhr Method to Measurement of Blood Flow R E Shipley, D E Gregg and J T Wearn, Cleveland—p 263
- Homeostatic Role of Renal Humoral Mechanism in Hemorrhage and Shock A S Hamilton and D A Collins Philadelphia—p 275
- Effect of Cream Meal on Acidity and Neutralizing Ability of Contents of Duodenal Bulb in Normal Dogs J C Berk, J E Thomas and M E Rehfuess, Philadelphia—p 285
- Plasma Protein Replacement After Hemorrhage in Dogs With and Without Shock R V Ebert, E A Stead Jr, J V Warren and W E Watts, Boston—p 299
- Relation of Pituitary, Thyroid and Adrenal Glands to Maintenance of Normal Serum Albumin and Globulin Levels L Levin and J H Icatben, New York—p 306
- Linear Relationship Between Circulating Red Cell Mass and Venous Hematocrit as Determined with Radioactive Iron P F Hahn and W F Balc, Rochester, N Y—p 314
- Influence of Bile Salts on Active Intestinal Absorption of Chloride H C Peters, Memphis, Tenn—p 340
- Effect of Low Potassium Diet and of Desoxycorticosterone Acetate on Renal Size S H Durlacher, D C Darlow and M C Wintermütz, New Haven, Conn—p 346

### American Journal of Public Health, New York

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- Mock Epidemic of Typhoid Fever Used in Public Health Training G B Darling, Battle Creek, Mich, and L A Fox, Washington, D C—p 457
- Bacteriologic Indexes of the Sanitary Quality of Market Cream Eliza Beth D Robinson, E K Borman and F L Mickle, Hartford, Conn—p 464
- Nasopharyngeal Swab in Diagnosis of Pertussis T M Saito, J J Miller Jr and C W Leach, San Francisco—p 471
- Comparison of Methods for Determination of Carbon Monoxide F H Goldman and A D Brandt, Bethesda, Md—p 475
- Blood Lead Determinations as a Health Department Laboratory Service J Kaplan and J M McDonald, Baltimore—p 481
- House Fly as a Vector of Food Poisoning Organisms in Food Producing Establishments M Ostrolenk and H Welch, Washington, D C—p 487
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- Industrial Nutrition and National Emergency H Borsook, Pasadena, Calif—p 523
- Role of Public Health in the National Emergency F J Underwood, Jackson, Miss—p 529

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- The Index Person—Relation to Incidence Rates in Family Studies R L Gould, L J Reid and Margaret Merrell, Baltimore—p 577
- Family Records in Health Department G H Ramsey and Marjorie T Bellows, White Plains, N Y—p 585
- Illness in Chronic Disease Family Jean Downes, New York—p 589
- Use of Index Case in Study of Tuberculosis in Williamson County Ruth R Puffer, Nashville, Tenn, J A Doull, Cleveland, R S Goss, W J Murphy, Franklin, Tenn, and W C Williams, Nashville, Tenn—p 601
- Connecticut State Department of Health Mental Hygiene Program J M Cunningham, Hartford, Conn—p 606
- Expanded Role of the Sanitarian H A Kroeze, Jackson, Miss—p 611
- \*Use of Alum Treated Pertussis Vaccine and of Alum Precipitated Combined Pertussis Vaccine and Diphtheria Toxoid for Active Immunization Pearl L Kendrick, with statistical analysis by E S Weiss, Grand Rapids, Mich—p 615
- Public Health as Important Part of Pan American Defense D F Ramos, Havana, Cuba—p 627
- Teacher of Hygiene and Public Health O E Byrd, Stanford University, Calif—p 631
- \*Sensitivity to Coccidioidin Among Boys in Eastern Preparatory School J D Aronson, Philadelphia, and J R Gallagher, Andover, Mass—p 636
- Isolation of Meningococcus from Genitourinary Tract of Seven Patients C M Carpenter and Ruth Charles, Baltimore—p 640

**Active Immunization for Pertussis and Diphtheria**—Kendrick reports results of active immunization of 4,212 children against pertussis with vaccine. The value of alum precipitated vaccine has been compared with the "standard" pertussis vaccine and with combined pertussis vaccine and diphtheria toxoid. The results indicate a good degree of protection against pertussis following a dosage schedule of 30 billion organisms distributed in three injections over five weeks. They appear similar to those in which 70 billion organisms were injected over three weeks. The observations suggest that the period over which the vaccine is administered should receive as much consideration as the total dosage. Good antigenic response, demonstrated by immunologic tests, followed the use of alum precipitated vaccine and pertussis vaccine combined with diphtheria toxoid. An interim tabulation on incidence indicates protection against pertussis following the injection of the combined antigen. The tabulation reveals an attack rate of 0.7 per hundred person-years in the combined vaccine group in comparison with 1.6 in the standard vaccine group and 10.9 in a control group. A single, relatively small injection may provide an adequate secondary stimulus just before the child enters school.

**Sensitivity to Coccidioidin**—Recent studies indicate that coccidioidomycosis may be more widespread than is generally believed. Aronson and Gallagher made a survey of 680 students at an eastern preparatory school. The students, aged from 13 to 19 years, were simultaneously tested with 0.01 mg of old tuberculin of known potency and with 0.1 cc of a 1:100 dilution of coccidioidin. Individuals negative to 0.01 mg were subsequently tested with 1 mg of old tuberculin. There were among these students 10 from Texas, 9 from California, 1 from



Arizona and 1 from New Mexico. Twenty-six per cent were positive to 0.01 mg of old tuberculin, and an additional 27 per cent were positive to 1 mg, while 17, or 25 per cent, reacted to 0.1 cc of a 1:100 dilution of coccidioidin. The coccidioidin test was repeated on the 17 students three months later with the same preparation of coccidioidin, the reactions of 13 were similar and those of 4 were less definite. A questionnaire sent to the parents of these 17 boys revealed that 9 had lived in or visited one or more of the Southwestern states. Only 8, or 12 per cent, of the 659 boys with no history of residence in the Southwestern states reacted to coccidioidin. Of the 17 boys who reacted to coccidioidin, 12 failed to react to the intracutaneous injection of 0.01 and 1 mg of old tuberculin. Five of these 12 gave no definite medical history of coccidioidomycosis, although on roentgen study they showed definite calcified nodules well out in the pulmonary fields and in the hilar area, 4 of this group had at no time visited or lived in the Southwest. Of the 17, 2 gave a history of an illness suggestive of coccidioidomycosis. The protean manifestations and the variable severity of infection with *Coccidioides immitis* made it difficult to determine whether or not any of the 17 boys have had clinical evidence of coccidioidomycosis. All of them at one time or another have had an illness resembling influenza or grip, which in some instances may well have been due to *Coccidioides immitis*.

# Am J Roentgenol & Rad Therapy, Springfield, Ill 47 665-824 (May) 1942

- Critical Analysis of Standard Methods of Estimating Heart Size from Roentgen Measurements. W J Comeau Bangor Maine and P D White Boston—p 665
- Radiographic Demonstration of Circulation Through Heart in Adult and in Fetus and Identification of Ductus Arteriosus. A E Barclay J Barcroft D H Barron and K J Franklin Oxford England—p 673
- Experiences with Encephalography in Cerebellar Tumor. W J Gardner and W A Vosik Cleveland—p 691
- Electroencephalogram and Pneumoencephalogram in Nonfocal Neurologic Disorders. E H Trowbridge Jr and K H Finley Boston—p 699
- \*Tumors of Acoustic Nerve from Roentgenologic Point of View. C W Schwartz New York—p 703
- Primary Tumors of Diaphragm Roentgenologically Considered. A J Ackermann Oklahoma City—p 711
- Roentgen Pelvimetry in Labor by Pelvic Inlet Grid Method. R Torpin Augusta Ga—p 717
- Syphilitic Ulcer on Greater Curvature of Stomach. Report of Case. D B Abegg Leiden Holland—p 730
- Some Physiologic Changes in Skin Produced by Neutrons. J C Larkin Berkeley Calif—p 733
- \*Fibrosis of Lung Following Roentgen Irradiation for Cancer of Breast. Clinical Study. J E Leach J H Farrow F W Foote Jr and W Wawro New York—p 740
- \*Inadequacy of Simple Mastectomy in Operable Cancer of Breast. J W Bransfield and S G Castiglano Philadelphia—p 748
- Roentgen Therapy in Otitis Media. L L Titcher Biloxi Miss and W E Lawson Monroe La—p 764
- Roentgen Therapy of Diphtheria Carriers. A J Williams and T M Fullenlove San Francisco—p 766
- Tuberculosis of Breast Treated with Roentgen Irradiation. S Richman New York—p 771
- Direct or Indirect Action of Roentgen Rays on Brain. F Ellinger New York—p 775
- Exposure Meter for Roentgenography. R H Morgan Chicago—p 777
- Low Absorption Roentgen Ray Measurements from 10 to 250 Kilovolts. E D Trout and Z J Atlee, Chicago—p 785

**Tumors of Acoustic Nerve.**—Tumors of the acoustic nerve account for 8 to 9 per cent of all intracranial neoplasms. As a rule they develop in patients during their third decade, although no age is immune. They are rarely found in persons more than 50 and, if found in a young person, are usually associated with neurofibromatosis. If bilateral they are associated with central or generalized neurofibromatosis and often show a familial tendency. Schwartz discusses roentgen examination of a patient suspected of having a tumor of the acoustic nerve. The examination must be complete and must be carefully correlated with the history and clinical signs. The examination consists of stereoscopic films of both sides of the head in the occipital, the semilateral, the nose-chin and the brow-nose positions. The tumor usually originates in the canal close to the internal auditory meatus. The walls of the canal may show slight atrophy, which would be the earliest roentgen evidence. This atrophy must be real. The cortex must show demineralization to be atrophic. The next phase in the development of the tumor is the enlargement of the internal auditory meatus with atrophy of its walls, followed by emergence of

the tumor from the canal and the production of a notchlike defect in the petrous ridge. Later, an encephalogram may show distortion, obliteration or even a cystic enlargement of the homolateral portion of the cisterna ambiens and of the aqueduct. Sufficient pressure may be transmitted to produce a slight homolateral atrophy of the dorsum sellae, particularly if this structure is of the type susceptible to atrophy. The last stage, when the tumor is large, is characterized by all the foregoing changes and evidence of increased intracranial pressure. The cortex of the interconvolitional ridges and the bone covering the ridges must be really atrophic to be due to pressure. The pineal gland may be displaced by the tumor. Unfortunately the development of all such tumors is not true to form. Not infrequently a tumor is found which produces little or no bony change until the stage of increased intracranial pressure is reached. In such a case a relatively early diagnosis would depend on the symptoms, clinical signs and encephalography, showing the usual distortions of the cerebral fluid spaces produced by a tumor in the cerebellopontine angle. A tumor of the acoustic nerve must be differentiated from a primary epidermoidoma of the petrous pyramid, a meningioma and a glioma of the astrocytic or the oligodendral type. The treatment of these tumors is a complete surgical removal. If a complete removal is impossible or inadvisable, roentgen therapy in large doses may be employed in the hope of inhibiting the almost inevitable growth of any remaining tumor tissue. The tumors contain few mitotic figures and are therefore not radiosensitive.

**Pulmonary Fibrosis After Roentgen Irradiation of Mammary Cancer.**—Leach and his collaborators reviewed the course of 347 patients with operable cancer treated partly or entirely with radiation between 1926 and 1936 inclusive and who are still alive. Roentgenographic evidence of pulmonary fibrosis developed in 77. Ninety-seven patients received preoperative irradiation, and of these 11 were treated with single doses of 500 to 850 roentgens and pulmonary fibrosis developed in only 1, 57 were treated with divided total doses of from 1,200 to 2,400 roentgens and 31 suffered from pulmonary fibrosis, of 31 treated with 4 Gm radium element pack pulmonary changes developed in only 2. Pulmonary fibrosis developed in 7 of 77 patients irradiated postoperatively with massive doses to five fields, usually two cycles of 750 roentgens each, separated by an interval of about three months, but this complication developed in 8 of 41 in whom divided doses were used. When both preoperative and postoperative roentgen therapy was given to 37 in massive doses, fibrosis of the lung developed in 8. Pulmonary fibrosis developed in 12 of 67 receiving roentgen therapy (usually massive doses), interstitial radium and surgery, 8 of the 12 were associated with divided doses of radiation. Fibrosis developed in 7 of the 16 patients treated with radiation alone. The frequency of pulmonary fibrosis appears to be directly related to the large total doses delivered to the lung by divided dose technic and the area irradiated. Age does not appear to be a predisposing factor. The dyspnea in these patients, based on the studies of the alterations of pulmonary physiology, is due to a definite diminution of the vital capacity caused by the fibrosis fixity of the wall of the chest, compensatory pulmonary emphysema and hyperirritable Hering-Breuer reflexes. The dyspnea may be relieved by an abdominal belt, weight reduction or both. The patient's cough improves as the dyspnea decreases.

**Operable Cancer of Breast.**—Bransfield and Castiglano point out that a simple mastectomy is performed in the belief that one is dealing with a local cancer. If this was so the cure rate should be 100 per cent, yet the five year survival rate is only 38 to 50 per cent. The deduction is that the error in such a clinical diagnosis is more than 50 per cent. Therefore, more than 50 per cent of mammary cancers thought to be early and supposedly curable by simple mastectomy have spread beyond the conservative operative field. From 30 to 40 per cent of cancers which have spread beyond the reach of the conservative operation have not progressed beyond the reach of the radical operation. Only about 10 to 25 per cent of cancers when first seen have spread beyond the operative extent of a radical mastectomy. The curability of cancer of the breast is not governed alone by its local character. The authors advocate the radical operation in all stage 1 and stage 2 cancers of the breast.

## American Journal of Surgery, New York

56 523 704 (June) 1942

- \*Syndrome of Rolandic Vein (Hemiplegia of Venous Origin) H R Merwarth, Brooklyn—p 526
- Management of Malignant Tumor in Groin: Report of 122 Groin Dissections G I Park and I Roberts, New York—p 545
- \*Surgical Treatment of Peripheral Endelium G H Pratt, New York—p 560
- Effect of Pectin and Nickel Pectinate on Healing of Granulating Wounds in White Rats P I Norton, Brookline, Mass; Louise Palmer Wilson, Keith Johnston and Delphina G Ross, Wellesley, Mass—p 573
- \*Peritoneal Adhesions: Studies on Their Prevention with Sodium Bicarbonate S I Seeley, Washington, D C—p 579
- Albany Necrosis: Report of Twenty-Four Cases I I Harrison and H G McNeece, Philadelphia—p 590
- Excision of Vulva in Uterine Bladder I A Hyam and I Botvinick, New York—p 597
- Dissection of Peritoneal Pouch of Ovary Case H G Hardy Jr and I Seeley, Wash—p 602
- Unilateral Testis J G Schrey, Chicago—p 603
- Unilateral Testis and Uteral Scaphoid A S Rothberg, New York—p 611
- Malignant Dissection: Report of Twelve Cases H Wilson, Memphis, Tenn—p 615
- Infected Skin: A Material Pathway Report R P Scholz and P S Mungy, St Louis—p 619
- Value of Casts and Photography in Medicine L I McGee, Philadelphia—p 622
- Celloid Metallic Silver: Impregnation Treatment of Rhinitis, Sinusitis, etc A J Herzig, New York—p 626
- Methyl Cellulose Solution as Plasma Substitute W C Hueper G J Martin and M R Thompson, New York—p 629
- Treatment of Female Menopause with Methyl Testosterone and Stilbestrol I Kuzarol and H Rothbart, Brooklyn—p 636
- Technique of Inserting the Steinman Pin D Slovic, New York—p 640

**Rolandic Vein Syndrome**—Merwarth states that the disturbances of the syndrome of the rolandic vein, resulting from interference with the cerebral venous circulation, have not received concerted clinical attention because of their relative infrequency. The tendency has been to regard the cerebral veins as structures devoid of physiologic importance. The physical symptoms resulting from interruption of the drainage of the rolandic vein form the ideal basis situation for suspecting such interference, especially when previous infection, tumor or trauma has existed in or near the superior sagittal sinus. The principal feature of a venous hemiplegia is symptomatic fluctuation which embraces both the motor and sensory fields. The responses of the patient in the higher fields of intellect are relatively unimpaired. Aphasic and dysarthric speech, usually found in arterial disorders, is absent. Facial paralysis is uncommon. The paralysis is characteristic the lower limb, particularly the foot is paralyzed to the greatest degree. In the upper limb the proximal joints are weakened while the finger and hand movements are usually preserved but, if involved, soon recover. This is in distinct contrast to capsular hemiplegia. Early in the disease the muscle tone on the paralyzed side, which fluctuates widely, is unusually spastic. At one examination the limb may be hypertonic, at another hypotonic. This phase of the illness may be missed completely if frequent examinations are not made. There is no tendency to articular fixation in venous hemiplegia. The deep reflexes are hyperactive early, although if examined during the state of "nonrigidity" they may be diminished. Recovery of motor function, following the motor representation in the rolandic area, is the second prominent feature of venous hemiplegia. The preserved function in the fingers and hand with absence of movement at the elbow, shoulder and lower limb is striking. In time function returns progressively to the elbow, shoulder and lower limb. The last function to recover, if at all, is that of the foot and the toes. The sensory loss is chiefly in the gnostic field, the delayed recovery of which does not parallel the motor recovery. There is a tendency to variation, the observations of two successive examiners may be contradictory. The general prognosis is complete recovery. Thirty-one cases were collected by the author from the literature and from personal communications. When the sinus anterior to the rolandic point was removed in 17 there were 6 in which no postoperative disability was noted. In 3 among the 12 in which portions of the sinus at or posterior to the rolandic point were removed no new postoperative symptoms occurred. The resected sinus showed complete occlusion, suggesting utilization of the available profuse collateral circu-

lation. Although the literature stresses the major emergent clinical, careful analysis shows that it is the tributary cerebral veins which are of basic importance. A study of the reported successes after a portion of the sagittal sinus was removed behind its vulnerable site—the rolandic point—indicates that a previous circulatory adaptation was set up by the profuse venous anastomosis that exists between the terminal cerebral veins and their many interlocking tributaries.

**Surgical Treatment of Peripheral Embolism**—Pratt believes that peripheral embolism should be treated with embolotomy as soon as the diagnosis is made, despite the fact that occasionally neglected patients survive. Many such recoveries are not truly embolic. In the presence of bilateral symptoms, both femoral arteries should be exposed at once. What can be accomplished in an apparently hopeless state is illustrated by a case in which removal of a large saddle embolus sixty hours after its lodgment resulted in a survival and complete restoration of circulation in one limb and in the other to the knee. The right side apparently closed off earlier than the left, perhaps with an additional tibial embolus. The mottling of the left side indicated a beginning arterial failure on the day of the embolism. Collaterals were probably helpful until the next day, when these likewise failed. The recovery in this case indicates that the arbitrary time limit can be successfully modified in most instances.

**Peritoneal Adhesions**—The studies of Seeley on rats, rabbits and monkeys show that stimulation of the peritoneum by sodium ricinoleate imitates nature's processes of healing by producing an abundant exudate rich in neutrophilic polymorphonuclear leukocytes and monocytes from which abundant fibrin is deposited. The presence of this abundant exudate acts as a lubricant to prevent the formation of adhesions. In addition, sodium ricinoleate possesses bactericidal, bacteriostatic and detoxifying properties and by slowing or reversing absorption from the peritoneal cavity assists in combating infection. Sodium ricinoleate is well tolerated intraperitoneally in laboratory animals and in the human being. It is capable of preventing the majority of unfavorable adhesions after drastic trauma to the viscera and peritoneum of animals. Sodium ricinoleate solutions must be freshly prepared in pyrex glassware. Old stock solutions are toxic. Any agent designed to prevent or reduce the number of adhesions must be introduced very early.

## Annals of Internal Medicine, Lancaster, Pa

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- Multiple Tests of Hepatic Function in Gastroenteric Malignancy: Value of Bromsulphalein, Hippuric Acid and van den Bergh Reaction in Detecting Hepatic Metastasis, with Evaluation of Normality of Hippuric Acid Test M Paulson, Baltimore, and C I Wyler, Cincinnati—p 872
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- \*Anticipation and Diagnosis of Neurocirculatory Asthenia J T King, Baltimore—p 941
- Clinical Manifestations and Diagnosis of Chronic Brucellosis R C Winchester, Alliance, Ohio—p 950
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**Gold Salts in Treatment of Rheumatoid Arthritis**—Cecil and his co-workers discuss the results of gold salt therapy in 245 cases of rheumatoid arthritis. There were 31 per cent in which complete remission of pain and swelling in the joints occurred and 35 per cent in which there was definite improvement, in all 66 per cent either became inactive or were greatly improved. Early treatment led to even better results, 78 per cent treated early (duration of disease less than one year)

showed either a complete remission or a decided improvement. The percentage of remissions and decided improvement was about the same in the mild and in the severe cases, 67 and 63 per cent, respectively. Seventy-seven per cent of such patients received a total of 1 Gm or more of gold salt, whereas only 41 per cent of those who showed no improvement received such a dose. Three of the 10 patients with ankylosing spondylitis received inadequate treatment. Of the remaining 7, only 1 was improved. Two children with Still's disease were treated with not more than 0.5 Gm of gold salts, 1 has had a complete remission for more than five years and the other child, still under treatment has shown moderate improvement. The sedimentation rate in 47 per cent of those with remissions was normal or only moderately elevated after gold therapy in contrast to only 5 per cent of those who showed no improvement. Age, sex and severity of the disease do not appear to be determining factors. Relapses occurred in 42 per cent of the patients who received definite benefit from gold therapy. The relapses were usually milder than the original attack but yielded less promptly to gold therapy. Remissions lasted more than a year in 52 per cent. The incidence of toxic reactions (exfoliative dermatitis, other cutaneous lesions, stomatitis, gastrointestinal symptoms, jaundice, purpura, granulocytopenia, bronchitis and albuminuria) was 42 per cent. No effective means of preventing or treating toxic reactions has been found.

**Periarteritis Nodosa**—To date 14 proved cases of periarteritis nodosa have been observed at the University Hospital among more than 460,000 admissions. In 7 a correct ante-mortem diagnosis was made. The diagnosis according to Jones, can be demonstrated only by a positive biopsy although a negative biopsy does not rule out the condition. The symptoms are varied, as arteries in any part of the body may be involved. The most common symptoms are referable to the organs most commonly affected. The duration of the illness was closely correlated with the degree of involvement of the vital organs and their resultant dysfunction. The average length of life after the onset of illness was eleven and one-tenth months. The etiology of periarteritis nodosa is unknown, but the close relationship between the disease and previous and concomitant infection is evident. Only 2 of the 14 patients are still alive. Since there is no known treatment and there is so often an associated infection, the trial of sulfanilamide or sulfapyridine seems justifiable until an adequate number of cases have been accumulated from which conclusions may be drawn.

**Neurocirculatory Asthenia**—King emphasizes that, to prevent the acceptance of men with potential neurocirculatory asthenia into the armed forces, the internist and the psychiatrist must work together. The psychiatrist should be expected to recognize potential cases on the basis of intelligence defects, unstable reaction to authority (parental, clerical or other), chronic invalidism, especially referred to the cardiovascular system and emotional instability, sense of inferiority resulting from sex maladjustment, fear of warfare, fear of shirking and the like. The internist should eliminate men with symptoms based on the previous background of recent infections, general physical (constitutional) inferiority, men with demonstrably small hearts, asthenic habitus (with 'ventral' heart) and neurocirculatory sensitiveness (history of abnormal reaction to coffee, tobacco and alcohol may afford a clue). Some exercise test is essential, and that suggested by Meakins and Gunson (the pulse rate after a simple exercise test) seems good. In doubtful cases it may be desirable to apply the epinephrine test. A positive response to the injection of 0.5 cc of a 1:1000 solution of epinephrine consists in a rise of blood pressure of 10 mm or more, a rise in pulse rate of ten or more beats per minute with tremor, nervousness, palpitation of the heart and sweating. Men with positive reactions are unfit for duty and should be rejected. A negative response does not eliminate the diagnosis. The test merely furnishes additional evidence that the subject is poor material for military service.

**Familial Syringomyelia and Status Dysraphicus**—Mulvey and Riely studied several members of three generations of a family, various individuals of which presented signs and symptoms of impaired circulation to the extremities, disturbance of sensation in the lower limbs and feet and, in a few members, similar disturbances in the hands. Slow healing ulcers were

present in the feet of some. Structural anomalies and the so-called stigmas of degeneration were present in nearly all. The person representing the first generation of this family was not examined, but evidence given by members of the second generation reveals that this man had severe disease of the feet throughout the greater part of his eighty-one years of life. Of 14 members of the second generation only 5 are living and of 4 examined 2 are apparently free of the affliction. Of the dead members there is strong evidence that 1 died with gangrene of the feet. In the third generation 7 of a possible 15 individuals have been examined. Six of these 7 members show some degree of dissociation of sensibility in the feet. Some have exhibited changes as high up as the knees. Two have had impairment of sensation in the hands. Loss or decrease of pain and temperature sensibility is the most important neurologic change in these patients. 4 members show some disturbances in the sense of position. All patients in both generations except 2 women in the second generation appear to have been poured from a common mold. All were tall and thin. The hands and feet were narrow and long, the fingers except in 1, were long and slender. All had high arched palates. 2 had a moderate pes cavus and 2 had painless flat feet. The scapulas of all had a definite tendency toward winging. Four of the third generation gave histories suggestive of Raynaud's phenomenon, although attempts to precipitate the symptoms in 1 were not successful. Of the 6 individuals who have had painless slow healing ulcers of the feet 3 gave a history of bone sloughing from these ulcers, 2 a history of self amputation of some of the toes and 1 had had an amputation at the knee joint because of deformities and osteomyelitis. On roentgen study trophic changes were seen in the bones of the feet of 2 patients, and loss of bone structure in the phalanges. In 1 patient a roentgenogram of the lumbar spine disclosed a spina bifida occulta. In 3 patients the onset of menses was late, at 17, 19 and 20 years respectively. In view of the lack of progression, as in a genuinely active syringomyelia and the relatively static nature of the defect that marks this family, it is concluded that the disturbances are due to the presence of a definite constitutional status dysraphicus. Status dysraphicus or faulty closure of the neural tube, early in embryonic life is readily transmitted to offspring as a dominant characteristic.

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**Vitalium Tubes in Biliary Surgery**—Pearse cites data from animal experimentation, dissection on cadavers and clinical experience with the use of vitalium tubes in biliary surgery. Injury to the bile ducts, irreparable by other methods has been

treated successfully by the permanent implantation of a vitallium tube. A straight 33 cm. by 6 mm tube with a central flange to anchor it in place is most useful to hold open a strictured area of the common bile duct. Loss of a part of the common duct is best repaired by approximating the ends over a vitallium tube even if tension must be used. This holds the ends of the duct together, and the tube prevents occlusion by stricture. To bridge a gap by tying the tube into the ends of the duct may be dangerous, for it may slip out of place. Injury or stricture of the common hepatic duct within 1 cm. of the bifurcation of the hepatic ducts produces mechanical problems that require specially designed tubes, for this purpose trumpet Y and half Y shaped tubes have been made. Vitallium tubes have been used in the repair of a pancreatic fistula and one has been designed for the palliative intubation of a malignant occlusion of the bile ducts.

**Spontaneous Internal Biliary Fistula**—In a series of five hundred operations for benign disease of the biliary tract Puestow encountered 16 patients with spontaneous biliary fistulas. The duration of symptoms varied from one month to twenty-seven years. A preoperative roentgen diagnosis was made in 2. Seven of the 9 patients with a cholecystoduodenal fistula gave a history of jaundice, 1 of the 2 without jaundice had an obliterated cystic duct and the other 1 had been operated on eighteen years previously and was of the opinion that her gallbladder had been removed. At operation the gallbladder was found to be present and filled with stones. There were 3 deaths among the 16 patients. This is extremely high when compared to the author's mortality of 12 per cent for uncomplicated cholecystectomy. The morbidity of biliary surgery complicated by internal fistula likewise is increased. The average length of hospital stay after operation was twenty-three and five-tenths days compared to twelve and seven-tenths days for all other operations for benign disease of the biliary tract. The time required for the disappearance of jaundice, the return of weight and strength and the ability to return to normal activities was several times that following surgery for uncomplicated biliary disease.

**Bile Duct Reflexes and Anginal Pain**—Ravdin and his associates observed patients with decompensated hearts and chronic auricular fibrillation restored to compensation and a regular cardiac rhythm with no change in the medical regimen following removal of gallstones by cholecystostomy. Long-standing serious heart disease has made patients hopeless invalids by the additional symptoms imposed by a gallbladder containing gallstones or by the presence of stones in the common duct. The authors have encountered a number of patients who were treated for true angina pectoris by competent cardiologists but who were completely free of their supposed anginal attacks after the removal of gallstones, common duct stones or both. Layne and Bergh reported that sudden distention of the common duct in man may cause reflex spasm at the lower end of the common bile duct. Reflexes arising in the extrahepatic biliary passages may at times restrict coronary blood flow and produce symptoms of angina pectoris. The histories of 2 such patients are reported probably for the first time. When the extrinsic factors causing these reflexes are removed, the anginal symptoms disappear. While surgery does not completely relieve the cardiac symptoms, some measure of relief is nearly always obtained.

**Koch Method of Treating Burns**—During the last two years, Siler and Reid have used the Koch method of primary cleansing, compression and rest in the treatment of burns of 134 patients, 90 children and 44 adults. As measured by Berkow's method, less than 15 per cent of the body surface was involved in 39 cases, 15 to 30 per cent in 58, 30 to 60 per cent in 27, 60 to 85 per cent in 9 and 85 or more per cent in 1. There were five deaths, a mortality of 37 per cent. Clinically, 79 had no infection, 15 were mildly infected, 25 were grossly infected and in 15 it is not known whether or not infection was present. There were only a few minor infections in patients with first and second degree burns. No deaths were due to infection, unless the port of entry of the 1 patient with the 85 per cent burn who died fourteen days after operation from streptococcal pneumonia, empyema and suppurative pericarditis was from the burned area. Suffering was strikingly decreased by this method

of treatment. It rarely was necessary to use morphine or codeine for more than a day or two after operation. The patients could move about much more easily. There was a great saving in dressing materials when compared with other methods which require frequent changes of dressings or compress therapy. Temperatures returned to normal levels rapidly. These patients rapidly regained their water balance by oral fluid, parenteral administration was required only in the more severe cases. Solid food was enjoyed early in convalescence. It is the authors' belief that the careful preparation of the wound, under anesthesia, and the long duration of the primary dressing definitely lessened the incidence of infection. The pressure dressing may aid materially in preventing the loss of plasma at the site of the wound and into the surrounding tissues.

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**Dinitrophenol and Formation of Cataract**—A sporadic outbreak of more than 164 cataracts, predominantly in young women, which began about April 1935, rapidly increased during the summer and fall and gradually disappeared during 1936-1937 like an epidemic, seemed to point, Horner states, to dinitrophenol as a common source, taken for the rapid reduction of body weight. The cataracts were bilateral and were all of one type, they developed rapidly, were accompanied by visual loss and occurred at any time up to a year after the drug was discontinued. Medical treatment was without effect, but surgical extraction was successful and excellent visual acuity was obtained in a large percentage of cases. Attempts to produce cataracts in laboratory animals have been unsuccessful. The cause of cataracts following treatment of obesity with dinitro bodies is unknown. Further therapeutic use of dinitro drugs is contraindicated, and some other less toxic substitute as an efficient oxidizer of excess body fat may be developed through the knowledge that has accumulated in the study of dinitrophenol.

**Eye Worm Infection in Man**—Hosford and his co-workers report the second case of infection in man with a nematode worm, *Thelazia californiensis*. Helminthologists believe that such infection may occur in man more frequently than is indicated by the recorded cases. Infection with this parasite is presumably rather benign, but trauma of some magnitude may occur. The history of their patient substantiates the opinion that infection is acquired in hilly or mountainous country covered with brush during the summer months. Cocainization of the eye should be avoided when the parasites are removed, as it may tend to be absorbed by the parasites and render them less motile and hence less easily seen. The only damage the worms do in man or in animals is to cause discomfort, excessive lacrimation and in some cases scarification of the cornea with subsequent ulceration. The worms should be searched for on repeated occasions, as it is difficult to be certain that all of them have been removed at a single examination.

**Oxycephaly**—The ocular effect twenty-five years after three cerebral decompressions in a case of oxycephaly suggests to Levine that solely from an ocular point of view it is doubtful whether temporal decompression has any beneficial effect on the ocular system in oxycephaly.



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**Common Duct Cyst**—Smith collected 181 cases of cyst or idiopathic cystic dilatation of the common duct from the literature. He reports 2 additional cases from the Presbyterian Hospital found among the records of 757,000 cases. Most of the patients were females under the age of 25. A number were pregnant when the cyst became obvious. The cyst wall frequently consisted of fibrous tissue without a lining epithelium. The condition may be suspected in the presence of a growing tumor of the right upper quadrant of the abdomen in a young female patient with jaundice. It had occurred in young males and in middle aged persons of both sexes and without jaundice. Immediate anastomosis with the gastrointestinal tract may be indicated if the cyst is not too large its identification being positive and the patient's condition permitting such an intervention. The ill effects or the absence of bile from the gastrointestinal tract when complete biliary fistula is established by marsupialization can now be partly relieved by the administration of vitamin K and bile salts or desiccated animal bile. The author's first patient is the first recorded instance in which such treatment was carried out. Each of these cases provides an opportunity for the study of human fat absorption in the absence of bile from the gastrointestinal tract. The literature lacks follow-up reports on the late results of anastomosis of these cysts.

**Hypoproteinemia in Surgical Disease**—Davis and Getzoff classify hypoproteinemia in surgical diseases as prehepatic, hepatic and posthepatic. In the prehepatic type the causative factors are those of inadequate intake, deficient digestion or insufficient absorption of plasma protein building material. Hepatic hypoproteinemia results from the inability of the liver to synthesize plasma proteins despite an adequate supply of precursor material. Extrahepatic infections may result in hypoproteinemia. Another important factor is loss of protein into the site of suppuration. The posthepatic type of hypoproteinemia results from a loss of fully formed plasma protein from the body due to plasmapheresis, hemorrhage, subcutaneous or intraperitoneal injections of bile, burns, trauma and freezing. Protracted loss of blood is an occasional factor. The different forms of hypoproteinemia vary in their response to treatment. In addition to dietary treatment it is usually necessary to administer additional proteins or amino acids by the parenteral route. The available protein and amino acids are whole blood, blood plasma (whole or lyophilized), blood serum (whole or lyophilized), ascitic fluid and digests or casein. Ascitic fluid

may be administered intravenously or subcutaneously, preliminary typing or cross matching being unnecessary. Papain digests of casein given intravenously or subcutaneously have been shown to stimulate new plasma protein production as effectively as protein given by mouth. Administration of amino acids will be effective only if the liver is capable of protein synthesis. Vitamin C should be administered with amino acid as it is essential for the proper metabolism of certain amino acids, phenylalanine and tyrosine.

**Hemostatic Effect of Oxalic Acid**—In the administration of oxalic acid to 440 operative patients, on whom nearly all major operative procedures were performed, Blain and Campbell observed that 1 Cessation of hemorrhage was immediate or there was a noticeable decrease in oozing. 2 A definite measurable reduction in coagulation time occurred. 3 There was no appreciable decrease in prothrombin time. 4 The best clinical results were obtained in cases with much surface oozing. 5 There was no clinically demonstrable renal damage. 6 Thrombophlebitis did not develop nor were there any other untoward reactions. 7 There was an apparent decrease in the amount of serum collecting at the incision. 8 Administration of oxalic acid effectively controlled bleeding associated with carcinoma. It is in the troublesome cases in which definite capillary oozing continues after all bleeding points have been ligated that the effect has been most dramatic. Postoperative sequelae have been favorably influenced, particularly wound infection. Wound infection may occur not only from micro-organisms but also from the collection of blood or serum. Excessive oozing cannot always be anticipated. Because 20 mg of the drug is harmless the authors administer it routinely in certain types of major operation. Patients with jaundice and vitamin K deficiency have not been included in the series.

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 Anancastic Depressions Obsessive Compulsive Symptoms Occurring During Depressions E G Lion, San Francisco—p 730

**Neurologic Aspects of Simple Mastoiditis**—One hundred and twelve patients with uncomplicated mastoiditis were examined by Trowbridge for neurologic signs and symptoms including headaches, nausea and vomiting, changes in the fundi, nystagmus, and alteration in reflexes and cranial nerves. Abnormal neurologic signs were rare. This is in sharp contrast to the observations of Nielsen and Courville in a seemingly comparable series of patients.

**Journal of Nutrition, Philadelphia****23 425-532 (May) 1942**

- Effect of Aromatic Hydrocarbons on Growth of Young Rats H D West and N C Jefferson, Nashville, Tenn—p 425  
 Fate of Excess Vitamin A Stores During Depletion Value of the Histologic Demonstration of Vitamin A H Popper and Sadie Brenner, Chicago—p 431  
 Effect of Manganese on Calcification in the Growing Rat Charlotte Chornock, N B Guernsey and R A Dutcher, State College, Pa—p 445  
 Relation of Liver Stores to Occurrence of Early Signs of Vitamin A Deficiency in the White Rat Sadie Brenner, Margaret C Hessler Brookes and Lydia J Roberts, Chicago—p 459  
 Factors Influencing the Onset and Cure of Nutritional Muscular Dystrophy S H Lippstein and S Morgulis, Omaha—p 473  
 Daily Intake of Ascorbic Acid Required to Maintain Adequate and Optimal Levels of This Vitamin in Blood Plasma Margaret L Imcke and Virginia I Lundquist with technical assistance of Phyllis M Carpenter, Corvallis Ore—p 483  
 Studies of the Vitamin B Complex in Nutrition of the Dog A E Schaefer, J M McKibbin and C A Elvehjem Madison, Wis—p 491  
 Availability to Rats of Phosphorus in Red Clover Hays of Widely Varying Phosphorus Content D L Williams I L MacLeod and I Morrell Knoxville Tenn—p 501  
 Alpha Tocopherol Requirement of the Mouse Marianne Goettsch, San Juan Puerto Rico—p 513  
 Certain Relationships of Avitaminosis A to Vitamin C in the Young Mouse P D Boyer P H Phillips W D Pounden C W Jensen, I W Rupel and M F Nesbit, Madison, Wis—p 525

**Journal of Pharmacology & Exper Therap, Baltimore****75 1-104 (May) 1942 Partial Index**

- Antihistaminic Activity of Phymoxyethylidichthylamine and n'Ethyl n' Diethylaminoethylamine is Judged by Gastric Response to Histamine H H Churchill and R I Vireo, Minneapolis—p 1  
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 Stimulating Influence of Sodium Citrate on Cellular Regeneration and Repair in Kidney Injured by Uranium Nitrate G L Donnelly and R I Holman Chapel Hill N C—p 11  
 Effects of Some Anesthetic Agents on Volume of Body Fluid D D Bonnycastle Toronto Canada—p 18  
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 Studies on Pain Measurement of Effect of Ethyl Alcohol on Pain Threshold and on Alarm Reaction H G Wolff, J D Hardy and H Goodell New York—p 38  
 Action of Scleroneurine Integerramine Jacobine Longobline and Spartidine Especially on Liver P N Harris, R C Anderson and K K Chen Indianapolis—p 69  
 Sulfonamide Therapy of Malaria in Ducks E K Marshall Jr, J T Litchfield Jr and H J White Baltimore—p 89

**Laryngoscope, St Louis****52 341-422 (May) 1942**

- Sulfanilamide in Otitis Media in Children Further Report on Controlled Series L H Bilechuck and G H O'Kane, New York—p 341  
 Autopsy Studies of Case of Tuberculous Peripharyngeal Abscess S Igler Cincinnati—p 346  
 Surgical Aspects of Circumcision of Larynx J D Kernan, New York—p 353  
 Office Treatment of Vertigo (Histamine Therapy) J J Shea, Memphis, Tenn—p 362  
 Fractures of Maxillary Bones D B Parker, New York—p 365  
 Hemangioma of Antroaural Sinus Successfully Treated by Radium S Morse New York—p 371  
 \*Two Unusual Symptoms of Eyestrain J R Noyes Brockton, Mass—p 376  
 Progressive Deafness Abstract Summary of Available Literature Published During 1941 E H Campbell and L E Silcox, Philadelphia—p 380

**Two Unusual Symptoms of Eyestrain**—Noyes has relieved several patients of annoying tinnitus by correcting hyperopia, astigmatism and presbyopia. The relief of eyestrain will not cure all patients of tinnitus, but if the possibility of its presence is carefully considered many patients can be relieved by the correction of refractive errors and muscular imbalance. Globus hystericus is another symptom of eyestrain which is not commonly considered as such. Many such patients have been relieved by properly fitted glasses.

**Maine Medical Association Journal, Portland****33 113-148 (June) 1942**

- Records Problem of Every Hospital Pearl R Fisher, Waterville—p 113  
 Laceration of Abdomen with Ectopic Viscera N Bisson, Waterville—p 116

# Medical Annals of District of Columbia, Washington

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- Etiology and Treatment of Gas Gangrene J O Warfield Jr Washington—p 175
- Androgen Therapy of Agitated Depressions in Male L Danziger and H R Blank Sykesville Md—p 181
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- Palindromic Rheumatism Report of Two Cases J L Thompson Jr Fort Belvoir Va—p 189

## Medicine, Baltimore

21 95-206 (May) 1942

- Pathogenesis of Paralysis Agitans (Parkinson's Disease) C E Benda Wrentham Mass and S Cobb Boston—p 95
- Ecology of Plague K F Meyer San Francisco—p 143
- Ecology of Psittacosis and Ornithosis K I Meyer San Francisco—p 175

## Military Surgeon, Washington, D C

90 609-728 (June) 1942 Partial Index

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- Medical Service with the Horse Mechanized Cavalry C B Daugherty—p 621
- Surgical Service of the Swiss Army E Wildbolz—p 626
- Nature's Way II Resistance to Disease A Safford—p 630
- Trichinosis Report of Outbreak at Camp Edwards Mass A Marble A P Skoog and D J Bucholz—p 636
- Acute Thyroid Crisis Associated with Bronchopneumonia Case G B Moore Jr and A J Tannenbaum—p 643
- Chemotherapy in Gunshot Wounds of Face Neck and Jaws M W Ogle—p 650
- Treatment of Hemorrhoids in Military Hospital W F Bowers and H C Schwyzer—p 655
- \*Sulfathiazole Single Massive Dose Therapy of Acute Gonorrheal Urethritis in the Male J P Pappas—p 662
- War-time Concepts of Mobile Field Laboratory D H Drummond—p 668
- Vision Test Card Designed for Use in Examinations for Armed Forces J I Moore—p 684

Single Massive Dose of Sulfathiazole for Acute Gonorrheal Urethritis—Pappas evaluated the advantage of a single massive oral dose of sulfathiazole in the cure of uncomplicated gonorrhea, especially in active military operations, by treating 28 soldiers with an acute previously untreated infection and 5 whose disease had not responded to previous sulfonamide therapy. The alleged period of symptoms in 13 of the 28 ranged from one to twelve with an average of four and nine-tenths days, while in the 15 who presented only an anterior urethral infection it averaged one and six-tenths days. A single dose of 5 Gm of sulfathiazole was given to the first 5, 6 Gm to the next 15 and 7 Gm to the last 8. Phenobarbital 0.065 Gm was administered routinely to all patients about half an hour prior to the drug. Fluids, to 4 liters a day were forced for several days following chemotherapy. Twenty-three of the 28 patients while only 2 of the 5 patients who had had prior chemotherapy were cured. Smears became negative for the gonorrheal organism the urethra was dry and the urine of two-glass tests was clear after an average of two and six-tenths six and six and five-tenths days respectively. The average figures indicate that the patients could have been returned to duty in seven and three-tenths days, having been dry for about two days and having had both urines clear on two successive mornings. The author feels that similar results could have been obtained without the patients having lost any time from duty except for the day of chemotherapy. The 5 Gm dose of sulfathiazole appeared to be as efficacious as the higher doses. During a follow-up period of nine months not 1 patient had a relapse. There was one reinfection of a patient who had been asymptomatic for six and a half months. The patients have been classified as cured. The results emphasize by implication that the initial dose of sulfonamides should be high if drug resistant infection is to be prevented. The method promises to be of extreme value in early acute gonorrheal infection particularly during active military operations and in persons who cannot be controlled for even a moderately prolonged course of chemotherapy.

# Missouri State Medical Assn Journal, St Louis

39 159-192 (June) 1942

- Medical Profession in Wartime Address of the President. R B Denny Creve Coeur—p 159
- Medicine Today Address of the President Elect H L Kerr Crane—p 161
- Thoughts on Prevention of Coronary Disease O P J Falk St Louis—p 162
- Role of Chemotherapy in Treatment of Obstetric and Gynecologic Conditions P F Fleischer St Louis—p 164
- Verbal Conjunctions Brief Review of Literature C T Eber St Louis—p 171

## Public Health Reports, Washington, D C

57 641-684 (May 1) 1942

- Story of National Leprosarium (U S Marine Hospital) Carville La G H Faget—p 641
- Anaphylaxis in Guinea Pigs Following Sensitization with Chick Embryo Yellow Fever Vaccine and Normal Chick Embryos T O Berge and M V Hargrett—p 652

57 685-728 (May 8) 1942

- Health Agencies—Their Responsibilities and Their Opportunities During the Present Crisis P V McNutt—p 685
- Opening Remarks to the Fortieth Annual Conference of the United States Public Health Service with the Conference of State and Territorial Health Officers T Parran—p 691
- Use of Mucin in Experimental Infections of Mice with Vibrio Cholerae J J Griffiths—p 707
- Prevalence of Poliomyelitis in the United States in 1941 C C Dauer—p 710

57 729-772 (May 15) 1942

- An Epidemiologic Study of Poliomyelitis in Mississippi in 1941 L L Lumsden—p 729
- Five Fumigants for Disinfection of Bedding and Clothing Comparative Study of Insecticidal Properties G C Sberard—p 753

## Review of Gastroenterology, New York

9 165-256 (May-June) 1942

- Inactivation of Pepsin and Its Relation to Peptic Ulcer S A Komarov Montreal Canada—p 165
- Effect of Duodenal Ulcer with Obstruction on Motor Activity of the Human Stomach F E Hamilton and G M Curtis Columbus Ohio—p 176
- Physiology of Enterocrinin E S Nasset Rochester N Y—p 188
- \*Diagnosis and Treatment of Chronic Gastritis C L Jackson W A Swalm and L M Morrison Philadelphia—p 193
- Spastic Constipation P L Eneboe Bozeman Mont—p 198
- Intra-gastric Photographs in Natural Color Preliminary Report H A Rafsky New York—p 202
- Max Einhorn On the Eightieth Anniversary of His Birth H I Goldstein Camden N J—p 203
- Max Einhorn G Mannheim New York—p 206
- Report of Two Cases of Probable Syphilitic Peptic Ulcers and Their Management M Einhorn and H A Rafsky New York—p 208
- Remarks on Evaluation of Achylia Gastrica (Einhorn) J Kaufmann New York—p 214
- Differential Diagnosis Between Abdominal Aneurysm and Other Abdominal Diseases F M Groedel New York—p 219
- Importance of the Duodenal Tube for Diagnosis and Treatment C I Krieger New York—p 223
- Adequate Standards of Nutrition H Pollack, New York—p 226
- Some Vascular Responses Within the Liver and Their Interpretation C D Snyder Baltimore—p 230
- Critical Study of Diagnostic Procedures in Gallbladder Disease C J DeLor J W Means G Y Shinowara and E J Booth Columbus Ohio—p 239

Diagnosis and Treatment of Chronic Gastritis—The past five years have seen a rapid reevaluation of the status of chronic gastritis. According to Jackson and his associates, the clinical syndrome ranges widely and often embraces many generalized and vague abdominal symptoms. The complaint frequently includes generalized upper abdominal distress, nausea, pyrosis, anorexia, loss of weight, constipation and the like. The symptoms often center about vague or mild midabdominal or upper abdominal pain, gassy distress, a feeling of epigastric fullness, pressure or discomfort. Sharp, sticking, gnawing or burning pain is complained or occasionally, colicky, spasmodic pain occurs rarely and only in the intractable cases. Pain distress was present in 75 per cent of their patients selected from over a thousand gastroscopic studies. There is no particular meal relationship the pain being at times intermittent and at other times constant. The symptoms are variable in duration. Anorexia, indifference to food or fear of eating because of ensuing distress was present in 45 per cent of the cases, loss of weight was noted in 33 per cent, weakness or ease of fatigability was felt in 25 per cent, nervousness was complained of in 55 per

cent, nausea or vomiting was observed in 22 per cent and constipation or diarrhea in 10 per cent. Frequent nonulcerous occurrence of the peptic ulcer syndrome in cases of chronic gastritis has been described recently. The atrophic variety of gastritis in the nonneoplastic patients is particularly interesting because of the predominating role of "nervousness" in the patients' complaint. No pathognomonic or constant acid value to the Ewald fractional method has been observed in gastritis. Atrophic gastritis was more frequently associated with achlorhydria or hypochlorhydria, hypertrophic gastritis was more frequently found with hyperchlorhydria or normal acidity, the superficial, catarrhal, congestive, erosive and ulcerative forms vary widely. There was an increase in mucus in 32 per cent of the cases. Positive occult blood reaction occurred in 81 per cent. The x-ray method was of diagnostic value in only about 10 per cent of cases, and these were usually of the hypertrophic variety. The only reliable means of diagnosing chronic gastritis is by the semiflexible gastroscope. The authors employed a new method. It consisted in obtaining a biopsy specimen of the gastric mucosa through the open tube gastroscope from patients in whom the diagnosis of gastritis had been previously made by the closed semiflexible (Wolt-Schindler) gastroscope. When gastritis had been visualized through the gastroscope, the authors often received an unbiased report from the pathologist of definite evidence of gastritis. The authors describe methods of treatment of chronic gastritis, including elimination of etiologic factors, diet, medication, physical therapy and surgery.

### Surgery, St. Louis

11 671-840 (May) 1942

- \*Local Implantation of Sulfanilamide in Peritoneal Cavity and Its Clinical Application in Peritonitis. K. Tashiro, O. B. Pratt, N. Kobayashi and G. K. Kawachi, Los Angeles—p. 671
- \*Effect of Sulfanilamide Crystals, Used Topically, on Fate of Transplanted Bone. Some Experimental and Clinical Observations. T. Horwitz, Philadelphia—p. 690
- \*Employment of Cotton Suture Material in the Field. R. S. Sparkman and W. H. Williams, Fort George G. Meade, Md.—p. 698
- Use of Estrogenic Substances in Preoperative and Postoperative Treatment of Hyperthyroidism. A. H. Storck and R. G. Holcomb Jr., New Orleans—p. 703
- \*Skeletal Manifestations of Thyroid Disease. M. Bodenheimer and I. S. Barcham, New York—p. 710
- Cephalin Cholesterol Flocculation Test in the Jaundiced Patient. S. B. Nadler and M. F. Butler, New Orleans—p. 732
- Evaluation of Intestinal Suction in Intestinal Obstruction. J. B. Blodgett, Boston—p. 739
- Study on Mechanism of Action of Prostaglandin on Intestinal Motility in the Human Being and the Dog. A. H. Schwartz, I. Reingold and H. Necheles, Chicago—p. 746
- Experimental Investigation of Gastrointestinal Secretions and Motility Following Burns and Their Relation to Ulcer. H. Necheles and W. H. Olson, Chicago—p. 751
- Nervous Factor in Etiology of Shock in Burns. H. Kabat and R. F. Hedin, Red Wing, Minn.—p. 766
- \*Hemorrhagic Cysts of Lung. Report of Two Cases in Which Marsupialization Was Done. H. K. Gray and I. C. Skinner, Rochester, Minn.—p. 777
- Paravertebral Thoracoplasty for Treatment of Pulmonary Tuberculosis. Report of 146 Cases with Follow Up. G. C. Adie, L. C. Huested, W. G. Childress and H. E. Perez, Valhalla, N. Y.—p. 788
- Surgical Treatment of Large Carbuncles in Diabetic and Nondiabetic Individuals. Report of Twenty Cases. C. W. McLaughlin Jr., Omaha—p. 797
- Localization of Bismuth in Kidney. H. Kroll, R. A. Arens, S. Mesirov, S. F. Strauss and H. Necheles, Chicago—p. 810
- Unilateral Hypertrophy of Masseter Muscle. R. J. Coffey, Washington, D. C.—p. 815

**Sulfanilamide in Peritoneal Cavity**—Tashiro and his co-workers implanted sulfanilamide into the abdomen in 30 cases of peritonitis and appendical abscess. In experiments on rabbits the average maximal concentration in the blood was 22 mg per hundred cubic centimeters in animals which had received 1 Gm intraperitoneally. There was a rapid fall in the intraperitoneal concentration as the blood concentration increased, at about six hours the concentration in the blood about equaled that in the peritoneal cavity, after which the blood concentration exceeded the peritoneal concentration. The maximal blood concentration was reached almost uniformly in three hours in patients as compared to four hours in rabbits. In older individuals the gradient was not as steep, perhaps because of natural cardiovascular and renal changes. No significant gross or microscopic pathologic changes were seen in the intestine or peritoneum of rabbits following direct contact of these tissues

with sulfanilamide crystals by intraperitoneal implantation. Pus and infective material were aspirated from the abdomen of patients with peritonitis, all possible gangrenous tissue was removed and the regional abdomen was cleansed by repeated perfusion with warm isotonic solution of sodium chloride and suction. Crystalline sulfanilamide, 4 to 10 Gm, depending on the age of the patient, was implanted directly in the area of greatest infection, 2 to 3 Gm was used to coat wound layers and surfaces before the incision was closed. Pus by itself was no indication for drainage. Drains were used when irremovable gangrenous tissue or tissue of doubtful viability could not be removed. Supplemental sulfanilamide therapy was continued orally after the first postoperative day, or parenterally when a patient was unable to take it orally. There were no untoward reactions or intra-abdominal complications, wounds healed by primary intention and the patients were discharged promptly after a smooth postoperative course. The intraperitoneal use of sulfanilamide appears to be a safe, rational and effective procedure.

**Topical Application of Sulfanilamide Crystals**—Experimental evidence and clinical proof that local use of sulfanilamide powder has no adverse effect on the fate of transplanted bone is presented by Horwitz, who used the drug on 18 adult rabbits and 5 patients in whom massive bone grafts were employed. Three patients had a distinct infection at the time of operation, 1 was potentially infected and 1 was clean without a history of preceding infection and had had a bone graft for a tuberculous spondylitis. In all the operative procedure was completed with primary closure of the wound after local implantation of 4 to 16 Gm of powdered sulfanilamide. The level of sulfanilamide in the blood was maintained by the oral route for one week postoperatively. The infection of the 3 infected patients was completely controlled, and all wounds of the 1 with potential infection healed by primary intention. Of the 4 patients for whom bone grafts were employed for arthrodesing purposes the transplanted bone became well incorporated and fusion was solid by the fourth postoperative month. The fifth patient, with tibial nonunion, has thus far had most satisfactory incorporation (solid union) of the graft. The clinical results corroborate the experimental evidence and indicate that the local use of powdered sulfonamide compounds exerts no untoward or deleterious effect on the fate of a bone graft.

**Cotton as Suture Material**—The circumstances under which major surgical procedures were performed during the maneuvers of the United States Army in North and South Carolina in the fall of 1941 in a tent hospital, Sparkman and Williams point out, were comparable to those which might be encountered in the field at wartime. The problems of dust and insect control were considerable. As the circumstances predisposed to wound contamination, the added protection of a nonabsorbable suture material seemed desirable, in view of limited nursing facilities and the possible necessity of evacuating patients over long distances to station hospitals early in convalescence. Cotton was chosen. During the encampment, from October 26 to December 5, one hundred and twenty-four appendectomies were performed. Ordinary nonmercerized cotton was employed as the only suture material with the exception that fine plain catgut was used for ligating the appendical stump when it was inverted. The McBurney incision was used exclusively. There were no deaths. The cotton was sterilized by boiling for twenty minutes or by autoclaving for fifteen minutes at 15 pounds pressure. Size 80, usually black, was used for closing the skin, size 100 white for ligating blood vessels immediately beneath the skin and size 50 or 80 for closing the remaining layers of the McBurney incision. The peritoneum was closed with a continuous suture, otherwise interrupted sutures were used. The appendical stump was not inverted in 20 instances, inversion in the 104 was accomplished with size 50 or 80 cotton. When perforation, gangrene of the appendix or extensive suppuration was present, 8 Gm of sulfathiazole or sulfanilamide powder was implanted in the peritoneal cavity. The drugs were never placed in the wound itself. The wound was always copiously irrigated with isotonic solution of sodium chloride after each layer was closed. Of the 124 specimens removed, 79 showed micropathologic evidence of acute suppuration and 27 of the 79 showed gross evidence of gangrene at

operation There were 2 instances of perforation, and gross contamination occurred in 2 because of disruption in continuity of the wall of a gangrenous appendix during removal In each of these 4 cases a narrow sutured rubber dam was placed down to the peritonium, which was closed The drains were removed on the fourth or fifth postoperative day, after which each wound healed by first intention The peritoneal cavity and the wound of the other 120 patients was closed without drainage, and they were evacuated to station hospitals after a postoperative observation of eight days A small collection of uninfected serous fluid was evacuated from the wound on one occasion from 3 of the 120 patients, and 1 had a left femoral thrombophlebitis on the sixth postoperative day and the wound disrupted on the thirteenth postoperative day One other patient suddenly had generalized peritonitis on the fifth postoperative day and the abdomen was reopened An abscess had formed about the noninverted appendical stump and the abscess had ruptured into the peritoneal cavity The peritoneum, however, was sealed and the wound at this time was healing by primary intention Convalescence and wound healing were uneventful after the abscess was drained No attempt was made to remove the cotton sutures introduced at the first operation Patients were allowed out of bed on the second or third postoperative day with no ill effects Such early locomotion would not have been possible unless a nonabsorbable suture had been used as added security The results support the contentions of Meade and Ochsner that cotton may be employed safely in clean, contaminated or infected wounds

**Skeletal Manifestations of Thyroid Disease**—Bodenheimer and Barcham review the literature and present 6 cases to illustrate osseous changes in thyroid disease Not infrequently a bone lesion is diagnosed without appreciation of relationship to thyroid disease Pulsating tumors may be diagnosed as aneurysm, hemangioma, meningocele or some other highly vascular tumor The lesions are sometimes found on microscopic study to be secondary metastatic thyroid deposits occurring many years after the primary lesion was discovered or even without its discovery The question of thyroid deposits in bone ever having been a metastasis or an aberrance is still open Bony lesions of thyroid origin also have simulated hyperparathyroid lesions, endothelioma or multiple myeloma Of all the skeletal manifestations of hypothyroidism the one most often unrecognized is epiphyseal stippling The characteristic pathologic changes of deficiency in centers of ossification with irregular bone growth and other characteristic changes at the epiphyseal plate serve to differentiate it from Legg-Calve-Perthes disease Spontaneous fractures or fractures with little exciting cause have been reported in the decalcified bones of patients with long-standing hyperthyroidism Needling of so called aneurysms of the spine will be attempted less often when it is realized that these lesions are often due to a thyroid metastasis Thyroid substitution therapy in the presence of stippled epiphyses is a great aid when definite evidence of hypothyroidism is established Osteoporosis due to hyperthyroidism is sometimes benefited by thyroidectomy

**Hemorrhagic Cysts of Lung**—Hemorrhagic cysts of the lung may be congenital, infectious mechanical or neoplastic Various methods have been devised to meet the problems that arise in the management of the patient with a hemorrhagic cyst of the lung Marsupialization may result in benefit when the cyst cannot be removed Gray and Skinner report 2 cases in which such a procedure was beneficial Three months after the operation the first patient was feeling well, roentgenograms showed considerable clearing of the exudate and diminution of the pleuritis, the right portion of the diaphragm was elevated by pleuritic adhesions and the cystic cavities were somewhat decreased in size The second patient withstood the operative procedure well, he was permitted to sit in a chair on the eleventh postoperative day, he was afebrile and his general condition was excellent Large quantities of clotted black blood drained from the marsupialized region It is hoped that by marsupialization of the walls of the two cysts the uninvolved portion of the lung can be made to reexpand and obliterate the cystic cavities

## Texas State Journal of Medicine, Fort Worth

38 1-58 (May) 1942

- Fungus Disease of Lung C J Koerth R G McCorkle and J M Donaldson Jr San Antonio—p 8
- Occupational Dermatoses E C Fox Dallas—p 14
- Treatment of Congenital Syphilis W P Killingsworth Port Arthur—p 17
- Study of Lymphosarcoma and Leukemias, Including Two Chloromas L L Griffin and P Brindley, Galveston—p 22
- Periureteral Abscess M K O Heeron Houston—p 27
- Uterine Inertia C A Smith Texarkana—p 32
- Pregnancy Complicated by Hookworm Disease Report of Six Cases R A Johnston and G F Adam Houston—p 35
- Curable Heart Disease L C Carter, Marlin—p 39
- Theca Cell Tumor of Ovary U J Dowling Sweetwater—p 41

**Fungus Disease of Lung**—Pulmonary conditions which simulate pulmonary tuberculosis, according to Koerth and his co-workers, are fungus disease, abscess, primary carcinoma, bronchiectasis and silicosis Symptoms, treatment and the physical and roentgen signs of 4 cases of monilia, aspergillus and actinomycotic infection are discussed The clinical symptoms of pulmonary moniliasis range from a simple dry cough up to and including all symptoms found in advanced pulmonary tuberculosis The physical and roentgen signs are as variable as the clinical symptoms and depend on the stage of the disease No clinical symptom or physical or roentgen sign is diagnostic of the disease Potassium iodide given three times a day in increasing doses to the point of tolerance is the time honored drug Actinomycoses may easily cause confusion when found in the sputum because of their close similarity to tubercle bacilli The fragments of the mycelium usually are more variable in length and size than the tubercle bacillus Furthermore, some of the segments will be seen to branch if the sputum is examined carefully This organism is less resistant to decolorization with acid than the tubercle bacillus Four types of pulmonary actinomycosis are recognized the bronchitic, the pneumonic the pleuropneumonic and the metastatic, this classification calls attention to successive stages of the same process Treatment is discouraging and consequently a multitude of remedies has been proposed Surgery does not produce striking results in the pulmonary type Aspergillosis is distinctly related to occupations in which there is prolonged exposure to grain dusts Two types of pulmonary aspergillosis are encountered the superficial type includes aspergillary catarrh and bronchitis, and the deep form causes necrosis and caseation of the pulmonary tissue The onset of aspergillosis is insidious with symptoms of cough, asthmatic attacks and anorexia As the disease progresses the cough increases in severity and the sputum becomes tenacious and may be dotted with black specks which are conidia Weight loss, an evening elevation of temperature hemoptysis and night sweats may occur In the asthmatic form progressive dyspnea disables the patient The course of the disease is chronic and pulmonary tissue is slowly destroyed until secondary infection supervenes Potassium iodide orally, inhalation of ethyl iodide, neocarsphenamine intravenously, bismuth compounds intramuscularly and roentgen radiation constitute some of the therapeutic measures

**Pregnancy Complicated by Hookworm Disease**—When ever a severe anemia, in the absence of any tangible cause, is encountered in pregnancy an intestinal parasitic infection, especially hookworm, should be considered, as pointed out by Johnston and Adam It is seen most frequently in charity clinics, especially among patients coming in contact with the soil The usual port of entry is through the skin Wickramasuriya states that hookworm disease is second to none as a cause of death or chronic invalidism in Ceylon Most of the cases in this country are seen in the Southern states Of the 6 cases of hookworm disease encountered by the authors, 3 were from a private practice of 6,350 cases and 3 were from the charity clinic at Hermann Hospital If routine stool examinations as is the present practice had been done possibly more cases would have been found The chief characteristic of the disease is anemia, the hemoglobin being as low as 15 per cent in some patients The second important characteristic is toxemia of pregnancy the severity of which depends on the severity of the infection and on the degree of anemia The finding of hookworm ova in the stool makes the diagnosis



absolute. The blood urea is usually abnormally high (average 32 per cent in 37 patients observed by Wickramasuriya) and the urea concentration is usually below 2 per cent. Treatment consists in combating anuria and eradicating the offending organism. Carbon tetrachloride is not to be used when pregnancy coexists.

### Virginia Medical Monthly, Richmond

69 291-350 (June) 1942

- Clinical Pathologic Conference. I. Hamman, Baltimore—p. 291  
 \*Neurosurgical Management of Epilepsy. J. M. Meredith, Richmond—p. 299  
 Our Health Yesterday and Today. Study of Acute Otitis Media and Mastoiditis and Their Relation to Public Health. J. W. Woodward, Jr., New York—p. 307  
 Regional Health. Report of Case. J. S. Horsley, Richmond—p. 314  
 Carcinoma of Thyroid. A. M. Smith, Jr., Charlottesville—p. 318  
 Central Nervous System Symptoms Associated with Measles in an Adult. Case Report. I. R. Hamilton, Nisswiler—p. 324  
 Gastric Hypertonicity. R. H. Temple, Kingston, N. C.—p. 326  
 \*Treatment of Lung Abscess. J. K. Bradford, Schenectady, N. Y.—p. 329  
 Tignin Test for Sulfonamides. I. I. Hally, Fort Blackmore—p. 334

**Neurosurgical Management of Epilepsy**—Meredith points out six major causes of surgical epilepsy: (a) congenital, (b) neoplastic, (c) inflammatory, (d) post-traumatic, (e) vascular and (f) degenerative brain lesions. Examples of each type are presented. The value of electroencephalography in the diagnosis of surgical lesions of the brain causing convulsions is discussed. The electroencephalogram will practically always localize a cortical lesion, whether it is above or below the tentorium, but it will not show whether it is of surgical significance or not, i. e., it is just as apt to show abnormal waves overlying cerebral softening and gliosis due to a cerebral thrombosis as it will with tumor. It repeatedly has localized cerebellar and cerebellar tumors in doubtful cases (as to clinical localization) with disappearance of the electroencephalographic focus after operation. The electroencephalogram frequently fails to localize subcortical tumors or other mass lesions below the cortex wherever they may be in the brain. An electroencephalographic focus demonstrated in a patient with generalized convulsions (in whom a pneumoencephalogram fails to show a significant lesion) will usually prove to be of little importance if operation is carried out over the suspected site (as demonstrated by the electroencephalogram) and only indifferent postoperative results are to be expected in such cases, particularly with respect to the subsequent elimination of the convulsions, unless quite radical procedures, such as an ablation of the motor cortex, are performed. As emphasized by Holland, the electroencephalogram is only one of the many diagnostic aids in the investigation of epileptic patients and is not to be considered a substitute for the all important air injections which are almost invariably carried out before operation on patients with convulsive disorders.

**Treatment of Lung Abscess**—Bradford shows that abscess of the lung is a serious disease which under generally accepted medical treatment has resulted in extensive pulmonary damage and a high mortality rate. Early surgical drainage has brought about a striking reduction in this mortality rate. Most cases of lung abscess follow operations on the upper respiratory tract or occur subsequent to pneumonias which do not resolve promptly. In the so-called idiopathic cases the incidence of oral infection is extremely high. Careful treatment of these varied entities is important in the prophylaxis of lung abscess. The bacteriology of lung abscess is complex. Isolation of the original infecting organism is virtually impossible. Anaerobic organisms, as secondary invaders, are responsible for maintaining and extending the disease. Synergism is probably an important factor. A knowledge of the pathology of lung abscess is essential to an understanding of previous failures in treatment and in carrying out a logical and successful treatment. Every case of lung abscess deserves a trial of medical treatment, provided adequate oxygenation and drainage can be established at once and maintained continuously. Failure to accomplish this is the indication for immediate surgical drainage. The external drainage of lung abscess cavities is a simple, logical and successful surgical procedure.

### FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Journal of Children's Diseases, London

39 1-32 (Jan-March) 1942

- Some Aspects of Blood Chemistry of the Nephritic Child. Anne E. Somerford—p. 1  
 Note on Cerebral Causes of Defects in Perception and Consciousness. I. P. Weber—p. 15

### British Medical Journal, London

1 543-572 (May 2) 1942

- Problem of Abdominal Pain, with Special Reference to Localization of Visceral Pain. F. R. Brown—p. 543  
 \*Simple Method of Using Penicillin. Tellurite and Gentian Violet for Differential Culture. A. Fleming—p. 547  
 Pigment Metabolism Following Transfusion of Fresh and Stored Blood. Janet M. Vaughan—p. 548  
 Anesthesia for Air Road Casualties. R. P. Harbord—p. 550  
 \*Asthma Treated with Patient's Blood Serum. A. D. Lapp—p. 552

**Simple Method for Differential Culture**—Fleming points out that by spreading a small quantity of methylrosaniline over half of the culture plate of blood agar after it has been planted it is possible to isolate a few streptococci from among the multitude of staphylococci, just as it is when methylrosaniline is incorporated in the medium. When this technique is used it is necessary to start spreading the chemical used where the inoculum is lightest and to proceed toward the heavier inoculum, otherwise there may be so many resistant bacteria that a confluent sheet of growth ensues. The three chemicals that can be used in this way are penicillin, potassium tellurite and methylrosaniline. The advantages of such spreading of one of these chemicals are that special mediums need not be prepared and that one half of the culture plate is an ordinary culture and the other half a selective culture.

**Asthma Treated with Patient's Blood Serum**—Using a sterile syringe and test tube or a vacuum venule, Lapp withdraws about 30 cc. of blood from a patient suffering from asthma. The blood is allowed to clot at room temperature for two hours. It is then stored in a refrigerator. Serum is drawn off the top as required and injected subcutaneously. A much firmer clot is formed as treatment progresses and proportionately more serum is expressed. No local or general reaction was noticed. Many patients who were treated for hay fever by this method remained free from colds for long periods, although they had previously been most susceptible.

### Edinburgh Medical Journal

49 209-272 (April) 1942

- Observations on Eclamptic Toxemia and on Essential Hypertension and Chronic Nephritis in Pregnancy. D. Miller—p. 209  
 Acute Intestinal Obstruction from Clinical Standpoint. K. P. Brown—p. 234  
 Mammary Carcinoma with Cutaneous Carcinosis of Erysipelatodes Type. E. K. Dawson and T. M. Davie—p. 247  
 Thomas Dover (1660-1742). M. P. Russell—p. 259  
 Dover's "Legacy." T. H. Howell—p. 266

### Journal of Mental Science, London

88 275-386 (April) 1942

- Investigation of Personality in Patients Treated by Prefrontal Leukotomy. E. L. Hutton—p. 275  
 Some Preliminary Remarks on Prefrontal Leukotomy. G. W. T. H. Fleming—p. 282  
 Forms of Behavior of Electrical Resistance of Skin Related to Certain Psychiatric and Endocrine Conditions. R. E. Hemphill—p. 285  
 Measurement of Body Resistance by Bridge Methods. W. G. Walter—p. 306  
 Auxiliary Genes for Determining Sex as Contributory Causes of Mental Illness. L. S. Penrose—p. 308  
 Measurement of Dementia. M. B. Brody—p. 317  
 \*Psychiatric Syndromes Following Blast. E. W. Anderson—p. 323  
 Arhinencephaly with Incomplete Separation of Cerebral Hemispheres. G. W. T. H. Fleming and R. M. Norman—p. 341

**Psychiatric Syndromes Following Blast**—Anderson discusses psychiatric symptoms in 8 cases that followed close exposure to the detonation of a high explosive bomb. In each there were certain common features which from the psychiatric



angle indicated a relationship to structural cerebral changes. The relationship may be easily overlooked because in many cases a definite history of head injury and a long period of unconsciousness are absent. Evidence of an organic reaction was shown by (1) residual intellectual impairment, (2) memory changes, (3) slight and transient aphasia in 2 and (4) occasional changes in the cerebrospinal fluid. A degree of intellectual impairment, characterized by complaints of forgetfulness and lack of concentration was present. Memory changes were by far the most striking part of the syndrome, in some the memory was imperfect for events immediately following the explosion, and in others there were periods of global amnesia. Such amnesia may have a definite medicolegal significance. None of the patients were observed immediately after the incident, but the patients reported that after the explosion they felt "dazed" or had a numb sort of sensation. There is evidence that consciousness was clouded in 1 or 2 patients it persisted for days or even months. Besides associated, probably constitutional, depressive features affective lability and apathy were observed. The apathy was the more impressive. Some of the other symptoms were psychomotor changes, dementia, motor aphasia, dysphasia and depression. Little can be stated definitely as to prognosis. It may depend to a large extent on the promptness of treatment, which is based on the analogy of cerebral trauma that is, at least a fortnight's complete rest in bed with appropriate sedation and the general measures for treating head injury. Coexistent or subsequent constitutional or psychogenic changes demand competent treatment on the usual psychiatric lines.

### Journal of Pathology and Bacteriology, Edinburgh

54 149-288 (April) 1942

- Malignant Tumors of Interstitial Cells of Testis in Strong A Mice Treated with Triphenylethylene. Georgiana M Bonser—p 149  
Effect of Estrone on Mice of Three Inbred Strains with Special Reference to Mammary Glands. E W Miller and F C Pybus—p 155  
Fat of Adrenal Cortex in Fasting Guinea Pigs and Rabbits. R Whitehead—p 169  
Hyperparathyroidism in Experimental Nephritis. J B Duguid—p 177  
Preparation of Loeffler's Medium in Relation to Morphology of Corynebacterium Diphtheriae. N E Goldsworthy and H Wilson—p 183  
Isolation of Intestinal Pathogens by Selective Mediums. M Hynes—p 193  
Diagnosis of Johne's Disease of Cattle by Cultural Methods. F C Minett—p 209  
Differentiation Between Members of Genus *Vibrio* by Bactericidal Technique. J Gordon and K I Johnstone—p 221  
Acute Hemorrhagic Leukoencephalitis. Report of Case. R A Henson and Dorothy S Russell—p 227  
Experiments of Shaking Bacteriophage. Margaret L Campbell Renton—p 235  
Paratyphoid Carriers. Intactivity of Feces and Failure of Chemotherapy with Sulfapyridine and Iodophthalein. H D Holt and H D Wright—p 247  
Diphtheria Diagnosis with Hoyle's Medium. Saponin and Sodium Dioctyl sulfosuccinate as Hemolyzing Agents in Preparation of Medium. M Y Young—p 253  
Simple Medium for Isolation of Bacterium Dysenteriae. T B Gallie—p 256  
Rapid Method of Staining Myelin in Traumatic Neuromas and Injured Nerves. J Anderson—p 258  
Tubes for Streptococcal Grouping. H A Tarr—p 259  
Unusually Weakly Reacting A Blood Group Antigen. G L Taylor, R R Race, Aileen M Prior and Elizabeth W Ikin—p 261

### Journal of Physiology, Cambridge

100 369-484 (March) 1942

- Note on Interaction Between Nerve Fibers. B Katz and O H Schmitt—p 369  
A Simulation of Radioactive Phosphorus Following Phosphorus Deficiency in Rats. W E Gaunt, H D Griffith and J T Irving—p 372  
Glycogen and Adipose Tissue. E Tuerkischer and E Wertheimer—p 385  
Ovulation in the Rabbit After Destruction of the Greater Superficial Petrosal Nerves. Marthe Vogt—p 410  
Action of Curare on the Respiratory Center. J Fegler—p 417  
Influence of a Deficiency of Vitamin B<sub>1</sub> and of Riboflavin on the Reproduction of the Rat. Katharine Hope Coward, Barbara Gwynneth Emily Morgan and Letitia Waller—p 423  
Urea Formation in the Isolated Perfused Liver of the Rat. O A Trowell—p 432  
Olfactory Reactions in the Brain of the Hedgehog. E D Adrian—p 459  
Observations on the Properties of S-Methyl Iso-Thiourea Sulfate with Particular Reference to the Circulatory Effects. M McGeorge, M Sheriff and F H Smirk—p 474

### Lancet, London

1 493-522 (April 25) 1942

- \*Epilepsy Following Application of Sulfathiazole Near Brain. A C Watt and G L Alexander—p 493  
Neurosis in Soldiers Follow Up Study. A Lewis and E Slater—p 496  
\*Use of Pholedrine at Major Operations. H Dodd—p 498  
\*Aneurine and Carbohydrate Metabolism in Diabetics. E Kodicek—p 501  
Notes on Trichlorethylene Anesthesia. H F Griffiths—p 502  
Encephalopathia Arteriosclerotica Basalis Lethargica. F P Weber and K Blum—p 503

**Epilepsy Following Application of Sulfathiazole Near Brain.**—Watt and Alexander warn against the use of sulfathiazole close to the brain, particularly in the frontal region. When sulfathiazole became available they applied it in the same manner as they had sulapyridine. 2 to 3 Gm of the powdered drug, sterilized in the autoclave, was insufflated into the wound after the dura mater was closed both deep and superficial to the bone flap. The closure of the dura mater was, as usual, never complete enough to prevent cerebrospinal fluid from percolating through and thus gaining direct contact with the sulfathiazole. All went well with their first 2 cases, and then postoperative complications, in the form of epileptic seizures in quick succession, beginning about two hours after operation, became intermittent. There were two deaths among the 5 patients exhibiting this symptom, that is five of the six frontal explorations in which sulfathiazole was used were complicated by postoperative epilepsy. In the frontal operation, not complicated by epilepsy, the thickened dura was not opened, this is significant. Four patients having lateral or posterior craniotomy in whose wounds sulfathiazole was also used did not have epilepsy, even 1 patient with a history of epilepsy. This epileptogenic property of sulfathiazole has been confirmed experimentally in cats, it is apparently not shared by sulfanilamide, sulapyridine, sulfadiazine or sulfacetamide.

**Use of Pholedrine at Major Operations.**—Dodd discusses the restorative action of pholedrine, a pressor agent on the blood pressure during and after major operations. Blood pressure records during operations have been made on 300 patients since 1932 and pholedrine was used in 89 of these. The effective dose of pholedrine was 0.2 to 0.25 cc intravenously, 1 cc intramuscularly and 0.2 to 0.25 cc intravenously plus 0.75 to 0.8 cc intramuscularly. Pholedrine given in these amounts as a single dose raised a low blood pressure to within 25 per cent of the normal in 89 per cent of patients. Pholedrine given in repeated doses (up to five) still raised the pressure to normal or over in 82 per cent of the patients. A useful rise was noted in almost all subjects when the correct dose was used. If the operation is long or shock is appreciable the intramuscular dose may be increased to 1.5 cc. No fall in pressure was observed after one hundred and twenty-six injections of the agent. Excessive rises can be avoided by correctly assessing the patient's condition and accurately estimating the dose. The patient's own recuperative power must be reckoned with and given time to act. Variability of the pulse after pholedrine was observed three times after the one hundred and twenty-six administrations but otherwise no ill effects were encountered. Leptazol was ineffective by itself but when combined with pholedrine it had a powerful pressor effect.

**Aneurine and Carbohydrate Metabolism in Diabetes.**—Kodicek investigated under well controlled conditions the effect of aneurine (vitamin B<sub>1</sub>) on the blood sugar of 32 middle aged patients with mild diabetes with and without the addition of insulin and analyzed statistically the blood sugar curves. They were all on a standard Joslin diet, most or them without previous insulin treatment. The effect of aneurine was examined on the fasting level of the blood sugar of 20 patients, and in 12 the combined action of aneurine and insulin was investigated. The results reveal that aneurine either alone or in combination with insulin does not exert any influence on the blood sugar of the diabetic patient, at least in thirty-sixty or one hundred and twenty minutes after its injection. That more prolonged administration of aneurine is also ineffective was suggested by the fact that 10 mg given daily for four weeks to 2 patients did not improve their sugar tolerance or insulin

requirement. The results do not support the view that there is any direct interconnection between the disease and anurine requirements, and they do not justify its use for the purpose of increasing the sugar tolerance of the diabetic patient. Diabetic diets may be often low in vitamin B<sub>1</sub> so that a partial deficiency requiring treatment with anurine is likely to be an incidental accompaniment of diabetes.

### Medical Journal of Australia, Sydney

1 425-452 (April 11) 1942

- Prostatic Urethral Adenoma: Anatomic and Physiologic Considerations, Histology and Pathology. M. G. Sutton—p. 125  
Leptospora Pomoni. I. H. Derrick—p. 131  
Discovery of a Fifth Australian Type of Leptospirosis. D. W. Johnson—p. 431  
Some Aspects of Epilepsy. A. V. Youngman—p. 411  
Sulfonamides in Gonorrhea. A. N. H. Willis—p. 434

1 453-482 (April 18) 1942

- Heat Absorbing or Heat Lifting Capacity of Wind in Relation to Human Body, with Table for Calculating It. C. E. Corlett—p. 453  
Note on Diagram for Calculation of Heat Absorbing Capacity of a Cubic Meter of Air Based on Tables of Dr. C. E. Corlett. W. H. H. Gibson—p. 464  
Notes on Use of Tourmiquet. R. S. Lutz—p. 465  
Mycobacterium Tuberculosis in Milk. O. Kudekka—p. 466  
Operative Treatment of Hyperphoria. L. T. Smith—p. 468

1 483-512 (April 25) 1942

- Standardization of Hemoglobinometers. J. D. Hicks—p. 486  
New Light on Painful Shoulder. M. Kelly—p. 488  
New Method of Radiologic Localization of Foreign Bodies. T. L. Tyrer, with an addendum by C. W. B. Littlejohn—p. 493  
A Regimental Aid Post in Tobruk. S. J. M. Goulston—p. 494

**Painful Shoulder**—Kelly was able to relieve patients suffering from painful disability of the shoulder by percarne infiltration. A remarkably constant clinical picture is presented in the developed case. The main features are (1) pain in the shoulder on abduction of the humerus, (2) severe aching at night, (3) tenderness on the "point" of the shoulder. The pain on movement may vary in intensity, it may limit all movement or may be just a twinge when the humerus is near the horizontal while raised or lowered. It is usually felt near the insertion of the deltoid rather than in the joint itself. The aching at night is usually the chief complaint, the pain on movement is more easily borne. Examination usually reveals a point of tenderness on the greater tuberosity, which disappears under the acromion on abduction ("Dawbarn's sign"). This sign may be absent, or tenderness may be more widespread over the deltoid region. Crepitus may be felt in the shoulder on abduction. In severe cases of shoulder disability ("frozen shoulder") fixation of the joint, at first by muscular spasm and later by adhesions, may be present and trophic changes may become manifest in muscular wasting and decalcification of bone. Less than half of the patients give a history of an injury to the shoulder, this usually takes the form of a fall on the outstretched arm or the point of the shoulder ("stubbed shoulder"). The author detected a circumscribed area of tenderness in the trapezius and infiltrated it deeply and widely with procaine hydrochloride. Sometimes as much as 20 cc of a 1:1,500 solution of "percarne" or a 1:200 solution of "novocain" is necessary. The injection often is painful, and the patient will frequently faint if he is not made to lie down beforehand. Ten cases were encountered in which infiltration proved unsuccessful after a prolonged trial. If no alteration in the symptoms occurs after two thorough infiltrations, further perseverance will prove ineffective. In two of the unsuccessful cases the shoulder disability was part of chronic generalized arthritic changes. In 16 cases a complete cure resulted from injections into the trapezius or, as seems more probable, the supraspinatus or levator anguli scapulae, which are situated directly beneath the trapezius. In many cases a single injection was successful, in those in which further injections were required a good prognostic sign was a decrease in the symptoms after the first injection, or a change in the character and distribution of the pain. Cases of shoulder disability can be differentiated from those presenting the picture of brachial neuritis. The foregoing observations are in line with recent researches on fibrositis, and emphasis is laid on the important part played by the trophic nervous reflex in its symptomatology.

### Schweizerische medizinische Wochenschrift, Basel

72 57-84 (Jan. 17) 1942 Partial Index

- Cases of Peptic Ulcer Surgically Treated in the Aarau Hospital Between 1925 and 1940. O. Haupt—p. 57  
Diagnosis and Therapy of Trigeminal Neuralgia. W. Ryffel—p. 61  
Fixed Congenital Dextrolateral Position of Sigmoid. E. Ledergerber—p. 61  
Clinical Development and Bacteriologic Characteristics of Seven Cases of Meningococcal Meningitis. G. Deruaz and E. Novel—p. 65  
Certain Aspects of Endocrine Interrelationships, Including Remarks on Nichols's Theory of Role of Endocrine Glands in Prostatic Cancer and Paraprostatic Hypertrophy. G. Brüstlein—p. 70  
Simple Method of Demonstrating Small Quantities of Urobilinogen in Urine. I. Klein—p. 73

**Meningococcal Meningitis**—Deruaz and Novel point out that the bacteriologic demonstration of the meningococcus and of its type is unimportant unless it aids in the confirmation of the clinical diagnosis and in the indication for serum treatment. Since the beginning of the era of serotherapy it has been true that recognition of meningococci of type A, B, C or D is helpful. This differentiation has not been nullified with the introduction of sulfonamide derivatives. Recently Armand and others have reported that sulfanilamide therapy proved to be highly effective in the presence of the type B meningococcus but that serotherapy was most successful in the presence of meningococcus A. The authors selected for study 7 cases of meningococcal meningitis in which culture permitted isolation of a stable type of meningococcus that would lend itself to laboratory investigations. The determination of the type of meningococcus cannot be made from the study of fermentation of sugars alone, it must be confirmed by serologic studies. Biochemical research revealed the variable individual characteristics of meningococci such as aberrant fermentations. In the authors' cases fermentation did not agree with type. Of seven strains of meningococci isolated, only two could be acclimated to simple gelose. Macroscopic agglutination readily permits the determination of the meningococcal types. In 1 of the cases the type B meningococcus was detected, while in the remaining 6 type A was present. No relationship existed between the bacterial type and the gravity of the disease. The mortality was related more to the late initiation of the treatment rather than to the type of meningococcus. Incubation, course and curability of the disease did not seem to be influenced by the type of the meningococcus present. Before the sulfonamide era meningococcal infections of type B were considered most grave. Armand-Delille points out the efficacy of sulfonamide derivatives in this type, particularly in nurslings. The authors' observations likewise emphasize the remarkable effects of these drugs in meningococcus A infections. Improvement in the cerebrospinal fluid after chemotherapy was very rapid. The clinical course depends more on the early initiation and the intensity of chemotherapy rather than on the type of meningococcus.

72 85-112 (Jan. 24) 1942 Partial Index

- Diagnosis and Treatment of Trigeminal Neuralgia. W. Ryffel—p. 85  
Bronchitis Plastica. S. Seiler—p. 86  
Nephelometric Evaluation of Heat Denaturation of Proteins in Blood Serum as New Method of Examination. Clinical Significance and Comparison with Principles and Results of Takata-Ara Reaction. F. Wührmann and C. Wunderly—p. 90  
Problem of Extrapleural Pneumothorax. W. Iff—p. 94  
Automatic Apparatus for Monaldi Method of Endocavitary Aspiration. G. Rosset—p. 96  
Present Status of Therapy of Cancer of Breast. R. Sarasin—p. 97  
Treatment of Epilepsy. Stähli—p. 100  
Classification of Pulmonary Tuberculosis. Draft for Practical New Nomenclature for Tuberculosis. S. Puder—p. 102

**Bronchitis Plastica**—According to Seiler, bronchitis plastica is sometimes referred to as bronchitis fibrinosa, bronchitis pseudomembranosa, bronchitis crouposa and mucinosa. The chief characteristic of the condition is expectoration of coagulums formed within the bronchial lumen by exudates. The disorder is rare. The author reports that a woman aged 41 suffered at irregular intervals of from three to ten days bouts of fever which persist one to three days, accompanied by cough, dyspnea and expectoration of coagulums. After these had been expelled, the fever subsided. The recurrent bouts were accompanied by impairment of general health, tachycardia,

oppression, dyspnea and anxiety. Examination of the lungs revealed changes during the attacks and roentgenoscopy showed shadows in the right lower lobe that gave the impression of tumefactive foci. Tar preparations, potassium iodide, arsenic compounds and various expectorants were ineffective. Induction of pneumothorax was followed by two mild attacks of fever, after which the cough subsided and there was no further expectoration of coagulum. The pneumothorax was maintained and there were no attacks. The patient's general condition has greatly improved. Symptoms of the existing exophthalmic goiter were likewise favorably influenced. Artificial pneumothorax is to be recommended for cases of this type particularly when the disease process is localized, as may be evident from repeated roentgenoscopic examinations during attacks and intervals.

**Heat Denaturation of Proteins in Blood Serum**—Wuhrmann and Wunderly point out that Weltmann's dilution series of calcium chloride solutions aims to determine the threshold value of flocculation as indicated by the dilution intensity of the serum proteins. In order to facilitate the characterization of the pathologic globular proteins the authors added a new test tube to the Weltmann series. This tube contains only double distilled water. If blood serum in a 1:50 solution is cooked in this for fifteen minutes the serum proteins become denatured by heat. Whereas the solution intensity of normal serum prevents turbidity, an increase in isolable globulins (euglobulin and pseudoglobulin I) cause cloudiness during dilution. After heating, the turbidity produced in this manner is sufficiently isodisperse to permit nephelometric evaluation. The technique of producing a nephelogram has been described previously by the authors. They demonstrate graphically the close relationship with Weltmann's coagulation band. Their new method detects changes in the blood proteins by determining the turbidity by means of the step photometer. The authors demonstrate the direct relations that exist between their method and the Takata-Ara reaction in Jezler's modification and discuss the protein chemistry that forms the basis of the two methods (increase in certain coarsely dispersed plasma proteins). The detected turbidity values are the higher the more strongly positive is the outcome of the simultaneously executed Takata-Ara reaction. If the absolute turbidity units exceed 0.0120 or 0.0125, a positive Jezler reaction can be counted on. Turbidity values between 0.0020 and 0.0120 indicate changes in the blood serum, which in consideration of the existing clinical condition cannot yet or can no longer be detected with the simultaneously executed Takata reaction. Their great clinical importance cannot be denied. The turbidity values are independent of the total protein, the bilirubin and the rest nitrogen values as well as of the outcome of the sedimentation test. The advantages of the new method are that the result can be read objectively in the step photometer, that it is completed in thirty minutes and that the quantity of serum required is only 0.1 cc.

## 72 113-140 (Jan 31) 1942 Partial Index

- Influence of Hypophysisencephalic System on Sexual Functions A Westman—p 113  
\*Question of Immunity Reactions as Gauge for Dosage of Sulfonamide Derivatives in Pneumonia, C Maier and A Grumbach—p 116  
\*Thrombocytopenia Due to Sedormid Investigated on Basis of Sternal Puncture Tolerance and Transfusion Tests S Moeschlin—p 119  
Management of Spontaneous Pelvic Presentation by Bracht Maneuver W Neuweiler—p 124  
Successful Surgical Treatment of Funnel Chest F Haberlin—p 126  
Acute Gangrenous Perforative Appendicitis and Its Therapy O Baumgartner—p 128

**Immunity Reactions and Sulfonamide Dosage in Pneumonia**—Maier and Grumbach point out that the discovery of the sulfonamides has not diminished the importance of immunobiologic processes but has given it a new direction. Certain investigators have denied that sulfonamide therapy influences the time of appearance of antibodies while others have noted considerable differences in their appearance after sulfapyridine and after sulfathiazole. It appeared that only one fourth of the patients treated with sulfapyridine had a positive precipitin reaction whereas three fourths of those treated with sulfathiazole gave positive reactions. This appears contradictory in view of the fact that fever disappears more rapidly under the influence of sulfapyridine than under that of sulfathiazole. American investigators made daily tests of the agglu-

tion values in 200 cases of pneumonia with the aim of determining the time when chemotherapy could be discontinued without the hazard of a relapse. There were many cases in which no agglutinin became demonstrable in spite of a favorable effect. They regarded this as "abnormal." Maier and Grumbach point out that the explanation is not necessarily to be found in the immunobiologic sphere. Munzinger has observed at the Hygiene Institute in Zurich that only for 99 of 209 typical pneumococci could corresponding agglutinins be found in the serum. In these tests not the missing agglutinin formation was stressed but rather the possibility that in an undetermined but considerable percentage "false," that is, epiphytic, pneumococci were found which had no connection with the disease. The authors stress this possibility and think that the time of appearance of the agglutinins and the prognostic evaluation based on it must be accepted with reservation. They determined the agglutinin content of patients with pneumonia against the homologous type of pneumococcus as well as against types 1, 2 and 3 pneumococci. Their results corroborated their former opinion that this is only one phase of the immunity. The clinical course and in particular, the complications are unrelated to the appearance of the agglutinins. Determination of their appearance is therefore of no value for the prognosis or the chemotherapeutic management. For the present, estimation of immunity in pneumonia must be based chiefly on the temperature curve, the leukocyte studies and the general condition of the patient. Because of the tendency to relapses during the first seven days of pneumonia, chemotherapy should be continued for an adequate length of time.

**Thrombocytopenia Due to Sedormid**—Moeschlin points out that the acute thrombocytopenia occasionally caused by sedormid (allyl-isopropyl-acetyl-carbamide) is a typical disturbance of the platelet apparatus, the study of which may throw light on the essential nature of anaphylactic thrombocytopenias as well as on the entire mechanism of the platelet regulation. Some authors consider an isolated impairment of the megakaryocytic apparatus of the bone marrow responsible for this type of thrombocytopenia, whereas others regard increased destruction (thrombocytolysis) responsible. The author attempted to clarify this problem by studies of sternal punctates and by controlling the decrease and subsequent increase in platelets during experimental tolerance tests with the aforementioned hypnotic. He describes observations in 10 cases. Observations of the megakaryocytes in sternal punctates during acute thrombocytopenia and during its later course disclosed no definitely pathologic changes. A slight deviation to the left developed in the megakaryocytic series of the bone marrow immediately after the development of acute thrombocytopenia. The myelogram remained practically unchanged, except for a mild increase in erythroblasts as a sequel of hemorrhages. Two or three days after the acute thrombocytopenia a noticeable and a progressive increase in blood platelets became apparent, and after from five to seven days normal values were reestablished. At first pathologic and large forms were often seen. They were interpreted as the result of inhibited maturation of the megakaryocytes. The exact control of the decrease in thrombocytes during the tolerance test reveals a rapid disappearance of thrombocytes in particularly sensitive persons as early as from thirty to sixty minutes. This indicates that in addition to the impairment of platelet production in the bone marrow the thrombocytes likewise disappear from the blood. Two blood transfusions in which a person sensitive to sedormid served as donor were carried out at the height of a thrombocytopenia; they produced in the recipient no decrease in the thrombocyte values. This seems to indicate that the blood contains no platelet lysin during acute sedormid thrombocytopenia. It proved impossible to transfer the hypersensitivity passively by transfusion to the recipient. The author concludes that in hypersensitive patients sedormid produces an impairment of the thrombocytes in the circulating blood and that in addition the maturation of the megakaryocytes in the bone marrow is temporarily inhibited. The hypersensitivity toward such substances is probably not of peripheral but of central origin, resulting from a sensitization of certain nervous centers that regulate the entire platelet apparatus.

0.5 to 2 per cent in an isotonic solution of sodium chloride to be used as nose drops or spray. Such an official preparation or a similar approved decongestant, either in isotonic sodium chloride or isotonic dextrose drops or spray is safe and should be tried. Such solutions stimulate the cilia and produce no harm in the function of the intranasal mucous membrane.

Only solutions have a tendency to reduce the speed of ciliary action and hence are not so strongly emphasized at the present time in the light of the newer physiology of the nose and its membrane, as well as the recent reports of lipid pneumonia.

These solutions are not absorbed as rapidly as watery salts, so that systemic effects are less likely to be encountered.

Because this patient has signs of effort and coronary artery disease it might be best to use a 0.5 to 1 per cent ephedrine alkaloid in light liquid petrolatum, to be used as a fine spray to decongest the engorged nasal mucous membrane during the dry congestive stage of the head cold.

Care must be taken that this solution is fresh, therefore, be sure that the pharmacist has fresh preparations and prescribe only a small quantity at intervals.

If the only preparation does not produce good results, try sprays of 0.5 to 2 per cent ephedrine sulfate in isotonic solution of sodium chloride.

It is important to emphasize once again that the nose should be kept open and the mucus free and clean.

### HYSTERICAL OCULAR SYMPTOM

*To the Editor*—A white man aged 44, a grocery clerk, presents a negative family history except for bronchial asthma. He had the usual childhood diseases, has had influenza every winter, has sore throat often and has had diminished hearing for the past two years. His present complaints began four years ago. About once a week he gets a spell of rolling his eyeballs upward and to the right, and his head turns to the same side with the face turned upward. This condition lasts from a few minutes to a half hour and cannot be produced voluntarily. The spells come on more readily if he snoops a lot or if he is greatly excited. Relief is obtained by lying down and shutting his eyes, whereupon a clonic blepharospasm appears. When the eyelids are opened the eyes look straight but gradually roll upward to the former position. He complains of blurring vision during the spells and cannot see below the level of his head. He feels the oncoming spell by a heavy pressure in the eyeballs a half hour before. His mind is not dimmed during the spells. The eye specialist could not find anything wrong, and several practitioners treated him for his nervous disease without success. He uses neither alcohol nor nicotine. His eyes show a normal appearance and pupils react to light and accommodation fairly well. During the spell, convergent strabismus is noted. There is no adenopathy nor tenderness over nerve points. The heart is within normal borders, and no murmurs are heard. Reflexes are increased. Kahn test is negative. I would appreciate your advice on this case.

M D, Mount Zion, Ill

*ANSWER*—This sounds like a purely hysterical manifestation and corresponds closely to the description given by Ullrich and by Wildbrand-Saenger. A rather extensive discussion of similar phenomena can be found in the sixth volume of the *Kurzcs Handbuch der Ophthalmologie*, published by Schneck & Bruckner. An examination by a psychiatrist or a psychoanalyst would seem to be indicated.

### CARE OF FINE HAIR

*To the Editor*—A woman patient whose hair is soft and silky has much difficulty with coiffures. Is there any evidence that vitamin therapy has any effect on the hair or is there, to your knowledge, some safe external preparation which may be used?

M D, Ohio

*ANSWER*—There is no evidence that vitamins have any effect on the texture of the hair.

The hair should be shampooed at weekly intervals with one of the so-called soapless shampoos, of which sulfated olive oil may be regarded as the best. In addition to their excellent detergent qualities, these shampoos also have a good lubricating value. The latter may be enhanced by adding liquid petrolatum in various proportions, depending on how dry the hair is. The addition of liquid petrolatum does not materially decrease the cleansing action.

If ordinary shampoos are used, the hardness of the water should be ascertained and a suitable water softener added before washing the hair. Information on this point may usually be obtained from the local health department. In hard water, soap will form insoluble salts, which cannot be washed out of the hair. As a result the hair becomes dull and brittle and cannot be set properly. Acid rinses after the shampoo are often recommended but useless.

Care should be taken regarding permanent waving, especially with fine silky hair. A preliminary "test curl" will permit the proper regulation of the heat. Too frequent permanent waving will render the hair excessively dry and difficult to dress.

Massaging the scalp with olive oil a few times weekly may also be of advantage.

### TETANY OR HYSTERIA?

*To the Editor*—A woman aged 23 was delivered by cesarean section of a premature infant three months ago. She made an uneventful recovery, and the baby remained in the hospital. Her breast milk was brought to the hospital to feed the baby, and it was found that she was producing so much milk that there was plenty to feed another infant. On February 21 the baby was brought home, and on that day suddenly the mother experienced a severe pain in the back of the neck and back, causing opisthotonos, abdominal cramps, generalized aching and headache. A diagnosis of calcium deficiency was made, and calcium chloride was given in the vein with almost immediate results. The breasts dried up and the baby was put on the bottle. However, her spasms continued and soon the patient would become completely unconscious with her jaw absolutely rigid—this without warning and at indefinite times during the day, limited to once daily. Response to calcium was immediate. She has had these attacks about every other day to every day since February 21, has had calcium in the vein and intramuscularly, solution of parathyroid, viosterol and vitamin D and calcium by mouth but the attacks continue. Between times she is perfectly well, although her appetite is poor and her normal red blood count has fallen. Please advise as to prognosis, treatment and value of blood transfusions.

M D, Oklahoma

*ANSWER*—Unfortunately nothing is said in this patient's record concerning the level of blood calcium and phosphorus. While tetany is suggested as the diagnosis by the history of pregnancy, the galactorrhea, the symptoms as outlined and the response to calcium therapy, the diagnosis of calcium deficiency has not been established with certainty. Until the diagnosis is based on a definite demonstration of the lack of calcium, the possibility of other forms of tetany and of hysteria should be considered.

In the event that the case is one of tetany and the calcium content of the blood is depleted, continuation of treatment along the lines now employed eventually should lead to cure. It is necessary, of course, to maintain the blood calcium at or above the normal level. In many cases of tetany the oral administration of dihydroxytachysterol proves helpful. This is particularly valuable in chronic cases when treatment must be continued over a long period of time.

In the event the blood chemistry is found normal and continues so on rechecking, the management of the case should include some form of psychotherapy along with liberal use of sedatives.

Blood transfusion does not seem to be indicated and would probably prove futile.

### MUMPS AND PURPURA

*To the Editor*—Please advise as to the occurrence of purpura as a sequela three weeks after the onset of an attack of mumps. Holt and McIntosh, as well as Brenneman's *Pediatric System*, fail to make any mention of it. The second edition of Griffith and Mitchell mentions it as a rare complication, but I find no reference in the past three years in the *Quarterly Cumulative Index Medicus*.

Henry Mitchell Gloubman, M D, Hartford, Conn

*ANSWER*—The occurrence of purpura three weeks after the onset of an attack of mumps may be an isolated phenomenon which has nothing to do with the mumps. The reference in Griffith and Mitchell (*The Diseases of Infants and Children*, ed 3, Philadelphia and London, W B Saunders Company 1933) merely states that "among other unusual complications and sequelae may be mentioned erythema, purpura, endocarditis, pericarditis, polyarthritis, peritonitis, laryngeal stenosis, appendicitis and pneumonia." They do not mention that it may occur weeks after the onset of mumps, and petechiae may of course occur during the course itself of any severe infection. Obviously the question cannot be answered satisfactorily without knowing all the details of the case.

### PHOTOGRAPHIC INDUSTRY AND CATARACTS

*To the Editor*—Do you know of any instance on record in which cataracts have been produced by exposure to chemicals used in the processing of motion picture films? There is a case in this country at the present time in which a claim is being made that cataracts are produced in this way. I do not know the details, but the question has come to us as a photographic industry. I know of no instance in which this has been true.

W A Sawyer, M D, Rochester, N Y

*ANSWER*—As far as the literature shows, there is no such case on record. There are only three ways in which a chemical substance could be absorbed to produce cataractous changes in the lens: (1) through the respiratory passages, (2) through the alimentary tract and (3) through the skin. The first two are, of course, out of the question. The third method is possible, but, as far as known, none of the chemicals used in the photographic industry will produce changes in the crystalline lens.



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## DERMATOLOGY IN THE ARMY

CHAIRMAN'S ADDRESS

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SAN ANTONIO, TEXAS

War calls for unselfish effort and sacrifice on the part of every one. This particular war will drain our resources of money, men and material and will tax the skill and brain power of the country immeasurably. American medicine has already contributed a good share in skill and talent to the military efforts and is now cooperating well on the realization of a program of distributing itself equably to care for military, civilian and industrial needs. The military needs naturally are to be satisfied first with those best qualified for such duty. This will throw added burdens and duties on those who are left to care for the civilians. The whole program will result in a readjustment of every one's manner of living or conduct of business, and there will be no easy berth for any one—not even the slacker. The effort has to be extreme and the only ones immune from the pinching effects of it should be institutionalized psychopathic patients and babes in arms.

When called into service the first lesson for a dermatologist to realize is that he is a doctor and will be used as such. He has defined himself as an "internist who knows the skin," and he will be challenged accordingly. This is not meant to indicate that specialists are not needed and will not be used as such in the armed forces, for every specialist will be of value. However the plans of organization call for a distribution of medical officers according to where physicians are needed and what is most expedient. These requisites are to be satisfied first before a physician can be expected to be put into a limited field wherein he does nothing but the work that he did in civil life. This is no time for any of us to indulge in any misgivings, whether we are civilians or in uniform. It takes time to organize men and distribute doctors properly, and we must remember that in days of peace the reserve force was not fully equipped with men, so that when war started it was necessary to use doctors first as doctors and not as specialists. We have a war to win, and each of us has a part to play. We are expected to have a working knowledge of general medicine and to contribute this. Our specialty qualifications are a secondary consideration.

Military medicine has three chief purposes: (1) the selection of the physically fit, (2) prophylaxis and (3) the treatment of the injured and sick. While very

important, the last is the easiest and the least important in war. The selection and separation from the service of the physically unfit, the malingerers and the psychopathic persons is essential in the formation of a strong man power. These persons should be, and many are, eliminated by the local draft boards and some more are culled at the induction centers. Yet a number of undesirables get into the service. They are encumbrances and the military forces have no place for them. The Army and Navy are not rendezvous for criminals and men with dementia precox, they are not vacation adventures in which to place problem children, and they have more serious duties than to pamper mollycoddles. We are not fighting interior races but armies composed of superior specimens of physical manhood. It is to be hoped that we will have enough strong virile men.

Certainly every cooperation should be given by the medical profession in this matter of selection of the physically fit for our military forces. It is appalling to contemplate the number of inferior specimens of American manhood who have been turned down on entrance or have been separated from the service after induction into the Army. This reflects on our eugenics, our eugenics, our soft ways of living, but that is not the country's problem now. We must first be concerned with removing hell from earth before trying to build a utopia on it.

Preventive medicine has its most important field in wartime. Sanitation, control of vectors, pure food and water, eradication of disease carriers, and immunization are essential medical practices which are second nature to all physicians whether public health experts or dermatologists.

The dermatologist's training fits him for general medicine. It embraces syphilology, histopathology, pharmacology, biochemistry and radiation and physical therapy. He has delved into psychology, gynecology and gastroenterology. Very few realize what a broad field is covered in the examination given by the American Board of Dermatology and Syphilology. The dermatologist's work in allergy gives him a wide perspective on general medicine. It develops an analytic mind which is meticulous about details, searches for truth and protects the dermatologist in a great measure from worshipping therapeutic and etiologic fetishes. Such qualifications bespeak resourcefulness and versatility, which are prime requisites for a medical officer. There are 670 registrants of the American Board of Dermatology and Syphilology. From them will come a valuable addition to the armed forces.

### DERMATOLOGIC PROBLEMS

The variety of dermatoses encountered in military medicine is less than in civilian life because the preliminary examinations cull out many of the chronic conditions such as extensive nevi, neoplasms, lupus

From the Station Hospital, Fort Sam Houston.  
Read before the Section on Dermatology and Syphilology at the  
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erythematosis and psoriasis. Atopic dermatitis will be encountered occasionally, but such a diagnosis is a cause for discharge, and therefore the treatment of it is limited. Conditions of a recurrent nature that require repeated hospitalization cannot be tolerated, because every effort of military medicine is aimed at reducing the number of noneffective soldiers. Therefore the chief dermatologic problems will be acute conditions, such as irritations, burns and infections. Medical officers will be spread thick in most places, and this will require standardization of treatment methods.

The chief dermatologic problems will be therapy, syphilis, insect bites, dermatitis venenata (rxv) and trichophytosis, excepting endemic diseases in foreign countries. The following discussion of these topics contains nothing new to dermatologists but is offered with the purpose of answering questions that are frequently propounded by nondermatologist medical officers who are called on to treat those conditions.

#### DERMATOPHYTOSIS

The two chief fungous infections that affect soldiers most commonly are dermatophytosis of the feet and tinea versicolor. They find cultural conditions most favorable. When it is realized that their spores may live in the clothing<sup>1</sup> that sterilization of floors is difficult and that shoes serve as a good culture medium,<sup>2</sup> this increased incidence is explained. The effect of close contact on the incidence of dermatophytosis of the feet is seen in a study of students at the University of California.<sup>3</sup> The incidence of 51.5 per cent at the beginning of a semester increased to 78.6 per cent at the end of the semester in a group of 1,000 freshmen who were exposed to the gymnasium environment.

The successful eradication of pityriasis versicolor entails prevention of the reimplantation of the organism on the skin from the clothing along with persistent local treatment, which in most cases would require individualized care—a desideratum difficult to obtain in a unit that is mobile.

These diseases gain incidence in hot weather, and this is explainable by the fact that heat and moisture favor the propagation of the organisms. Tinea versicolor frequently takes on an erythematous appearance, losing its common fawn colored characteristic. This is no doubt due to the irritation of perspiration and friction of clothing which changes the otherwise inert infection into a mild inflammation. It never loses the characteristic crinkled appearance of the surface epithelium which peels easily on light scraping with an instrument. The condition is commonly seen exhibiting confluent patterns that cover solidly the back or front of the torso. In these widespread cases there are no associated sensory changes—no itching—but an occasional complaint of burning on perspiration.

The effect of heat and perspiration on dermatophytosis of the feet is to raise the incidence of the inflammatory types. Lewis<sup>4</sup> in a cultural study of 215 cases found that *Trichophyton gypsum* is the organism usually responsible for the inflammatory types of the infection. However, in hot weather other factors enter into the production of disabling foot infections. The presence of the mycelium of the fungus in the rete

causes an easy detachment of the protective keratin layer. The high top shoe adds to a cause for perspiration, which in itself macerates the keratin layer. Friction against the shoe and weight bearing add enough trauma to devitalize the skin, which favors the propagation of pyogenic organisms, which thus frequently become the predominant infection.

**Treatment**—The treatment of infections of the foot is most satisfactorily accomplished by more attention to certain principles of treatment and less to any particular medicament.<sup>5</sup> These demand treatment of the skin rather than of the primary disease. These principles are roughly as follows: 1 Allaying the inflammation before resorting to the stronger fungicides, in other words, not irritating an already inflamed skin with strong chemicals. 2 Rest—the response to treatment is greatly accelerated by avoidance of weight bearing and rubbing of the infected skin. In cases in which there has been an exfoliation of the skin as a result of the disease plus keratolytic medication, the feet should be given time to regenerate a tough integument before the individual resumes heavy duty on his feet. 3 Use of keratolytic agents when the skin is ready for them. Most fungicides serve a dual purpose: first, they have either a fungicidal or a fungistatic effect and, second, they thin the infection by causing a “growing off” of it. 4 Prevention of early recurrences by sterilization of shoes and use of foot powders.

Numerous methods of treatment have been proposed. Strickler<sup>6</sup> has recommended the use of the Henal vacuum vaporizer in using iodine. Swartz<sup>7</sup> has recommended treatment by inhalations of ethyl iodide. (This is not without danger.) Iontophoresis of copper sulfate was advanced as a treatment.<sup>8</sup> This resulted in a short lived wave of popularity and received proof of its worthlessness by the experiments of Greenwood and Rockwood.<sup>9</sup> Various studies on fungistatic and fungicidal properties of drugs have been made but the most significant are as follows: “Iodine transcends all other medicaments in restraining the growth of certain molds”,<sup>10</sup> “iodine and chlorine (surgical solution of chlorinated soda) have the highest phenol coefficients”,<sup>11</sup> “potassium iodide appears to possess the property of enhancing fungicidal power of vaporized iodine to a considerable degree”,<sup>12</sup> the combination of salicylic and benzoic acids works far better than either one alone.<sup>13</sup> The use of iodine is not as popular as Whitfield's ointment or even as the combination in Strickler's solution (which is iodine crystals 1.3 Gm, potassium iodide 1.9 Gm, salicylic acid 1.9 Gm, boric

<sup>5</sup> Symposium on Practical Management of Eczematous Ringworm of the Hands and Feet (Athlete's Foot and Dermatophytosis and Dermatophytid), *J. Invest. Dermat.* **3**: 523 (Dec.) 1940.

<sup>6</sup> Strickler, Albert. Fungicidal Properties of Certain Clinically Recognized Fungicides. Laboratory Determination Using the Strickler Borneman Apparatus and the Henal Vacuum Vaporizer. *Arch. Dermat. & Syph.* **28**: 836 (Dec.) 1933. The Henal Vacuum Vaporizer, *ibid.* **25**: 1097 (June) 1932.

<sup>7</sup> Swartz, J. H. Treatment of Fungous Infections with Ethyl Iodide Inhalations. A Review. *Arch. Dermat. & Syph.* **40**: 962 (Dec.) 1939. Inhalations of Ethyl Iodide in Fungous Infections. *ibid.* **32**: 551 (Oct.) 1935.

<sup>8</sup> Haggard, H. W., Strauss, M. J., and Greenberg, L. A. Fungous Infections of Hands and Feet Treated by Iontophoresis of Copper. *J. A. M. A.* **112**: 1229 (April 1) 1939.

<sup>9</sup> Greenwood, A. M., and Rockwood, Ethel M. Iontophoresis of Copper Sulfate in Cases of Proved Mycotic Infection. *Arch. Dermat. & Syph.* **44**: 800 (Nov.) 1941.

<sup>10</sup> Schamberg, J. F., and Kolmer, J. A. Studies in the Chemotherapy of Fungous Infections: the Fungistatic and Fungicidal Activity of Various Dyes and Medicaments. *Arch. Dermat. & Syph.* **6**: 746 (Dec.) 1922.

<sup>11</sup> Emmons, C. W. Fungicidal Action of Some Common Disinfectants on Two Common Dermatophytes. *Arch. Dermat. & Syph.* **28**: 15 (July) 1933.

<sup>12</sup> Gould, A. G., and Carter, Edna K. Fungistasis in Ringworm of the Toes and of the Feet. *Arch. Dermat. & Syph.* **22**: 225 (Aug.) 1930. Sharlit, Herman, and Muskatblit, Emanuel. A Search for a New Method for the Determination of the Fungicidal Action of Chemicals. *ibid.* **25**: 615 (April) 1932.

<sup>1</sup> Farley, D. L. The Viability of Ringworm Fungi in Dry Cutaneous Material. *Arch. Dermat. & Syph.* **3**: 759 (June) 1921.

<sup>2</sup> Ayres, Samuel, Jr., Anderson, N. P., and Youngblood, Esther M. Fumigation as an Aid in Control of Superficial Fungous Infections. *Arch. Dermat. & Syph.* **24**: 283 (Aug.) 1931.

<sup>3</sup> Legge, R. T., Bonar, Lee, and Templeton, H. J. Epidermomycosis at University of California. *Arch. Dermat. & Syph.* **27**: 12 (Jan.) 1933.

<sup>4</sup> Lewis, G. M., and Hooper, M. E. Introduction to Medical Mycology, Chicago, Year Book Publishers, 1939, p. 85.

acid 38 Gm and alcohol [50 per cent] to make 591 cc.) This is partly because of the frequent irritation of the skin induced by iodine. However, a recent product iodocholeate,<sup>13</sup> gives promise of becoming a valuable addition to the armamentarium of "ring-worm therapeutics" because (1) the iodine in iodocholeate is released from its adsorption to bile salts as free iodine more slowly than the iodine in the tincture—in other words is less volatile, (2) the iodine in this product combines less with protein than the iodine of the tincture. Schrimberg and Kolmer<sup>10</sup> found brilliant green the best restrainer of growth and methylosaniline the best fungicide among the dyes. Castellani's formula<sup>14</sup> of carbolfuchsin though it does not serve as a panacea, serves a good purpose in practice, particularly when a nonirritating fungistatic agent is desired. Wise and Wolf<sup>15</sup> listed the following agents as fungistatic or fungicidal and suitable for use in practice: ammoniated mercury, peruvian balsam, benzoic acid, betanaphthol, mercury bichloride, iodine, chrysarobin, oil of cinnamon, phenol, potassium permanganate, pyrogallol, resorcinol, salicylic acid, silver nitrate, sodium thiosulfate, sulfur, tar, thymol.

In treating the disease in the Army one cannot always follow a fixed routine and has to vary treatment according to conditions as well as what medicaments are obtainable. The following routine is suggested, as it employs drugs that are standard items on the Army drug list. It can be divided roughly into (1) treatment in the acute inflammatory stage, (2) treatment in the subacute stage, (3) treatment to the intact skin with fungicidal agents.

**Treatment for Acute Inflammation.** Rest is a valuable aid, particularly if the secondary infection has resulted in cellulitis or lymphangitis. If the secondary pyoderma is attended with pustules, drainage is essential. Tops of all pustules should be manicured away and wet dressings should be used. It is important in this stage not to use eczematogenic drugs (i. e. those likely to cause a sensitization dermatitis, such as picric acid). Neither should keratolytic agents be used, such as the Whitfield formula. The condition should be treated for what it is—a cellulitis. Wet dressings continuously applied are best. The choice of the agent is optional. One of the following will be of value: (1) liquor aluminum acetate diluted 10 per cent, applied at room temperature uncovered to allow evaporation, (2) warm potassium permanganate solution (1:6,000), (3) warm boric acid solution, (4) warm magnesium sulfate solution. The dressing should be taken off daily. It is helpful to soak the affected parts in warm soapsuds for ten to fifteen minutes to soften the skin. At this time all pustules and attached skin that dams back infection should be carefully manicured away. This is to be followed by some oxidizer such as a 2 per cent solution of sodium perborate for another ten to fifteen minutes. It is an additional aid in softening the detritus and epidermal scales. The wet pack is reapplied for another twenty-four hours. In using the wet pack one must take care to see that it is applied correctly. Otherwise time will be lost. It should be applied so that the dressing is solidly against every contour of the inflamed skin, to accomplish this pledgets should be placed between the toes and the bandage

should bring the dressing up against the skin, for example a dressing applied to the instep. After a few days the acute inflammation subsides, the drainage stops and there is visible evidence of epithelial repair.

**Treatment for Subacute Inflammation.** Even here the strong fungicides are contraindicated. However, some of the fungistatic agents can be used, such as carbolfuchsin or methylosaniline. A suitable formula for this is McFarland's<sup>16</sup> (methylosaniline 6 Gm, alcohol 24 cc and water 120 cc). The epidermis is not tough. In fact there may yet be denuded areas. The soaks can be continued each day and followed by a dressing with a mild antiseptic ointment, such as boric acid, ammoniated mercury, or the methylosaniline, followed (after it dries) with simple Lassar's paste and a dressing.

**Active Fungicidal Treatment.** When the skin repairs a change to active fungicidal agents can be considered. The most popular and the one that is most serviceable is Whitfield's formula. All strong ointments that are applied to the feet are preferably applied at night, particularly if it happens to be one containing an essential oil or a substance that is apt to act as a vesicant when the shoes are worn. If the change is made to Whitfield's ointment when the skin is tender, a 50 per cent strength had best be used. A modification of this formula put in liquid form is advantageous for a person who naturally has hyperhidrosis, as it has a drying action and thus inhibits propagation of the fungus. Peck and his associates<sup>17</sup> have shown that some of the organic acids naturally present in the skin act as fungistatics and this is an indication for incorporating into the prescription one of these, such as lactic acid. I feel that it fortifies the efficacy of the combination of salicylic and benzoic acids in a liquid menstruum.

**Foot Powders.** The use of foot powders is of distinct value and they are recommended. They aid in keeping the feet dry. That is one advantage. Another is that if they contain a fungicidal or fungistatic agent a better opportunity is presented for a more continuous application, as perspiration dissolves the medicine. In the shoes they help to weed out the source of reinfection. A serviceable foot powder is the following: thymol 1 per cent, boric acid 10 per cent, zinc oxide 20 per cent, purified talc to make 100 per cent. The use of foot powders containing as much as 3 per cent salicylic acid is contraindicated for soldiers because the salicylic acid adds to the macerating effect of the perspiration and causes a denudation of the epithelium. Thus, it may defeat its purpose in the attempt to prevent a crippling effect of the infection.

**Irradiation.** Roentgen treatments are of distinct value in the inflammatory types of the infection and in the subacute types. They have an antipruritic effect probably faster than any other agent and also a satisfactory sedative effect on inflammation. In fact, roentgen treatments contribute greatly in reducing the duration of the inflammatory stage of the infection. They should be administered in small doses (70 roentgens) at weekly intervals. Larger doses do no more good, nor will oft repeated treatments do any more than weekly treatments. Usually not more than three or four are necessary in the worst cases, and rarely are that many.

13 Lever W. F. Iodocholeate, a New Fungicidal Preparation. Preliminary Report. Arch. Dermat. & Syph. 40: 19 (July) 1939.

14 Castellani Aldo. Treatment of Certain Types of Epidermophytosis by Means of a Carbolfuchsin Paint. New Orleans M. & S. J. 30: 833 (June) 1925.

15 Wise Fred and Wolf Jack. Use of the Dermal Parasiticide. J. A. M. A. 107: 1126 (Oct. 3) 1936.

16 McFarland A. R. The Use of Gentian Violet Locally in Dermatologic Conditions. Arch. Dermat. & Syph. 17: 16 (Jan.) 1928.

17 Peck S. M. Rosenfeld Herbert. Leifer William and Bierman William. Role of Sweat as a Fungicide. With Special Reference to Use of Constituents of Sweat in the Therapy of Fungous Infections. Arch. Dermat. & Syph. 39: 126 (Jan.) 1939.

Peck S. M. and Rosenfeld Herbert. The Effects of H/Ion Concentration, Fatty Acids and Vitamin C on Growth of Fungi. J. Invest. Dermat. 1: 237 (Aug.) 1938.

necessary provided judicious local care is given. Using roentgen rays with such a plan keeps the dosage well within safety limits. Many have the mistaken idea that roentgen rays are fungicidal and bactericidal. This is not the case. Jacobson<sup>18</sup> experimented with effects of them on cultures of various fungi and concluded that the results of this investigation, while not conclusive, seem to suggest that the beneficial therapeutic effects of roentgen irradiation on the clinical mycoses are largely due to the action of these rays on the tissues primarily, which in turn probably through some intermediary unknown factors of immunity generated in them by the roentgen rays exercise an adverse effect on the infecting parasites *in situ*.<sup>19</sup> Ultraviolet radiation itself has no cumulative value. However, it activates the dyes and with them is of therapeutic benefit.<sup>20</sup>

**Trichophytin.** The use of trichophytin as a therapeutic agent is not yet on a well established basis. Its use as a diagnostic agent, particularly in the handling of vesicular dermatitis of the fingers, is unquestionable. Recent work on the preparation of it may add somewhat to its therapeutic efficacy as an immunizing agent. Peck and his associates<sup>21</sup> have revived the idea that there is a skin reactive factor and an immunizing factor in trichophytin, and they were able to produce either by controlling the pH of the culture medium. Miller's<sup>22</sup> method of preparation yielded a trichophytin which stimulated the production of complement fixing antibodies and precipitins when injected into rabbits, and he stated that it was suitable for use in serologic tests to detect the presence of circulating antibodies in human infections. It is beyond the pale of human imagination to expect that ringworm vaccine will ever replace the need for local medication of the infection.

**Prophylaxis.** Infected nails often serve as a source of reinfection and should receive attention. Avulsion is sometimes recommended though not always necessary. By persistent care and attention, scraping and macerating the infected nail substance and application of one of the commonly used medicaments, it is the usual experience for one to grow off the infected nail. This cannot be accomplished in one whose nails do not grow at a normal rate.

A source of infection in civil life is commonly floors, except in fixed barracks this is not an important source in the Army. The soldier's shoes are his greatest source of reinfection. Many is the time that his shoes do not have time to dry or get an inside cleaning. However, every attempt should be made to sterilize them, according to the opportunity. Formaldehyde is the most efficacious and cheapest.<sup>22</sup> Much of the crippling effects of fungous diseases of the feet can be prevented by sterilization of the shoes and socks, keeping the feet as dry as possible, the use of a foot powder and early treatment of latent infections before the hot season commences.

Of all cutaneous diseases of soldiers, trichophytosis is the most important because of its potentiality of taking him off of his feet.

#### DERMATITIS VENENATA (POISON IVY AND TROPICAL PLANTS)

No better opportunity can be offered for studies on the treatment and prophylaxis of poison ivy dermatitis than the Army on maneuvers. Shelmire<sup>23</sup> and Stratton<sup>24</sup> have indicated that the antigenic principle is the same regardless of the plant (one or more species of which is widespread over the United States). The former has shown by experiments how difficult it is to wash the active principle off of the hands or clothing. The soldier in the field has little opportunity to avoid spreading it over himself by his clothes or other fomites, which accounts for many cases of severe crippling dermatitis. His contact, when it occurs, is usually not a light one. On maneuvers frequently he has to crawl or lie down in the plant, and the practice of camouflage does not permit any selection of leaves in which to hide himself, cannon or truck. The plant vies with gas in producing noneffectives in certain locations.

**Treatment.**—Regardless of the severity of the dermatitis, it is incapacitating to a large percentage of soldiers. The problem is a dual one—treatment and prophylaxis. Patients with severe involvement require hospitalization. Such persons need a complete change of clothing and environment to prevent further inoculations of their skin with the irritant. There are a long list of prescriptions and medicines advised. Calamine lotion is the universal agent used. It is palliative in cases of mild involvement. The ones with a considerable amount of vesicles and bullae require wet packs, and the standard preparations are Burow's, boric acid and potassium permanganate solutions. Subacute irritations are frequently handled satisfactorily by painting with saturated solution of potassium permanganate. It, Castellani's formula of carbolfuchsin and boric acid have antipruritic qualities. A boric acid paste is a good antipruritic. Cold is better than heat in that respect. The selection of the drug used depends a great deal on what is most readily obtainable. In this respect potassium permanganate is the most practical because it is cheap and requires no great amount of room in a medicine kit. Determination of the practicability of sodium perborate ointment<sup>25</sup> as a protective for soldiers needs further study. The probability of its deterioration and the bulkiness of jars of it do seem to rule against its adoption.

The value of injections of the extract of the plant for treatment as well as for prophylaxis is still in a state of flux. Reports on their efficacy are contradictory. Zisserman and Birch<sup>26</sup> studied a group of 1,731 boys at a boy scout camp. Three hundred and four received prophylactic intramuscular injections. The incidence of subsequent poison ivy dermatitis was 51.6 per cent in the treated group and only 33.6 per cent in the camp as a whole. Greenberg and Mallozzi<sup>27</sup> studied a group and found that 27 per cent who were specifically "immunized" contracted poison ivy dermatitis, while it occurred in 36 per cent of those who received control injections. A list of other contributors to the subject

18 Jacobson, H. P. Effects of Roentgen Rays on Fungi in Vitro, Arch. Dermat. & Syph. 38: 38 (July) 1938.

19 Gomez Vega, Paulina. Effect of Irradiation and Irradiation plus Sensitization on Yeastlike Fungi and Related Organisms, Arch. Dermat. & Syph. 34: 961 (Dec.) 1936.

20 Peck, S. M., Glick, Arthur, and Weissbard, Edward. Trichophytin II. The Apparent Separation of the Skin Reactive Factor from the Therapeutic Principle in Trichophytin, Arch. Dermat. & Syph. 44: 816 (Nov.) 1941.

21 Miller, H. E., Stewart R. A., and Kimura, Frances. Undenatured Trichophytin. Preparation and Clinical Application, Arch. Dermat. & Syph. 41: 804 (Nov.) 1941.

22 Henderson, Yandell. Fungous Infection of the Feet. Fumigation of Shoes with Formaldehyde as a Means of Treatment, Arch. Dermat. & Syph. 26: 710 (Oct.) 1932. Ayers, Anderson and Youngblood—

23 Shelmire, Bedford. The Poison Ivy Plant and Its Oleoresin, J. Invest. Dermat. 4: 337 (Oct.) 1941.

24 Stratton, E. K. Poison Oak and Poison Ivy. I. Dermatitant Units as Standard Measure of Potency for Extracts from these Plants, J. Allergy 11: 591 (Sept.) 1940.

25 Schwartz, Louis, Warren, L. H., and Goldman, F. H. Protective Ointment for the Prevention of Poison Ivy Dermatitis, Pub. Health Rep. 55: 1327 (July 26) 1940.

26 Zisserman, L., and Birch, L. The Prophylaxis of Poison Ivy Dermatitis with an Extract of Rhus Toxicodendron, J. Allergy 10: 596 (Sept.) 1939.

27 Greenberg, Solomon and Mallozzi, Ella D. Experiments in Poison Ivy Sensitivity. Effects of Specific Injections on the Level of Sensitivity to Quantitative Patch Tests and on Clinical Susceptibility, Arch. Dermat. & Syph. 42: 290 (Aug.) 1940.

who report good<sup>23</sup> and poor or no<sup>23</sup> results is appended. It is seen that the ones who give encouraging support to the idea that immunizing results can be obtained are Shelmire, Molitch and Poliakoff, and Keeney. Shelmire gave orally ascending doses of a 1:25 or 1:10 dilution of the oleoresin for a period of several months, and he demonstrated varying degrees of reduced sensitivity. The technique that Molitch and Poliakoff used consisted in continuous injections from the first appearance of the poison ivy leaves until the first frost, a period of five months. The dosage was that recommended by Spain and Cooke<sup>30</sup> at intervals of a week. The first dose was 1 cc of a dilution of 1:10,000 with gradual increase in the strength up to 1 cc of 1:500. Keeney<sup>23</sup> recommends protection by taking advantage of the refractory period (six to eight weeks) that follows a positive patch test. Further work is necessary to standardize this procedure. For protecting soldiers in the field it offers the advantage of simplicity and the saving of supplies and administrative details.

Stratton<sup>24</sup> has recommended a standardization of dosage of the extract on the basis of the dermatitis producing activity of an extract on the shaved skin of an animal. He has selected as 'representing 10,000 dermatitizing units that quantity of poison oak or poison ivy extract contained in 0.1 cc of designated solvents which, when applied without cover' to the epilated skin of animals which do not become sensitized, such as the rabbit, rat or mouse, in the form of a stripe (3 cm in length by 6 mm in width) is just sufficient to elicit an erythematous reaction within forty-eight hours." There is need for a standardization of poison ivy extracts. It has been shown by more than one observer that products of the commercial houses vary in their strengths.

Many physicians use one or more of the products in treatment or in an attempt to immunize. Many patients demand it. An occasional dramatic improvement in signs and symptoms is seen, and for this reason if no other, its popularity will continue. A conclusion

should not be drawn regarding immunization unless it is definitely known that the individual actually has had a "clinical exposure." There is still a need for further work to determine what is the best method of hypersensitization to protect a sensitive person from incapacitating attacks of the dermatitis when exposed in an ordinary manner. A plan that is practical would be a valuable contribution to military medicine.

#### TROPICAL PLANTS

In the tropics there are plants which cause irritation of the skin either by hairs, thorns or spines or by their irritating sap. They are listed<sup>31</sup> in the accompanying tabulation.

#### DERMATITIS DUE TO INSECTS

Satisfactory methods of curbing some of the insects have been worked out by military medicine in the past, notably those for pediculosis corporis. The delousing

#### *Tropical Plants Causing Irritation of the Skin*

| Plant                  | Irritating Principle   |
|------------------------|--|
| Spanish nettle (shrub) | Stinging hairs on stems  |
| Cow itch (vine)        | Hairs on seed pods   |
| Panama (tree)          | Hairs of fruit   |
| Acacia (shrub)         | Ants in its spines   |
| Black palm             | Spines of leaf and trunk   |
| Beach appl.            | Sap  |
| Mango                  | Sap  |
| In the Philippines     |  |
| Kaong palm             | Hairs on fruit   |
| Dumayaka palm          | Hairs on fruit   |
| Fishtail palm          | Hairs on fruit   |
| Lipang kalabao (tree)  | Hairs on leaves  |
| Lipang morado (tree)   | Hairs on leaves and stems  |
| Lipa (tree)            | Hairs on trunk or leaves   |
| Dilano (vine)          | Hairs on leaves and stems  |
| Pungapung (shrub)      | Juice of stem  |
| Ligas (tree or shrub)  | Sap of trunk   |
| Buta buta (tree)       | Latex or bark (a violent irritant—poisonous if taken internally) |
| Panay                  |  |
| Kamanday (tree)        | Sap or trunk (fatal if taken internally)                         |
| Dalit (tree)           | Sap is poisonous internally                                      |

methods used in the last war may again be necessary, but up to date this has not become much of a medical problem.

Scabies is ever present, but its incidence is held down to an inappreciable amount by the monthly physical examinations and isolation practices. Yet when troops are in the field more favorable conditions for its increase arise. Its diagnosis is not difficult except in atypical cases and in them a trained dermatologist can render aid.

There are two insects which in southern United States are particularly voracious and cause no end of trouble in the hot season—chiggers and ticks. Any one who has not had the experience of a generalized intensification of chiggers over his body has not yet tasted one of life's bitterest pills. They give rise to pruritic papules which itch long after the insect has been destroyed. They and the tick bites are the beginning of many cases of pyoderma, which result in a further loss of troops because of hospitalization. The impetiginous and furuncular lesions of tick bites frequently result in small nodular granulomas which involute very slowly and which in some cases undergo exacerbations of itching days or weeks apart. In some instances a cycle of neurodermatitis develops. During the maneuvers of the fall of 1941 there were no patients with Rocky Mountain spotted fever and only 1 with tularemia evacuated from the field to the Station Hospital at Fort Sam Houston. This hospital did not receive any patients evacuated from any Pacific states. How-

- 28 Reports of good results include: Williams C F. Ivy Poisoning. *M J & Rec (supp.)* 119:131 (June 4) 1924.
- Alderson H E. Treatment of Poison Oak Dermatitis. *California & West Med* 23:982 (Aug.) 1925.
- Brings G L. Successful Desensitization and Treatment of Poison Ivy and Poison Oak Poisoning. *Arch Dermat & Syph* 9:602 (May) 1924.
- Gowen G H. Treatment and Prevention of Rhus Toxicodendron Poisoning. *J Allergy* 4:519 (Sept.) 1933.
- Caulfield A H W. Prevention of Poison Ivy Dermatitis by the Intramuscular Injection of Rhogen. *Canad. M A J* 37:18 (July) 1937. Specific Diagnosis and Treatment of Poison Ivy (Rhus Toxicodendron). *J Allergy* 9:535 (Sept.) 1938.
- Attn J C and Rommell J C. The Treatment and Prevention of Ivy Poisoning. *Clin Med & Surg* 46:410 (Oct.) 1939.
- Foerster H A. The Treatment of Poison Ivy. *J Oklahoma M A* 31:245 (July) 1938.
- Sharlit Herman and Newman B A. Specific Treatment in Rhus Dermatitis. *New York State J Med* 37:61 (Jan. 1) 1937.
- Molitch Matthew and Poliakoff Samuel. Prevention of Dermatitis Venenata Due to Poison Ivy in Children. *Arch Dermat & Syph* 33:725 (April) 1936. Further Report. *ibid* 36:1086 (Nov.) 1937.
- Strickler Albert. Treatment of Dermatitis Venenata. *J Cutan Dis* 36:327 (June) 1918. The Toxin Treatment of Dermatitis Venenata. *J A M A* 77:910 (Sept. 17) 1921. The Value of the Toxin (Antigen) of Rhus Toxicodendron and Rhus Venenata. *ibid* 80:588 (June 2) 1925.
- Schamberg J F. Desensitization of Persons Against Poison Ivy. *ibid* 73:1213 (Oct. 18) 1919.
- Keeney E L. Studies on Human Hypersensitivity to Poison Ivy. *South M J* 35:408 (April) 1942.
- Shelmire Bedford. Hypersensitization to Poison Ivy. *Arch Dermat & Syph* 44:983 (Dec.) 1941.
- 29 Reports of poor or no results include: Bachman L O. Prophylaxis of Poison Ivy. Use of an Almond Extract in Children. *J Pediatr* 12:31 (Jan.) 1938.
- Krause G L. and Weidman F D. Ivy Poisoning. *J A M A* 84:1996 (July 27) 1925.
- Templeton H J. Untoward Reactions Following Toxin Treatment for Dermatitis Venenata. *Arch Dermat & Syph* 20:83 (July) 1929.
- Corson E F. The Value of the Toxin of Rhus Toxicodendron and Rhus Venenata. *J A M A* 81:59 (July 7) 1923.
- Simon F A and Lotzpeich E. Observations on Sensitivity to Poison Ivy. *Dermatitis J Invest Dermat* 2:143 (June) 1939.
- 30 Spain W C. and Cooke R V. Studies in Specific Hypersensitivity. XVII. Dermatitis Venenata. Observation on the Use of a Modified Extract from Toxicodendron Radicans (L). *J Immunol* 13:93 (Feb.) 1927.



ever, in the future, because of the interchange of troops and the rapid transport of them, the spread of diseases ordinarily endemic in certain localities can be expected. The curbing of chigger and tick bites can be accomplished in peace time by burning undergrowth and ground. It will not be done in wartime because of the need of cover. Ticks can be eradicated from the body by picking but not so the little chigger, which cannot be seen even with a lens until he changes his color with engorged red blood cells. A favorite night pastime of soldiers in the field is to pick ticks off of one another. I was told that commonly when a marching column halted last summer every one from the general on down took off his shirt and started picking himself and his clothes. Such a method of eradication is a crude way of protection and medicine should provide a better one. It should be emphasized that protective local applications should not be too bulky and should be easily applied. The application of sulfim and derris root powder is helpful. Application of kerosene or pyrethrum oil to the insect when he has attached himself followed by bathing, is efficacious.

The control of the spread of leishmaniasis, yaws, veruga peruviana as well as the insect borne fevers can be aided by the use of insect repellents.

#### SYPHILIS

Syphilis is handled in the Army by the urologic service, which is a division of the surgical service. Formerly dermatology was a part of the urologic service. In hospitals where dermatology is under the medical service syphilology thus is not a part of dermatology. The opportunity for a dermatologist to do any work on syphilis will depend on the situation, such as the size of the hospital. The incidence of it among inductees is not known and cannot be stated exactly until mobilization is complete. An early report from the Texas State Headquarters for Selective Service in June 1941 showed 2.17 per cent of 3,626 rejections because of the disease. The incidence has been found higher among inductees generally (4.2 per cent). "The admission rate for all venereal diseases for the whole army was 42.5 per thousand strength in 1940 as compared to 29.6 in 1939, an increase of 44 per cent. Eighteen per cent of the cases were syphilis and 72 per cent were gonorrhea. The percentage due to syphilis was slightly lower and that due to gonorrhea slightly higher than has been usual in the past years. The percentage due to chancroid and lymphogranuloma venereum shows little change from 1939."<sup>32</sup>

All patients with the condition in an early stage are hospitalized until the condition becomes noninfectious. The syphilitic register of the Army is very successful and is the ideal method of handling the infected in a manner which will stamp out the disease. The soldier's record of syphilis follows him wherever he goes, it contains his record of treatment, collaborated laboratory tests, pertinent clinical data from the beginning to the time of cure or when the case is closed. Treatment for early syphilis is standardized so that the optimum requires continuous treatment with alternating courses of thirty each of arsphenamine and bismuth injections for one year, with clearance only after the serologic reactions of blood and spinal fluid have become and remain negative for a year. On completion of the optimum treatment the patient is followed up at frequent intervals. Careful physical examination is made after approximately six months and at the

end of the year. The final examination includes an examination of the heart and great vessels.

The technique of massive dose arsenotherapy of early syphilis by the intravenous drip method has not been adopted by the Army. It has promise of its most successful application in the fixed hospitals of the Army because the soldier with syphilis is hospitalized during his infectious period anyway. He could receive his full course of arsenicals during this period. Whether or not this was pursued with follow-up courses of bismuth, the total time lost from service as a result of treatment would be considerably less with this plan of treatment. It also offers savings in the administrative costs of handling the case. The untoward effects such as toxicodermas, liver or kidney damage, encephalitis, neuritis, blood dyscrasias and nitritoid reactions are contrary to what was at first expected—surprisingly mild or nil. The fatalities from the treatment in Leifer, Chargin and Hyman's<sup>33</sup> series was one death among 382 cases (0.25 per cent), and five deaths (0.3 per cent) among 1,600 cases reported by Elliott and the U. S. Public Health Group.<sup>34</sup> It gives promise of curing 83 per cent. If current expectations from the studies hold up, it may become a standard procedure for all clinics. However, it is still considered to be in the experimental stage and is not adopted by the Army.

#### DERMATOLOGIC THERAPY

The treatment of dermatologic conditions in the Army is distinctly different than in civil life. It will be variable, dependent on whether in the field or in the hospital and the size and location of the hospital. In the smaller dispensaries treatment necessarily has to be simple, and if it is not effective the patient has to be evacuated to a station or general hospital. The dermatologic work is placed as a separate section under the medical service in hospitals large enough to make a special service practicable. Dermatologic therapy calls for resourcefulness, as the dermatologist will not find every convenience and modality to which he has become accustomed in his civilian practice. His allergy studies will be handled by another department and his radiation therapy will be delegated to still another department. His local applications will depend on what is a standard drug for the Army. He will have to plan his technique of treatment based on general principles (such as reducing agents and soothing agents available).

The chief difficulty will be the choice of a proper base. What is an ideal base is not generally agreed on, however, it is generally agreed that bases containing emulsifying agents make more effective ointments.<sup>35</sup> The selection of it would depend on what is available. It should be as simple as possible and not require much time in processing. I have used a base containing 5 per cent Duponol in hydrous wool fat and petrolatum and have demonstrated its repeatedly increased efficiency over plain petrolatum, with no sensitivity to it. Another suggested one is diglycol stearate 10 per cent, white wax 3 per cent, cetyl alcohol 3 per cent, petrolatum 4 per cent, glycerin 4 per cent and water 100 per

33 Leifer, William, Chargin, Louis and Hyman, H. T. Massive Dose Arsenotherapy of Early Syphilis by Intravenous Drip Method. Recapitulation of the Data—1933 to 1941, *J. A. M. A.* **117** 1154 (Oct. 4) 1941.

34 Elliott, D. C., Baehr, George, Shaffer, L. W., Usher, G. S. and Lough, S. A. An Evaluation of the Massive Dose Therapy of Early Syphilis, *J. A. M. A.* **117** 1160 (Oct. 4) 1941.

35 Maynard, M. T. Triethanolamine an Adjunct to Dermatology, *Arch. Dermat. & Syph.* **25** 1041 (June) 1932. Goodman, Herman. Cosmetic Dermatology, *ibid.* **36** 116 (July) 1937. Fantus, Bernard. Choice of Ointment Vehicles, *J. A. M. A.* **107** 861 (Sept. 12) 1936. Duemling, W. W. Wetting Agents. New Synthetics of Use in Finer and More Efficient Topical Dermatologic Therapy, *Arch. Dermat. & Syph.* **12** 264 (Feb.) 1941.



cent. It costs little more than plain petrolatum. Recently 50 cases were subjected to make patch tests with this base without a reaction. If one wants a greaseless base or cream, the formula of Remington<sup>36</sup> is suitable. It contains only one drug that is not standard on the Army drug list namely stearic acid. Diglycol stearate mixed with water to suitable consistency also serves as a greaseless cream. One pound (450 Gm.) of it will make 10 pounds (4,500 Gm.) of base (cost \$1).

Dependent on the volume of cases, the technique of treatments will vary. In large groups of men have to be handled in a short length of time the treatment may have to be given in a wholesale manner.

Whatever methods are adopted, the prime motive cannot be lost, and that is to dispose of the patient as expeditiously as possible—either back to duty or to a place where he will not interfere with the efficiency and mobility of the military machine. If his condition is one that is recurrent and necessitates frequent hospitalization (i.e. atopic dermatitis, or dermatitis herpetiformis), the Army has no use for him. Cases falling into this category require discharge from the service.

#### RESEARCH

The physician in the Army is constantly faced with research problems. Many times his duties or his location will not allow the prosecution of them. His attention may be taken with administrative problems, little time for study being left. Or in other situations time may hang heavy on him. In either instance, his contributions to medicine will call for a little more effort than in civilian life. Since this is a world war, many will be stationed where there will be opportunities for them to gain first hand knowledge of diseases rare in their homeland. One may be stationed in a leprosy country, another in South America, where he will see chromoblastomycosis. Some may get a wide experience with yaws. Will one see the Aleppo boil as commonly as one does impetigo in this country? And likewise the opportunity of comparing the American form of leishmaniasis? Pinta may be experienced by the New Yorker, and verruga peruana by the Californian. The prospects for a wide experience in medicine for the Army medical officer are limitless and call for an unlimited fund of knowledge.

There is danger of American medicine losing many of its gains as a result of the war. All must strive to keep up the standards of modern achievements. This idea is best expressed by Skinner<sup>37</sup> "When the sources of learning, science and culture are dried up by war, not only the professors and fellows are lost to progress but the great groups of students in their wakes are lost to the future. War not only grinds future soldiers, citizens and even children in the dust but it creates a dust bowl that future generations must refertilize and cultivate before any scientific spirit and accomplishment can sprout again. Moreover, when frontiers are closed by war there is no longer that comradeship of scientists that provokes useful adventures through the exchange of ideas and of literature. The whole world would halt in what we hope is useful progress if the flame of science were not kept lit somewhere, somehow. Unfortunately, science and culture cannot bivouac for an intellectual rest. Science must be kept nourished by thoughts and ideas that have no

place to develop amidst the terrors of warfare. One cannot establish a blackout for science for the duration and then expect it to flourish when the bombing is over. This is especially true in the total war that is now the world's fashion." All other sources of medical knowledge are dammed up, and there is now more than ever the urgent need for America to keep alive the continued interest and progress of scientific medicine. American dermatology has made great strides since the establishment of the Broome Street Infirmary for Diseases of the Skin by H. D. Bulkley and John Watson in 1837.<sup>38</sup> Let us hope that none will be lost and that, despite the handicaps thrust on us by the present war, American dermatology will continue its contributions to medicine. This is a challenge to all—both those in the military service and the ones who are carrying on at home under added burdens.

## THE INCIDENCE OF NUTRITIONAL AND VITAMIN DEFICIENCY

A SURVEY OF PATIENTS ENTERING STANFORD UNIVERSITY HOSPITAL

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The importance of adequate nutrition in maintaining the health of the nation has been clearly brought to the fore by the war emergency. But while good nutrition must be implemented and any indifference to this paramount problem must be overcome, it is obviously necessary, in order to work intelligently, that the true needs of the situation be understood as fully as possible. Although many studies have already been published, it is

TABLE 1—Relation of Adequacy of Diet to Social Rating and to Clinical Signs of Vitamin Deficiency

|   |             |               |                 |
|---|-------------|---------------|-----------------|
| Total patients                            | 385         | (100 %)       |                 |
| Total with vitamin deficiency disease     | 12          | ( 3.1 %)      |                 |
| Total with good social service rating     | 248         | ( 64.4 %)     |                 |
| Total with poor social service rating     | 37          | ( 9.6 %)      |                 |
| Total with adequate diet                  | 297         | ( 77.1 %)     |                 |
| Total with inadequate diet                | 88          | ( 22.9 %)     |                 |
| Social rating good adequate diet          | 277         | ( 72.3 %)     |                 |
| Social rating good inadequate diet        | 71          | ( 20.7 %)     |                 |
| Social rating poor adequate diet          | 20          | ( 5.4 %)      |                 |
| Social rating poor inadequate diet        | 17          | ( 4.6 %)      |                 |
| Adequate diet deficiency disease          | 2           | ( 0.7 %)      |                 |
| Adequate diet no deficiency disease       | 295         | ( 99.3 %)     |                 |
| Inadequate diet deficiency disease        | 10          | ( 11.4 %)     |                 |
| Inadequate diet no deficiency disease     | 78          | ( 88.6 %)     |                 |
| SUMMARY                                   |             |               |                 |
|   |             | Adequate Diet | Inadequate Diet |
| Total patients                            | 385 (100 %) | 297 (100 %)   | 88 (100 %)      |
| Total showing clinical vitamin deficiency | 12 ( 3.1 %) | 2 ( 0.7 %)    | 10 ( 11.4 %)    |

desirable to make even more surveys of vitamin deficiency on different groups of people in various parts of the country so as to be on really solid ground. The present study was carried out to gain information about nutritional deficiency in a certain population group in California.

#### MATERIAL AND METHODS

The people studied were patients admitted to the adult medical wards of Stanford University Hospital. They were of all ages and represented for the most

<sup>36</sup> Remington's Practice of Pharmacy, ed. 8 Philadelphia J. B. Lippincott Company, 1937, p. 1999.

<sup>37</sup> Skinner, E. H. The Philosophical and Practical Aspects of the Economics of Cancer Control. Janeway Lecture. Am. J. Roentgenol. 47:1 (Jan.) 1942.

<sup>38</sup> Purdy, W. A. The History of Dermatology. Charles C. Thomas Publisher, Springfield, Ill., 1933, p. 135.  
From the Department of Medicine, Stanford University School of Medicine.

| Name  |                       | STATUS        |                | Name                                    |            | STATUS        |                |
|---|-----------------------|---------------|----------------|---|------------|---------------|----------------|
| file number   | Address               | Date entered  | Date dismissed | file number                             | Address    | Date entered  | Date dismissed |
| Sex   | Occupation            | OPD follow-up |                | Sex                                     | Occupation | OPD follow-up |                |
| economic status   | Social service rating |               |                | Metabolic defects and increased demands |            |               |                |
| Diet  |                       |               |                | Hyperthyroidism                         |            |               |                |
| Dairy products  |                       |               |                | Myxedema                                |            |               |                |
| Citrus fruits   |                       |               |                | Diabetes mellitus                       |            |               |                |
| Leafy greens  |                       |               |                | Renal stone                             |            |               |                |
| Cereals   |                       |               |                | Nephritis                               |            |               |                |
| Red meat  |                       |               |                | Liver disease (cirrhosis and so on)     |            |               |                |
| Colorless   |                       |               |                | Chronic infectious disease and fever    |            |               |                |
| Supplements   |                       |               |                | Pregnancy and lactation                 |            |               |                |
| Absorption  |                       |               |                | Subcutaneous dextrose                   |            |               |                |
| Diarrhea  |                       |               |                | Arteriosclerosis                        |            |               |                |
| Vomiting  |                       |               |                | Gout                                    |            |               |                |
| Gastrointestinal disease (neoplasm obstruction, distula, infection) |                       |               |                | Conditions associated with malnutrition |            |               |                |
| Intestinal (obstructive)  |                       |               |                | Caloric inadequacy                      |            |               |                |
| Protein deficiency  |                       |               |                | Alcoholism                              |            |               |                |
| Acidobhydria and achylia  |                       |               |                | Psychic disorders                       |            |               |                |
| Chronic (colds and so on)   |                       |               |                | Lack of teeth                           |            |               |                |
|   |                       |               |                | Miscellaneous                           |            |               |                |
|   |                       |               |                | Final diagnosis                         |            |               |                |
|   |                       |               |                | Comment (including treatment)           |            |               |                |

[illegible]

part low or low middle income groups. As a rule they came for the diagnosis of medical complaints, thus there was frequently a definite chronic disease in addition to poor diet, so that a high incidence of deficiency disease might be expected. The subjects lived not only in the San Francisco Bay region but often in other parts of the state. This study, made during the fall and winter of 1940-1941, includes consecutive entries. The only persons omitted were moribund patients or those with a language difficulty which rendered accurate history taking impossible. All patients received the general thorough "workup" which is carried out in a teaching university clinic, in addition to the special nutritional

dietary history. Many subjects remember poorly or become fatigued during a long inquisition and answer carelessly, some seem to say what they think the doctor wants them to say, and finally there is the great difficulty of accurate estimates of amounts. The problem is further complicated by the duration of time during which the diet has been deficient: acute versus chronic deficiency. Be this as it may, the results of the present survey are given in table 1.

Points to be emphasized are, first, that the diet seemed inadequate in 22.9 per cent, or nearly one fourth of the whole group (although in some cases the deficiency was slight or pertained only to one category of

TABLE 4—Cases of Definite Vitamin Deficiency

| Case | Age and Sex | Occupation        | Disease Diagnosed  | Dietary Deficiency  | Signs of Vitamin Deficiency  | Comment  |
|------|-------------|-------------------|--|---|--|--|
| 1    | 78<br>♀     | None              | Cancer of stomach proved by gastroscopy  | Severe: little food little dairy products meat and greens no fruit                              | Cheilosis dry skin sore tongue weakness numbness paresthesia and difficulty in walking   | Impression neuritis associated with vitamin B deficiency   |
| 2    | 70<br>♂     | None              | Cancer of stomach  | Quantity of food low especially in greens otherwise seems adequate vitamin supplements for 2 yr | Weakness dry itching skin severe glossitis and moderate neuritis of peripheral type  | Clearcut vitamin deficiency multiple especially thiamine and nicotinic acid  |
| 3    | 64<br>♀     | None              | Tie douloureux angina pectoris   | Adequate except for little milk   | Severe cheilosis with dry skin   | Definite riboflavin deficiency cleared up on riboflavin administration   |
| 4    | 42<br>♂     | Cook (unemployed) | Hypoproteinemia with edema paratyphoid infection possible hepatitis achlorhydria | Not certain but probably generally deficient  | Edema serum protein 5.4 Gm. per 100 cc   | Edema and low protein content of blood may have been related to vitamin deficiency got well on high protein high vitamin diet                      |
| 5    | 74<br>♂     | Clerk             | Coronary disease cancer of thyroid with metastases                               | Deficient in total amount and especially in dairy products                                      | Red smooth tongue fissuring at angles of mouth weakness and emaciation   | Definite mild vitamin B deficiency (especially riboflavin and nicotinic acid?) not improved by large doses of vitamins desperately ill from cancer |
| 6    | 32<br>♂     | Laborer           | Functional indigestion   | Diet seems fairly adequate except no whole grains and low in meat                               | Moderate cheilosis and some roughening of skin over nose   | Mild riboflavin deficiency improved promptly after taking riboflavin   |
| 7    | 56<br>♂     | Laborer           | Cancer of lung pleural effusion  | Except for meat diet is low in all components   | Slight glossitis dry skin and weakness   | Symptoms probably partly due to cancer but probably a mild B deficiency  |
| 8    | 50<br>♂     | Cook              | Desperately ill with pyloric stenosis from cancer                                | Vomiting for 4 months has retained no food  | Emaciation edema mild shark skin nose and moderate glossitis serum proteins 3.3 Gm per 100 cc some signs appeared after dextrose given intravenously | Edema and low protein content of blood possibly due in part to vitamin deficiency mild vitamin B deficiency  |
| 9    | 66<br>♀     | None              | Gastritis malnutrition edema anemia  | Low in calories possibly poor absorption and anaemia for 10 yr with diarrhea                    | Edema anemia weakness and dry skin serum protein 4.7 Gm. per 100 cc  | Vitamin deficiency doubtless plays a part no specific diagnosis  |
| 10   | 65<br>♀     | Housework         | Vitamin deficiency rheumatoid arthritis  | Diet scant in vitamin B foods occasional orange bit of fish or egg half pint milk daily         | Severe anorexia glossitis and sore gums malnutrition weakness and insomnia   | Definite mild vitamin B deficiency   |
| 11   | 52<br>♂     | Musician          | Chronic amebic colitis diarrhea for several years                                | Low in calories cereals and greens  | Edema low protein content of blood and malnutrition glossitis  | Certainly deficient in vitamin B as well as in proteins  |
| 12   | 19<br>♂     | Student           | Acute ulcerative colitis   | Diet good but 9 weeks of severe diarrhea  | Weakness numbness and paresthesia of feet  | Mild vitamin B deficiency associated with diarrhea   |

history, which was taken in every case according to the outline presented as table 2.

Evidences of vitamin deficiency were checked on a special sheet (table 3) on which a survey of various symptoms and lesions and the specific vitamin alleged to be implicated was detailed. It was realized that some parts of the list were probably inaccurate, it was based on statements in the literature as of August 1940.

No chemical tests of vitamin saturation or excretion were made. It was felt that these cannot yet be fully interpreted in relation to clinical vitamin deficiency disease.

#### RESULTS

1 *The Incidence of Defective Diets in the Present Group*—One thing that one soon learns in work of this sort is the difficulty of obtaining a really satisfactory

foods), and second, that the incidence of poor diet was much higher in the lower income group than in those with a better social service rating (46.0 per cent as against 20.7 per cent).

2 *Incidence of Clinical Evidence of Vitamin Deficiency*—No case of full blown scurvy, beriberi, pellagra or keratomalacia was encountered. There were 4 instances of edema probably caused in part at least by poor diet. There were 12 cases, or 3.1 per cent of the whole group, in which definite but minor signs of clinical deficiency were noted. These cases are summarized in table 4. It is of note that some component of the vitamin B complex usually seemed to be lacking, and perhaps this is to be expected, as the early and minor stages of vitamin A and vitamin C deficiency show little in the way of evident clinical signs. There

were in addition 17 cases in which possible mild signs of vitamin deficiency were made out (table 5). Adding these to the definite cases one gets a total of definite or suspected deficiency disease in 29, or 75 per cent of the whole group.

3. *Relation of Deficiency Disease to Defective Diet*—The data are summarized in table 1 and show what one might expect: only an occasional patient with apparently normal diet gave evidence of vitamin deficiency, while about 20 per cent of those with inadequate diet had definite or suggestive clinical signs.

factory in southern California had clearcut evidence of one or more sorts of vitamin deficiency. It is on this account that many more accurate surveys should be made in various parts of the country. Be this as it may, it is quite clear that in the group herewith reported on the occurrence of clinical signs of vitamin deficiency was extremely low, even though many of the subjects were ill with diseases which might promote poor nutrition. It is of interest that there was an extremely good correlation of positive signs of deficiency with history of inadequate diet, which shows that even with a serious

TABLE 5—Cases of Doubtful Deficiency Disease

| Case | Age and Sex | Occupation | Disease Diagnosed  | Dietary Deficiency  | Possible Signs of Vitamin Deficiency  | Comment  |
|------|-------------|------------|--|---|---|--|
| 1    | 31          | Printer    | Duodenal ulcer   | No definite deficiency except that it times is on milk diet   | Questionable magenta tongue, riboflavin deficiency?   | Very doubtful if any clinical deficiency has been demonstrated                             |
| 2    | 52          | None       | Cirrhosis of liver, advanced                                 | Diet seems adequate *   | Bruising, sore gums and weakness  | Very doubtful if these symptoms are specific of vitamin deficiency                         |
| 3    | 76          | None       | Gastric ulcer for years, verified at operation               | Total intake low, especially in fruits, greens and meats  | Undernutrition and dry skin, slight reddening of buccal mucosa noted by one examiner                                    | No specific evidence of vitamin deficiency   |
| 4    | 76 ♀        | None       | Bronchitis asthma, very severe death                         | Diet adequate (history obtained from husband)   | Ankle jerks not obtained vibratory sense diminished over ankles position sense absent in toes, tenderness of right calf | Possibly a very mild neuritis (vitamin B <sub>1</sub> deficiency?)                         |
| 5    | 76 ♀        | None       | Tuberculosis of lung, pleura and pericardium active          | Total calories low citrus fruits, whole wheat and meat low  | Dryness of skin, slight reddening of buccal mucosa, malaise, weakness, insomnia and irritability                        | Possible mild vitamin B deficiency but symptoms probably from tuberculosis                 |
| 6    | 63 ♀        | None       | Hypertension and anorexia nervosa                            | Diet generally low in calories no milk only small amounts of fruit and vegetables no meat, for a while took yeast | Malnutrition, weakness, irritability, insomnia and mild gastrointestinal disturbance                                    | In spite of poor diet has no specific signs of vitamin deficiency                          |
| 7    | 31 ♂        | Butcher    | Duodenal ulcer   | Adequate in meat and dairy products low in fruits, greens and cereals   | Smooth tongue, indigestion, occasional nausea and vomiting  | Questionable mild vitamin B deficiency   |
| 8    | 42 ♀        | None       | Diarrhea and an acidity                                      | Total calories low otherwise diet seems adequate, but diarrhea may have caused absorption                         | Dry skin, weakness, malnutrition, irritability and slight macrocytic anemia   | Questionable signs of specific vitamin deficiency  |
| 9    | 69 ♂        | None       | Hypertension with metastasis                                 | Diet seems adequate   | Slight smoothness of tongue   | Questionable mild vitamin B deficiency   |
| 10   | 56 ♂        | None       | Arteriosclerotic heart disease, pyloric stenosis, neoplasms? | Low in total calories otherwise diet seems adequate   | Undernutrition, weakness, irritability and insomnia   | Not definite for any specific deficiency   |
| 11   | 62 ♂        | Caretaker  | Dementia paralytica  | Low in dairy products and cereals   | Slight glossitis  | Possible mild vitamin B deficiency   |
| 12   | 64 ♀        | None       | Rheumatic heart disease                                      | Low total intake, especially greens and meat  | Underweight weakness nervousness and anorexia   | Very doubtful mild vitamin B deficiency  |
| 13   | 34 ♂        | Plumber    | Hodgkin's disease  | Low in total amount, otherwise diet seems normal  | Glossitis, weakness and malnutrition  | Symptoms probably mainly due to Hodgkin's disease but tongue improved on vitamin B therapy |
| 14   | 57 ♂        | Molder     | Gastric ulcer  | Low in milk, fruits, greens and cereals   | Dry skin and some redness of tongue   | Very questionable mild vitamin B deficiency  |
| 15   | 55 ♂        | Farmer     | Gastric ulcer  | Diet seems adequate low total calories  | Slight cheilitis and dry skin   | Questionable vitamin B or A deficiency   |
| 16   | 75 ♀        | None       | Old age  | Not remarkable, perhaps low intake  | Slight redness and smoothness of tongue   | Very doubtful slight vitamin B deficiency  |
| 17   | 65 ♂        | Miner      | Coccidioidomycosis   | Low in calories and in all high vitamin foods   | Weakness, edema indigestion and dry skin  | Possible mild vitamin deficiency cannot define it definitely                               |

\* This patient probably had deficiency of vitamin K

COMMENT

Recent surveys of vitamin deficiency disease have on the whole shown a disturbingly high incidence.<sup>1</sup> Most of these reports have been made by careful well trained investigators, and the results seem dependable. However, it is important to take into account the locality in which the survey is made, the particular population group and the criteria for diagnosis. Some of the statements made in the lay press, on the other hand, must be interpreted with caution, such as those claiming that 50 per cent of the employees in a certain

disease, such as cancer, hepatitis and arteriosclerosis, deficiency disease does not readily supervene provided the diet remains adequate.

One of the most important practical aspects of nutritional disease is the question of variation in resistance to vitamin deficiency. It is well known that people do not all develop clinical signs with equal readiness, in many cases extremely poor diets may be tolerated for long periods before clinical evidences of disease occur.<sup>2</sup> This is well illustrated in the present study. As pointed

1 Jolliffe, Norman, McLester, J. S. and Sherman, H. C. The Prevalence of Malnutrition, J. A. M. A. 118: 944 (March 21) 1942

2 Brenner, S., and Roberts, L. J. Effect of Vitamin A Depletion on Young Adults, Federation Proc. 1: 188 (March 16) 1942. Williams, R. D., and Mason, H. L. Observations on Induced Riboflavin Deficiency in Man, ibid. 1: 192 (March 16) 1942

out in table 1 among 88 persons with defective diet only 11.4 per cent showed clinical signs of deficiency.

It is necessary to emphasize again some of the problems involved in surveys of this sort. First, the eliciting of a satisfactory accurate dietary history is at times difficult if not almost impossible and second, the judgment as to whether minor but yet specific signs of vitamin deficiency exist must often be uncertain. How much stress can be placed on vague symptoms of weakness, fatigue, insomnia, poor appetite and so on? What is the significance of a little dryness or roughness of the skin or a slight eczematoid condition at the nasolabial fold? Even the therapeutic test is often difficult to interpret in persons with such dubious phenomena. Finally if some of these minimal signs are the results of vitamin lack, how serious are the implications? These and many other questions still require careful evaluation.

SUMMARY

1. A survey was made of approximately 400 consecutive patients admitted to the clinic wards of Stanford University Hospital with reference to inadequate diet and signs of vitamin deficiency.
2. Approximately one fourth of these patients had been taking an inadequate diet.
3. Of those with inadequate diets 11.4 per cent showed definite signs of vitamin deficiency.
4. Among 297 patients with adequate diets, only 2 instances of clinical vitamin deficiency were detected.
5. In the entire group the incidence of definite vitamin deficiency disease was 3.1 per cent.

# CARDIAC RESUSCITATION

WITH REPORT OF A CASE OF SUCCESSFUL  
RESUSCITATION FOLLOWING AURICULAR  
AND VENTRICULAR FIBRILLATION

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Up to the present time cardiac resuscitation has usually been attempted on patients who die in the operating room. With the increased knowledge of the physiology of the cardiorespiratory system and improvement in equipment, the possibility of cardiac resuscitation outside the operating room and particularly in warfare should become a reality. Being prepared for such occasions by having a definite plan of treatment and suitable equipment will result in a greater number of successful cases.

It is our purpose in this paper to review some of the methods of cardiac resuscitation, to present experimental and clinical evidence of the value of certain resuscitation procedures, to present a plan of treatment for cardiac or, better called, cardiorespiratory resuscitation and to report a case of successful resuscitation following auricular and ventricular fibrillation.

The physiology of the cardiovascular system and that of the respiratory system are so intimately connected and interdependent that changes in the functioning of one system are almost immediately registered by changes in the other, and, regardless of which was the

site of the original dysfunction, cessation of the function of one will quickly lead to cessation of the other. In attempting resuscitation it should be remembered that it is necessary to revive the cardiovascular as well as the respiratory system, since one cannot survive without the other.

The brain and the heart are the most sensitive of all the vital organs to anoxia, and permanent changes occur

Efficiency of Different Resuscitative Procedures

|  | Oxygen | Success | Failure | Success<br>per Cent |
|--|--------|---------|---------|---------------------|
| 1 Manual artificial respiration                  | 6      | 5       | 55      |                     |
| 2 Rhythmic inflation                             | 7      | 2       | 78      |                     |
| 3 Rhythmic suction                               | 4      | 1       | 80      |                     |
| 4 Resuscitation (rhythmic inflation and suction) | 21     | 1       | 95      |                     |
| Nitrogen   |        |         |         |                     |
| 1 Manual artificial respiration                  | 1      | 6       | 15      |                     |
| 2 Rhythmic inflation                             | 2      | 10      | 17      |                     |
| 3 Rhythmic suction                               | 1      | 4       | 20      |                     |
| 4 Resuscitation (rhythmic inflation and suction) | 30     | 5       | 85      |                     |

in the central nervous system from anoxia long before they do in other organs.

During severe anoxia permanent injury to the brain may occur within five to eight minutes, and if resuscitation is to be complete and permanent oxygenation of the brain cells is vital. Therefore adequate pulmonary ventilation is the first prerequisite in cardiac resuscitation and should be established immediately. Proper pulmonary ventilation may prolong the period of possible resuscitation beyond the five to eight minute limit and give more time for the restoration of the cardiac activity.

There are many ways of establishing pulmonary ventilation, the most important of which are manual artificial respiration, mouth to mouth insufflation and various mechanical resuscitators, some of which operate on a positive pressure and release principle and others utilize a positive pressure inflation together with a negative pressure deflation. Using the "asphyxial resuscitation"<sup>1</sup> test we have shown that the mechanical resuscitators which employ safe alternating positive and negative pressures (suck and blow) are the most efficient and successful and this method is far superior to any other method of pulmonary resuscitation, as shown in the accompanying table. It is probably unnecessary to mention the importance of an unobstructed airway with any method of resuscitation.

The beating of the heart after death on mechanical stimulus has been known since the time of Vesalius, and the rationale of all cardiac resuscitation procedures is based on the fact that cessation of cardiac activity does not mean that the heart muscle is dead. By the very nature of its specific tissue the heart can be made to contract long after the death of the patient.

Kountz,<sup>2</sup> in a series of 127 remarkable perfusion experiments after death, was able to revive 65 human hearts, and of these 65, 48 (73.8 per cent) developed regular cardiac mechanism and beat for a period of two hours.

Acute cardiac cessation is conveniently classified into two groups: (1) arrest of stimulus formation, or the

1. Thompson, S. A. and Birnbaum, G. L. The Phenomenon of Asphyxial Resuscitation. *Proc. Soc. Exper. Biol. & Med.* 4: 203-204, 1941.  
Birnbaum, G. L. and Thompson, S. A. The Mechanism of Asphyxial Resuscitation. To be published.  
2. Kountz, William B. Revival of Human Heart. *Ann. Int. Med.* 10: 330 (Sept.) 1936.



so-called pacemaker failure, the result of which is cardiac standstill, and (2) electrodynamic dissolution of the cardiac cycle, of which ventricular fibrillation is an example

Any attempt at cardiac resuscitation is always justified, and many such attempts have been successful even after considerable periods of inactivity have elapsed. Adams recently reported a twenty minute cardiac arrest with complete recovery.<sup>3</sup> It is our belief that a surprisingly large percentage of successful results will follow early and properly applied methods of cardiac resuscitation.

Among the many methods that have been reported as being successful in reviving the heart are sudden pressure on the heart made by sharp blows over the precordium, intravascular injections, intracardiac injections, mechanical stimulation by the insertion of a needle into the heart, electrical stimulation applied directly to the heart, mechanical inflation and deflation (suck and blow) of the lungs (experimental) and cardiac massage. The value of some of these procedures is quite clear

since, from the use of many different drugs. It is probable that the success in some instances was due in part, if not entirely, to the mechanical stimulation of the needle prick. Epinephrine is probably the most efficacious of the drugs used. In circumstances in which intracardiac injections might be employed, the absence of a drug should not deter the operator from attempting to stimulate the heart mechanically by inserting the bare needle into the myocardium. This mechanical injury to the muscle fibers sets up a reaction called an "action current of injury,"<sup>5</sup> which in turn causes a contraction or extrasystole, and restoration of the normal pacemaker function may be the result.

The site of the injection is very important and should be in the right auricle for the following reason.<sup>6</sup> As the anoxia of the heart muscle increases the irritability increases, and any stimulus sufficient to develop an action current of injury may lead to flutter and then fibrillation. If the site of the injection is in the ventricle, then ventricular fibrillation may occur, which is incompatible with life. If the injection is in the auricle

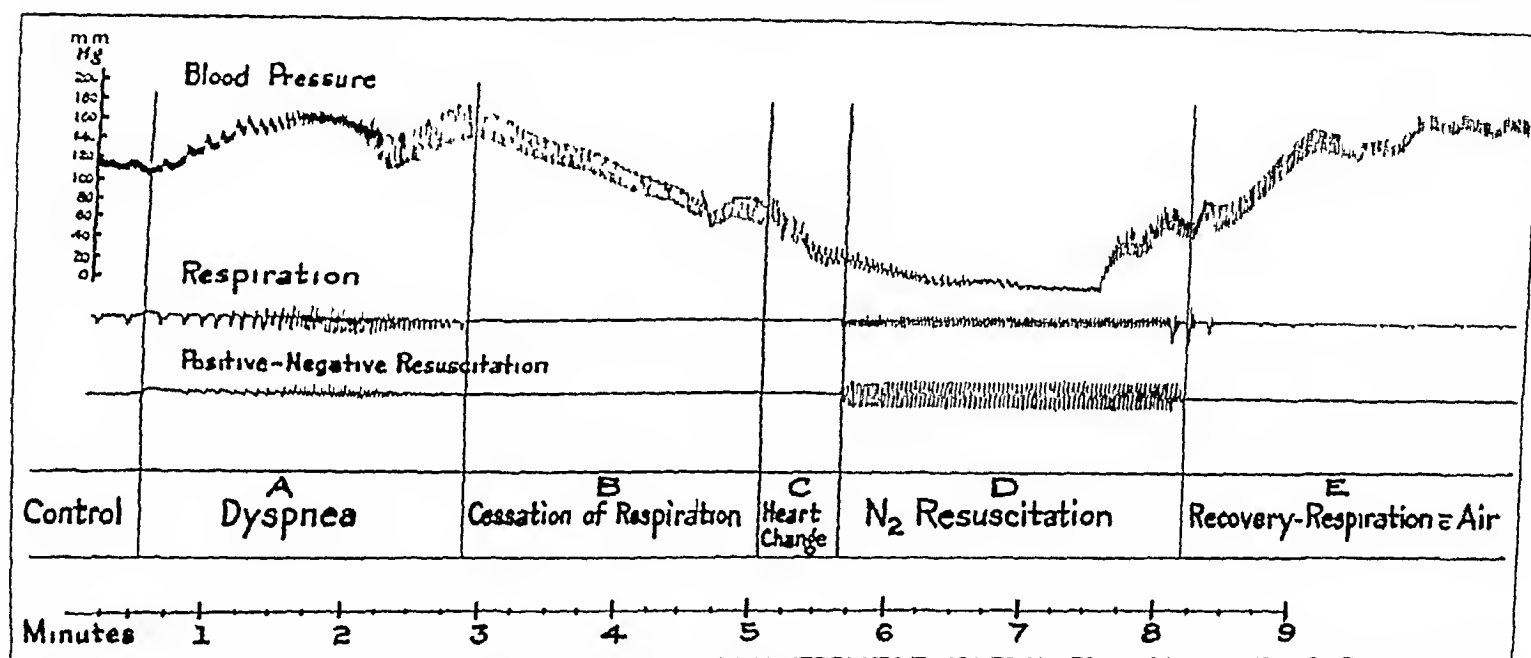


Fig 1—The phenomena of asphyxial resuscitation. Nitrogen inhalation asphyxia is produced by way of a leak proof intratracheal tube. After cessation of respiration and in the period of cardiovascular changes with a rapidly falling blood pressure, the lungs are rhythmically inflated and deflated with the same nitrogen which had just produced the asphyxia by means of a mechanical resuscitator of the suck and blow type. A, inhalation of 100 per cent nitrogen, this is the period of dyspnea. B, at the beginning of this period respirations have ceased, the blood pressure begins to fall. C, the heart beat is slower and somewhat irregular, and the blood pressure is falling rapidly. D, nitrogen resuscitation is started, as previously described, two and three quarter minutes after respiratory cessation. The blood pressure continues to fall and approaches zero. Approximately one and three quarter minutes after nitrogen resuscitation was started there was resuscitation of the cardiovascular system as shown by the sudden and continued rise of the blood pressure. Spontaneous respirations occurred later, and use of the resuscitator was discontinued. The intratracheal tube at the end of D is exposed to the atmospheric air for the first time since nitrogen inhalation was started, approximately eight and one half minutes. E, recovery.

and the value of the others is less obvious. The danger of any of these measures is of little account when the patient is, to all intents and purposes, already dead.

Cordelli<sup>4</sup> was able to induce cardiac contractions by repeated sharp blows over the precordium. This method is undependable and should be used only for a few seconds and while waiting for instruments and equipment before proceeding with some other method.

Intravascular injections are of no value when there is no movement of the blood stream. In conjunction with cardiac massage, however, it is likely that these drugs are moved on toward the heart and brain and may have some beneficial effect.

The first intracardiac injection in the human being was done early in the nineteenth century, and many cases of successful resuscitation have been reported

and auricular fibrillation occurs, this is not incompatible with life and will respond to therapy.

Approach to the right auricle is through the third or fourth intercostal space on the right side, close to the sternum, and the needle is inserted in a downward and inward direction. The needle should be about 4½ inches long and reasonably stout. The possibility of injury to a coronary vessel during the intracardiac injection is small but definite, and if successful resuscitation occurs the patient should be observed for some time afterward for this possible occurrence.

Hyman<sup>7</sup> has shown the value of electrical stimulus applied directly to the right auricle and has developed

5 Hyman, Albert S. Resuscitation of the Stopped Heart by Intracardiac Therapy. Further Use of the Pacemaker, U S Nav M Bull 33 205 (April) 1935.

6 Hyman, Albert S. Intra Auricular Puncture, J A M A 97 408 (Aug 8) 1931.

7 Hyman, Albert S. Resuscitation of the Stopped Heart by Intracardiac Therapy. Use of the Artificial Pacemaker Arch Int Med 50 283 (Aug) 1932.

3 Adams, H D, and Hand, L V. Twenty Minute Cardiac Arrest with Complete Recovery, J A M A 118 133 (Jan 10) 1942.  
4 Cordelli. Minerva med 8 343, 1928.

an 'artificial pacemaker' for use in cardiac standstill due to paralysis of the sinus node or arrest of stimulus formation

Mechanical inflation and deflation of the asphyxiated dog's lungs has a massage effect on the heart and acts as a cardiovascular resuscitator. This is not due to the stimulating effect of oxygen, since cardiac resuscitation can occur from the inflation and deflation of the lungs with an asphyxiating gas (fig 1). This active inflation and deflation of the lungs (using air or oxygen) is also the best manner of establishing and maintaining pulmonary ventilation.

In our animal experiments we have repeatedly found that manual massage of the heart is the most successful single procedure in reestablishing the normal heart contractions (figs 2 and 3), and whenever this is possible in human beings it should be done. As a resuscitation method, cardiac massage was employed even before intracardiac injections. The earliest experience was in 1874, and one of the outstanding successes was reported by Lane in 1903.<sup>8</sup>

The approach to the heart for massage may be any of the following: (1) thoracic (a) transpleural or (b)

through the local injection or topical application of procaine hydrochloride at the sites where these reflexes originate particularly during operative procedures around the arch of the aorta, at the hilus of the lung, on the heart itself and during the insertion and removal of an endotracheal tube<sup>9</sup> (fig 4).

Actual cardiac resuscitation must be done quickly and with a definite plan in mind, since valuable time may be lost when no plan is followed.

First and most important is the establishment and maintenance of proper pulmonary ventilation. This is best accomplished by a mechanical resuscitator using safe positive and negative pressures. Many operating rooms, however, are not equipped with such resuscitators, and the next best method is inflation and release of the lungs by making pressure on the anesthesia bag. This pressure should not be violent or excessive, as it is unnecessary and may damage the alveoli.

When cardiac cessation follows civilian injuries or in warfare, there is usually no resuscitation apparatus of any kind available, so manual artificial respiration should be started at once.

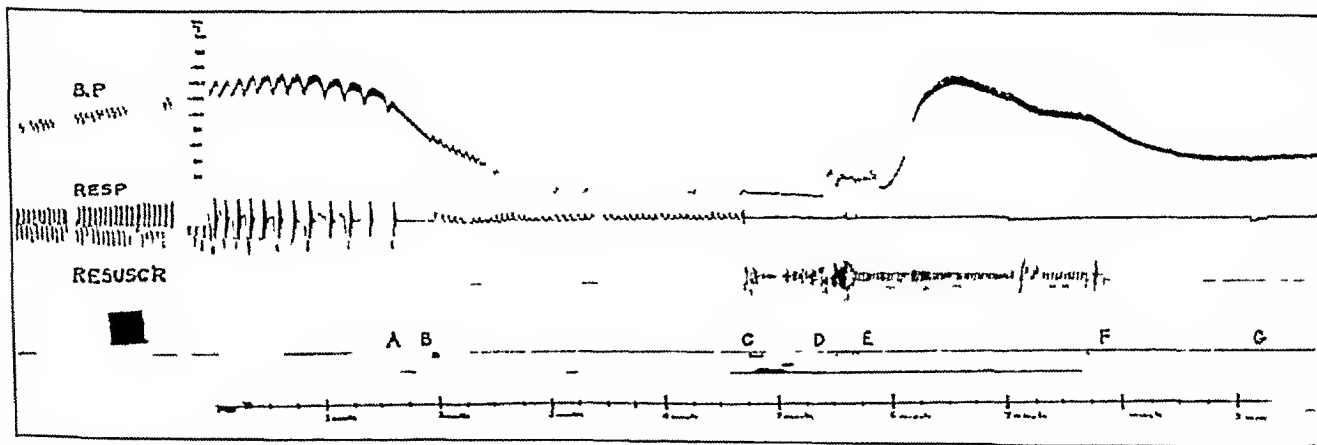


Fig 2—Resuscitation by the use of the resuscitator together with direct massage of the heart through the open chest. Mechanical obstruction asphyxia. A respiration ceases. B to C manual artificial respiration with oxygen inhalation unsuccessful. C resuscitator with oxygen started. Chest opened in the midline and direct heart massage started at D and continued to E where regular heart beats resume. F resuscitation discontinued. G spontaneous respiration.

extrapleural or (2) abdominal (a) subdiaphragmatic or (b) transdiaphragmatic. The approach will be determined somewhat by the operation or circumstances present at the time of the cardiac cessation. If a thoracic operation is in progress the thoracic approach should be used, and if an abdominal operation is in progress the abdominal approach should be used. When no operation is being done the abdominal approach is desirable for several reasons: the thoracic approach takes longer, with the thoracic approach a closed system of pulmonary ventilation is necessary to overcome the effect of the open pneumothorax, and with the abdominal approach it is possible to establish manual artificial respiration if no other method is available. In case of ventricular fibrillation, direct exposure of the heart by the thoracic approach is preferable.

There is a definite place for prophylaxis of cardiac cessation. This is done by the preoperative injection of drugs that decrease the sensitiveness of the heart to vagal stimulation, particularly atropine, and by the attempt to eliminate or decrease the vagal reflexes

In thoracic operations with the chest open, cardiac massage can be easily and quickly done by grasping the heart and gently squeezing the ventricle, thus producing an artificial systole. If there is no response of the heart after one minute, the pericardium is opened and the massage is continued, producing about sixty artificial systoles to the minute. In this way with proper pulmonary ventilation the blood can be oxygenated and moved on to the heart muscle and the brain cells, and the extreme need for haste is now over. After another minute of massage and no cardiac contraction, 1 cc of epinephrine (1:1,000) is injected into the chamber of the right auricle. If no epinephrine is available at the moment, the wall of the right auricle should be stuck with the bare needle. This mechanical stimulation may be sufficient to start the heart contracting. If an electrical apparatus or the "pacemaker" type described by Hyman is available, it should be used as soon as possible. This is also applied to the right auricle for best results. If the cause of the heart standstill can be determined and is still active (ligature

<sup>8</sup> King E S J. *Surgery of the Heart*. Baltimore: William Wood & Co. 1941.

<sup>9</sup> Reid L C and Brace D E. Irritation of the Respiratory Tract and Its Reflex Effect on the Heart. *Surg Gynec & Obst* 70: 157-162 (Feb) 1940.

around the bronchus) it should be relieved, otherwise resuscitation may fail

These measures are all used in conjunction with cardiac massage, and if the heart muscle is felt to "limp up" and begin to contract the massage is immediately discontinued. When no contraction has occurred after six to eight minutes, the routine just described is repeated. Artificial systole plus pulmonary oxygenation will sustain life for a long time, and the massage should not be abandoned as a failure until a forty-five to sixty minute period has elapsed.

When cardiac standstill occurs during an abdominal operation the first step is to insure pulmonary ventilation by the measures previously described or by manual artificial respiration if necessary. A few sharp thumps with the closed fist are administered over the precordium as soon as possible, as this mechanical stimulation may start the heart beating. In the meantime the operator should slip one hand under the diaphragm just beneath the heart. The abdominal incision is enlarged if necessary and cardiac massage is begun by pushing up on the heart against the anterior chest wall. If no heart

When cardiac standstill occurs following injuries in civilian life or in warfare the possibility of successful resuscitation is remote, as there is usually no available apparatus for pulmonary ventilation or for cardiac resuscitation. However, a definite routine should be followed. If a resuscitator is available it is applied immediately, otherwise manual artificial respiration is begun. A few sharp thumps with the closed fist are administered over the precordium. If epinephrine is available, 1 cc (1:1,000) should be injected into the right axilla, as previously described. If no epinephrine is available but a needle is, the needle should be inserted into the right axilla. The use of an artificial pacemaker at this time may be life saving. If no response is obtained in two or three minutes, a paramedian incision is made high up on the left side, beginning at the angle of Larrey, and this is carried through into the peritoneal cavity. The operator's hand is slipped under the diaphragm, and cardiac massage is started by pushing up on the heart against the anterior chest wall. The latter procedure cannot always be done under aseptic conditions, however, one must remember that

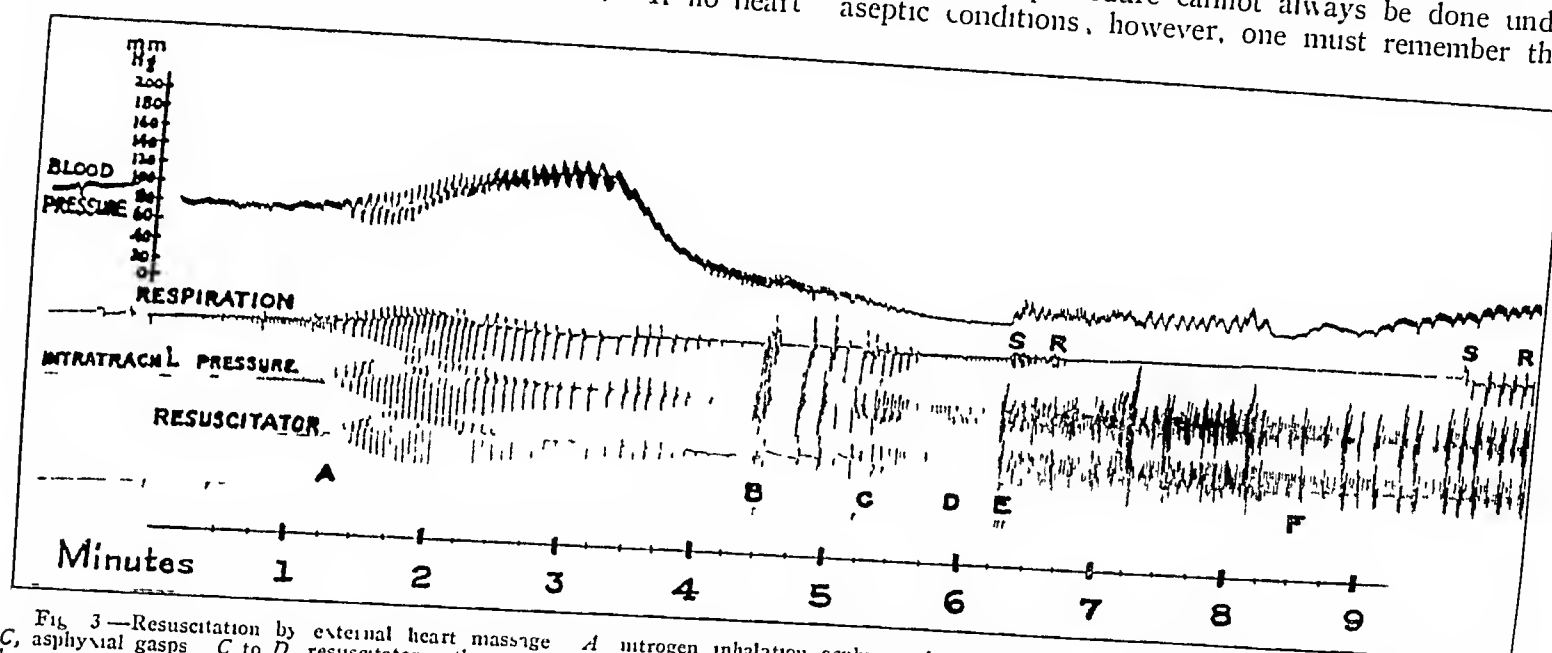


Fig. 3—Resuscitation by external heart massage. A nitrogen inhalation asphyxia through a leak proof intratracheal tube was started. B to C, asphyxial gasps. C to D, resuscitator with nitrogen was used. D, nitrogen discontinued and resuscitator continued with oxygen. E to F, external heart massage. F, heart beats have resumed. G, spontaneous respiration.

contractions occur after one minute of massage, the diaphragm and the adjacent pericardium are incised wide enough to admit one hand, and cardiac massage is continued. The same routine which was described for cardiac cessation in thoracic operations is now applied.

In going through the diaphragm it is important to avoid opening the pleura, unless provision has been made for a positive pressure pulmonary ventilation. Nicholson<sup>10</sup> recommends the following procedure in the abdominal approach for cardiac massage, since he says only the tip of the heart is compressed.

An opening is made with a knife or a pair of scissors just behind the xiphoid process, between the attachments of the two sides of the diaphragm. There is a soft avascular spot here, and no damage is likely. The thumb of the right hand is thrust through this opening and is now in the pericardium anterior to the heart. The heart is then compressed between the thumb, which acts by fixing the heart and preventing it slipping, and the fingers outside the diaphragm.

It is quite unnecessary to suture the hole in the pericardium.

there is only one degree of death, and that is complete. The manner of its occurrence is immaterial, and any procedure that may obviate its occurrence is always permissible. Therefore time rather than asepsis is the essence of success.

The theoretically perfect setup for the treatment of cardiac cessation in warfare or civilian defense would be a "field resuscitator" with safe alternating positive and negative pressures which could be worked by a hand or foot pump, using ordinary air. This resuscitator should be light (weighing from 8 to 10 pounds) and small enough to be part of the standard equipment of each first aid station and to be carried along by stretcher bearers. Attached to this resuscitator should be a small artificial pacemaker of the type described by Hyman. This pacemaker need be no larger than a pocket flashlight and should contain batteries and a sterile needle electrode. With such a setup the first aid administrators would be able to attempt cardiac as well as respiratory resuscitation.

In many instances it may be clinically impossible to determine whether the cardiac cessation occurred as a result of standstill or ventricular fibrillation. In those

<sup>10</sup> Nicholson, John C. Cardiac Massage, Brit M J 2 385 (March 21) 1942

instances in which the differential diagnosis is impossible the routine which has been described should be followed since fibrillation accounts for a smaller number of deaths.

When it is definitely known that ventricular fibrillation exists an entirely different routine is necessary. Here again it is imperative to establish pulmonary ventilation immediately as the following routine requires direct exposure of the heart and the use of an electrical defibrillator. Exposure of the heart if not already accomplished requires a certain amount of time, and not every operating room is equipped with a defibrillator, therefore the percentage of successful resuscitations in ventricular fibrillation will be small.

In 1899 Prevost and Batelli<sup>11</sup> demonstrated the ability to produce a cessation of ventricular fibrillation in the experimental animal's heart by the direct application of an electric current to the ventricle. More recently Beck<sup>12</sup> has devised and used a defibrillator. With this apparatus he shocks the heart producing a definite cessation of the fibrillation and ventricular contraction or standstill. The heart is then shocked or massaged to produce the normal automatic contractions.

In ventricular fibrillation the most efficient method of resuscitation according to Beck<sup>12</sup> consists in the use of intracardiac injection of procaine hydrochloride followed by an electric shock. The method recommended by Beck is as follows:

Five cc of 2 per cent procaine is injected into the cavity of the right auricle or right ventricle. Massage of the heart moves the drug through the lungs left side of the heart, aorta coronary arteries and myocardial bed. Two large electrodes of metal are placed one on each side of the heart and a shock of one to one and one-half amperes is sent into the myocardium. The current is ordinary electric light current with sufficient resistance in the current to reduce the amperage. The current is made and then broken after a fraction of a second. Not infrequently the fibers go back into the state of fibrillation and the shock must be repeated. [If no contraction occurs] 1 cc of epinephrine is used.

The heart is again shocked. [If no contraction occurs] 1 per cent calcium chloride in doses of 5 cc [is] injected into the cavity of the right ventricle.

The heart can be defibrillated. These methods are effective. It may require several attempts but if conditions are proper, such as the amount of oxygen the tonus of the heart muscle and the irritability, the coordinated beat can be restored.

Scherf<sup>13</sup> has shown in animal experiments that ventricular fibrillation can be terminated by the intracardiac injection of a 1 per cent solution of potassium chloride. He<sup>14</sup> recommends the use of a 1 per cent solution of potassium chloride in human beings by intracardiac injection plus cardiac massage. The initial dose is 5 cc, followed in one minute by another injection of 5 cc, followed in one minute by a third injection of 5 cc if no response has been obtained.

Ordinarily the injection of epinephrine plus massage of the heart will not stop ventricular fibrillation. However in case 2, reported herewith, massage plus the possible benefit of neosynephrin plus pulmonary ventilation were successful.

In the final analysis the success of cardiac resuscitation will depend on (1) the cause of the cardiac cessation (2) the condition of the heart before cessation occurred and (3) the elapsed time before proper resuscitation measures are attempted. When the cause of the cessation is due to vagal reflexes arising outside the heart the possibility of resuscitation is good with a healthy heart muscle. When myocardial disease existed prior to cessation the possibility of resuscitation is decreased. When the cessation is due to ventricular fibrillation the possibility of resuscitation under ordinary conditions is remote, and this possibility is further decreased by the fact that fibrillation does not usually occur in a previously healthy myocardium. Fortunately the greater number of cardiac failures seen during operations, in warfare, in subasphyxiating gas attacks and in electrical shock are due to standstill rather than fibrillation<sup>15</sup> and it is in this group that the largest number of cases of successful resuscitation will occur.

In cardiac cessation the odds in favor of resuscitation decrease with each minute that passes before proper measures are applied.

The stakes are high—a human life.

The half hearted attempts at resuscitation should be replaced by early and bold attempts at resuscitation in which a definite routine is used. The feeling that once the heart has stopped the patient is gone and nothing will help should be replaced by the knowledge that a human life can and may be saved and any attempt is justifiable.

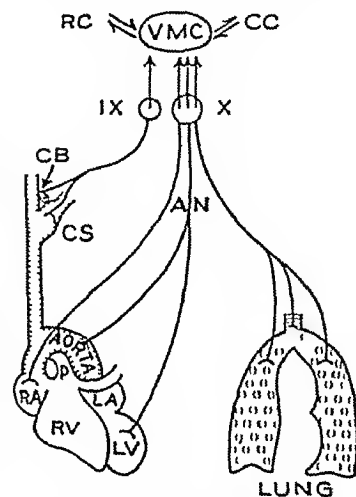


Fig 4—Afferent nerves concerned in the regulation of circulation and respiration. These nerves are from the trachea, bronchi and lungs from the arch of the aorta and the carotid body and sinus. The sinus nerve joins the glossopharyngeal. The aortic and pulmonary nerves join the vagus. Stimuli arising at the periphery of these nerves may reflexly cause cardiac standstill or respiratory cessation. RC respiratory center VMC visomotor center CC cardiac center IX glossopharyngeal nerve X vagus nerve CB carotid body CS carotid sinus AN aortic nerve (Modified from Wright)

#### REPORT OF CASES

CASE 1—W P a man aged 59 was admitted to the Flower and Fifth Avenue Hospitals on Sept 10 1941 with a diagnosis of carcinoma of the right lung. The diagnosis was substantiated by biopsy of material obtained by bronchoscopy and he was subjected to a right pneumonectomy on September 16. A preoperative electrocardiogram revealed no abnormal findings.

With the patient under endotracheal ether and oxygen anesthesia a posterior lateral approach was made. The pulmonary artery and veins had been doubly ligated and cut between ligatures. While the peribronchial tissues were being dissected at approximately one and one-half hours after the start of the operation the heart became irregular and ceased to contract. The anesthetist was immediately notified and oxygen (100 per cent) was substituted for the anesthetic. Positive pressure and release pulmonary ventilation was carried out by the anesthetist about twenty times a minute. At the same time manual massage of the heart was started by the operator, who placed his left hand over the right lateral and posterior surface of the mediastinum and compressed the heart up against the posterior

11 Prevost J L and Batelli F Sur quelques effets des décharges électriques sur le cœur des mammifères Compt rend Acad d sc 129 1267 1899

12 Beck Claude S Resuscitation for Cardiac Standstill and Ventricular Fibrillation Occurring During Operation Am J Surg 54:273 279 (Oct.) 1941

13 Scherf David and Boyd Linn J Clinical Electrocardiography St Louis C V Mosby Company 1940

14 Scherf David Personal communication to the authors

surface of the sternum. In one minute the heart was felt to contract, and the massage was discontinued. The heart contractions became stronger and the rhythm was regular. The operation was continued five minutes after the cardiac standstill had occurred. The peribronchial tissues were now infiltrated with 2 per cent procaine hydrochloride close to the carina. The bronchus was ligated and severed ten minutes after the operation was resumed. Immediately on cutting across the bronchus the heart again ceased to beat. Again the anesthetist was notified and 100 per cent oxygen was substituted for the anesthetic, and pulmonary ventilation was instituted by manual compression and release of the anesthetic bag. At the same time manual massage of the heart was again started. After one minute when no heart contraction had occurred, 1 cc of epinephrine (1:1,000) was injected into the right auricular chamber and manual massage of the heart was continued. One minute after the epinephrine was injected the heart was felt to contract, and the massage was discontinued. The beat became stronger and the rhythm regular, and the operation was continued to its successful conclusion, approximately one and one quarter hours later. Twenty minutes after the operation was finished the endotracheal tube was removed and the patient was moved from the operating table to a stretcher. He immediately became cyanotic, and respirations and pulse stopped simultaneously. A bronchoscope inserted after a few minutes allowed a small thick plug of mucus to be aspirated from the remaining bronchus. All additional resuscitative measures failed.

The first cardiac standstill was quite apparently due to a vagal reflex from the plexus surrounding the bronchus. Although procaine hydrochloride infiltration allowed a further dissection of the peribronchial tissues without any cardiac disturbance, yet the reflex again became active causing cardiac standstill when the bronchus was severed. The speculation as to the possibility that atropine given intravenously after the first cardiac standstill may have prevented the second cardiac standstill is worthy of mention.

This case illustrates the quick response of the heart to early massage. The death of the patient may have been due to the fact that the original cause of the cardiac standstill was still active or it may have been due to anoxia from the mucous plug in the bronchus.

*CASE 2—Successful resuscitation following auricular and ventricular fibrillation*

W. B., a Negro aged 57, was readmitted to the Metropolitan Hospital on Sept. 11, 1941 for a carcinoma of the middle third of the esophagus. On July 24 a gastrostomy had been performed under cyclopropane anesthesia without any complication. On August 18 an esophagectomy was performed. Before the operation the heart action was regular and the electrocardiogram showed no abnormality.

Intratracheal cyclopropane anesthesia was used and begun at 2 p. m. At 2:15 p. m. cardiac fibrillation was noted and the anesthetist administered 1 cat unit of digifolin by hypodermic injection. At 2:25 the operation was begun. A posterior lateral approach was made through the seventh left intercostal space. At 2:35 the heart was inspected and found to be definitely fibrillating (auricular) and making irregular and tumultuous contractions. The administration of cyclopropane was discontinued and ether-oxygen was used as the anesthetic. Because of the seriousness of the lesion it was decided to continue the operation. An attempt was made to free the esophagus. All during the operative procedure the heart continued to beat in a most irregular fashion. The beats became weaker, and at 3:45 there was suddenly no longer any expulsive beat of the ventricle although it continued to twitch and fibrillate. The movements of the ventricle were irregular, incoordinated and independent of one another, there was no single wave of movement. Control of respirations had been taken over by the anesthetist at 3:30, or fifteen minutes

before the heart stopped beating, and now oxygen (100 per cent) was substituted. Manual heart massage was immediately started, and ventricular fibrillations could be felt by the operator's hand as well as seen by the operator and several assistants and observers. After three minutes of heart massage with no contraction, 2 cc of neosynephrin and 1 cc of nikethamide were injected intravenously. Within one minute the heart was felt to contract, and massage was discontinued. The contractions became stronger, although the beat was still totally irregular and the auricles continued to fibrillate. The operation was then continued. Because the growth of the esophagus had infiltrated the lung and the descending aorta, operation was finally discontinued and the chest closed in the usual manner. The heart continued to fibrillate and the pulse was irregular until 9 p. m., or five hours after the operation was finished, then the pulse became regular.

The immediate postoperative reaction and recovery were satisfactory in every respect after the pulse became regular. The patient died on the eighteenth postoperative day from pneumonia. The postmortem examination showed a "bronchopneumonia of the left lung and carcinoma of the esophagus with infiltration of the left lung and thoracic aorta." The microscopic diagnosis was "epidermoid carcinoma."

The fibrillation was evidently brought on by the cyclopropane anesthesia, as it was first noticed five minutes after the administration of cyclopropane had been started. A preoperative electrocardiogram showed no abnormal findings, although on two occasions there was a clinical impression that fibrillation was present. The fibrillation was confined at first to the auricle and suddenly spread to the ventricle followed by cessation of any expulsive contraction, although the fibrillating fibers could be seen and felt. Manual cardiac massage had been continued three minutes before the intravenous injection of neosynephrin and nikethamide (no defibrilator was available). Within one minute after the injection, the ventricular fibrillations gave way to actual contractions. It is decidedly questionable whether sufficient time had elapsed for the drugs to be moved on to the heart by artificial systole. It is possible that the resuscitation may have been due entirely to the cardiac massage and pulmonary ventilation. On resuscitation, auricular fibrillation immediately returned and continued for five hours after the operation before the pulse became regular.

It has been assumed from animal experimentation that manual cardiac massage would not resuscitate a fibrillating ventricle. This is the first reported case we have been able to find of successful resuscitation with operative recovery of the patient following cardiac cessation due to auricular and ventricular fibrillation.

*CASE 3—*H. M., a white girl aged 13 years, was admitted to the Metropolitan Hospital on June 12, 1941 with a history of pulmonary abscess and empyema four years previously, at which time a rib resection had been performed. After examination a diagnosis was made of cystic bronchiectasis of the upper and lower lobes of the left lung, atelectasis of the lower lobe and bronchocutaneous fistula. A pneumonectomy was performed on July 31.

Endotracheal cyclopropane anesthesia was administered. One hour and fifteen minutes after the operation was started, the dissection of the hilus was begun and atropine  $\frac{1}{150}$  grain (0.4 mg) was injected at this time. This was followed by 1 per cent procaine hydrochloride injected into the hilar tissues. Because of some irregularity of the heart the anesthetic was changed to ether. For the next thirty minutes the respirations were unsatisfactory and there was some cyanosis of the lips and finger tips. To improve pulmonary ventilation, control of the respirations was instituted by the anesthetist. During the dissection of the hilar tissues there was noticed a twitching



of the right arm and right leg and particularly on manipulation of the mediastinum. These twitchings lasted for twenty-five minutes. The heart action became weaker, and despite the controlled respirations the patient was moderately cyanotic. Two hours and forty minutes after the operation was started and while the mediastinal dissection was still being done the heart ceased to beat. Manual massage of the heart was immediately started and one minute later 1 cc of epinephrine (1:1000) was injected into the right auricle. Massage was continued, and one minute later the ventricle was felt to contract and massage was discontinued. The contractions became stronger, and the heart resumed its normal function. Mediastinal dissection was continued and thirty minutes later, when the bronchus was ligated before being severed ventricular standstill occurred again. Cardiac massage was immediately started and after two minutes 1 cc of epinephrine was injected into the right ventricle. Massage was continued and after three minutes the ventricle was felt to contract and massage was discontinued five minutes after it was started. The heart again resumed its normal activity, and the operation was completed forty-five minutes later (total operative time approximately four hours). This patient never regained spontaneous respirations and it was necessary to continue artificial pulmonary ventilation. Approximately one and one-half hours after the operation was finished the heart stopped beating and the patient died.

This patient had evidenced some difficulty in pulmonary ventilation continuously after the hilus dissection had begun and was continuously cyanotic. The cause of the twitching of the right arm and leg may have been from cerebral anoxia or from an embolism, either air or blood clot. The failure of the respiratory center was probably due to anoxia. The cardiac cessation on both occasions was quite evidently a vagal reflex and this was active in spite of the atropine by hypodermic and the local injection of the procaine hydrochloride. On both occasions, however, the heart responded to massage and epinephrine.

CASE 4—J. B., a Negro aged 56, was admitted to the Metropolitan Hospital on Sept. 18, 1940, with a Janeway gastrostomy which had been performed on June 26 for carcinoma of the middle third of the esophagus. On September 30 an esophagectomy was performed. A left transpleural approach was made. A preoperative electrocardiogram had revealed some myocardial damage.

Intratracheal cyclopropane was the anesthetic. Two hours after the operation was started while the esophagus was being freed from under the arch of the aorta ventricular standstill occurred. Cardiac massage was immediately started and pulmonary ventilation with 100 per cent oxygen was maintained by the anesthetist. After two minutes 15 cc of neosynephrin was given intravenously and cardiac massage was continued. Three minutes later the heart was felt to contract and massage was discontinued. The contractions were weak and no blood pressure could be recorded for at least one hour following. The operation was continued the esophagus was removed with the growth and the operation was successfully concluded one and one-half hours after the ventricular standstill had occurred.

The immediate postoperative condition was fair but on the third day after the operation the patient became seriously ill and died of pulmonary edema.

Three minutes elapsed after the neosynephrin was administered intravenously before ventricular contraction occurred, this was sufficient time for it to be moved on to the myocardium, and it was probably of some benefit.

This case again illustrates the benefit of early and continued cardiac massage plus pulmonary ventilation. The cardiac standstill was due to reflexes from the vagus started by dissection around the arch of the aorta.

## THE MENACE OF "SILENT" OVARIAN CARCINOMA

H. S. CROSSEN, M.D.

ST. LOUIS

By "silent" I mean without symptoms—without any indication to the patient that a serious process is present. Patient after patient is seen with an extensive growth of long duration but with only a short period of local symptoms. The first visit to the physician shows a large growth or ascitic fluid from peritoneal carcinosis. The advancing carcinoma causes only such minor disturbances that the patient hardly notices them. Thinking back, when questioned she recalls that the abdomen has been a little larger for a year or so or that there was bloating or some frequency of urination, but only in the last few weeks was there enough disturbance to make her feel that perhaps an examination was advisable. Some examples from my experience will serve to illustrate the point.

### REPORT OF CASES

Mrs. S., aged 56, had a gradual loss of weight for two years but no local symptoms till a few months before consulting a physician and even then there was only indefinite discomfort in the abdomen and back. Abdominal examination showed a mass in the left side projecting up from the pelvis and the patient was sent for operation. The operation revealed an extensive carcinoma of the ovary which had already invaded irremovable structures. The main tumor was removed and roentgen therapy was given for the extensions. Repeated roentgen treatments prolonged life in fair comfort for a year.

Mrs. M., aged 70, had noticed gradual enlargement of the abdomen for a year and a half with some loss of weight, but there were no localizing symptoms except indefinite discomfort in the lower part of the left side of the abdomen. The first examination revealed a large cystic mass filling the pelvis and extending to the umbilicus. Operation showed an ovarian cyst which was carcinomatous and with deep extensions. The primary growth was removed and roentgen therapy was given for the irremovable portions.

Mrs. H., aged 52, had come under my care at the age of 47 for treatment of a retrodisplaced myomatous uterus with some prolapse and menstrual irregularity and hot flushes. At that time she was put on conservative treatment and directed to return in two months. She did not return for five years because as she stated there was no special disturbance and I felt well right along until some months ago. The principal symptom when the patient came at the age of 52 was enlargement of the abdomen. She thought this had come on gradually but in the last two weeks it had become well defined and was accompanied with discomfort and an occasional pain. Examination showed pronounced ascites with some masses in the pelvis. Operation revealed general abdominal carcinosis of ovarian origin. No structure could be removed except a specimen for microscopic diagnosis.

Mrs. P., aged 47, had noticed enlargement of the abdomen for two months with a feeling of pressure soreness and frequency of urination for six weeks. Examination showed a pelvic mass extending half way to the umbilicus. At operation I found a carcinoma of the right ovary with extension to the uterus and other ovary and tube and also to the adherent appendix and abdominal wall. The main mass was removed along with the uterus, the other ovary and tube, the appendix, and a specimen from the involved abdominal wall. In each of the structures mentioned including the abdominal wall specimen, the extension of carcinoma was confirmed by microscopic examination. Postoperative roentgen therapy was employed.

with unexpectedly good results. The operation was in 1933, and the patient is still well and strong and without evidence of recurrence. The patient was a physician's wife. Her sister had died of ovarian carcinoma and her mother of cancer of the stomach. In spite of these facts favoring close observation, the growth of the ovarian cancer was so "silent" that it had extended into surrounding structures before there was any intimation of its presence.

Miss R, aged 48, was a patient for whom, at the age of 45, I had performed a hysterectomy for myoma with right salpingo-oophorectomy and appendectomy, and recovery was without special incident. Five years later she was sent by her physician for treatment of a pelvic tumor extending almost to the umbilicus. She had noticed some pressure in the abdomen for about a year but gave little thought to it. An increase in the pressure discomfort finally caused her to go to her physician who found the tumor. Operation showed extensive abdominal carcinosis originating in the left ovary. No structure could be removed. Repeated roentgen treatments kept the patient in fair comfort for nearly a year.

The lesson of this case is that I should not have left an ovary at age 43. I thought then that it was advisable, but I know better now.

Mrs. G, aged 55, went to her physician because she had noticed discomfort in the left side of the lower part of the abdomen off and on for a month or two. Examination showed a tumor the size of a fist filling the left side and central portion of the pelvis. Operation revealed a carcinoma of the left ovary. It had already spread to adjacent organs and into irremovable structures. The main mass was removed, and with roentgen therapy the patient lived for a year and eight months.

Mrs. S, aged 55, had noticed some constipation and nausea and frequent urination for several months and a slight bloody discharge for two weeks. She was three years past the menopause. Examination revealed a pelvic tumor extending up to within 1½ inches of the umbilicus. Operation showed extensive abdominal carcinosis, originating in the right ovary and involving adjacent structures so deeply that nothing could be removed except the laboratory specimen. Repeated courses of roentgen treatment produced temporary benefit over a period of two years.

Mrs. M, aged 70, stated that for about a month she had noticed intermittent pain and soreness in the abdomen particularly when lying on either side. There had been constipation for the past year and considerable bloating, but less lately. She had lost 7 pounds (3.2 Kg) in the last two months and also noticed some frequency of urination. Examination showed an irregular mass in the left side and central portion of the pelvis and extending up to the umbilicus. The diagnosis was carcinoma of the left ovary with general abdominal carcinosis. Gastrointestinal x-ray examination showed intestinal involvement. As the surrounding penetration was clearly too extensive for curative operation and there were no obstructive symptoms or severe pain necessitating palliative operation, the patient was given roentgen therapy to check the growth as much as possible. Repeated roentgen treatments kept her fairly comfortable for six months.

Miss L, age unknown, was seen about a year after the menopause. She was a rather peculiar individual, and never did reveal her age. She had been having vague intermittent abdominal discomfort for six months, with a feeling of pressure and some frequency of urination, and it was an increase of these minor discomforts in the last two months which caused her to seek medical advice. Examination showed a pelvic mass extending half way to the umbilicus. The patient was very stout, and deep palpation was unsatisfactory. There was general tenderness in the lower part of the abdomen, where irregular nodules could be felt. Operation revealed general abdominal carcinosis of ovarian origin. Nothing could be removed except the specimen for microscopic diagnosis. Roentgen therapy was advised as a palliative measure, but the patient preferred not

to take it. She continued in fair comfort for a considerable time and died ten months after discovery of the growth.

Mrs. C, aged 46, had noticed gradual enlargement of the abdomen for several months, with bloating, occasional pains, constipation and some frequency of urination but no well defined symptoms. Examination showed the abdomen enlarged by ascitic fluid and a deep pelvic mass adherent in the posterior cul-de-sac. Gastrointestinal x-ray examination eliminated intestinal growth, and gallbladder visualization indicated normal functioning. Operation revealed general abdominal carcinosis originating in an ovary. The involvement was widespread and deep, and no structures could be removed except a specimen for microscopic examination.

Miss B, aged 49, was still menstruating fairly regularly. She stated that she was "perfectly well" up to three weeks preceding her visit, at which time she noticed that the abdomen was enlarged, making the clothing somewhat tight. In these last two or three weeks there were also pains in the abdomen and considerable backache, and she decided to consult a physician. Examination revealed the abdomen distended with ascitic fluid and a large mass extending up from the pelvis. Operation showed the pelvis filled with an ovarian carcinoma, which had extended deeply into the surrounding structures and upward in the abdomen even into the liver. Only a specimen for microscopic examination could be removed. The patient preferred not to take roentgen therapy. She lived nine months after discovery of the growth.

Mrs. P, aged 64, had noticed enlargement of the abdomen over a considerable period without particular discomfort, but for the three weeks preceding her visit there had been an increasing feeling of fullness and pressure, which caused her to consult a physician. The examination revealed a pelvic mass extending to 2 inches above the umbilicus. Operation showed a large ovarian cyst with some solid portions and also a smaller growth in the other ovary. Deep in the pelvis about the cyst there were dense adhesions of doubtful character. I finally succeeded in removing both ovarian tumors along with the tubes and the corpus uteri. Microscopic examination showed the ovarian tumor of each side to be malignant, and postoperative roentgen therapy was given. The operation was in September 1940, and so far the patient is well and without evidence of recurrence, but the outlook is not good.

#### COMMENT

These 12 cases show the symptomless progress to extensive involvement which represents the natural history of ovarian carcinoma. Some patients are fortunate enough to have a coincident disease which takes them to a physician, who in the course of routine pelvic examination discovers the silent growth before it has progressed beyond removal. Most of the favorable cases of ovarian carcinoma are discovered in this way. Occasionally some early complication of the growth causes pain which leads to the examination. With these fortunate persons I am not dealing here. My purpose in this paper is to focus attention on the symptomless onset and symptomless progress of uncomplicated ovarian cancer. It is ordinarily a slow growing tumor, which penetrates into irremovable structures before the appearance of warning symptoms. The cases cited represent the experience of just one physician for a short period of thirteen years, 1929 to 1942. Multiply this by the number of gynecologists of extensive practice and add the numerous operations for late ovarian cancer by other gynecologists and by general surgeons and add also the number of patients who die of "ascites" and "abdominal cancer" without recognition of the ovarian growth, and you get some idea of the magnitude and importance of this "silent" menace.

## WHAT SHALL WE DO ABOUT IT?

At present we are confronted with a form of creeping death which defies early discovery and progresses to incurability despite all efforts carcinoma of the involuting ovary. Much excellent work has been done by gynecologists in investigating the etiology, pathology, diagnosis and treatment of ovarian cancer. But still most patients consult a physician when the growth is past cure and with a history of only recent symptoms. How can this situation be attacked effectively?

Physicians had to deal with a somewhat similar problem of fatal delay in carcinoma of the cervix uteri, and in that connection there were two steps which opened the path to the objective and which are now contributing greatly to the saving of lives. One of these steps is the removal of tissue presenting a condition that makes it specially susceptible to cancer development, that is the removal of chronic cervicitis or other chronic cervix irritation by conization or conical excision before cancer starts, the other step is periodic examination to detect early evidence of cancer or of chronic irritation that may lead to cancer. Of course many improvements have been made also in the treatment of discovered cancer of the cervix but the major part of the great advance in preventing deaths from that disease must be credited to these two steps. Much remains to be done in making these two procedures a part of the working rules of every physician but that process is proceeding apace and each year adds to the widening circle of those who incorporate these life saving measures into their daily practice.

I feel that in seeking to reduce deaths from carcinoma of the ovary one must rely largely on these same two steps, namely removal of tissue which has become specially susceptible to cancer development and periodic examination to detect lesions of which the patient is not aware. To comprehend the situation one must squarely face three grim facts. First, a large proportion of patients with ovarian carcinoma consult physicians too late for cure, second, in some cases the patient in whom one leaves an involuting ovary at abdominal operation dies later of ovarian cancer, and, third, many women who are now active and comfortable and apparently well are carrying cancer of an ovary. A favorable feature is that even with considerable enlargement which could be easily detected on deep vaginoabdominal palpation, the growth may still be limited to removable structures. But women with this condition will wait for examination till they notice symptoms and then die of the disease in spite of all that science can do.

As I see it the greatest contribution the physician can make toward the lessening of these fatalities is the practical application in his daily work of two rules: (1) removal of the involuting ovaries whenever the abdomen is opened at an age and under circumstances which permit such removal, (2) insistence on regular periodic pelvic examination of patients who ask us to assume responsibility in regard to their health.

1 When does ovarian involution begin? The menopause (complete cessation of menstruation) occurs usually between the ages of 44 and 47, with exceptions somewhat below and above these limits. The climacteric (gradual involution of the ovaries) begins two or three years before the menopause and extends some years after it. Though there is considerable individual

variation as to age of onset of ovarian involution, a reasonable rule would be to apply this safety measure in all abdominal operations when the patient has reached the neighborhood of the age of 42. Some physicians would perhaps put this average age later and some would put it earlier. Also special conditions are found, and special desires of the patient are of course to be taken into consideration. What I wish to emphasize is not this or that particular age but the fact that in an abdominal operation in a woman in or near the period of ovarian involution the matter of ovarian removal should be given most careful consideration. The involuting ovaries have fulfilled their reproductive and endocrine functions. They are no longer an important part of the economy but vestigial structures which carry a special tendency toward cancer—and toward a particularly dangerous form of cancer, in that it develops to an incurable stage without warning symptoms.

The realization of the necessity of adopting this safety measure has been obscured and delayed by the various arguments for retention of an ovary. In the first place, there is the excellent surgical rule to do no more operating than necessary—to remove no structure without a definite reason of sufficient importance to justify the additional operative risk and any probable upset in physiology. Again, the great importance of the ovaries during the span of their physiologic activity projects about them a halo which tends to obscure the fact that they are only temporary organs that cease to function after a certain period. Again, there is the desire to lessen the hot flushes and other disturbances of ovarian cessation by preserving ovarian tissue even though it is functioning only partially. Still again there is the natural desire of the patient that an ovary be saved if practicable. These are all valid arguments and have long influenced decisions, but through careful observation and bitter experiences I have come to realize that the danger of cancer development in the involuting ovary outweighs all these arguments for leaving an ovary in an abdominal operation in the age of involution.

Though necessary for reproduction and accessory activities connected with child bearing, the ovaries are not the basic factor in sex determination and sexual response which is so generally assumed. The sex of a person is determined long before the ovaries are formed, sexual response continues long after ovarian function has ceased, and, as I have clearly shown in case reports,<sup>1</sup> normal female desires and instincts and outlook on life and sexual response may exist without ovaries, with testicles instead of ovaries, and without either. As noted in reporting one of my cases, "It may be stated that in this case and in the several cases reported the absence of ovaries and the presence of testicles seemed to exert little or no influence on the strong female desires and responses. Despite the hindering presence of testes and later the lack of sex glands altogether, the patient's feminine personality continued the even tenor of its way."

2 At what period is periodic pelvic examination required in connection with cancer of the ovary? That is a question to which I have given considerable study, in the endeavor to minimize trouble and expense to the patient and yet maintain a fair security against undis-

<sup>1</sup> Crossen H S. A Problem in Sex Classification. *Am J Obst & Gynec* 35:123, 1939.

covered ovarian cancer. In considering periodic examinations in connection with the subject of cancer of the cervix we<sup>2</sup> stated the following in our textbook:

It is important to work out a practicable plan. The local examination should be made often enough to reasonably exclude irritation that would favor cancer development, and yet no more often than is necessary for safety. The choice of interval should be such as to appear reasonable to most patients when the matter is explained to them. The choice of a rather long interval which appears to the patient so reasonable that she returns regularly will go much further toward preventing cancer than the choice of an interval so short that the patient neglects returning and finally gives up regular examination. Considering the various angles of the matter, it seems to us that a reexamination once a year from age 35 to 55 is a reasonable rule to incorporate in our advice to these patients in connection with uterine cancer.

The probability of the patient's cooperation in the idea of a regular yearly examination may be enhanced by pointing out that this twenty year period is one of change in body structure and function and also that many authorities are recommending a general examination yearly as a safety measure to determine how the various vital organs are standing the wear and tear of life's activities. This explanation reinforces and emphasizes the idea of regular general examinations, of which the local examination is a part.

The special period for ovarian cancer begins somewhat later, extending from the ages of 40 to 60. Also more frequent examinations are required. Cancer of the cervix is usually preceded by a period of chronic cervicitis, which can be seen on examination. This gives ordinarily a leeway of many months of appreciable lesion before actual cancer development. But with cancer of the ovary there is no such preceding warning. The cancerous infiltration and enlargement of the ovary is the first appreciable lesion and requires prompt operation to save the patient. Hence in the period from 40 to 60 years of age pelvic examination is advisable every six months instead of once yearly, as may suffice before and after that period.

Of course, a practicable rule of action must take into consideration the patient's natural reluctance to examination not definitely indicated by troublesome symptoms. Here is where the leadership of the physician comes in. By tactful instruction that causes no undue apprehension but rather a comfortable feeling of added safety, the patient may be made to see the advisability of local examination as part of the general examination on which responsible advice to her must be based. There are few patients who do not appreciate the relief from anxiety afforded by a careful examination or who will not see the health advantage and eventual economy of regular examinations which would detect disease in a curable stage instead of waiting for symptoms which signal incurability. However, experience has shown that the most serious defect in the machinery of preventive medicine lies just at this point. Patients do not return for the necessary examinations. Why? Until this question is answered and the import of the answer is recognized and applied in a practical way, little headway will be made in preventing deaths from ovarian cancer or other obscure diseases. Hence it is advisable to warn the physician of this pitfall in the seemingly clear path.

#### CAUSE OF FAILURE

The splendid educational campaigns conducted by the American Society for the Control of Cancer and other interested agencies have gone far toward preparing the public for the advice which the individual physician could give to his patients in regard to regular examinations, including pelvic examinations. Such examinations at regular intervals are necessary for the discovery of uncomplicated ovarian carcinoma in a curable stage as well as of other hidden lesions. Do we explain to our patients the advisability of returning at certain intervals for this examination, putting the advice in a practical way so that they understand it and can profit thereby? The answer in general must be that we do not do so. The reasons for not doing so are many and varied, and, though each is insignificant compared to unrecognized cancer development, in the aggregate they have sufficed to prevent the physician from taking up this matter with each patient in the practical and effective way with which he takes up her other health problems.

The responsibility of the individual physician to his patients for persistent educational efforts in this direction is very great, and that responsibility must be recognized and met. Measuring up to this responsibility will require a severe wrench from the ordinary and established custom of treating only evident lesions and waiting for ovarian cancer to develop to the evident stage before giving consideration to the matter. Radical advances usually require radical departure from established custom and from easy following of the beaten path. The great medical triumphs over apparently insurmountable difficulties were not attained by the complacent and satisfied but by those who were ready to make courageous struggle against the apathy of easy popular custom and the deadening inertia which operates against radical advance.

The excellent general educational campaigns referred to have done a great deal to cause women to come for the first examination, but what has been done to educate the examined patient to return at proper intervals for the reexaminations which are so necessary? There is a tendency to blame the patient when she comes with a cancer that is past cure. But one cannot expect the patient to know the necessity of returning when she is without symptoms unless she is told to do so. She has not taken a course in medicine. She is depending on her physician to give her the medical information necessary to guard her health in this respect. The influences of the general educational agencies referred to are most helpful as far as they go, but the return of our patients for the regular pelvic examinations which we know are needed depends largely on what we say to them in the course of our medical advice.

In the last analysis, it rests with the physician to educate his patients to an appreciation of the fact that certain growths may develop in the pelvis without warning symptoms and hence that regular periodic examinations are necessary and urgent as a safety measure. The particular form of advice as to return will of course vary with different physicians and with different patients. With some patients the simple advice to return at a certain time will be followed, while others may wish to be told the reasons, urgency, and so on, before deciding the matter. The important thing is to take the time and thought required to put the advice to each patient who should return in such a way that she will benefit from it, and not simply as some general remark to act as a salve to conscience should she return years afterward with an incurable ovarian carcinoma.

<sup>2</sup> Crossen, H. S., and Crossen, R. J. *Diseases of Women*, ed. 9, St. Louis, C. V. Mosby Company, 1941, p. 557.



Another item in this immediate connection should be mentioned. Patients with the best of intentions of returning as advised may fail through oversight at the time because of the press of other activities. An effective aid at this point is the prearranged notification, used so generally in business and already to some extent in medical and dental work. When the advice to return at a certain time is given, a card for the patient is placed under that month in the file, and at the appointed time a brief reminder note is sent. Patients are notified regularly on financial matters, and it is certainly in order and would be an important step in advance to notify them regularly on this medical matter which is a life saving measure.

In connection with these pelvic examinations there arise of course many questions of differential diagnosis and difficult decisions as to whether or not there is evidence of ovarian carcinoma or other lesion requiring operation. Those items do not come within the scope of this paper, but there is one associated point to which attention should be called. When one is doing a vaginal operation, such as curettage, conization, radium treatment or plastic work, it is very important to make careful examination of the ovarian regions, so that any associated lesion there may be discovered. Such examination under anesthesia or analgesia is of course particularly important in stout patients in whom deep palpation otherwise may be so difficult that a small mass may escape detection. Also the recording in the operative note of the exact conditions in the pelvis at this deep examination will prove exceedingly helpful in determining the significance of conditions found later.

#### SUMMARY

Symptomless onset and symptomless progress to incurability constitute the natural history of ovarian carcinoma. Earlier discovery is due to some incidental associated condition or to a pelvic check-up examination.

The aggregate of deaths from this cause is large, much larger than is generally appreciated. To the known cases must be added the unrecognized ones with death certificate designations of "ascites" and "abdominal cancer." A large proportion of the cases of general abdominal carcinosis originate in an ovary.

The silent character of the onset and progress of ovarian cancer seals the doom of patients with this condition unless measures that are really effective against the serious difficulties of the situation are put into practice. The following three steps are advisable and urgent in reducing deaths from this insidious disease:

1. Removal of the involuting ovaries whenever the abdomen is opened under circumstances which permit of such removal.

2. Insistence on regular periodic pelvic examination of patients who ask the physician to assume responsibility in regard to their health. These periodic examinations for silent ovarian carcinoma should be made every six months, instead of once yearly, which was formerly supposed to provide adequate safety. One must give the time and thought necessary to make this advice of real benefit to each patient instead of simply throwing out some general remark to act as a salve to conscience should the patient return later with incurable cancer.

3. Utilization of every opportunity afforded by anesthesia for a minor vaginal operation to make deep accurate palpation of the ovarian areas, the findings to be recorded in the operative note for future reference and comparison.

University Club Building

## SULFAGUANIDINE IN TREATMENT OF DYSENTERY (BACTERIUM FLEXNERI) CARRIERS

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Attempts with sulfaguanidine in the treatment of bacillary dysentery were destined to follow the more or less successful trials with the previously discovered sulfonamide compounds, namely, sulfanilamide,<sup>1</sup> sulfapyridine and sulfathiazole,<sup>2</sup> and also the highly encouraging experimental studies of Marshall and his associates.<sup>3</sup> These workers noted that sulfaguanidine combined the advantages of free solubility in water together with poor absorption from the gastrointestinal tract. Further clinical investigation has confirmed the tendency of the usually administered dosages to saturate the intestinal content without exceeding a relatively low level of concentration in the blood.

In a well controlled clinical study, Lyon<sup>4</sup> described the remarkably rapid improvement which followed the administration of sulfaguanidine in 17 of 23 cases of acute bacillary dysentery of the Flexner type. The ability of the drug to destroy permanently the organism in the intestinal tract was not evaluated in this study, probably because the treated patients were inhabitants of a number of communities in the tristate area of West Virginia, Ohio and Kentucky, where the disease is endemic and reinfection is presumably common.

The report of Rantz and Kirby<sup>5</sup> on the use of sulfaguanidine in the treatment of dysentery carriers stresses particularly the necessity for evaluating any treatment of this infection as much for its ability to eliminate completely the organism from the stool as for its ability to relieve clinical symptoms. In 9 of 11 cases, dysentery bacilli (*Bacterium flexneri*) disappeared from the stools during treatment and did not return over periods varying from thirty to ninety days.

A particularly good opportunity for gaging the efficacy of sulfaguanidine from both these points of view and with the added advantage of comparison with a large, untreated group of controls from a previous outbreak presented itself at the Norwich State Hospital.

#### FIRST OUTBREAK (1939-1940)

During an outbreak of acute bacillary dysentery (*B. flexneri*, variety strong), which occurred in the fall and winter of 1939-1940, the organism was isolated at least once from the stools of 38 patients. Eighteen of the patients were considered to have the disease, since they presented as well the symptoms of bloody diarrhea, elevated temperature and frequently nausea or vomiting. The remaining 20 were classified as carriers from the onset. The patients were all women, for the most part.

From the Department of Pathology and Medical Service, Norwich State Hospital.

1. Keister W. E. Treatment of Bacillary Dysentery in Infants. *Virginia M. Monthly*, 67: 161 (March) 1940.

2. Masefield W. G. Treatment of Bacillary Dysentery with Sulfapyridine. *Brit. M. J.* 2: 199 (Aug. 9) 1941.

3. Ching R. E., Warr O. S., Jr. and Witherington J. B. Sulfathiazole Treatment of Bacillary Dysentery. *Nineteen Cases*. *J. Tennessee M. A.* 34: 171 (May) 1941.

4. Marshall E. K., Jr., Bratton A. C., White H. J. and Litchfield J. T., Jr. Sulfaguanidine. A Chemotherapeutic Agent for Intestinal Infections. *Bull. Johns Hopkins Hosp.* 67: 163 (Sept.) 1940.

5. Lyon G. M. Treatment of Acute Bacillary Dysentery. *U. S. Nav. M. Bull.* 39: 278 (April) 1941.

6. Rantz L. A. and Kirby W. M. The Use of Sulfaguanidine in the Treatment of Dysentery Carriers. *J. A. M. A.* 118: 1268 (April 11) 1942.



of very advanced age. The outbreak was of the contact type and confined to a single building, the women's infirmary.

Since this outbreak occurred before the era of chemiotherapeutic management of bacillary dysentery, the only treatment which the patients received was supportive,

TABLE 1—Statistical Data on the First Outbreak (Patients Untreated)

| Patient | Positive Stool Cultures |        |      | Total Number of Stools Cultured |
|---------|-------------------------|--------|------|---------------------------------|
|         | Age                     | Number | Days |                                 |
| 1 †     | 70                      | 1      | 1    | 11                              |
| 2 †     | 82                      | 1      | 1    | 10                              |
| 3 †     | 76                      | 1      | 1    | 5                               |
| 4 †     | 85                      | 1      | 1    | 15                              |
| 5 †     | 61                      | 1      | 1    | 16                              |
| 6 *     | 83                      | 1      | 3    | 51                              |
| 7 †     | 86                      | 1      | 1    | 10                              |
| 8 †     | 87                      | 2      | 3    | 25                              |
| 9 †     | 88                      | 5      | 7    | 11                              |
| 10 †    | 89                      | 9      | 10   | 29                              |
| 11 †    | 87                      | 2      | 10   | 27                              |
| 12 †    | 81                      | 3      | 12   | 16                              |
| 13 †    | 86                      | 2      | 12   | 11                              |
| 14 †    | 66                      | 1      | 17   | 20                              |
| 15 †    | 63                      | 5      | 26   | 26                              |
| 16 †    | 61                      | 1      | 27   | 17                              |
| 17 †    | 85                      | 1      | 30   | 21                              |
| 18 †    | 79                      | 5      | 30   | 18                              |
| 19 †    | 82                      | 1      | 30   | 16                              |
| 20 †    | 82                      | 2      | 30   | 17                              |
| 21 *    | 70                      | 5      | 30   | 14                              |
| 22 *    | 85                      | 5      | 33   | 20                              |
| 23 †    | 27                      | 4      | 33   | 16                              |
| 24 †    | 71                      | 3      | 33   | 22                              |
| 25 †    | 77                      | 1      | 31   | 16                              |
| 26 †    | 70                      | 8      | 45   | 12                              |
| 27 †    | 16                      | 3      | 49   | 15                              |
| 28 *    | 14                      | 7      | 60   | 25                              |
| 29 †    | 51                      | 6      | 60   | 21                              |
| 30 *    | 78                      | 3      | 60   | 21                              |
| 31 †    | 54                      | 10     | 60   | 28                              |
| 32 †    | 21                      | 9      | 90   | 26                              |
| 33 †    | 76                      | 7      | 120  | 35                              |
| 34 †    | 71                      | 7      | 135  | 30                              |
| 35 *    | 76                      | 17     | 195  | 60                              |
| 36 †    | 68                      | 10     | 515  | 63                              |
| 37 †    | 82                      | 33     | 730  | 72                              |
| 38 *    | 50                      | 67     | 700  | 89                              |

\* Patient with dysentery  
† Healthy carrier

with a particular effort made to combat dehydration. Both patients and carriers were quarantined. Release followed a succession of six negative cultures of the stool obtained at least twenty-four hours apart.

It may be seen from table 1 that the stools of 9 patients became negative for *B. flexneri* in less than ten days. In 7 patients from ten to thirty days were required for a final reversal of the stools to negative. Twenty-two of the group of 38 patients, representing over 57 per cent, retained the bacillus in the gastrointestinal tract for one month or longer.

SECOND OUTBREAK (1941-1942)

After an interval of two years, a second outbreak of acute bacillary dysentery, again of the contact type, started in the same building and spread to neighboring dormitories, involving a few occupants of these buildings. None of the patients of the previous epidemic came down with the infection or acquired the organism anew.

Of the 33 patients treated with sulfaguanidine, 15 were classified as having the disease and 18 as symptomless carriers (table 2). All patients but 1 were elderly. From their stools *Shigella paradysenteriae*, variety strong, was recovered, the same organism involved in the previous episode. The only male inmate of the group (patient 27) showed the army variety of *B. flexneri* in his stool.

With few exceptions (patients 1, 2, 3, 4, 14 and 27) administration of the drug was started within four days following receipt of the first positive stool specimen by the laboratory. The same course of treatment was followed in every instance, whether or not the patient was classified as having the disease or as a carrier. Four Gm. daily of sulfaguanidine by mouth was administered in divided doses for one week. No ill effects were observed, and in no case was it necessary to stop use of the drug prematurely.

In all patients the stool collected at the end of the period of treatment was negative for *B. flexneri*. In 6 patients (1, 14, 17, 21, 23 and 30) the bacillus disappeared from the stool before the prescribed total of 28 Gm. of the drug had been given. Since it was frequently impossible to obtain stool specimens at will during the course of treatment, this group was no doubt actually more numerous.

In all but 4 instances (patients 3, 11, 14 and 22) from ten to thirty-eight consecutive stool cultures remained negative over an average period of one hundred and five days. The 4 exceptions were subjected to a second course of 28 Gm. of sulfaguanidine and

TABLE 2—Statistical Data on the Second Outbreak (Patients Treated)

| Patient | Positive Stool Cultures Prior to Use of Sulfaguanidine |        |      | Negative Stool Cultures Following Use of Sulfaguanidine |      | Reeru-disease  |
|---------|--|--------|------|---|------|--|
|         | Age  | Number | Days | Number  | Days |  |
| 1 *     | 71   | 3      | 19   | 14  | 117‡ |  |
| 2 *     | 67   | 3      | 11   | 13  | 112  |  |
| 3 *     | 78   | 3      | 11   | 8   | 94   | 14 consecutive negative stools over 60 days following second course of drug      |
| 4 *     | 67   | 5      | 21   | 12  | 99   |  |
| 5 *     | 65   | 4      | 4    | 12  | 109  |  |
| 6 *     | 76   | 2      | 4    | 15  | 116  |  |
| 7 †     | 60   | 2      | 4    | 13  | 119  |  |
| 8 †     | 45   | 1      | 2    | 14  | 121  |  |
| 9 †     | 59   | 2      | 3    | 13  | 121  |  |
| 10 †    | 64   | 1      | 2    | 15  | 115  |  |
| 11 †    | 59   | 1      | 2    | 3   | 16   | 12 consecutive negative stools over 98 days following second course of treatment |
| 12 †    | 58   | 2      | 3    | 10  | 118  |  |
| 13 †    | 61   | 1      | 3    | 14  | 119  |  |
| 14 †    | 68   | 3      | 7    | 3   | 15‡  | 14 consecutive negative stools over 82 days following second course of treatment |
| 15 *    | 61   | 2      | 3    | 13  | 113  |  |
| 16 *    | 80   | 1      | 2    | 14  | 116  |  |
| 17 †    | 67   | 1      | 3    | 14  | 116‡ |  |
| 18 †    | 76   | 1      | 2    | 15  | 109  |  |
| 19 †    | 81   | 1      | 3    | 14  | 166  |  |
| 20 †    | 39   | 1      | 3    | 13  | 100  |  |
| 21 †    | 58   | 2      | 3    | 12  | 105‡ |  |
| 22 *    | 74   | 1      | 2    | 2   | 27   | 14 consecutive negative stools over 61 days following second course of treatment |
| 23 *    | 73   | 2      | 2    | 15  | 111‡ |  |
| 24 *    | 17   | 1      | 3    | 25  | 99§  |  |
| 25 *    | 52   | 1      | 2    | 14  | 97   |  |
| 26 *    | 44   | 2      | 4    | 20  | 91§  |  |
| 27 *    | 38   | 5      | 13   | 10  | 73   |  |
| 28 †    | 26   | 1      | 3    | 22  | 91§  |  |
| 29 †    | 79   | 1      | 3    | 15  | 81   |  |
| 30 *    | 60   | 1      | 3    | 38  | 90‡§ |  |
| 31 †    | 37   | 2      | 4    | 14  | 74   |  |
| 32 †    | 43   | 2      | 3    | 25  | 75§  |  |
| 33 †    | 40   | 1      | 5    | 12  | 44   |  |

\* Patient with dysentery  
† Healthy carrier  
‡ Stools became negative for *B. flexneri* during treatment  
§ Stools intermittently positive for *Eberthella typhosa*

responded promptly with a consecutive series of twelve to fourteen negative stools.

During the routine of culturing for *Shigella*, the stools of 5 patients (24, 26, 28, 30 and 32) of the group intermittently revealed colonies on bismuth sulfite agar which agglutinated as *Eberthella typhosa*. This high incidence of typhoid carriers within a group of

dysentery convalescents may have been partially due to the fact that the carriers of the two organisms were isolated within the same building. The stools of 2 patients (24 and 28), who were also recognized as typhoid carriers prior to the administration of sulfaguanidine continued positive for *Elberthella*. The drug failed to affect this organism although the disappearance of the dysentery bacillus from the intestinal tract was prompt and apparently permanent. We have not yet attempted a deliberate trial with sulfaguanidine in an effort to reduce the number of typhoid carriers.

## COMMENT

The severity of dysentery due to the *Flexner* group of bacilli varies widely. The disease in the outbreaks described in the present study did not represent the acute fulminating type. It was relatively mild and as pointed out by Hodge<sup>7</sup> of the type which is important owing chiefly to its tendency to persist if untreated and to its infectivity.

The advantages of a measure which will reduce the period of the carrier state or eliminate it entirely are obvious in any community. In a large hospital for mental illness where patients, through their untidiness and lack of cooperation may become particularly dangerous carriers, the period of isolation may be shortened for the patient and the duration of the quarantine which is imposed on the entire dormitory or institution may be reduced considerably.

As seen in table 1 57 per cent of the group of patients which did not receive sulfaguanidine continued to carry the bacillus in their stools a month or more after it was first detected. Of this number, 31 per cent were persistent carriers, i. e. those who harbored the bacilli for more than three months after the beginning of the disease. In sharp contrast to this a single course of sulfaguanidine effected the complete disappearance of dysentery bacilli from the stools of 88 per cent of the patients involved in the second outbreak. This result was obtained uniformly during or at the end of treatment with moderate nontoxic amounts of the drug and persisted for an average of one hundred and five days.

Since it is well known that the presence of *B. flexneri* in carriers has a tendency to be intermittent the bacillus being excreted for one or two days in succession and then not again for weeks or more, the usual criteria of a few successive negative stools following the termination of the acute illness cannot be accepted as a guaranty against the reappearance of the organism.

Despite the administration of sulfaguanidine, 4 of 33 patients or 12 per cent, underwent a recrudescence of their infectivity. Although this number is relatively small it indicates that, even with the use of this drug caution must be exercised in deciding when the carrier state is definitely over.

## SUMMARY AND CONCLUSIONS

Two outbreaks of bacillary dysentery caused by the same organism (*B. flexneri*, variety strong) and involving comparable groups of patients occurred in 1939-1940 and in 1941-1942 respectively at the Norwich State Hospital.

The 38 patients with positive stools of the first outbreak did not receive chemotherapy. Fifty-seven per cent of this group maintained their infectivity for a month or longer.

<sup>7</sup> Hodge E. H. V. Modern Views on the Dysenteries and Their Treatment. Practitioner 116: 365 (June) 1941.

The stools of 88 per cent of the 33 patients involved in the second outbreak remained negative for the dysentery bacillus over an average period of one hundred and five days following administration of 28 Gm of sulfaguanidine.

The reappearance of *B. flexneri* in the stools of 4 patients after a first course of treatment indicates the necessity for continued laboratory examinations for several weeks after an apparent reversal to negative.

## STAPHYLOCOCCIC INFECTION SIMULATING SCARLET FEVER

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Scarlet fever was identified by both Sennert and Sydenham as a separate clinical entity during the seventeenth century, but discussions of its etiology remained purely speculative until two centuries later. In 1869 Hallier<sup>1</sup> isolated streptococci from the blood of several patients with scarlet fever, and in the eighties W. H. Power<sup>2</sup> and Klein<sup>3</sup> traced epidemics of the disease to milk obtained from cows with streptococcal mastitis. It is of considerable historical interest that the modern concept of the pathogenesis of scarlet fever was formulated as early as 1893. Thirty years before the classic experiments of the Dicks<sup>4</sup> and Dochez,<sup>5</sup> Berge<sup>6</sup> had written:

Scarlet fever is a local infection, the infectious agent which produces it is the streptococcus in one of its virulent forms in the common type of scarlet fever which one might call pharyngeal the streptococcus multiplies in the pharyngeal and tonsillar crypts and apparently secretes an 'erythrogenic' toxin whose diffusion throughout the organism produces the eruption of the skin and mucous membranes. In puerperal and surgical scarlet fever the local infection is either in the uterus or in the wound. As for the immunity conferred by scarlet fever, it exists only for the cutaneous manifestations.

The evidence which Berge was able to adduce for his theory did not prove to be convincing, and the toxin concept was not generally accepted until the contributions of numerous investigators<sup>7</sup> finally cul-

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<sup>1</sup> Hallier E. Der pflanzliche Organismus im Blute der Scharlachkranken. Jahrb. f. Kinderb. 2: 169 1869.

<sup>2</sup> Power W. H. An Outbreak in Certain Districts of London of Scarletina Believed to Have Been Distributed in Milk. Rep. M. Off. Local Govt. Bd. 12: 63 1882.

<sup>3</sup> Klein O. On the Relation Between Milk Scarletina in the Human Subject and Disease in the Cow. Practitioner 37: 143 1886.

<sup>4</sup> Dick G. F. and Dick Gladys H. Experimental Scarlet Fever. J. A. M. A. 81: 1166 (Oct. 6) 1923. A Skin Test for Susceptibility to Scarlet Fever. ibid. 82: 265 (Jan. 26) 1924. Scarlet Fever Toxin in Preventive Immunization. ibid. 82: 544 (Feb. 16) 1924.

<sup>5</sup> Dochez A. R. Studies Concerning the Significance of Streptococcus Hemolyticus in Scarlet Fever. Proc. Soc. Exper. Biol. & Med. 21: 184 1923 1924. The Significance of the Streptococcus Hemolyticus in Scarlet Fever. J. A. M. A. 82: 342 (Feb. 16) 1924.

<sup>6</sup> Berge A. Sur la pathogenie de la scarlatine. Compt. rend. Soc. de biol. 6: 1012 1893.

<sup>7</sup> Baginsky A. and Sommerfeld P. Ueber einer constanter Bacterienbefund bei Scharlach. Berl. klin. Wchnschr. 37: 588 1900. Schottmuller H. Die Artunterscheidung der fur Menschen pathogenen Streptokokken durch Blutagar. Munchen med. Wchnschr. 1: 849 1903. Hektorn Ludwig. Bacteriologic Examination of the Blood During Lite in Scarlet Fever with Special Reference to Streptococcemia. J. A. M. A. 40: 685 (March 14) 1903. Moser P. Ueber die Behandlung des Scharlachs mit einem Scharlachstreptococcenserum. Wien. klin. Wchnschr. 15: 1053 1902. Gahrtnichew ky G. Ueber Streptokokkenerytheme und Krumwiede Charles Jr. Nicoll Matthias Jr. and Pratt Josephine S. Attempts to Produce Scarletina in Monkeys. Arch. Int. Med. 13: 909 (June) 1914.

minated in the convincing experiments of the Dicks and Dochez in 1923.

Scarlet fever was for several years considered to be due to a soluble toxin secreted by a specific strain of hemolytic streptococcus, often referred to as *Streptococcus scarlatinae*. Workers both in this country<sup>8</sup> and in England,<sup>9</sup> however, showed that toxin production was not a property limited to any single type or strain of hemolytic streptococcus; they advanced conclusive evidence that "the production of an erythrogenic toxin capable of eliciting an erythematous skin reaction in man is a property of hemolytic streptococci of human origin in general."<sup>10</sup>

That the erythrogenic toxin of the hemolytic streptococcus represented a single antigenic unit was never questioned until the usage of the Dick test became widespread and reports of occasional anomalies and apparent inaccuracies in the test appeared in the literature.<sup>11</sup> It was then that Park and Spiegel<sup>12</sup> suggested, on the basis of careful titration experiments, that there might be more than one toxin associated with scarlet fever. Trask and Blake<sup>13</sup> in 1933 described cases of scarlet fever apparently due to toxins which were not neutralized by standard Dick antitoxin, and Hooker and Follensby<sup>14</sup> isolated from patients with scarlet fever two strains of hemolytic streptococcus producing toxins which were antigenically different. Reviewing the subject of streptococcus toxins in 1936, Hooker<sup>15</sup> predicted that still other toxins capable of producing scarlet fever would eventually be isolated and identified.

Although scarlet fever is now known to be caused by more than one toxin produced by many different types and strains of beta hemolytic streptococcus, little attention has been paid to the possibility that the disease may be due to toxins produced by organisms other than the hemolytic streptococcus. Our purpose in the present paper is to report a case together with immunologic experiments which suggest that scarlet fever may occasionally be caused by staphylococcus toxin. Attention is also drawn to the literature which has accumulated in support of this concept.

#### REPORT OF CASE

M. W., a 15 year old white schoolgirl, American born, was admitted to the Osler Clinic of the Johns Hopkins Hospital on the evening of July 3, 1941 complaining of pain in the left thigh of four days' duration and of fever for three days.

8 Kirkbride, M. B., and Wheeler, M. W. Studies of the Toxins of the Hemolytic Streptococcus, *J. Immunol.* **11**: 477, 1926. Further Observations on the Toxins of the Hemolytic Streptococcus, *ibid.* **13**: 19, 1927. Kirkbride, M. B., Wheeler, M. W., and Hendry, J. A Study of the Reactions Between Toxins and Antisera Produced with Hemolytic Streptococcus, *ibid.* **15**: 539, 1928. Williams, Anna W. Exotoxins of Hemolytic Streptococci, *J. A. M. A.* **93**: 1544 (Nov. 16) 1929. Wadsworth, A. B. The Hemolytic Streptococci and Antistreptococcus Serum in Scarlet Fever, *Am. J. Pub. Health* **19**: 1287, 1929. Park and Spiegel<sup>12</sup>.

9 McLachlan, D. G. S. The Specific Toxigenic Properties of Hemolytic Streptococci from Scarlatina and Other Sources, *J. Hyg.* **26**: 84, 1927. McLachlan, D. G. S., and Mackie, T. J. A Serologic Study of the Hemolytic Streptococci Associated with Scarlatina, *ibid.* **27**: 225, 1928. Okel, C. C. The Role of the Hemolytic Streptococci in Infective Disease, *Lancet* **1**: 761, 815 and 867, 1932.

10 Zinsser, Hans, Enders, J. F., and Fothergill, L. D. *Immunity: Principles and Application in Medicine and Public Health*, ed. 5, New York, Macmillan Company, 1939, p. 581.

11 Joe, A. A Clinical Study of the Dick Test, *Lancet* **2**: 1321, 1925. McGibbon, J. P. The Anomalous Features of the Dick Reaction, *J. Hyg.* **31**: 30, 1934.

12 Park, W. H., and Spiegel, R. C. Complexity of the Scarlet Fever Toxin and Antitoxin, *J. Immunol.* **10**: 329, 1925.

13 Trask, J. D., and Blake, F. G. Heterologous Scarlet Fever, *J. A. M. A.* **101**: 753 (Sept. 2) 1933.

14 Hooker, S. B., and Follensby, E. M. Different Toxins Produced by Hemolytic Streptococci of Scarlatinal Origin, *J. Immunol.* **27**: 177, 1934.

15 Hooker, S. B. The Plurality of Streptococcal Toxins, *New England J. Med.* **215**: 68, 1936.

The family history revealed no familial disease, no other member of the family had suffered from a recent infection or had had any known contact with contagious disease in the recent past.

The past history and system review revealed only a transient psoriasis at the age of 7 months, measles at 3 years and chicken-pox at 4 years. A tonsillectomy had been performed when the patient was 12. Colds were of moderate frequency and were only occasionally accompanied by sore throat. Menarche occurred six months before admission, and menses were regular. Diphtheria, scarlet fever and acute rheumatic fever were specifically denied.

The patient had been in the best of health until two weeks before admission. At that time she contracted a mild infection of the upper respiratory tract, accompanied by a very slight sore throat; there was no fever, the patient continued to attend school, and with no therapy other than a rare gargle with saline solution she apparently recovered completely in ten days.

Four days before admission, while watering the garden, she noticed an aching pain in her left thigh. She knew of no trauma, recent or remote, to account for this pain. It was accentuated by flexion of the hip. The discomfort, at first mild, increased to the extent that she was unable to sleep and cried aloud.

The pain persisted on the following day, and she was unable to eat her meals. Her physician found her temperature to be elevated and prescribed rest, use of a local liniment and salicylates by mouth. This therapy resulted in some regression of her symptoms for several days, but on the day preceding admission the pain in her leg increased strikingly in intensity, and she had a severe shaking chill and experienced nausea and vomiting. When the passage of another twenty-four hours revealed no amelioration of her condition, hospitalization was advised. At no time in the course of this illness did the patient notice any sore throat, nor did there appear any evidence of a respiratory infection.

Physical examination on admission showed that the patient was well developed and well nourished and mildly disoriented. Obviously she was acutely ill. Her temperature was 105 F, pulse 120, respiratory rate 30 and blood pressure 90 systolic and 40 diastolic.

The most striking feature on inspection was a diffuse erythematous rash, which at first was most evident on the trunk and shoulders but which later advanced peripherally. The rash consisted of erythematous macules, which blanched readily on pressure and were most profuse in the folds of the axilla, groins and antecubital fossae. There was no rash on the face, but the latter was diffusely flushed and there was well defined circumoral pallor. On the soft palate and extending onto the hard palate there was an intensely red, fine enanthem. The tongue was dark red, and on its surface hypertrophic papillae stood out producing the classic "raspberry" appearance.

The pupils were round, regular and equal and reacted to light and in accommodation. The fundi were normal. There was some congestion of the conjunctivas. The nares were clear, and there was no evidence of infection in the pharynx. The neck was supple, and the lungs were clear. There was slight but definite, nontender enlargement of the superficial lymph nodes. The heart was not enlarged. The pulse was rapid and regular, and there was a blowing systolic murmur over the base of the heart. The second pulmonary sound was louder than the second aortic sound. Pulses were soft, bounding and equal. The abdominal examination was normal save for slight distention. Inspection of the genitalia showed no discharge or other abnormality. Reflexes were normal. No petechiae or furuncles were present.

There was diffuse tenderness over the lateral aspect of the left thigh and pain on flexion of the thigh. No local swelling could be discerned, and both legs were of equal size. There was no tenderness along the courses of the great veins, nor was there any venous engorgement.

The laboratory findings on admission were as follows. The red blood cell count was 4.99 million, the hemoglobin 12.5 Gm.

per hundred cubic centimeters, and the hematocrit reading 41 per cent. The white blood cell count was 13,100 with 78 per cent polymorphonuclear leukocytes. The corrected sedimentation rate was 31 mm in one hour. Examination of the urine revealed a specific gravity of 1.015, no sugar, a 2 plus reaction for albumin and strongly positive reactions for acetone and diacetic acid. The centrifuged urinary sediment contained 5 to 8 white blood cells per high power field and an occasional red blood cell and hyaline cast. The serologic reaction for syphilis was negative.

On the patient's admission a diagnosis of scarlet fever was made by the intern. Isolation precautions were instituted and the case was reported to the city board of health. All who saw the patient made the same diagnosis. Material from the throat and blood were taken for culture and parenteral fluids administered.

During the night the patient's temperature fell to 103.2 F and on the following morning she was well oriented and said she did not have a sore throat but continued to complain of pain in the left thigh. The rash covered her entire body save for the circumoral pallor and the diffusely flushed face. The throat culture taken the preceding evening showed no beta hemolytic streptococci and preliminary inspection of the blood culture revealed many gram positive cocci. Surgical consultants found no localizing signs to account for the pain in her leg. In the absence of pharyngeal infection in a well defined case of scarlet fever with bacteremia it was concluded that the patient was suffering from nonpharyngeal scarlet fever and that chemotherapy was urgently indicated. Accordingly sodium sulfadiazine was given intravenously and then orally so that on the following morning a blood level of 138 mg per hundred cubic centimeters was attained. The same evening the patient's temperature rose to 107.6 F following a chill. After a test of serum sensitivity 18,000 units of Lederle's scarlet fever antitoxin was administered intramuscularly. The temperature fell precipitously to 98 F and a simultaneous fall in blood pressure was arrested by an infusion followed by a transfusion of citrated whole blood.

A final report on the first blood culture revealed the gram positive cocci to be hemolytic *Staphylococcus aureus*.

On the next morning the second blood culture showed 54 colonies of hemolytic *Staph aureus* per cubic centimeter. The hemolytic streptococcus was never isolated from repeated cultures of the throat, vagina, urine or blood.

Within the twelve hours following the administration of the scarlatinal antiserum there was a striking fading of the rash and the patient's tongue began to show desquamation. Her temperature however slowly rose again to 103 F. Although a presumptive diagnosis of acute osteomyelitis with septicemia was made, it was not until July 6 her fourth hospital day that evidence of definite localization of the infection became manifest. Repeated search both at this time and subsequently failed to show either petechiae or furuncles although her blood culture remained persistently positive for hemolytic *Staph aureus*. The microscopic hematuria disappeared immediately after admission as did the ketonuria.

On the morning of the fourth hospital day well localized pain and tenderness developed over the lateral aspect of the left greater trochanter. With the patient under gas oxygen and ether anesthesia an incision was made over the trochanter and deepened to the bone itself without any pus being encountered. When the cortex of the bone was drilled pus under pressure welled out through the drill holes. Cultures of this pus showed a hemolytic *Staph aureus* identical with that isolated from the blood stream. Adequate drainage was established and the wound was packed open. Intensive chemotherapy was continued, a high blood level of sulfadiazine was maintained and parenteral fluids and another transfusion of citrated whole blood were given.

After operation the patient's course was one of continued improvement, although her temperature remained significantly elevated for almost a week and her blood culture did not become permanently negative until the eighth postoperative

day.<sup>16</sup> Her wound drainage, at first profuse, steadily diminished, and the wound was completely healed over by September 27. Because of the danger of the development of other foci, chemotherapy was continued for a total of three and one-half weeks, no other focus developed, and the only lesion shown by roentgen rays was a localized area of bone destruction in the upper end of the left femoral shaft.

On her fourteenth hospital day desquamation of the palms, soles, fingers and toes began and continued for more than a week. This desquamation was identical with that normally associated with scarlet fever.

Three and one-half weeks after admission, in spite of the fact that daily examinations of the urine had revealed no blood or albumin the patient suddenly voided grossly bloody urine, which showed a 2 plus reaction for albumin. There was, however, no edema and no rise in blood pressure. Although it was thought that the hematuria was probably due to sulfadiazine the possibility of a postscarlatinal acute glomerulonephritis was considered. The results of chemical examination of the blood, an electrocardiogram, venous pressure and a roentgenogram of the chest were normal, and the discontinuance of chemotherapy followed by the forcing of fluids resulted in the voiding of completely normal urine within four days. Shortly thereafter the hip was slowly mobilized and the patient was allowed to return home.

Antistreptolysin titer determined shortly before the patient's discharge was 500.<sup>17</sup>

#### EXPERIMENTAL

When repeated and careful search in this case failed to reveal any evidence of the presence of the beta hemolytic streptococcus, the properties of the organism repeatedly isolated from the patient's blood stream, and also from her left femur at operation, were investigated. The infectious agent was identified as a typical strain of hemolytic *Staphylococcus aureus* and was found to be coagulase positive and to ferment mannite.

In order to determine whether this strain of staphylococcus produced an erythrogenic toxin, a sterile filtrate was prepared using the methods described for the preparation of Dick toxin.<sup>18</sup> After the filtrate had been transferred aseptically to sterile vials, its sterility was confirmed by culture, and the vials were placed in the icebox for several months. The erythrogenic power of the filtrate was estimated by injecting intracutaneously 0.1 cc of various dilutions made with sterile isotonic solution of sodium chloride. The injections were performed on Dick positive volunteers. The erythrogenic power of the filtrate was such that 0.1 cc of a 1:100 dilution produced an intense erythema of at least 10 mm in smallest diameter when the area was examined after twenty and twenty-four hours. Save for the fact that it was much more intense, the erythematous reaction was very similar to the Dick reactions in the various subjects.

The possible antigenic relationship of the staphylococcus and Dick toxins was investigated by attempting to demonstrate the neutralization of the erythrogenic action of staphylococcus filtrate by streptococcus antitoxin. For neutralization experiments Dick positive children were selected who were not at the time of the tests suffering from any known infection. Each neutralization test consisted of six simultaneous intracutaneous injections three into the volar surface of

16. All specimens of blood for culture taken after the institution of chemotherapy were inoculated on mediums enriched with para-aminobenzoic acid.

17. This determination was made for us by Dr. Alvin F. Coburn of the Columbia University College of Physicians and Surgeons, New York.

18. Dick, G. F. and Dick, Gladys H. *Scarlet Fever*. Chicago: Year Book Publishers, Inc. 1938, p. 66.



each forearm. Each injection was separated from its neighbor by at least 6 cm., and the reaction was examined under bright daylight eighteen and twenty-four hours after injection. The injections were made as follows:

A. Into the right forearm: (1) 0.1 cc. of a 1:100 dilution of the staphylococcus filtrate incubated for one hour at 37 C. immediately before injection, (2) 0.1 cc. of a 1:10 dilution of the staphylococcus filtrate incubated just prior to injection with nine parts of scarlet fever antitoxin<sup>19</sup> for one hour at 37 C., (3) 0.1 cc. of a 1:100 dilution of staphylococcus filtrate heated for one hour at 61 C. to test the heat stability of the toxin.

B. Into the left forearm: (1) 0.1 cc. of Dick toxin<sup>20</sup> incubated for one hour at 37 C. immediately before injection, (2) 0.2 cc. of a mixture of equal parts of Dick toxin and scarlet fever antitoxin incubated together for one hour at 37 C., (3) 0.1 cc. of scarlet fever antitoxin.

In order to carry out satisfactory tests with the staphylococcus toxin, it was necessary to select subjects in whom (1) the Dick reaction remained positive, (2) the erythema of the Dick test was prevented by the previous admixture of the Dick toxin with scarlatinal antiserum and (3) the scarlatinal antiserum itself failed to cause a cutaneous reaction. Ten persons were tested, and 3 suitable subjects were selected in whom the following results were obtained with the staphylococcus filtrate:

1. An intense erythema more than 10 mm. in its least diameter, surrounded by a faint erythematous halo, which blanched readily, resulted from the injection of 0.1 cc. of the 1:100 dilution of the staphylococcus filtrate.

2. In each case there was definite inhibition of the erythema produced by the filtrate when it was incubated with the scarlatinal antiserum before injection. In 1 case neutralization was complete, in the other 2 a faint, blotchy, poorly demarcated erythema could just be discerned.

3. Preheating of the staphylococcus filtrate for one hour at 61 C. completely inactivated the erythrogenic toxin.

#### COMMENT

The strain of *Staphylococcus aureus* which caused the bacteremia and osteomyelitis in the present case has been shown to produce a soluble erythrogenic toxin, the effect of which on the human skin was neutralized by scarlatinal antitoxin. Since, in spite of exhaustive and repeated search, no beta hemolytic streptococci were ever recovered from the patient, it is suggested that the scarlatiniform rash was due to erythrogenic toxin produced by the staphylococcus.<sup>21</sup> Although staphylococcic infection simulating scarlet fever is not common, a review of the literature indicates that there is considerable evidence which points to its being a definite clinical entity.

The study of the staphylococcus toxins by methods analogous to those used in studying the erythrogenic toxin of the hemolytic streptococcus has been reasonably extensive. In 1900 von Lingelsheim<sup>22</sup> described a soluble dermatotoxin produced by the staphylococcus, and his observations were soon confirmed by Neisser and

Wechsberg<sup>23</sup> and Parker.<sup>24</sup> Pilot and Afremow<sup>25</sup> in 1927, using techniques described by the Dicks, obtained a toxic filtrate with which they performed cutaneous tests on human subjects. Intradermal injections of then diluted filtrate produced an erythematous reaction analogous to the Dick test; this reaction was prevented by previous admixture of the filtrate with homologous antitoxin prepared in rabbits. Reme<sup>26</sup> tested fifteen strains of hemolytic *Staphylococcus aureus* and found that twelve of them elaborated an erythrogenic toxin.

In 1927 Stevens<sup>27</sup> reported 3 cases of clinically "typical" scarlet fever in which the hemolytic staphylococcus was the only pathogenic organism isolated. One of the patients had an acute osteomyelitis of the thigh. Filtrates were prepared for injection into the skin of rabbits and neutralization tests were carried out with scarlatinal antisera. It is of interest to note the author's remark that "Three antiscarlatinal serums were tested before one was found which did not contain appreciable amounts of staphylococcus antitoxin." Since the commercial scarlatinal antisera of that time were prepared with hemolytic streptococcus filtrates, it is probable that neutralization occurred, similar to that previously described. In the same year Satake<sup>28</sup> isolated a strain of hemolytic *Staphylococcus aureus* from the pharynx of a patient with scarlet fever from whom he had been unable to culture the hemolytic streptococcus. The staphylococcus produced an erythrogenic toxin, and when large doses of the staphylococcus filtrate were administered to patients whose skin reacted to the toxin, a generalized reaction was produced which consisted of prompt fever, malaise, typical scarlatiniform rash, tongue changes, leukocytosis and later desquamation. "It was clear from the results of these experiments," wrote Satake, "that certain strains of staphylococci should cause symptoms very like those of genuine scarlet fever." Clinical reports by numerous later observers<sup>29</sup> have tended to confirm this conclusion.

In 1937 Mundt<sup>30</sup> prepared sterile filtrates from cultures of nineteen strains of hemolytic *Staphylococcus aureus* isolated from a variety of sources. She performed cutaneous tests with the filtrates on a group of Dick positive subjects, each patient receiving six intracutaneous injections, three in each forearm. In one arm the injections consisted of the usual dose of Dick toxin, the same dose of Dick toxin mixed with an equal amount of scarlatinal antitoxin and the Dick toxin mixed with diphtheria antitoxin. In the other arm a similar set of three injections was made with a dilution of the staphylococcus filtrate in place of the Dick toxin. For a "neutralization" to be recorded, it was required

23. Neisser, M. and Wechsberg, F. Ueber das Staphylotoxin. *Ztschr. f. Hyg. u. Infektionskr.* 36: 299, 1901.

24. Parker, T. Production of an Exotoxin by Certain Strains of *Staphylococcus Aureus*, *J. Exper. Med.* 40: 761, 1924.

25. Pilot, Isadore, and Afremow, M. L. Studies of *Staphylococcus Filtrates*, *J. A. M. A.* 89: 939 (Sept. 17) 1927.

26. Reme, G. Ueber Hautreaktionen mit Staphylokokkenkulturfiltraten, *Ztschr. f. Immunitätsforsch. u. exper. Therap.* 69: 25, 1930.

27. Stevens, F. A. The Occurrence of *Staphylococcus Aureus* Infection with a Scarlatiniform Rash, *J. A. M. A.* 88: 1957 (June 18) 1927.

28. Satake, T. Experimental Studies on Scarlet Fever, *J. Orient. Med.* 6: 17, 1927.

29. Mackenzie, G. M. Scarlatiniform Eruption Followed by Desquamation Associated with a *Staphylococcus Aureus* Bacteremia, in *Clinical Miscellany*, Springfield, Ill. Charles C. Thomas, Publisher, 1934.

30. Mundt, M. Enders and Fothergill, page 638. Breen, G. E. Gangrene in Scarlet Fever, *Lancet* 2: 196, 1940. Hippke. Betrachtungen zum Scharlachproblem auf Grund von Beobachtungen in einer militärischen Anstalt, München med. Wehnschr. 76: 1873, 1929. Friedemann, U. Weitere experimentelle und klinische Untersuchungen über den Scharlach, *V. Ztschr. f. Hyg. u. Infektionskr.* 108: 181, 1928.

Kinsella, R. A., Garcia, D., and Wade, J. Filtrates from Scarlet Fever and Surgical Hemolytic Streptococcus Infections, *Proc. Soc. Exper. Biol. & Med.* 24: 889, 1927.

30. Mundt, M. Ueber die Neutralisierbarkeit der mit Kulturfiltraten von Staphylokokken erzeugten Hautrötungen mit dem Scharlachserum, dissertation, Heidelberg, 1937.

19. Scarlet fever streptococcus antitoxin prepared by Lederle Laboratories.

20. Scarlet fever streptococcus toxin for the Dick test. Mulford.

21. The elevated titer of antistreptolysins in the patient's serum does not militate against this diagnosis, since the antibodies may represent a response to an earlier unrelated streptococcal infection or may even be accounted for by similarities in the antigenic structure of the hemolysins of the erythrogenic staphylococcus and the usual strains of hemolytic streptococcus. This latter possibility is to be investigated further.

22. von Lingelsheim, W., cited by Neisser, M. *Handbuch der pathogenen Mikroorganismen*, ed. 3, Jena, Fischer, 1928, vol. 4, part 1, page 457.



that the following conditions obtain (1) that there be a definite erythema of more than 0.5 cm. in diameter caused by the staphylococcus and Dick toxins (2) that the erythema in each instance be prevented by previous admixture of the toxins with scarlatinal antitoxin and (3) that the erythema caused by each toxin be unaffected by previous admixture of the toxin with diphtheria antitoxin. Using these criteria the author found that ten of the nineteen strains of hemolytic *Staphylococcus aureus* produced a soluble erythrogenic exotoxin which caused an erythematous reaction in the skin of Dick positive human subjects and was specifically neutralized by previous admixture with scarlatinal antitoxin.

In the following year von Bormann<sup>31</sup> working in the same laboratory published an extensive study of erythrogenic toxins contained in filtrates of various bacteria. Among the organisms studied were thirty-eight strains of hemolytic *Staphylococcus aureus*, a few from cases of scarlet fever but the majority having no known relation to the disease. Seventeen of the thirty-eight strains produced an erythrogenic toxin which could be specifically neutralized by scarlatinal antitoxin compared with the hemolytic streptococcus. It is of interest to note that the neutralization by commercial staphylococcus antitoxin was less effective than by the scarlatinal antitoxin. An attempt was made to correlate the production of the erythrogenic toxin with that of other staphylococcus toxins such as hemolysin and leukocidin but no such correlation was demonstrable. Parallel tests were made with Dick toxin as a control on healthy subjects and on patients with early and late stages of scarlet fever. The reaction of the skin to the Dick toxin and to that component of the staphylococcus filtrate neutralized by scarlatinal antitoxin was found to be the same in the two groups of patients.

During the past twenty years there has been a continued broadening of the accepted concept of the pathogenesis of scarlet fever. The original hypothesis that the disease is caused by a single toxin produced by a specific strain of hemolytic streptococcus is no longer tenable. Many strains of beta hemolytic streptococci are now known to possess the power of liberating the causative toxin, and streptococcus toxins of more than one antigenic type are capable of causing the disease. The evidence reviewed in the present report invites a further broadening of the etiologic concept of scarlet fever, for the data presented suggest that a clinical syndrome indistinguishable from scarlet fever may result from infection with certain strains of *Staphylococcus aureus*. Preliminary immunologic study of the erythrogenic toxin elaborated by the staphylococcus indicates that it is antigenically related to the standard erythrogenic toxin of the hemolytic streptococcus.

#### SUMMARY

A clinical syndrome indistinguishable from that of scarlet fever and associated with staphylococcal osteomyelitis and bacteremia was observed in a patient from whom no beta hemolytic streptococci could be cultured. The strain of hemolytic *Staphylococcus aureus* isolated from the patient's blood was found to produce a filtrable erythrogenic toxin which was neutralized by commercial scarlatinal antitoxin. Scarlet fever may occasionally be caused by an erythrogenic toxin produced by certain strains of staphylococci.

## ADIE'S SYNDROME

### ITS RECOGNITION AND IMPORTANCE

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The symptom complex of absent tendon reflexes and tonic pupils has been termed Adie's syndrome. Its cause remains unknown. Its importance lies in distinguishing this symptom complex from syphilis of the central nervous system. Neurologists and ophthalmologists are familiar with Adie's syndrome. There have been numerous publications in the literature of those specialties. It seems worth while to call the attention of the general practitioner to this symptom complex, as it is frequently mistaken for syphilis of the central nervous system even in the absence of positive serologic reactions.

The tonic pupil was first described by Saenger<sup>1</sup> in 1902. Markus<sup>2</sup> in 1906 first associated absent tendon reflexes with tonic pupils in a boy of 12 years. The same case was reported by Weber<sup>3</sup> in 1933 after an interval of twenty-seven years. The patient was in good health with normal offspring illustrating the benign character of the disorder. Prior to the last decade most reports suggested that this syndrome of absent reflexes and tonic pupils was associated with Argyll Robertson pupils. Moore<sup>4</sup> in 1925 wrote on the nonsyphilitic Argyll Robertson pupil. Holmes<sup>5</sup> and Adie<sup>6</sup> in 1931 called attention to this syndrome which simulates syphilis of the central nervous system. In 1932 Adie<sup>7</sup> reaffirmed the benign character of this disorder, which has since come to bear his name.

The term tonic pupil is one that requires description so that it may be recognized. A tonic pupil is one having a delayed or slow response to accommodation and convergence. Not only is the response delayed but, in addition there is an over-response, as shown in the accompanying illustration (case 1). The pupil constricts more than the normal pupil under the same stimulus. This tonic pupil may respond slowly to bright light. The pupil not only constricts gradually but also dilates in the same manner after the stimulus has been withdrawn. The tonic pupil is usually unilateral although it may be bilateral. The abnormal pupil is usually larger than the normal pupil. This tonic pupil reacts normally to both atropine and physostigmine. It is constricted with acetyl-beta-methylcholine chloride<sup>8</sup> whereas the unaffected pupil is not constricted. These findings are quite in contrast to the reactions of the Argyll Robertson pupil. With the latter condition the pupils are usually miotic, bilateral and fixed to light stimulation but react promptly to convergence. In the Argyll Robertson pupil there is either a history or both clinical and serologic evidence of

- From the Department of Neuropsychiatry, the Lahey Clinic.  
1. Saenger, Alfred. Ueber myotonische Pupillenerweiterung. *Neurol. Centralbl.* 21: 837-839, 1902.  
2. Markus, C. Notes on a Peculiar Pupil Phenomenon in Cases of Partial Iridoplegia. *Tr. Ophth. Soc. Med.* 26: 50-58, 1906.  
3. Weber, F. P. Dr. Markus's Original Case of Markus's Syndrome (Myotonic Pupil with Absence or Patellar and Achilles Reflexes) Shown 27½ Years Ago. *Proc. Roy. Soc. Med.* 26: 330-331, 1933.  
4. Moore, R. F. The Non-tonic Argyll Robertson Pupil. *Brit. M. J.* 2: 843-844 (Nov. 7), 1925.  
5. Holmes, G. Partial Iridoplegia Associated with Symptoms of Other Diseases. *Tr. Ophth. Soc. U. Kingdom* 51: 209-224, 1932.  
6. Adie, W. J. Argyll Robertson Pupils True and False. *Brit. M. J.* 2: 136-138 (July 25), 1931.  
7. Adie, W. J. Tonic Pupils and Absent Tendon Reflexes. A Benign Disorder. *Sui Generis. Its Complete and Incomplete Forms.* *Brain* 55: 98-113, 1932.  
8. Scheie, H. G. Site of Disturbance in Adie's Syndrome. *Arch. Ophth.* 24: 228-237 (Aug.) 1940.

31. von Bormann, F. Dick Toxin ähnliches Gift in Filtraten Bouillonkulturen verschiedener Bakterien. *Klin. Wchnschr.* 17: 120, 1938.

syphilis, while in Adie's syndrome the history and serologic reactions are negative

The tendon reflexes most frequently absent in Adie's syndrome are the achilles and patellar reflexes, although all tendon reflexes may be absent. In contrast to tabes dorsalis the patient with Adie's syndrome has no loss or disturbance of vibratory or position sense, and none of the superficial sensory disturbances, lightning pains or gastric crises seen in tabes dorsalis.

There are variations in Adie's syndrome. Adie<sup>7</sup> believed that there were four phases representing incomplete stages which may go on to the complete form of tonic pupils and absent tendon reflexes. On one end of the scale he placed those patients having tonic pupils alone and on the other end those with absence of reflexes alone. In the intermediate positions he placed those having atypical phases of tonic pupils alone and those having atypical pupils with absence of one or more tendon reflexes. Most neurologists believe it is a mistake to classify patients as having this syndrome who have only absent reflexes. It will be noted in this present series of patients that both the complete and incomplete Adie's syndrome are represented.

#### REPORT OF CASES

**CASE 1**—A housewife aged 34 was previously told that she had a serious disease, and it was inferred that she had syphilis in spite of repeated negative results of blood and spinal fluid examinations. She became apprehensive and very nervous and complained of fatigue, many aches and pains, sweating and palpitation. She had had a nonvenereal pelvic inflammation following an ectopic pregnancy. The right pupil was larger than the left and constricted slowly to strong light stimulation. There was also a slow constriction with prolonged convergence, the right pupil becoming even smaller than the left. The right pupil dilated slowly. The left pupil reacted normally to light and convergence. Tendon reflexes were generally absent. There was no loss of vibratory or position sense and no cutaneous sensory abnormalities. The patient had only slight complaint referable to her eyes, with blurring on accommodation (figs 1 and 2).

**CASE 2**—A housewife aged 50 had no visual symptoms or complaints. A diagnosis was made originally of tabes dorsalis. There was a general absence of tendon reflexes. The left pupil was larger than the right and irregular and reacted slowly to strong light and convergence. The patient had congenital heart disease with decompensation.

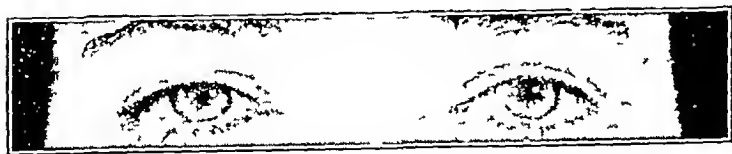


Fig 1—Adie's syndrome (case 1). The left pupil is the tonic pupil and is slightly larger than the right, pupils at rest.

**CASE 3**—A housewife aged 62 had symptoms of easy fatigue, dizziness, flushing, sweating and loose bowel movements with emotional excitement. There was evidence of mild, generalized arteriosclerosis. The tendon reflexes were generally absent. Vibratory and position sense were intact. The pupils were irregular, the left larger than the right, and they reacted slowly to both strong light and convergence. The right pupil responded normally to light and convergence. There were no symptoms related to the eyes. The patient had roentgenologic evidence of monophasic Paget's disease affecting the skull.

**CASE 4**—A salesman aged 41 had always been nervous. He had long-standing functional indigestion, gas and occasional loose bowel movements. He was worried about his heart and showed considerable anxiety. He had a history of alcoholic addiction without psychosis. The right pupil was irregular,

larger than the left, and reacted slowly to strong light and to prolonged convergence. The left pupil reacted normally. The tendon reflexes were present and active.

**CASE 5**—A man aged 45 had a history of gonorrhea twenty years previously, he denied having syphilis. He complained of "nervous stomach" with attacks of indigestion for five years. He had always been nervous but had had no specific complaints until, following a cold with cough six months previously, dryness of the mouth, loss of sweating, constipation, loss of libido and dizziness developed. The patient had low blood pressure and six months later a typical orthostatic hypotension developed, with dizziness and fainting attacks. Both pupils were irregular and reacted slowly to strong light and prolonged convergence. The tendon reflexes were absent at the knees and ankles. There was no loss of vibratory or position sense.

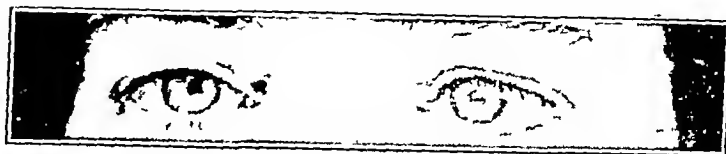


Fig 2—Over response of the left pupil to convergence.

**CASE 6**—A housewife aged 53 had had a dilated left pupil for thirty years. In recent years this dilated pupil had constricted. Formerly a diagnosis was made of "burnt out" tabes dorsalis. Both pupils were irregular and apparently fixed to light but reacted slowly to strong light and prolonged convergence. She had a mild photophobia and conjunctivitis. The tendon reflexes at the ankles were absent. The right patellar reflex was more active than the left. The patient was in the menopause. She was very nervous, had hot flashes, fatigue and hypertension, with blood pressure of 160 mm systolic and 80 mm diastolic to 190 mm systolic and 100 mm diastolic. There was no loss of vibration or position sense.

**CASE 7**—A housewife aged 38 had slight blurring of vision with strong light. After her husband's death she became very nervous and had palpitation and lack of emotional control. The patient's father had had a nervous breakdown with depressive symptoms. The right ankle jerk was absent. The remainder of the tendon reflexes were obtained only with reinforcement. The left pupil was larger than the right. The pupils reacted slowly to strong light and prolonged convergence.

**CASE 8**—A student aged 14 years was nervous, restless and worried about her health. She had acne of the face. The teacher at school noted that the right pupil was larger than the left and sent the patient for an ophthalmic examination. She had no symptoms referable to the eyes. The right pupil was dilated and larger than the left. It reacted slowly to strong light and prolonged convergence. The right achilles reflex was absent. The other tendon reflexes were present with reinforcement. There was no sensory abnormality. Vibratory and position sense were intact.

#### COMMENT

The etiology and pathogenesis of Adie's syndrome remain unknown. The association of this syndrome with other disorders,<sup>10</sup> such as influenza, polyneuritis, encephalitis, multiple sclerosis, orthostatic hypotension, vitamin deficiencies and endocrine disorders, particularly hypothyroidism,<sup>11</sup> has been suggested. In the present series of patients presenting this syndrome, the most frequently met symptoms were nervousness and emotional disorders, with such symptoms as palpitation, sweating and the associated anxiety and fear states. Kennedy and his associates<sup>12</sup> drew attention to the

9 Dr. Davis G. Cogan, Howe Ophthalmological Laboratory, granted the opportunity to examine 2 of these patients (7 and 8).

10 Heersma, P. H., and Moersch, F. P. Adie's Syndrome, *Proc Staff Meet Mayo Clin* 14: 17-22, 1939.

11 Jelliffe, S. E. The Myotonic Pupil. A Contribution and a Critical Review. *J Neurol & Psychopath* 13: 349-358 (April) 1933.

12 Kennedy Foster, Wortis, Herman, Richard J. D., and Fair, B. B. Adie's Syndrome, *Arch Ophthalmol* 19: 68-80 (Jan.) 1938.

evidence of instability of the autonomic nervous system associated with emotional disturbances in patients with Adie's syndrome, and our series of cases confirms this observation.

Most of the patients with this syndrome consult the physician for entirely different complaints, and the tonic pupils and absent tendon reflexes are found only incidentally in the course of the examination. Symptoms of blurred vision, occasional ocular pain or photophobia may be associated with tonic pupils. Not infrequently the patient's original complaint is lost sight of in the presence of these apparently more ominous findings. Many patients have been told that they have a serious disorder or a syphilitic disorder and have at times been given treatment for syphilis in spite of negative serologic reactions. Although Adie's syndrome when typical is sufficiently characteristic to make a diagnosis, one should not fail to rule out syphilis by complete studies.

Adie's syndrome is a benign disorder and requires no therapy unless it is psychotherapy, particularly if the patients have previously been told that they suffer from syphilis or some serious disorder requiring special treatment.

#### SUMMARY

Adie's syndrome is a symptom complex with absent tendon reflexes and tonic pupils as the outstanding characteristics. The cause of this syndrome remains unknown. Its importance lies in distinguishing this symptom complex from syphilis of the central nervous system. Tonic pupils may be distinguished from Argyll Robertson pupils. Adie's syndrome is a benign disorder, requiring no special therapy.

## Clinical Notes, Suggestions and New Instruments

### HYPERSENSITIVENESS TO A MERCURIAL DIURETIC

WITH OBSERVATIONS ON ITS MECHANISM

THEODORE FOX M.D. HARRY GOLD M.D. AND  
JEROME LEON M.D. NEW YORK

Acute toxic reactions following the use of organic mercurials as diuretic agents have received considerable attention in recent publications.<sup>1</sup> The present report deals with an unusual response to these compounds used as diuretics in a case of advanced congestive heart failure. Experiments were performed which throw some light on possible factors that might be involved in the mechanism of this reaction. The observations on our patient cover about five years.

#### REPORT OF CASE

A G. was an unmarried woman aged 27 when she came under observation. She had rheumatic heart disease, with decided enlargement of the heart, mitral stenosis and insufficiency, auricular fibrillation and an advanced grade of heart failure with congestion.

She appeared to have been hypersensitive to a wide variety of foods which occasionally produced hives. Her history embraced the details commonly encountered in that of a patient with rheumatic heart disease although there was no history of polyarthritis or chorea. The heart disease was discovered at the age of 10 years, at which time she was confined to bed for about two years with active carditis but without heart failure. The next twelve years, until she was 22, were

uneventful. At the end of that period (1933) heart failure began. Up to the present time there have been three episodes of severe failure, for which she was confined to bed. Recovery was not complete from the previous two attacks. She came under our observation during the third attack.

The physical observations during the early period of the last attack of failure were as follows. The patient was frail, weighing 125 pounds (56.7 Kg.). There were severe dyspnea, orthopnea, edema up to the lumbar region, pulmonary rales and ascites. The veins of the neck were distended. The lower edge of the liver was at the level of the umbilicus. There was a systolic murmur over the entire precordium and a rumbling diastolic murmur at the apex. The ventricular rate was 70 a minute. The electrocardiogram showed auricular fibrillation. There was no pulse deficit. The blood pressure was 124 systolic and 66 diastolic. A teleroentgenogram showed decided enlargement of the heart with straight left border.

The laboratory data were not significantly abnormal. There was a trace of albumin in the urine. The urine had a specific gravity of 1.020. There were occasional red blood cells and no white blood cells in the urine. The blood sugar was 103 mg., nonprotein nitrogen 33 mg. and uric acid 84 mg. per hundred cubic centimeters. These values were not significantly changed after treatment with the mercurials: blood sugar 85 mg., nonprotein nitrogen 37 mg., uric acid 53 mg. and creatinine 13 mg. per hundred cubic centimeters. The red blood cell count was 5,376,000, the hemoglobin content 15.2 Gm. and the white blood cell count 8,300, with segmented neutrophils 68 per cent and eosinophils 1 per cent. The red blood cell sedimentation rate was 2 mm. in forty-five minutes. The Kahn and Wassermann reactions of the blood were negative.

Some of the present observations were made while the patient was in bed in the hospital and others when she was ambulant, after being discharged from the hospital. While she was in the hospital a daily record was made of her body weight and the daily water intake and output were charted. The urine was also examined daily, especially for albumin casts and red blood cells. It may be noted at this point that nine daily examinations of the urine during the experiments with the organic mercurials showed no significant changes from the controls before the treatment was started.

The patient received a daily dose of  $1\frac{1}{2}$  grains (0.1 Gm.) of digitalis throughout the period of study. This maintained the ventricular rate at a level varying between 70 and 85 a minute except during a period of fever when the ventricular rate rose to 106.

It may also be noted that the use of the mercurial diuretics resulted in a sharp reduction in the signs and symptoms of heart failure, with a loss of 18 pounds (8 Kg.) of edema fluid. She improved sufficiently to become virtually free of symptoms with moderately restricted physical activities.

The unusual reactions produced by the mercurial diuretics in her case became the subject of a special study, which is the point of particular interest in this presentation.

The accompanying chart shows the types of reactions following the organic mercurials. Within less than ten minutes following an intravenous injection of 0.5 cc. of mercurpurin there appeared a series of symptoms, which grew in severity during the next twelve hours. The skin became flushed at times there was a blotching and at other times a diffuse erythema. The conjunctivas became congested. Paresthesias appeared in the skin and mucous membranes with a sensation of 'pins and needles' throughout the body, pruritus and numbness of the cheeks and tongue. There was substernal constriction and epigastric pressure, salivation, nausea and vomiting, swelling of the lips, soreness of the mouth and blurring of vision. The vision became so blurred that she was barely able to recognize objects. The temperature rose to 103 F. within seven hours. The blood pressure showed no significant changes. The urine showed no increase of albumin or red blood cells. These symptoms subsided within about seventy-two hours. The severity of the symptoms and their duration varied greatly with the dose and the type of mercurial. In the case of the larger doses the soreness of the mouth progressed to grayish ulceration, which lasted for as long as eight days.

From the Department of Pharmacology of Cornell University Medical College, New York; the Cardiac Services of the Hospital for Joint Diseases, New York; and Sea View Hospital, Staten Island, N. Y.  
1. Tyson, Mary C. Danger of Intravenous Mercurial Injections in Nephrosis. *J. A. M. A.* 117: 998 (Sept. 20) 1941. Friedfeld, Louis. Nussin, Milton. Modell, Walter, and Sussman, Ralph. Mercurpurin (letter to editor). *ibid.* 117: 1806 (Nov. 22) 1941.

It may be noted that all the organic mercurials produced some reaction, namely, intravenous mercupurin, salyrgan, neptil and the mercurin suppository. The reaction to salyrgan and neptil was almost negligible, however. In the case of these, there occurred a sensation of "pins and needles" within a few minutes after the injection. Vomiting often occurred within a few hours. The temperature did not rise. The patient later prevented the vomiting by taking the injection on an empty stomach and came without food the rest of the day. In the course of time she learned to ignore the slight discomfort produced by the salyrgan. The intravenous mercupurin or mercurin suppository, however, caused a very severe and dangerous reaction.

Experiments were designed to learn something of the mechanism of the reaction to the mercurials. It is known that massive diuresis will sometimes cause a severe reaction. Since the first dose produced a diuresis of about 3 liters, this was a possible cause of the reaction. It proved in this case, however, not to be a significant factor, since a similar reaction was caused by mercupurin at a time when the patient was relatively free of edema fluid and no copious diuresis occurred.

Since mercupurin contains some theophylline in solution (about 50 mg per cubic centimeter) the possibility that the patient might be sensitive to the xanthine content was explored. As may be seen in the chart, however, an intravenous injection of a solution containing 100 mg of aminophylline alone (about 70 mg of theophylline) caused no reaction. Such a dose together with 1 cc of salyrgan also failed to alter the slight reaction caused by salyrgan alone. It is clear, therefore, that the reaction is not caused by the xanthine content of the organic mercurial.

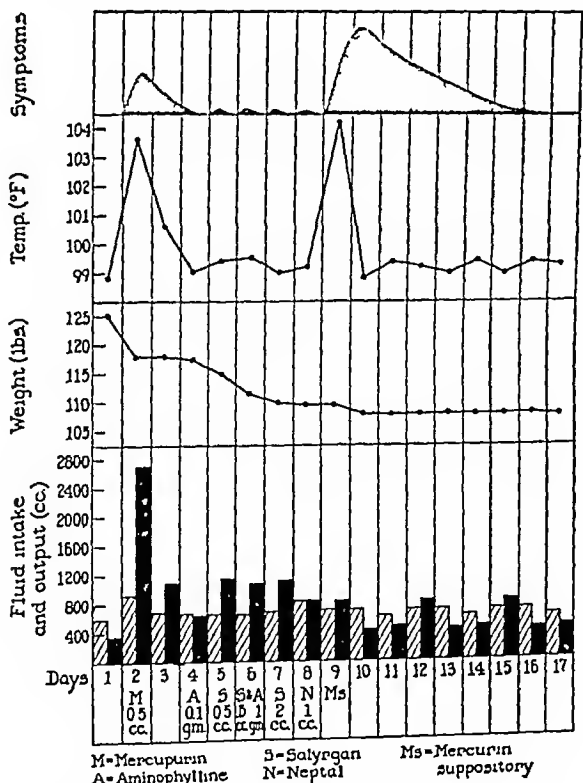
The accompanying table summarizes the results of these and of subsequent experiments. The possibility that the reaction might be due to the fact that the body breaks up the organic compound of mercupurin and liberates more toxic ionizable mercury was studied. Tests were made with other forms of

reaction. It is clear, therefore, that the reaction to the mercupurin was not the result of the liberation of ionized mercury. It may be noted that the 20 mg of mercury bichloride caused a diuresis resulting in a loss of body weight of 3 pounds (1.36 Kg) in twenty-four hours, or 60 per cent of that following the usual intravenous dose of 2 cc of salyrgan (80 mg of mercury).

Reaction of Patient to Organic Mercurial

| Day       | Drug                       | Dose                         | Content of Mercury Mg | Reaction |
|-----------|----------------------------|------------------------------|-----------------------|----------|
| 19.7      |                            |                              |                       |          |
| 1         | Salyrgan                   | 2.0 cc                       | 80                    | —        |
| 1         | Salyrgan                   | 2.0 cc                       | 80                    | 1+       |
| 7         | Salyrgan                   | 2.0 cc                       | 80                    | 1+       |
| 16        | Mercupurin                 | 2.0 cc                       | 80                    | 10+      |
| 23        | Mercurin suppository       | 0.5 Gm                       | 200                   | 10+      |
| 19.8      |                            |                              |                       |          |
| 2         | Mercupurin                 | 0.5 cc                       | 20                    | 5+       |
| 1         | Aminophylline              | 0.1 Gm                       | 0                     | 0        |
| 5         | Salyrgan                   | 0.5 cc                       | 20                    | 1+       |
| 6         | {Salyrgan<br>Aminophylline | 1.0 cc<br>0.1 Gm             | 40                    | 1+       |
| 7         | Salyrgan                   | 2.0 cc                       | 80                    | 1+       |
| 8         | Neptil                     | 1.0 cc                       | 40                    | 1+       |
| 9         | Mercurin suppository       | 0.5 Gm                       | 200                   | 10+      |
| 23        | Neptil                     | 1.0 cc                       | 60                    | 2+       |
| 2         | Salyrgan                   | 1.0 cc                       | 40                    | 1+       |
| 9         | Mercury bichloride         | 20.0 mg                      | 16                    | 0        |
| 1         | Mercuric oxycyanide        | 5.0 mg                       | 4.3                   | 0        |
| 46        | Mercuric oxycyanide        | 20.0 mg                      | 17                    | 0        |
| 53        | Salyrgan                   | 1.0 cc                       | 40                    | 1+       |
| 63        | Mercupurin                 | 0.1 cc                       | 4                     | 4+       |
| 211       | {Histamine<br>Salyrgan     | 0.25 mg<br>2.0 cc            | 80                    | 1+       |
| 19.8-1942 |                            |                              |                       |          |
|           | Salyrgan                   | 2.0 cc<br>(196 weekly doses) | 80                    | 1+       |

All doses were given intravenously except mercurin



Types of reactions following organic mercurials

mercury. The results are seen in the table. The patient showed no reaction to an intravenous injection of 20 mg of the highly ionizable mercury bichloride or to as much as 20 mg of the poorly ionizable mercuric oxycyanide in 1 per cent solution. These doses represent about four times as much mercury as is present in 0.1 cc of mercupurin, which caused a rather severe

The possibility that the liberation of histamine in the initial allergic reaction to the mercupurin might play a part in the subsequent production of the typical mercury poisoning (ulcerative stomatitis) was tested in one experiment. This hypothesis, however, received no support from the results. A dose of 0.25 mg of histamine hydrochloride was given subcutaneously. Five minutes later the usual dose of 2 cc of salyrgan was injected intravenously. Symptoms appeared ten minutes after the histamine injection: flushing of the face, sense of heat and fullness of the head. There was no rise of temperature. These symptoms subsided within an hour. They appeared to be the customary effects of histamine. No intensification of the usual mild salyrgan reaction was apparent. The usual diuresis with loss of 4 pounds (1.8 Kg) of body weight followed.

The reaction to a cutaneous scratch test for hypersensitiveness to the mercupurin proved negative. The test was made with the full strength ampule solutions of mercupurin and salyrgan on separate areas of the forearm. Isotonic solution of sodium chloride was used for additional control. The observations extended over two hours. A slight elevation appeared at the site of the scratch without itching, erythema or pseudopodia. The scratch with mercupurin was indistinguishable from that with salyrgan.

Severe reactions followed all three doses of mercupurin, even a dose of 0.1 cc given intravenously. The most severe one followed a dose of 2 cc intravenously. The patient became desperately ill, and ulceration of the mouth developed, lasting as long as eight days.

The mercurin suppository was used on two occasions. Both times the reactions were as severe as with 2 cc of mercupurin intravenously.

In the case of salyrgan, more than two hundred injections at weekly intervals were given. The dose was usually 2 cc containing approximately 80 mg of mercury. The reaction was negligible.

The hypersensitiveness to the organic mercurial in this patient seemed to remain fixed during a period of years. Her reaction in 1942 was similar to that in 1937.

2 Poll, Daniel, and Stern, J. E. Untoward Effects of Diuretics with Special Reference to Mercurial Diuretics. Arch. Int. Med. 58: 1087 (Dec.) 1936.

# SUMMARY AND CONCLUSIONS

We have encountered a case of severe hypersensitiveness to mercupurin by intravenous injection and to mercurin by rectal suppository.

This patient also exhibited a slight toxic reaction to the other mercurial diuretics but in the case of the others the reaction was negligible.

The continued administration of salyrgan did not result in any appreciable change in the character of the reaction.

The extreme susceptibility to mercupurin was seen from the fact that as little as 0.1 cc., containing only 4 mg. of mercury, produced a severe reaction, with fever, rash, nausea and vomiting, thoracic constriction, paresthesias and swelling of the lips.

This reaction was not related to the degree of diuresis.

The reaction was not due to the liberation of a more toxic ionized mercury. There was no hypersensitiveness to mercury bichloride.

The reaction showed two phases: (1) a nonspecific allergic reaction which came on within a few minutes, namely flushing, a rash and swelling of the lips; and (2) symptoms characteristic of mercury poisoning, namely ulcerative stomatitis. With the smaller doses only the first phase appeared, with the larger doses both were present.

The hypersensitive reaction precluded the use of mercupurin by intravenous injection and of mercurin by rectal suppository. It was not necessary, however, to abandon the mercurials which were essential in this case for the control of the edema, since salyrgan was tolerated in large doses by intravenous injection with negligible reaction.

## EWING'S TUMOR OF THE SACRUM

### FIVE YEAR SURVIVAL AFTER IRRADIATION

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Ewing's tumor of the sacrum is rarely encountered. In 125 cases of Ewing's tumor reported by Geschickter and Copeland,<sup>1</sup> the neoplasm involved the pelvis in 12, in none of which it occurred in the sacrum, and none of the patients lived over thirteen months. Of the total number of patients 99 were followed and only 6 survived five years. Brav and Rechtman<sup>2</sup> in 1938 reported a case in which a 10 year old child lived fourteen months with roentgen therapy. They stated that they were unable to find a similar case in the literature.

Malignant tumors of the sacrum include Ewing's tumor, chordoma, myeloma, osteogenic sarcoma and metastatic tumors. The characteristic roentgen appearance is that of a destructive lesion of the sacrum. Because of the diffuse nature of the lesion its destructiveness may not be readily apparent unless the bone density is carefully compared with that of the surrounding pelvis. The final diagnosis depends on the biopsy and the response to therapy. In all cases of Ewing's tumor resection or amputation with irradiation offers the best prognosis for a five year cure.

The patient who is the subject of the present report has survived five years. The case is of interest also because it presents a differential diagnosis in sacral pain and because it emphasizes the importance of palpation of the sacrum as well as of the prostate in rectal examination.

### REPORT OF CASE

J. T., a white man aged 21, was admitted to Tripler General Hospital, Honolulu, T. H., Oct. 10, 1936, with sacral pain of one month's duration which had gradually increased in severity.

The pain was most severe on flexion and extension of the spine and was especially severe at night. The patient's general health was good, and he had no other complaints except increasing constipation and slight urinary difficulty during the previous two weeks. He was ambulatory and afebrile. His normal weight was 144 pounds (65 kg.) and the present weight

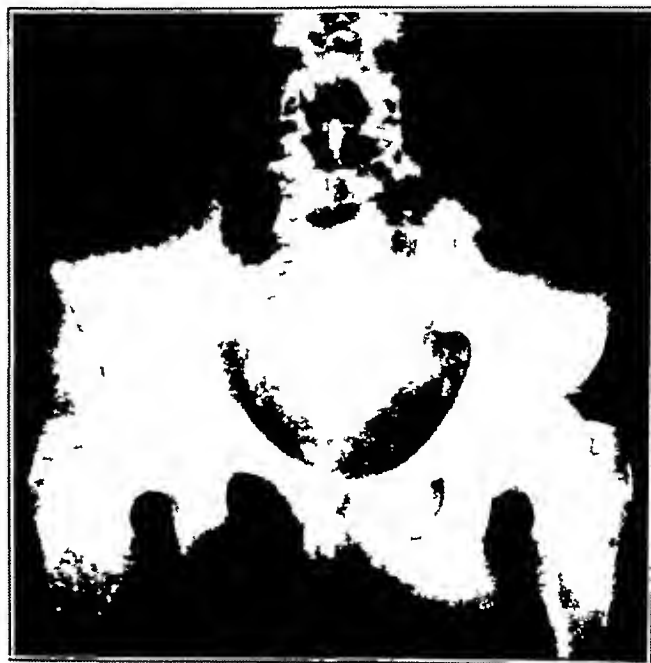


Fig. 1—Decreased density in the sacrum on Nov. 22, 1936, two and one-half months after onset of symptoms.

was 127 pounds (57.6 kg.). The special senses, the abdomen, heart and lungs were normal. There was no adenopathy. The blood pressure was 128 mm. or mercury systolic and 78 mm.



Fig. 2—Appearance on May 24, 1937, after operative removal of coccyx and roentgen therapy. The sacrum has normal density.

diastolic. Serologic examination gave negative results. Rectal examination revealed no tenderness or enlargement of the prostate and no mass was discovered. The nervous system and the extremities were normal and there was no sciatic radiation of pain. The patient walked cautiously because of pain. Roentgen

From Lawson General Hospital and Walter Reed General Hospital.  
1. Geschickter, C. F. and Copeland, M. M. Tumors of Bone, revised ed. New York: American Journal of Cancer, 1936.  
2. Brav, E. A. and Rechtman, A. M. Primary Endotheliomyeloma (Ewing's Tumor) of the Sacrum. J. Bone & Joint Surg. 20: 1034 (Oct.) 1938.



examination showed sacralization of the right fifth transverse process, and there was haziness in the right sacroiliac joint.

On November 15 he first noticed impaired sensation in the genital region. The second rectal examination revealed a large, firm, circumscribed tumor mass, 10 cm in diameter, in the hollow of the sacrum and weakness of the sphincter. On November 25 aspiration of the tumor mass was attempted under local anesthesia to rule out abscess formation, but no pus was obtained.

On December 9, under spinal anesthesia with 150 mg of procaine hydrochloride, a posterior incision was made with removal of the coccyx. There was a gush of necrotic hemorrhagic material from a large cavity in the region of the sacrum. This cavity contained fragments of bone, tumor tissue and clotted blood. The cavity was picked, and the wound was partially closed. The clinical diagnosis was sarcoma of the sacrum. Rectal examination immediately after operation showed no decrease in the size of the mass. Diagnosis on frozen section was sarcoma, on the basis of the fixed specimen it was Ewing's tumor.

This case is carried by the Bone Tumor Registry under number 2319 (diagnosis 3 Ewing's sarcoma 2 Reticulum cell sarcoma). The following description of the microscopic picture of the tumor (accession 528630) is furnished by Col J E Ash, curator of the Army Medical Museum.

"Microscopic examination showed small fragments of cancellous bone, the spaces of which were filled with cell masses of the reticulum cell type. The cell nuclei were uniform,

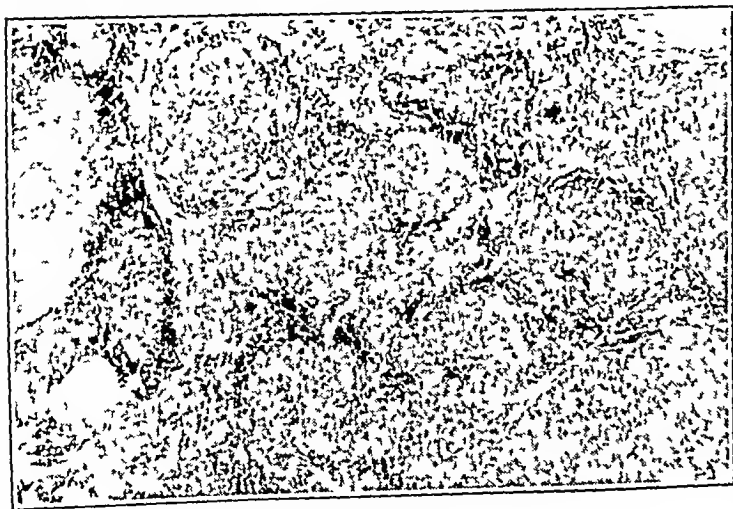


Fig 4—Section of tumor under low power

oval and slightly irregular in contour. The nucleoli were small. The cell outlines were indistinct. No intercellular substance was identified. The neoplastic cells were seen invading the fibrous stroma. The diagnosis of Ewing's tumor was made. High voltage roentgen therapy was started immediately. The packing was completely removed on the tenth day, and the

wound quickly healed. The patient had complete relief of pain soon after operation and roentgen therapy. Rectal examination on December 30 showed that the mass was softer but was still the same size. Roentgen examination now showed considerable destruction of the sacrum. The chest did not show metastasis. Rectal examination on Jan 11, 1937, one month after operation and roentgen therapy, showed a substantial decrease in size of the tumor. The patient received a total of 7,000 roentgens (1,400 roentgens to each of five ports).

He was returned to the United States and was admitted to Walter Reed General Hospital, Washington, D C, on February 20. Physical examination at that time gave essentially negative results. Roentgenograms showed absence of the coccyx and of the destructive lesion involving the lower portion of the sacrum, which had been more extensive on the right side. Complete genitourinary study showed no pathologic condition. Two further courses of roentgen treatment were given, with a total of 4,611 and 2,522 roentgens respectively. He was returned to duty on September 24 and was subsequently discharged from the Army on expiration of enlistment without apparent disability.

#### FOLLOW-UP EXAMINATION

The patient returned for follow-up examinations at the orthopedic clinic of Walter Reed General Hospital on June 20, 1938, Oct 24, 1939 and Oct 6, 1941. He has remained in excellent health, and no evidence of local or metastatic involvement has been discovered by rectal examination and roentgen examination of the chest and pelvis. On the last visit he weighed 148 pounds (67 Kg) and was working as a machinist in a navy yard.

#### SUMMARY

In an unusual case of Ewing's tumor of the sacrum, five year survival followed biopsy and intensive roentgen therapy.

#### CHRONIC PULMONARY CHANGES AND BRONCHIAL ULCERATION IN AN ELECTRIC ARC WELDER

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In 1936 Doig and McLaughlin<sup>1</sup> first described chronic roentgenographic changes in the lung fields of 16 arc welders. Subsequently Enzer and Sander<sup>2</sup> and Sander<sup>3</sup> reported similar findings in 10 of 26 welders examined. The roentgenographic abnormalities, discovered by surveys on apparently healthy workers, ranged from increased hilar shadows to a generalized fine or nodular mottling simulating silicosis. In all cases silicosis could be ruled out by the occupational history. The workers had no symptoms and were not disabled in any way. There was a history of long exposure to the products of arc welding, usually fifteen years or more. Those arc welders who showed pulmonary changes had, at some time, worked in a confined or poorly ventilated space for at least two years. Autopsy on one man who died in an accident revealed extensive intracellular deposition of iron pigment in the lungs and tracheo-bronchial nodes. There was no evidence of any reaction to the iron.<sup>2</sup> The roentgenographic changes were apparently produced simply by the accumulation of the iron pigment.

Electric arc welding is a method of fusing metals in which an arc is sustained between a metal electrode and the material to be welded. During the procedure the electrode is consumed and forms the filler material, it is therefore common practice to use electrodes of a composition similar to that of the metal to be subjected to welding. The commonly used mild steel electrode consists of approximately 99 per cent ferrous material with minute amounts of such alloy substances as carbon, manganese, phosphorus, silicon and nickel. At present the trend

From the Medical Service of Dr A A Epstein, Beth Israel Hospital. Dr M L Som gave permission to report this case and Dr Harry Wessler gave helpful suggestions.  
<sup>1</sup> Doig, A T, and McLaughlin, A I G. \ Ray Appearances of the Lungs of Electric Arc Welders. *Lancet* 1: 771 (April 4) 1936.  
<sup>2</sup> Enzer, Norbert, and Sander, O A. Chronic Lung Changes in Electric Arc Welders. *J Indust Hyg & Toxicol* 20: 333 (May) 1938.  
<sup>3</sup> Sander, O A. Respiratory Hazards of Electric Arc Welding. *Indust Med* 8: 177 (May) 1939.

is to use coated electrodes which are more efficient. The coating produces a gas shield which prevents contact of the atmosphere with the molten metal. The coated rods also produce more heat and prevent heat loss. Many coatings are secret trade formulas but it is known that they are composed of various materials such as fluorides, silicates, borates, aluminum and chromium. Fumes arising from coated rods are largely inorganic material consisting of finely divided iron oxide, the average particle is less than 0.5 micron.<sup>4</sup> Observations on animals exposed to the fumes of arc welding with uncoated electrodes reveal evidence of iron deposition in the lungs with transportation of this material to the periphery of the lungs and to the tracheobronchial lymph nodes.<sup>5</sup>

The clinical literature on these chronic pulmonary changes remains relatively sparse and case reports are few. In view of the importance of arc welding particularly in this period of industrial expansion this subject merits further attention. Furthermore, the case to be reported presented several unusual features some of which have not been previously described.

#### REPORT OF CASE

**History.**—A K, a white man aged 30 admitted to the hospital on April 10, 1941 complained of cough and difficulty in breathing of one year's duration. About one year before admission he had noted the gradual onset of dyspnea progressing in severity and increasing with effort. At the same time he began to cough and expectorated moderate amounts of tenacious nonfoul whitish sputum. His symptoms increased and the sputum became purulent. There had been no chest pain or hemoptysis and his general condition remained fairly good.

**Occupational History.**—He had worked steadily as an electric arc welder for the past seven years. All his work was in building and ship construction and he had worked with ordinary structural steel using coated electrodes. In accordance with the general practice he had worn the welder's helmet which protects against injury from heat and light but does not prevent the inhalation of fumes. As far as he could recall these fumes had not produced any symptoms in him or his fellow workers.

Unfortunately, during his hospital stay no data were elicited with regard to work in poorly ventilated spaces. His most recent work had been in ship building and it is probable that some of this welding had been carried out in poorly ventilated surroundings.

**Physical Examination.**—On admission he was afebrile. He was moderately dyspneic at rest; there was no orthopnea or cyanosis. The trachea was deviated to the right and was freely movable. The fingers were not clubbed. A persistent rhonchus was heard over the right lung in addition to inconsistent rhonchi scattered over both lungs. There was a short systolic blow over the apex. The remainder of the physical examination disclosed no abnormalities.

**Laboratory Data.**—The hemoglobin amounted to 95 per cent (Sahl). The red blood cells numbered 4.4 million and the white blood cells 8100, with a normal differential count. The Wassermann reaction of the blood was negative. The urine was normal. Sputum cultures showed a variety of organisms, including *Staphylococcus albus* and hemolytic and nonhemolytic streptococci.

**Course in the Hospital.**—The admission roentgenogram showed multiple linear and nodular densities traversing the middle third of the right lung from the root out to the periphery. There was also some exaggeration of the linear markings of the left lung as shown in the accompanying illustration. The tentative diagnosis on admission was bronchogenic carcinoma with lymphangitic spread.

Bronchoscopy (Dr. M. L. Som) four days after admission revealed a considerable amount of purulent material in the lower part of the trachea. The tracheal bifurcation was distorted so that the lumen of the left main bronchus was narrowed and could not be entered. There was an ulcerated

granulating lesion on the anterior wall of the right main bronchus just below the bifurcation. A large amount of non-tough purulent secretion was seen distal to this lesion. Sections of this granulation tissue removed by biopsy, showed non-specific inflammatory changes with large masses of iron pigment scattered about. The pus from the bronchi was studied for fungi with negative results.

In order to relieve the patient's obstructive symptoms the bronchoscopist decided to remove the granulation tissue from the right side and to dilate the left main bronchus. Accordingly, bronchoscopy was done on five further occasions during the patient's hospital stay of approximately one month. Three further specimens from the lesion in the right main bronchus showed non-specific inflammation and fibrosis with large masses of iron pigment. The left main bronchus was dilated to a diameter of about 9 mm so that the bronchoscope could be passed beyond. During the sixth and last bronchoscopy two days before the patient's discharge no ulcer was seen and the right main bronchus appeared normal, the lumen of the left main bronchus was now widely patent.

Following the fifth bronchoscopy there was a short period of massive collapse of the left lung, apparently caused by a mucous plug. Aside from this episode, the patient's course was satisfactory. His dyspnea and cough were greatly relieved and his general condition improved. Roentgenograms of the chest throughout were unchanged. He was discharged on May 17, 1941 and returned to work.

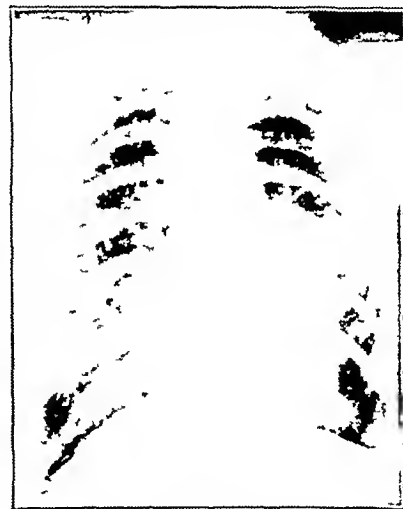
When last seen by his private physician on Oct. 11, 1941<sup>6</sup> he was still bringing up some purulent sputum. He was working and had gained 13 pounds (6 Kg.) and his general condition was fairly good. A roentgenogram of the chest showed no change as compared with changes of May 1941.

#### COMMENT

On the basis of the occupational history and roentgenographic findings in the chest this patient can be classified as an electric arc welder with chronic pulmonary changes in the same category with the cases previously described in the literature. He presented, however, several unusual features. He had been an arc welder for seven years, in the other cases reported in which the time spent in this occupation has been noted the average exposure has been eighteen years. In contrast to the absence of symptoms hitherto noted, this man suffered from cough, sputum and dyspnea. These symptoms seem to have been produced primarily by the bronchial involvement with resulting distal infection, they cleared to a considerable degree when the bronchial obstruction was relieved.

Bronchial lesions accompanying chronic pulmonary changes in electric arc welders have not been previously reported. The mechanism whereby these bronchial changes were produced is not clear. Whether these were due to irritation by one or more of the alloy substances present in the steel such as chromium and phosphorus, by pressure of enlarged lymph nodes or by some other mechanism cannot be stated. I simply wish to call attention to this involvement of the major bronchi in an arc welder in the hope that further observations may help to clarify the problem.

575 West End Avenue



Linear and nodular densities throughout the right lung on admission. There are also some infiltrations in the region of the left hilus and increased markings in the middle third of the left lung.

<sup>4</sup> Britten J. A. and Walsh E. L. Health Hazards of Electric and Gas Welding. *J. Indust. Hyg. & Toxicol.* 22: 125 (April) 1940.  
<sup>5</sup> Harrold G. C., Meek S. F. and McCord C. P. A Chemical and Physiologic Investigation of Electric Arc Welding. *J. Indust. Hyg. & Toxicol.* 22: 347 (Oct.) 1940.

<sup>6</sup> Jaffin A. E. Personal communication to the author.

ACUTE AGRANULOCYTOSIS FOLLOWING SULFADIAZINE

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Massachusetts Memorial Hospital

Toxic symptoms following the use of sulfadiazine in comparison with those following the other sulfonamides are mild and infrequent.

A decrease in the leukocyte count below 5,000 per cubic millimeter of blood with or without a decrease in the granulocytes occurs not uncommonly during the course of sulfamonomide and less often during sulfapyridine and sulfathiazole therapy.

Leukopenia following sulfadiazine administration has been observed. In a total of 776 cases, the incidence was 1.67 per cent. Keefer<sup>1</sup> reports an incidence of 2 per cent.

Acute agranulocytosis occurring after sulfadiazine therapy has not been reported. For this reason it was felt that the following case should be recorded.

REPORT OF CASE

A white woman aged 41, married, entered the medical wards of the Boston City Hospital on Sept. 24, 1941, because of jaundice of five days' duration.

Laboratory Studies of Blood During Period of Hospitalization

| Date  | Red Blood Cells<br>Million | Hemo-<br>globin,<br>per cent | White<br>Blood<br>Cells | Sulfadiazine |      | Icterus<br>Index |
|-------|----------------------------|------------------------------|-------------------------|--------------|------|------------------|
|       |                            |                              |                         | Total        | Free |                  |
| 9/25  | 1.19                       | 82                           | 10,550                  |              |      | 110              |
| 9/30  |                            |                              | 6,250                   |              |      | 60               |
| 10/1  |                            | 70                           | 8,200                   |              |      | 10               |
| 10/7  |                            |                              |                         | 5.7          | 1.6  | 40               |
| 10/10 |                            |                              |                         | 9.2          | 9.2  |                  |
| 10/16 |                            |                              |                         | 12.8         | 11.1 | 30               |
| 10/18 | 3.11                       | 65                           |                         |              |      |                  |
| 10/22 |                            | 69                           | 5,000                   |              |      |                  |
| 10/21 |                            |                              |                         | 20.1         | 16.8 | 18               |
| 10/27 |                            |                              | 1,300                   |              |      |                  |
| 10/29 |                            | 62                           | 650                     | 28.3         | 25.6 |                  |
| 10/30 |                            | 69                           | 1,000                   | 18.7         | 16.3 | 12               |
| 10/31 | 3.10                       | 74                           | 3,200                   | 4.4          | 3.9  |                  |
| 11/3  |                            |                              | 3,600                   |              |      |                  |
| 11/6  |                            |                              | 3,700                   |              |      |                  |
| 11/9  |                            | 60                           | 4,600                   |              |      |                  |
| 11/17 |                            | 72                           | 5,500                   |              |      | 12               |

The present illness began about two weeks previously with an episode of nausea and vomiting which persisted for five days. This was followed by prolonged nausea and anorexia. She had been taking moderate amounts of alcoholic beverages daily for the past two years. Simultaneously with the onset of jaundice she noted dark colored urine. She never noticed clay colored or tarry stools, although on occasions they were streaked with bright red blood. She had no abdominal pain, loss of weight or pruritus and no intolerance to fried or fatty foods.

On admission to the hospital her oral temperature was 101.6 F, the pulse rate 100 and the respiratory rate 30 a minute.

The patient was well developed, well nourished, jaundiced and moderately ill. There were a few scattered, fine telangiectases over the face. The pupils were normal and the scleras icteric. The chest was resonant on percussion and no rales were heard. The heart was not enlarged, the rhythm was regular and there was a grade 1 systolic murmur at the fourth

left interspace close to the sternum. The blood pressure was recorded as 116 millimeters of mercury systolic and 74 diastolic. The abdomen was soft. The liver edge was easily palpable 4 cm. below the right costal margin, and the surface was smooth and nontender. The spleen could not be felt. Rectal examination revealed external and internal hemorrhoids.

Laboratory work showed that the red blood cell count was 4,490,000 and the white blood cell count 10,550 per cubic millimeter of blood. The hemoglobin concentration was 82 per cent (Sahli). The differential smear revealed 63 per cent polymorphonuclear leukocytes, 16 per cent stab forms, 9 per cent lymphocytes, 4 per cent large lymphocytes and 8 per cent monocytes. The red blood cells and platelets appeared normal in the smear. The Hinton test on the blood serum gave a negative reaction. The blood nonprotein nitrogen was 29 mg. per hundred cubic centimeters and the icterus index 110. The blood prothrombin time was 100 per cent of normal. The hippuric acid excretion test yielded no hippuric acid. The total protein of the blood serum was 5.5 Gm. per hundred cubic centimeters of blood, with the albumin and globulin fractions 2.7 Gm. and 2.8 Gm. respectively. The alcohol-iodine test for bile in the urine was strongly positive, and the urobilinogen test was positive in a dilution of 1:32.

A diagnosis of portal cirrhosis with acute hepatitis was made. The patient was treated with a high carbohydrate, high protein, low fat diet with parenteral vitamins. During the following nine days she improved, with the icteric index dropping to 60. The hemoglobin concentration in the blood was 70 per cent and the leukocyte count 8,200 per cubic millimeter of blood. The temperature curve was intermittently as high as 101 F.

Sulfadiazine was administered on October 3 because of fever and roentgen findings of bronchopneumonia. Two Gm. of the drug was given by mouth and then 1 Gm. every four hours. Ten days later the drug was discontinued but inadvertently begun again the following day. The laboratory studies at this time are shown in the accompanying table. The icterus index dropped to 18. The hippuric acid excretion test yielded 2.1 Gm. of hippuric acid. The bromsulphalein excretion test showed 25 per cent retention at the end of fifteen minutes. The daily urinary output was more than 1,000 cc.

On the twenty-fourth day of chemotherapy the temperature rose to 102 F. The patient became nauseated and vomited. The following day it was discovered that the sulfadiazine had been continued and administration of it was stopped. The blood hemoglobin concentration was 62 per cent. The leukocyte count was 650 per cubic millimeter of blood. A differential smear revealed no polymorphonuclear leukocytes. This smear was reviewed at the Thorndike Memorial Laboratory and the differential count was reported as 1 basophil, 4 small lymphocytes, 7 large lymphocytes, 1 young lymphocyte, 14 monocytes and 12 young monocytes.

She was given 500 cc. of citrated whole blood by vein and 10 cc. of pentnucleotide intramuscularly. The following day the leukocyte count was 1,000 per cubic millimeter of blood, and the differential smear showed 4 per cent stab forms, 1 per cent myelocytes, 10 per cent small lymphocytes, 29 per cent large lymphocytes, 2 per cent young lymphocytes, 2 per cent atypical lymphocytes, 35 per cent monocytes, 12 per cent young monocytes and 5 per cent clasmatocytes. An additional 500 cc. of citrated whole blood was given, following which the leukocyte count rose to 3,200 per cubic millimeter of blood and the differential smear showed 17 per cent polymorphonuclear leukocytes, 31 per cent stab forms, 25 per cent small lymphocytes, 6 per cent large lymphocytes, 18 per cent monocytes, 2 per cent metamyelocytes and 1 per cent myelocytes.

At the time of the toxic reaction it may be seen from the table that the blood sulfadiazine concentration<sup>3</sup> was high. There was no change in the icterus index. The alcohol-iodine test for bile in the urine was negative, and the urobilinogen test was positive in a dilution of 1:6.

There was no untoward reaction from the transfusions, and two days later the temperature dropped to normal. The leuko-

From the Third Medical Service (Tufts) and the Boston City Hospital.  
1. Keefer, C. S. Toxic Reactions Following Sulfonamides. New England J. Med. 226: 226 (Feb. 12) 1942.  
2. Finland, Maxwell, Strauss, Elias, and Peterson, O. L. Sulfadiazine: Therapeutic Evaluation and Toxic Effects on 446 Patients. J. A. M. A. 116: 2641 (June 14) 1941. Flippin, H. F., Rose, S. B., Schwartz, Leon, and Domm, A. H. Sulfadiazine and Sulfathiazole in the Treatment of Pneumococcal Pneumonia. A Progress Report on 200 Cases. Am. J. M. Sc. 201: 585 (April) 1941. Trevett, G. I., Nelson, R. A., and Long, P. H. Studies on Sulfadiazine. Bull. Johns Hopkins Hosp. 69: 303 (Oct.) 1941. Billings, F. T., Jr., and Wood, W. B., Jr. Studies on Sulfadiazine, *ibid.*, p. 314.

3. Miss Alice Ballou of the Thorndike Memorial Laboratory determined concentrations of sulfadiazine in the blood.

cyte count continued in the vicinity of 4,000 per cubic millimeter of blood and was 5,500 at the time of discharge from the hospital fifty seven days after admission.

## SUMMARY

The case of acute agranulocytosis following sulfadiazine therapy reported here is of interest in that the toxic reaction appeared only with prolonged administration of the drug in therapeutic doses and at a time when the blood concentration of sulfadiazine was high.

Treatment consisted of stopping the drug and of administering penicillin and giving blood transfusions. Following this therapy the patient made an uneventful recovery.

78 East Concord Street

## Special Article

DIPHTHERIA MORTALITY IN LARGE  
CITIES OF THE UNITED  
STATES IN 1941

## NINETEENTH ANNUAL REPORT

The procedure followed in obtaining data for this report has been described in the review of typhoid mortality for these same cities.<sup>1</sup> Briefly, a communication was addressed to the health officer of each of the cities,

TABLE 1—*Death Rates of Fourteen Cities in New England States from Diphtheria (Including Croup) per Hundred Thousand of Population*

|  | 1913-1940 |  | 1923-1940 |  | 1913-1940 |  | 1910-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 1903-1940 |  | 1900-1940 |  | 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among residents for 1941. Fall River reporting three deaths among residents, has recorded one or more deaths each year.

The eighteen cities in the Middle Atlantic states (table 2) continue to hold first place, although now

TABLE 4—Death Rates of Nineteen Cities in East North Central States from Diphtheria (Including Group) per Hundred Thousand of Population

|              | 1935 | 1940 | 1925 | 1920 | 1915 | 1910 | 1905 | 1900 | 1895 | 1890 |
|--------------|------|------|------|------|------|------|------|------|------|------|
|              | 1941 | 1940 | 1939 | 1938 | 1937 | 1936 | 1935 | 1934 | 1933 | 1932 |
| Grand Rapids | 0.0  | 0.0  | 0.2  | 0.7  | 2.0  | 19.6 | 13.1 | 20.0 | 17.2 | 24.1 |
| Clinton      | 0.0  | 0.0  | 0.7  | 1.7  | 2.9  | 17.5 | 13.1 |      |      |      |
| Youngstown   | 0.0  | 0.0  | 0.7  | 1.1  | 10.1 | 18.1 | 11.9 | 10.1 | 3.1  | 25.0 |
| South Bend   | 0.0  | 0.0  | 1.0  | 1.1  |      |      |      |      |      |      |
| Toledo       | 0.0  | 0.0  | 1.2  | 2.7  | 7.2  | 22.1 | 11.1 | 25.1 | 20.1 | 30.5 |
| Akron        | 0.0  | 0.0  | 1.8  | 2.7  | 4.9  | 10.1 | 18.9 | 27.5 | 21.7 |      |
| Fort Wayne   | 0.0  | 0.0  | 1.3  | 4.0  | 1.1  | 13.1 | 6.1  |      |      |      |
| Dayton       | 0.0  | 1.1  | 1.1  | 1.6  | 1.0  | 9.1  | 9.1  | 22.1 | 13.1 | 17.2 |
| Columbus     | 0.0  | 1.0  | 1.1  | 1.2  | 1.0  | 8.1  | 7.0  | 12.1 | 10.5 | 11.0 |
| Cleveland    | 0.2  | 0.1* | 1.0  | 2.1  | 15.1 | 14.7 | 20.0 | 21.0 | 20.8 | 12.0 |
| Milwaukee    | 0.2  | 0.1  | 0.1  | 2.1  | 8.7  | 11.1 | 19.1 | 27.5 | 26.1 | 22.7 |
| Detroit      | 0.1  | 0.2  | 1.1  | 2.2  | 14.7 | 21.1 | 12.2 | 21.1 | 22.0 | 38.1 |
| Pearl River  | 0.1  | 0.0  | 1.5  | 7.1  | 1.9  | 7.1  | 10.5 | 10.0 | 10.0 | 11.0 |
| Utica        | 0.0  | 0.1  | 2.8  | 1.1  |      |      |      |      |      |      |
| Indianapolis | 0.0  | 0.1  | 2.1  | 1.1  | 5.2  | 10.6 | 11.2 | 13.9 | 17.0 | 17.1 |
| Evansville   | 1.0  | 1.0  | 1.5  | 3.5  | 3.7  | 15.9 | 11.9 | 10.1 | 21.2 | 13.5 |
| Chicago      | 1.0  | 1.1  | 2.1  | 1.5  | 11.7 | 17.1 | 11.2 | 37.0 | 37.0 | 37.0 |
| Ellet        | 2.0  | 0.0  | 2.8  | 2.7  | 1.5  | 2.9  | 25.5 | 12.7 | 11.0 | 16.8 |
| Indianapolis | 2.1  | 2.0  | 3.0  | 2.3  | 6.0  | 11.7 | 21.1 | 11.5 | 11.1 | 15.9 |

\* All diphtheria deaths were stated to be in nonresidents.

† One third or more of the reported diphtheria deaths were stated to be in nonresidents.

‡ Diphtheria deaths from Chapin's Municipal Sanitation.

# Incomplete data.

TABLE 5—Death Rates of Six Cities in East South Central States from Diphtheria (Including Group) per Hundred Thousand of Population

|             | 1935 | 1940 | 1925 | 1920 | 1915 | 1910 | 1905 | 1900 | 1895 | 1890 |
|-------------|------|------|------|------|------|------|------|------|------|------|
|             | 1941 | 1940 | 1939 | 1938 | 1937 | 1936 | 1935 | 1934 | 1933 | 1932 |
| Knoxville   | 0.0  | 0.0* | 8.2  | 10.0 | 6.3  | 11.2 |      |      |      |      |
| Nashville   | 0.0  | 1.8  | 4.5  | 8.0  | 11.8 | 8.0  | 8.9  | 7.3  | 10.3 | 13.9 |
| Louisville  | 0.3* | 0.6  | 2.2  | 0.2  | 4.0  | 10.4 | 9.5  | 9.0  |      | 39.0 |
| Memphis     | 1.4* | 1.7  | 2.2  | 6.0  | 5.8  | 9.5  | 11.2 | 11.9 | 13.4 | 6.9  |
| Birmingham  | 1.5* | 0.7  | 3.2  | 4.1  | 5.1  | 5.3  | 7.2  | 8.3  | 6.2  | 13.4 |
| Chattanooga | 3.9  | 0.8  | 4.0  | 6.8  | 5.9  | 8.7  | 8.9  |      |      |      |

\* All diphtheria deaths were stated to be in nonresidents.

† One third or more of the reported diphtheria deaths were stated to be in nonresidents.

‡ Diphtheria deaths from Chapin's Municipal Sanitation.

# Incomplete data.

hard pressed by the West North Central group. The group rate of 0.17 is slightly lower than that of 1940 (0.20) and less than one half the rate of 1939 (0.37). The new rate represents a new all time low. The West North Central cities are entitled to substantially the same mark of distinction. Twenty-two deaths are recorded in 1941, twenty-six in 1940. Of the former number only three were among nonresidents, in contrast to the relatively high proportion of such deaths in the Southern cities. Ten cities (there were twelve in 1940, nine in 1939) appear in the select list (table 11) with no diphtheria death in 1941 (Buffalo, Camden, Elizabeth, Newark, Reading, Rochester, Scranton, Syracuse, Trenton, Yonkers). Albany reports two deaths both among nonresidents. Rochester records no death for seven years, an impressive accomplishment. Elizabeth reports no death for five years, Yonkers none for four, Trenton none for three years. It is stated that no death from either typhoid or diphtheria has occurred in Yonkers during the last three years, none in Newark for two years, none in Buffalo, Scranton and Trenton during 1941. After seven years without a death, Utica reports one in a resident adult, one death in eight years is a significant record. New York

reports ten deaths, all among residents (ten in 1940, twenty-two in 1939). Philadelphia records three deaths, two among residents. There was no death reported in this city in 1940, there were three in 1939. The record for Pittsburgh has reached a new low (one death among residents in 1941, five deaths, four among residents in 1940). Jersey City reports three deaths among residents, Paterson and Erie, one each.

In obtaining data for the cities of the South Atlantic states (table 3), Charlotte (no death in 1941) has been included for the second time. However, for purposes of adequate comparison, the figures for this city have been omitted in calculating rates for the group as a whole. The number of deaths in the nine remaining cities has increased from seventeen in 1940 to twenty-seven in 1941. Of the latter, seventeen were among residents (equal to the total for 1940) and ten among nonresidents. The rate has increased from 0.62 to 0.99 but remains considerably below that of 1939 (1.52). While in 1940 this group of cities stood in third place, 1941 finds the group in sixth place (the East North Central group and the West North Central group having returned to more advanced standings held in 1939 and during the quinquennium 1935-1939). Two cities (Miami, Charlotte) report no death in 1941, and four other cities (Atlanta, Baltimore, Norfolk, Washington) record one third or more of deaths among nonresidents.

TABLE 6—Death Rates of Nine Cities in West North Central States from Diphtheria (Including Group) per Hundred Thousand of Population

|                   | 1935 | 1940 | 1925 | 1920 | 1915 | 1910 | 1905 | 1900 | 1895 | 1890 |
|-------------------|------|------|------|------|------|------|------|------|------|------|
|                   | 1941 | 1940 | 1939 | 1938 | 1937 | 1936 | 1935 | 1934 | 1933 | 1932 |
| Duluth            | 0.0  | 0.0  | 0.2  | 0.4  | 2.0  | 6.0  | 10.2 | 8.8  | 38.2 | 29.1 |
| Des Moines        | 0.0  | 0.0  | 1.5  | 4.3  | 5.2  | 15.1 | 16.0 | 15.1 | 23.8 |      |
| Kansas City, Mo.  | 0.0  | 0.0  | 0.9  | 3.3  | 4.7  | 14.4 | 22.8 | 15.7 |      |      |
| Kansas City, Kan. | 0.0  | 1.0  | 1.0  | 3.5  | 4.0  | 9.8  | 23.1 | 12.4 |      |      |
| Omaha             | 0.0  | 1.8  | 1.4  | 5.1  | 6.4  | 22.9 | 35.8 | 15.8 | 24.5 | 20.5 |
| Minneapolis       | 0.2  | 0.6  | 0.6  | 1.7  | 11.9 | 13.4 | 19.9 | 28.3 | 24.4 | 44.6 |
| St. Louis         | 0.2  | 1.0  | 2.4  | 4.8  | 10.3 | 16.1 | 24.4 | 23.7 | 19.4 | 43.3 |
| St. Paul          | 0.3* | 0.0  | 0.2  | 1.0  | 5.2  | 17.5 | 20.7 | 31.4 | 31.1 | 27.9 |
| Wichita           | 0.9  | 0.9  | 1.2  | 5.7  | 4.2  |      |      |      |      |      |

\* All diphtheria deaths were stated to be in nonresidents.

† One third or more of the reported diphtheria deaths were stated to be in nonresidents.

# Incomplete data.

TABLE 7—Death Rates of Eight Cities in West South Central States from Diphtheria (Including Group) per Hundred Thousand of Population

|               | 1935 | 1940 | 1925 | 1920 | 1915 | 1910 | 1905 | 1900 | 1895 | 1890 |
|---------------|------|------|------|------|------|------|------|------|------|------|
|               | 1941 | 1940 | 1939 | 1938 | 1937 | 1936 | 1935 | 1934 | 1933 | 1932 |
| Oklahoma City | 0.0  | 0.5  | 2.0  | 5.7  | 10.9 |      |      |      |      |      |
| Tulsa         | 0.7  | 4.2  | 1.7  | 6.8  | 12.5 | 5.3  |      |      |      |      |
| Houston       | 1.0  | 1.0  | 2.0  | 5.6  | 8.2  | 0.4  | 6.1  | 7.8  | 10.5 | 4.2  |
| San Antonio   | 1.2  | 3.6  | 4.1  | 5.7  | 10.3 | 7.7  | 8.7  | 6.7  | 7.0  | 17.1 |
| New Orleans   | 1.8  | 2.4  | 4.3  | 5.5  | 8.5  | 6.5  | 11.6 | 19.6 | 10.2 | 11.5 |
| Fort Worth    | 2.2  | 0.6* | 3.9  | 7.2  | 10.8 | 1.7  | 2.6  | 2.6  | 2.8  | 5.4  |
| Dallas        | 2.4  | 2.4  | 4.0  | 10.0 | 9.8  | 8.3  | 7.4  | 6.9  | 8.1  | 16.0 |
| El Paso       | 6.2  | 1.0  | 4.7  | 8.3  | 7.3  | 20.0 | 17.6 | 29.2 |      |      |

\* All diphtheria deaths were stated to be in nonresidents.

† One third or more of the reported diphtheria deaths were stated to be in nonresidents.

# Incomplete data.

Two cities (Atlanta, Norfolk) have rates in excess of 2.0, but of twelve deaths in these cities seven were among nonresidents. Miami is the only city in this group with no death during the past two years. There is no city without a diphtheria and typhoid death in 1941 (table 12). Baltimore reports five deaths, three among residents, Washington, two, one among resi-



dents Richmond and Tampa each record two deaths among residents (the same as for 1940)

In 1940 Gary was added to the eighteen cities previously included in the East North Central group (table 4). Again the figures for this city have been

TABLE 8—Death Rates of Twelve Cities in Mountain and Pacific States from Diphtheria (Including Group) per Hundred Thousand of Population

|                | 1935-1939 | 1940 | 1941 | 1935-1939 | 1940 | 1941 | 1935-1939 | 1940 | 1941 | 1935-1939 | 1940 | 1941 |
|----------------|-----------|------|------|-----------|------|------|-----------|------|------|-----------|------|------|
| Tacoma         | 00        | 00   | 04   | 33        | 10   | 12   | 1         | 1    | 1    | 76        | 18   | 23   |
| Spokane        | 00        | 04   | 03   | 07        | 73   | 11   | 1         | 1    | 1    | 107       | 161  | 291  |
| Oakland        | 03        | 20   | 23   | 20        | 71   | 15   | 81        | 107  | 161  | 291       |      |      |
| Seattle        | 03        | 03   | 04   | 04        | 14   | 16   | 33        | 32   | 13   | 13        | 12   | 27   |
| Long Beach     | 06        | 00   | 01   | 05        | 26   | 10   | 14        |      |      |           |      |      |
| Los Angeles    | 05†       | 11†  | 23   | 32        | 70   | 114  | 71        | 73   | 133  | 254       | 253  | 49   |
| San Francisco  | 09        | 09   | 10   | 12        | 46   | 30   | 170       | 92   | 114  | 112       | 216  | 318  |
| Portland       | 10†       | 11   | 01   | 13        | 61   | 113  | 60        | 123  | 122  | 02        |      |      |
| Salt Lake City | 13        | 00   | 10   | 13        | 101  | 123  | 115       | 131  | 312  | 160       | 118  | 367  |
| San Diego      | 20        | 10†  | 23   | 23        | 66   | 122  | 103       | 80   | 35   | 21        |      |      |
| Denver         | 23        | 03   | 33   | 31        | 83   | 232  | 67        | 102  | 205  | 296       | 273  | 320  |
| Sacramento     | 35†       | 37   | 31   | 41        |      |      |           |      |      |           |      |      |

\* All diphtheria deaths were stated to be in nonresidents.  
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.  
‡ Diphtheria deaths from Chapin's Municipal Sanitation.  
§ Incomplete data.

TABLE 9—Three Cities with Highest Diphtheria Rate for 1941

|             |     |
|-------------|-----|
| El Paso     | 62† |
| Chattanooga | 39  |
| Sacramento  | 35† |

† One third or more of the reported diphtheria deaths were stated to be in nonresidents.

omitted in the tables for group comparison. The original cities report a slight decrease in the number of deaths from sixty-eight in 1940 to sixty-one in 1941. The rate has decreased from 0.72 to 0.65 (table 16). This group as a whole is in fourth place. Of the sixty-one deaths, only eight were among nonresidents (three in Indianapolis, two each in Detroit and Flint, one in Cincinnati). Chicago reports thirty-four deaths all among residents (thirty-nine in 1940). Nine cities (there were also nine in 1940) record no death in 1941 (Akron, Canton, Columbus, Dayton, Fort Wayne, Grand Rapids, South Bend, Toledo, Youngstown). Flint and Peoria have been dropped from the honor roll, Columbus and Dayton have been added. Seven cities report no diphtheria deaths in 1940 and 1941 (table 10). Akron, Fort Wayne, Grand Rapids, South Bend and Youngstown record no death during the past four years, Canton and Toledo, none for three years. It is stated that no death from either typhoid or diphtheria has occurred in Fort Wayne and South Bend for four years, none in Canton and Grand Rapids for two years, none in Akron in 1941. Four cities in this group in addition to the five in table 12, report no typhoid or diphtheria death among residents (Columbus, Dayton, Toledo, Youngstown). Detroit records seven deaths, five among residents (three in 1940, all among residents). Cleveland reports two, both among residents, but the health commissioner doubts the correctness of the diagnosis in one instance. In 1940 Cleveland reported no death among residents, one among nonresidents. Cincinnati (as in 1940) records four deaths, three among residents.

The cities in the East South Central States (table 5) report the same number (fourteen) of deaths in 1941 and 1940, the rate (1.09) being about one third of the five year average (3.37). Only one group, the

West South Central, records a higher rate in 1941. Two cities (Knoxville, Nashville) report no death, and three additional cities (Birmingham, Louisville, Memphis) record all deaths among nonresidents. The only city in this group reporting deaths among residents is Chattanooga. This city records five deaths. Nine of the fourteen deaths in the cities of this group were among nonresidents. Birmingham and Memphis each report four deaths among nonresidents. The record of six cities in this group is very impressive. While there is no city in the area with no typhoid and diphtheria death, there are three cities (Knoxville, Memphis, Nashville) in which all such deaths were among nonresidents.

The nine cities in the West North Central states (table 6) report a great decrease in the number of deaths and a rate (0.18) comparable with that of the Middle Atlantic states (0.17). There were only five deaths in this group of cities (eighteen in 1940, eighteen in 1939). The rate compares most favorably with the rate of 1940 (0.66) and the quinquennium 1935-1939 (1.33). There were five cities on the honor roll in 1939, four in 1940 and five in 1941 (Des Moines, Duluth, Kansas City, Kan., Kansas City, Mo., Omaha). St. Paul reports but one death, this among nonresidents (also no death from typhoid). Duluth, Des Moines and Omaha record no diphtheria and typhoid death in 1941, Duluth none during the past three years, Des Moines none for two years. Duluth reports no diphtheria death for six years, Des Moines none for five years, Kansas City, Mo., none for two years (table 10).

TABLE 10—Twenty-Seven Cities with No Diphtheria Deaths in 1940 and 1941

|               |                  |              |
|---------------|------------------|--------------|
| Akron †       | Grand Rapids †   | South Bend † |
| Bridgeport    | Kansas City, Mo. | Syracuse     |
| Cambridge     | Lynn *           | Tacoma       |
| Camden        | Miami            | Toledo ††    |
| Canton ††     | Newark           | Trenton ††   |
| Des Moines ** | New Bedford †    | Waterbury †† |
| Duluth *      | New Haven †      | Worcester    |
| Elizabeth **  | Rochester †      | Yonkers †    |
| Fort Wayne †  | Somerville ††    | Youngstown † |

\* No diphtheria death in six years.  
\*\* No diphtheria death in five years.  
† No diphtheria death in four years.  
†† No diphtheria death in three years.  
‡ No diphtheria death in seven years.

TABLE 11—Forty Cities with No Diphtheria Deaths in 1941

|              |                   |            |
|--------------|-------------------|------------|
| Akron        | Hartford          | Rochester  |
| Bridgeport   | Kansas City, Kan. | Seranton   |
| Buffalo      | Kansas City, Mo.  | Somerville |
| Cambridge    | Knoxville         | South Bend |
| Camden       | Lynn              | Spokane    |
| Canton       | Miami             | Syracuse   |
| Charlotte    | Nashville         | Tacoma     |
| Columbus     | Newark            | Toledo     |
| Dayton       | New Bedford       | Trenton    |
| Des Moines   | New Haven         | Waterbury  |
| Duluth       | Oklahoma City     | Worcester  |
| Elizabeth    | Omaha             | Yonkers    |
| Fort Wayne   | Reading           | Youngstown |
| Grand Rapids |                   |            |

\* Thirty-nine without Charlotte.

Of the five deaths from diphtheria in the group as a whole, four were among residents (two in St. Louis, one each in Minneapolis and Wichita) and one among nonresidents (St. Paul).

The eight cities of the West South Central states (table 7) report a decrease from forty-one deaths in 1940 (forty in 1939) to thirty-four in 1941. The death rate has decreased from 2.00 in 1940 (1.97 in 1939).

to 166 in 1941. Fifty per cent of the deaths in 1941 (seventeen of thirty-four) were among nonresidents. But one city (Oklahoma City) appears on the honor roll. In four cities (Houston, San Antonio, New

There are two cities on the honor roll (Spokane, Tacoma). Tacoma has continued on the honor list for two years. Long Beach, which previously reported no death in six years, records one death among residents. Salt Lake City, with no death in 1940, reports two among residents in 1941. Of the thirty-nine deaths in the group as a whole, twelve were among nonresidents. Spokane is the only city in the group that reports no diphtheria and typhoid death in 1941. Two cities (Denver, Sacramento) record a rate in excess of 2.0. Denver reports eight deaths, six among residents, Sacramento

TABLE 12—Twenty Cities with No Diphtheria and Typhoid Deaths in 1941

|              |                |              |
|--------------|----------------|--------------|
| Akron        | Grand Rapids * | Scranton     |
| Buffalo      | Hartford       | Somerville   |
| Cambridge *  | Lynch          | South Bend † |
| Canton *     | Newark *       | Spokane      |
| Des Moines * | New Bedford †  | Trenton      |
| Duluth       | Oklahoma City  | Yonkers †    |
| Fort Wayne † | Omaha          |              |

No diphtheria or typhoid deaths in two years  
\* No diphtheria or typhoid deaths in three years  
† No diphtheria or typhoid deaths in four years  
‡ No diphtheria or typhoid deaths in five years

TABLE 13—Five Cities in Which All Diphtheria Deaths in 1941 Were Stated to Be in Nonresidents

|            |          |            |
|------------|----------|------------|
| Albany     | St. Paul | Louisville |
| Birmingham | Memphis  |            |

TABLE 14—Number of Cities with Various Diphtheria Death Rates

|           | Number of Cities | 40 and Over | 20 and Over | 10 and Over | 5 and Over | Under 5 | 0.0 |
|-----------|------------------|-------------|-------------|-------------|------------|---------|-----|
| 1890-1894 | 64               | 32          | 60          | 61          | 62         | 2       | 0   |
| 1895-1899 | 63               | 31          | 53          | 61          | 65         | 1       | 0   |
| 1900-1904 | 68               | 22          | 46          | 64          | 66         | 2       | 0   |
| 1905-1909 | 72               | 3           | 43          | 66          | 71         | 1       | 0   |
| 1910-1914 | 79               | 1           | 36          | 63          | 78         | 1       | 0   |
| 1915-1919 | 84               | 0           | 25          | 62          | 81         | 3       | 0   |
| 1920-1924 | 85               | 0           | 14          | 65          | 86         | 2       | 0   |
| 1925-1929 | 92               | 0           | 1           | 22          | 67         | 25      | 0   |
| 1930-1934 | 93               | 0           | 0           | 0           | 24         | 69      | 0   |
| 1935      | 93               | 0           | 0           | 2           | 17         | 70      | 19  |
| 1936      | 93               | 0           | 0           | 0           | 5          | 69      | 19  |
| 1937      | 93               | 0           | 0           | 0           | 3          | 70      | 20  |
| 1938      | 93               | 0           | 0           | 0           | 2          | 66      | 24  |
| 1939      | 93               | 0           | 0           | 0           | 0          | 59      | 32  |
| *1940     | 93               | 0           | 0           | 0           | 0          | 53      | 40  |
| *1941     | 93               | 0           | 0           | 0           | 1          | 53      | 39  |

\* Charlotte, Gary and Sacramento omitted

Orleans, El Paso) it is stated that one third or more of deaths occurred among nonresidents. Three cities report rates in excess of 2.0 (Fort Worth, Dallas, El Paso). Oklahoma City records no diphtheria and typhoid death in 1941 (table 12). Tulsa reports one death among residents (six in 1940). Houston records four deaths, one among residents (four among residents in 1940). San Antonio reports three deaths, one among residents (nine in 1940, seven among residents). New Orleans records nine deaths, three among residents (twelve in 1940, four among residents). El Paso reports six deaths, two among residents (one among residents in 1940). It is stated that, of seven deaths in Dallas, five were among residents (in 1940 of seven deaths four were among residents). Fort Worth reports four deaths, all among residents (in 1940 there was one death among nonresidents).

In 1940 Sacramento was added to the eleven cities included in the Mountain and Pacific group (table 8). The figures for this city have been omitted in the tables for group comparison. The original cities report the same number of deaths as in 1940 (thirty-nine). This group of cities stands in fifth place, with a rate of 0.93

TABLE 15—Total Diphtheria Death Rates for Eighty-Eight Cities, 1923-1941 \*

|      | Population   | Diphtheria Deaths | Diphtheria Death Rate per 100,000 of Population |
|------|--------------|-------------------|---|
| 1923 | 31,060,848   | 4,078†            | 13.13   |
| 1924 | 31,722,841   | 3,439             | 10.84   |
| 1925 | 32,384,834   | 3,133             | 9.67  |
| 1926 | 33,046,827   | 3,106             | 9.40  |
| 1927 | 33,708,820   | 3,493             | 10.36   |
| 1928 | 34,370,813   | 3,176             | 9.24  |
| 1929 | 35,032,806   | 2,738             | 7.82  |
| 1930 | 35,710,180   | 1,827             | 5.22  |
| 1931 | 35,821,890   | 1,366             | 3.81  |
| 1932 | 35,916,317   | 1,191             | 3.32  |
| 1933 | 36,032,205   | 861               | 2.38  |
| 1934 | 36,166,434   | 821               | 2.27  |
| 1935 | 36,348,921   | 771               | 2.12‡   |
| 1936 | 36,549,325   | 551               | 1.51‡   |
| 1937 | 36,751,422   | 571               | 1.54‡   |
| 1938 | 36,956,409   | 467               | 1.26‡   |
| 1939 | 37,160,779   | 326               | 0.88  |
| 1940 | 37,309,215   | 225               | 0.60‡   |
| 1941 | 37,309,215†† | 209               | 0.56**  |

\* The five following cities are omitted from this summary, because data for the full period are not available: Jacksonville, Miami, Oklahoma City, South Bend and Utica.

† Data for Fort Worth lacking.  
‡ The rate for the ninety-three cities in 1935 is 2.13 (population 37,025,179; diphtheria deaths 789). The corresponding rate for 1936 is 1.52 (population 37,241,414; diphtheria deaths 567).

# Rate for ninety-three cities in 1937 was 1.55 (population 37,459,339; diphtheria deaths 583).

§ Rate for ninety-three cities in 1938 was 1.26 (population 37,680,185; diphtheria deaths 477).

|| Rate for ninety-three cities in 1939 was 0.87 (population 37,900,834; diphtheria deaths 330).

¶ Rate for ninety-three cities in 1940 was 0.60 (population 38,060,662; diphtheria deaths 229).

\*\* Rate for ninety-three cities in 1941 was 0.56 (population 38,060,662; diphtheria deaths 213).

†† 1940 census figures used.

TABLE 16—Total Diphtheria Death Rates per Hundred Thousand of Population for Ninety-Three Cities According to Geographic Divisions

|                      | Population * | Diphtheria Deaths |      | Diphtheria Death Rates |      |      |      |        |      |
|----------------------|--------------|-------------------|------|------------------------|------|------|------|--------|------|
|                      |              | 1941              | 1940 | 1941                   | 1940 | 1939 | 1934 | 1929   | 1920 |
| New England          | 2,579,152    | 11                | 6    | 0.43                   | 0.23 | 0.85 | 3.38 | 8.34   |      |
| Middle Atlantic      | 13,129,180   | 22                | 26   | 0.17                   | 0.20 | 0.65 | 2.50 | 9.97   |      |
| South Atlantic       | 2,727,985    | 27                | 17   | 0.99                   | 0.62 | 2.18 | 3.54 | 7.37‡  |      |
| East North Central   | 9,386,378    | 61                | 68   | 0.65                   | 0.72 | 1.82 | 3.66 | 11.21‡ |      |
| East South Central   | 1,280,747    | 14                | 14   | 1.09                   | 1.09 | 3.37 | 6.36 | 6.34   |      |
| West North Central   | 2,716,484    | 5                 | 18   | 0.18                   | 0.66 | 1.33 | 3.22 | 7.82   |      |
| West South Central   | 2,045,692    | 34                | 41   | 1.66                   | 2.00 | 3.80 | 6.55 | 9.24‡  |      |
| Mountain and Pacific | 4,186,039    | 39                | 39   | 0.93                   | 0.93 | 1.71 | 2.69 | 6.28   |      |

|| Lacks data for 1925 for Jacksonville and Miami.  
† Lacks data for South Bend.  
‡ Lacks data for Oklahoma City for 1925 and 1926.  
\* 1940 Census figures used.

records four, two among residents. It is stated that, of twelve deaths in Los Angeles, eight were among nonresidents (of seventeen in 1940, eight were among nonresidents). San Francisco reports six deaths, all

among residents (six in 1940, four among residents). The health director states that all six fatalities in 1941 were of persons over 25 years of age. Oakland records one death and Seattle two, all among residents, Portland reports three deaths, two among residents, San Diego records four deaths three among residents.

Of the entire ninety-three cities there was one (none in 1940) with a rate of 50 and over (table 14). In this city (El Paso) of six deaths four were among non-residents. The number of cities with no deaths from diphtheria has decreased by one (forty to thirty-nine). The number of cities with rates below 50 has remained at fifty-three. For the eighty-eight cities (table 15) for which data are available since 1923 there occurred two hundred and nine deaths from diphtheria in 1941 significantly lower than for previous years (two hundred and twenty-five in 1940, three hundred and twenty-six in 1939). The rate for this group of cities is for the third consecutive year less than 10. The rate for the ninety-three cities is the same as that for the eighty-eight cities (0.56) and establishes a new low record. The actual number has decreased by sixteen (from two hundred and twenty-nine to two hundred and thirteen). This decrease is far less impressive than that of one hundred and one for the preceding interval (three hundred and thirty in 1939, two hundred and twenty-nine in 1940).

The health officers did not report any extensive outbreaks of diphtheria. There is evidence of a tendency for this disease to become relatively more prevalent among the higher age groups as the protective programs for infants, preschool and school children continue.

## Council on Pharmacy and Chemistry

### REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT  
ALSTIN E. SMITH, M.D., Acting Secretary

#### AMINOACETIC ACID AND ACCEPTED BRANDS OMITTED FROM N N R

Aminoacetic acid was first included in New and Non-official Remedies in 1936. The following brands have been accepted: Aminoacetic Acid-Calco, Aminoacetic Acid-Mal-linckrodt, Aminoacetic Acid-Merck, Aminoacetic Acid-Paul Lewis, Aminoacetic Acid-Pfanstiehl. In considering the acceptance of one of these brands at the time its acceptance period expired it was suggested that the use of this agent for the conditions stated in New and Nonofficial Remedies be investigated. In order to implement this suggestion the following letter was sent to a selected list of twelve neurologists:

Aminoacetic acid has been accepted since 1935 for inclusion in New and Nonofficial Remedies and described as outlined in the enclosed tear sheets.

The Council members have voted to reconsider this product and suggested that the Secretary get in touch with outstanding neurologists. Accordingly we are taking the liberty of asking if you would care to make any comments on the present status of aminoacetic acid in your respective field. These comments will be presented to the Council members to help them in their reconsideration of whether or not aminoacetic acid should be retained in New and Nonofficial Remedies.

It is hoped that this request does not prove too great an imposition on your time.

Of this list nine replies were received. For the sake of record the replies are reproduced without the names of the consultants.

#### First Consultant

I have given up its use entirely. I have given the drug a good trial in myasthenia gravis, progressive muscular atrophy, amyotrophic lateral sclerosis and in various forms and stages of muscular dystrophy without observing any lasting benefits.

#### Second Consultant

I used a great deal of it some years ago in cases of myasthenia gravis and muscular atrophy without any appreciable effect. I have not used it for several years and probably never shall.

#### Third Consultant

I have had very little experience with this compound. I have used it in progressive muscular dystrophy but have never seen anything I thought very advantageous from its use. Recently I have not made use of it at all.

#### Fourth Consultant

I have seen no clinical improvement from its use.

#### Fifth Consultant

I used it extensively for a selected group of patients with progressive muscular dystrophy for over a year. Results were uniformly disappointing with no evidence of improvement in any of the patients. I feel it has no place in the treatment of muscular or neural disorders.

#### Sixth Consultant

My experience has been that this substance is of no practical value in the treatment of the muscular atrophies or dystrophies. My experience is somewhat limited and must be judged on this basis.

#### Seventh Consultant

In 1939 H. R. Viets and R. S. Schwab (*The Diagnosis and Treatment of Myasthenia Gravis*, THE JOURNAL, Aug. 12, 1939, p. 559) wrote as follows: 'Aminoacetic acid, contrary to our expectations from Boothby's reports, proved to be of no value in 17 cases. As much as 45 Gm. a day in divided doses, a larger amount than Boothby recommended was given. This consultant is aware that, with the additional experience of two years, these men would not care to change the statement except to add more cases.'

#### Eighth Consultant

It has seemed to me that its use in large doses helped to delay progressive atrophy. I have no proof, this is only a clinical impression gained from 5 or 6 cases.

#### Ninth Consultant

I have not been using aminoacetic acid in recent years and my earlier experience was limited to a few cases of asthenia of doubtful type. In those instances the creatine excretion was diminished under glycine administration but the experiments were not conclusive because other measures such as psychotherapy were also employed and I have seen more striking improvement in comparable cases without glycine.

In *Biochemistry of Disease* the Bodanskys reviewed the literature on this subject. They state: 'Glycine has been recommended as a therapeutic agent in progressive muscular dystrophy by a considerable number of clinicians. The reports concerning its therapeutic value are however very conflicting. A few have described definite improvement but the majority of reports deny that amino acid is of any definite value.'

After consideration of the comments of the neurologists consulted a letter of inquiry was sent to the manufacturers of accepted brands of aminoacetic acid asking that they forward any available evidence to warrant continued inclusion of this agent in New and Nonofficial Remedies. From the replies received from these firms there is no indication of evidence for the usefulness of this drug that would justify its retention.

In view of the foregoing the Council voted to omit Aminoacetic Acid and the accepted brands from New and Nonofficial Remedies.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, AUGUST 29, 1942

## NEWER KNOWLEDGE OF THE MECHANISM OF TUBERCULOSIS IMMUNITY

The exceedingly ingenious tissue transplantation techniques reported by Lurie and Zappasodi<sup>1</sup> of the Henry Phipps Institute, University of Pennsylvania, have added materially to current knowledge of the intracellular or nonhumoral factors in acquired immunity to tuberculosis. Early failures to produce an effective antituberculosis serum led to the conclusion that acquired immunity to this disease is a much more complex process than the simple antitoxic immunity against diphtheria infection. An elaborate theory of "partial antibodies" was formulated by Deycke and Much<sup>2</sup> to explain this complexity. According to this theory, acquired antituberculosis immunity is due to the formation of four distinct groups of partial antibodies. Three of these are assumed to exist in the blood stream, while the fourth is found only in the cytoplasm of fixed tissue cells. This theory was partially confirmed by American investigators,<sup>3</sup> who found that the acquired power of prompt intraperitoneal lysis of the tubercle bacillus cannot be transferred serologically even by repeated massive blood transfusions from tuberculoimmune donors. Isolated peritoneal tissues from these immune donors were found to have the power of lysing tubercle bacilli in vitro. Lysis did not occur in control tests with normal peritoneal tissues even when suspended in tuberculoimmune serum.

The essential bacteriostatic factor in immune fixed tissue cells has been studied in greater detail by Lurie<sup>4</sup> and his collaborators of the University of Pennsylvania. They have shown that the dominant defensive cells in acquired immunity to tuberculin are the mononuclear phagocytes. These show heightened physiologic activities in tuberculous animals, expressed by an increased rate of cell division and by increased phagocytosis of

india ink, pyogenic cocci and other particulate matter. Not only are tubercle bacilli taken up more rapidly in immune macrophages but the ingested bacilli fail to multiply within the body of the phagocytes, abundant intracellular proliferation taking place in control tests with nonimmune macrophages.

Numerous unsuccessful attempts have been made to determine the mechanism of this intracellular growth inhibition by in vitro studies of leukocytes<sup>5</sup> and fixed tissue cells<sup>6</sup>. These have usually given inconclusive results, owing to the difficulty of maintaining such cells at full physiologic vigor for sufficient periods of time outside the animal body. To avoid this difficulty Lurie attempted the same analysis by tissue transplantation methods, the anterior chamber of the eye being the selected transplantation site. The anterior chamber of the eye serves as an almost perfect medium<sup>7</sup> for the cultivation of homologous normal and pathologic tissue cells.

Normal and immunized rabbits were given subcutaneous injections of human or bovine tubercle bacilli suspended in salt solution containing india ink. The regional lymph nodes were removed two days later. These glands were cut into fine particles and repeatedly washed in Tyrode solution, and several particles were introduced into the anterior chamber of the eye of an albino rabbit. Immune tissue fragments were introduced into one eye, and control nonimmune fragments in the opposite eye of the same animal. Samples of the same tissues were used for control bacteriologic and microscopic study. Similar implantations were made with immune and nonimmune bone marrows from rabbits injected intravenously two days previously with tubercle-carbon suspensions.

Growth of the implants was observed for ten to fourteen days. At the end of this time the rabbits were killed and the implanted cells studied both microscopically and by quantitative culture methods. In a typical experiment the number of colonies cultured from 100 mg of implanted normal cells was forty times the number of bacilli originally present in these cells. In parallel tests with immune tissues there was only a fourfold increase in bacterial count. In all cases the cells of immune rabbits that had ingested tubercle bacilli in vivo and had grown in the anterior chamber of normal rabbits had greatly inhibited the normal multiplication of ingested tubercle bacilli.

This technic, of course, did not rule out the possible bacteriostatic role of humoral antibodies adherent to the injected bacteria. Implantations into the anterior chambers of normal rabbits were therefore made of

<sup>1</sup> Lurie, M B. J Exper Med 75 247 (March) 1942.  
<sup>2</sup> Deycke, K, and Much, H. München med Wchnschr 40 119, 190, 1913.  
<sup>3</sup> Manwaring, W H, and Bronfenbrenner, Joseph. J Exper Med 18 610, 1913.  
<sup>4</sup> Lurie, M B. J Exper Med 69 579 (April) 1939.

<sup>5</sup> Hanks, J H, and Bruckenhough, E. Am Rev Tuberc 11 605, 1940.  
<sup>6</sup> Rich, A R, and McCurdock, H A. Bull Johns Hopkins Hosp 44 273, 1929.  
<sup>7</sup> Greene, H S N, and Saxton, J A, Jr. J Exper Med 67 691 (March) 1938. Lucke, Baldwin, and Schlumberger, H G, ibid 72 321 (Sept) 1940.

washed (serum free) normal and immune macrophages that had taken up tubercle bacilli in vitro. These cells were obtained from normal or immune rabbits which had received intrapleural injections of acacia solution four or five days previously.<sup>8</sup> The experiments showed that there is no appreciable increase in phagocytosis by normal macrophages when the ingestion occurs in the presence of immune serum, compared with control tests in normal serum. There was also no acquired power of bacteriostasis as a result of such exposure to immune serum. Cells obtained from immunized animals and washed free from immune body fluids were more actively phagocytes in the presence of normal serum and inhibited subsequent intracellular proliferation of the ingested bacilli ten times more effectively than did normal macrophages similarly tested.

From a multiplicity of data of this type Lurie concludes that active tuberculosis confers increased bacteriostatic properties for ingested tubercle bacilli on fixed tissue phagocytes and that this acquired immunity is independent of circulating antibodies. Demonstration of this fixed tissue bacteriostaticity has clinical interest in numerous other infectious diseases particularly virus infections, in which available evidence suggests the relative unimportance of so-called circulating antibodies. Whether or not the intracellular bacteriostat can be extracted from tuberculoimmune macrophages has not yet been determined.

#### FEEBLEMINDEDNESS AND HEREDITY

The story of a feeble-minded family given the pseudonym 'Kallikak' was published in 1912 by Goddard. Sociologists, psychologists and geneticists varied widely in their acceptance of his conclusions. In 1925 Dr Abraham Myerson in a book entitled "The Inheritance of Mental Disease" took sharp issue with Goddard's conclusions. This was appropriate and fortunate for the science of human genetics. Unfortunately the book also contained some misstatements regarding Goddard's study. Others have misinterpreted some of his conclusions.

Like all authors, Professor Goddard objects to being misquoted and misinterpreted. In his recent article in *Science* he<sup>1</sup> points out some of the misquotations and some of the misinterpretations which have appeared in the literature. Two questions which naturally arise in connection with this reopening of a discussion of the Kallikak study are: By what criteria should this study be judged? and How closely do the conclusions which are drawn by the author agree with present opinion? These are not easy questions to answer because the whole subject concerned is still in a controversial state.

In terms of present day requirements for an analysis of the relative roles of heredity and environment in the determination of the variability observed in a mental character, the Kallikak study falls far short in rigor and in analytic technic. It makes use neither of refined psychologic tests nor of detailed statistical methods. However, it must be viewed in the light of the psychologic and genetic knowledge of 1914. When thus considered, it compares favorably with studies in other sciences at similar stages of development.

As regards the agreement between the conclusions drawn by Goddard in his book published in 1914 and present opinion, there is nothing definite which can be said. However, a few comparisons can be made. In chapter VIII of "Feeble-mindedness: Its Causes and Consequences," Goddard leaves the impression that he considers intelligence a unitary character. This point of view is certainly indefensible today, and probably Professor Goddard would not even want to defend this thesis now. Feeble-mindedness is not even considered a unit character by modern investigators. Many types and degrees of it are recognized. In the same chapter the author argues for the inheritance of feeble-mindedness as a simple recessive. This conclusion may not be far from the truth for certain types of feeble-mindedness. There exists at least considerable evidence that certain types are inherited in a relatively simple fashion and that some of the responsible genes behave as recessives. Other types give evidence of being due to genes inherited as dominants.

In summarizing present opinion regarding the relative roles of heredity and environment in the determination of feeble-mindedness, the following statements seem pertinent. 1 Feeble-mindedness is a general name for low mentality and is not a unitary character. There are many types and degrees of it. 2 Some types of feeble-mindedness are the result of variations in the environment: birth injury, lack of iodine, infectious diseases, unfavorable cultural conditions, and the like. 3 Some types of feeble-mindedness are the result of variations in hereditary factors. Whether a variation in a single genetic locus may be responsible for feeble-mindedness is as yet uncertain, but certain types appear to involve variations in only one or at least in only a limited number of loci. 4 Some types may be the result of a combination of unfavorable environmental and hereditary factors. 5 Of the hereditary types of feeble-mindedness which have been reported, some give evidence of being due to a single recessive gene or to a limited number of recessive genes. A few appear to be inherited in a dominant fashion. A few studies suggest a role played by sex-linked genes. 6 Improvement in the performance of all feeble-minded individuals may be expected by improving environmental conditions. However, at least for the types which have a

<sup>8</sup> Robertson O. H. and Van Sant Helen J. *Immunol.* 37: 571 (Dec.) 1939.

<sup>1</sup> Goddard Henry H. In Defense of the Kallikak Study. *Science* 95: 574 (June 5) 1942.



hereditary basis, there appears to be a definite limitation of the extent to which improvement may be expected.

Whatever the final conclusions concerning the merits of the original Kallikak study, it can be recognized that Goddard gave an enormous stimulus to scientific investigation of inheritance of feeble-mindedness and indeed to the entire science of human genetics.

### Current Comment

#### REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY

The Council on Pharmacy and Chemistry recently issued the thirty-third edition of the Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association.<sup>1</sup> This volume contains in compact form not only the reports of the Council which have been published in *The Journal* during the past year but also some additional reports which were not considered of sufficient importance to be published in *The Journal*. The reports may be divided into four classes: reports rejecting products as not being acceptable for inclusion in New and Nonofficial Remedies, reports omitting from New and Nonofficial Remedies products that have previously been accepted, reports on the nomenclature of various substances and reports in which the Council gives decisions of general interest or summarizes the latest scientific knowledge concerning certain topics. The last classification includes the largest number of reports. One article deals with the developments in bacteriophage therapy since the previous report of the Council in 1934. Other reports bring to the present day the status of such products as aluminum hydroxide preparations, antipneumococcal serums, cyclopropane, human blood plasma and serum, human convalescent poliomyelitis serum, human convalescent mumps serum and sulfadiazine. Such topics as ion transfer (iontophoresis), halogenated vegetable oils for bronchography and the problem of lipid pneumonia and the sympathomimetic amines as epinephrine substitutes are discussed. The nomenclature reports deal for the most part with the Council's adoption of nonproprietary designations for comparatively new products such as diethylstilbestrol, menadione and sulfadiazine. Explanations are given for the omission at this time of products which have previously been included in New and Nonofficial Remedies. In most cases the N. N. R. description is included in the report as a matter of record. The volume also includes the reports rejecting various products—which have either been submitted by the manufacturer or considered on the Council's own initiative—and which have been found not acceptable for inclusion in New and Nonofficial Remedies. Also incorporated is a brief summary of the decisions arrived at by the Council at its latest meeting.

<sup>1</sup> Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1941, with the Comments That Have Appeared in *THE JOURNAL*, Chicago, American Medical Association, 1942, price \$1.

#### RESEARCH IN CANCER AT THE MEMORIAL HOSPITAL

The Biennial Report of the Memorial Hospital for the Treatment of Cancer and Allied Diseases in New York, just available,<sup>1</sup> indicates the contribution which this institution is making in research. Investigations have been carried forward by means of animal experiments, chemical studies, examinations of the role of diet in cancer, by study of cancer in man, search for cancer producing substances, by attempts to starve the cancer cells and in problems of leukemia and the vitamins. An additional group of studies is in progress in an attempt to short-circuit the more prolonged investigations and to develop a method of cure without a knowledge of the mechanisms by which the cure would be effected. This is a purely empiric study, involving experiments which so far have employed some seventy different compounds for their effect in killing cancer cells. The results already secured may have far reaching significance. The chemicals which appear to have an anticancer effect are characterized by a common structure. They prove apparently that there is a real difference between cancer cells and normal cells in their sensitivity to certain types of chemicals.

#### INSTITUTES ON WARTIME INDUSTRIAL HEALTH

California has become one of our foremost industrial states. Inevitably physicians will be required to meet vastly expanded demands for industrial health service. A series of wartime industrial health institutes is now being offered in such strategically located industrial areas as San Francisco, Crockett, Oakland, San Diego, Inglewood, Glendale and Huntington Park. These meetings have been developed by the California State Department of Health in cooperation with the California Medical Association and the Western Association of Industrial Physicians and Surgeons. The programs are designed to present concisely and practically the important clinical, administrative and socioeconomic problems which a physician is likely to encounter in his first engagements with industry and to dramatize as well the agencies for consultation and assistance which are already at his command. Naturally the concept of health in relation to expanded wartime production is featured. Outside of military service the most important contribution that a physician can make to the war effort lies in the direction of industrial health. This current educational activity in California and in a few other states is substantial recognition that something beyond simple acknowledgment of the importance of improved physical welfare of workers is necessary. These institutes on industrial health are highly desirable as introductory instruction both to physicians and to industrialists. They should be followed by suitable provision for more extended postgraduate study using resources of medical schools, industrial hygiene laboratories, well conducted industrial medical services and other agencies under stimulation and leadership of active committees on industrial health in state and county medical societies.

<sup>1</sup> Record of Service Biennium Report, 1940-1941, Memorial Hospital for the Treatment of Cancer and Allied Diseases.

# MEDICINE AND THE WAR

*In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army Navy and Public Health Service and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession*

## CONFERENCE ON VENEREAL DISEASE CONTROL IN WARTIME

Veneral disease and the war effort will be discussed at a conference in Hot Springs National Park Ark. October 21-24 held under the auspices of the United States Public Health Service in conjunction with the eighth annual meeting of the American Neisserian Medical Society. Surg. Gen. Thomas Parran will preside. State and local health officers, veneral disease control officers, practicing physicians and all others engaged in veneral disease control activities are urged to attend. The governmental professional and health organizations to be represented at the conference will include the War Department, the Navy Department, the Office of Defense Health and Welfare Services, the American Medical Association, the American Neisserian Medical Society, the American Social Hygiene Association, state and local health departments and the United States Public Health Service. A tentative program of the conference follows:

OCTOBER 22 10 A M

### VENEREAL DISEASE CONTROL MEASURES INFLUENCING THE WAR EFFORT

1. Rehabilitation of Selectees with Syphilis and Gonorrhea. Lieut. Col. Richard H. Eanes, Assistant Director, Medical Division, Selective Service System.
2. Present Veneral Disease and Prostitution Problems as They Relate to the Army. Lieut. Col. T. B. Turner, Director, Veneral Disease Control Division, Preventive Medicine Service, United States Army.
3. Present Veneral Disease and Prostitution Problems as They Relate to the Navy. Capt. C. S. Stephenson, in Charge, Division of Preventive Medicine, Bureau of Medicine and Surgery, United States Navy.
4. The Contribution to the War Effort of the Subcommittee on Venereal Diseases, National Research Council. Dr. J. E. Moore, Baltimore.
5. Private Physician Support of the Wartime Veneral Disease Control Program.

OCTOBER 22 2 P M

### THE EPIDEMIOLOGY OF SYPHILIS AND GONORRHEA 1942

1. The Epidemiology of Gonorrhea as a Stimulus to Prostitution Repression. Dr. Donald H. Williams, Medical Director, Division of Veneral Disease Control, Provincial Board of Health, Vancouver, B. C.
2. Improvement of Present Methods for Extrafamilial Contact Tracing. Miss Mary A. Burke, Consultant in Social Hygiene Nursing, Detroit, Department of Health.
3. Difficulties in Case Holding of Selectees Infected with Syphilis. Dr. G. Ford McGinnis, Director, Division of Veneral Disease Control, Tennessee State Department of Health.
4. Defects in the Present Follow-Up Program. Lida J. Usilton, Principal Statistician, Division of Veneral Diseases, U. S. Public Health Service.
5. The Male Investigator in Veneral Disease Control Follow-Up. Dr. Malcolm H. Merrill, Chief, Bureau of Veneral Diseases, California Department of Public Health.

OCTOBER 23 9 30 A M

### EIGHTH ANNUAL MEETING AMERICAN NEISSERIAN MEDICAL SOCIETY

1. The Control of Veneral Disease Among Industrial Workers. Surg. Onis L. Anderson, Assistant Chief, Division of Veneral Diseases, U. S. Public Health Service.
2. Organization and Management of Clinics in a State Gonorrhea Control Program. Dr. F. W. Caudill and Dr. R. E. Teague, Kentucky State Department of Health.
3. Gonococcus Culture Methods. Dr. Charles M. Carpenter, School of Medicine, University of Rochester.

4. Management of Gonorrhea in the Male. Dr. P. S. Pelouze, University of Pennsylvania, Philadelphia.
  5. Management of Gonorrhea in the Female. Dr. Robert M. Lewis, Yale University School of Medicine.
  6. Hyperpyrexia in Chemoreistant Gonorrhea. Dr. Stanford L. Warren, School of Medicine, University of Rochester.
- General discussion led by Dr. Nels A. Nelson, Director, Division of Veneral Disease Control, Maryland Department of Health, and Dr. Adolph Jacobs, New York City Health Department.

OCTOBER 23 2 P M

### EIGHTH ANNUAL MEETING AMERICAN NEISSERIAN MEDICAL SOCIETY

1. Gonococcus Culture as a Public Health Service. A Preliminary Report. Capt. Daniel Burman, Veneral Disease Control Officer, Headquarters, First Army, Governors Island, N. Y.
2. President's Address. Asst. Surg. Gen. R. A. Vonderlehr, Division of Veneral Disease, U. S. Public Health Service.
3. Gonorrhea from the Standpoint of the Army. Capt. Ernest B. Howard, Veneral Disease Control Officer, Fourth Army Corps Area, Manila, C. I.
4. Gonorrhea from the Standpoint of the Navy. Capt. C. S. Stephenson, Division of Preventive Medicine, Bureau of Medicine and Surgery, United States Navy.
5. Review of the Year's Research in Gonorrhea. Dr. Alfred Cohn, Department of Health, New York City.
6. Role of Organized Medicine in the Control of Gonorrhea. Dr. Robert S. Breakley, Lausaug, Mich.

OCTOBER 23 2 P M

Demonstration: Techniques of Modern Serodagnostic Tests for Syphilis

OCTOBER 24, 9 30 A M

### WARTIME VENEREAL DISEASE CONTROL EDUCATION PROGRAM

1. Relationship Between the Programs of Veneral Disease Control Education and the Repression of Prostitution.
  - (a) From the point of view of public health. Dr. George M. Leiby, Director, Division of Preventive Medicine, Louisiana State Department of Health.
  - (b) From the point of view of social protection. Mr. Charles P. Taft, Assistant Director, Office of Defense Health and Welfare Services.
  - (c) From the point of view of the public. Mr. Capus Waynick, Director, Demonstration of Public Health Education Measures in the Control of Veneral Diseases, Raleigh, N. C.
2. Veneral Disease Control Education Program in the Armed Forces.
  - (a) Army. Major William A. Brumfield, Veneral Disease Control Division, Preventive Medicine Service, U. S. Army.
  - (b) Navy. Capt. C. S. Stephenson, U. S. Navy.
3. Current Status of Veneral Disease Education. Surg. Gen. Thomas Parran, U. S. Public Health Service.

OCTOBER 24, 2 P M

### RESEARCH INFLUENCING THE WARTIME VENEREAL DISEASE CONTROL PROGRAM

1. Progress in Investigations of the Intensive Therapy of Syphilis. P. A. Surgeon Harry Eagle, U. S. Public Health Service Syphilis Research Center, Baltimore.
2. New Serologic Tests for Syphilis and Their Demonstrated Efficiency. Dr. Arthur H. Santford, Mayo Clinic, Rochester, Minn.
3. Progress in the Wartime Management of Gonorrhea. Dr. P. S. Pelouze, University of Pennsylvania, Philadelphia.
4. Relationship Between Veneral Disease Control and the Joint Army and Navy Committee on Welfare and Recreation. Brig. Gen. F. H. Osborn, Chief of Special Service, United States Army.
5. Problems Involved in the Adaptation of Recent Scientific Discoveries to the Wartime Control of the Veneral Diseases. Dr. John H. Stokes, University of Pennsylvania, Philadelphia.

OCTOBER 21, 2 P. M.

### TECHNIQUES OF VENEREAL DISEASE EDUCATION

1. Introductory comments. Asst. Surg. Gen. R. A. Vanderlehr, U. S. Public Health Service.  
Presentation of a Typical Venereal Disease Education Problem for Discussion by Panel and Conference.  
Discussion Leaders:  
State Health Officer. Dr. Felix J. Underwood. Executive Officer, State Board of Health, Jackson, Miss.  
State Venereal Disease Control Officer. Dr. Malcolm H. Merrill. Chief, Bureau of Venereal Disease, Department of Health, San Francisco.  
Local Health Officer. Dr. Hugh Leavelle. City Health Officer, Louisville, Ky.  
Local Venereal Disease Control Officer. Dr. F. W. Shaffer. Director, Social Hygiene Division, Department of Health, Detroit.  
Community Resources. Dr. Lucy Maryin. Health Education Consultant, P. H. S. Community Organization for Health Education, Fayetteville, N. C.

- Voluntary Health Agency. Dr. William F. Snow, Director, American Social Hygiene Association.  
Health Department Public Relations. Miss Ann Wilson Haynes, Public Information Editor, Department of Public Health, San Francisco.  
Crime Management. Dr. Nels A. Nelson, Director, Division of Venereal Disease Control, State Department of Health, Baltimore.  
Gonorrhea. Dr. Charles M. Carpenter, School of Medicine, University of Rochester.  
Syphilis Case Control. Miss Anne Swancy, Vanderbilt University Hospital, Nashville, Tenn.  
Gonorrhea Case Control. Mr. Morris S. Wortman, University of Missouri, Columbia, Mo.  
Social Protection. Mr. Arthur F. Fink, Regional Supervisor, Division of Social Protection, Birmingham, Ala.  
Work Projects Administration. Mr. T. Lefoy Richman, Informational Specialist, U. S. Public Health Service.  
Nursing. Miss Donna Pearce, Public Health Nursing Consultant, U. S. Public Health Service.  
General Health Education. Miss Elizabeth Bohnenberger, Director of Health Education, State Board of Health, Jacksonville, Fla.

### RESTRICT SALE OF ALL QUININE

The Health Supplies Branch of the War Production Board called attention August 17 to the fact that all stocks of quinine and totaquine, no matter how small, have been subject to the restrictions of Conservation Order M-131 since June 19.

Prior to that date, stocks of 50 ounces or less could be freely sold. Since June 19, retail druggists and all other sellers have not been permitted to sell quinine or totaquine for any purpose except as an antimalarial agent. The order extends to powder, capsules, solutions, pills and tablets and to quinine or totaquine stocks of all other descriptions whether or not packages have been opened.

The same sales restrictions apply to cinchonine, cinchonidine and quinidine, which are covered by Order M-131-a. No stocks of these may be sold except as an antimalarial agent and, in the case of quinidine, for the treatment of cardiac disorders.

The branch stresses that these drugs are urgently needed for military antimalarial use. Supplies are limited since their raw material source, cinchona bark, comes in most part from Java.

Druggists and pharmaceutical and proprietary manufacturers may not use their stocks of quinine or other alkaloids of cinchona bark in the manufacture of products which are designed for other than permitted purposes. These restrictions extend as well to dispensing of the drugs on physicians' prescriptions.

The practical effect of these regulations as far as manufacturers are concerned is to prohibit the use of their stocks in the manufacture of products such as elixir of iron, quinine and strychnine phosphates, coryza tablets and other formulas designed for treatment of other than malarial ailments. However, any such products which were manufactured prior to the effective date of the order controlling the particular drug involved may be sold without restriction.

Druggists having stocks of quinine, cinchonine, cinchonidine and quinidine in excess of their requirements for the permitted uses are urged to return the drugs to their source of supply.

### OPINION ON USE OF CINCHONA AND CINCHONA ALKALOIDS FOR THE TREATMENT OF MALARIA

The following notice is from the Food and Drug Administration, Washington, D. C.

As a guide to its activities under the provisions of the Federal Food, Drug and Cosmetic Act in the consideration of preparations offered for the treatment of malaria, the Food and Drug Administration requested an expression of opinion from the National Research Council as to the use of the cinchona alkaloids in this field. The request was referred by the Council to its Division of Medical Sciences, Subcommittee on Tropical Diseases. We are now in receipt of a report from the National Research Council in which it states that a preparation of one or more of the crystallizable cinchona alkaloids (quinine, quinidine, cinchonine, cinchonidine) for the treatment of malaria

should provide daily for seven consecutive days, for adults, at least 20 grains of the alkaloid or alkaloids.

The minimum amounts of these alkaloids which should be provided daily for the same period for children are as follows:

| Age          | Grains | Age               | Grains |
|--------------|--------|-------------------|--------|
| Under 1 year | 2½     | 7 to 8 years      | 12½    |
| 1 to 2 years | 5      | 9 to 10 years     | 15     |
| 3 to 4 years | 7½     | 11 to 12 years    | 17½    |
| 5 to 6 years | 10     | 13 years and over | 20     |

It is the understanding of this administration that the reference to "cinchona alkaloids" includes the commonly used salts of these alkaloids.

The Council states that in making this recommendation it recognized that 20 grains of the cinchona alkaloids a day do not provide the optimum dose for adults—which should be 30 grains—but that the minimum of 20 grains is specified as a compromise to provide for an effective dose and to conserve the stocks of these alkaloids during the war period.

The Council has expressed the opinion also that the cinchona alkaloids are not effective in the prophylaxis of malaria.

In its enforcement program the Food and Drug Administration will be guided by this authoritative expression of opinion and will regard as misbranded preparations of cinchona alkaloids offered for the treatment of malaria which, when consumed in accordance with the directions in their labelings, provide less than the dosages specified.

The administration heretofore has expressed the opinion—and takes this occasion to emphasize it—that directions for use, to be adequate, should include instructions to repeat the treatment if a relapse occurs.

It has been noted that cinchona alkaloids and preparations of them are sometimes marketed in packages which do not contain amounts of the active principles sufficient to constitute a complete treatment in accordance with the aforementioned schedule. Consideration should be given to the possibility of deception, in violation of the Federal Food, Drug and Cosmetic Act, resulting from the sale of a package labeled to indicate that it contains a treatment for malaria, if the amount of medication supplied in the package is insufficient for that purpose.

Some preparations of the cinchona alkaloids offered as malaria medicines contain active amounts of cathartic drugs. There appears to be no rational basis for such a combination. Some patients suffering with malaria may not need a cathartic. Those who may need such additional medication should base the dosage on the need for it, in other words, the amount of the cathartic administered should not depend on the need for the cinchona alkaloids. There is no objection to advising purchasers to use some suitable cathartic drug in connection with the malaria treatment if constipation occurs.

This notice supersedes the press release of Jan. 3, 1929, entitled "Malaria Preparations Must Comply With Food and Drugs Act Say Federal Officials," issued by the Office of Information, United States Department of Agriculture.

W. G. CAMPBELL  
Commissioner of Food and Drugs

## RADIO BROADCAST ON SUPPLY OF PHYSICIANS

On Sunday August 10 from 11:05 to 11:30 a m. eastern time (10:05 to 10:30 central, 9:05 to 9:30 mountain, 8:05 to 8:30 Pacific time) the Columbia Broadcasting System will air a program entitled "The American Doctor Goes To War." Participants in that broadcast will be Dr. Frank H. Lahey, Chairman, Procurement and Assignment Service of the War Manpower Commission; Dr. Warren L. Draper, Acting Surgeon General, United States Public Health Service (Surgeon General Thomas Parran will be on his way to South America); Major Gen. James C. Mace, Surgeon General, United States Army; and Rear Admiral Ross T. McIntire, Surgeon General, United States Navy; and personal physician to President Roosevelt.

The representatives of the three services will state their needs, objectives and the current state of achievement toward those objectives—Army, Navy, civilian. Dr. Lahey will represent the point of view of the profession and of the War Manpower Commission in the recruitment and placement of physicians essential to all three fields.

The hour at which this broadcast will occur is a regular talk hour on the Columbia Broadcasting System and has a large station list and a well built up audience. This is the first time that the three services have appeared together on a program of this type. The discussion will not only include the problems of recruitment but provide background as to the type of service rendered in connection with the respective services—military and navy programs.

It is a program which will be of interest not only to doctors and their families but to every family with a relative in the armed services and to every industrial worker or civic leader who ever finds occasion to discuss this problem as a citizen.

## NAVY MEDICAL HEADQUARTERS MOVED

Over the August 14-17 weekend the Bureau of Medicine and Surgery, Navy Department, Washington, D. C. was moved from quarters it had occupied in the Navy Department building to the naval reservation a half mile westward on Constitution Avenue which formerly was the home of the Naval Medical Center. For the first time since outbreak of the war all divisions of the bureau are together on the same grounds it not under the same roof. The group of buildings once the Medical School, Dental School, Hospital and sick officers' quarters will be known collectively henceforward as Potomac Annex, Navy Department. Since last spring the National Naval Medical Center has occupied its modern new establishment at nearby Bethesda, Md.

## AVIATION PHYSIOLOGISTS

A class in aviation physiology graduated at the School of Aviation Medicine in Texas August 8 and another class began the course of training on August 10. Among those in the class graduated were Capt. Hayden C. Nicholson, Ann Arbor, Mich. and Lieuts. Halsey G. Bullen, Brooklyn and Richard L. Masland, Philadelphia of the medical department and a number of members of the Air Corps.

Among those in the class beginning August 10 were the following lieutenants of the medical department: Lewis E. Barrick, Chicago; Dale D. Dickson, Letts, Ind.; Vincent H. Handy, East Orange, N. J.; John M. McIver, Cleveland; and various officers of the Sanitary and Air Corps.

The course in aviation physiology treats of the effects of lowered barometric pressure on personnel, anoxia and the effect of flight on man, the operation of low pressure chambers, the theory and practical use of oxygen equipment and the conduct of high altitude indoctrination and classification.

## UNITED CHINA RELIEF COMMITTEE

The president of the Chicago Medical Society, Dr. Oscar Hawkinson, has appointed a committee to represent the medical profession in the Cook County Ill. campaign for the United China Relief. This committee comprising Drs. Frank P. Hammond, chairman, Wilbur E. Post, James G. Carr, George W. Post and James H. Hutton in appealing for funds points

out that doctors, nurses and medical technicians have been the backbone of the famous and unique "American Expeditionary Force in China" and have been credited with sustaining Chinese morale and defeating Japanese propaganda through five years of war in China. Money is desperately needed; it once the committee says. Checks should be made out to United China Relief, Inc. and mailed to this committee at the offices of the Chicago Medical Society, 30 North Michigan Avenue, Chicago.

## LOUISIANA UNIT TO GO ON FOREIGN SERVICE

The Louisiana State University Unit (General Hospital No. 64) which was mobilized for active duty in the army in July will be assigned to foreign duty, according to B. I. Burns, dean of the Louisiana State University School of Medicine, New Orleans. All medical members of the unit are on the faculty of the medical school; many of them were already on active duty when the unit was mobilized but have since joined the unit. The unit was organized in 1940 by Dr. Urban Maes, who served in France in the surgical section of Base Hospital No. 24 in the first world war. The present unit previous to mobilization was directed by Lieut. Col. Ben R. Henninger, clinical professor of medicine and now chief of the medical section of the unit. On mobilization Col. Daniel B. Faust of the regular Army Medical Corps was assigned to command. The chief of the surgical section is Lieut. Col. Charles J. Mingolatta, clinical assistant professor of surgery.

## AMERICAN RELIEF SUPPLIES ARRIVE IN RUSSIA

Russian War Relief, Inc. with headquarters at 11 East 35th Street, New York City, announced on August 9 that a radio-gram from Moscow authorities acknowledged receipt of four shipments of relief supplies sent by Americans. The shipments contained medical and surgical supplies, men's clothing, small kerosene stoves, cigarettes and other supplies. It was reported that the goods had been distributed to both the army and "the population which has suffered from the German invasion." The kerosene stoves it was said are most valuable for field hospitals. One of the shipments reported received was contributed during a recent "Fill the Ship" campaign for Russian War Relief in southern California.

## TWO DOCTORS APPOINTED FOR WAACS

The War Department recently announced the appointment of two on contract surgeons for the Women's Army Auxiliary Corps now stationed at Fort Des Moines, Iowa. They are Dr. Mary L. Moore of Rifle, Colo. and Dr. A. Elizabeth Garber of Chicago. Secretary of War Stimson said at a press conference recently that the WAACs eventually would have women doctors assigned to them full time but that while the corps is getting its full strength, appointments would be on a contract basis.

## MEDICAL OFFICER AT TRAINING SCHOOL

Lieutenant Commander Hubbard P. Saunders, president of the Chicago Medical Society, has been named the medical officer at the naval training school for electricians mates just opened on the campus of the Kentucky State Teachers College in Moorhead. He is one of the officers in charge of six hundred navy enlisted men who have been selected for special electrical training before they are sent to do sea service with the fleet. The new school is staffed with six officers.

## FLIGHT SURGEONS' ASSISTANTS

Graduation exercises were held for flight surgeons' assistants who completed the course of training at the School of Aviation Medicine, Randolph Field, Texas, August 1. Certificates were presented by Major Merrill J. Reeh, M. C. General courses for flight surgeons' assistants are conducted annually at the School of Aviation Medicine.

Lambert Pharmaceutical Co. of St. Louis, Mo., fellowship, have been established to provide graduate training in tropical medicine for young physicians who are citizens of the United States. Applications should be addressed to the dean of graduate studies, Tulane University, New Orleans. According to an announcement the exact names of the fellowships should not be altered since the phraseology in each instance has been designated by the donor.

### MARYLAND

**Dog Quarantine in Baltimore**—A quarantine on dogs was established by the state board of agriculture for northwest Baltimore and adjoining areas in Baltimore County, effective June 11 to September 11, following the discovery of rabies in dogs in the county near the city boundary. This is the first time that such an action has been taken in Baltimore. Until recently there had been no known rabid dogs in the Baltimore area since 1931.

**Dr. Colston Succeeds Dr. Hugh Young**—Dr. John A. C. Colston, since 1934 associate professor of urology at Johns Hopkins University School of Medicine, Baltimore, has been announced as the successor of Dr. Hugh H. Young as professor of urology at Johns Hopkins and is director of the Brady Urological Institute of Johns Hopkins Hospital. Dr. Young retired on June 30 with the title professor emeritus of urology. Dr. Colston was born in Baltimore in 1886, graduated at Johns Hopkins in 1911 and has been a member of the staff since 1915.

### MASSACHUSETTS

**Dr. Elkind Resigns from Mental Hygiene Society**—Dr. Henry B. Elkind, Boston, has resigned as medical director of the Massachusetts Society for Mental Hygiene, effective August 12, to enter active service in the medical corps of the army. Dr. Elkind has been medical director of the society since 1925.

### MICHIGAN

**Government Buys Battle Creek Sanitarium**—The Battle Creek Sanitarium has been turned over to the government and will in the future be known as the Percy L. Jones General Hospital for war casualties. The purchase price was more than two million dollars. Col. Norman F. Kirk, M. C., U. S. Army, will head the hospital. The first patients will arrive about October 1 from military training centers where they have contracted ailments requiring long treatment. The former patients of the sanitarium have been transferred to several nearby buildings to continue treatment under the general direction of Dr. John H. Kellogg of Battle Creek, it was announced.

**Clinic Awards Prizes for Essays**—The first prize of \$100 in the essay contest at the North End Clinic, Detroit, was won by Dr. Jerome Mark, Detroit, whose subject was "Venography: A Its Use in the Differential Diagnosis of the Peripheral Venous Circulation. B A Simplified Technique." Second prize of \$75 went to Dr. Aaron A. Farbman, Detroit, for his paper on "The Effect of Estrogenic Hormone on Hypertthyroidism." Honorable mention was given to Dr. Ezra Lipkin, Detroit, for his paper on "Brachial Plexus Block in the Treatment of the Painful Shoulder—A Review of Fifty Cases." The contest is held to promote the study of end results in the treatment of cases at North End Clinic and to encourage clinical and experimental research.

### NEW JERSEY

**Outbreak of Poliomyelitis**—Two deaths have occurred among 11 cases of infantile paralysis in Elizabeth, according to the *New York Times*, August 4. The 11 cases had been reported to the state department of health since July 1.

**Health Board Abolishes Eye Clinic**—On June 23 the Clifton Board of Health voted unanimously to abolish the eye clinic of the board as a measure of economy. The clinic has been under attack repeatedly by the committee for the control of blindness of the Passaic County Medical Society because it was directed by an optometrist and not a licensed physician. According to the Bulletin of the Passaic County Medical Society, Clifton school physicians refused to refer school children to the clinic and the attendance dropped sharply.

**Society News**—Dr. Leon Herman, Philadelphia, addressed the Cumberland County Medical Society, June 9, at Bridgeton, on "Difficulties Encountered in the Interpretation of Genitourinary Symptoms."—Dr. George T. Pack, New York, discussed "Early Diagnosis and Management of Carcinoma of the

Stomach" before the Bergen County Medical Society recently in Bergen Pines.—The Gloucester County Medical Society was addressed in Woodbury recently by Dr. Herbert T. Kelly, Philadelphia, on "Nutrition as It Applies to General Disease."

### NEW YORK

**Food Poisoning from Cream Pie**—Twenty employees of an upstate industrial plant were reported ill with food poisoning in an outbreak traced to contaminated cream pie. The illness was characterized by nausea, vomiting and diarrhea. Some of the patients experienced profuse sweating, abdominal pain, bloody stools and shock. The onset was sudden, with recovery from acute effects within twenty-four to forty-eight hours. There were no fatalities. According to *Health News*, all twenty employees had eaten the last meal prior to the development of the illness at the plant cafeteria. Cream meringue pie was the one food that was consumed by all the patients. The first person who became ill ate a portion of the pie about 5:30 p. m. on June 12 and had onset of symptoms about 9 o'clock that evening. Those who partook of the pie later had a shorter incubation period and those that ate it at 3 a. m. on June 13 became ill within two hours. Examination of the pie demonstrated heavy contamination of both the cream filling and the meringue with *Staphylococcus aureus*. The pies were prepared about midnight, June 11-12, and were about 18 hours old when the first patient was served. It was definitely established that no food handler in the kitchen was ill but that contamination was caused by unsanitary cleaning practices.

### New York City

**New Secretary of Board of Health**—Dr. Frank A. Calderone, instructor in preventive medicine at the New York University College of Medicine, has been appointed secretary of the New York City Department of Health to succeed Goodline Livingston Jr., who has resigned for war duty. Dr. Calderone graduated at New York University in 1924 and since 1938 has been serving as district health officer of the lower east side.

**Proposed Program to Rehabilitate Blind**—The New York Association for the Blind recently presented to government authorities for consideration a plan for the rehabilitation for war blinded. The plan would seek to reach the blind service man at the hospital bedside and follow through with a program of readjustment. The New York Association for the Blind recommended the creation of a division for the blind in the U. S. Employment Service.

### OHIO

**Opposition to Insurance Plans Set Up**—Newspapers have announced that an organization has been set up in Cleveland to develop opposition to medical service insurance plans in the community. The group will be known as the Association for Preservation of the Present American System of Medical Practice. Officers during the organization period include Drs. Carl L. McDonald and Theron S. Jackson, co-chairmen, Dr. John Robert Andrews, vice chairman, Dr. David M. Keating, secretary, and Dr. Max B. Laven, treasurer, all of Cleveland. According to the *Cleveland News* the association has as its only purpose the defeat of the proposed medical plan of insurance and favors the freezing of medical practice in its present status until after the war. Creation of this group followed the recent organization of the Cleveland Medical Service Association, which is a cooperative project of certain members of the Academy of Medicine of Cleveland.

### PENNSYLVANIA

**Society News**—The Reading Eye, Ear, Nose and Throat Society was addressed by Dr. Nevin H. Rupp, Reading, July 15, on "Eye, Ear, Nose and Throat Aspects of Chemical Warfare."—Dr. James O. Wallace, Pittsburgh, discussed "Management of Infantile Paralysis" before the Cambria County Medical Society in Johnstown, July 9.

### Philadelphia

**Health Commissioner Visits England**—Dr. Hubley R. Owen, director of public health, recently went to England "to make a first hand observation in the fields of civilian defense and public health in wartime," newspapers report.

**Changes at University of Pennsylvania**—Dr. Paul C. Colonna, director of orthopedics of the State University and Crippled Children's Hospital, and professor of orthopedic surgery of the University of Oklahoma School of Medicine Okla-



homa City has been appointed professor of orthopedic surgery at the University of Pennsylvania School of Medicine. Other changes on the faculty include the appointment of Harry I. Morton, Sc.D., to associate professor of bacteriology, Dr. Dale R. Coman to assistant professor of pathology, Richard G. Moll, Ph.D., to assistant professor of anatomy, Dr. Oscar A. Patson to professor of anatomy in the Graduate School of Medicine, and assistant professor of otolaryngology in the school of medicine, and Dr. Harriett Elizabeth Glenn Raydon to assistant to the dean school of medicine.

**Cancer Council Sponsors Program for Teachers**—The Philadelphia Cancer Council has arranged a program for high school science teachers at the Philadelphia County Medical Society, October 20 aimed to show how a special subject in this instance cancer, can be used to tie together physics, mathematics, chemistry, biology, and the other science subjects that are taught in high schools. The program will open with Dr. William Bates president of the Philadelphia County Medical Society, presiding, and speakers will be Dr. Stanley P. Reimann, chairman of the cancer commission of the state medical society on Use of a Correlating Subject in Science Teaching and Oscar Riddle, Ph.D. department of genetics, Carnegie Institution Cold Spring Harbor, N. Y. Biology In and Not In the High School. Robert W. Kunz, president of the Science Teachers Association will close the discussion.

### TENNESSEE

**Radiologists Elect Officers**—Dr. Horace D. Gray, Memphis was elected president during the recent annual meeting of the Tennessee Radiological Society in Memphis. Other officers are Drs. Franklin B. Bogart, Chattanooga vice president and John Marsh, Jr., Chattanooga secretary treasurer.

**Changes in Health Personnel**—Dr. Francis H. Cole, Nashville has been placed in charge of the division of tuberculosis control of the Memphis and Shelby County Health Department effective July 1. He succeeds Dr. Felix A. Hughes, Jr., Memphis who has been assigned to take charge of Lynnhurst Sanatorium, Oakville.

**New Medical Officer at Marine Hospital**—Dr. Anthony P. Rubino, formerly of Key West Fla. of the U. S. Public Health Service, has been appointed medical officer in charge of the United States Marine Hospital Memphis. He succeeds Dr. Edwin H. Carnes who was transferred to Alaska. Dr. Rubino has been a member of the public health service since 1926.

### WEST VIRGINIA

**State Society Approves Sickness Insurance**—The West Virginia State Medical Association at its annual session in July went on record as approving the principle of voluntary insurance to pay sickness costs. The action was the culmination of a four year period of study of the subject. It was recommended, however that for the present there be held in abeyance the adoption of any statewide plan and support rather the development of medical service plans in local communities having common and similar problems. It was further recommended that 'each plan shall provide for a schedule for medical fees at least equivalent to the minimum professional fee schedule adopted by the county medical society in the county or counties in which the plan is organized.'

### WISCONSIN

**Dr. Urben Made Director of Mental Hygiene**—Dr. Walter J. Urben, senior physician at the Mendota State Hospital, Mendota has been appointed director of the state division of mental hygiene, filling the vacancy caused by the death of Dr. Gilbert E. Seaman, Madison May 25, 1941. Dr. Urben graduated at the University of Wisconsin Medical School, Madison in 1930. Before joining the Mendota staff, Dr. Urben was assistant superintendent of the Massillon State Hospital in Ohio, senior physician at the Southern Wisconsin Colony and Training School, Union Grove and staff physician at the Milwaukee County Hospital for Mental Diseases.

**Borden Prize Awarded to Chemist**—Hugo H. Sommer, Ph.D., professor of dairy industry, University of Wisconsin, Madison was presented with the Borden prize of the American Dairy Science Association at its recent annual meeting. The prize consists of a gold medal and \$1,000. Dr. Sommer received his degree or doctor of philosophy at Wisconsin in 1922. For a time he was chemist of the North California Milk Producers Association joining the University of Wisconsin in 1920. His work covered various aspects of dairy chemistry, including the

study of the acidity of milk, milk grading, solubility of metals in milk and the curd strength and renet coagulation of milk in relation to mastitis.

**Society News**—Dr. Philip S. Hench, Rochester, Minn., discussed 'The Management of Rheumatoid Arthritis' before the Medical Society of Milwaukee County in Milwaukee, May 8, and Dr. Walter P. Blount, Milwaukee spoke on 'The Kenny Treatment of Polymyositis'. —Dr. William G. Lennox, Boston addressed the Milwaukee Neuro-Psychiatric Society in Madison recently on 'Ewms, Brain Waves and Epilepsy'. —At a meeting of the Milwaukee Society of Clinical Surgery, May 13 in Sheboygan Drs. Friedrich Ligenberger, Sheboygan spoke on 'The Use of the Polytograph for Laboratory Diagnosis' and Paul B. Mason, Sheboygan, 'Preoperative and Post-operative Medical Care of Surgical Patients'. —Dr. Ralph E. Campbell, Madison discussed 'Carcinoma of the Uterus' before the Sheboygan County Medical Society in Sheboygan recently. —Dr. William F. Braasch, Rochester, Minn., addressed the Rock County Medical Society recently on 'Advances in the Treatment of Urinary Fracture Infections'.

### GENERAL

**Dr. Upham Named Chairman of Parenthood Foundation**—Dr. John H. J. Upham, Columbus, Ohio, formerly President and Trustee of the American Medical Association, was recently chosen president of the board of directors of the Planned Parenthood Foundation of America, Inc.

**Research Chemicals Division Created at Breon and Company**—The George A. Breon & Company laboratories, Kansas City, Mo., have established a research chemicals division which will prepare synthetic organic chemicals including bile acids, hormones and vitamins. The catalogue listing these products was recently distributed to research workers in the medical sciences according to an announcement from the company. The new department will be under the direction of Clarence W. Sondern, Ph.D., Kansas City, and Willard M. Hochm, Ph.D., formerly of Rochester, Minn.

**Motion Picture on Back Siphonage**—Pure Water Films, Inc. has prepared a motion picture illustrating the danger to health of faulty plumbing using a story based on a law suit. THE JOURNAL, August 22, page 1437 announced that this film had been prepared by the Plumbing and Heating Industries Bureau. The picture shows clearly that disease may result from the drinking of polluted water caused by back siphonage of plumbing fixtures. It is available for showing before medical students, medical societies and county health officers. Those desiring to borrow this film may communicate with Mr. William J. Lang, chairman of the Motion Picture Project Committee of the National Association of Master Plumbers, 1251 North Clark Street, Chicago.

**Physicians Reported Missing**—The following physicians have been reported missing, according to recent newspaper reports:

Lieut. Edward F. Ritter, Jr., Mattoon, Ill., M. C. U. S. Navy, Lieutenant Ritter was said to be in service on Corregidor and is believed to be a war prisoner of Japan.

Capt. Robert G. Davis, M. C. U. S. Navy, Dr. Davis was commanding officer of the U. S. Naval Hospital, Canacao, P. I. at the time war was declared.

Capt. Wilbert W. Buckhold, Blackey, Ky., M. C. U. S. Army, Captain Buckhold is believed to have been captured on Corregidor.

Dr. Jacob Markowitz, Toronto, Ont., Canada missing in the recent operations in Malaya.

Dr. John D. Greathouse, U. S. Navy Reserve, Minneapolis, lost at sea somewhere in the Pacific. He was in charge of personnel on a Standard Oil Company tanker.

**Grenfell Mission Unveils Anniversary Tablet**—A tablet was unveiled at St. Anthony, Newfoundland, August 4, to commemorate the fiftieth anniversary of the landing of the late Dr. Wilfred Grenfell on the coast of Labrador. Sir Wilfred established the mission in Labrador in 1892. Since his death on Oct. 9, 1940 the activities of the mission have been carried on under the direction of Dr. Charles S. Curtis, St. Anthony. During the fifty years of Sir Wilfred's missionary work five hospitals have been established there, five nursing stations, two boarding schools, one day school and children's home, social services to improve the lot of the coast people, two hospital ships and a supply ship. The inscription on the new tablet reads: 'In gratitude to God for the Labrador Doctor'. The Grenfell Association of America is located at 156 Fifth Avenue, New York.

**Nutrition Foundation Publishes Journal**—Nutrition Reviews has been established as the official journal of the Nutrition Foundation, Inc., New York, with Dr. Frederick J. Stare, assistant professor of nutrition and biochemistry, Harvard University, Cambridge, Mass., as editor. It will be supervised by an editorial committee representing nutrition research and

medicine. The new journal will appear monthly. The foundation announces that six new member organizations had contributed new subscriptions amounting to \$75,000, raising the foundation's fund to support nutrition research to \$923,500. The foundation is now supporting thirty-six nutrition research studies in twenty-two leading universities of the nation. These studies are divided equally among three kinds of projects: those having a direct relationship to the war emergency, those having a direct relationship to public health and those that primarily advance the frontiers of the science of nutrition.

**Examination in Ophthalmology**—The American Board of Ophthalmology announces that the examinations will be held in New York December 1-16 and Los Angeles January 15-16 because of the war emergency. It was decided to cancel the 1943 written examination to include in the oral examination all the subjects previously covered by the written examination and to dispense temporarily with the requirement of case reports. The oral examination will probably require two or three days and will cover external disease, slit lamp, ophthalmoscopy, histology, pathology, bacteriology, oculin motility, refraction, retinoscopy, practical surgery, anatomy and embryology, primary therapeutics and operations, optics and visual physiology and relation of the eye to general diseases. Applications on the proper blanks for the December and January examinations must be filed with the secretary not later than November 1. Blanks may be obtained from the American Board of Ophthalmology, 6800 Waterman Avenue, St. Louis.

**Congress of Physical Therapy**—The American Congress of Physical Therapy will hold its annual session at the Hotel William Penn, Pittsburgh, September 9-12. A series of instruction courses will be held throughout the entire session. Among the speakers on the program will be:

- Stafford I. Osborne, Ph.D., Chicago, Present Status of Electromuscle Stimulation
- Dr. William Cooper, New York, The Problem in Cerebral Palsy
- Dr. Fred Bennett Moor, Los Angeles, The Future of Physical Medicine
- Dr. Paul B. Magnuson, Chicago, Painful Bial
- Dr. Harry F. Zinkel, Brooklyn, The Galvanic Bath
- Dr. Ralph Pemberton, Philadelphia, Refinements in the Treatment of Arthritides Including Physical Therapy
- Dr. Christopher J. McLoughlin, captain, U. S. Army, Atlanta, Physical Therapy in Relation to Military Medicine
- Dr. Bengt N. Bengtson, lieutenant commander, U. S. Navy, Great Lakes III, Sustained (or Prolonged) Radiant Heat Therapy in Lesions of the Pelvis

There will be a symposium on poliomyelitis on Thursday with Drs. John A. Toomey, Cleveland, Jessie Wright, Pittsburgh, and Miland E. Knapp, Minneapolis. A symposium on fever therapy on Friday will be conducted by Drs. Earl C. Elkins, Rochester, Minn., Herbert Wooley Kendall, Dayton, Ohio, Robert F. Dow, Paterson, N. J., John W. Fredette, Pittsburgh, Frederick M. Allen, New York, and Lyman W. Crossman, New York.

## FOREIGN

**Pasteur Journal Prohibited**—The Germans have forbidden the publication of the Journal of the Pasteur Institute of Paris, the Chicago *Sun* reported, July 25. The report stated that the journal was founded in 1881 by Pasteur himself.

**Prizes for Encephalitis Research**—The Foundation at the University of Berne to promote encephalitis research announces its annual prizes for work on encephalitis lethargica showing real progress in the diagnosis or treatment of the disease. The smallest prize amounts to 1,000 Swiss francs. The prizes are awarded at the end of each year. Those wishing to participate in the competition should send their application to the dean of the faculty of medicine at the University of Berne.

**Rockefeller Grant to Nutrition Survey**—The Rockefeller Foundation has made a grant of £1,875 toward the expenses of the Oxford Nutrition Survey during the past year and has promised a grant of £3,000 for each of the next two years. The funds will be administered by a committee consisting of the regius professor of medicine, the Whitley professor of biochemistry and the Waynflete professor of physiology. According to *Science* the survey is investigating economic, dietary, clinical and biologic methods of assessing nutrition in man. Besides giving training in their use it is also, on behalf of the Ministry of Health, examining the nutrition of samples of the population.

**German Narcotic Law Amended**—Effective as of July 1, 1941, a decree of the reich minister of the interior subjected the distribution of the following chemicals to the restrictions imposed by the narcotic law of Germany: methylphenylpiperidin-

carbamic acid-ethyl-ester ("Dolantin"), phenylaminopropane ("Aktedron," "Benzedrin," "Elastonon") and phenyl-methyl-aminopropane ("Pervitin"). The decree was signed in behalf of the minister of the interior by Dr. L. Conti, who is the leader of the health office of the party and leader of the German physicians (reichsarztbefehl). Dr. Conti, it is said, is known to be a very active opponent of habit forming stimulants and to favor a strict enforcement of the narcotic laws and of the laws pertaining to abortions.

## SPECIAL NEWS

(THIS NEWS WAS ASSEMBLED ESPECIALLY FOR USE IN THE JOURNAL)

**Public Health under Hitler's Rule**—The *Neues Wiener Tagblatt* reports the opening by Gauleiter Dr. Jury of the Central Office for Childless Marriages, which has been set up within the Chief Health Office of the Gau Niederdonau. Among the guests present were Dr. Fehrer, chief of the Gauleitung for Racial Policy, SA-Obergruppenführer von Schorlemer, Gauleitungsführer Dr. Tangl, Gaufrauenenschaftsleiterin Ann Victoris Gauhauptmann Dr. Mayer, Generalstabsarzt, Dr. Zimmer, Generalarzt Dr. Zeman and Dr. Albrecht, Prof. Dr. Knoll (rector of Vienna University) and the deans of the medical and philosophical faculties, Professor Pernkopf and Professor Christian. Dr. Fehrer said that is the aim of the central office to provide biologically sound but hitherto childless married couples with all the resources of medical art to remove infertility and also to insure that married couples will not have to forego treatment simply because they cannot afford the expense. After the war the present institute would develop into an institute for research into human fertility. Dr. Jury said "I am glad that it was my gau in which it has been possible to set up the first central office for childless marriages, and I believe that it will prove not only important for the war but also important for the reich (reichswichtig)."

DNB reported that Schirach paid a surprise visit to a number of camps of the child evacuation scheme in the Harz area, where children from northwest German towns which are particularly exposed to, or have particularly suffered from, air raids have been staying for some months. The condition of all camps was irreproachable. The health of the children was incomparably better than on their arrival, thanks to the favorable position of the camps and the very ample food. Parents recently visited all the camps.

The *Deutsche Zeitung*, Budapest, notes that a thousand rooms have been reserved for wounded Hungarian soldiers in various bathing resorts on Lake Balaton.

The Scandinavian Telegram Bureau reports from Rome that at Bari a military tribunal has sentenced nine military doctors, twelve civilians and twenty-three soldiers to long terms of imprisonment for illegal traffic in health certificates. For payment the doctors procured sick leave permits and in some cases exemption from military service. The doctors were sentenced to terms of imprisonment ranging between seven and twelve years, the soldiers from six to seven years and the civilians up to fourteen years.

The *Revaler Zeitung* reports that the villages of Illurma and Walkse in the Keila parish, Estonia, are declared to be menaced by rabies.

The Berlin correspondent of the *Aftonbladet* quotes the annual review of the Central Bureau of Statistics as calling for a rise of 60 or 70 per cent in the German birth rate "to put the German people in a position to deal with the tremendous tasks awaiting them." The number of families with three children or less has risen since 1933 by 1,700,000, while in the same period the number of large families has diminished by 80,000.

The *Völkischer Beobachter*, in an editorial by Fritz Nonnenbruch, advocates the necessity of increasing the birth rate. "We Germans will become a herrenvolk, and have never before in our history felt the call to become a herrenvolk more strongly than now. The task of a healthy herrenvolk—in contrast to a parasite people—does not consist in enjoying life. Our people's task is more serious, greater and more far reaching. A herr is a person who can be what he is, who develops his mind and characteristics freely. Therefore a herrenvolk is a people that develops its mind and characteristics freely. Our postwar tasks consist in exhausting the immense possibilities which our soldiers' victory opens up to us, this in the first place involves, literally speaking, growing into these possibilities as far as figures are concerned. The greater reich's greater tasks demand a greater people."

## Foreign Letters

LONDON

(In Our Regular Correspondent)

July 18 1942

### Polish Medical Journal Published in England

There are many Polish refugees in this country the majority of whom are soldiers. The foundation of a Polish Faculty of Medicine in Edinburgh University has been described previously (THE JOURNAL January 24 p. 513). After a lapse of two years the Poles have continued in England publication of their only surviving medical periodical the *Lekarz Wojskowy* the Journal of the Polish Army Medical Corps. Its object is to describe the experience gained by Polish doctors during the war and to facilitate contacts of the Polish medical circle with the wide English speaking medical world. The periodical is in its thirty-fourth volume and has published in England three numbers. The articles are in Polish but summaries in English are added. In an attempt to excuse their barbarity the Germans have pretended, with their usual effrontery, that the Poles have no civilization worthy of the name. The pages of the *Lekarz Wojskowy* certainly do not support this aspersion for the articles are of an unusually high standard. In one entitled 'A Theory of True Uremia' A. Fidler points out that the theory that uremia is due to impaired renal function lacks proof namely diminution of nonprotein nitrogen in the urine. Investigations at the University of Warsaw showed that the amount is slightly increased over that in health. Hence arose the idea that the retention of nonprotein nitrogen is due to the breakdown of proteins in the blood and tissues. This was confirmed by demonstrating that the proteins of the serum are altered in their physicochemical structure and so are liable to break down which leads to the conclusion that uremia is a disease of the blood rather than of the kidneys.

B. Hejduk deals with 'The Organization of Field Surgery in Modern War'. Such is the enemy that he has to write large unprotected hospitals far behind the front have not proved satisfactory, as they can easily be bombed. The evacuation of hospitals by ambulance trains has failed as the lines are frequently damaged. Work is now possible only in small well protected hospitals. Operation theaters and wards are installed in underground shelters such as wine cellars and crypts.

Prof. D. Cordier discusses 'Anoxemia in Traumatic Shock'. He holds that anoxemia probably plays the most important part and that therefore the sooner oxygen therapy is used the better.

H. Back deals with avitaminosis in the army. A large part of the vitamins is lost in the intensive army cooking. Vitamin A deficiency may be produced and shown by sporadic night blindness. Vitamin C deficiency is shown by inflammation of the gums and eczema.

### Medical Supervision of the Young After Entering Industry

The history of the medical profession in this country in recent years can be summed up in three words—increased state control. The London Regional Advisory Council for Juvenile Employment has made the latest proposal in this direction in a memorandum submitted to the Ministry of Labor and National Service. The council assumes that the school leaving age will be raised from 14 to 15 and possibly to 16 years and that compulsory day continuation classes will be set up for juveniles beyond the age for leaving school. The council recommends an extension of the school medical service to all minors in industry by an arrangement which would empower the medical staff of the local authority to supervise even where it did not itself provide all medical treatment including psychotherapy, from nursery school to the end of adolescence in industry.

### Delayed Union of Fractures

Delayed union of fractures was discussed at a meeting of the British Orthopaedic Association on the basis of war experience, in which American and Canadian surgeons on duty in this country took part. Mr. R. Watson Jones and Squadron Leader W. D. Collett presented an analysis of five hundred fractures of the shaft of the femur or tibia treated in the orthopaedic units of the Royal Air Force. The most important factors responsible for delayed union were (1) infection, (2) distraction of the fragments by excessive skeletal traction and (3) delayed reduction. Late manipulation and in the femur, late bowing or retraction. In the absence of these delaying causes, union was firm enough for removal of splints or plaster in an average of fourteen weeks. When minor angulation remained, early resumption of weight bearing, in a walking plaster constituted a delaying factor. Thus by increasing the angulation momentarily distracted the fracture on its open side. If the cause of the delay was recognized and the period of plaster immobilization extended the result was slow union.

Prof. Harlan L. Wilson of the U. S. Public Health Service believed that the type of initial violence might account for the greater time taken for motorcycle injuries to heal. The speed of impact was noteworthy. Damage to the vascular supply of bone influenced greatly the time of healing. Multiple fractures by making greater demands on the osteogenic functions, accounted for the frequency of delayed union in these cases.

Major A. W. M. White of Toronto said that the factors most likely to affect the rate of union were apposition of the fractured surfaces and complete and continuous immobilization. In fifty one well reduced and immobilized legs the average time for union was four and a quarter months, in thirteen inadequately reduced or poorly immobilized cases it was eight and a quarter months.

### PARIS

(From a Special Correspondent)

July 4 1942

### Growth Vitamins and Alimentation

After nearly two years of alimentary restrictions the most urgent problem for the physicians of France consists in observing children. The growth of children their physical and psychic development is now the greatest biologic problem.

Charles and Gabriel Richet, members of the Academie de medicine have written a book on the problems of puberty and adolescence which is soon to be printed. They published a chapter of the book called 'Biologic Growth Value of Aliments' in the *Paris medical* January 30. The authors discuss the amino acids of growth and the growth vitamins. The American authors Osborne and Mendel established that for normal growth 18 per cent of the caloric ration should be proteins. They have proved with Ackroyd and Hopkins that these proteins must be rich in lysine and histidine, which are the most important amino acids of growth.

As worked out particularly by the French school vitamin A is chiefly a vitamin of growth. Vitasterin A is found only in animal aliments. In the form of provitamins (an expression of Lesne and the Richets) it exists in various vegetables. It is to be found in the form of carotenes  $\alpha$  and  $\beta$  ( $C_{40}H_{56}$ ). The carotenes are transformed in the liver into vitamin A ( $C_{20}H_{30}O$ ) this transformation is often incomplete. Carotene  $\beta$  can theoretically divide itself into two molecules of vitamin A. Carotene  $\alpha$  gives only one molecule. The digestive absorption of carotene is often difficult because of part of it being retained by cellulose rejected by the bowels. The biologic value of carotenes is less than that of vitamin A.

The vitamin specialist Javillier maintains that a certain quantity of growth vitamin A must always be given in the form of the genuine vitamin A and that the remainder can be pro-

vided as carotenes. For adults the vital or functional minimum of vitamin A (antixerophthalmic and of growth) is admitted to be 0.5 mg. daily, the optimal dose 1.5 mg., of which 0.5 mg. must be given in the form of vitamin A and 1 mg. (corresponding to 2 mg. of carotene) can be taken in the form of carotene. Javillier believes that children need a dose only half as large. Richet, on the contrary, maintains that children must have more vitamin A than adults because there is no growth for adults and because xerophthalmia and hemerolopia are more frequent among adolescents and children than among adults. Froge has found in 70 children aged 11-18 years in Lille 17 suffering from hemerolopia. All belonged to badly nourished workmen's families. Examining other children from Paris, he found the same proportion.

The problem of vitamin B is more complex. We do not know exactly that vitamin B or riboflavin, figures in the growth of a child. This vitamin, as well as vitamins B<sub>2</sub>, B<sub>6</sub> and B<sub>12</sub>, is clinically and biologically still rather badly individualized. The vitaminosis syndrome of B<sub>2</sub> is not known in man. Riboflavin is probably synthesized by vegetables and accumulated in animal tissues. Most aliments contain riboflavin, and it seems that it is contained in a sufficient quantity in the present food of children. Javillier states that the content of vitamin A in certain aliments is as follows (in milligrams and per hundred grams of edible products the content in carotene and vitamin A).

| Carotene                         |     | Vitamin A                     |      |
|----------------------------------|-----|-------------------------------|------|
| (Exclusively Vegetable Aliments) |     | (Exclusively Animal Aliments) |      |
| Spinach                          | 8   | Liver (veal)                  | 6    |
| Carrots                          | 2   | Butter                        | 2    |
| Pumpkin                          | 1.2 | Egg yolk                      | 2    |
| Lettuce                          | 1.2 | Tunny                         | 0.30 |
| Watercress                       | 0.9 | Oysters                       | 0.12 |
| Tomato                           | 0.9 | Herring                       | 0.09 |
| Maize                            | 0.3 | Cow's milk                    | 0.09 |
| Peas                             | 0.1 | Mussels                       | 0.02 |

Corn germs contain 0.2 to 0.3 mg. of carotene and potatoes about 0.04 mg. per hundred grams of product.

The quantity of genuine vitamin A is absolutely insufficient in the present food ration, which is almost entirely deficient in butter and extremely poor in meat. This is the reason for growth difficulties signalized by all physicians after many examinations of school children.

Professor Hedon, Montpellier physiologist, signalized that examinations performed by him in 1941 revealed a slight deficit of vitamin A in 50 per cent of the children examined. This year the examinations prove that the rate of vitamin A is absolutely insufficient in 80 per cent of the children examined.

Present Increase of Scabies

At a recent meeting of the Academie de medecine Professor Leroux and Dr. Pignot reported that, in 1941, 60,567 scabies patients were treated in the Hopital St. Louis in Paris. The annual average from 1920 to 1938 was 4,500-5,000. In comparison with the period before this war the development of scabies has been multiplied at least by 5 and sometimes even by 30. Many persons suffering from scabies believe the restriction of bread to be the cause of this disease, calling it "gale de pain" (scabies due to bread). In nearly all cases it is, however, a genuine human parasitic scabies. This epidemic of scabies is due to two causes: (1) the war, the evacuation of children and the exodus of June 1940, (2) deficient hygiene, which is prolonging and maintaining this epidemic on account of the lack of soap and of individual hygiene. The monthly allowance of soap for hygienic use and also for washing underwear and linen amounts to only 75 Gm. On account of a special law physicians, surgeons, dentists, veterinarians and

professional nurses get a supplement of 150 Gm. of soap for their personal use and 500 Gm. of soap detergents for other use.

The treatment of this great number of scabies patients at first involved enormous difficulties because fat and benzyl benzoate are lacking. Lerou reports that, nevertheless, he has succeeded in treating the patients by means of an ointment prepared of sulfur and its compounds, the base was made of a colloid clay of the bentonite series, which has replaced the lacking fatty substances. After soaping the body and after a bath one applies, as soon as the patient comes out of the bath without having wiped himself, this paste in a thin but continuous layer. After twenty-four to forty-eight hours a simple bath is given. The results of this treatment are satisfactory.

Lannay and Verliac explain the scabies epidemic among children in the April issue of *Hopital*. In infants the disease can manifest itself often in the form of an impetigo or a pyodermitis. Lannay proposes to treat the secondary infection with a sulfonamide applied locally in an ointment and by mouth. With these medicaments he has obtained good results in numerous cases and has been able to proceed quickly with the anti-scabies treatment.

Death of Professors Loir and Marfan

One of the last direct collaborators of Pasteur has died. Professor A. Loir did much research work with him and rendered great service at the period in which Pasteur was affected by hemiplegia. Loir founded the Pasteur institutes of Leningrad, Sidney, Tunis and Rhodesia. For some time he has been professor of biology and pathology at Montreal. He was a corresponding member of the Academie de medecine. An eminent hygienist, he was until lately director of the Bureau d'hygiene of Le Havre.

One of the greatest pediatricians of France, Prof. A. B. Marfan, has died at the age of 83. He was the disciple of Professor Lasegue. In 1912 he was professeur agrege at the Faculte de medecine of Paris and then professor of hygiene and of the child clinic at the Hopital des enfants assistes. His first researches were on tuberculosis. He proved that a local attack gives a certain immunity against severe forms of the disease. He studied the secondary syndromes of malignant diphtheria. He described a new disease called dolychostenomelia. Until lately he was president of the Comite national de l'enfance.

Marriages

- RALPH L. BEST, Newport, Ark., to Miss Rachel Ward Browne of Tuscaloosa, Ala., in Tulsa, Okla., in June
- THOMAS HASSELL WRIGHT JR., Philadelphia, to Miss Elizabeth Sergeant Odell of Concord, N. C., June 13
- HILARY H. HENDERSON JR., Greenville, Ala., to Miss Margaret Drennen Bissell of Birmingham in June
- HAROLD FOREST OAKES, Laura, III, to Miss Beulah Lynch of El Paso, Texas, in Reno, Nev., May 16
- JEROME CHAMOVITZ, Aliquippa, Pa., to Miss Irma Rae Goldstein of Ambridge at Pittsburgh, June 28
- HOWARD HILT HAMMETT JR., Atlanta, Ga., to Miss Katherine West Johnson in Rome, June 12
- WILLIAM CRAIG PARKS to Miss Mary Ruth Brower, both of High Point, N. C., June 20
- JOSEPH A. CARBONE to Miss Damaris Snell, both of Gary, Ind., in New York recently
- FERDINAND GEORGE KOJIS to Miss Harriet Henderson, both of New York, June 6
- HERBERT CHARLES MAYER to Miss Clara M. Bauer, both of Brooklyn, June 6
- WILLIAM J. STAPLETON JR. to Miss Helen Vernon Hall, both of Detroit, June 20
- JOSEPH L. SPEZIA, Herrin, Ill., to Miss Eileen O'Keefe of Chicago in June



## Deaths

Alice Gertrude Bryant † Boston, Woman's Medical College of the New York Infirmary for Women and Children, New York, 1890, specialist certified by the American Board of Otolaryngology, member of the American Academy of Ophthalmology and Otolaryngology and the New England Otolaryngological and Laryngological Society, fellow of the American College of Surgeons, on the staffs of the Ancient Memorial Hospital, the New England Hospital for Women and Children and the New England Deaconess Hospital, aged 80, died July 25, in the Palmer Memorial Hospital of carcinoma of the cecum and diabetes mellitus.

Gustav Kolischer † Chicago, Medizinische Fakultät der Universität Wien, 1880, formerly associate professor of genitourinary diseases, Post Graduate Medical School, president of the Chicago Gynecological Society in 1910, of the Chicago Urological Society in 1916 and 1932, and of the American Congress of Physical Therapy in 1932, member of the American Urological Association, founder of the departments of genitourinary diseases and member of the staffs of Mount Sinai Hospital and Michael Reese Hospital, where he died, August 11, aged 78, of pneumonia.

Charles Lemuel Marston, Mason City, Iowa, Rush Medical College, Chicago, 1893, member of the Iowa State Medical Society, fellow of the American College of Surgeons, past president of the Cerro Gordo County Medical Society, served with the American Expeditionary Forces during World War I, retired lieutenant colonel in the medical reserve corps, formerly member of the House of Representatives, on the staffs of the Story and St. Joseph's Mercy hospitals, aged 72, died June 25, of coronary thrombosis.

Dred Rumley Dorente, Ada, Okla., College of Physicians and Surgeons, Dallas, Texas, 1907, Chicago College of Medicine and Surgery, 1913, member of the American Academy of Ophthalmology and Otolaryngology, fellow of the American College of Surgeons, specialist certified by the American Board of Otolaryngology, formerly on the staffs of the Sparks Memorial Hospital and St. Edwards' Mercy Hospital, Fort Smith, Ark., aged 61, died, June 17, of cerebral hemorrhage and hypertension.

George Moses Price † New York, University of the City of New York Medical Department, New York, 1895, inspector for the health department from 1895 to 1904, director of the joint board of sanitary control, medical director of the Union Health Center, author of *A Handbook on Sanitation, Tenement Inspection, Hygiene and Public Health, Hygiene and Sanitation for Nurses* and *The Modern Factory*, aged 78, died July 30, of cerebral thrombosis and general arteriosclerosis.

Clarke Campbell Patton † Ashland, Ohio, University of Wooster Medical Department, Cleveland, 1910, past president of the Ashland County Medical Society, served as a first lieutenant in the medical corps of the U. S. Army at base hospitals in France during World War I, formerly assistant pathologist and bacteriologist at the University of South Dakota, Vermillion, on the staff of the Samaritan Hospital, aged 58, died June 11, of coronary disease and diabetes mellitus.

Jesse Luther Lenker † Harrisburg, Pa., Baltimore Medical College, 1907, past president of the Pennsylvania Heart Association, past president and secretary of the Harrisburg Academy of Medicine and the Dauphin County Medical Society, fellow of the American College of Physicians, served during World War I for many years president of the staff and formerly medical director of the Harrisburg Hospital, aged 59, died June 2, of cerebral hemorrhage.

Kyle Bear Steele † New York, University of Virginia Department of Medicine, Charlottesville, 1913, associate professor of clinical obstetrics and gynecology at the Cornell University Medical College, fellow of the American College of Surgeons, served during World War I on the staffs of the Booth Memorial Hospital, New York Hospital and the New York Infirmary for Women and Children, aged 52, died, June 18, of coronary heart disease.

Stanley G. Miner † Detroit, Detroit Medical College, 1882, emeritus professor of otology, laryngology, rhinology and physical diagnosis at the Wayne University College of Medicine, member of the American Academy of Ophthalmology and Otolaryngology, member of the city public welfare commission from 1913 to 1919, for many years on the staff of St. Mary's Hospital, aged 81, died, June 28, of chronic myocarditis.

Benjamin Alonza Rice, Forest, Va., Medical College of Virginia, Richmond, 1904, member of the Medical Society of Virginia, served as a captain during World War I and was associated with the surgeon general's office in Washington, formerly on the staff of the U. S. Veterans' Hospital, New Haven, Conn., aged 63, died, June 16, in the Virginia Baptist Hospital, Lynchburg, of coronary thrombosis.

Isaac Morris Heller † New York, Yale University School of Medicine, New Haven, Conn., 1896, specialist certified by the American Board of Otolaryngology, member of the American Laryngological, Rhinological and Otolaryngological Society, fellow of the American College of Surgeons, member of the medical board and on the staff of the Lebanon Hospital, aged 70, died June 7, of coronary occlusion.

Earle Carlisle Willoughby † North Reading, Mass., Tufts College Medical School, Boston, 1911, member of the New England Society of Psychiatry and the New England Roentgen Ray Society, on the staff of the North Reading State Sanatorium, formerly on the staff of the Tewksbury State Hospital and Infirmary, Tewksbury, aged 60, died, June 23, of cerebral hemorrhage.

Thomas Oliver Williams, Tunkhannock, Pa., University of Pennsylvania Department of Medicine, Philadelphia, 1906, member of the Medical Society of the State of Pennsylvania, served in the Spanish-American War and World War I, county medical director, chairman of the Wyoming County Selective Service System, aged 61, died, June 14, of coronary occlusion.

John Edward McHale, Brooklyn, Columbia University College of Physicians and Surgeons, New York, 1931, member of the Medical Society of the State of New York, aged 36, on the staffs of the St. Catherine's Hospital, Evangelical Deaconess Hospital, Kings County Hospital and the Victory Memorial Hospital, where he died, June 22, of malignancy of the lung.

Vernon Greene Clark † San Diego, Calif., Missouri Medical College, St. Louis, 1896, past president of the San Diego County Medical Society, served in the U. S. Navy during World War I, fellow of the American College of Surgeons, assistant superintendent of the San Diego County General Hospital, aged 69, died, June 6, of coronary heart disease.

Edward Albert Cunningham, Belmont, Mass. (licensed in Massachusetts in 1904), served as a captain in the medical corps of the U. S. Army during World War I, aged 61, on the staffs of the Cambridge Hospital, Waltham Hospital, St. Elizabeth's Hospital, Boston, and the Soldiers' Home Hospital, Chelsea, where he died, June 14, of hypertensive heart disease.

Howard Leon Jameson † Philadelphia, Medico-Chirurgical College of Philadelphia, 1906, professor of clinical medicine at the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania, specialist certified by the American Board of Internal Medicine, fellow of the American College of Physicians, aged 61, died, July 1, of cerebral thrombosis.

George Forbes † Brooklyn, University of the City of New York Medical Department, New York, 1890, fellow of the American College of Physicians, member of the Radiological Society of North America, Inc., attending roentgenologist to the Wyckoff Heights and Bethany Deaconess hospitals, aged 74, died, June 23, of carcinoma of the colon.

William Sylvester Darling, Milwaukee, Wisconsin College of Physicians and Surgeons, Milwaukee, 1903, member of the State Medical Society of Wisconsin, served in the medical corps of the U. S. Army during World War I, on the staff of St. Joseph's Hospital, aged 65, died, June 16, of cerebral hemorrhage, pneumonia and bronchiectasis.

Robert Stockton Hinchman, McKeesport, Pa., Western Pennsylvania Medical College, Pittsburgh, 1906, member of the Medical Society of the State of Pennsylvania, served in the medical corps of the U. S. Army during World War I, on the staff of the McKeesport Hospital, aged 61, died, June 23, of carcinoma of the stomach and liver.

Adah McMahan † LaFayette, Ind., Northwestern Woman's Medical School, Chicago, 1897, served in France during World War I, formerly member of the state board of health, aged 73, on the staffs of the LaFayette Home Hospital and St. Elizabeth Hospital, where she died, June 24, of postoperative shock following cholecystectomy.



## Bureau of Investigation

## STIPULATIONS

## Agreements Between Federal Trade Commission and Promoters of Various Products

The following items are abstracts of stipulations in which promoters of patent medicines or medical devices have agreed with the Federal Trade Commission to discontinue certain misrepresentations in their advertising. These stipulations differ from the "Cease and Desist Orders" of the Commission in that such orders definitely direct the discontinuance of misrepresentations. The abstracts that follow are presented primarily to illustrate the effects of the provisions of the Wheeler-Lea Amendment to the Federal Trade Commission Act on the promotion of such products.

**Amogen Tablets**—In July 1941 J. R. Hodges trading as Amogen Company, San Antonio, Tex., stipulated with the Federal Trade Commission to cease representing that this product is a laxative gets the person out of the system cures the bile to flow effectively treats biliousness, indigestion, common colds and fever, poor digestion and gas in the stomach, the results of excessive eating and drinking, indigestion, rheumatism and some other disorders or that the tablets will enable a person to maintain health and avoid sickness. Hodges further stipulated that he would discontinue any advertisements which failed to reveal that his product contains a mercury derivative which might injure health if taken over a long period of time and that it should not be used when abdominal pain, nausea or other symptoms of appendicitis are present unless the label clearly bears the foregoing warnings. Back in December 1930 the government chemists reported that the tablets consisted essentially of colonic and extracts of plant drugs.

**Bi Tone Liver Pills and Bi Tone Wonder Tonic**—In July 1941 the Bi Tone Corporation, Blufffield, W. Va., stipulated with the Federal Trade Commission that it would drop the word "liver" as part of the brand name of its pills and cease representing that they have a beneficial effect on the liver, that the "Wonder Tonic" increases vitality or resists disease, and that the two products taken together correct ailments originating in the liver, cause the liver to become active and healthy or correct any condition of sluggishness or debility.

**Bragg's Grass Tablets**—This product is put out under the trade style Live Food Products Company, Burbank, Calif., by a Paul C. Bragg who has posed as a health specialist, food expert and some other things. Bragg represented that the preparation is rich in vitamin A, will prevent sickness, promote health and stimulate activity. In October 1941 the Federal Trade Commission accepted a stipulation from him in which he agreed that he would discontinue these misrepresentations and also cease implying in his advertising that his product has any dietary value other than as a supplemental source of vitamin A to the extent of the number of International Units that it contains.

**Children's Mind Training Program**—This is a "course" promoted by one E. M. Kellogg of Portland, Ore., who uses the trade style Children's Mind Training Institute. In October 1941 the Federal Trade Commission announced that Kellogg had stipulated that he would cease using the word "Institute" as part of his trade name or otherwise representing that his business is an institution or organization of learning with a staff of competent, experienced and qualified educators.

**Colonial Bread**—That this is "not fattening" is necessary in a reducing diet, helps burn up body fat enables one to reduce safely or that six slices of the bread in a reducing diet will give one energy and prevent fatigue or nervous strain or that the bread will protect the user from the harmful residues that cause fatigue or that it protects one's health while reducing are misrepresentations which the Colonial Baking Company, St. Louis, agreed to discontinue, in a stipulation that it signed in August 1941 with the Federal Trade Commission.

**Dobbs Truss**—This was represented by the Dobbs Truss Company, Birmingham, Ala., as a device helpful in the treatment of rupture and the first major advancement in truss designing wholly different from any other. It was alleged to hold any rupture to be a natural healer that would aid nature in curing a rupture and bring muscles together in a manner that would cause or enable them to adhere. In October 1941 the Dobbs concern signed a stipulation with the Federal Trade Commission, agreeing to discontinue these misrepresentations.

**Eureka Springs Ozarka Water**—In August 1941 Richard R. Thompson, trading as Eureka Springs Water Company and as Ozarka Water Company, Eureka Springs, Ark., stipulated with the Federal Trade Commission that he would discontinue the following misrepresentations in the sale of this product: that it is a cure or competent treatment for any disease, that it is a laxative or that faulty elimination is the cause of all stomach trouble, indigestion, rheumatism or diseases of the liver, kidneys or bladder, that this water has any value due to radioactivity, that it is the purest natural water on the American continent or known to scientists, that undistilled or naturally pure water is the only water to be recommended for use or that distilled water is poisonous.

**Hercules Wild Juices**—Under the Hercules brand the Food Balance Corporation of Chicago puts out four juices purporting to be based on wild fruits. In August 1941 this concern stipulated with the Federal Trade Commission that it would no longer represent that its "Hercules Wild Blackberry Juice" will prevent or benefit anemia or favorably affect such symptoms of it as fatigue, palpitation of the heart, pains in the head or the back or lack of sex vigor, or offer any material benefit during menstrual periods, that "Hercules Wild Cherry Juice" will serve as a general tonic or invigorate the system or beneficially affect the heart or bowel muscles, stomach, liver, uterus or other parts of the body, that "Hercules Wild Blueberry Juice" will tone or otherwise benefit the system or prove an effective antacid or stomach remedy, that "Hercules Wild Elderberry Juice" will have an invigorating or emetic effect on the female generative system or that any of these juices will purify the blood, will overcome disorders of the body or be of significant nutritional or medicinal value or supply minerals or other elements in significant amounts.

**Home Treatment Products**—These are put out by a James M. O'dell, trading as the Home Treatment Service, Chicago. They consisted of "Pur-Lax Compound No. 1," "Laxative Tea Compound," "Bathing Tea 222," "Laxative," "Nerve Sedative Compound" and "Home Ointment." In August 1941 O'dell stipulated with the Federal Trade Commission that he would cease representing that the use of one or more of these products is a cure or remedy for physical disorders or that through such use health may be regained, the body, nerves or blood strengthened, cleansed or healed or operations avoided, that such use is an effective treatment for stomach disorders, cystitis, rheumatism, intestinal and kidney troubles and some other conditions. O'dell further agreed to cease representing that "Pur-Lax Compound No. 1" is a remedy for stomach ailments, that "Nerve Sedative Compound" will make the nervous system healthy or that "Home Ointment" is an effective treatment for rheumatism, neuralgia or similar disorders, that anything he designated by the term "Pur-Lax" or similar term is composed entirely of herbs, unless such is the fact or through his use of the words "Nerve Sedative" or any similar terminology, that any product of his possesses sedative properties.

**Lacto Cal**—This is put out by one Olive M. Goulet trading as the Lacto Cal Laboratories, Los Angeles, who stipulated with the Federal Trade Commission in August 1941 that she would withdraw the following misrepresentations in the sale of her product: that it benefits the nerves, speeds up or aids digestion or increases the flow of the gastric juices, that it possesses tonic effects and is a general gland builder, that it will feed the brain, nerves, tissues, testicles or ovaries, that the preparation is a scientific compound of lactic acid and calcium or contains calcium in sufficient amounts to be of therapeutic value, that its use will reduce acidity or afford relief for that condition or be of benefit to the circulatory system or affect the metabolism, that it will prolong life or enable one to live to be 100 years old or any other definite age, that it contains vitamin B, vitamin D, phosphorus or any elements essential to the building of hemoglobin or that the general dietary condition of the American people is such as to make the use of Lacto Cal advisable. It is worth noting also that in February 1938 a district federal court declared that a consignment of Lacto Cal that had been shipped in interstate commerce was fraudulently represented on the labels as a cure for rheumatic conditions, intestinal disorders, heart trouble and many other things. Government chemists reported that it was essentially a mixture of water, lactic acid, calcium lactate and small amounts of compounds of sodium, magnesium, chlorine and sulfur, as well as volatile acid and coloring.

**LD Lax and Lacto Dextrin**—These are products of the Battle Creek Food Company, Battle Creek, Mich., which in October 1941 signed a stipulation with the Federal Trade Commission to discontinue the following misrepresentations: that LD Lax relaxes or rests the colon or intestines, combats or allays infection in the colon, is a remedy or cure for constipation and has value as a treatment for stomach disorders, and that Lacto Dextrin restores health to the digestive system and a healthy balance to the intestines besides dispelling headaches, nervousness, exhaustion, morning fatigue, gastric acidity and some other ailments.

**Natural Health Products Nostrums**—These are put out by a Morris Botwin of New York, doing business as the Natural Health Products Company. In October 1941 the Federal Trade Commission reported that Botwin had signed a stipulation in which he agreed to discontinue advertising misrepresentations of which the following are brief abstracts: that "Vitameal" is a "life food" loaded with minerals and vitamins, that "Instant Manam" is a cure or remedy for intestinal ulcers and other diseases, that "Vita Ferro" is a soybean milk drink rich in iron, phosphorus or other organic materials, that "Co Veg" is a substitute for coffee, antidotes its effects and is rich in any vitamin or mineral, that "IO Sol" will prevent or overcome pyorrhea or other mouth diseases, that "Sea Tabs" is a gland tonic, that "Natural Herb Tea" is a cure for skin eruptions, that "Vegeton Soap" corrects enlarged pores or prevents athlete's foot or other skin infections, that "Vegeton Hair Preparation" is of value in treating dandruff, brittle or falling hair, that "Vegeton Skin Cream" is antiseptic and keeps the skin youthful, that "Lupulo Honey" is a remedy for asthma, that "Garlic and Parsley Pellets" is valuable in treating high blood pressure or that "Natural Herb Tea," "Lupulo Pine Oil" and "Vegeton Body Soap" when used alone or in combination give relief in rheumatism, arthritis or neuritis. Botwin further agreed to cease using the term "Vita" as part of the brand name for any of his products or otherwise implying that they contain vitamins in significant amounts to discontinue using the term "Ferro" as part of the brand name for Vita Ferro and representing that it contains iron in significant amounts. He further agreed to drop the term "Instant Manam" which would imply that it has immediate action and also the term "Veg" as part of the brand name of Co Veg or otherwise to cease representing that it is composed wholly of vegetable ingredients.

**Ozone Air**—This was put out by a Clyde Scherpress trading as Ozone Air Company, Grand Rapids, Mich. In September 1941 Scherpress stipulated with the Federal Trade Commission that he would discontinue advertising that his machine or devices designated "Ozone Air" or any similar device have any therapeutic value that they will eliminate foul air or offensive odor, exclude all foreign matter in the air, destroy very things not naturally a component part of the air or render carbon monoxide harmless or that they are conducive to health.

**Phillips and Vigro Products**—These were put out by a Stanley N. Phillips and a Walter M. Come doing business as Parks Phillips Health Foods Company, formerly Parks Health Food Company, Cincinnati. In September 1941 the persons stipulated with the Federal Trade Commission to discontinue the following misrepresentations in their advertising that Phillips Alfalfa and Mint Tea is of any benefit in treating prostate trouble, overactivity, arthritis, and rheumatism; that Phillips Wheat Germ Meal is rich in four vitamins, revitalizes and restores needed elements to the diet, benefits faulty digestion and nervous conditions except those caused by a vitamin B deficiency; that Phillips Vegetable Mucous is of any appreciable value in treating stomach ulcers, hyperacidity, or colon irritation; that Vigro Carbo Tablets are rich in vitamins A, B, and C, or in potassium, calcium, phosphorus, iodine, or food chemicals or possess any nutritional value or produce any appreciable therapeutic effect beyond that of a light temporary decrease in blood pressure; that Vigro Vitamin Tablets help to combat germ, eradicate cells, or turn in abundance of protection against every possible winter sickness or that Vigro Laxative No. 2 increases intestinal or liver activity.

**Right O Products**—In September 1941 Robert M. Froehlich trading as Right O Products Company, New York, stipulated with the Federal Trade Commission that he would withdraw the following misrepresentations in the sale of his preparations that Rejuveno restores physical and mental freshness, removes symptoms of fatigue or the feeling of old age and improves the texture of the skin and tissues that Uroduct supplies certain mineral salts needed for normal gland function or takes off excess weight or fat without exercise, dieting, use of equipment or loss of time that Testotol has a maximal content of hormone, benefits cases of functional sexual incompetency in men or enhances vital energies that Sengovon is made in Germany, prepared according to latest scientific experiences and gives marvelous or immediate results in all cases of sterility that Okia is a specific against impotence and has been tested or recommended by professors and physicians that Oototal helps to preserve nervous vigor in women or increases vital activities and that Neuramig is a prophylactic during influenza epidemics. Froehlich also agreed to cease representing that his products are tested and standardized by the most recent physiological and chemical methods and that he maintains or operates a laboratory unless such statement is true. Further, he agreed not to publish in connection with his name the word Doctor or Dr. unless it is explained that he is not a doctor or practitioner of medicine.

**Ringo**—That this product can be relied on to cure stubborn cases of ringworm and athlete's foot and be a remedy for psoriasis, soft corns, poison ivy, eczema, and skin diseases in general were misrepresentations which Goldie V. Towles trading as the Ringo Company, Detroit, agreed to eliminate from her advertising in a stipulation which she signed with the Federal Trade Commission in November 1941.

**Rubel's High Vitamin B<sub>1</sub> Wheat Bread**—This is also sold simply as Rubel's High Vitamin Wheat Bread. Frederic W. Ziv, Inc., Cincinnati, an advertising agency, signed a stipulation with the Federal Trade Commission in August 1941 agreeing to cease disseminating advertisements for the Rubel Baking Company, Cincinnati, in which certain misrepresentations were made for the Rubel product. Among these were that the bread contains per loaf as many as 800 International Units of Vitamin B<sub>1</sub> or more of that vitamin or any other than is actually the case or that when eaten in quantities ordinarily consumed the bread will supply the minimum daily nutritional requirement for vitamin B<sub>1</sub>.

**Snares Re Lef**—A stipulation regarding this product was signed with the Federal Trade Commission in August 1941 by Henry I. Snare trading as Snare Brothers Ointment Company and George J. Mergenthal and George O. Dennis trading as Snares Re Lef Sales Company, all of Chillicothe, Mo. In this they agreed to cease representing that the use of their product will prevent or cure pneumonia, asthma, hay fever, influenza, pleurisy, gout, or gonorrhea, furnish any appreciable relief from sinus disorders or various forms of rheumatism, prove beneficial in the treatment of appendicitis or severe chest colds and all types of inflammation or kill infection and germs by vapor action, that their preparation is a modern or new type of treatment and superior to similar preparations, has any properties aside from those of a counterirritant or offers more than temporary local relief to persons suffering from minor bruises or aches. Incidentally in December 1939 Henry I. Snare pleaded guilty in a district federal court in Missouri to the charge of shipping a consignment of Snares Re Lef under fraudulent representations that the product was a remedy or cure for pneumonia, rheumatism, appendicitis and some other disorders and was fined \$25. Government chemists reported at that time that Snares Re Lef was essentially a mixture of volatile oils including mustard, wintergreen, menthol, and a camphoraceous oil in a petrolatum base.

**Tonico Del Cappuccino**—That this has been approved by legal authorities, is a general tonic, possesses any other than bitter tonic properties, will increase weight, is indispensable for children or has any value beyond that of a stimulant to the appetite were claims to be discontinued in the advertising as stipulated with the Federal Trade Commission in August 1941 by Salus Laboratory, Inc. trading as Italian Imperial Company, Brooklyn.

**Tummy Toner**—This is put out by a Max H. Newman trading as the Tummy Toner Company, New York. In December 1941 he stipulated with the Federal Trade Commission that he would discontinue the following misrepresentations that the product will promote nutrition and digestion, sustain health or provide a short cut to better health, will help build one up or curb his appetite for rich fattening foods, that it will make milk more digestible or double its nutritional value or that Tummy Toner is rich in vitamin B or will give one added energy. Newman further agreed to cease representing by use of the designation "Tummy Toner" as a brand name or any other expression that his product will tone the stomach or have any value in respect thereto.

**Van Tox**—This alcohol treatment for the liquor habit is promoted by one Harry J. Knorr trading as Laboratory Products Company, Glendale, Calif. It consists of two kinds of tablets containing the same active ingredients but in different quantities and these are described as Special Formula Single Stg. 21 and 22. In September 1941 Knorr stipulated with the Federal Trade Commission that he would cease representing that Van Tox or any similar preparation is a cure, remedy, or effective treatment for chronic alcoholism or that its use will overcome the craving for alcohol and is in all cases harmless. Knorr also promised to cease using the word Laboratory or any term of similar meaning in his trade name or representing in any way that he owns or operates a laboratory.

**Vimm and Palm Co Products**—These were put out by Biofoods Corporation of New York City, which in September 1941 signed a stipulation with the Federal Trade Commission to discontinue the following misrepresentations that Fortified Palm Co. is the modern calcium phosphorus vitamin D oil or has a beneficial effect on symptoms of nervousness, low resistance, soft teeth, brittle nails, and poor endurance unless these conditions are due to a lack of calcium and phosphorus in the diet as caused with a deficiency of vitamin D that Vimm's Wheat Germ Oil Vitamin F Capsules are a concentrated source of vitamin F that Vimm's Powdered Wheat Germ or Vimm's Whole Wheat Germ are excellent sources of vitamins B<sub>1</sub>, B<sub>2</sub>, B<sub>6</sub>, and B<sub>12</sub> iron, copper, phosphorus, calcium, manganese, magnesium, and other valuable minerals or that Vimm's Powdered Wheat Germ is ideal for infant feeding and those on a bland diet. As noted in this department of THE JOURNAL, Dec. 20, 1941, page 2188, one Mariano Pollina of New York, who for a time operated as Vimm Wheat Germ Products Company and Moderno Company (at the same street address later used by the Biofoods Corporation) had stipulated with the Federal Trade Commission in March 1941 that he would discontinue certain misrepresentations for Vimm's Wheat Germ Oil Capsules, Vimm's Whole Wheat Germ, Fortified Palm Co. and Plain Palm Co. Some of these misrepresentations were similar to those named in the later stipulation signed by the Biofoods Corporation.

**Vita Health Foods**—These are put out by a Walter Camp and a Werner Orbach trading as the Vita Health Food Company, American Health Products Company and Eastern Health Food Stores Association, Washington, D. C. In August 1941 Camp and Orbach stipulated with the Federal Trade Commission that they would discontinue the following misrepresentations in the sale of their products that Almano furnishes complete proteins and other elements found in the main dish of a meal and so may be used interchangeably with other protein foods and is in many times as nourishing as beefsteak, eggs, codfish, and whole milk and less expensive than Bro Sak, improves the health of diabetics when substituted for sugar or saccharine and benefits acid stomach and other ailments due to hyperacidity that Cal Kelp Tablets correct indigestion, kin troubles, rheumatism, obesity, anemia, and underweight that Veg Salt is a valuable food accessory or will keep the body alkaline that a beverage prepared from Dalmatian Sage Leaves has a quieting effect on the entire nervous system and benefits colds and kindred ailments that Nutrolac checks harmful intestinal bacteria or helps stomach sufferers that a tea prepared from O-Pep-O-Mint is an effective treatment for colds or valuable because of the potassium and manganese that it contains that Pomona Grape Juice will give relief from bad breath, sour stomach, or similar ailments and that Seven Herbs Laxative is fat reducing, improves kidney function, or pancreas action or is recommended by physicians all over the world. Camp and Orbach further agreed to discontinue any advertisements which represent that Cal Kelp Tablets are always harmless or which fail to reveal that they should not be used by those suffering from lung diseases, chronic cough, gonorrhea, or thyroid diseases except on the advice of a physician and that their use should be discontinued if a skin rash appears. Further, the promoters were to cease running any advertisements of Seven Herbs Laxative which represent this product as being always safe to use or which fail to reveal that its use is potentially dangerous in cases of abdominal pain, nausea, vomiting, or other symptoms of appendicitis. This stipulation provided however that the foregoing warnings might be omitted from the advertising if the latter cautioned the customer to follow directions on the label provided that the label did contain the warnings mentioned.

**Vita Lite**—According to a stipulation which Vita Lite, Inc., Portland, Ore., signed with the Federal Trade Commission in September 1941, this concern is to cease representing that its devices or machines designated Vita Lite or any other ozone generating device of similar character has any therapeutic value or will destroy bacteria or aid in curing disease or that their use is indicated as a remedy or effective treatment for any ailment of the human body. The concern also promised to cease publishing or otherwise disseminating any testimonials containing statements contrary to the terms of the stipulation.

**Vit O Net**—In July 1941 the Federal Trade Commission reported that Vit O-Net, Inc., Chicago, had signed a stipulation promising to cease representing that this device, an electrical blanket, is a cure for nephritis, infections, high blood pressure, and Addison's disease.

## Correspondence

## CAT ASSAY FOR DIGITALIS PREPARATIONS

*To the Editor*—The Revision Committee of the U. S. P. XII has adopted a cat assay for the various digitalis preparations. It is to be hoped that this action will not be construed as an endorsement of the clinical practice of transcribing dosage quantities of these preparations into terms of so-called cat units. In previous communications to *THE JOURNAL* (April 11, 1934, p. 1247) both C. W. Edmunds and H. A. McGinnis protested against this practice and advised that the cat should be left in the laboratory. That their protest was unconvincing seems apparent from the general literature and was voiced by Dr. Robert L. Levy in the answer to their communications. Since the current action of the U. S. Pharmacopoeia might be interpreted by some as a vindication of this usage of "cat units" in clinical parlance, it seems appropriate to recall and reemphasize the reasons why such terminology is unwise and even potentially dangerous. The risk which such usage entails comes from the inadvertent support which it affords to the notion that all cardio-tonic drugs which are assayed on cats, and for which "cat units" can therefore be computed, can be reduced to a single common denominator of therapeutic potency in terms of their "cat unit" equivalence. That a given number of "cat units" of one preparation does not necessarily have the same therapeutic potency is the same number of "cat units" of a different preparation is testified to by an abundant literature and can be confirmed by any one who consults the suggested dosages for the digitalis and digitalis-like principles and preparations in the current edition of *New and Nonofficial Remedies*. For example, the average oral daily dose of Tablets Digilamid is equivalent to 2 to 4 "cat units," of Tablets Digalen-Roche to 1½ to 3 "cat units" and of Tablets Gitaleu to ⅓ to 1 "cat unit." Obviously their cat unitage does not provide a common measuring stick on which to determine their therapeutic employment or interchangeability. It is equally obvious that disquieting effects might ensue if one substituted say 3 "cat units" of Gitaleu in treating a patient who was being maintained on 3 "cat units" of Digilamid or Digalen. Perusal of the clinical literature persuades one that such discrepancies, while widely recognized, are not understood, are confusing and are often interpreted as evidence of the frailties of the assayists and their assays.

The explanation of the necessary discrepancy between such units of biologic activity and therapeutic potency when dealing with unidentical agents can be simplified most readily by analogy. If both epinephrine and ephedrine were assayed as to their biologic activity by intravenous injection in dogs and then activities stated in terms of "pressor units," 10 "pressor units" of epinephrine given by mouth to a patient would not be the therapeutic equivalent of 10 "pressor units" of ephedrine, since the latter is readily absorbed while the former is not. If a long acting barbiturate (e. g. barbital) and a short acting barbiturate (e. g. pentothal) were assayed as to their biologic activity in animals and their activities stated in terms of "hypnosis units," while 10 "hypnosis units" of either might be equally effective and possibly interchangeable for the purpose of inducing sleep in a patient on a single occasion, they would have quite different effects if these doses were administered three or four times daily for purposes of maintaining sedation. In one instance a cumulative effect would be apparent, in the other probably not.

Although there are other ways in which the various cardio-tonic glucosides differ from one another, these two differences (absorbability and duration of action) are most significant in determining how they should be used for either rapid digitalization or maintenance. A method of biologic assay cannot dispel these differences. The purpose of the biologic assay is to assure

uniformity in potency from sample to sample of the same kind of a digitalis preparation and is not and cannot be a method of equilibrating different kinds of cardiac principles. These remarks are thus not a reflection on the cat method of assay, for it has been proved to be highly accurate and reliable for its proper purpose. Even if facilities permitted a human assay, the "man units" of one preparation would not necessarily be interchangeably equivalent with the "man units" of another. For example, if the "man units" should be defined as that amount of digitalis-like preparation required to "digitalize" an average adult with auricular fibrillation, it would probably require daily doses of about ⅓ to ½ "man unit" of digitoxin to maintain such digitalization, while it would probably require daily doses of ¼ to 1 "man unit" of strophanthin for the same purpose, since the former is disposed of slowly and cumulates, while the latter is disposed of much more rapidly.

Therefore, since transcribing therapeutic doses of the digitalis group of drugs into so-called cat units does not serve a useful purpose, increases the confusion of the unwise and may lead to a therapeutic misadventure for the unwary, it should be discouraged.

CARL A. DRAGSTEDT, M.D.,  
Northwestern University Medical School,  
Chicago

## ADAMANTINOMA OF THE TIBIA

*To the Editor*—Drs. Malcolm B. Dockerty and Henry W. Meyerding have presented a valuable study of adamantinoma of the tibia in *THE JOURNAL* (July 18, p. 932). I have been greatly interested in these apparent enamel organ tumors of the tibia and have had the opportunity of studying sections from the tumor reported by Bishop (*South M. J.* 30:571 [June] 1937). They appear to ape the enamel organ tumor but never seem as well differentiated as those occurring in the jaws. It is possible that those in the tibia are merely squamous cell carcinomas resembling the enamel organ tissues by some odd coincidence. It is even possible that the publication of Fischer's case in 1913 attracted attention to this oddity and led to the reports on the 16 subsequent cases between 1930 and 1941. Why should an enamel organ neoplasm select the tibia as its only site remote from the mouth and the orally derived pituitary tissue?

The authors say "We do not feel the necessity of postulating for the mandibular, maxillary, pituitary or tibial types the almost mythical occurrence of anatomic epithelial rests."

It is not necessary to postulate these rests in other than tibial regions. The periodontal membranes of the teeth are usually rich in epithelial rests (debris paradentaire of Malassez), which are derived from remnants of the enamel forming apparatus. McCrea (*J. A. Dent. A.* 24:1133 [July] 1937) found epithelial rests in the periodontal membranes contiguous with 59 per cent of 60 dental granulomas examined in serial section. In the remaining 41 per cent proliferating epithelium was found. This is hardly a mythical occurrence. Similarly in the case of the pituitary, remnants of Rathke's pouch are factual. It is not my contention that these neoplasms of the jaw and pituitary must be derived from epithelial rests but merely to point out the possibility of such an origin.

Dockerty and Meyerding object to the term "ameloblastoma" while admitting that "adamantinoma" is a misnomer. It is true that little will be gained by using this more correct term, but perpetuation of misnomers has prevented progress in many fields. The term "ameloblastoma" is used in Kronfeld's "Histopathology of the Teeth and Surrounding Structures" (ed. 2, Philadelphia, Lea & Febiger, 1939) and by the Registry of Oral and Dental Pathology of the Army Medical Museum.

HAMILTON B. G. ROBINSON, D.D.S., M.S., St. Louis  
Associate Professor of Oral Pathology, Wash-  
ington University School of Dentistry

## CONSTITUTIONAL INADEQUACY

To the Editor—Dr Walter C Alvarez in his discussion of constitutional inadequacy in THE JOURNAL July 4 has rendered a distinct service in emphasizing the importance of this problem. It is no exaggeration to state that 30 to 40 per cent of patients who apply for treatment to the general practitioner or the medical consultant fall into the category of the 'constitutionally inadequate'. Yet if one peruses the medical literature year in and year out it is apparent that the attention paid to them is inadequate. Dr Alvarez's continued interest in and occupation with this problem and his insistence that we recognize these patients promptly and so save useless time and money and in many instances futile surgery is a notable exception to this lack of interest.

However one may agree with him as to the inherent incurability of the disease and the presence of a constitutional weakness of the nervous system it is my feeling that our therapeutic armamentarium is not necessarily limited to getting these patients to acquiesce in their symptoms, conserve their energies and limit their activities. From out of this great scrap heap of human rejects can be sorted out several groups which respond satisfactorily to medical treatment. A few of these types are listed by Dr Alvarez.

The most common group is the type of inadequacy in which digestive symptoms are prominent. These symptoms bear a striking resemblance to the complaints termed chronic gastrointestinal malfunction. Treatment of these patients with large doses of thiamine hydrochloride over sustained periods of time has proved successful in bringing alleviation of these symptoms and a distinct return of well being. My experience with this drug over the past few years serves to corroborate the findings of Borlock and his co-workers, C. L. Hartsock, Morgan and Barry and others.

Inadequate women at the time of the menopause with pelvic disturbances as mentioned by Dr Alvarez make up another considerable segment of this mass of patients. It is these who frequently border on the involutional melancholic stage and in whom migraine is not an unusual concomitant. I have found estrogenic therapy supplemented with thiamine hydrochloride effective in raising the level of well being in these instances.

Dr Alvarez aptly states that with all the best intentions in the world we are giving these patients a raw deal. These surgical derelicts with repeated hospital admissions who present themselves with four or five incisional scars are mute evidence of the inadequacy of our understanding of the problem. It is only when we are able to clear our medical thinking of the accumulated debris of the years—was glad to read of a surgeon recommending that the operation for abdominal adhesions be relegated to the dark ages of surgery—and apply intelligently the means of treatment at our command that we shall be able to justify the faith these unfortunates place in us.

JACOB LICHSTEIN, M.D., Philadelphia

## DEATHS AFTER USE OF MERCURIAL DIURETICS

To the Editor—The July 25 issue of THE JOURNAL contains a series of papers which serve to direct attention to the dangers incident to the use of mercurial diuretics. I wish to call attention to a possible source of misunderstanding.

Three of the deaths described in that issue of THE JOURNAL are reported in duplicate, i. e. 3 of the cases described extensively by DeGraff and Nadler are published elsewhere in the same issue by Brown, Friedfeld, Kissin, Modell and Sussman. The reader should therefore count these deaths as three rather than six. This situation arose unfortunately because we were not aware that personal inquiries concerning these cases by DeGraff were to result in a publication.

It is indeed important to point out the dangers of the mercurial diuretics but it is equally important not to overemphasize these dangers in view of the fact that these drugs constitute one of the most important groups of modern therapeutic agents.

WALTER MODELL, M.D., New York

## DIABETES MELLITUS AND PYOGENIC SKIN INFECTIONS

To the Editor—The statistical validity of the article by Dr John R. Williams entitled 'Does Diabetes Mellitus Pre-dispose the Patient to the Pyogenic Skin Infections?' published in THE JOURNAL April 18 seems highly questionable to me. I submitted the entire statistical calculations to the statistician in our Department of Preventive Medicine of New York University College of Medicine. He went over this material, and I am enclosing a copy of his letter to me.

SAMUEL STANDARD, M.D., New York

Dear Dr. Standard—First as to association between diabetes and skin infections the author submits data from four separate sources, namely, two hospitals, one group of patients from four general practitioners and one group of his own patients. For only one of these four groups are the figures complete and that group directly contradicts his statement. From these data it is obvious that there is no significant etiologic relationship between pyogenic skin infections and diabetes.

In the first group of 27,209 hospital admissions 0.64 per cent of the total number admitted were afflicted with boils or carbuncles, 2.42 per cent of the diabetic were so afflicted. The author indicates that he would wish to say that the higher percentage among the diabetic could be a tributed merely to normal variations due to chance. In my opinion however based on simple statistical rules if he was to make a study in ten thousand hospital groups similar to this one he could not expect to find one group showing such a high percentage for diabetic patients due to chance alone. This is considered good evidence that boils and carbuncles will appear more frequently among the diabetic than in the general population. I say this merely to point to the fact that an association between events based on numbers alone cannot always be regarded as evidence of a causal relationship.

As regards the second hospital group of 43,980 admissions there are no figures to indicate what percentage of the diabetic were afflicted with skin infections. I believe that it would be wise for us not to make assumptions regarding the percentage of diabetic patients in this hospital group.

Considering the four groups of patients only the first three give an indication of the incidence of skin infections in the general population. These are:

|                                    |               |
|------------------------------------|---------------|
| First hospital group               | 0.64 per cent |
| Second hospital group              | 0.67 per cent |
| The patients of four practitioners | 4.18 per cent |

On the other hand among the four groups of patients presented as evidence only two of them give even a rough indication of the percentage of skin infections among diabetic patients. These are:

|                                |                          |
|--------------------------------|--------------------------|
| First hospital group           | 2.42 per cent            |
| Group of author's own patients | approximately 4 per cent |

This last figure is again presumptive because the author states merely that among 500 patients there were thirteen occurrences of boils and seven of carbuncles and there is nothing to state that there may not have been certain patients with both boils and carbuncles.

Taking the percentages as I have listed them the 4.18 per cent afflicted among the patients of the four practitioners is a definitely higher figure than for the two hospital groups and it is of the same order of magnitude as the two figures for diabetic patients. This is the only point in the whole paper which might suggest that the afflictions with skin infections in a general population group could be as great as in a group of diabetic patients. However on this point there is no evidence that the different groups are comparable and I would call such an argument weak.

The second point of criticism is that the author's analysis of his 500 patients is not valid. Dr Williams states that he has seen some of his patients for more than twenty years. On this score he should consider the fact that if he observed a patient for twenty years he was twenty times as likely to observe a skin infection as he would be in a patient observed for only one year. This is the chief reason why his observation of his own 500 patients is in no way comparable with observations on hospital admissions.

A third criticism is the tabulation of the cases which he presents in the article. To begin with it is irrelevant since the distribution by sex for example is not considered anywhere in the article. Moreover he does not give the number of patients with boils and carbuncles but occurrences which in theory gives no basis for comparison with the other groups discussed. It is unfortunate that the author although he states that his findings support the opinions and conclusions of other workers does not give reference to these other workers.

H. M. C. LUKAT  
Department of Preventive Medicine  
New York University College of Medicine



# Medical Examinations and Licensure

## COMING EXAMINATIONS AND MEETINGS

### BOARDS OF MEDICAL EXAMINERS

#### BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL Aug. 22, page 1115.

#### NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS. Part I. Various centers, Sept. 1-10. Exam. Sec. Dr. Francis H. MacLean, 125 S. 15th St., Philadelphia.

#### EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANTHROPOLOGY. Part I. Various centers, Sept. 1-10. Exam. Sec. Dr. J. H. Huxley, 100 W. 11th St., New York.

AMERICAN BOARD OF ANTHROPOLOGY AND SYMPOLOGY. Oral. Chicago. Dec. 1-10. Exam. Sec. Dr. C. L. Lane, 410 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE. Part I. Oct. 19. Final date for filing application is Sept. 1. Exam. Sec. Dr. William A. Werrell, 101 E. 10th St., New York.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY. Part I. Oct. 19. Final date for filing application is Sept. 1. Exam. Sec. Dr. Paul H. 1015 Highland Bld., Pittsburgh.

AMERICAN BOARD OF ORTHODONTICS. Oral. Ill. Group. Chicago, Oct. 1-10. New York, Dec. 1-10. Los Angeles, Jan. 1-10. Exam. Sec. Dr. John Green, 680 Washington Ave., St. Louis.

AMERICAN BOARD OF ORTHODONTIC SURGERY. Oral and Written. Chicago, Jan. 9-10. Final date for filing application is Nov. 1. Exam. Sec. Dr. Guy A. Caldwell, 2503 Pryor St., New Orleans.

AMERICAN BOARD OF PATHOLOGY. Oral and Written. Richmond, Va., Nov. 9-10. Final date for filing application is Sept. 1. Exam. Sec. Dr. I. W. Hartman, Henry Ford Hospital, Detroit.

AMERICAN BOARD OF PEDIATRICS. Written. Locally. Sept. 18. Exam. Sec. Dr. C. A. Aldrich, 707 Fullerton Ave., Chicago.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY. New York. December. Final date for filing application is Oct. 1. Exam. Sec. Dr. Walter Freeman, 1025 Connecticut Ave. N.W., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY. Oral. Chicago. Nov. 27-29. Final date for filing application is Sept. 30. Exam. Sec. Dr. Byrl R. Kirklin, 102 110 Second Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY. Part I. Oct. 7. Final date for filing application is Aug. 22. Exam. Sec. Dr. J. Stewart Rodman, 225 S. Fifteenth St., Philadelphia.

AMERICAN BOARD OF UROLOGY. January 1943 (tentative). Exam. Sec. Dr. Gilbert J. Thomas, 1409 Willow St., Minneapolis.

### Illinois April Report

The Illinois Department of Registration and Education reports the written examination (graduates of foreign and Canadian schools given also a practical test) April 7-9, 1942. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Fifty-six candidates were examined, 40 of whom passed and 16 failed. The following schools were represented:

| School  | PASSED | Year Grad            | Number Passed |
|---|--------|----------------------|---------------|
| University of Colorado School of Medicine                                   |        | (1929)               | 1             |
| Chicago Medical School  |        | (1940)               | 1             |
| Loyola University School of Medicine  |        | (1941, 2), (1942, 2) | 4             |
| Northwestern University Medical School                                      |        | (1940), (1941)       | 14            |
| Rush Medical College  |        | (1941, 2)            | 2             |
| University of Chicago, The School of Medicine                               |        | (1940) * (1941) *    | 2             |
| University of Illinois College of Medicine                                  |        | (1941), (1942)       | 2             |
| University of Michigan Medical School                                       |        | (1940)               | 1             |
| Cornell University-Medical College  |        | (1940)               | 1             |
| Woman's Medical College of Pennsylvania                                     |        | (1940)               | 1             |
| Mcharry Medical College   |        | (1938)               | 1             |
| University of Toronto Faculty of Medicine                                   |        | (1939)               | 1             |
| Medizinische Fakultät der Universität Wien                                  |        | (1922)               | 1             |
| Universita Karlova Fakultät Lekarská Praha                                  |        | (1927)               | 1             |
| Friedrich Wilhelms Universität Medizinische Fakultät Berlin                 |        | Fakultät, (1922)     | 2             |
| Universität Leipzig Medizinische Fakultät                                   |        | (1923)               | 1             |
| Regia Università degli Studi di Napoli                                      |        | (1936)               | 1             |
| Regia Università degli Studi di Padova                                      |        | Facoltà di (1929)    | 1             |
| Regia Università degli Studi di Padova                                      |        | Facoltà di (1929)    | 1             |
| Universität Basel Medizinische Fakultät                                     |        | (1939, 2)            | 2             |
| School  | FAILED | Year Grad            | Number Failed |
| Howard University College of Medicine                                       |        | (1926)               | 1             |
| Medical College of Ohio   |        | (1901)               | 1             |
| Queen's University Faculty of Medicine                                      |        | (1938)               | 1             |
| Medizinische Fakultät der Universität Wien                                  |        | (1920),              | 4             |
| Friedrich Wilhelms Universität Medizinische Fakultät Berlin                 |        | (1919) (1939)        | 2             |
| Hamburgische Universität Medizinische Fakultät                              |        | (1936)               | 1             |
| Johann Wolfgang Goethe Universität Medizinische Fakultät, Frankfurt am Main |        | (1921)               | 1             |
| Philipps Universität Medizinische Fakultät, Marburg                         |        | (1923)               | 1             |

|  |                |   |
|--|----------------|---|
| Rheinische Friedrich Wilhelms Universität Medizinische Fakultät Bonn     | (1923), (1935) | 2 |
| Schlesische Friedrich Wilhelms Universität Medizinische Fakultät Breslau | (1924)         | 1 |
| Moskauer Kaiserlich Russische Medizinische Fakultät Peking               | (1923)         | 1 |

Fourteen physicians were successful in the practical test for reciprocity and endorsement applicants held in Chicago, April 9, 1942. The following schools were represented:

| School  | PASSED | Year Reciprocity Grad | Reciprocity with |
|---|--------|-----------------------|------------------|
| College of Physicians and Surgeons, Keokuk          |        | (1897)                | Missouri         |
| St. Louis University School of Medicine             |        | (1940) *              | Missouri         |
| Washington University School of Medicine            |        | (1931) *              | Missouri         |
| University of Oklahoma School of Medicine           |        | (1938) *              | Oklahoma         |
| University of Virginia Department of Medicine       |        | (1912) *              | Maryland         |
| Marquette University School of Medicine             |        | (1932)                | Wisconsin        |
| School  | PASSED | Year Endorsement Grad | Endorsement of   |
| College of Medical Evangelists                      |        | (1941) N B M E        |                  |
| Georgetown University School of Medicine            |        | (1939) * N B M E      |                  |
| Northwestern University Medical School              |        | (1941) N B M E        |                  |
| Kish Medical College                                |        | (1940) N B M E        |                  |
| Indiana University of Louisville School of Medicine |        | (1939) * N B M E      |                  |
| Washington University School of Medicine            |        | (1940) N B M E        |                  |
| Croighton University School of Medicine             |        | (1938) N B M E        |                  |
| Medical College of Virginia                         |        | (1935) * N B M E      |                  |

\* Licenses have not been issued.

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Malpractice Alleged Improper Application of Diathermy Treatment**—The physician defendant in the course of treating an injury to the plaintiff's left hand and arm recommended stated diathermy treatments. Accordingly the defendant Dyer, who was not a physician, applied in the physician's presence a diathermy treatment of the strength and duration prescribed by the physician. Some time later a treatment of the same strength and duration was again given. Apparently painful and permanent injuries resulted. The plaintiff brought suit against both the physician and the layman, charging that there was a joint duty on the part of both of them "to see that said diathermic treatment was properly administered and that the machine was properly operated and that the treatment was suspended and terminated at the proper time so as to prevent injury." It was charged that the defendants failed in this obligation and "carelessly and negligently caused an electrical current of an amperage specified and directed by (the physician) to pass from said machine through plaintiff's said left arm and hand for said period of twenty (20) minutes, although the said (physician) and (diathermist) knew, at the expiration of twenty minutes that the treatment was inflicting severe pain upon the arm and hand of the plaintiff."

The electrical current, the declaration charged, in both treatments was negligently applied under the negligent and careless personal supervision and direction of the physician, and the treatment lasted continuously for twenty minutes notwithstanding the remonstrances on the part of the patient that it was causing her great pain. A demurrer interposed by the physician was sustained and judgment was entered in his favor. The patient then appealed to the Supreme Court of Florida.

Each of the defendants, the physician and the diathermist, acted within a definite sphere, said the Supreme Court. It was the physician's responsibility to advise such treatment as is generally accepted by the profession as the one most likely to cure or relieve the particular injury from which the patient was suffering when she consulted him. It was the duty of the diathermist to apply the heat of a strength and duration designated by the physician. His duty was expertly to follow the instructions given by the physician. There was no claim that the remedy itself, that is the application of electrical current, was improper for one in the patient's condition nor that there was failure on the part of the diathermist to follow the prescription of the physician. Neither was there a charge that the machine was defective. The substance of the allegation is that the intensity of the heat, the duration of the treatment and the



repetition of it constituted negligence resulting in injury. There is in the complaint not only insufficient averment of facts showing negligence but also of facts indicating unity of design or violation of 'joint duty' owing, by both defendants. This is far from showing that there was a joint tortious act on the part of the defendants or concert of action between them which is necessary to fasten liability on them on the theory that they were joint tort-feasors. The patient contended that the allegations of the declaration abundantly show the characteristics of joint tort-feasorship, citing in support of the contention 2 cases, *Louville & A R Co v. Allen*, 67 Fla 257 65 So 8 and *Finstone v. Allison Hospital Inc*, 106 Fla 302 143 So 251 which held that it acts of negligence although distinct in themselves concur in producing an injury the persons guilty of negligence are joint tort-feasors and are jointly and severally liable for the injury. Even granting that rule, however, the court did not believe that it could be applied to the facts in the present case. Even granting, said the court, that the rule is in Florida that when the negligences of two or more persons concur in producing a single, indivisible injury, then such persons as joint tort-feasors are jointly and severally liable, although there was no common duty, common design or concerted action, we still are unable to discern in the pleading allegations which it proved would establish that there was negligence on the part of the physician in his field and on the part of the diathermist in his which concurred in the eventual injury. And the court was not influenced by the charge that the physician was present at the time of the treatment.

The judgment of the lower court in favor of the defendants was accordingly affirmed—*Hudson v. Highland*, 8 So (2d) 37 (Fla., 1942).

**Privileged Communications Hospital Records, Autopsy Reports, Interns**—An industrial life insurance policy provided, with certain exceptions not pertinent to the present case, that the insurer assumed no obligation if within two years preceding the date of the policy the insured had been a patient at or an inmate of any institution for the treatment of physical or mental disease or had undergone any surgical operation, or had been attended by any physician. The policy was issued April 11, 1938. About two months later the insured died in a hospital as the result of 'rheumatic heart disease with congestive failure'. The insurer denied liability the trial court directed a verdict for the beneficiary and the insurer appealed to the United States Court of Appeals for the District of Columbia.

To establish its nonliability, the insurer attempted to prove through a practicing physician that he had treated the insured at weekly intervals during the period between Dec 25, 1937 and June 6, 1938, the date of her admission to the hospital, and also to prove through the hospital intern the hospital records showing the history diagnosis and treatment of the insured. An effort was made, too, to introduce in evidence an autopsy report. These records if admitted, would have shown that at the time of the admittance to the hospital the insured had stated that since 1937 she had experienced shortness of breath and had tired easily that she had ceased working Jan 1, 1938 and had then consulted her family physician, who had treated her regularly thereafter that she had been in bed intermittently since January 1938, and that some years previously she had been treated for syphilis and for rheumatic heart disease and pulmonary tuberculosis. The trial court held this evidence to be inadmissible because of a statute providing that 'no physician or surgeon shall be permitted, without the consent of the person afflicted, or of his legal representative to disclose any information, confidential in its nature which he shall have acquired in attending a patient in a professional capacity and which was necessary to enable him to act in that capacity'. The correctness of this ruling was contested on appeal.

The trial court did not err in excluding the hospital records in the opinion of the court of appeals. The witness who was offered to prove the records an intern, stated that the information came from the lips of the patient. The duty of the witness in the hospital required him to obtain the information for the records and for the use of the attending physician. Counsel for the insurance company argued that an intern, not then licensed to practice, was not a physician within the meaning of

the privileged communications statute and therefore the information given him by the patient in response to his queries was admissible. The statute is very broad, the court pointed out. It forbids disclosure by the physician of any information obtained by him in his professional capacity. The intern is him in a physician the court said. He is a graduate of a medical school with a doctor's degree although he may not be licensed to practice his profession in the ordinary way by so holding himself out to the public. But it is common knowledge that a part of the duty of an intern is to get the medical history of a patient and in this respect he is the attending physician. Not only this, but in many instances he does the work of a physician and in other respects relieves the physician of professional services which he would ordinarily perform. It would be straining the law the court concluded, to hold that disclosures made to him by a patient are not equally privileged as those made to the physician in charge.

The trial court erred however in rejecting the testimony of the other physician who was asked to testify only to the fact that he had been called to attend and had attended and treated the insured in a professional capacity during the two year period immediately preceding the issuance of the policy. This testimony did not relate to any information secured by the physician from the patient but only to facts within his own knowledge and material to the insurance company's case that a fraud had been practiced by the insured in denying to the insurer that she had been previously treated by a physician. Error was committed, too in rejecting the evidence of the hospital records showing an autopsy on the insured. The competency of evidence of this character, the court pointed out, was decided in *Carmody v. Capital Traction Co.*, 43 App D C 245, Ann Cas 1916D, 706, in which it was said that the relation between a surgeon performing an autopsy and the body of the dead person is not the relation of physician and patient.

The judgment of the trial court was therefore reversed and the case remanded with instructions to grant a new trial—*Eurela-Maryland Assur Co v. Gray*, 121 F (2d) 104 (1941).

## Society Proceedings

### COMING MEETINGS

- American Academy of Ophthalmology and Otolaryngology Chicago  
Oct 11-14 Dr W L Benedict, 102 Second Ave S W Rochester  
Minn Acting Secretary
- American Academy of Physical Medicine Boston Oct 14-17 Dr Herman  
A Osgood 144 Commonwealth Ave Boston Secretary
- American Clinical and Climatological Association, Princeton N J Oct  
12-14 Dr James Bordley Johns Hopkins Hospital Baltimore, Secretary
- American Congress of Physical Therapy Pittsburgh Sept 9-12 Dr  
Richard Kovacs 2 East 88th St New York, Secretary
- American Hospital Association St Louis Oct 12-16 Dr Bert W  
Caldwell 18 East Division St Chicago Secretary
- American Roentgen Ray Society Chicago Sept 15-18 Dr H Dabney  
Kerr, University Hospitals Iowa City Secretary
- Colorado State Medical Society (House of Delegates only) Denver Sept.  
23-24 Mr Harvey T Seithman, 1612 Tremont Place Denver  
Executive Secretary
- Delaware Medical Society of Dover Oct 13-14 Dr William H  
Speer 917 Washington St Wilmington Secretary
- District of Columbia Medical Society of the Washington, Sept 29 Oct 1  
Mr Theodore Wiprud 1718 M St N W, Washington Secretary
- Idaho State Medical Association Sun Valley Sept 16-19 Dr F B  
Jeppesen, 105 North 8th St Boise Secretary
- Indiana State Medical Association French Lick Sept 29 Oct 1 Mr  
T A Hendricks 23 East Ohio St Indianapolis Executive Secretary
- Kentucky State Medical Association Louisville, Sept 27 Oct 1 Dr  
Arthur T McCormack 620 South Third St Louisville, Secretary
- Michigan State Medical Society Grand Rapids Sept 22-25 Dr L  
Fernald Foster 2020 Olds Tower Lansing Secretary
- Mississippi Valley Medical Society Quincy Ill Sept 30 Oct 2 Dr  
Harold Swanberg 510 Maine St Quincy Ill Secretary
- Nevada State Medical Association Reno Sept 24-26 Dr Horace J  
Brown 120 North Virginia St, Reno Secretary
- Oregon State Medical Society (House of Delegates only) Portland Sept.  
12-13 Dr John R Montague 1020 SW Taylor St Portland, Sec  
retary
- Pennsylvania Medical Society of the State of Pittsburgh Oct 5-8  
Dr Walter F Donaldson 500 Penn Ave Pittsburgh Secretary
- Vermont State Medical Society Montpelier Oct 1 Dr Benjamin F  
Cook 154 Bellevue Ave Rutland Secretary
- Virginia Medical Society of Roanoke Oct 5-7 Miss Agnes V Edwards  
1200 East Clay St Richmond Secretary
- Washington State Medical Association (House of Delegates only) Seattle,  
Sept 12-13 Dr V W Spickard 1305 Fourth Ave Seattle  
Secretary
- Wisconsin State Medical Society of Milwaukee Sept 14-16 Mr  
Charles H. Crownhart 110 East Main St Madison Secretary

## Current Medical Literature

## AMERICAN

The Association library lends periodically to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1942 to date. Requests for issues of earlier years cannot be filled. Requests should be accompanied by stamps to cover postage of not more than 18 cents at three periods. They are regularly published by the American Medical Association and are available for lending but can be supplied on purchase order. Manuscripts are the property of authors and can be obtained upon return of the original.

Title marked with an asterisk (\*) are abstracted below.

### American Journal of Medical Sciences, Philadelphia 203 781-928 (June) 1942

- \*Myocarditis in Poliomyelitis O Saphir and S. A. Wile, Chicago—p. 781
- Age, Sex and Relationships of Auricular Fibrillation C. I. Garvin, Cleveland—p. 788
- Coronary Thrombosis in a Young Diabetic A. Reimann, W. R. Greenwald and J. H. Kler New Brunswick, N. J.—p. 792
- Brucella Endocarditis with Clinical, Bacteriologic and Pathologic Findings C. C. W. W. Spunk, I. A. Fitrus and P. Kahler, Minneapolis—p. 797
- Persistent Tachycardia and Pulse Temperature Disproportion Relation to Acute Myocardial Lesions J. K. Fisk, C. Solomon and D. Leksheim, New York—p. 801
- \*Frequency of Bilateral Renal Disease in Persistent Hypertension J. R. Kahn and I. C. Laupply Cleveland—p. 807
- Renal Concentration Test Employing Posterior Pituitary Extract W. A. Soderman and H. J. Ingelhardt New Orleans—p. 812
- \*Preliminary Report on Treatment of Agranulocytosis with Sulfathiazole W. Dameshek and L. L. Wolfson Boston—p. 819
- Abnormal Accumulations of Lymph Follicles in Digestive Tract P. Gruenwald, Chicago—p. 823
- Diagnosis of Multiple Myeloma by Steril Aspirations L. H. Boizer, B. L. Hall and H. Z. Griffin Rochester, Minn.—p. 829
- Action of Anti-Permeous Anemia Principle on Blood Picture of Opossum Pouch Young and Rat Embryos J. H. Last and E. C. Hays Chicago—p. 836
- Effect of Liver Extracts on Erythropoiesis in Chick Embryo E. C. Hays, J. H. Last and F. C. Koch, Chicago—p. 843
- Acetylphenylhydrazine Anemia II. Bile Pigment Elimination and New Hemoglobin Reconstruction in Bile Fistula Dog W. O. Cruz, W. B. Hawkins and G. H. Whipple, Rochester, N. Y.—p. 848
- Relation of Pernicious Anemia to Solar Radiation and Skin Cancer I. L. Apperly, Richmond, Va.—p. 854
- \*Treatment of Polycythemia Vera with Lead Compounds E. H. Falconer, San Francisco—p. 857
- \*Treatment of the Tuberculous Woman During Pregnancy E. S. Mariette, L. M. Larson and J. C. Litzenberg Minneapolis—p. 866
- Systemic Reactions to Mercurial Diuretics E. M. Kline and W. B. Seymour Cleveland—p. 874
- Inefficiency of Immune Globulin in Prophylaxis of Measles During Adolescence J. R. Gallagher Andover, Mass.—p. 880
- Effect of Drugs on Circulation in Normal Hands and Feet H. Montgomery, Philadelphia—p. 882

**Myocarditis in Poliomyelitis**—During the last few years Saphir and Wile encountered 7 patients with poliomyelitis who died during the acute stage of the disease or suddenly (3 patients) several months after the acute process had subsided. At necropsy the hearts of 6 of these patients showed myocardial lesions. The myocardial changes in the 7 patients were characterized by foci of perivascular infiltration of lymphocytes and neutrophils. Monocytes were also present in some instances, and there was a multiplication of adventitial cells. Occasionally inflammatory cells widely invaded the interstitial tissue. Minute foci of lymphocytes were seen just beneath the endocardium. The muscle fibers showed little degeneration. Clinically, the myocarditis was not suspected. The length of time poliomyelitis had existed or its apparent severity had no bearing on the degree of myocarditis found at necropsy. From a review of the patients' clinical records no definite criteria can be laid down for the diagnosis of acute myocarditis in poliomyelitis, since it often runs its course without producing any diagnostic symptoms. Myocarditis should be suspected if the patient suddenly becomes worse and begins to fail rapidly without any apparent reason. Because of the extremely high incidence of myocarditis (6 of 7 patients) its occurrence during poliomyelitis should be borne in mind. Many patients with poliomyelitis, particularly of the bulbar type, die from bronchopneumonia, among the 7, 4 had pneumonia. The perivascular

infiltrations were not characteristic of rheumatic myocarditis, and the histories of the patients gave no indication of rheumatic fever. Herzog and Rodriguez, in their discussion of myocarditis in typhus, described among other cells the accumulations of adventitial cells around blood vessels and the rarity of degenerative changes. The changes they described were somewhat similar to those seen in the myocardium of some of the 6 patients with poliomyelitis. Whether or not this indicates that these myocardial changes are characteristic of virus diseases cannot be answered at present, but more careful studies of the myocardium of patients dying from virus disease may determine whether or not virus disease causes a definite, clear and characteristic myocarditis.

**Bilateral Renal Disease in Persistent Hypertension**—Of 1,000 patients who died of conditions directly related to hypertension and on whom necropsies were performed, Kahn and Laupply point out that all had a final anatomic diagnosis of arterial nephrosclerosis, arteriolar nephrosclerosis or a combination of the two. The renal vascular disease was bilateral in all, but in many the degree of vascular involvement was not the same in the two kidneys. The renal involvement can be so extreme as to produce a functionless or almost a functionless kidney. The weight and size of the kidneys of 456 patients were determined at necropsy, but neither was directly proportionate to the degree or duration of the hypertension.

**Sulfathiazole in Agranulocytosis**—Dameshek and Wolfson gave sulfathiazole in large doses to 2 patients with agranulocytosis in addition to transfusions and pentnucleotides. The ensuing recoveries of the patients may have been due, in part at least, to the effect of the sulfonamide on the sepsis which was almost certainly present, thus allowing spontaneous leukocytic regeneration in the bone marrow to take place. Sulfonamide drugs may be effective even in the complete absence of granulocytes. It is suggested that a further trial with sulfathiazole or sulfadiazine be made in other cases. When the condition is due to sulfanilamide, the use of sulfathiazole or sulfapyridine and vice versa might be considered.

**Lead Compounds for Polycythemia Vera**—In the treatment of 11 patients with polycythemia vera Falconer used acetate orally and colloidal lead phosphate intravenously for periods of from one to five years. Nine of them were relatively free from symptoms during treatment and were able to continue their work, but 2 with complicating thrombosis were chronic invalids and were unable to work. Treatment of such patients with lead is contraindicated. Up to the present time no permanent or serious toxic effects have occurred and there have been no deaths. Six of the 11 patients had previously received phenylhydrazine, which they regarded as more toxic and disabling than lead and were unwilling to submit to further treatment with it. Colloidal lead phosphate intravenously in doses of 10 cc controls the symptoms and reduces the blood level, but it should never be used unless the patient can be kept under careful supervision.

**Treatment of Tuberculous Women During Pregnancy**—Since September 1921 Mariette and his associates have followed 8 premature deliveries in 8 tuberculous women and 96 full term pregnancies in 86 tuberculous women. They directed their effort to the treatment of the disease process rather than against the normal physiologic process (pregnancy), believing that the tuberculous pregnant woman could go to full term without interfering with her recovery from tuberculosis. Sixty-four of the 86 women were delivered at the sanatorium and 22 elsewhere. Of the 82 followed up, 15 (18.3 per cent) are dead in contrast to 39.1 per cent of all women who were discharged from the sanatorium for the first time during the same period. If those having premature deliveries are considered, 19 (21.6 per cent) are dead in contrast to the 39.1 per cent for all women discharged from the sanatorium for the nineteen years of the study. While the group of tuberculous pregnant women is small, the length of the study gives it some value and seems to indicate that when tuberculosis is properly treated pregnancy probably does not adversely affect the disease. Many variables require further study before it can be explained why the death rate for all women between 18 and 39 years of age

following first discharge is approximately twice that of the pregnant group. Tuberculosis by itself does not necessarily constitute an indication for therapeutic abortion. The modern methods of treating tuberculosis and modern antepartum care apparently offer the tuberculous pregnant woman as good a chance for recovery from the tuberculosis as though pregnancy did not exist. A joint study by sanatoriums holding the same views might yield more conclusive data.

### American J Obstetrics and Gynecology, St Louis

43 919 1098 (June) 1942 Partial Index

- \*Further Studies on Erythroblastosis Neonatorum of Obstetric Significance C T Javert New York—p 221
- \*End Results in Treatment of Carcinoma of Cervix Fifteen Year Report 1921 1936 L C Scheffey W J Thudium and D M Farrell Philadelphia—p 941
- Comparative Physiology of Placental Transfer L B Hexner and A Gellhorn Baltimore—p 965
- Diffuse Luteinization of Ovaries Associated with Masculinization Syndrome S H Geist and J A Carnes New York—p 975
- Relationship Between Late Prenatal Hemoglobin Levels and Febrile Puerperal Morbidity H J Bickelstaff Baltimore—p 997
- Abortion in Rabbits Fed Vitamin A Deficient Diet R A Moore St Louis Isabelle Bittenger New York Mary I Miller St Louis and L M Hellman Baltimore—p 1007
- Anovulatory Factor in Sterility L S Griffith and W P L McBride Grand Rapids Mich—p 1012
- Malignancy of Vulva S C Graves and J Mezer Boston—p 1016
- Intrauterine Hemorrhage Birth Trauma with Report of Eight Cases B Halpert New Orleans—p 1028
- Gestation Fourteen Years After Radium Induced Amenorrhea M Rosenberg and S B Schenck Brooklyn—p 1033
- Evaluation of Particular Mode of Therapy of Trichomonas Vaginalis C A Elden Rochester N Y—p 1054
- Treatment of Trichomonas Vaginalis Vaginitis with Negatan (Negitol) W Filler W Dreznar and F H Adamo New York—p 1057
- Clinical Note on Use of Sulfamylguanidine in Mycotic Vaginitis J L Pinkston and J C Burch Nashville Tenn—p 1058

**Erythroblastosis Neonatorum**—Javert emphasizes certain obstetric features of erythroblastosis neonatorum as revealed by a study of 55 cases. The most prominent clinical feature is the type. Of the 55 cases 17 were hydrops fetalis with a fetal mortality of 100 per cent. The respective figures for the other types were for icterus gravis 27 with 45 per cent mortality, congenital anemia 4 with 25 per cent hemorrhagic diathesis 4 with 25 per cent and unclassified cases (without the four foregoing features) 3 with 100 per cent mortality. These last 3 infants died in utero and examination disclosed unmistakable evidence of erythroblastosis. The incidence of the disease is 1:438. The fetal mortality rate appears lower among infants born nearer term. Primiparas having such infants seem prone to have subsequent babies with the disease; the recurrence in multiparas is about 50 per cent. This points to a dominant mendelian characteristic inherited from the parents, the Rh factor. An intraplacental hematoma containing numerous normoblasts and erythroblasts most likely of fetal origin was found in 8 instances. Such a lesion provides for the transmission of the Rh agglutinin or some other factor from the fetal circulation to that of the mother. Thus isoimmunization of the mother could take place. The formation of antibodies in the mother and their passage through the placenta into the fetal circulation probably causes erythrocyte hemolysis and the hemosiderin pigment. The chief maternal complications were toxemia of pregnancy and excessive uterine enlargement. Early recognition of the disease in the delivery room aided by studies of the cord blood affords an excellent opportunity for prompt treatment. Microscopic studies of the placenta are confirmatory. Damage to the internal organs, particularly the liver, is borne out by pathologic and physicochemical studies.

**Treatment of Carcinoma of Cervix**—Scheffey and his colleagues saw 293 patients with carcinoma of the cervix between September 1930 and September 1936. Of these they treated 277 and followed up 97.2 per cent. Approximately 7 per cent of the lesions were classified as adenocarcinoma and the others as squamous cell in type. Freedom from signs and symptoms of cervical carcinoma for five years following treatment is in no sense a criterion of cure. The term salvage is used for patients who have survived for five or more years after therapy. The present day or absolute salvage (patients alive following treatment based on total actually seen), the

relative salvage (patients alive following treatment based on number actually treated) and the five year salvage (patients treated during the observation period who survived for five or more years but eventually died of carcinoma or an intercurrent condition) are respectively 129, 137 and 231 per cent. Five years ago the respective percentages were 19.2, 20.5 and 25.3. Ten years ago they were 14.2, 15.7 and 20.7. This tends to show that as survivors grow older the mortality rate is influenced by diseases incident to old age and not necessarily due to recurrent carcinoma unless definitely proved. The percentage of surviving patients more than 40 when they had received their initial treatment is about twice as large as the corresponding percentage of survivors less than 40. Of 5 patients with a group 1 lesion 2 are alive ten and twenty years, respectively. Eight of 30 patients with a group 2 lesion are alive from five to nineteen years. Of 208 with group 3 lesions 26 are alive from five to nineteen years. None of the 25 patients with group 4 lesions survived the five year period. Of the 19 with group 5 lesions 2 are alive eight and ten years after treatment. Four patients died primarily as a result of treatment. Pelvic peritonitis developed in 2 and the other 2, dying respectively on the eighth and twenty-first postoperative day, exhibited advanced cardiovascular and renal disease in addition to the pelvic changes of advanced carcinoma. Radium therapy was undoubtedly the factor in producing or at least in activating the virulent pelvic infection of the first 2 patients who died.

**Gestation After Induced Amenorrhea**—A diagnosis of submucous fibroid was made in a woman of 47 who fourteen years ago had a therapeutic radium amenorrhea induced. At operation Rosenberg and Schenck found the uterus smooth and enlarged to about a three months gestation; both ovaries were sclerotic and both tubes were normal. A supracervical hysterectomy and bilateral salpingo-oophorectomy were performed in the usual manner. The pathologic diagnosis was a gravid uterus with placental tissue and therefore the postoperative diagnosis was incomplete abortion. From the pathologic report (ovaries with evidence of follicular activity and recent corpora lutea) it was deduced that although no menstruation had occurred, cyclic ovarian function existed. Therefore, owing to some change in the hormone balance the ovaries had regenerated and had again become susceptible to the constant stimulation of the pituitary gonadotropes. This stimulation in time produced a suitable endometrium, so that nidation of the ovum and gestation ensued without previous cyclic bleeding.

### American Journal of Ophthalmology, Cincinnati

25 513-642 (May) 1942

- Lipemia Retinalis S H McKee D R Wilson A F Fowler and B Wilen Montreal Canada—p 513
- Problem of Preventing Partial or Total Loss of Vision in Glaucoma Patients of Eye Clinics Some Suggestions for Remedial Measures M J Schoenberg New York—p 521
- Familial Degeneration of the Macula Lutea Review of Literature with Report of Eight Additional Cases J W Crawford San Francisco—p 525
- Use of Riboflavin in Treatment of Corneal Diseases K W Cosgrove and P L Day Little Rock Ark—p 544
- Operation for Congenital Glaucoma O Barkan San Francisco—p 552
- History of Orthoptics M C Wheeler New York—p 569
- Visual Prognosis for Aging Lens R Von der Heydt Chicago—p 576
- Sterilization of Sharp Instruments by Chemical Solutions Further Studies M H Post and M Moor St Louis—p 579
- Anomalous Retinal Correspondence D E Dicke Milwaukee—p 585

25 643-776 (June) 1942

- Ocular Pemphigus and Its Relation to Pemphigus of Skin and Mucous Membranes J V Klauder and A Cowan Philadelphia—p 643
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- Surgical Removal of Corneal Scars W M James St Louis—p 672
- Papilledema Without Increased Intracranial Pressure A J Bedell Albany N Y—p 685
- Differential Diagnosis of Tropias with Particular Reference to Value of Orthoptic Training W T Davis Washington D C—p 697
- Improved Model of the Kukun Ophthalmodynamometer A Linksz Hanover N H—p 705
- Sulfanilamide in Treatment of Trachoma Results After Three Years or Trial R Sory Richmond Ky—p 713
- Cilia Implantation in Anterior Chamber Through Traumatic Corneal Perforation J P Cowen Chicago—p 721

## American Journal of Physiology, Baltimore

136 351-512 (May) 1942 Partial Index

- Effect of Coagulation Mechanism of Swine Blood M. I. Muirer, A. G. Hogan and R. B. Hill, Columbia Mo.—p. 355
- Effect of Body Size on Energy Exchange in Work S. Robinson, Bloomington, Ind.—p. 367
- Acidity and Neutralization Ability of Contents of First Part of the Duodenum in Normal Dogs Under Fastening Conditions J. I. Berk, J. I. Thomas and M. I. Robin, Philadelphia—p. 369
- Hypothalamic Stimulation Yielding Adrenalin Reversed Effects M. H. Bender and L. A. Weinstein, New York—p. 376
- Influence of Benadryl on Work Decrement and Pupillary Reflex G. A. Allen and G. A. Liden, Pasadena, Calif.—p. 392
- Observations on Hemorrhagic Hypotension and Hemorrhagic Shock J. M. Weir, K. S. Colby and C. I. Weaver, Cleveland—p. 401
- Cardiac and Peripheral Resistance Factors as Determinants of Circulatory Failure in Hemorrhagic Shock C. J. Weirers and J. M. Weir, with technical assistance of P. C. Shea, Cleveland—p. 421
- Study of Quantitative Methods of Spontaneous Variations in Volume of Lung Tip and Tip and Posterior Superior Portion of the Lung of Normal White Males G. L. Burch, A. L. Cohn and C. Newman, New York—p. 433
- Disappearance Rate of Iodine from Blood of Dogs J. A. Greene and G. W. Johnston, Iowa City—p. 469
- Chemical Composition of Human Semen and of Secretions of the Prostate and Seminal Vesicles C. H. Harris, W. W. Scott and J. H. Hemen, Chicago—p. 467
- Histological Changes in Myocardium of Dogs Following Experimental Temporary Coronary Arterial Occlusion O. H. Lowry, D. R. Galligan and A. B. Hastings, Boston—p. 474
- Effect of Sulfinilamide on Ability of Rabbits and Dogs to Withstand High Altitudes I. I. Lawson, Toronto, Canada—p. 494
- Measurement of Iodine in the Heart Lung Preparation I. H. Wood and G. K. Moe, Minneapolis—p. 506
- Normal Pneumocardiogram H. A. Blair, A. M. Wedd and H. M. Hardwicke, Rochester, N. Y.—p. 523
- Iterations of Human Seminal Fluid with Acids and Alkalis and Their Effects on the Survival of Sperm Motility L. Sheddovsky, D. Belcher and I. Levenstein, New York—p. 535

## American Review of Tuberculosis, New York

45 595-782 (June) 1942

- Allen Kramer Krause Brief Biographic Story H. S. Willis, Northville, Mich.—p. 595
- Allen Kramer and the National Association K. Emerson, New York—p. 607
- Dynamics of Epidemiology in Relation to Epidemic Tuberculosis I. Galdston, New York—p. 609
- War and Tuberculosis L. R. Long, Philadelphia—p. 616
- Changing Scenes in Tuberculosis J. A. Miller, New York—p. 637
- Immunity in Tuberculosis Clinical Considerations I. M. Pottenger, Monrovia, Calif.—p. 651
- Features of Early Pulmonary Infiltration J. B. Amberson Jr., New York—p. 660
- Differential Diagnosis in Pulmonary Tuberculosis J. J. Waring, Denver—p. 666
- Physical Principles in Pneumothorax M. Pinner and A. E. Margulis, New York—p. 676
- Osteoplastic Thoracoplasty L. Eloesser, San Francisco—p. 703
- Extrapleural Pneumolysis with Piek R. C. Maisou, Portland, Ore.—p. 714
- \*Pulmonary Coccidioidal Disease R. A. Peers, Colfax, Calif., E. F. Holman and C. E. Smith, San Francisco—p. 723
- \*Enlargement of Superficial Lymph Nodes in Brucella Infection A. I. Bloomfield, San Francisco—p. 741
- Miliary Diseases of Lungs C. R. Austrian and W. H. Brown, Baltimore—p. 751
- Nonpathogenic Acid Fast Bacilli E. R. Baldwin, Saranac Lake, N. Y.—p. 756
- Chrysotile Asbestos as Indicator of Subtle Differences in Animal Tissues L. U. Gardner, Saranac Lake, N. Y.—p. 762

**Pulmonary Coccidioidal Disease**—Peers and his associates limit their discussion of pulmonary coccidioidal infection to the clinical types in which pulmonary involvement is demonstrable and prominent. The port of entry may be the skin rather than the respiratory tract. Often cutaneous, meningeal, subcutaneous or osseous and articular lesions may develop without clinical or roentgen evidence of a pulmonary lesion. Even at necropsy a coccidioidal focus may be overlooked by any one other than an experienced pathologist on his guard. Many primary coccidioidal infections occur without demonstrable roentgen changes, even though proof through recovery of the fungus from the sputum cannot be challenged. Sometimes clinical symptoms are absent and the proof of infection lies in the change of the reaction to the coccidioidin test. It is extremely difficult to differentiate frank primary pulmonary coccidioidomycosis from tuberculosis on a clinical basis. Usually, as in primary tuberculosis, the infection is focalized. Occasionally a pulmonary cavity develops soon after the primary infection with few symptoms other than an occasional hemoptysis which

is not severe enough to endanger life or even health. Dissemination from this lesion is infrequent, even though the fungus may be present in the sputum. Rarely the fungus is not walled off and it disseminates, and then coccidioidal granuloma occurs as in endogenous reinfection. The maximal danger exists relatively soon after the infection is acquired, when every effort should be made to safeguard the patient.

**Lymph Nodes in Brucellosis**—Recently Wise and Poston reported isolation of *Brucella* from the lymph nodes of Hodgkin's disease. Bloomfield attempted to ascertain whether in true brucellosis there exists a clinical enlargement of lymph nodes. He had consulted eighty-six papers in English listed in the *Index Medicus* and found 30 cases in which the condition of the lymph nodes was specifically mentioned. Summary of the data reveals that lymph node enlargement is not uncommon. Even if it is assumed that the nodes were not enlarged in all the cases in which no specific mention was made, adenopathy was present in 152 per cent, when the state of the nodes was mentioned the percentage was 58. Study of the changes in individual cases, after making allowances for deficiencies of the data, indicates that in brucellosis enlargement of various superficial lymph nodes may occur as a specific manifestation. From this analysis it is not possible to show a clear relationship between glandular enlargement and the different varieties of *Brucella* or that there is convincing evidence of local regional adenitis in relation to the port of entry of the organism. In a number of instances the lesions appear to be specific Brucellosis, because of the prolonged undulating fever, palpable spleen, palpable lymph nodes and eosinophilia, may be easily confused with Hodgkin's disease and especially as the cellular reaction in the lymph nodes of *Brucella* infection may on occasion resemble that seen in certain cases of Hodgkin's disease.

## Archives of Dermatology and Syphilology, Chicago

45 1037-1250 (June) 1942

- Dermatitis Due to Blossom of *Grevillea Banksii* Newly Recognized and Common Entity in Hawaii H. L. Arnold Jr., Honolulu Territory of Hawaii—p. 1037
- Dermatitis Due to Transparent Adhesive Tape H. Keil, New York and E. S. Berenson, Baltimore—p. 1052
- Dermatitis of Eyelids Due to *Philodendron* (*Scandens Cardatur*) Plants J. H. Harris, New York—p. 1066
- Cutaneous Manifestations of Internal Malignant Tumors S. W. Becker, D. Kahn and S. Rothman, Chicago—p. 1069
- Lichen Planopilaris Lichen Planus et Acuminatus Atrophicus (Feldman) and Lichen Spinulosus and Folliculitis Decalvus (Little) W. Sachs, Jersey City, N. J. and G. De Oro, Cleveland—p. 1081
- Electrolysis Introduction of Instrument for Relatively Painless Treatment E. A. Hand, Saginaw, Mich.—p. 1094
- Rational Prescription Writing in Dermatology H. Goodman, New York—p. 1101
- \*Dermatophytosis of Hands Diagnosis and Prognosis E. Epstein, Oakland, Calif.—p. 1113
- Deproteinized Pancreatic Extract in Treatment of Psoriasis J. G. Downing, E. A. Gleich and S. J. Messina, Boston—p. 1125
- Hemochromatosis Report of Case and Comment on Methods of Making Definite Diagnosis A. A. Humphrey, S. Alpiner and L. C. Verity, Battle Creek, Mich.—p. 1128
- Geographic Distribution of *Lupus Erythematosus* E. Gahan, New York—p. 1133
- History of Chicago Dermatologic Society M. S. Wien, Chicago—p. 1138
- Pseudoxanthoma Elasticum with Angioid Streaks Syndrome of Groenblad and Strindberg S. H. Silvers, Brooklyn, and H. E. Wolfe, New York—p. 1142
- Colloid Milium Vitamin Deficiency Disease? S. C. Way, San Francisco—p. 1148
- Pigmentation of Skin Due to Vitamin A Deficiency Report of Case and Review of Literature J. A. Tolmach and T. N. Graham, New York—p. 1156

**Dermatophytosis of Hands**—Systematic mycologic examination of 196 unselected patients with inflammatory lesions of the hands seen in private practice was instituted by Epstein, who demonstrated typical hyphae in 56 per cent and in 78 per cent of the 142 selected for treatment. The eruptions of these 142 patients could be divided into the following groups: 1 The squamous type cleared easily and showed no tendency toward recurrence. 2 The vesicular type responded rapidly but tended to recur. 3 The hyperkeratotic type was resistant to therapy. 4 There were also a few mixed and unclassified types. It is concluded that the diagnosis of dermatophytosis of the hands must rest on laboratory investigation.



## Archives of Neurology and Psychiatry, Chicago

47 879-1106 (June) 1942

- Regulation of Cerebral Carbon Dioxide F I Gibbs I A Gibbs  
W G Lennox Boston and L I Nims New Haven Conn—p 872
- \*Epidermoid Dermoid and Teratomatous Tumors of Central Nervous  
System W T Leyton and A B Baker Minneapolis—p 890
- Pathologic Changes in Central Nervous System in Experimental Electric  
Shock Gert Heilbrunn and A Weil Chicago—p 918
- Encephalographic Ratio for Estimating Ventricular Enlargement and  
Cerebral Atrophy W A Evans Jr Detroit—p 931
- Fatal Infectious Polyrneuritis in Childhood Infectious Neuritis  
Acute Polyrneuritis with Facial Diplexia Guillain-Barre Syndrome  
and Landry's Paralysis C D Armstrong and A B Sahlin Cincinnati  
—p 935
- \*Familial Mental Deficiency akin to Amaurotic Idiocy and Cirrhosis  
Apparently New Type C A Jervis Thelth N Y—p 943
- Alternating Tremor and Its Relation to Cortical Pathways B H  
Baker New York—p 962
- Studies on Corpus Callosum III Contribution to Study of Dyspraxia  
and Apraxia Following Partial and Complete Section of Corpus  
Callosum A J Akelatis W A Risteen R A Herren and W P  
Van Wagenen Rochester N Y—p 971
- \*Disturbances in Brain Function Following Convulsive Shock Therapy  
Electroencephalographic and Clinic Studies N A Levy H M  
Serota and R R Grinker Chicago—p 1009

**Tumors of Central Nervous System**—Peyton and Baker report 9 cases of epidermoid 1 of dermoid and 4 of teratoma of the central nervous system. They belong to the tumors of mixed tissue which arise from cell rests. When the neoplasm contains tissues from all three germ layers it is a true teratoma. When of mesodermal origin it is called a dermoid cyst and the epidermoid the most common is composed of only the ectoderm layer or tissue. The intracranial epidermoid is cured by surgical removal operation may be followed by aseptic meningitis the tumor may be calcified when it is in the lateral ventricle it produces a characteristic encephalogram from which not only is the tumor located but it is recognized as an epidermoid. Bilateral intraventricular cholesteatoma similar to that frequently found in the horse occurs also in the lateral ventricles of man. The following are the characteristics of dermoid and teratoma they are associated with dysraphia they are slowly progressive lesions of the cord or cauda equina and they produce by pressure erosion dilatation of a long segment of the spinal canal.

**Familial Mental Deficiency**—Jervis reports 6 cases of familial mental deficiency characterized by severe idiocy stunted growth characteristic facies and peculiar changes in the bones of the skull. He believes that these represent a new type. Pathologically there is ubiquitous swelling of the nerve cells with cytoplasmic infiltration of lipid granules. There are differences in this condition and in the juvenile amaurotic idiocy and gargoyism which appear to justify a separation of this type of mental deficiency. However the three conditions show obvious similarities which warrant their inclusion in the same group of diseases. In the pathogenesis of this condition the morbid process is considered an instance of localized lipodosis. Etiologically the disease is believed to be genetically determined and probably inherited through recessive genes.

**Disturbances in Brain Function Following Shock Therapy**—Electroencephalograms (global recordings of brain potentials) were recorded by Levy and his associates before the first convulsive shock treatment and at varying times up to several months after treatment of 23 patients was discontinued all but 4 of whom were suffering from primary or secondary affective disorders. Of the 4 2 were schizophrenic 1 was paranoid with depression and 1 was schizophrenic with no significant disturbance in mood. In all the patients evidence of neurologic disease was absent. Sensorial and intellectual disturbances of the organic type were absent in all before treatment. The presence and extent of post-therapeutic disturbances in cerebral function were determined. Fourteen of the patients recovered or improved and 9 had early relapses or did not improve. Evidence of disturbed cerebral function indicated by changes in the electroencephalogram and by changes in intellectual function was present respectively in 50 and 45 per cent. Signs of epileptoid disturbances (3 per second waves bicuspid and dicrotic waves spike and wave formations and greatly increased amplitude) were evinced in the electroencephalograms of the most severely affected patients. The post-therapeutic clinical evidence of impaired cerebral function consisted

of an 'organic' type of sensorial and intellectual impairment. Recovery from these disturbances usually occurred in a few weeks, in the more severely affected patients sometimes in as long as six months. Clinical recovery or improvement was apparently not dependent on the presence of these electroencephalographic changes.

## Arkansas Medical Society Journal, Fort Smith

38 249-268 (May) 1942

- Control of Estrogenic Therapy During the Menopause with Vaginal  
Sugars J H Hellums Dumas—p 249
- Gyneciatric General Remarks on Care of the Aged R H Johnston  
Clarksville—p 253

39 1-44 (June) 1942

- The Medical Profession Its Opportunities for Service Today H I H  
Jones Little Rock—p 1

## California and Western Medicine, San Francisco

56 333-384 (June) 1942

- Intravenous Anesthesia in the Field J M Rigdon Fort Ord—p 337
- Wartime Problems in Industrial Health C M Peterson Chicago—  
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- Hallucinations Their Mechanism and Significance J A Culling  
Albany—p 342
- Endocrine Therapy Potential Abuses in Gynecologic Disorders C I  
Luhmann San Francisco—p 345
- Sulfonamide Medication L A Rantz San Francisco—p 347
- Intestinoesophageal Fistula R W Barnes and M R Hill Los Angeles  
—p 350
- Anuria Due to Sulfadiazine Crystals Report of Case A L Mollath  
E Belt and C E Ebert Los Angeles—p 355

## Kentucky Medical Journal, Bowling Green

40 201-248 (June) 1942

- Treatment of Burns R A Griswold Louisville—p 203
- Local Treatment of Burns J E Hamilton Louisville—p 207
- Primary Treatment of Compound Fractures K A Fischer Louisville  
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- Treatment and Care of Varicose Veins J E Haynes Dawson Springs  
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- Early Symptoms of Carcinoma in Colon and Rectum I Abell Jr  
Louisville—p 219
- Developments in Medicine National Economic and Scientific F H  
Lahay Boston—p 224
- Tularemia R G Webb Livingston—p 228
- Six Thousand Spinal Anesthetics C C Howard Glasgow—p 230
- Sphere and Clinical Application of Radiation Therapy D Y Keith  
Louisville—p 234
- Advantages of Direct X-Ray Therapy J Love Louisville—p 238

## Minnesota Medicine, St Paul

25 425-520 (June) 1942

- Health and Safety of Wartime Workers L D Bristol New York—  
p 441
- Legal Aspects of First Aid by Lay People C J Potthoff and P Carroll  
Minneapolis—p 448
- Prevention of Automobile Accidents M N Walsh Rochester—p 451
- Mechanism of Uremia E W Hansen Minneapolis—p 455
- \*Nasal Sinusitis and Orthostatic Albuminuria in Childhood W R  
Shannon St Paul—p 458
- Medicolegal and Sociologic Aspects of Diabetes Mellitus A H Beard  
Minneapolis and J A Layne Great Falls Mont—p 460
- \*Histaminase in Treatment of Urticaria and Other Dermatoses C W  
Laymon Minneapolis—p 466

**Nasal Sinusitis**—Shannon calls attention to the fact that orthostatic or postural albuminuria in children is a frequent accompaniment and apparently a result of nasal sinusitis especially of a subacute or chronic type. Therefore such albuminuria must be viewed with much more concern than has been the custom heretofore.

**Urticaria and Other Dermatoses**—Since his first report in 1939 on the use of histaminase for various dermatoses, Laymon has continued to use the drug and now adds the following data. Of 35 cases of urticaria, 21 were clinically cured and 14 were not benefited. There was no appreciable improvement in 7 cases of acne vulgaris in 2 of dermatographism or in 11 of atopic dermatitis and the light sensitization dermatitis of 1 patient definitely improved. The daily dose varied from 60 to 120 histamine detoxifying units. The urticaria or the patients selected for treatment was of relatively long duration and had proved refractory to the usual therapeutic measures.





## Schweizerische medizinische Wochenschrift, Basel

72 141-170 (Feb 7) 1942 Partial Index

- Tuberculous Polypyrus Initial Complexes P Schwartz, K. A. Roeder and C. Arkayn—p 141
- Primary Tuberculous Infections in Adolescents and Adults S. J. Leitner—p 145
- Specimen Early Diagnosis of Tuberculosis of Bones and Joints F. Ceven—p 152
- Conservative Cure of Renal Tuberculosis W. Hoffmann—p 154
- Healing and Separation of Adhesions Present Complications of Complete Liberation of Pulmonary Stump by Endobronchial Route R. Jeanneret and A. Cillard—p 160
- Causes of Avoidable Failures of Collapsive Therapy W. Frischlich—p 159
- Demonstration of Tubercle Bacilli in Direct Smears with Osol Staining in Dark Field as Method of Choice H. Eglh—p 166

**Conservative Cure of Renal Tuberculosis**—According to Hoffmann cure of renal tuberculosis by a conservative regimen is generally denied. Circumization of tuberculous foci with preservation of kidney function has been observed only twice and in 1 of these cases exact anatomic study had not been made. Aside from the autophrectomies in which auto-exclusion of the diseased kidney may take place there may occur intrarenal shutting off of tuberculous foci. Both processes may simulate a clinical cure since in either case the tuberculous focus is shut off from the renal pelvis and the discharging renal passages. Pyuria and tubercle bacilli disappear from urine, and the tuberculous lesions in the bladder subside. The subjective condition of the patient may improve to such an extent that a cure is assumed. Clairmont and Schaffhauser observed 3 such cases in which the encapsulated foci gave rise to fresh tuberculous dissemination three years later. These authors advocate the removal of such foci even in the absence of symptoms. Hoffmann believes that such temporary exclusions of tuberculous foci in the kidney are extremely rare. He reported in 1925 a case of renal tuberculosis in which a cure had been obtained under conservative treatment. The man had rejected a suggestion for the removal of the right kidney in 1920 and had been placed on a conservative regimen of sun baths, fresh air and tuberculin injections. He felt well in 1921 and the urine was free from tubercle bacilli. In 1924 tuberculosis of the left epididymus was detected but the urine and bladder were normal. The left testis and epididymus were removed following which the genitourinary apparatus appeared to be free from lesions. In 1926 the man developed pulmonary lesions and in 1932 bladder symptoms recurred and tuberculosis of the prostate was discovered. While the bladder urine was positive the renal urine remained negative suggesting that the bacilli in the bladder urine had their origin in the prostate. Following treatment at a sanatorium the symptoms subsided and the patient felt comparatively well. Later examination indicated that the pulmonary lesions had healed. Examination of the bladder urine in 1938 indicated that the tuberculosis of the prostate had healed. Clinically the patient is free from symptoms at the age of 71. The author agrees with Wildbolz that a cure of renal tuberculosis cannot be proved without an accurate anatomic study. He believes that in his case intrarenal exclusion is perhaps more likely than a cure. It is also apparent that the tuberculous infection was of an extremely mild type.

**Demonstration of Tubercle Bacilli**—Eglh points out that Osol in 1927 described a staining method with thick smears which yielded much better results than the Ziehl-Neelsen method. Hagemann in 1937 recommended fluorescence microscopy for the demonstration of tubercle bacilli demonstrating that the method was much more effective than the Ziehl-Neelsen method. Pothmann found that the results with fluorescence microscopy could be paralleled by the dark field method utilizing the Osol staining instead of the Ziehl-Neelsen. He demonstrated the great superiority of the Ziehl-Neelsen dark field method over the Ziehl-Neelsen light field method but found that in the dark field Osol's stain is superior to Ziehl-Neelsen's. Eglh reports his own comparative studies on 310 specimens (sputa, laryngeal, gastric, pleural, urinary and pus specimens). He concludes that 1. The expensive and relatively difficult fluorescence method can be used for the demonstration of tubercle bacilli only in scientific institutes. Its

results are not better than those obtained with the Osol stain in the dark field method. 2. The Osol dark field method is six times more accurate than the ordinary Ziehl-Neelsen method in regards the detected number of bacilli and as regards the time factor. 3. The dark field equipment requires few installations and is only about one tenth as expensive as is the fluorescence equipment and is easy to handle. 4. Osol's staining technique is simple and resembles the Ziehl-Neelsen method.

## Revista de la Asoc. Med. Argentina, Buenos Aires

56 125-182 (March 15 30) 1942 Partial Index

- \*Cervicodural Sympathogonioma in the Child C. R. Cibils, A. Acquirre, D. Brichetto, Brim, C. M. Casco and J. A. Talner—p 125
- Local Sulfanilamide in Surgery A. Wybert and L. A. Cslenghi—p 149

**Cervicodural Sympathogonioma in the Child**—Cibils, Acquirre and his collaborators report the case of a child 3 years old with symptoms of progressive compression of the spinal cord. Roentgenography revealed a tumor in the upper portion of the vertebral canal. At the operation an intradural tumor compressing the first, second and third segments of the spinal cord was found. There were no metastases. The tumor was free, isolated and encapsulated in fibrous and connective tissue containing neoplastic cells. Compression of the cord resulted in death early in the course of the development of the tumor. Microscopic study revealed that the tumor was a sympathogonioma. The authors believe that their case is the first of this localization and type.

## Revista Española de Tuberculosis, Madrid

9 609-668 (Sept.) 1940 Partial Index

- Allergy in Tuberculosis Local Leukocytic Formula in Normal and Desensitized Skin J. Zapatero Dominguez and E. Lopez Gutierrez—p 609
- \*Supernumerary Cervical Ribs T. Cervia and J. de la Rosa—p 627
- Pathogenesis and Therapy of Pulmonary Perforation E. Regli Fernandez—p 642

**Cervical Ribs**—Cervia and de la Rosa studied 1,678 roentgenograms of the thorax of persons of either sex, who were observed in an antituberculosis dispensary. Cervical ribs were found in 115 (47 men and 68 women). The abnormality was unilateral in 22 and bilateral in 93. Six unilateral ribs were on the right side and sixteen on the left. The bilateral ribs were of the same size on both sides in 65, the right rib was longer than the left in 15 and the left was longer than the right in 11. The abnormality was found in 24 children, 44 persons between 11 and 20 years of age, 23 persons between 20 and 30 years of age and 23 between 30 and 50 years of age. None of the patients complained of symptoms. The abnormality was familial in 3 instances: a father with a unilateral cervical rib with 3 children with bilateral cervical ribs, 2 children (brother and sister) with bilateral cervical ribs and 4 adult brothers with either unilateral or bilateral cervical ribs.

## Therapie der Gegenwart, Berlin

82 97-144 (March) 1941 Partial Index

- Question of Necessity for Therapy in Sports Heart G. W. Parade—p 97
- Therapy of Maxillary Gunshot Wounds with Special Reference to War Wounds H. Hammer—p 100
- Technic Indications and Results of Fever Baths F. Walinski—p 106
- Feeding of Premature Infants A. Schwartz—p 110
- Sulfanilamide Derivatives and Supplementary Therapy of Epidemic Meningitis G. Saker—p 116
- \*Treatment of Erythema Nodosum J. Simon—p 142

**Treatment of Erythema Nodosum**—Simon reports the clinical history of a girl aged 22 who five days before entering the hospital developed an eruption on the legs, fever and chills. Examination revealed cutaneous infiltrations 38 mm in size and bluish red discolorations on the legs and later on the arms. The disorder was diagnosed as erythema nodosum. Dietetic treatment and medication with acetylsalicylic acid had no effect. Further efflorescences developed. Azosulfamide was given and after two days or this therapy the erythema became paler and disappeared completely after four days. Five days later the patient could get up and had no more complaints.



## Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT NECESSARILY REPRESENT THE OPINION OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS BUT THE EDITOR WILL BE OBLIGED TO Omit It.

### DIFFERENTIAL DIAGNOSIS OF DERMATOPHYTOSIS

To the Editor—With the approach of warm weather I believe most physicians will be confronted with foot fungus cases to handle. I should like to know what efficacious medication we possess in treating cases of dermatophytid complicating epidermophytosis. I have been able to control the latter with common fungicides but the pruritic papulovesicular dermatophytid eruption has been a terrible task to ameliorate. Just what is the proper way to handle such cases? I have also noticed cases of dermatophytid in which close investigation of the toes did not reveal any fungous infection. How do you explain such a phenomenon?

A. S. Catinello MD Mechanicville N. Y.

ANSWER—The intensely pruritic papulovesicular eruption mentioned is probably not a dermatophytid. It seems too itchy and too resistant to treatment. The trichophytids and tinea secondary to scalp involvement often clear up spontaneously when the original focus of infection improves. A more likely explanation is that the eruption complained of is a secondary allergic dermatitis due to the drugs used in treatment, a contact dermatitis. If the lesions composing it are small and superficial the vesicles easily ruptured leaving weeping surface this is probably the case. Naturally the emollient drug or other strong fungicides will only increase the distress of the patient. Such sensitization takes place frequently after treatment of dermatophytosis. Soothing applications such as Burow's solution 6 to 10 per cent in water applied as cool wet dressings are indicated until the oozing ceases. Then a calamine lotion made with rose water in place of lime water can be used or zinc paste without salicylic acid. Soap and water should be avoided. The patient should cleanse with oil whenever necessary but it is not often necessary. He should use the utmost gentleness in applying the lotion or paste and in cleansing or rubbing is apt to cause renewed itching.

It is not rare to see cases with an eruption clinically indistinguishable from dermatophytosis of the feet and hands in which no fungi can be found by direct microscopic investigation or the scales or vesicle roofs. Some of these will show fungi by culture others will not. All writers on the subject seem to agree that when the hands are involved which is often the case, fungi are rarely found in the hand lesions. Cases are on record in which fungi were found on one foot not on the other, though both were diseased. Pompholyx, first called cheiro-pompholyx by Hutchinson is a disease occurring usually on the feet and hands clinically and histologically identical, except for the absence of fungi with the disease called dermatophytosis of the feet and hands. The difficulty in explaining the fact that an eruption of the feet caused by fungi is often succeeded by a similar eruption on the hands in which no fungi are found was explained by Bloch as an original focus of fungous infection succeeded by a dermatophytid on the hands. With this view S. L. Peck (Epidermophytosis of the Feet and Epidermophytids of the Hands *Arch Dermat & Syph* 22:40 [July] 1930) is in full accord. He quotes three possible explanations offered by Bloch and Walthard.

1 The fungi may be saprophytes growing in an eruption of an entirely different etiology. This Peck discards because of the well established pathogenicity of many of these fungi the beneficial effect on the disease of fungicidal and fungistatic drugs and the experiments of von Graffenried and of Peck in which they caused typical outbreaks by infection with cultures of some of the fungi commonly found in the disease.

2 Epidermophytosis on the feet combined with a different disease on the hands dyshidrotic or eczematoid. This is not likely because the percentage of cases in which both areas are involved is entirely too high for coincidence. There must be a direct relation between the disease of the hands and that on the feet.

3 The lesions on the feet are primary those on the hands secondary (epidermophytids). Von Graffenried first demonstrated that all cases of ringworm of the feet show a positive reaction to trichophyton. Peck obtained from the blood of 1 patient cultures of one of the fungi present in the lesions on the feet.

Peck's argument is a strong one, and his view has been accepted by most American dermatologists, but it has not been proved conclusively. It seems much easier to accept the first

of Bloch's postulates that the disease is pompholyx. The fungi are those already present in the skin of the feet, taking on new growth when the epidermis becomes more succulent under the influence of the pompholyx. The hands show no fungi because conditions there do not favor infection with fungi. Support for this position has been given recently by Sulzberger, Bauer and Hecht (Common Fungous Infections of the Feet and Hands *Arch Dermat & Syph* 15:670 [April] 1912) who show that the infection present on the feet is seldom passed to other persons even by the most intimate contact. The groom infections are nearly all autoinfections from the feet on the feet. Nearly every one of us has such feet remaining dormant for years. One must acknowledge that many of these fungi are potentially pathogenic but that does not prove their etiologic relation to the disease under discussion.

### RHEUMATOID OR ANKYLOSING ARTHRITIS OF SPINE

To the Editor—A man aged 33 has had ankylosing spondylitis for several years. Attempts at treatment with a great variety of vaccines injections and medicines have been unsuccessful. In October 1941 his hemoglobin was 36 per cent. After three blood transfusions his hemoglobin was 57 per cent and his red cells 4,267,000. Two more transfusions raised the hemoglobin to 68 per cent. Finally it reached 80 per cent but is now falling. He states that the higher his hemoglobin the more pain he has in his legs and back. Any suggestions would be appreciated.

C. Kenneth Cook MD St. Paul

ANSWER—Ankylosing spondylitis usually starts as a destructive arthritis of the sacroiliac joints with juxta articular osteitis. Its cause is unknown. It affects men, chiefly young men in a ratio of about fourteen men to one woman. As it progresses it produces painful spasms of the vertebral muscles, calcification of the vertebral ligaments (eventually producing the so called bamboo spine in roentgenograms) and arthritis of the apophyseal joints. In time notable spinal kyphosis and fixation of the chest wall may result unless appropriate therapeutic measures are taken. Involvement of peripheral joints is rare but involvement of the hips and shoulders may occur, the latter is usually periarticular (muscular) rather than intra-articular, however, the joint structures themselves may be affected.

Some students of arthritis attempt to distinguish ankylosing (rheumatoid) spondylitis from rheumatoid arthritis involving the spine. In the latter there is rheumatoid arthritis of the apophyseal joints and often of the peripheral joints, subcutaneous fibrous nodules (absent in ankylosing spondylitis) may occur but there is no ligamentous calcification, and the sacroiliac joints may or may not be affected (as they almost always are in ankylosing spondylitis). This distinction may be a real one but has not been accepted generally, at any rate the treatment of the two varieties is about the same.

The orthodox treatment of rheumatoid spondylitis involves the removal of obviously infected foci, daily use of professional or home physical therapy, perhaps fever reactions (typhoid vaccine) to induce lessening of muscular spasm, the use of postural and other spinal exercises, rib stretching and deep-breathing exercises to prevent or correct impending fixation of the chest and spine, the use of a bed with a firm mattress and a beaver board under the mattress to keep the spine straight at night, the use of one small or no pillow under the head, the use of a pillow between the scapulas or in the lumbar region for short periods during the day and night if kyphosis is developing. The patient may gain encouragement by making a monthly record of height and chest expansion. In selected cases the use of a Taylor brace during the daytime and a plaster shell or convex frame during the night gives considerable relief from pain and helps to prevent or correct the forward bending spinal deformity.

Recently Swain (*J Bone & Joint Surg* 21:983 [Oct.] 1939) proposed the following plan: preliminary correction of spinal deformity by hyperextension in bed for two weeks, then the application of a plaster jacket for early, continuous and adequate immobilization. Jackets were left on for weeks and replaced by new ones as the posture improved, they were worn by 62 patients for from several months to nine years. Swain reported that muscular spasm and pain were relieved rapidly, sleep was improved greatly despite the jacket deformities, were prevented or improved notably and expansion of the chest and weight increased.

Chrysotherapy (injections of gold salts) has given disappointing results. Still more recently Freyberg and his colleagues at Ann Arbor, Mich. recommended roentgen therapy as the remedy of choice to relieve pain (*The Journal* Sept. 6, 1941 p. 826). Unfortunately roentgen therapy has not given relief to the patient in question.



It extensive ligamentous calcification has occurred it may be impossible now to obtain satisfactory correction of the spinal position by orthopedic and other measures, but if such calcifications are still absent, localized or minimal, much of the deformity may be due to correctible muscular spasm. Hypochromic anemia is a characteristic feature of most cases of rheumatoid arthritis or spondylitis. Its exact cause is not known but distinguished hematologists (Munot, G. R. *New England J Med* 208 1285 [June 22] 1933; Haden, R. L. *Arch Phys Therapy* 21 671 [Nov] 1940) have registered their inability to influence it materially by the usual measures for anemia. The idea 'correct the anemia and the arthritis will improve' is fallacious. The anemia will lessen when the arthritis improves and probably not much before that time, hence no mordant therapy need be directed against the anemia, an adequate diet, perhaps with ferrous sulfate as a supplement, and occasional transfusions are all that need be prescribed for the anemia. Acetylsalicylic acid is the safest and generally the most effective analgesic. Aminopyrine and euclophen or neocinchophen are often effective substitutes, but one must be warned that granulocytopenia or euclophen hepatitis occasionally results. Aside from the use of analgesics, pain may be relieved by the physical and orthopedic methods already mentioned.

This disease varies greatly in its duration and the speed of its progress. It may stop after a few months or it may progress slowly for years. The average duration of symptoms is about five to seven years. After the active disease stops, only painless residues remain. In a great many cases the spine may be stiff, but it it has been led to stiffen with the patient in the straight posture the resultant economic and physical disability may be very moderate.

#### TOXICITY OF NITROGLYCERIN

To the Editor—I wish to ask for information or an available source of information regarding the industrial hazards and problems arising in workers in nitroglycerin. I have the ordinary care of employees in a powder plant and am confronted with the problem occasionally. I have been unable to find adequate reference to the literature of the past few years relative to this subject. I should like to ask the following questions: 1. What, if any, are the hazards to the circulatory or other systems of the body to long exposure to nitroglycerin? 2. What are the physical and other clinical findings of overexposure to nitroglycerin? 3. What, if any, are symptoms and signs of an accumulative action of nitroglycerin? 4. Are there any special clinical examinations indicative of circulatory damage from nitroglycerin? 5. In case of overexposure to nitroglycerin, what are the proper therapeutic measures? What physical standards should be adhered to in examinations of persons intending to work in nitroglycerin? Any help that you may be able to give on this subject will be sincerely appreciated.

A. N. Shaun, M.D., Bensan, Ariz.

ANSWER—Nitroglycerin, as employed industrially, is exquisitely toxic. The threshold for producing symptoms is so low as almost to defy measurement. The mere standing near a workman with traces of nitroglycerin or nitroglycerin powder on his body or clothing is quite sufficient to induce prompt manifestations. The commoner features are headache, throbbing in the head, palpitation of the heart, nausea, vomiting and flushing. The headache may be violent and may be associated with acute mania. This results from dilatation of the blood vessels about the brain, notably those of the meninges. This gives rise to such jargon terms as "dynamite head" or "powder headache." Always alcoholic drinks precipitate attacks and increase their severity. Nitroglycerin in industry commonly enters the body through inhalation of its vapors or through skin absorption. The families of workers may suffer from typical attacks shortly after the return to the home of nitroglycerin workers unless change of clothing and other precautions are carried out. Habituation is readily established, but this tolerance may disappear in as short a period as two days away from work. Nitroglycerin poisoning in industry is a characteristic "Monday disease." Although a few drops (3 to 5) may produce a fatality when taken internally, increases in exposure such as from 1 to 30 mg may not produce highly different results. It may be doubted that any chronic type exists, although such forms have been described. No organic changes are known to arise in the heart, central nervous system or the eyes, although temporary blindness is common. The depressed blood pressure may return to normal within one hour after elimination of exposure. The disposition of compensation courts ordinarily is to deny any claims specifying prolonged disability. The enumerated questions of the general query are now answered.

1. Quick exposure rather than long exposure appears to be of greater significance.

2. Already answered.

3. Apparently there is no cumulative action of nitroglycerin.

4. In addition to features already mentioned, significance should be attached to low blood pressure and to polyuria. Occasionally ulcers about the fingertips arise, so that the fingers should be examined.

5. In instances of severe poisoning, oxygen should be administered along with intravenous saline solution and saline cathartics. Workers should be taught to preserve their habituation when away from work by carrying a few grams of powder under their armbands or somewhere about their person. However, this step is troublesome for members of the family and others about the worker. The only known cause for rejection of an applicant for nitroglycerin work apart from the usual causes for rejection is alcoholism. The following literature items furnish further data.

Bright, G. L. The Effects of Nitroglycerin on Those Engaged in Its Manufacture. *THE JOURNAL*, Jan 17, 1914, p 201.  
Hertz, J. Cardiovascular Status in Nitroglycerin Workers, *Arch d mal du coeur* 17 578 (Sept) 1924, abstr. *THE JOURNAL*, Oct 18, 1924, p 1279.  
Solis Cohen, Solomon and Guthrie, Thomas. Stotesbury. Pharmacotherapeutics, Materia Medica and Drug Action. New York, D Appleton & Co., 1928.  
McNally, W. D. Toxicology, Chicago, Industrial Medicine, 1937.

#### PREMATURE GRAY HAIR

To the Editor—A married white man aged 29 has recently developed loss of pigment of the nasal and temporal margins of the eyelashes of upper lids of both eyes. The central portions of these eyelashes are as yet uninvolved. Now this process is beginning to appear at the nasal port of the right eyebrow. The hair on the head is entirely free of this loss of pigment and there is considerable hypertrichiasis of the body which also is uninvolved. There are some isolated pubic hairs which are white, obviously of recent acquisition. The history and physical examination are entirely negative; there is no evidence of any glandular or vitamin deficiency. Diet has been ample in all requirements. Can you suggest a diagnosis, etiology and treatment? Would para-aminobenzoic acid or the B complex be of any value, and, if so, what would be the proper dosage and where may the acid be obtained?

M. D., Maryland

ANSWER—Premature graying of the hair is an old problem without solution as yet. It is hard to explain the eccentricities of its occurrence, as in the example cited in the query. It is a familial peculiarity in many instances and in others is thought to result from nervous disturbances. It has long been suspected that deficient nutrition of nerves is a factor in its causation.

The vitamin studies which produce graying in animals and then cure it by correction of the diet have been made on mice, rats, dogs and silver foxes. By shaking a watery solution of liver extract, yeast or rice bran with fullers' earth the thiamine, riboflavin and pyridoxine are removed, leaving a solution of the "filtrate factor." Animals fed with a diet containing the other vitamins but lacking this factor soon show patches of fur that has become gray and thinned, ulcers sometimes appear on the tail or hind legs, the animal's skin becomes wrinkled as in old age, it becomes feeble, and it often dies within a few months if kept on the deficient diet. On adding the "filtrate factor" to the diet these symptoms clear up in most cases.

It is known that this factor contains pantothenic acid and para-aminobenzoic acid, but the effort to determine which of these is responsible for the prevention of graying has not been successful as yet, for there is disagreement among the research workers engaged in the problem. Ansbacher and his associates find that the lack of para-aminobenzoic acid causes the graying and that adding this vitamin to the diet restores the color of the depigmented patches. (Role of Para-Aminobenzoic Acid in the Vitamin B Complex—Studies with Mice, *Proc Soc Exptl Biol & Med* 48 118 [Oct] 1941). Others (Emerson, G. A. Failure to Cure or Prevent Graying of Rats with Para-Aminobenzoic Acid, *ibid* 47 448 [June] 1941, Unna, Klaus, Richards, Grace V., and Sampson, W. L. Studies on Nutritional Achromotrichia in Rats, *J Nutrition* 22 553 [Dec] 1941) have succeeded in producing the gray spots by depriving the animals of pantothenic acid and have then cured the animals by adding this vitamin to their diet. It has been suggested that there may be other vitamins as yet undiscovered in the "filtrate factor."

Apparently there are only two articles in the medical literature dealing with the effects of vitamin B Complex and para-aminobenzoic acid on human hair. They are both by B. F. Sieve (Clinical Achromotrichia, *Science* 94 257 [Sept 12] 1941, The Clinical Effects of a New B Complex Factor, Para-Aminobenzoic Acid, on Pigmentation and Fertility, *South Med & Surg* 104 135 [March] 1942). When vitamin B complex was administered to 9 patients who were under treatment for endocrine dysplasias the gray hair of all, he reports, became noticeably darker. He then began the use of para-aminobenzoic acid for the same purpose, giving it to those on treatment with endocrine preparations and also to many who were on no other treatment. In his second paper he reports over 800 cases treated in this way. Within three to eight weeks of treatment



with the vitamin the gray hair became dirty yellowish and then dark dusty gray.

These reports justify skepticism. As far as his articles show, Stevens only evidence of color changes was his visual impressions. The few who have tried to judge slight color changes in the skin or hair realize how easily one can be deceived.

The question of the possible harmful action of para-aminobenzoic acid in large dosage must be considered. Several investigators have shown that this substance interferes *in vitro* with the bacteriostatic action of the sulfonamide drugs on pneumococci and staphylococci and that it promotes the growth of *Streptococcus pyogenes* (Spink W. W. and Jernster J. *Effect of Sulfonamide Compounds on Growth of Staphylococci in Presence and Absence of para-Aminobenzoic Acid* *Proc. Soc. Exper. Biol. & Med.* 17:95 [June] 1941). Experiments on human beings with large doses of para-aminobenzoic acid should not be made until it is known what such interference with the bacteriostatic action of the sulfonamides signifies in the animal body.

### DISSEMINATED LUPUS ERYTHEMATOSUS

To the Editor—I should like your suggestions as to the diagnosis and treatment of acute lupus erythematosus disseminatus. What is known concerning the etiology of this condition and what measures best control the symptom complex?

G. H. Miles M.D. Gollitzin Pa.

ANSWER—The cause of this condition is not definitely known. Foci of infection either streptococcal or tuberculous may be underlying factors. The disease may follow the chronic discoid type or may occur as a primary acute systemic disorder. When it occurs as such, it is often difficult to diagnose.

The following symptoms commonly occur in the primary acute type: (1) edema of the face with an eruption on it resembling a severe toxic erythema or an erysipelas; (2) the presence of purpuric or erythema multiforme like lesions on the hands, arms and various portions of the body; (3) erosions on the mucous membranes and glossitis; (4) joint pains; (5) fever of a septic type; (6) enlargement of lymph nodes; (7) leukopenia generally; (8) albuminuria; (9) a pritchy or diffuse alopecia and (10) in terminal cases profound intoxication and delirium.

The disease has a high mortality, approximately 90 per cent. Fatal termination is generally due to pneumonia or nephrosis.

The treatment between attacks should consist of rest, avoidance of exposure to the sun, quinine by mouth and cautious removal of suspected foci of infection. During attacks the patient should be kept in a quiet dark room, symptomatic therapy should be given for the symptoms that develop and blood transfusions and sodium thiosulfate intravenously may be administered.

The sulfonamide group of drugs may be tried but so far they have not proved to be successful. In a few instances enough improvement has followed their use to warrant further trial.

### VAGINAL HYSTERECTOMY—WEIGHT OF NEWBORN

To the Editor—I would appreciate any information on the following: 1. Who performed the first vaginal hysterectomy in America and when? 2. What is the greatest authentic recorded weight of any newborn infant successfully delivered vaginally in this country? I find that Dr. O. O. Burgess of California delivered an 18 pound (8.2 Kg.) child in 1875. He appears to have accurately weighed and measured the newborn infant (*Pacific M. & S. J.* 9:179 1875). Has this feat been excelled?

T. Richard Hoffmann M.D. Berkeley Calif.

ANSWER—1. The only vaginal hysterectomy recorded in the American literature as having been performed prior to 1850, and therefore presumably the first vaginal hysterectomy performed in this country, is credited to Dr. J. Collins Warren. The date given is 1829. This reference is given by Dr. A. F. Lash (*Am. J. Obst. & Gynec.* 42:452 [Sept.] 1941).

2. The largest newborn child delivered vaginally in this country that is recorded in the literature (Belcher D. P. *A Child Weighing Twenty-Five Pounds at Birth* *THE JOURNAL* Sept. 23 1916, p. 950) was delivered by Dr. D. P. Belcher of Sale City, Ga. This was a 25 pound (11.3 Kg.) stillbirth. The type of scale used was not described. Koff and Potter in a recent article (Koff, A. K. and Potter, E. L. *Am. J. Obst. & Gynec.* 38:412 [Sept.] 1939) state that they were unable to find any authenticated instance of a living baby with a birth weight of 15 pounds (6.8 Kg.). However in a discussion of this paper before the Chicago Gynecological Society, Dr. John A. C. Busby reported (*ibid.* p. 422) a delivery at West Suburban Hospital of a baby weighing 16 pounds 3 ounces (7.4 Kg.). The infant was weighed on a certified beam scale and was living and well.

### REFRACTORY URINARY TRACT INFECTION

To the Editor—Two months ago a man who had an infected bladder from a large prostate had a transurethral resection (by a competent specialist) which seems to have relieved the obstruction. His urine is loaded with pus, the bladder capacity is about 50 cc. and he voids every half hour. The nonprotein nitrogen is 37.4, the blood pressure 142 systolic and 88 diastolic. The trouble seems to be local. Will you outline a proper method of treatment as what I have used has seemed so ineffective?

Mervin T. Sudler M.D. Lawrence, Kan.

ANSWER—First attempts should be made to eradicate the infection of the urinary tract. Toward this end a specimen of catheterized urine should be examined by means of Gram's stain and culture; several samples of urine should be examined for the tubercle bacillus. Suitable chemotherapy should then be instituted and the particular drug to be employed will depend on the type of bacteria found. A member of the sulfonamide group or mandelic acid will be most efficacious. Vesical lavage with potassium permanganate (1:8,000) may also be carried out. The presence of residual urine should be determined and in order to exclude urinary calculi, a plain roentgenogram of the urinary tract should be made.

If the patient fails to improve under this regimen a short course of prostatic massage should be given. Then if improvement does not result it will be necessary to carry out further urologic investigation. If an excretory urogram fails to reveal any lesion of the upper part of the urinary tract, cystoscopy should be performed. Careful search for urethral stricture, vesical calculi, interstitial or tuberculous cystitis, persistent infected prostatic tissue and diverticula should be made and proper therapy instituted.

### DERMATITIS VENENATA CAUSED BY ROACH POWDER

To the Editor—A woman aged 65 while engaged in cleaning came in contact four months ago with a green paste which had been spread on a potato for the purpose of killing roaches in an apartment house. The paste is known as J. O. Roach Paste, is manufactured by John Opitz Inc. 50-14 Thirty-Ninth Street Long Island City N. Y. and has as its content 1.375 per cent phosphorus plus inert material. Three weeks after contact there was an ulcer the size of a dime (18 mm.) situated below the inner malleolus of the left ankle. There was considerable erythema and vesiculation of the entire ankle. She complained of itching especially on the flexor surfaces of arms and legs and on the neck. This resembled the milder form of dermatitis venenata. It disappeared with the use of 1 cc. of epinephrine hydrochloride subcutaneously. The blood count was normal. The blood Wassermann reaction was negative. The patient continued to have flare ups of generalized pruritus and erythema especially about the antecubital fossa and a papulovesicular dermatitis on the left leg and foot. The blood sugar was negative. Repeated tests of urine for sugar were negative. The symptoms subsided in the following two months. At the insistence of an insurance company she was hospitalized for three days for diagnostic study. Patch tests and skin biopsies were done and were claimed to be negative. Hospital reports on the cutaneous tests stated that they were positive for nonhemolytic *Staphylococcus aureus*. Scrapings taken from between the toes showed the fungus *Trichophyton gypsum* gasper. Skin biopsy was negative for lichen planus. The patch test was done the day before her discharge with roach paste and also a powder believed to be sodium fluoride. This was read negative the next morning the patient was discharged on the next day. Following her return home in the afternoon and during the next day the patient experienced a gradual recurrence of her former symptoms much more aggravated than at any time during which I had seen her. She had an acute angioneurotic edema which required morphine sulfate and epinephrine for relief repeated two or three times. In the next few weeks she had a series of furuncles about the face, neck, chest and arms which did not respond in the usual manner and left scars after the removal of a greenish gray fibropurulent core. The dermatitis about the elbows and shins of the left leg became more and more eczematous. It is now nine weeks since this flare up but the patient still has recurrent furunculosis now very mild and she is improving. I would appreciate any information you can give me as to the proper procedure to follow.

M.D. New York

ANSWER—There is some evidence that this patient was suffering from something more than a dermatitis venenata. The eruption with itching on the flexor surfaces of the arms and legs and on the neck that disappeared with the injection of epinephrine may have been urticaria. The angioneurotic edema experienced later supports this thought.

The erythema and vesiculation on the ankle surrounding an ulcer may have been due to contact with some irritant. This is merely a possibility. The information given leaves in doubt whether the ulcer was present prior to exposure to the roach powder. It seems doubtful that such a severe dermatitis could be produced on one leg without affecting the other unless there was prolonged and accidental contact at the one site. Such phosphorus pentoxide and phosphoric acid are slow to heal because tissues. Their action can be neutralized by warm wet dressings of 5 per cent aqueous solution of sodium bicarbonate. One per cent aqueous copper sulfate solution is useful in a similar way.

"Phossy jaw" is osteitis, periostitis and necrosis of osseous tissue of the mandible less often of the maxilla resulting from phosphorus poisoning. There are toothache, loosening of the teeth and inflammation of the alveolar processes with suppuration. The breath is garlic scented, and there is salivation. Phosphorus poisoning of the jaw does not take place unless there are carious teeth.

The deeper tissue chancres, such as of the jaw, require a protracted contact with phosphorus. As to whether ulceration and irritation such as occurred in this patient after three weeks' exposure is possible is not certain. It is presumed that the patch tests that gave negative results were properly made. It would have been better if the sites for these tests had been inspected longer than for twenty-four hours, since in some cases there may be delayed reactions. Patch tests, though exceedingly useful have many limitations. Among these is the fact that the conditions of exposure to a noxious agent are not all fulfilled. May this woman have had such a combination in her home with the touch powder which was not duplicated in the patch test with the touch powder alone? She promptly developed a dermatitis on her return home when it may be supposed that the touch powder was removed as thoroughly as possible. If this is a real dermatitis venenata, investigation should not stop with only one suspected agent but should be extended to numbers of others also. It would serve academic interest at least to sprinkle in a limited way some of the touch powder about the house and then observe its effects.

#### RETURN OF MENSTRUAL PERIODS AFTER SEVENTEEN YEARS

*To the Editor*—A patient aged 67 has begun a menstrual flow after a cessation (total) for seventeen years. The flow is bright red with a number of clots at different times. She is free of any discharge or bleeding between the periods, which come every three to four weeks and last about five days. In addition she has become aware of some sexual desire. She is a large obese woman, weighing close to 300 pounds (135 Kg.), and pelvic examination is difficult. The vagina is atrophic and small, the cervix is barely palpable and free of any tumors or ulcers, the adnexa seem free, and palpation of the uterus or extraneous tumors cannot be made. Otherwise physically she seems to be in good health. Her one complaint is associated with a frequency and dysuria. Repeated urine samples have shown small amounts of pus from time to time. Antispasmodics relieve the bladder symptoms but not entirely. Is it possible that an ovary could become revitalized at that advanced age or could the pituitary have some influence? What further procedures would you advise for diagnosis and therapy?

Herbert J. Schwartz, M.D., Challis, Idaho

*ANSWER*—This history suggests that the patient may have been receiving estrogenic medication. If such is not the case, there is probably a pelvic newgrowth involving the ovary. Despite the patient's age, it is essential that the exact condition of the pelvic viscera be determined. If examination under anesthesia, including diagnostic curettage, does not yield dependable and sufficient information, surgical exposure of the ovaries by the vaginal route is warranted in such an unusual case, abdominal exploration would evidently present too serious a hazard.

#### PRURITUS WITH DRY SKIN

*To the Editor*—Please send available information on the gland or glands of internal secretion concerned in clearing up a case of long-standing dry, itching skin. The condition did not trouble the patient while she was pregnant and she remained free from the dry, itching skin during that time. Since the termination of pregnancy she has had the same dry, itching skin again. Pregnancy and menstruation are all the result of a balance of several glands, but which one in particular has control or lack of control on the skin of the body? She is not elderly, and kraurosis is excluded.

Ralph J. Petrucci, M.D., Warren, R. I.

*ANSWER*—Hypothyroidism is frequently concerned with the genesis of pruritus with a dry skin, and it is advisable to ascertain the basal metabolic rate of the patient and in addition to local treatment treat any hypothyroidism if present. Scvringhaus investigated the clinical significance of the various glands of internal secretion in relation to diseases produced by the variation in function of any of these glands (*Endocrine Glands and Their Relations to Dermatology, Arch. Dermat. & Syph.* 43:763 [May] 1941). The appearance of various toxic dermatoses, erythemas, purpuras, herpes gestationis and the appearance or aggravation of the neurodermatoses is often noted in pregnancy. The possibility of pruritus humilis or its variant bath pruritus must also be considered in this case. These conditions are more common during the winter months, and in pruritus humilis there is more or less generalized itching, which appears during the winter and clears up during the summer. Bath pruritus is also more common during the win-

ter months, and the itching in these cases occurs frequently after taking a bath and is not persistent. A general discussion of the causal factors in pruritus and a classification of a number of the etiologic possibilities are given by Wien, M. S. (*Pruritus in Medicine and in Dermatology, Illinois M. J.* 81:125 [Feb.] 1912).

#### HYDROCHLORIC ACID ADMINISTRATION AND GASTRIC ACIDITY

*To the Editor*—Will diluted hydrochloric acid U. S. P. in the usual size doses of 1 to 4 cc. really change the pH of the gastric secretions?

N. M. DeVaughn, M.D., Augusta, Ga.

*ANSWER*—It is generally agreed that the ordinary doses of diluted hydrochloric acid U. S. P. are ineffective in producing material change in the pH of the gastric contents. Kern, Rose and Austin showed that the 1 cc. dose failed to produce any free acid to Lopter's reagent or any change in the pH. Shay and Gershon-Cohen found that 5 cc. of diluted hydrochloric acid when administered with an Ewald meal to persons with acidity, failed to show free acid at any time during the test or pH readings in the free acid range, i. e. 3.5 or lower. Even the slight changes produced by large doses are evanescent in effect, owing to the buffering capacity of gastric mucus, to dilution changes and to emptying of the stomach.

It is exceedingly difficult to ascribe any improvement following the administration of diluted hydrochloric acid U. S. P. to changes produced in the acidity of the gastric contents.

#### References

- Kern, R. A., Rose, Edward and Austin, J. H. The Effect of Orally Administered Hydrochloric Acid on Gastric Contents in Normal Individuals and in Patients with Achlorhydria. *J. Clin. Investigation* 2:545 (Aug.) 1926.  
Shay, Harry and Gershon-Cohen, Jacob. A Comparison of the Effectiveness of Glutamic Acid Hydrochloride and Dilute Hydrochloric Acid as the Replacement Therapy in Acidity Measured by Fractional Gastric Acid Titration and Hydrogen Ion Concentration Curves. *Ann. Int. Med.* 9:1628 (June) 1936.

#### PROBABLE DENTAL FLUOROSIS

*To the Editor*—A fourteen year old girl has dead-white, brittle or friable teeth with none of the usual glistening enamel. What should be done and what is the probable cause? Temporarily I have advised calcium gluconate (since she cannot drink milk), vitamin C and, to some extent, vitamin D. She may need riboflavin or vitamin A or both, I do not know. There is no evidence of endocrine disturbances.

Matthew Korasek, M.D., Shidler, Okla.

*ANSWER*—It would appear that the case described is one of a mild to moderate dental fluorosis caused by the use of a domestic water containing excessive amounts of fluorides during the period of tooth development (Dean, H. T. Chronic Endemic Dental Fluorosis, *THE JOURNAL*, Oct. 17, 1936, p. 1269). As this hypocalification occurs during the time of amelification, the post-eruptive therapy outlined would not be expected to improve the condition. Assuming that this is a case of dental fluorosis, the domestic water used by this person during the first eight years of life should be checked for its fluoride content in order to obviate the further development of similar conditions in other children.

#### GLASSES FOR READING IN SUNLIGHT

*To the Editor*—Are there any glasses which are considered suitable for reading in the bright sunlight? Can corrections be incorporated in such glasses?

M.D., Illinois

*ANSWER*—Any glass that reduces the total amount of light coming to the eye can be used for reading in bright sunlight. Most of the leading optical manufacturers have some patented dark glass in which suitable correction can be ground. Despite extensive claims, however, no one glass has been established as possessing qualities that mark it as definitely superior to others.

#### VARYING RESPONSE OF GONORRHEA TO SULFATHIAZOLE

*To the Editor*—Is there any basis for the theory that the blood type has anything to do with the response of a patient to sulfonamide therapy or with the occurrence of undesirable reactions? Is there any explanation why some patients with gonorrhea for example, are cured promptly by sulfathiazole and others not at all?

M.D., M.C., U.S. Navy

*ANSWER*—There is no evidence that blood type has anything to do with the response of a patient to sulfonamide therapy or to the occurrence of toxic reactions. The best explanation of the sulfathiazole treatment of gonorrhea is a difference in susceptibility of different strains of gonococci to the drug.

# JOURNALS ABSTRACTED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT, MAY-AUGUST 1942

Titles have been listed or Abstracts made of important articles in the following journals in the Current Literature Department of THE JOURNAL during the past four months. Any of the journals except those starred will be lent by THE JOURNAL to subscribers in continental United States and Canada and to members of the American Medical Association for a period not exceeding three days. Three journals may be borrowed at a time. No journals are available prior to 1932. Requests for periodicals should be addressed to the Library of the American Medical Association and should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Thus most of these journals are accessible to the general practitioner.

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| Acta chirurgica Scandinavica Stockholm   | Bulletin of the Health Organization of the League of Nations Geneva   |
| Acta dermato venerologica Stockholm  | Bulletin of the Johns Hopkins Hospital Baltimore                      |
| American Heart Journal St. Louis   | Bulletin of the New York Academy of Medicine New York                 |
| American Journal of Clinical Pathology Baltimore   | California and Western Medicine San Francisco                         |
| American Journal of Digestive Diseases Fort Wayne Ind.                                       | Canadian Medical Association Journal Montreal                         |
| *American Journal of Diseases of Children A. M. A. Chicago                                   | Canadian Public Health Journal Toronto                                |
| American Journal of Hygiene Baltimore  | Cancer Research Baltimore   |
| American Journal of the Medical Sciences Philadelphia  | Cardiology Basel  |
| American Journal of Obstetrics and Gynecology St. Louis                                      | Chirurg Berlin  |
| American Journal of Ophthalmology Cincinnati   | Connecticut State Medical Journal Hartford                            |
| American Journal of Orthodontics and Oral Surgery St. Louis                                  | Delaware State Medical Journal Wilmington                             |
| American Journal of Orthopsychiatry Menasha Wis.   | Der deutsche Militärarzt Berlin                                       |
| American Journal of Pathology Ann Arbor Mich.  | Deutsche Zeitschrift für Nervenhelkunde Berlin                        |
| American Journal of Physiology Baltimore   | Diá medico Buenos Aires   |
| American Journal of Psychiatry New York  | Edinburgh Medical Journal   |
| American Journal of Public Health New York   | Endocrinology Springfield Ill.  |
| American Journal of Roentgenol. and Radium Therapy Springfield Ill.                          | Geneeskundig tijdschrift voor Nederlandsch Indië Batavia              |
| American Journal of Surgery New York   | Glasgow Medical Journal   |
| American Journal of Syphilis, Conorr. and Venereal Diseases St. Louis                        | Guy's Hospital Reports London   |
| American Journal of Tropical Medicine Baltimore  | Hawaii Medical Journal Honolulu                                       |
| American Review of Tuberculosis New York   | Helvetica medica acta Basel   |
| Anais brasileiros de ginecologia Rio de Janeiro  | Hospital Rio de Janeiro   |
| Anais paulistas de medicina e cirurgia Sao Paulo   | Illinois Medical Journal Chicago                                      |
| Anales del Dispensario publico nacional para enfermedades del aparato digestivo Buenos Aires | Indian Medical Gazette Calcutta                                       |
| Anales del Instituto de Investigaciones fisicas aplicadas a la patologia humana Buenos Aires | Irish Journal of Medical Science Dublin                               |
| Anales del Instituto modelo de clinica medica Buenos Aires                                   | Journal of Allergy St. Louis  |
| Anesthesiology New York  | Journal of the Arkansas Medical Society Fort Smith                    |
| Annals of Internal Medicine Lancaster Pa.  | Journal of Aviation Medicine St. Paul                                 |
| Annals of Otolaryngology and Laryngology St. Louis   | Journal of Bone and Joint Surgery Boston                              |
| Annals of Rheumatic Diseases London  | Journal of Clinical Endocrinology Springfield Ill.                    |
| Annals of Surgery Philadelphia   | Journal of Clinical Investigation New York                            |
| Archiv für Dermatologie und Syphilis Berlin  | Journal of Endocrinology London                                       |
| Archiv für die gesamte Physiologie Berlin  | Journal of Experimental Medicine New York                             |
| Archiv für klinische Chirurgie Berlin  | Journal of the Florida Medical Association Jacksonville               |
| Archiv für Psychiatrie und Nervenkrankheiten Berlin  | Journal of Hygiene London   |
| *Archives of Dermatology and Syphilology A. M. A. Chicago                                    | Journal of Immunology Baltimore                                       |
| Archives of Disease in Childhood London  | Journal of the Indiana State Medical Association Indianapolis         |
| *Archives of Internal Medicine A. M. A. Chicago  | Journal of Industrial Hygiene and Toxicology Baltimore                |
| *Archives of Neurology and Psychiatry A. M. A. Chicago                                       | Journal of Infectious Diseases Chicago                                |
| *Archives of Ophthalmology A. M. A. Chicago  | Journal of Investigative Dermatology Baltimore                        |
| *Archives of Otolaryngology A. M. A. Chicago   | Journal of the Iowa State Medical Society Des Moines                  |
| *Archives of Pathology A. M. A. Chicago  | Journal of the Kansas Medical Society Topeka                          |
| Archives of Physical Therapy Chicago   | Journal of Laboratory and Clinical Medicine St. Louis                 |
| *Archives of Surgery A. M. A. Chicago  | Journal Lancet Minneapolis  |
| Archivos argentinos de enfermedades del aparato digestivo y de la nutricion Buenos Aires     | Journal of Laryngology and Otolaryngology London                      |
| Archivos argentinos de pediatria Buenos Aires  | Journal of the Maine Medical Association Portland                     |
| Archivo del Hospital de niños Roberto del Rio Santiago                                       | Journal of the Medical Association of the State of Alabama Montgomery |
| Archivos de medicina infantil Havana   | Journal of the Medical Association of Georgia Atlanta                 |
| Archivos de medicina interna Havana  | Journal of the Medical Society of New Jersey Trenton                  |
| Archivos de pediatria del Uruguay Montevideo   | Journal of Mental Science London                                      |
| Archivos uruguayos de medicina cirugía y especialidades Montevideo                           | Journal of the Michigan State Medical Society Muskegon                |
| Arquivos de biologia Sao Paulo   | Journal of the Missouri State Medical Association St. Louis           |
| Beitrag zur Klinik der Tuberkulose Berlin  | Journal of the Mount Sinai Hospital New York                          |
| Beitrag zur klinischen Chirurgie Berlin  | Journal of the National Cancer Institute Washington D. C.             |
| Boletín de la Asociación medica de Puerto Rico Santurce                                      | Journal of Nervous and Mental Disease New York                        |
| Boletín clínico Medellín   | Journal of Neurology and Psychiatry London                            |
| Boletín de la Sociedad chilena de obstetricia y ginecologia Santiago                         | Journal of Neuropathology and Experimental Neurology Baltimore        |
| Boletín de la Sociedad cubana de pediatria Havana  | Journal of Neurophysiology Springfield Ill.                           |
| Boletín de la Sociedad de obstetricia y ginecologia de Buenos Aires                          | Journal of Nutrition Philadelphia                                     |
| Brain London   | Journal of Obstetrics and Gynaecology of British Empire Manchester    |
| Brasil medico Rio de Janeiro   | Journal of the Oklahoma State Medical Association Oklahoma City       |
| British Heart Journal London   | Journal of Pathology and Bacteriology Edinburgh                       |
| British Journal of Anaesthesia Manchester  | Journal of Pediatrics St. Louis                                       |
| British Journal of Children's Diseases London  | Journal of Pharmacology and Experimental Therapeutics Baltimore       |
| British Journal of Dermatology and Syphilis London   | Journal of Physiology Cambridge                                       |
| British Journal of Experimental Pathology London   | Journal of the Royal Naval Medical Service London                     |
| British Journal of Ophthalmology London  | Journal of the South Carolina Medical Association Florence            |
| British Journal of Radiology London  | Journal of the Tennessee State Medical Association Nashville          |
| British Journal of Surgery Bristol   | Journal of Thoracic Surgery St. Louis                                 |
| British Journal of Tuberculosis London   | Journal of Urology Baltimore  |
| British Journal of Urology London  | Kentucky Medical Journal Bowling Green                                |
| British Medical Journal London   | Klinische Wochenschrift Berlin  |
|  | Lancet London   |
|  | Laryngoscope St. Louis  |
|  | Lisboa medica Lisbon  |
|  | Medical Annals of the District of Columbia Washington                 |
|  | Medical Journal of Australia Sydney                                   |

\*Cannot be lent

Medicina Buenos Aires  
Medicina española Valencia  
Medicine Baltimore  
Memorias do Instituto Butantan São Paulo  
Memorias do Instituto Oswaldo Cruz Rio de Janeiro  
Military Surgeon Washington D. C.  
Minnesota Medicine St. Paul  
Monatsschrift für Geburtshilfe und Gynäkologie Heidelberg  
Monatsschrift für Kinderheilkunde Berlin  
Monatsschrift für Unfallchirurgie Berlin  
Münchener medizinische Wochenschrift München  
Nebraska State Medical Journal Lincoln  
New England Journal of Medicine Boston  
New Orleans Medical and Surgical Journal  
New York State Journal of Medicine New York  
Nordwestschon Steinhilber  
North Carolina Medical Journal Winston-Salem  
Northwest Medicine Seattle  
Ohio State Medical Journal Columbus  
Pennsylvania Medical Journal Harrisburg  
Physiology Reviews Baltimore  
Psychiatric Clinician London  
Psychiatric Quarterly New York  
Psychological Quarterly Albany, N. Y.  
Public Health Reports Washington D. C.  
Quarterly Journal of Medicine Oxford  
Quarterly Journal of Studies on Alcohol New Haven, Conn.  
Rheology Syracuse, N. Y.  
Revista de medicina y cirugía Bogotá  
Review of Gastroenterology New York  
Revista argentina de odontología Buenos Aires  
Revista de la Asociación médica argentina Buenos Aires  
Revista brasileira de otorrinolaringologia São Paulo  
Revista de cirugía de Buenos Aires  
Revista chilena de São Paulo São Paulo  
Revista chilena de cardiología Havana  
Revista española de tuberculosis Madrid  
Revista médica brasileira Rio de Janeiro  
Revista médica de Chile Santiago  
Revista médica cubana Havana  
Revista médica del Hospital general México D. F.  
Revista médica latino americana Buenos Aires  
Revista médica peruana Lima  
Revista médica de Rosario Rosario de Santa Fe  
Revista mexicana de pediatría México D. F.  
Revista de la Sociedad argentina de biología Buenos Aires  
Revista de la Sociedad de pediatría de Rosario  
Revista de tuberculosis Lima  
Revista de tuberculosis del Uruguay Montevideo  
Rhode Island Medical Journal Providence  
Rocky Mountain Medical Journal Denver  
São Paulo Medical São Paulo  
Schweizerische medizinische Wochenschrift Basel  
Semina médica Buenos Aires  
Semina médica española Madrid  
South African Medical Journal Cape Town  
Southern Medical Journal Birmingham Ala.  
Southern Surgeon Atlanta Ga.  
Southwestern Medicine El Paso, Texas  
Sovetskoye Vrachebnoye Zhurnal Leningrad  
Strahlentherapie Berlin  
Surgery St. Louis  
Surgery, Gynecology and Obstetrics Chicago  
Texas State Journal of Medicine Fort Worth  
Therapie der Gegenwart Berlin  
Tubercle London  
Union médicale du Canada Montreal  
Virchows Archiv für pathologische Anatomie und Physiologie und für klinische Medizin Berlin  
Virginia Medical Monthly Richmond  
\*Vir Medicine A. M. A. Chicago  
Western Journal of Surgery, Obstetrics and Gynecology Portland Ore.  
West Virginia Medical Journal Charleston  
Wiener klinische Wochenschrift Vienna  
Wiener medizinische Wochenschrift Vienna  
Wisconsin Medical Journal Madison  
Yale Journal of Biology and Medicine New Haven  
Zeitschrift für die gesamte experimentelle Medizin Berlin  
Zeitschrift für Hals-, Nasen- und Ohrenheilkunde Berlin  
Zeitschrift für Immunitätsforschung und experimentelle Therapie Jena  
Zeitschrift für klinische Medizin Berlin  
Zeitschrift für Vitaminforschung Berne  
Zeitschrift für Gewerbhygiene und Unfallverhütung Berlin  
Zeitschrift für Psychotherapie Leipzig

# SUBJECT INDEX

This is an index to all the reading matter in THE JOURNAL. In the Current Medical Literature Department only the articles which have been abstracted are indexed.

The letters used to explain in which department the matter indexed appears are as follows: "BI," Bureau of Investigation, "E," Editorial, "C," Correspondence, "OS," Organization Section, "SS," Student Section, "ab," abstracts, the star (\*) indicates an original article in THE JOURNAL.

This is a subject index and one should, therefore, look for the subject word with the following exceptions: "Book Notices," "Deaths," "Medicological Abstracts" and "Societies" are indexed under these titles at the end of the letters "B," "D," "M," "and S." State board examinations are entered under the general heading, State Board Reports, and not under the names of the individual states. Matter pertaining to the Association is indexed under "American Medical Association." The name of the author, in brackets, follows the subject entry.

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- Am—American
- A—Association
- Coll—College
- Conf—Conference
- Cong—Congress
- Con—Can cation
- Dist—District
- Hosp—Hospital
- Internat—International
- M—Medical
- Med—Medicine
- Nat—National
- Pharm—Pharmaceutical
- Phys—Physicians
- Re—Reason
- Rj—Railway
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